# Two-Body Kinematics 10-1000 GeV

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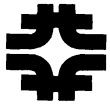

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# I. PREFACE

This work is an attempt to fill the need for kinematics tables and graphs for two-body production reactions using stationary proton targets and incident bombarding momenta ranging from 10 - 1000 GeV/c. Tables have also been produced for certain two-body decays of particles in the same momentum range.

Angle intervals of 1° in the center-of-mass (CM) system were chosen for forward angles up to 10°, and 5° intervals were used in the remainder of the 180° range in order to illustrate more adequately the forward scattering angles typically associated with high-energy processes. In Section VI, relationships are given which permit computation of kinematic variables for arbitrary masses, scattering angles, and incident momenta. Approximations are also included which are valid for high incident momentum and small scattering angle. The use of the Mandelstam variables (s, t, and u) in the tables, graphs, and formulae was dictated by their extensive use in contemporary descriptions of high energy scattering.

At the higher momenta covered in this work, many distinct reactions are kinematically similar. For example, the kinematic relations describing elastic scattering of gammas, electrons, muons, pions, and kaons on protons at 400 GeV/c are virtually identical over a large range of the variables concerned. For this reason, only one of these reactions was chosen for illustration in the tables and graphs. However, certain kinematic effects depend critically upon the relative masses of the particles involved

in the initial and final states, even at the highest momenta. The remaining production and decay reactions were chosen for illustration with this in mind: It is intended that each such reaction illustrate a general kinematic class.

The tables and graphs were generated from a kinematics program which was run on a CDC 6400 computer, and master graphs were produced on a Calcomp model 665 plotter. An attempt was made to write the programs in such a way that very large and very small numbers which should be interpreted as "infinity" and "zero," respectively, are so listed. The author would appreciate being notified of any errors in such interpretations or in any other aspect of this work.

The author gratefully acknowledges the help of the staff of the National Accelerator Laboratory, especially that given by Dr. W. Baker and Dr. Klaus Pretzl, who made publication of this work possible. The administration and staff of the University of Arizona Computer Center provided the facilities and services necessary to produce master copies of tables and graphs. Dr. Jacques L'Heureux and Mr. Kenneth Nield helped with Calcomp subroutines, Mr. Van Jacobson gave helpful assistance with programming, and Professor Theodore Bowen gave valuable suggestions on many aspects of the project. This work was partially supported by a grant from the National Science Foundation.

## II. ABBREVIATIONS AND NOTATION FOR TABLES, GRAPHS, AND FORMULAE

All momenta, masses and energies are expressed in the units GeV, all angles are in degrees except where noted to the contrary, and velocities are expressed as fractions of the velocity of light. Average values of particle masses are from Rev. Mod. Phys. 45, No. 2, S1 (1973).

### A. Production Reaction Tables and Formulae

Production reactions are specified in table headings by naming, in order, bombarding particle (1), target particle (2), light secondary particle (3), heavy secondary particle (4), and bombarding momentum, P1LAB. Each abbreviation is listed as it appears in the tables, followed by the corresponding form used in the formulae of Section VI.

(1) Masses

M1, $M_1$ ... Mass of bombarding particle (1)

M2, $M_2$ ... Mass of target particle (2)

M3, $M_3$ ... Mass of light secondary particle (3)

M4, $M_4$ ... Mass of heavy secondary particle (4)

(2) Energy, Momentum

E1CM, $E_{1CM}$ ... Total CM system energy of bombarding particle (1)

E2CM, $E_{2CM}$ ... Total CM system energy of target particle (2)

E3CM, $E_{3CM}$ ... Total CM system energy of light secondary particle (3)

E4CM, $E_{4CM}$ ... Total CM system energy of heavy secondary particle (4)

ETCM, $E_{TCM}$ ... Total CM system energy

P1CM, $P_{1CM}$ ... Momentum of bombarding particle (1) in the CM system

P3CM, $P_{3CM}$ ... Momentum of light secondary particle (3) in the CM system

P1LAB, $P_{1LAB}$ ... Momentum of bombarding particle (1) in the laboratory

P3LAB, $P_{3LAB}$ ... Momentum of light secondary particle (3) in the laboratory

P4LAB, $P_{4LAB}$ ... Momentum of heavy secondary particle (4) in the laboratory

TRANSV MOMENTUM ... Transverse momentum of either secondary particle

(3) Mandelstam Variables

S, s ... Square of the total CM system energy

T, t ... Square of the invariant 4-momentum transfer between the bombarding particle (1) and the light secondary particle (3)

4-MOM TSFR SQUARE ... Same as T

U, u ... Square of the invariant 4-momentum transfer between the bombarding particle (1) and the heavy secondary particle (4)

(4) Angles and Trigonometric Functions

θ3CM, $\theta_{3CM}$ ... Scattering angle of the light secondary particle (3) in degrees in the CM system

θ4CM, $\theta_{4CM}$ ... Scattering angle of the heavy secondary particle (4) in degrees in the CM system

COS(θ3)CM, Cos $\theta_{3CM}$ ... Cosine of θ3CM

COS(θ4)CM, Cos $\theta_{4CM}$ ... Cosine of θ4CM

θ3LAB, $\theta_{3LAB}$ ... Scattering angle of the light secondary particle (3), in degrees in the laboratory

θ4LAB, $\theta_{4LAB}$ ... Scattering angle of the heavy secondary particle (4), in degrees in the laboratory

(5) Measures of Velocity

VCM, $\beta_{CM}$ ... Velocity of the CM system in the laboratory in units of the velocity of light

GCM, $\gamma_{CM}$ ... $\gamma$ for the CM system in the laboratory = $1/\sqrt{1 - \beta_{CM}^2}$

GAMMA3LAB, $\gamma_{3LAB}$ ... $\gamma$ for the light secondary particle (3) in the laboratory

GAMMA4LAB, $\gamma_{4LAB}$ ... $\gamma$ for the heavy secondary particle (4) in the laboratory

1 - V3LAB ... 1 - $\beta_{LAB}$ for the light secondary particle (3) in the laboratory

1 - V4LAB ... 1 - $\beta_{LAB}$ for the heavy secondary particle (4) in the laboratory

(6) Jacobians

JACOBIAN 3 ... $d\Omega_{LAB}^{(3)}/d\Omega_{CM}$ for the light secondary particle

JACOBIAN 4 ... $d\Omega_{LAB}^{(4)}/d\Omega_{CM}$ for the heavy secondary particle

B. Decay Reaction Tables

Decay reactions are specified by naming in order, incident (parent) particle (1), heavy secondary particle (2), light secondary particle (3), and incident particle momentum P1LAB.

(1) Masses

M1 ... Mass of incident (parent) particle (1)

M2 ... Mass of heavy secondary particle (2)

M3 ... Mass of light secondary particle (3)

(2) Energy, Momentum

S ... The square of the CM system total energy

E2CM ... Total CM system energy of heavy secondary particle (2)

E3CM ... Total CM system energy of light secondary particle (3)

P2CM ... Momentum of heavy secondary particle (2) in the CM system

P1LAB ... Momentum of incident particle (1) in the laboratory

P2LAB ... Momentum of heavy secondary particle (2) in the laboratory

T2LAB ... Kinetic energy of the heavy secondary particle (2) in the laboratory

P3LAB ... Momentum of light secondary particle (3) in the laboratory

T3LAB ... Kinetic energy of the light secondary particle (3) in the laboratory

TRANSV MOMENTUM ... Transverse momentum of either secondary particle

(3) Angles

$\theta$2CM ... Decay angle of the heavy secondary particle (2) in degrees in the CM system

$\theta$2LAB ... Decay angle of the heavy secondary particle in degrees in the laboratory

$\theta$3LAB ... Decay angle of the light secondary particle (3) in degrees in the laboratory

(4) Measures of Velocity

VCM ... Velocity of incident particle in the laboratory, in units of the velocity of light

GCM ... $\gamma$ of incident particle in the laboratory = $1/\sqrt{1 - \beta_{CM}^2}$

GAMMA2LAB ... $\gamma$ for the heavy secondary particle (2) in the laboratory

GAMMA3LAB ... $\gamma$ for the light secondary particle (3) in the laboratory

1 - V2LAB ... $1 - \beta_{LAB}$ for the heavy secondary particle (2) in the laboratory

1 - V3LAB ... $1 - \beta_{LAB}$ for the light secondary particle (3) in the laboratory

(5) Jacobians

JACOBIAN 2 ... $d\Omega_{LAB}/d\Omega_{CM}$ for the heavy secondary particle (2)

JACOBIAN 3 ... $d\Omega_{LAB}/d\Omega_{CM}$ for the light secondary particle (3)

C. Production Reaction Graphs

Reactions are specified by naming, in order, bombarding particle (1), target particle (2), light secondary particle (3), heavy secondary particle (4), and incident particle momentum PlLAB. The abbreviations are as stated in Section A.

# III. PRODUCTION REACTION TABLES

PROTON (1) + PROTON (2) => PROTON (3) + PROTON (4) AT 10 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 9.38259E-01
P2CM= 2.06682E+00 P3CM= 2.06682E+00
E1CM= 2.26982E+00 E2CM= 2.26982E+00 E3CM= 2.26982E+00 E4CM= 2.26982E+00

1-V1LAB = 4.373E-03 1-VCM = 8.943E-02 GCM = 2.41918E+00 ETCM= 4.53963E+00 S = 2.06083E+01 -U=( 1.70869E+01) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 1.000E+01 | 1.070E+01 | 4.373E-03 | 4.272E-02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -1.301E-03 | 2.07E-01 | 9.999E+00 | 1.070E+01 | 4.373E-03 | 4.272E-02 | 8.88E+01 | 3.608E-02 | 1.001E+00 | 9.616E-01 | 6.927E+01 | 3.607E-02 |
| 2 | 9.994E-01 | -5.204E-03 | 4.13E-01 | 9.997E+00 | 1.070E+01 | 4.375E-03 | 4.274E-02 | 8.76E+01 | 7.220E-02 | 1.003E+00 | 9.233E-01 | 3.458E+01 | 7.213E-02 |
| 3 | 9.986E-01 | -1.171E-02 | 6.20E-01 | 9.994E+00 | 1.070E+01 | 4.378E-03 | 4.277E-02 | 8.64E+01 | 1.084E-01 | 1.007E+00 | 8.852E-01 | 2.299E+01 | 1.082E-01 |
| 4 | 9.976E-01 | -2.081E-02 | 8.27E-01 | 9.989E+00 | 1.069E+01 | 4.382E-03 | 4.281E-02 | 8.52E+01 | 1.447E-01 | 1.012E+00 | 8.476E-01 | 1.718E+01 | 1.442E-01 |
| 5 | 9.962E-01 | -3.251E-02 | 1.03E+00 | 9.983E+00 | 1.069E+01 | 4.388E-03 | 4.286E-02 | 8.40E+01 | 1.811E-01 | 1.018E+00 | 8.104E-01 | 1.368E+01 | 1.801E-01 |
| 6 | 9.945E-01 | -4.680E-02 | 1.24E+00 | 9.975E+00 | 1.068E+01 | 4.395E-03 | 4.292E-02 | 8.28E+01 | 2.178E-01 | 1.027E+00 | 7.739E-01 | 1.133E+01 | 2.160E-01 |
| 7 | 9.925E-01 | -6.368E-02 | 1.45E+00 | 9.966E+00 | 1.067E+01 | 4.403E-03 | 4.300E-02 | 8.16E+01 | 2.546E-01 | 1.036E+00 | 7.381E-01 | 9.644E+00 | 2.519E-01 |
| 8 | 9.903E-01 | -8.314E-02 | 1.66E+00 | 9.955E+00 | 1.066E+01 | 4.412E-03 | 4.308E-02 | 8.04E+01 | 2.917E-01 | 1.047E+00 | 7.031E-01 | 8.372E+00 | 2.876E-01 |
| 9 | 9.877E-01 | -1.052E-01 | 1.86E+00 | 9.944E+00 | 1.065E+01 | 4.422E-03 | 4.318E-02 | 7.92E+01 | 3.291E-01 | 1.060E+00 | 6.690E-01 | 7.375E+00 | 3.233E-01 |
| 10 | 9.848E-01 | -1.298E-01 | 2.07E+00 | 9.931E+00 | 1.063E+01 | 4.434E-03 | 4.329E-02 | 7.80E+01 | 3.668E-01 | 1.074E+00 | 6.359E-01 | 6.573E+00 | 3.589E-01 |
| 15 | 9.659E-01 | -2.911E-01 | 3.11E+00 | 9.844E+00 | 1.054E+01 | 4.511E-03 | 4.402E-02 | 7.23E+01 | 5.614E-01 | 1.165E+00 | 4.865E-01 | 4.113E+00 | 5.349E-01 |
| 20 | 9.397E-01 | -5.152E-01 | 4.17E+00 | 9.724E+00 | 1.041E+01 | 4.623E-03 | 4.506E-02 | 6.69E+01 | 7.685E-01 | 1.293E+00 | 3.663E-01 | 2.838E+00 | 7.069E-01 |
| 25 | 9.063E-01 | -8.005E-01 | 5.24E+00 | 9.571E+00 | 1.025E+01 | 4.770E-03 | 4.643E-02 | 6.18E+01 | 9.912E-01 | 1.455E+00 | 2.738E-01 | 2.055E+00 | 8.735E-01 |
| 30 | 8.660E-01 | -1.145E+00 | 6.32E+00 | 9.387E+00 | 1.005E+01 | 4.958E-03 | 4.818E-02 | 5.70E+01 | 1.232E+00 | 1.650E+00 | 2.046E-01 | 1.532E+00 | 1.033E+00 |
| 35 | 8.192E-01 | -1.545E+00 | 7.43E+00 | 9.173E+00 | 9.827E+00 | 5.191E-03 | 5.034E-02 | 5.27E+01 | 1.491E+00 | 1.878E+00 | 1.536E-01 | 1.165E+00 | 1.185E+00 |
| 40 | 7.660E-01 | -1.999E+00 | 8.56E+00 | 8.930E+00 | 9.570E+00 | 5.475E-03 | 5.298E-02 | 4.86E+01 | 1.770E+00 | 2.135E+00 | 1.164E-01 | 9.009E-01 | 1.329E+00 |
| 45 | 7.071E-01 | -2.502E+00 | 9.72E+00 | 8.660E+00 | 9.284E+00 | 5.818E-03 | 5.615E-02 | 4.49E+01 | 2.069E+00 | 2.421E+00 | 8.927E-02 | 7.064E-01 | 1.461E+00 |
| 50 | 6.428E-01 | -3.052E+00 | 1.09E+01 | 8.365E+00 | 8.972E+00 | 6.232E-03 | 5.994E-02 | 4.16E+01 | 2.387E+00 | 2.733E+00 | 6.933E-02 | 5.611E-01 | 1.583E+00 |
| 55 | 5.736E-01 | -3.643E+00 | 1.21E+01 | 8.048E+00 | 8.636E+00 | 6.727E-03 | 6.448E-02 | 3.85E+01 | 2.723E+00 | 3.069E+00 | 5.457E-02 | 4.513E-01 | 1.693E+00 |
| 60 | 5.000E-01 | -4.272E+00 | 1.34E+01 | 7.711E+00 | 8.279E+00 | 7.322E-03 | 6.989E-02 | 3.56E+01 | 3.075E+00 | 3.426E+00 | 4.354E-02 | 3.674E-01 | 1.790E+00 |
| 65 | 4.226E-01 | -4.933E+00 | 1.48E+01 | 7.356E+00 | 7.903E+00 | 8.037E-03 | 7.635E-02 | 3.30E+01 | 3.441E+00 | 3.802E+00 | 3.522E-02 | 3.026E-01 | 1.873E+00 |
| 70 | 3.420E-01 | -5.621E+00 | 1.61E+01 | 6.986E+00 | 7.512E+00 | 8.900E-03 | 8.409E-02 | 3.06E+01 | 3.820E+00 | 4.193E+00 | 2.886E-02 | 2.520E-01 | 1.942E+00 |
| 75 | 2.588E-01 | -6.332E+00 | 1.76E+01 | 6.603E+00 | 7.108E+00 | 9.945E-03 | 9.339E-02 | 2.83E+01 | 4.209E+00 | 4.597E+00 | 2.395E-02 | 2.122E-01 | 1.996E+00 |
| 80 | 1.736E-01 | -7.060E+00 | 1.91E+01 | 6.211E+00 | 6.695E+00 | 1.122E-02 | 1.046E-01 | 2.62E+01 | 4.606E+00 | 5.010E+00 | 2.012E-02 | 1.806E-01 | 2.035E+00 |
| 85 | 8.716E-02 | -7.799E+00 | 2.07E+01 | 5.813E+00 | 6.275E+00 | 1.278E-02 | 1.182E-01 | 2.43E+01 | 5.007E+00 | 5.430E+00 | 1.711E-02 | 1.553E-01 | 2.059E+00 |
| 90 | 0. | -8.543E+00 | 2.25E+01 | 5.410E+00 | 5.852E+00 | 1.471E-02 | 1.349E-01 | 2.25E+01 | 5.410E+00 | 5.852E+00 | 1.471E-02 | 1.349E-01 | 2.067E+00 |
| 95 | -8.716E-02 | -9.288E+00 | 2.43E+01 | 5.007E+00 | 5.430E+00 | 1.711E-02 | 1.553E-01 | 2.07E+01 | 5.813E+00 | 6.275E+00 | 1.278E-02 | 1.182E-01 | 2.059E+00 |
| 100 | -1.736E-01 | -1.003E+01 | 2.62E+01 | 4.606E+00 | 5.010E+00 | 2.012E-02 | 1.806E-01 | 1.91E+01 | 6.211E+00 | 6.695E+00 | 1.122E-02 | 1.046E-01 | 2.035E+00 |
| 105 | -2.588E-01 | -1.075E+01 | 2.83E+01 | 4.209E+00 | 4.597E+00 | 2.395E-02 | 2.122E-01 | 1.76E+01 | 6.603E+00 | 7.108E+00 | 9.945E-03 | 9.339E-02 | 1.996E+00 |
| 110 | -3.420E-01 | -1.147E+01 | 3.06E+01 | 3.820E+00 | 4.193E+00 | 2.886E-02 | 2.520E-01 | 1.61E+01 | 6.986E+00 | 7.512E+00 | 8.900E-03 | 8.409E-02 | 1.942E+00 |
| 115 | -4.226E-01 | -1.215E+01 | 3.30E+01 | 3.441E+00 | 3.802E+00 | 3.522E-02 | 3.026E-01 | 1.48E+01 | 7.356E+00 | 7.903E+00 | 8.037E-03 | 7.635E-02 | 1.873E+00 |
| 120 | -5.000E-01 | -1.282E+01 | 3.56E+01 | 3.075E+00 | 3.426E+00 | 4.354E-02 | 3.674E-01 | 1.34E+01 | 7.711E+00 | 8.279E+00 | 7.322E-03 | 6.989E-02 | 1.790E+00 |
| 125 | -5.736E-01 | -1.344E+01 | 3.85E+01 | 2.723E+00 | 3.069E+00 | 5.457E-02 | 4.513E-01 | 1.21E+01 | 8.048E+00 | 8.636E+00 | 6.727E-03 | 6.448E-02 | 1.693E+00 |
| 130 | -6.428E-01 | -1.404E+01 | 4.16E+01 | 2.387E+00 | 2.733E+00 | 6.933E-02 | 5.611E-01 | 1.09E+01 | 8.365E+00 | 8.972E+00 | 6.232E-03 | 5.994E-02 | 1.583E+00 |
| 135 | -7.071E-01 | -1.458E+01 | 4.49E+01 | 2.069E+00 | 2.421E+00 | 8.927E-02 | 7.064E-01 | 9.72E+00 | 8.660E+00 | 9.284E+00 | 5.818E-03 | 5.615E-02 | 1.461E+00 |
| 140 | -7.660E-01 | -1.509E+01 | 4.86E+01 | 1.770E+00 | 2.135E+00 | 1.164E-01 | 9.009E-01 | 8.56E+00 | 8.930E+00 | 9.570E+00 | 5.475E-03 | 5.298E-02 | 1.329E+00 |
| 145 | -8.192E-01 | -1.554E+01 | 5.27E+01 | 1.491E+00 | 1.878E+00 | 1.536E-01 | 1.165E+00 | 7.43E+00 | 9.173E+00 | 9.827E+00 | 5.191E-03 | 5.034E-02 | 1.185E+00 |
| 150 | -8.660E-01 | -1.594E+01 | 5.70E+01 | 1.232E+00 | 1.650E+00 | 2.046E-01 | 1.532E+00 | 6.32E+00 | 9.387E+00 | 1.005E+01 | 4.958E-03 | 4.818E-02 | 1.033E+00 |
| 155 | -9.063E-01 | -1.629E+01 | 6.18E+01 | 9.912E-01 | 1.455E+00 | 2.738E-01 | 2.055E+00 | 5.24E+00 | 9.571E+00 | 1.025E+01 | 4.770E-03 | 4.643E-02 | 8.735E-01 |
| 160 | -9.397E-01 | -1.657E+01 | 6.69E+01 | 7.685E-01 | 1.293E+00 | 3.663E-01 | 2.838E+00 | 4.17E+00 | 9.724E+00 | 1.041E+01 | 4.623E-03 | 4.506E-02 | 7.069E-01 |
| 165 | -9.659E-01 | -1.680E+01 | 7.23E+01 | 5.614E-01 | 1.165E+00 | 4.865E-01 | 4.113E+00 | 3.11E+00 | 9.844E+00 | 1.054E+01 | 4.511E-03 | 4.402E-02 | 5.349E-01 |
| 170 | -9.848E-01 | -1.696E+01 | 7.80E+01 | 3.668E-01 | 1.074E+00 | 6.359E-01 | 6.573E+00 | 2.07E+00 | 9.931E+00 | 1.063E+01 | 4.434E-03 | 4.329E-02 | 3.589E-01 |
| 175 | -9.962E-01 | -1.705E+01 | 8.40E+01 | 1.811E-01 | 1.018E+00 | 8.104E-01 | 1.368E+01 | 1.03E+00 | 9.983E+00 | 1.069E+01 | 4.388E-03 | 4.286E-02 | 1.801E-01 |
| 180 | -1.000E+00 | -1.709E+01 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. | 1.000E+01 | 1.070E+01 | 4.373E-03 | 4.272E-02 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + PROTON (4) AT 20 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 9.38259E-01
P2CM= 2.99211E+00 P3CM= 2.99211E+00
E1CM= 3.13577E+00 E2CM= 3.13577E+00 E3CM= 3.13577E+00 E4CM= 3.13577E+00

1-V1LAB = 1.099E-03 1-VCM = 4.581E-02 GCM = 3.34212E+00 ETCM= 6.27155E+00 S = 3.93323E+01 -U=( 3.58110E+01) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 2.000E+01 | 2.134E+01 | 1.099E-03 | 2.238E-02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -2.727E-03 | 1.50E-01 | 2.000E+01 | 2.134E+01 | 1.099E-03 | 2.239E-02 | 8.83E+01 | 5.224E-02 | 1.002E+00 | 9.444E-01 | 9.563E+01 | 5.222E-02 |
| 2 | 9.994E-01 | -1.091E-02 | 2.99E-01 | 1.999E+01 | 2.133E+01 | 1.099E-03 | 2.239E-02 | 8.67E+01 | 1.046E-01 | 1.006E+00 | 8.892E-01 | 4.765E+01 | 1.044E-01 |
| 3 | 9.986E-01 | -2.454E-02 | 4.49E-01 | 1.999E+01 | 2.133E+01 | 1.100E-03 | 2.241E-02 | 8.50E+01 | 1.572E-01 | 1.014E+00 | 8.348E-01 | 3.159E+01 | 1.566E-01 |
| 4 | 9.976E-01 | -4.362E-02 | 5.99E-01 | 1.998E+01 | 2.131E+01 | 1.101E-03 | 2.243E-02 | 8.33E+01 | 2.101E-01 | 1.025E+00 | 7.815E-01 | 2.350E+01 | 2.087E-01 |
| 5 | 9.962E-01 | -6.814E-02 | 7.48E-01 | 1.996E+01 | 2.130E+01 | 1.103E-03 | 2.246E-02 | 8.17E+01 | 2.635E-01 | 1.039E+00 | 7.296E-01 | 1.861E+01 | 2.608E-01 |
| 6 | 9.945E-01 | -9.809E-02 | 8.98E-01 | 1.995E+01 | 2.128E+01 | 1.104E-03 | 2.250E-02 | 8.01E+01 | 3.175E-01 | 1.056E+00 | 6.794E-01 | 1.532E+01 | 3.128E-01 |
| 7 | 9.925E-01 | -1.335E-01 | 1.05E+00 | 1.993E+01 | 2.126E+01 | 1.106E-03 | 2.254E-02 | 7.84E+01 | 3.722E-01 | 1.076E+00 | 6.313E-01 | 1.294E+01 | 3.646E-01 |
| 8 | 9.903E-01 | -1.743E-01 | 1.20E+00 | 1.991E+01 | 2.124E+01 | 1.109E-03 | 2.259E-02 | 7.68E+01 | 4.276E-01 | 1.099E+00 | 5.853F-01 | 1.114E+01 | 4.164E-01 |
| 9 | 9.877E-01 | -2.204E-01 | 1.35E+00 | 1.988E+01 | 2.121E+01 | 1.112E-03 | 2.264E-02 | 7.53E+01 | 4.840E-01 | 1.125E+00 | 5.416E-01 | 9.722E+00 | 4.681E-01 |
| 10 | 9.848E-01 | -2.720E-01 | 1.50E+00 | 1.985E+01 | 2.119E+01 | 1.115E-03 | 2.270E-02 | 7.37E+01 | 5.413E-01 | 1.155E+00 | 5.003E-01 | 8.574E+00 | 5.196E-01 |
| 15 | 9.659E-01 | -6.101E-01 | 2.26E+00 | 1.967E+01 | 2.099E+01 | 1.135E-03 | 2.311E-02 | 6.63E+01 | 8.461E-01 | 1.347E+00 | 3.303E-01 | 5.037E+00 | 7.744E-01 |
| 20 | 9.397E-01 | -1.080E+00 | 3.02E+00 | 1.942E+01 | 2.073E+01 | 1.165E-03 | 2.370E-02 | 5.95E+01 | 1.188E+00 | 1.613E+00 | 2.153E-01 | 3.221E+00 | 1.023E+00 |
| 25 | 9.063E-01 | -1.678E+00 | 3.80E+00 | 1.910E+01 | 2.039E+01 | 1.204E-03 | 2.447E-02 | 5.35E+01 | 1.574E+00 | 1.953E+00 | 1.411E-01 | 2.152E+00 | 1.265E+00 |
| 30 | 8.660E-01 | -2.399E+00 | 4.58E+00 | 1.872E+01 | 1.998E+01 | 1.254E-03 | 2.547E-02 | 4.82E+01 | 2.008E+00 | 2.362E+00 | 9.400E-02 | 1.481E+00 | 1.496E+00 |
| 35 | 8.192E-01 | -3.238E+00 | 5.39E+00 | 1.827E+01 | 1.950E+01 | 1.316E-03 | 2.670E-02 | 4.35E+01 | 2.493E+00 | 2.839E+00 | 6.408E-02 | 1.045E+00 | 1.716E+00 |
| 40 | 7.660E-01 | -4.189E+00 | 6.22E+00 | 1.776E+01 | 1.896E+01 | 1.392E-03 | 2.820E-02 | 3.94E+01 | 3.029E+00 | 3.379E+00 | 4.479E-02 | 7.540E-01 | 1.923E+00 |
| 45 | 7.071E-01 | -5.244E+00 | 7.07E+00 | 1.720E+01 | 1.836E+01 | 1.484E-03 | 3.003E-02 | 3.58E+01 | 3.613E+00 | 3.979E+00 | 3.210E-02 | 5.559E-01 | 2.116E+00 |
| 50 | 6.428E-01 | -6.396E+00 | 7.94E+00 | 1.659E+01 | 1.771E+01 | 1.596E-03 | 3.223E-02 | 3.27E+01 | 4.244E+00 | 4.633E+00 | 2.357E-02 | 4.183E-01 | 2.292E+00 |
| 55 | 5.736E-01 | -7.635E+00 | 8.85E+00 | 1.593E+01 | 1.700E+01 | 1.731E-03 | 3.488E-02 | 2.99E+01 | 4.918E+00 | 5.337E+00 | 1.771E-02 | 3.209E-01 | 2.451E+00 |
| 60 | 5.000E-01 | -8.953E+00 | 9.80E+00 | 1.522E+01 | 1.625E+01 | 1.894E-03 | 3.807E-02 | 2.74E+01 | 5.632E+00 | 6.085E+00 | 1.360E-02 | 2.506E-01 | 2.591E+00 |
| 65 | 4.226E-01 | -1.034E+01 | 1.08E+01 | 1.448E+01 | 1.547E+01 | 2.092E-03 | 4.193E-02 | 2.52E+01 | 6.379E+00 | 6.872E+00 | 1.064E-02 | 1.991E-01 | 2.712E+00 |
| 70 | 3.420E-01 | -1.178E+01 | 1.18E+01 | 1.371E+01 | 1.465E+01 | 2.333E-03 | 4.661E-02 | 2.31E+01 | 7.155E+00 | 7.691E+00 | 8.488E-03 | 1.608E-01 | 2.812E+00 |
| 75 | 2.588E-01 | -1.327E+01 | 1.29E+01 | 1.292E+01 | 1.380E+01 | 2.628E-03 | 5.231E-02 | 2.13E+01 | 7.955E+00 | 8.538E+00 | 6.883E-03 | 1.318E-01 | 2.890E+00 |
| 80 | 1.736E-01 | -1.480E+01 | 1.41E+01 | 1.210E+01 | 1.294E+01 | 2.993E-03 | 5.930E-02 | 1.96E+01 | 8.773E+00 | 9.404E+00 | 5.670E-03 | 1.096E-01 | 2.947E+00 |
| 85 | 8.716E-02 | -1.634E+01 | 1.53E+01 | 1.127E+01 | 1.206E+01 | 3.446E-03 | 6.794E-02 | 1.81E+01 | 9.603E+00 | 1.028E+01 | 4.739E-03 | 9.229E-02 | 2.981E+00 |
| 90 | 0. | -1.791E+01 | 1.67E+01 | 1.044E+01 | 1.117E+01 | 4.016E-03 | 7.872E-02 | 1.67E+01 | 1.044E+01 | 1.117E+01 | 4.016E-03 | 7.872E-02 | 2.992E+00 |
| 95 | -8.716E-02 | -1.947E+01 | 1.81E+01 | 9.603E+00 | 1.028E+01 | 4.739E-03 | 9.229E-02 | 1.53E+01 | 1.127E+01 | 1.206E+01 | 3.446E-03 | 6.794E-02 | 2.981E+00 |
| 100 | -1.736E-01 | -2.101E+01 | 1.96E+01 | 8.773E+00 | 9.404E+00 | 5.670E-03 | 1.096E-01 | 1.41E+01 | 1.210E+01 | 1.294E+01 | 2.993E-03 | 5.930E-02 | 2.947E+00 |
| 105 | -2.588E-01 | -2.254E+01 | 2.13E+01 | 7.955E+00 | 8.538E+00 | 6.883E-03 | 1.318E-01 | 1.29E+01 | 1.292E+01 | 1.380E+01 | 2.628E-03 | 5.231E-02 | 2.890E+00 |
| 110 | -3.420E-01 | -2.403E+01 | 2.31E+01 | 7.155E+00 | 7.691E+00 | 8.488E-03 | 1.608E-01 | 1.18E+01 | 1.371E+01 | 1.465E+01 | 2.333E-03 | 4.661E-02 | 2.812E+00 |
| 115 | -4.226E-01 | -2.547E+01 | 2.52E+01 | 6.379E+00 | 6.872E+00 | 1.064E-02 | 1.991E-01 | 1.08E+01 | 1.448E+01 | 1.547E+01 | 2.092E-03 | 4.193E-02 | 2.712E+00 |
| 120 | -5.000E-01 | -2.686E+01 | 2.74E+01 | 5.632E+00 | 6.085E+00 | 1.360E-02 | 2.506E-01 | 9.80E+00 | 1.522E+01 | 1.625E+01 | 1.894E-03 | 3.807E-02 | 2.591E+00 |
| 125 | -5.736E-01 | -2.818E+01 | 2.99E+01 | 4.918E+00 | 5.337E+00 | 1.771E-02 | 3.209E-01 | 8.85E+00 | 1.593E+01 | 1.700E+01 | 1.731E-03 | 3.488E-02 | 2.451E+00 |
| 130 | -6.428E-01 | -2.941E+01 | 3.27E+01 | 4.244E+00 | 4.633E+00 | 2.357E-02 | 4.183E-01 | 7.94E+00 | 1.659E+01 | 1.771E+01 | 1.596E-03 | 3.223E-02 | 2.292E+00 |
| 135 | -7.071E-01 | -3.057E+01 | 3.58E+01 | 3.613E+00 | 3.979E+00 | 3.210E-02 | 5.559E-01 | 7.07E+00 | 1.720E+01 | 1.836E+01 | 1.484E-03 | 3.003E-02 | 2.116E+00 |
| 140 | -7.660E-01 | -3.162E+01 | 3.94E+01 | 3.029E+00 | 3.379E+00 | 4.479E-02 | 7.540E-01 | 6.22E+00 | 1.776E+01 | 1.896E+01 | 1.392E-03 | 2.820E-02 | 1.923E+00 |
| 145 | -8.192E-01 | -3.257E+01 | 4.35E+01 | 2.493E+00 | 2.839E+00 | 6.408E-02 | 1.045E+00 | 5.39E+00 | 1.827E+01 | 1.958E+01 | 1.316E-03 | 2.670E-02 | 1.716E+00 |
| 150 | -8.660E-01 | -3.341E+01 | 4.82E+01 | 2.008E+00 | 2.362E+00 | 9.400E-02 | 1.481E+00 | 4.58E+00 | 1.872E+01 | 1.998E+01 | 1.254E-03 | 2.547E-02 | 1.496E+00 |
| 155 | -9.063E-01 | -3.413E+01 | 5.35E+01 | 1.574E+00 | 1.953E+00 | 1.411E-01 | 2.152E+00 | 3.80E+00 | 1.910E+01 | 2.039E+01 | 1.204E-03 | 2.447E-02 | 1.265E+00 |
| 160 | -9.397E-01 | -3.473E+01 | 5.95E+01 | 1.188E+00 | 1.613E+00 | 2.153E-01 | 3.221E+00 | 3.02E+00 | 1.942E+01 | 2.073E+01 | 1.165E-03 | 2.370E-02 | 1.023E+00 |
| 165 | -9.659E-01 | -3.520E+01 | 6.63E+01 | 8.461E-01 | 1.347E+00 | 3.303E-01 | 5.037E+00 | 2.26E+00 | 1.967E+01 | 2.099E+01 | 1.135E-03 | 2.311E-02 | 7.744E-01 |
| 170 | -9.848E-01 | -3.554E+01 | 7.37E+01 | 5.413E-01 | 1.155E+00 | 5.003E-01 | 8.574E+00 | 1.50E+00 | 1.985E+01 | 2.119E+01 | 1.115E-03 | 2.270E-02 | 5.196E-01 |
| 175 | -9.962E-01 | -3.574E+01 | 8.17E+01 | 2.635E-01 | 1.039E+00 | 7.296E-01 | 1.861E+01 | 7.48E-01 | 1.996E+01 | 2.130E+01 | 1.103E-03 | 2.246E-02 | 2.608E-01 |
| 180 | -1.000E+00 | -3.581E+01 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. | 2.000E+01 | 2.134E+01 | 1.099E-03 | 2.238E-02 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + PROTON (4) AT 30 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 9.38259E-01
P2CM= 3.69332E+00 P3CM= 3.69332E+00
E1CM= 3.81063E+00 E2CM= 3.81063E+00 E3CM= 3.81063E+00 E4CM= 3.81063E+00

1-V1LAB = 4.887E-04 1-VCM = 3.079E-02 GCM = 4.06139E+00 ETCM= 7.62127E+00 S = 5.80837E+01 -U=( 5.45624E+01) PT

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 3.000E+01 | 3.199E+01 | 4.887E-04 | 1.516E-02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -4.155E-03 | 1.23E-01 | 3.000E+01 | 3.199E+01 | 4.888E-04 | 1.516E-02 | 8.80E+01 | 6.450E-02 | 1.002E+00 | 9.314E-01 | 1.161E+02 | 6.446E-02 |
| 2 | 9.994E-01 | -1.662E-02 | 2.46E-01 | 2.999E+01 | 3.198E+01 | 4.890E-04 | 1.517E-02 | 8.59E+01 | 1.292E-01 | 1.009E+00 | 8.636E-01 | 5.777E+01 | 1.289E-01 |
| 3 | 9.986E-01 | -3.739E-02 | 3.69E-01 | 2.998E+01 | 3.197E+01 | 4.894E-04 | 1.518E-02 | 8.39E+01 | 1.944E-01 | 1.021E+00 | 7.971E-01 | 3.818E+01 | 1.933E-01 |
| 4 | 9.976E-01 | -6.646E-02 | 4.93E-01 | 2.996E+01 | 3.195E+01 | 4.899E-04 | 1.519E-02 | 8.19E+01 | 2.602E-01 | 1.038E+00 | 7.328E-01 | 2.829E+01 | 2.576E-01 |
| 5 | 9.962E-01 | -1.038E-01 | 6.16E-01 | 2.994E+01 | 3.193E+01 | 4.905E-04 | 1.521E-02 | 7.99E+01 | 3.269E-01 | 1.059E+00 | 6.710E-01 | 2.228E+01 | 3.219E-01 |
| 6 | 9.945E-01 | -1.494E-01 | 7.39E-01 | 2.992E+01 | 3.190E+01 | 4.913E-04 | 1.524E-02 | 7.80E+01 | 3.947E-01 | 1.085E+00 | 6.122E-01 | 1.823E+01 | 3.861E-01 |
| 7 | 9.925E-01 | -2.033E-01 | 8.63E-01 | 2.989E+01 | 3.187E+01 | 4.923E-04 | 1.526E-02 | 7.60E+01 | 4.638E-01 | 1.115E+00 | 5.569E-01 | 1.529E+01 | 4.501E-01 |
| 8 | 9.903E-01 | -2.655E-01 | 9.86E-01 | 2.986E+01 | 3.184E+01 | 4.934E-04 | 1.530E-02 | 7.41E+01 | 5.343E-01 | 1.151E+00 | 5.051E-01 | 1.305E+01 | 5.140E-01 |
| 9 | 9.877E-01 | -3.359E-01 | 1.11E+00 | 2.982E+01 | 3.180E+01 | 4.946E-04 | 1.534E-02 | 7.23E+01 | 6.066E-01 | 1.191E+00 | 4.571E-01 | 1.129E+01 | 5.778E-01 |
| 10 | 9.848E-01 | -4.145E-01 | 1.23E+00 | 2.978E+01 | 3.175E+01 | 4.960E-04 | 1.538E-02 | 7.04E+01 | 6.806E-01 | 1.235E+00 | 4.128E-01 | 9.859E+00 | 6.413E-01 |
| 15 | 9.659E-01 | -9.296E-01 | 1.86E+00 | 2.950E+01 | 3.146E+01 | 5.053E-04 | 1.566E-02 | 6.19E+01 | 1.084E+00 | 1.528E+00 | 2.439E-01 | 5.474E+00 | 9.559E-01 |
| 20 | 9.397E-01 | -1.645E+00 | 2.49E+00 | 2.912E+01 | 3.106E+01 | 5.186E-04 | 1.607E-02 | 5.44E+01 | 1.554E+00 | 1.934E+00 | 1.440E-01 | 3.290E+00 | 1.263E+00 |
| 25 | 9.063E-01 | -2.556E+00 | 3.12E+00 | 2.864E+01 | 3.054E+01 | 5.363E-04 | 1.661E-02 | 4.80E+01 | 2.100E+00 | 2.452E+00 | 8.696E-02 | 2.069E+00 | 1.561E+00 |
| 30 | 8.660E-01 | -3.655E+00 | 3.77E+00 | 2.805E+01 | 2.991E+01 | 5.589E-04 | 1.730E-02 | 4.26E+01 | 2.729E+00 | 3.076E+00 | 5.432E-02 | 1.348E+00 | 1.847E+00 |
| 35 | 8.192E-01 | -4.934E+00 | 4.44E+00 | 2.737E+01 | 2.919E+01 | 5.871E-04 | 1.816E-02 | 3.80E+01 | 3.442E+00 | 3.802E+00 | 3.521E-02 | 9.075E-01 | 2.118E+00 |
| 40 | 7.660E-01 | -6.383E+00 | 5.12E+00 | 2.660E+01 | 2.836E+01 | 6.217E-04 | 1.921E-02 | 3.41E+01 | 4.237E+00 | 4.625E+00 | 2.365E-02 | 6.294E-01 | 2.374E+00 |
| 45 | 7.071E-01 | -7.990E+00 | 5.82E+00 | 2.574E+01 | 2.745E+01 | 6.637E-04 | 2.048E-02 | 3.07E+01 | 5.111E+00 | 5.538E+00 | 1.644E-02 | 4.489E-01 | 2.612E+00 |
| 50 | 6.428E-01 | -9.745E+00 | 6.55E+00 | 2.480E+01 | 2.645E+01 | 7.147E-04 | 2.203E-02 | 2.78E+01 | 6.059E+00 | 6.535E+00 | 1.178E-02 | 3.285E-01 | 2.829E+00 |
| 55 | 5.736E-01 | -1.163E+01 | 7.30E+00 | 2.380E+01 | 2.538E+01 | 7.764E-04 | 2.389E-02 | 2.53E+01 | 7.076E+00 | 7.607E+00 | 8.677E-03 | 2.463E-01 | 3.025E+00 |
| 60 | 5.000E-01 | -1.364E+01 | 8.09E+00 | 2.273E+01 | 2.424E+01 | 8.512E-04 | 2.615E-02 | 2.31E+01 | 8.154E+00 | 8.747E+00 | 6.556E-03 | 1.887E-01 | 3.199E+00 |
| 65 | 4.226E-01 | -1.575E+01 | 8.91E+00 | 2.160E+01 | 2.304E+01 | 9.421E-04 | 2.888E-02 | 2.11E+01 | 9.285E+00 | 9.946E+00 | 5.067E-03 | 1.476E-01 | 3.347E+00 |
| 70 | 3.420E-01 | -1.795E+01 | 9.78E+00 | 2.043E+01 | 2.179E+01 | 1.053E-03 | 3.221E-02 | 1.94E+01 | 1.046E+01 | 1.120E+01 | 3.997E-03 | 1.176E-01 | 3.471E+00 |
| 75 | 2.588E-01 | -2.022E+01 | 1.07E+01 | 1.922E+01 | 2.051E+01 | 1.190E-03 | 3.630E-02 | 1.78E+01 | 1.168E+01 | 1.248E+01 | 3.213E-03 | 9.527E-02 | 3.567E+00 |
| 80 | 1.736E-01 | -2.254E+01 | 1.17E+01 | 1.798E+01 | 1.919E+01 | 1.359E-03 | 4.134E-02 | 1.64E+01 | 1.292E+01 | 1.380E+01 | 2.627E-03 | 7.844E-02 | 3.637E+00 |
| 85 | 8.716E-02 | -2.490E+01 | 1.27E+01 | 1.672E+01 | 1.785E+01 | 1.571E-03 | 4.761E-02 | 1.50E+01 | 1.418E+01 | 1.514E+01 | 2.182E-03 | 6.553E-02 | 3.679E+00 |
| 90 | 0. | -2.728E+01 | 1.38E+01 | 1.545E+01 | 1.649E+01 | 1.839E-03 | 5.550E-02 | 1.38E+01 | 1.545E+01 | 1.649E+01 | 1.839E-03 | 5.550E-02 | 3.693E+00 |
| 95 | -8.716E-02 | -2.966E+01 | 1.50E+01 | 1.418E+01 | 1.514E+01 | 2.182E-03 | 6.553E-02 | 1.27E+01 | 1.672E+01 | 1.785E+01 | 1.571E-03 | 4.761E-02 | 3.679E+00 |
| 100 | -1.736E-01 | -3.202E+01 | 1.64E+01 | 1.292E+01 | 1.380E+01 | 2.627E-03 | 7.844E-02 | 1.17E+01 | 1.798E+01 | 1.919E+01 | 1.359E-03 | 4.134E-02 | 3.637E+00 |
| 105 | -2.588E-01 | -3.434E+01 | 1.78E+01 | 1.168E+01 | 1.248E+01 | 3.213E-03 | 9.527E-02 | 1.07E+01 | 1.922E+01 | 2.051E+01 | 1.190E-03 | 3.630E-02 | 3.567E+00 |
| 110 | -3.420E-01 | -3.661E+01 | 1.94E+01 | 1.046E+01 | 1.120E+01 | 3.997E-03 | 1.176E-01 | 9.78E+00 | 2.043E+01 | 2.179E+01 | 1.053E-03 | 3.221E-02 | 3.471E+00 |
| 115 | -4.226E-01 | -3.881E+01 | 2.11E+01 | 9.285E+00 | 9.946E+00 | 5.067E-03 | 1.476E-01 | 8.91E+00 | 2.160E+01 | 2.304E+01 | 9.421E-04 | 2.888E-02 | 3.347E+00 |
| 120 | -5.000E-01 | -4.092E+01 | 2.31E+01 | 8.154E+00 | 8.747E+00 | 6.556E-03 | 1.887E-01 | 8.09E+00 | 2.273E+01 | 2.424E+01 | 8.512E-04 | 2.615E-02 | 3.199E+00 |
| 125 | -5.736E-01 | -4.293E+01 | 2.53E+01 | 7.076E+00 | 7.607E+00 | 8.677E-03 | 2.463E-01 | 7.30E+00 | 2.380E+01 | 2.538E+01 | 7.764E-04 | 2.389E-02 | 3.025E+00 |
| 130 | -6.428E-01 | -4.482E+01 | 2.78E+01 | 6.059E+00 | 6.535E+00 | 1.178E-02 | 3.285E-01 | 6.55E+00 | 2.480E+01 | 2.645E+01 | 7.147E-04 | 2.203E-02 | 2.829E+00 |
| 135 | -7.071E-01 | -4.657E+01 | 3.07E+01 | 5.111E+00 | 5.538E+00 | 1.644E-02 | 4.489E-01 | 5.82E+00 | 2.574E+01 | 2.745E+01 | 6.637E-04 | 2.048E-02 | 2.612E+00 |
| 140 | -7.660E-01 | -4.818E+01 | 3.41E+01 | 4.237E+00 | 4.625E+00 | 2.365E-02 | 6.294E-01 | 5.12E+00 | 2.660E+01 | 2.836E+01 | 6.217E-04 | 1.921E-02 | 2.374E+00 |
| 145 | -8.192E-01 | -4.963E+01 | 3.80E+01 | 3.442E+00 | 3.802E+00 | 3.521E-02 | 9.075E-01 | 4.44E+00 | 2.737E+01 | 2.919E+01 | 5.871E-04 | 1.816E-02 | 2.118E+00 |
| 150 | -8.660E-01 | -5.091E+01 | 4.26E+01 | 2.729E+00 | 3.076E+00 | 5.432E-02 | 1.348E+00 | 3.77E+00 | 2.805E+01 | 2.991E+01 | 5.589E-04 | 1.730E-02 | 1.847E+00 |
| 155 | -9.063E-01 | -5.201E+01 | 4.80E+01 | 2.100E+00 | 2.452E+00 | 8.696E-02 | 2.069E+00 | 3.12E+00 | 2.864E+01 | 3.054E+01 | 5.363E-04 | 1.661E-02 | 1.561E+00 |
| 160 | -9.397E-01 | -5.292E+01 | 5.44E+01 | 1.554E+00 | 1.934E+00 | 1.440E-01 | 3.290E+00 | 2.49E+00 | 2.912E+01 | 3.106E+01 | 5.186E-04 | 1.607E-02 | 1.263E+00 |
| 165 | -9.659E-01 | -5.363E+01 | 6.19E+01 | 1.084E+00 | 1.528E+00 | 2.439E-01 | 5.474E+00 | 1.86E+00 | 2.950E+01 | 3.146E+01 | 5.053E-04 | 1.566E-02 | 9.559E-01 |
| 170 | -9.848E-01 | -5.415E+01 | 7.04E+01 | 6.806E-01 | 1.235E+00 | 4.128E-01 | 9.859E+00 | 1.23E+00 | 2.978E+01 | 3.175E+01 | 4.960E-04 | 1.538E-02 | 6.413E-01 |
| 175 | -9.962E-01 | -5.446E+01 | 7.99E+01 | 3.269E-01 | 1.059E+00 | 6.710E-01 | 2.228E+01 | 6.16E-01 | 2.994E+01 | 3.193E+01 | 4.905E-04 | 1.521E-02 | 3.219E-01 |
| 180 | -1.000E+00 | -5.456E+01 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. | 3.000E+01 | 3.199E+01 | 4.887E-04 | 1.516E-02 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + PROTON (4) AT 40 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 9.38259E-01

P2CM= 4.28138E+00 P3CM= 4.28138E+00

E1CM= 4.38298E+00 E2CM= 4.38298E+00 E3CM= 4.38298E+00 E4CM= 4.38298E+00

1-V1LAB = 2.750E-04 1-VCM = 2.318E-02 GCM = 4.67140E+00 ETCM= 8.76596E+00 S = 7.68420E+01 -U=( 7.33207E+01) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 4.000E+01 | 4.264E+01 | 2.750E-04 | 1.146E-02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -5.584E-03 | 1.07E-01 | 4.000E+01 | 4.264E+01 | 2.750E-04 | 1.146E-02 | 8.77E+01 | 7.478E-02 | 1.003E+00 | 9.205E-01 | 1.335E+02 | 7.472E-02 |
| 2 | 9.994E-01 | -2.233E-02 | 2.14E-01 | 3.999E+01 | 4.263E+01 | 2.752E-04 | 1.146E-02 | 8.53E+01 | 1.499E-01 | 1.013E+00 | 8.422E-01 | 6.628E+01 | 1.494E-01 |
| 3 | 9.986E-01 | -5.024E-02 | 3.21E-01 | 3.997E+01 | 4.262E+01 | 2.754E-04 | 1.147E-02 | 8.30E+01 | 2.257E-01 | 1.029E+00 | 7.661E-01 | 4.368E+01 | 2.241E-01 |
| 4 | 9.976E-01 | -8.930E-02 | 4.28E-01 | 3.995E+01 | 4.259E+01 | 2.756E-04 | 1.148E-02 | 8.07E+01 | 3.026E-01 | 1.051E+00 | 6.931E-01 | 3.223E+01 | 2.987E-01 |
| 5 | 9.962E-01 | -1.395E-01 | 5.35E-01 | 3.993E+01 | 4.256E+01 | 2.760E-04 | 1.150E-02 | 7.85E+01 | 3.808E-01 | 1.079E+00 | 6.239E-01 | 2.526E+01 | 3.731E-01 |
| 6 | 9.945E-01 | -2.008E-01 | 6.43E-01 | 3.989E+01 | 4.253E+01 | 2.765E-04 | 1.152E-02 | 7.62E+01 | 4.607E-01 | 1.114E+00 | 5.592E-01 | 2.053E+01 | 4.475E-01 |
| 7 | 9.925E-01 | -2.733E-01 | 7.50E-01 | 3.985E+01 | 4.249E+01 | 2.770E-04 | 1.154E-02 | 7.41E+01 | 5.426E-01 | 1.155E+00 | 4.993E-01 | 1.710E+01 | 5.218E-01 |
| 8 | 9.903E-01 | -3.568E-01 | 8.58E-01 | 3.981E+01 | 4.244E+01 | 2.776E-04 | 1.156E-02 | 7.19E+01 | 6.268E-01 | 1.203E+00 | 4.445E-01 | 1.449E+01 | 5.959E-01 |
| 9 | 9.877E-01 | -4.513E-01 | 9.65E-01 | 3.976E+01 | 4.239E+01 | 2.783E-04 | 1.159E-02 | 6.98E+01 | 7.136E-01 | 1.256E+00 | 3.946E-01 | 1.242E+01 | 6.698E-01 |
| 10 | 9.848E-01 | -5.570E-01 | 1.07E+00 | 3.970E+01 | 4.233E+01 | 2.791E-04 | 1.163E-02 | 6.78E+01 | 8.031E-01 | 1.316E+00 | 3.497E-01 | 1.075E+01 | 7.435E-01 |
| 15 | 9.659E-01 | -1.249E+00 | 1.61E+00 | 3.933E+01 | 4.193E+01 | 2.844E-04 | 1.184E-02 | 5.84E+01 | 1.301E+00 | 1.709E+00 | 1.889E-01 | 5.674E+00 | 1.108E+00 |
| 20 | 9.397E-01 | -2.211E+00 | 2.16E+00 | 3.882E+01 | 4.139E+01 | 2.919E-04 | 1.215E-02 | 5.05E+01 | 1.897E+00 | 2.256E+00 | 1.036E-01 | 3.238E+00 | 1.464E+00 |
| 25 | 9.063E-01 | -3.435E+00 | 2.72E+00 | 3.817E+01 | 4.069E+01 | 3.020E-04 | 1.257E-02 | 4.40E+01 | 2.605E+00 | 2.951E+00 | 5.917E-02 | 1.943E+00 | 1.809E+00 |
| 30 | 8.660E-01 | -4.912E+00 | 3.28E+00 | 3.738E+01 | 3.985E+01 | 3.148E-04 | 1.310E-02 | 3.86E+01 | 3.430E+00 | 3.790E+00 | 3.544E-02 | 1.218E+00 | 2.141E+00 |
| 35 | 8.192E-01 | -6.630E+00 | 3.86E+00 | 3.647E+01 | 3.888E+01 | 3.308E-04 | 1.375E-02 | 3.42E+01 | 4.372E+00 | 4.766E+00 | 2.226E-02 | 7.935E-01 | 2.456E+00 |
| 40 | 7.660E-01 | -8.577E+00 | 4.46E+00 | 3.543E+01 | 3.777E+01 | 3.505E-04 | 1.456E-02 | 3.05E+01 | 5.428E+00 | 5.871E+00 | 1.461E-02 | 5.362E-01 | 2.752E+00 |
| 45 | 7.071E-01 | -1.074E+01 | 5.07E+00 | 3.428E+01 | 3.655E+01 | 3.744E-04 | 1.554E-02 | 2.73E+01 | 6.594E+00 | 7.099E+00 | 9.972E-03 | 3.745E-01 | 3.027E+00 |
| 50 | 6.428E-01 | -1.310E+01 | 5.70E+00 | 3.302E+01 | 3.521E+01 | 4.035E-04 | 1.673E-02 | 2.47E+01 | 7.861E+00 | 8.438E+00 | 7.048E-03 | 2.696E-01 | 3.280E+00 |
| 55 | 5.736E-01 | -1.563E+01 | 6.36E+00 | 3.167E+01 | 3.376E+01 | 4.387E-04 | 1.817E-02 | 2.24E+01 | 9.221E+00 | 9.879E+00 | 5.136E-03 | 1.994E-01 | 3.507E+00 |
| 60 | 5.000E-01 | -1.833E+01 | 7.05E+00 | 3.023E+01 | 3.223E+01 | 4.814E-04 | 1.991E-02 | 2.03E+01 | 1.067E+01 | 1.141E+01 | 3.847E-03 | 1.511E-01 | 3.708E+00 |
| 65 | 4.226E-01 | -2.117E+01 | 7.77E+00 | 2.872E+01 | 3.062E+01 | 5.334E-04 | 2.203E-02 | 1.86E+01 | 1.218E+01 | 1.302E+01 | 2.953E-03 | 1.171E-01 | 3.880E+00 |
| 70 | 3.420E-01 | -2.412E+01 | 8.52E+00 | 2.714E+01 | 2.894E+01 | 5.970E-04 | 2.461E-02 | 1.70E+01 | 1.376E+01 | 1.470E+01 | 2.316E-03 | 9.257E-02 | 4.023E+00 |
| 75 | 2.588E-01 | -2.717E+01 | 9.33E+00 | 2.551E+01 | 2.721E+01 | 6.755E-04 | 2.779E-02 | 1.56E+01 | 1.539E+01 | 1.643E+01 | 1.853E-03 | 7.455E-02 | 4.135E+00 |
| 80 | 1.736E-01 | -3.029E+01 | 1.02E+01 | 2.385E+01 | 2.544E+01 | 7.730E-04 | 3.172E-02 | 1.43E+01 | 1.706E+01 | 1.821E+01 | 1.510E-03 | 6.105E-02 | 4.216E+00 |
| 85 | 8.716E-02 | -3.347E+01 | 1.11E+01 | 2.216E+01 | 2.364E+01 | 8.953E-04 | 3.664E-02 | 1.31E+01 | 1.875E+01 | 2.001E+01 | 1.250E-03 | 5.078E-02 | 4.265E+00 |
| 90 | 0. | -3.666E+01 | 1.21E+01 | 2.045E+01 | 2.182E+01 | 1.051E-03 | 4.285E-02 | 1.21E+01 | 2.045E+01 | 2.182E+01 | 1.051E-03 | 4.285E-02 | 4.281E+00 |
| 95 | -8.716E-02 | -3.986E+01 | 1.31E+01 | 1.875E+01 | 2.001E+01 | 1.250E-03 | 5.078E-02 | 1.11E+01 | 2.216E+01 | 2.364E+01 | 8.953E-04 | 3.664E-02 | 4.265E+00 |
| 100 | -1.736E-01 | -4.303E+01 | 1.43E+01 | 1.706E+01 | 1.821E+01 | 1.510E-03 | 6.105E-02 | 1.02E+01 | 2.385E+01 | 2.544E+01 | 7.730E-04 | 3.172E-02 | 4.216E+00 |
| 105 | -2.588E-01 | -4.615E+01 | 1.56E+01 | 1.539E+01 | 1.643E+01 | 1.853E-03 | 7.455E-02 | 9.33E+00 | 2.551E+01 | 2.721E+01 | 6.755E-04 | 2.779E-02 | 4.135E+00 |
| 110 | -3.420E-01 | -4.920E+01 | 1.70E+01 | 1.376E+01 | 1.470E+01 | 2.316E-03 | 9.257E-02 | 8.52E+00 | 2.714E+01 | 2.894E+01 | 5.970E-04 | 2.461E-02 | 4.023E+00 |
| 115 | -4.226E-01 | -5.215E+01 | 1.86E+01 | 1.218E+01 | 1.302E+01 | 2.953E-03 | 1.171E-01 | 7.77E+00 | 2.872E+01 | 3.062E+01 | 5.334E-04 | 2.203E-02 | 3.880E+00 |
| 120 | -5.000E-01 | -5.499E+01 | 2.03E+01 | 1.067E+01 | 1.141E+01 | 3.847E-03 | 1.511E-01 | 7.05E+00 | 3.023E+01 | 3.223E+01 | 4.814E-04 | 1.991E-02 | 3.708E+00 |
| 125 | -5.736E-01 | -5.769E+01 | 2.24E+01 | 9.221E+00 | 9.879E+00 | 5.136E-03 | 1.994E-01 | 6.36E+00 | 3.167E+01 | 3.376E+01 | 4.387E-04 | 1.817E-02 | 3.507E+00 |
| 130 | -6.428E-01 | -6.023E+01 | 2.47E+01 | 7.861E+00 | 8.438E+00 | 7.048E-03 | 2.696E-01 | 5.70E+00 | 3.302E+01 | 3.521E+01 | 4.035E-04 | 1.673E-02 | 3.280E+00 |
| 135 | -7.071E-01 | -6.258E+01 | 2.73E+01 | 6.594E+00 | 7.099E+00 | 9.972E-03 | 3.745E-01 | 5.07E+00 | 3.428E+01 | 3.655E+01 | 3.744E-04 | 1.554E-02 | 3.027E+00 |
| 140 | -7.660E-01 | -6.474E+01 | 3.05E+01 | 5.428E+00 | 5.871E+00 | 1.461E-02 | 5.362E-01 | 4.46E+00 | 3.543E+01 | 3.777E+01 | 3.505E-04 | 1.456E-02 | 2.752E+00 |
| 145 | -8.192E-01 | -6.669E+01 | 3.42E+01 | 4.372E+00 | 4.766E+00 | 2.226E-02 | 7.935E-01 | 3.86E+00 | 3.647E+01 | 3.888E+01 | 3.308E-04 | 1.375E-02 | 2.456E+00 |
| 150 | -8.660E-01 | -6.841E+01 | 3.86E+01 | 3.430E+00 | 3.790E+00 | 3.544E-02 | 1.218E+00 | 3.28E+00 | 3.738E+01 | 3.985E+01 | 3.148E-04 | 1.310E-02 | 2.141E+00 |
| 155 | -9.063E-01 | -6.989E+01 | 4.40E+01 | 2.605E+00 | 2.951E+00 | 5.917E-02 | 1.943E+00 | 2.72E+00 | 3.817E+01 | 4.069E+01 | 3.020E-04 | 1.257E-02 | 1.809E+00 |
| 160 | -9.397E-01 | -7.111E+01 | 5.05E+01 | 1.897E+00 | 2.256E+00 | 1.036E-01 | 3.238E+00 | 2.16E+00 | 3.882E+01 | 4.139E+01 | 2.919E-04 | 1.215E-02 | 1.464E+00 |
| 165 | -9.659E-01 | -7.207E+01 | 5.84E+01 | 1.301E+00 | 1.709E+00 | 1.889E-01 | 5.674E+00 | 1.61E+00 | 3.933E+01 | 4.193E+01 | 2.844E-04 | 1.184E-02 | 1.108E+00 |
| 170 | -9.848E-01 | -7.276E+01 | 6.78E+01 | 8.031E-01 | 1.316E+00 | 3.497E-01 | 1.075E+01 | 1.07E+00 | 3.970E+01 | 4.233E+01 | 2.791E-04 | 1.163E-02 | 7.435E-01 |
| 175 | -9.962E-01 | -7.318E+01 | 7.85E+01 | 3.808E-01 | 1.079E+00 | 6.239E-01 | 2.526E+01 | 5.35E-01 | 3.993E+01 | 4.256E+01 | 2.760E-04 | 1.150E-02 | 3.731E-01 |
| 180 | -1.000E+00 | -7.332E+01 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. | 4.000E+01 | 4.264E+01 | 2.750E-04 | 1.146E-02 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + PROTON (4) AT 50 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 9.38259E-01
P2CM= 4.79796E+00 P3CM= 4.79796E+00
E1CM= 4.88884E+00 E2CM= 4.88884E+00 E3CM= 4.88884E+00 E4CM= 4.88884E+00

1-V1LAB = 1.760E-04 1-VCM = 1.859E-02 GCM = 5.21055E+00 ETCM= 9.77768E+00 S = 9.56031E+01 -U=( 9.20818E+01) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 5.000E+01 | 5.330E+01 | 1.760E-04 | 9.208E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -7.012E-03 | 9.60E-02 | 5.000E+01 | 5.330E+01 | 1.760E-04 | 9.210E-03 | 8.74E+01 | 8.382E-02 | 1.004E+00 | 9.110E-01 | 1.488E+02 | 8.374E-02 |
| 2 | 9.994E-01 | -2.805E-02 | 1.92E-01 | 4.999E+01 | 5.328E+01 | 1.761E-04 | 9.214E-03 | 8.48E+01 | 1.681E-01 | 1.016E+00 | 8.236E-01 | 7.376E+01 | 1.674E-01 |
| 3 | 9.986E-01 | -6.310E-02 | 2.88E-01 | 4.997E+01 | 5.326E+01 | 1.763E-04 | 9.220E-03 | 8.22E+01 | 2.534E-01 | 1.036E+00 | 7.392E-01 | 4.845E+01 | 2.511E-01 |
| 4 | 9.976E-01 | -1.122E-01 | 3.84E-01 | 4.994E+01 | 5.324E+01 | 1.764E-04 | 9.230E-03 | 7.97E+01 | 3.402E-01 | 1.064E+00 | 6.591E-01 | 3.561E+01 | 3.347E-01 |
| 5 | 9.962E-01 | -1.752E-01 | 4.80E-01 | 4.991E+01 | 5.320E+01 | 1.767E-04 | 9.242E-03 | 7.72E+01 | 4.289E-01 | 1.100E+00 | 5.843E-01 | 2.777E+01 | 4.182E-01 |
| 6 | 9.945E-01 | -2.522E-01 | 5.76E-01 | 4.987E+01 | 5.316E+01 | 1.770E-04 | 9.257E-03 | 7.47E+01 | 5.199E-01 | 1.143E+00 | 5.153E-01 | 2.244E+01 | 5.015E-01 |
| 7 | 9.925E-01 | -3.432E-01 | 6.73E-01 | 4.982E+01 | 5.310E+01 | 1.773E-04 | 9.275E-03 | 7.23E+01 | 6.137E-01 | 1.195E+00 | 4.526E-01 | 1.856E+01 | 5.847E-01 |
| 8 | 9.903E-01 | -4.481E-01 | 7.69E-01 | 4.976E+01 | 5.305E+01 | 1.777E-04 | 9.296E-03 | 7.00E+01 | 7.107E-01 | 1.254E+00 | 3.962E-01 | 1.560E+01 | 6.677E-01 |
| 9 | 9.877E-01 | -5.668E-01 | 8.65E-01 | 4.970E+01 | 5.298E+01 | 1.782E-04 | 9.319E-03 | 6.77E+01 | 8.112E-01 | 1.322E+00 | 3.460E-01 | 1.327E+01 | 7.506E-01 |
| 10 | 9.848E-01 | -6.995E-01 | 9.62E-01 | 4.963E+01 | 5.290E+01 | 1.787E-04 | 9.346E-03 | 6.55E+01 | 9.156E-01 | 1.397E+00 | 3.016E-01 | 1.139E+01 | 8.332E-01 |
| 15 | 9.659E-01 | -1.569E+00 | 1.45E+00 | 4.916E+01 | 5.241E+01 | 1.821E-04 | 9.521E-03 | 5.56E+01 | 1.506E+00 | 1.891E+00 | 1.513E-01 | 5.742E+00 | 1.242E+00 |
| 20 | 9.397E-01 | -2.777E+00 | 1.94E+00 | 4.852E+01 | 5.172E+01 | 1.869E-04 | 9.773E-03 | 4.74E+01 | 2.228E+00 | 2.577E+00 | 7.836E-02 | 3.136E+00 | 1.641E+00 |
| 25 | 9.063E-01 | -4.314E+00 | 2.44E+00 | 4.770E+01 | 5.085E+01 | 1.934E-04 | 1.011E-02 | 4.09E+01 | 3.098E+00 | 3.450E+00 | 4.293E-02 | 1.813E+00 | 2.028E+00 |
| 30 | 8.660E-01 | -6.168E+00 | 2.94E+00 | 4.671E+01 | 4.980E+01 | 2.017E-04 | 1.054E-02 | 3.56E+01 | 4.120E+00 | 4.503E+00 | 2.497E-02 | 1.103E+00 | 2.399E+00 |
| 35 | 8.192E-01 | -8.326E+00 | 3.46E+00 | 4.556E+01 | 4.857E+01 | 2.120E-04 | 1.107E-02 | 3.13E+01 | 5.293E+00 | 5.729E+00 | 1.535E-02 | 7.019E-01 | 2.752E+00 |
| 40 | 7.660E-01 | -1.077E+01 | 4.00E+00 | 4.426E+01 | 4.718E+01 | 2.246E-04 | 1.172E-02 | 2.78E+01 | 6.612E+00 | 7.118E+00 | 9.918E-03 | 4.657E-01 | 3.084E+00 |
| 45 | 7.071E-01 | -1.349E+01 | 4.55E+00 | 4.281E+01 | 4.564E+01 | 2.401E-04 | 1.252E-02 | 2.49E+01 | 8.070E+00 | 8.659E+00 | 6.691E-03 | 3.207E-01 | 3.393E+00 |
| 50 | 6.428E-01 | -1.645E+01 | 5.11E+00 | 4.123E+01 | 4.396E+01 | 2.588E-04 | 1.349E-02 | 2.24E+01 | 9.657E+00 | 1.034E+01 | 4.687E-03 | 2.283E-01 | 3.675E+00 |
| 55 | 5.736E-01 | -1.963E+01 | 5.71E+00 | 3.954E+01 | 4.215E+01 | 2.815E-04 | 1.466E-02 | 2.02E+01 | 1.136E+01 | 1.215E+01 | 3.392E-03 | 1.673E-01 | 3.930E+00 |
| 60 | 5.000E-01 | -2.302E+01 | 6.32E+00 | 3.773E+01 | 4.022E+01 | 3.091E-04 | 1.607E-02 | 1.84E+01 | 1.317E+01 | 1.407E+01 | 2.527E-03 | 1.259E-01 | 4.155E+00 |
| 65 | 4.226E-01 | -2.658E+01 | 6.97E+00 | 3.583E+01 | 3.820E+01 | 3.427E-04 | 1.780E-02 | 1.68E+01 | 1.508E+01 | 1.610E+01 | 1.931E-03 | 9.699E-02 | 4.348E+00 |
| 70 | 3.420E-01 | -3.029E+01 | 7.65E+00 | 3.385E+01 | 3.609E+01 | 3.839E-04 | 1.991E-02 | 1.53E+01 | 1.706E+01 | 1.821E+01 | 1.510E-03 | 7.632E-02 | 4.509E+00 |
| 75 | 2.588E-01 | -3.412E+01 | 8.38E+00 | 3.181E+01 | 3.392E+01 | 4.347E-04 | 2.251E-02 | 1.40E+01 | 1.910E+01 | 2.038E+01 | 1.204E-03 | 6.121E-02 | 4.634E+00 |
| 80 | 1.736E-01 | -3.805E+01 | 9.15E+00 | 2.972E+01 | 3.169E+01 | 4.980E-04 | 2.573E-02 | 1.29E+01 | 2.119E+01 | 2.261E+01 | 9.786E-04 | 4.997E-02 | 4.725E+00 |
| 85 | 8.716E-02 | -4.203E+01 | 9.97E+00 | 2.760E+01 | 2.943E+01 | 5.775E-04 | 2.977E-02 | 1.18E+01 | 2.332E+01 | 2.487E+01 | 8.087E-04 | 4.145E-02 | 4.780E+00 |
| 90 | 0. | -4.604E+01 | 1.09E+01 | 2.546E+01 | 2.715E+01 | 6.786E-04 | 3.489E-02 | 1.09E+01 | 2.546E+01 | 2.715E+01 | 6.786E-04 | 3.489E-02 | 4.798E+00 |
| 95 | -8.716E-02 | -5.005E+01 | 1.18E+01 | 2.332E+01 | 2.487E+01 | 8.087E-04 | 4.145E-02 | 9.97E+00 | 2.760E+01 | 2.943E+01 | 5.775E-04 | 2.977E-02 | 4.780E+00 |
| 100 | -1.736E-01 | -5.404E+01 | 1.29E+01 | 2.119E+01 | 2.261E+01 | 9.786E-04 | 4.997E-02 | 9.15E+00 | 2.972E+01 | 3.169E+01 | 4.980E-04 | 2.573E-02 | 4.725E+00 |
| 105 | -2.588E-01 | -5.796E+01 | 1.40E+01 | 1.910E+01 | 2.038E+01 | 1.204E-03 | 6.121E-02 | 8.38E+00 | 3.181E+01 | 3.392E+01 | 4.347E-04 | 2.251E-02 | 4.634E+00 |
| 110 | -3.420E-01 | -6.179E+01 | 1.53E+01 | 1.706E+01 | 1.821E+01 | 1.510E-03 | 7.632E-02 | 7.65E+00 | 3.385E+01 | 3.609E+01 | 3.839E-04 | 1.991E-02 | 4.509E+00 |
| 115 | -4.226E-01 | -6.550E+01 | 1.68E+01 | 1.506E+01 | 1.610E+01 | 1.931E-03 | 9.699E-02 | 6.97E+00 | 3.583E+01 | 3.820E+01 | 3.427E-04 | 1.780E-02 | 4.348E+00 |
| 120 | -5.000E-01 | -6.906E+01 | 1.84E+01 | 1.317E+01 | 1.407E+01 | 2.527E-03 | 1.259E-01 | 6.32E+00 | 3.773E+01 | 4.022E+01 | 3.091E-04 | 1.607E-02 | 4.155E+00 |
| 125 | -5.736E-01 | -7.245E+01 | 2.02E+01 | 1.136E+01 | 1.215E+01 | 3.392E-03 | 1.673E-01 | 5.71E+00 | 3.954E+01 | 4.215E+01 | 2.815E-04 | 1.466E-02 | 3.930E+00 |
| 130 | -6.428E-01 | -7.564E+01 | 2.24E+01 | 9.657E+00 | 1.034E+01 | 4.687E-03 | 2.283E-01 | 5.11E+00 | 4.123E+01 | 4.396E+01 | 2.588E-04 | 1.349E-02 | 3.675E+00 |
| 135 | -7.071E-01 | -7.860E+01 | 2.49E+01 | 8.070E+00 | 8.659E+00 | 6.691E-03 | 3.207E-01 | 4.55E+00 | 4.281E+01 | 4.564E+01 | 2.401E-04 | 1.252E-02 | 3.393E+00 |
| 140 | -7.660E-01 | -8.131E+01 | 2.78E+01 | 6.612E+00 | 7.118E+00 | 9.918E-03 | 4.657E-01 | 4.00E+00 | 4.426E+01 | 4.718E+01 | 2.246E-04 | 1.172E-02 | 3.084E+00 |
| 145 | -8.192E-01 | -8.376E+01 | 3.13E+01 | 5.293E+00 | 5.729E+00 | 1.535E-02 | 7.019E-01 | 3.46E+00 | 4.556E+01 | 4.857E+01 | 2.120E-04 | 1.107E-02 | 2.752E+00 |
| 150 | -8.660E-01 | -8.591E+01 | 3.56E+01 | 4.120E+00 | 4.503E+00 | 2.497E-02 | 1.103E+00 | 2.94E+00 | 4.671E+01 | 4.980E+01 | 2.017E-04 | 1.054E-02 | 2.399E+00 |
| 155 | -9.063E-01 | -8.777E+01 | 4.09E+01 | 3.098E+00 | 3.450E+00 | 4.293E-02 | 1.813E+00 | 2.44E+00 | 4.770E+01 | 5.085E+01 | 1.934E-04 | 1.011E-02 | 2.028E+00 |
| 160 | -9.397E-01 | -8.931E+01 | 4.74E+01 | 2.228E+00 | 2.577E+00 | 7.836E-02 | 3.136E+00 | 1.94E+00 | 4.852E+01 | 5.172E+01 | 1.869E-04 | 9.773E-03 | 1.641E+00 |
| 165 | -9.659E-01 | -9.051E+01 | 5.56E+01 | 1.506E+00 | 1.891E+00 | 1.513E-01 | 5.742E+00 | 1.45E+00 | 4.916E+01 | 5.241E+01 | 1.821E-04 | 9.521E-03 | 1.242E+00 |
| 170 | -9.848E-01 | -9.138E+01 | 6.55E+01 | 9.156E-01 | 1.397E+00 | 3.016E-01 | 1.139E+01 | 9.62E-01 | 4.963E+01 | 5.290E+01 | 1.787E-04 | 9.346E-03 | 8.332E-01 |
| 175 | -9.962E-01 | -9.191E+01 | 7.72E+01 | 4.289E-01 | 1.100E+00 | 5.843E-01 | 2.777E+01 | 4.80E-01 | 4.991E+01 | 5.320E+01 | 1.767E-04 | 9.242E-03 | 4.182E-01 |
| 180 | -1.000E+00 | -9.208E+01 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. | 5.000E+01 | 5.330E+01 | 1.760E-04 | 9.208E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + PROTON (4) AT 60 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 9.38259E-01
P2CM= 5.26413E+00 P3CM= 5.26413E+00
E1CM= 5.34709E+00 E2CM= 5.34709E+00 E3CM= 5.34709E+00 E4CM= 5.34709E+00

1-V1LAB = 1.222E-04 1-VCM = 1.552E-02 GCM = 5.69895E+00 ETCM= 1.06942E+01 S = 1.14366E+02 -U=( 1.10844E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 6.000E+01 | 6.396E+01 | 1.222E-04 | 7.698E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -8.441E-03 | 8.77E-02 | 6.000E+01 | 6.395E+01 | 1.223E-04 | 7.699E-03 | 8.72E+01 | 9.199E-02 | 1.005E+00 | 9.024E-01 | 1.627E+02 | 9.187E-02 |
| 2 | 9.994E-01 | -3.376E-02 | 1.75E-01 | 5.998E+01 | 6.394E+01 | 1.223E-04 | 7.702E-03 | 8.43E+01 | 1.846E-01 | 1.019E+00 | 8.069E-01 | 8.048E+01 | 1.837E-01 |
| 3 | 9.986E-01 | -7.595E-02 | 2.63E-01 | 5.996E+01 | 6.391E+01 | 1.224E-04 | 7.708E-03 | 8.15E+01 | 2.786E-01 | 1.043E+00 | 7.154E-01 | 5.271E+01 | 2.755E-01 |
| 4 | 9.976E-01 | -1.350E-01 | 3.51E-01 | 5.993E+01 | 6.388E+01 | 1.225E-04 | 7.716E-03 | 7.87E+01 | 3.744E-01 | 1.077E+00 | 6.294E-01 | 3.858E+01 | 3.672E-01 |
| 5 | 9.962E-01 | -2.109E-01 | 4.39E-01 | 5.989E+01 | 6.384E+01 | 1.227E-04 | 7.726E-03 | 7.60E+01 | 4.728E-01 | 1.120E+00 | 5.500E-01 | 2.993E+01 | 4.588E-01 |
| 6 | 9.945E-01 | -3.036E-01 | 5.27E-01 | 5.984E+01 | 6.378E+01 | 1.229E-04 | 7.739E-03 | 7.34E+01 | 5.743E-01 | 1.172E+00 | 4.780E-01 | 2.405E+01 | 5.503E-01 |
| 7 | 9.925E-01 | -4.131E-01 | 6.15E-01 | 5.978E+01 | 6.372E+01 | 1.231E-04 | 7.754E-03 | 7.08E+01 | 6.794E-01 | 1.235E+00 | 4.135E-01 | 1.976E+01 | 6.415E-01 |
| 8 | 9.903E-01 | -5.394E-01 | 7.03E-01 | 5.971E+01 | 6.365E+01 | 1.234E-04 | 7.771E-03 | 6.83E+01 | 7.887E-01 | 1.306E+00 | 3.566E-01 | 1.649E+01 | 7.326E-01 |
| 9 | 9.877E-01 | -6.823E-01 | 7.91E-01 | 5.964E+01 | 6.357E+01 | 1.237E-04 | 7.791E-03 | 6.58E+01 | 9.025E-01 | 1.388E+00 | 3.067E-01 | 1.392E+01 | 8.235E-01 |
| 10 | 9.848E-01 | -8.420E-01 | 8.80E-01 | 5.955E+01 | 6.348E+01 | 1.241E-04 | 7.813E-03 | 6.35E+01 | 1.021E+00 | 1.478E+00 | 2.635E-01 | 1.185E+01 | 9.141E-01 |
| 15 | 9.659E-01 | -1.888E+00 | 1.32E+00 | 5.899E+01 | 6.288E+01 | 1.265E-04 | 7.960E-03 | 5.31E+01 | 1.703E+00 | 2.073E+00 | 1.241E-01 | 5.732E+00 | 1.362E+00 |
| 20 | 9.397E-01 | -3.342E+00 | 1.77E+00 | 5.822E+01 | 6.206E+01 | 1.298E-04 | 8.172E-03 | 4.49E+01 | 2.552E+00 | 2.898E+00 | 6.141E-02 | 3.015E+00 | 1.800E+00 |
| 25 | 9.063E-01 | -5.193E+00 | 2.23E+00 | 5.723E+01 | 6.101E+01 | 1.344E-04 | 8.454E-03 | 3.84E+01 | 3.585E+00 | 3.949E+00 | 3.259E-02 | 1.691E+00 | 2.225E+00 |
| 30 | 8.660E-01 | -7.425E+00 | 2.69E+00 | 5.604E+01 | 5.974E+01 | 1.401E-04 | 8.813E-03 | 3.32E+01 | 4.804E+00 | 5.217E+00 | 1.854E-02 | 1.004E+00 | 2.632E+00 |
| 35 | 8.192E-01 | -1.002E+01 | 3.17E+00 | 5.466E+01 | 5.826E+01 | 1.473E-04 | 9.262E-03 | 2.91E+01 | 6.209E+00 | 6.693E+00 | 1.123E-02 | 6.281E-01 | 3.019E+00 |
| 40 | 7.660E-01 | -1.297E+01 | 3.65E+00 | 5.309E+01 | 5.659E+01 | 1.561E-04 | 9.812E-03 | 2.57E+01 | 7.792E+00 | 8.364E+00 | 7.172E-03 | 4.112E-01 | 3.384E+00 |
| 45 | 7.071E-01 | -1.623E+01 | 4.16E+00 | 5.135E+01 | 5.474E+01 | 1.669E-04 | 1.048E-02 | 2.30E+01 | 9.543E+00 | 1.022E+01 | 4.799E-03 | 2.802E-01 | 3.722E+00 |
| 50 | 6.428E-01 | -1.980E+01 | 4.68E+00 | 4.945E+01 | 5.271E+01 | 1.800E-04 | 1.130E-02 | 2.06E+01 | 1.145E+01 | 1.224E+01 | 3.341E-03 | 1.978E-01 | 4.033E+00 |
| 55 | 5.736E-01 | -2.363E+01 | 5.22E+00 | 4.740E+01 | 5.053E+01 | 1.958E-04 | 1.228E-02 | 1.86E+01 | 1.350E+01 | 1.442E+01 | 2.406E-03 | 1.441E-01 | 4.312E+00 |
| 60 | 5.000E-01 | -2.771E+01 | 5.78E+00 | 4.523E+01 | 4.822E+01 | 2.151E-04 | 1.348E-02 | 1.69E+01 | 1.568E+01 | 1.674E+01 | 1.786E-03 | 1.079E-01 | 4.559E+00 |
| 65 | 4.226E-01 | -3.200E+01 | 6.38E+00 | 4.294E+01 | 4.578E+01 | 2.386E-04 | 1.493E-02 | 1.54E+01 | 1.797E+01 | 1.917E+01 | 1.361E-03 | 8.277E-02 | 4.771E+00 |
| 70 | 3.420E-01 | -3.647E+01 | 7.00E+00 | 4.056E+01 | 4.324E+01 | 2.674E-04 | 1.672E-02 | 1.41E+01 | 2.035E+01 | 2.171E+01 | 1.061E-03 | 6.491E-02 | 4.947E+00 |
| 75 | 2.588E-01 | -4.108E+01 | 7.67E+00 | 3.811E+01 | 4.063E+01 | 3.030E-04 | 1.891E-02 | 1.29E+01 | 2.281E+01 | 2.433E+01 | 8.450E-04 | 5.192E-02 | 5.085E+00 |
| 80 | 1.736E-01 | -4.580E+01 | 8.38E+00 | 3.559E+01 | 3.794E+01 | 3.473E-04 | 2.165E-02 | 1.18E+01 | 2.533E+01 | 2.701E+01 | 6.855E-04 | 4.229E-02 | 5.184E+00 |
| 85 | 8.716E-02 | -5.059E+01 | 9.13E+00 | 3.303E+01 | 3.522E+01 | 4.031E-04 | 2.507E-02 | 1.08E+01 | 2.788E+01 | 2.973E+01 | 5.657E-04 | 3.501E-02 | 5.244E+00 |
| 90 | 0. | -5.542E+01 | 9.95E+00 | 3.046E+01 | 3.248E+01 | 4.741E-04 | 2.942E-02 | 9.95E+00 | 3.046E+01 | 3.248E+01 | 4.741E-04 | 2.942E-02 | 5.264E+00 |
| 95 | -8.716E-02 | -6.025E+01 | 1.08E+01 | 2.788E+01 | 2.973E+01 | 5.657E-04 | 3.501E-02 | 9.13E+00 | 3.303E+01 | 3.522E+01 | 4.031E-04 | 2.507E-02 | 5.244E+00 |
| 100 | -1.736E-01 | -6.505E+01 | 1.18E+01 | 2.533E+01 | 2.701E+01 | 6.855E-04 | 4.229E-02 | 8.38E+00 | 3.559E+01 | 3.794E+01 | 3.473E-04 | 2.165E-02 | 5.184E+00 |
| 105 | -2.588E-01 | -6.977E+01 | 1.29E+01 | 2.281E+01 | 2.433E+01 | 8.450E-04 | 5.192E-02 | 7.67E+00 | 3.811E+01 | 4.063E+01 | 3.030E-04 | 1.891E-02 | 5.085E+00 |
| 110 | -3.420E-01 | -7.438E+01 | 1.41E+01 | 2.035E+01 | 2.171E+01 | 1.061E-03 | 6.491E-02 | 7.00E+00 | 4.056E+01 | 4.324E+01 | 2.674E-04 | 1.672E-02 | 4.947E+00 |
| 115 | -4.226E-01 | -7.884E+01 | 1.54E+01 | 1.797E+01 | 1.917E+01 | 1.361E-03 | 8.277E-02 | 6.38E+00 | 4.294E+01 | 4.578E+01 | 2.386E-04 | 1.493E-02 | 4.771E+00 |
| 120 | -5.000E-01 | -8.313E+01 | 1.69E+01 | 1.568E+01 | 1.674E+01 | 1.786E-03 | 1.079E-01 | 5.78E+00 | 4.523E+01 | 4.822E+01 | 2.151E-04 | 1.348E-02 | 4.559E+00 |
| 125 | -5.736E-01 | -8.721E+01 | 1.86E+01 | 1.350E+01 | 1.442E+01 | 2.406E-03 | 1.441E-01 | 5.22E+00 | 4.740E+01 | 5.053E+01 | 1.958E-04 | 1.228E-02 | 4.312E+00 |
| 130 | -6.428E-01 | -9.105E+01 | 2.06E+01 | 1.145E+01 | 1.224E+01 | 3.341E-03 | 1.978E-01 | 4.68E+00 | 4.945E+01 | 5.271E+01 | 1.800E-04 | 1.130E-02 | 4.033E+00 |
| 135 | -7.071E-01 | -9.461E+01 | 2.30E+01 | 9.543E+00 | 1.022E+01 | 4.799E-03 | 2.802E-01 | 4.16E+00 | 5.135E+01 | 5.474E+01 | 1.669E-04 | 1.048E-02 | 3.722E+00 |
| 140 | -7.660E-01 | -9.788E+01 | 2.57E+01 | 7.792E+00 | 8.364E+00 | 7.172E-03 | 4.112E-01 | 3.65E+00 | 5.309E+01 | 5.659E+01 | 1.561E-04 | 9.812E-03 | 3.384E+00 |
| 145 | -8.192E-01 | -1.008E+02 | 2.91E+01 | 6.209E+00 | 6.693E+00 | 1.123E-02 | 6.281E-01 | 3.17E+00 | 5.466E+01 | 5.826E+01 | 1.473E-04 | 9.262E-03 | 3.019E+00 |
| 150 | -8.660E-01 | -1.034E+02 | 3.32E+01 | 4.804E+00 | 5.217E+00 | 1.854E-02 | 1.004E+00 | 2.69E+00 | 5.604E+01 | 5.974E+01 | 1.401E-04 | 8.813E-03 | 2.632E+00 |
| 155 | -9.063E-01 | -1.057E+02 | 3.84E+01 | 3.585E+00 | 3.949E+00 | 3.259E-02 | 1.691E+00 | 2.23E+00 | 5.723E+01 | 6.101E+01 | 1.344E-04 | 8.454E-03 | 2.225E+00 |
| 160 | -9.397E-01 | -1.075E+02 | 4.49E+01 | 2.552E+00 | 2.898E+00 | 6.141E-02 | 3.015E+00 | 1.77E+00 | 5.822E+01 | 6.206E+01 | 1.298E-04 | 8.172E-03 | 1.800E+00 |
| 165 | -9.659E-01 | -1.090E+02 | 5.31E+01 | 1.703E+00 | 2.073E+00 | 1.241E-01 | 5.732E+00 | 1.32E+00 | 5.899E+01 | 6.288E+01 | 1.265E-04 | 7.960E-03 | 1.362E+00 |
| 170 | -9.848E-01 | -1.100E+02 | 6.35E+01 | 1.021E+00 | 1.478E+00 | 2.635E-01 | 1.185E+01 | 8.80E-01 | 5.955E+01 | 6.348E+01 | 1.241E-04 | 7.813E-03 | 9.141E-01 |
| 175 | -9.962E-01 | -1.106E+02 | 7.60E+01 | 4.728E-01 | 1.120E+00 | 5.500E-01 | 2.993E+01 | 4.39E-01 | 5.989E+01 | 6.384E+01 | 1.227E-04 | 7.726E-03 | 4.588E-01 |
| 180 | -1.000E+00 | -1.108E+02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. | 6.000E+01 | 6.396E+01 | 1.222E-04 | 7.698E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + PROTON (4) AT 70 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 9.38259E-01
P2CM= 5.69226E+00 P3CM= 5.69226E+00
E1CM= 5.76907E+00 E2CM= 5.76907E+00 E3CM= 5.76907E+00 E4CM= 5.76907E+00

1-V1LAB = 8.982E-05 1-VCM = 1.331E-02 GCM = 6.14870E+00 ETCM= 1.15381E+01 S = 1.33129E+02 -U=( 1.29607E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 7.000E+01 | 7.461E+01 | 8.982E-05 | 6.613E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -9.870E-03 | 8.13E-02 | 6.999E+01 | 7.461E+01 | 8.983E-05 | 6.614E-03 | 8.69E+01 | 9.949E-02 | 1.006E+00 | 8.946E-01 | 1.754E+02 | 9.934E-02 |
| 2 | 9.994E-01 | -3.948E-02 | 1.63E-01 | 6.998E+01 | 7.459E+01 | 8.987E-05 | 6.617E-03 | 8.39E+01 | 1.998E-01 | 1.022E+00 | 7.917E-01 | 8.662E+01 | 1.987E-01 |
| 3 | 9.986E-01 | -8.881E-02 | 2.44E-01 | 6.995E+01 | 7.456E+01 | 8.994E-05 | 6.622E-03 | 8.09E+01 | 3.017E-01 | 1.050E+00 | 6.938E-01 | 5.657E+01 | 2.979E-01 |
| 4 | 9.976E-01 | -1.579E-01 | 3.25E-01 | 6.992E+01 | 7.452E+01 | 9.003E-05 | 6.628E-03 | 7.79E+01 | 4.061E-01 | 1.090E+00 | 6.028E-01 | 4.124E+01 | 3.971E-01 |
| 5 | 9.962E-01 | -2.466E-01 | 4.07E-01 | 6.987E+01 | 7.447E+01 | 9.016E-05 | 6.637E-03 | 7.50E+01 | 5.137E-01 | 1.140E+00 | 5.198E-01 | 3.184E+01 | 4.961E-01 |
| 6 | 9.945E-01 | -3.550E-01 | 4.88E-01 | 6.981E+01 | 7.441E+01 | 9.030E-05 | 6.648E-03 | 7.21E+01 | 6.251E-01 | 1.202E+00 | 4.455E-01 | 2.543E+01 | 5.950E-01 |
| 7 | 9.925E-01 | -4.830E-01 | 5.70E-01 | 6.974E+01 | 7.434E+01 | 9.048E-05 | 6.661E-03 | 6.94E+01 | 7.411E-01 | 1.274E+00 | 3.801E-01 | 2.076E+01 | 6.937E-01 |
| 8 | 9.903E-01 | -6.307E-01 | 6.52E-01 | 6.966E+01 | 7.425E+01 | 9.069E-05 | 6.676E-03 | 6.67E+01 | 8.623E-01 | 1.358E+00 | 3.233E-01 | 1.721E+01 | 7.922E-01 |
| 9 | 9.877E-01 | -7.978E-01 | 7.33E-01 | 6.957E+01 | 7.416E+01 | 9.092E-05 | 6.693E-03 | 6.42E+01 | 9.892E-01 | 1.453E+00 | 2.744E-01 | 1.442E+01 | 8.905E-01 |
| 10 | 9.848E-01 | -9.845E-01 | 8.15E-01 | 6.948E+01 | 7.405E+01 | 9.118E-05 | 6.712E-03 | 6.17E+01 | 1.122E+00 | 1.559E+00 | 2.328E-01 | 1.218E+01 | 9.885E-01 |
| 15 | 9.659E-01 | -2.208E+00 | 1.23E+00 | 6.882E+01 | 7.336E+01 | 9.291E-05 | 6.839E-03 | 5.10E+01 | 1.895E+00 | 2.254E+00 | 1.038E-01 | 5.674E+00 | 1.473E+00 |
| 20 | 9.397E-01 | -3.908E+00 | 1.64E+00 | 6.792E+01 | 7.239E+01 | 9.541E-05 | 7.022E-03 | 4.27E+01 | 2.872E+00 | 3.220E+00 | 4.946E-02 | 2.889E+00 | 1.947E+00 |
| 25 | 9.063E-01 | -6.072E+00 | 2.06E+00 | 6.676E+01 | 7.116E+01 | 9.873E-05 | 7.264E-03 | 3.63E+01 | 4.067E+00 | 4.448E+00 | 2.559E-02 | 1.579E+00 | 2.406E+00 |
| 30 | 8.660E-01 | -8.682E+00 | 2.50E+00 | 6.537E+01 | 6.968E+01 | 1.030E-04 | 7.575E-03 | 3.13E+01 | 5.485E+00 | 5.931E+00 | 1.432E-02 | 9.206E-01 | 2.846E+00 |
| 35 | 8.192E-01 | -1.172E+01 | 2.94E+00 | 6.375E+01 | 6.796E+01 | 1.083E-04 | 7.961E-03 | 2.73E+01 | 7.122E+00 | 7.656E+00 | 8.566E-03 | 5.677E-01 | 3.265E+00 |
| 40 | 7.660E-01 | -1.516E+01 | 3.39E+00 | 6.192E+01 | 6.600E+01 | 1.148E-04 | 8.436E-03 | 2.41E+01 | 8.969E+00 | 9.611E+00 | 5.428E-03 | 3.678E-01 | 3.659E+00 |
| 45 | 7.071E-01 | -1.898E+01 | 3.85E+00 | 5.988E+01 | 6.383E+01 | 1.227E-04 | 9.015E-03 | 2.14E+01 | 1.101E+01 | 1.178E+01 | 3.609E-03 | 2.487E-01 | 4.025E+00 |
| 50 | 6.428E-01 | -2.315E+01 | 4.34E+00 | 5.766E+01 | 6.147E+01 | 1.324E-04 | 9.717E-03 | 1.92E+01 | 1.324E+01 | 1.415E+01 | 2.501E-03 | 1.745E-01 | 4.361E+00 |
| 55 | 5.736E-01 | -2.763E+01 | 4.84E+00 | 5.527E+01 | 5.892E+01 | 1.440E-04 | 1.057E-02 | 1.73E+01 | 1.564E+01 | 1.670E+01 | 1.795E-03 | 1.265E-01 | 4.663E+00 |
| 60 | 5.000E-01 | -3.240E+01 | 5.36E+00 | 5.273E+01 | 5.621E+01 | 1.583E-04 | 1.160E-02 | 1.57E+01 | 1.818E+01 | 1.940E+01 | 1.329E-03 | 9.435E-02 | 4.930E+00 |
| 65 | 4.226E-01 | -3.742E+01 | 5.92E+00 | 5.006E+01 | 5.336E+01 | 1.756E-04 | 1.286E-02 | 1.43E+01 | 2.086E+01 | 2.225E+01 | 1.010E-03 | 7.217E-02 | 5.159E+00 |
| 70 | 3.420E-01 | -4.264E+01 | 6.50E+00 | 4.727E+01 | 5.040E+01 | 1.969E-04 | 1.441E-02 | 1.31E+01 | 2.364E+01 | 2.522E+01 | 7.865E-04 | 5.647E-02 | 5.349E+00 |
| 75 | 2.588E-01 | -4.803E+01 | 7.11E+00 | 4.440E+01 | 4.733E+01 | 2.232E-04 | 1.631E-02 | 1.20E+01 | 2.652E+01 | 2.828E+01 | 6.254E-04 | 4.508E-02 | 5.498E+00 |
| 80 | 1.736E-01 | -5.355E+01 | 7.77E+00 | 4.146E+01 | 4.420E+01 | 2.560E-04 | 1.868E-02 | 1.10E+01 | 2.946E+01 | 3.142E+01 | 5.068E-04 | 3.665E-02 | 5.606E+00 |
| 85 | 8.716E-02 | -5.916E+01 | 8.48E+00 | 3.847E+01 | 4.101E+01 | 2.973E-04 | 2.165E-02 | 1.01E+01 | 3.245E+01 | 3.460E+01 | 4.178E-04 | 3.030E-02 | 5.671E+00 |
| 90 | 0. | -6.480E+01 | 9.24E+00 | 3.546E+01 | 3.781E+01 | 3.499E-04 | 2.543E-02 | 9.24E+00 | 3.546E+01 | 3.781E+01 | 3.499E-04 | 2.543E-02 | 5.692E+00 |
| 95 | -8.716E-02 | -7.045E+01 | 1.01E+01 | 3.245E+01 | 3.460E+01 | 4.178E-04 | 3.030E-02 | 8.48E+00 | 3.847E+01 | 4.101E+01 | 2.973E-04 | 2.165E-02 | 5.671E+00 |
| 100 | -1.736E-01 | -7.606E+01 | 1.10E+01 | 2.946E+01 | 3.142E+01 | 5.068E-04 | 3.665E-02 | 7.77E+00 | 4.146E+01 | 4.420E+01 | 2.560E-04 | 1.868E-02 | 5.606E+00 |
| 105 | -2.588E-01 | -8.158E+01 | 1.20E+01 | 2.652E+01 | 2.828E+01 | 6.254E-04 | 4.508E-02 | 7.11E+00 | 4.440E+01 | 4.733E+01 | 2.232E-04 | 1.631E-02 | 5.498E+00 |
| 110 | -3.420E-01 | -8.697E+01 | 1.31E+01 | 2.364E+01 | 2.522E+01 | 7.865E-04 | 5.647E-02 | 6.50E+00 | 4.727E+01 | 5.040E+01 | 1.969E-04 | 1.441E-02 | 5.349E+00 |
| 115 | -4.226E-01 | -9.219E+01 | 1.43E+01 | 2.086E+01 | 2.225E+01 | 1.010E-03 | 7.217E-02 | 5.92E+00 | 5.006E+01 | 5.336E+01 | 1.756E-04 | 1.286E-02 | 5.159E+00 |
| 120 | -5.000E-01 | -9.721E+01 | 1.57E+01 | 1.818E+01 | 1.940E+01 | 1.329E-03 | 9.435E-02 | 5.36E+00 | 5.273E+01 | 5.621E+01 | 1.583E-04 | 1.160E-02 | 4.930E+00 |
| 125 | -5.736E-01 | -1.020E+02 | 1.73E+01 | 1.564E+01 | 1.670E+01 | 1.795E-03 | 1.265E-01 | 4.84E+00 | 5.527E+01 | 5.892E+01 | 1.440E-04 | 1.057E-02 | 4.663E+00 |
| 130 | -6.428E-01 | -1.065E+02 | 1.92E+01 | 1.324E+01 | 1.415E+01 | 2.501E-03 | 1.745E-01 | 4.34E+00 | 5.766E+01 | 6.147E+01 | 1.324E-04 | 9.717E-03 | 4.361E+00 |
| 135 | -7.071E-01 | -1.106E+02 | 2.14E+01 | 1.101E+01 | 1.178E+01 | 3.609E-03 | 2.487E-01 | 3.85E+00 | 5.988E+01 | 6.383E+01 | 1.227E-04 | 9.015E-03 | 4.025E+00 |
| 140 | -7.660E-01 | -1.144E+02 | 2.41E+01 | 8.969E+00 | 9.611E+00 | 5.428E-03 | 3.678E-01 | 3.39E+00 | 6.192E+01 | 6.600E+01 | 1.148E-04 | 8.436E-03 | 3.659E+00 |
| 145 | -8.192E-01 | -1.179E+02 | 2.73E+01 | 7.122E+00 | 7.656E+00 | 8.566E-03 | 5.677E-01 | 2.94E+00 | 6.375E+01 | 6.796E+01 | 1.083E-04 | 7.961E-03 | 3.265E+00 |
| 150 | -8.660E-01 | -1.209E+02 | 3.13E+01 | 5.485E+00 | 5.931E+00 | 1.432E-02 | 9.206E-01 | 2.50E+00 | 6.537E+01 | 6.968E+01 | 1.030E-04 | 7.575E-03 | 2.846E+00 |
| 155 | -9.063E-01 | -1.235E+02 | 3.63E+01 | 4.067E+00 | 4.448E+00 | 2.559E-02 | 1.579E+00 | 2.06E+00 | 6.676E+01 | 7.116E+01 | 9.873E-05 | 7.264E-03 | 2.406E+00 |
| 160 | -9.397E-01 | -1.257E+02 | 4.27E+01 | 2.872E+00 | 3.220E+00 | 4.946E-02 | 2.889E+00 | 1.64E+00 | 6.792E+01 | 7.239E+01 | 9.541E-05 | 7.022E-03 | 1.947E+00 |
| 165 | -9.659E-01 | -1.274E+02 | 5.10E+01 | 1.895E+00 | 2.254E+00 | 1.038E-01 | 5.674E+00 | 1.23E+00 | 6.882E+01 | 7.336E+01 | 9.291E-05 | 6.839E-03 | 1.473E+00 |
| 170 | -9.848E-01 | -1.286E+02 | 6.17E+01 | 1.122E+00 | 1.559E+00 | 2.328E-01 | 1.218E+01 | 8.15E-01 | 6.948E+01 | 7.405E+01 | 9.118E-05 | 6.712E-03 | 9.885E-01 |
| 175 | -9.962E-01 | -1.294E+02 | 7.50E+01 | 5.137E-01 | 1.140E+00 | 5.198E-01 | 3.184E+01 | 4.07E-01 | 6.987E+01 | 7.447E+01 | 9.016E-05 | 6.637E-03 | 4.961E-01 |
| 180 | -1.000E+00 | -1.296E+02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. | 7.000E+01 | 7.461E+01 | 8.982E-05 | 6.613E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + PPOTON (4) AT 80 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 9.38259E-01
P2CM= 6.09038E+00 P3CM= 6.09038E+00
E1CM= 6.16223E+00 E2CM= 6.16223E+00 E3CM= 6.16223E+00 E4CM= 6.16223E+00

1-V1LAB = 6.877E-05 1-VCM = 1.166E-02 GCM = 6.56773E+00 ETCM= 1.23245E+01 S = 1.51892E+02 -U=( 1.48371E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 8.000E+01 | 8.527E+01 | 6.877E-05 | 5.796E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -1.130E-02 | 7.61E-02 | 7.999E+01 | 8.526E+01 | 6.878E-05 | 5.797E-03 | 8.67E+01 | 1.065E-01 | 1.006E+00 | 8.873E-01 | 1.873E+02 | 1.063E-01 |
| 2 | 9.994E-01 | -4.519E-02 | 1.52E-01 | 7.998E+01 | 8.524E+01 | 6.881E-05 | 5.799E-03 | 8.35E+01 | 2.139E-01 | 1.026E+00 | 7.777E-01 | 9.230E+01 | 2.126E-01 |
| 3 | 9.986E-01 | -1.017E-01 | 2.28E-01 | 7.995E+01 | 8.521E+01 | 6.886E-05 | 5.804E-03 | 8.02E+01 | 3.234E-01 | 1.058E+00 | 6.741E-01 | 6.010E+01 | 3.187E-01 |
| 4 | 9.976E-01 | -1.807E-01 | 3.05E-01 | 7.990E+01 | 8.517E+01 | 6.893E-05 | 5.810E-03 | 7.71E+01 | 4.359E-01 | 1.103E+00 | 5.787E-01 | 4.364E+01 | 4.248E-01 |
| 5 | 9.962E-01 | -2.823E-01 | 3.81E-01 | 7.985E+01 | 8.511E+01 | 6.903E-05 | 5.817E-03 | 7.40E+01 | 5.522E-01 | 1.160E+00 | 4.928E-01 | 3.353E+01 | 5.308E-01 |
| 6 | 9.945E-01 | -4.064E-01 | 4.57E-01 | 7.978E+01 | 8.504E+01 | 6.914E-05 | 5.827E-03 | 7.10E+01 | 6.733E-01 | 1.231E+00 | 4.170E-01 | 2.663E+01 | 6.366E-01 |
| 7 | 9.925E-01 | -5.530E-01 | 5.34E-01 | 7.971E+01 | 8.496E+01 | 6.928E-05 | 5.838E-03 | 6.81E+01 | 7.999E-01 | 1.314E+00 | 3.512E-01 | 2.161E+01 | 7.422E-01 |
| 8 | 9.903E-01 | -7.220E-01 | 6.10E-01 | 7.962E+01 | 8.486E+01 | 6.943E-05 | 5.852E-03 | 6.53E+01 | 9.327E-01 | 1.410E+00 | 2.950E-01 | 1.779E+01 | 8.476E-01 |
| 9 | 9.877E-01 | -9.133E-01 | 6.87E-01 | 7.951E+01 | 8.475E+01 | 6.961E-05 | 5.867E-03 | 6.27E+01 | 1.072E+00 | 1.519E+00 | 2.474E-01 | 1.481E+01 | 9.527E-01 |
| 10 | 9.848E-01 | -1.127E+00 | 7.63E-01 | 7.940E+01 | 8.463E+01 | 6.981E-05 | 5.883E-03 | 6.01E+01 | 1.220E+00 | 1.640E+00 | 2.074E-01 | 1.242E+01 | 1.058E+00 |
| 15 | 9.659E-01 | -2.528E+00 | 1.15E+00 | 7.865E+01 | 8.383E+01 | 7.114E-05 | 5.995E-03 | 4.92E+01 | 2.084E+00 | 2.436E+00 | 8.816E-02 | 5.587E+00 | 1.576E+00 |
| 20 | 9.397E-01 | -4.474E+00 | 1.54E+00 | 7.762E+01 | 8.273E+01 | 7.306E-05 | 6.155E-03 | 4.08E+01 | 3.187E+00 | 3.541E+00 | 4.070E-02 | 2.764E+00 | 2.083E+00 |
| 25 | 9.063E-01 | -6.951E+00 | 1.93E+00 | 7.630E+01 | 8.132E+01 | 7.561E-05 | 6.369E-03 | 3.45E+01 | 4.546E+00 | 4.948E+00 | 2.064E-02 | 1.479E+00 | 2.574E+00 |
| 30 | 8.660E-01 | -9.939E+00 | 2.34E+00 | 7.470E+01 | 7.963E+01 | 7.887E-05 | 6.641E-03 | 2.96E+01 | 6.164E+00 | 6.645E+00 | 1.139E-02 | 8.489E-01 | 3.045E+00 |
| 35 | 8.192E-01 | -1.342E+01 | 2.75E+00 | 7.285E+01 | 7.765E+01 | 8.293E-05 | 6.981E-03 | 2.58E+01 | 8.033E+00 | 8.620E+00 | 6.752E-03 | 5.176E-01 | 3.493E+00 |
| 40 | 7.660E-01 | -1.736E+01 | 3.17E+00 | 7.075E+01 | 7.541E+01 | 8.792E-05 | 7.399E-03 | 2.27E+01 | 1.014E+01 | 1.086E+01 | 4.250E-03 | 3.325E-01 | 3.915E+00 |
| 45 | 7.071E-01 | -2.173E+01 | 3.61E+00 | 6.842E+01 | 7.293E+01 | 9.401E-05 | 7.908E-03 | 2.02E+01 | 1.248E+01 | 1.334E+01 | 2.813E-03 | 2.235E-01 | 4.307E+00 |
| 50 | 6.428E-01 | -2.650E+01 | 4.06E+00 | 6.588E+01 | 7.022E+01 | 1.014E-04 | 8.526E-03 | 1.81E+01 | 1.503E+01 | 1.605E+01 | 1.943E-03 | 1.561E-01 | 4.666E+00 |
| 55 | 5.736E-01 | -3.163E+01 | 4.53E+00 | 6.314E+01 | 6.730E+01 | 1.104E-04 | 9.275E-03 | 1.63E+01 | 1.777E+01 | 1.897E+01 | 1.391E-03 | 1.127E-01 | 4.989E+00 |
| 60 | 5.000E-01 | -3.709E+01 | 5.02E+00 | 6.023E+01 | 6.420E+01 | 1.213E-04 | 1.019E-02 | 1.48E+01 | 2.068E+01 | 2.207E+01 | 1.027E-03 | 8.384E-02 | 5.274E+00 |
| 65 | 4.226E-01 | -4.283E+01 | 5.54E+00 | 5.717E+01 | 6.094E+01 | 1.346E-04 | 1.130E-02 | 1.34E+01 | 2.375E+01 | 2.533E+01 | 7.797E-04 | 6.398E-02 | 5.520E+00 |
| 70 | 3.420E-01 | -4.881E+01 | 6.09E+00 | 5.399E+01 | 5.755E+01 | 1.510E-04 | 1.266E-02 | 1.23E+01 | 2.693E+01 | 2.872E+01 | 6.062E-04 | 4.996E-02 | 5.723E+00 |
| 75 | 2.588E-01 | -5.498E+01 | 6.66E+00 | 5.070E+01 | 5.404E+01 | 1.712E-04 | 1.434E-02 | 1.12E+01 | 3.023E+01 | 3.223E+01 | 4.815E-04 | 3.983E-02 | 5.883E+00 |
| 80 | 1.736E-01 | -6.130E+01 | 7.28E+00 | 4.733E+01 | 5.045E+01 | 1.965E-04 | 1.643E-02 | 1.03E+01 | 3.359E+01 | 3.582E+01 | 3.898E-04 | 3.234E-02 | 5.998E+00 |
| 85 | 8.716E-02 | -6.772E+01 | 7.94E+00 | 4.391E+01 | 4.681E+01 | 2.282E-04 | 1.906E-02 | 9.43E+00 | 3.701E+01 | 3.946E+01 | 3.211E-04 | 2.671E-02 | 6.067E+00 |
| 90 | 0. | -7.419E+01 | 8.66E+00 | 4.046E+01 | 4.314E+01 | 2.688E-04 | 2.240E-02 | 8.66E+00 | 4.046E+01 | 4.314E+01 | 2.688E-04 | 2.240E-02 | 6.090E+00 |
| 95 | -8.716E-02 | -8.065E+01 | 9.43E+00 | 3.701E+01 | 3.946E+01 | 3.211E-04 | 2.671E-02 | 7.94E+00 | 4.391E+01 | 4.681E+01 | 2.282E-04 | 1.906E-02 | 6.067E+00 |
| 100 | -1.736E-01 | -8.707E+01 | 1.03E+01 | 3.359E+01 | 3.582E+01 | 3.898E-04 | 3.234E-02 | 7.28E+00 | 4.733E+01 | 5.045E+01 | 1.965E-04 | 1.643E-02 | 5.998E+00 |
| 105 | -2.588E-01 | -9.339E+01 | 1.12E+01 | 3.023E+01 | 3.223E+01 | 4.815E-04 | 3.983E-02 | 6.66E+00 | 5.070E+01 | 5.404E+01 | 1.712E-04 | 1.434E-02 | 5.883E+00 |
| 110 | -3.420E-01 | -9.956E+01 | 1.23E+01 | 2.693E+01 | 2.872E+01 | 6.062E-04 | 4.996E-02 | 6.09E+00 | 5.399E+01 | 5.755E+01 | 1.510E-04 | 1.266E-02 | 5.723E+00 |
| 115 | -4.226E-01 | -1.055E+02 | 1.34E+01 | 2.375E+01 | 2.533E+01 | 7.797E-04 | 6.398E-02 | 5.54E+00 | 5.717E+01 | 6.094E+01 | 1.346E-04 | 1.130E-02 | 5.520E+00 |
| 120 | -5.000E-01 | -1.113E+02 | 1.48E+01 | 2.068E+01 | 2.207E+01 | 1.027E-03 | 8.384E-02 | 5.02E+00 | 6.023E+01 | 6.420E+01 | 1.213E-04 | 1.019E-02 | 5.274E+00 |
| 125 | -5.736E-01 | -1.167E+02 | 1.63E+01 | 1.777E+01 | 1.897E+01 | 1.391E-03 | 1.127E-01 | 4.53E+00 | 6.314E+01 | 6.730E+01 | 1.104E-04 | 9.275E-03 | 4.989E+00 |
| 130 | -6.428E-01 | -1.219E+02 | 1.81E+01 | 1.503E+01 | 1.605E+01 | 1.943E-03 | 1.561E-01 | 4.06E+00 | 6.588E+01 | 7.022E+01 | 1.014E-04 | 8.526E-03 | 4.666E+00 |
| 135 | -7.071E-01 | -1.266E+02 | 2.02E+01 | 1.248E+01 | 1.334E+01 | 2.813E-03 | 2.235E-01 | 3.61E+00 | 6.842E+01 | 7.293E+01 | 9.401E-05 | 7.908E-03 | 4.307E+00 |
| 140 | -7.660E-01 | -1.310E+02 | 2.27E+01 | 1.014E+01 | 1.086E+01 | 4.250E-03 | 3.325E-01 | 3.17E+00 | 7.075E+01 | 7.541E+01 | 8.792E-05 | 7.399E-03 | 3.915E+00 |
| 145 | -8.192E-01 | -1.350E+02 | 2.58E+01 | 8.033E+00 | 8.620E+00 | 6.752E-03 | 5.176E-01 | 2.75E+00 | 7.285E+01 | 7.765E+01 | 8.293E-05 | 6.981E-03 | 3.493E+00 |
| 150 | -8.660E-01 | -1.384E+02 | 2.96E+01 | 6.164E+00 | 6.645E+00 | 1.139E-02 | 8.489E-01 | 2.34E+00 | 7.470E+01 | 7.963E+01 | 7.887E-05 | 6.641E-03 | 3.045E+00 |
| 155 | -9.063E-01 | -1.414E+02 | 3.45E+01 | 4.546E+00 | 4.948E+00 | 2.064E-02 | 1.479E+00 | 1.93E+00 | 7.630E+01 | 8.132E+01 | 7.561E-05 | 6.369E-03 | 2.574E+00 |
| 160 | -9.397E-01 | -1.439E+02 | 4.08E+01 | 3.187E+00 | 3.541E+00 | 4.070E-02 | 2.764E+00 | 1.54E+00 | 7.762E+01 | 8.273E+01 | 7.306E-05 | 6.155E-03 | 2.083E+00 |
| 165 | -9.659E-01 | -1.458E+02 | 4.92E+01 | 2.084E+00 | 2.436E+00 | 8.816E-02 | 5.587E+00 | 1.15E+00 | 7.865E+01 | 8.383E+01 | 7.114E-05 | 5.995E-03 | 1.576E+00 |
| 170 | -9.848E-01 | -1.472E+02 | 6.01E+01 | 1.220E+00 | 1.640E+00 | 2.074E-01 | 1.242E+01 | 7.63E-01 | 7.940E+01 | 8.463E+01 | 6.981E-05 | 5.883E-03 | 1.058E+00 |
| 175 | -9.962E-01 | -1.481E+02 | 7.40E+01 | 5.522E-01 | 1.160E+00 | 4.928E-01 | 3.353E+01 | 3.81E-01 | 7.985E+01 | 8.511E+01 | 6.903E-05 | 5.817E-03 | 5.308E-01 |
| 180 | -1.000E+00 | -1.484E+02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. | 8.000E+01 | 8.527E+01 | 6.877E-05 | 5.796E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + PROTON (4) AT 90 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 9.38259E-01

P2CM= 6.46404E+00 P3CM= 6.46404E+00

E1CM= 6.53178E+00 E2CM= 6.53178E+00 E3CM= 6.53178E+00 E4CM= 6.53178E+00

1-V1LAB = 5.434E-05 1-VCM = 1.037E-02 GCM = 6.96159E+00 ETCM= 1.30636E+01 S = 1.70656E+02 -U=( 1.67135E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 9.000E+01 | 9.593E+01 | 5.434E-05 | 5.158E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -1.273E-02 | 7.18E-02 | 8.999E+01 | 9.592E+01 | 5.435E-05 | 5.159E-03 | 8.65E+01 | 1.130E-01 | 1.007E+00 | 8.804E-01 | 1.984E+02 | 1.128E-01 |
| 2 | 9.994E-01 | -5.091E-02 | 1.44E-01 | 8.997E+01 | 9.590E+01 | 5.437E-05 | 5.162E-03 | 8.31E+01 | 2.273E-01 | 1.029E+00 | 7.646E-01 | 9.760E+01 | 2.256E-01 |
| 3 | 9.986E-01 | -1.145E-01 | 2.16E-01 | 8.994E+01 | 9.586E+01 | 5.441E-05 | 5.165E-03 | 7.97E+01 | 3.439E-01 | 1.065E+00 | 6.559E-01 | 6.337E+01 | 3.383E-01 |
| 4 | 9.976E-01 | -2.036E-01 | 2.87E-01 | 8.989E+01 | 9.581E+01 | 5.447E-05 | 5.171E-03 | 7.63E+01 | 4.640E-01 | 1.116E+00 | 5.567E-01 | 4.584E+01 | 4.509E-01 |
| 5 | 9.962E-01 | -3.180E-01 | 3.59E-01 | 8.983E+01 | 9.575E+01 | 5.454E-05 | 5.178E-03 | 7.31E+01 | 5.888E-01 | 1.181E+00 | 4.684E-01 | 3.505E+01 | 5.634E-01 |
| 6 | 9.945E-01 | -4.578E-01 | 4.31E-01 | 8.976E+01 | 9.567E+01 | 5.463E-05 | 5.186E-03 | 7.00E+01 | 7.192E-01 | 1.260E+00 | 3.916E-01 | 2.768E+01 | 6.757E-01 |
| 7 | 9.925E-01 | -6.229E-01 | 5.03E-01 | 8.967E+01 | 9.557E+01 | 5.474E-05 | 5.197E-03 | 6.69E+01 | 8.562E-01 | 1.354E+00 | 3.259E-01 | 2.233E+01 | 7.878E-01 |
| 8 | 9.903E-01 | -8.133E-01 | 5.75E-01 | 8.957E+01 | 9.547E+01 | 5.486E-05 | 5.208E-03 | 6.40E+01 | 1.001E+00 | 1.462E+00 | 2.706E-01 | 1.827E+01 | 8.996E-01 |
| 9 | 9.877E-01 | -1.029E+00 | 6.48E-01 | 8.945E+01 | 9.534E+01 | 5.501E-05 | 5.222E-03 | 6.13E+01 | 1.153E+00 | 1.584E+00 | 2.244E-01 | 1.510E+01 | 1.011E+00 |
| 10 | 9.848E-01 | -1.270E+00 | 7.20E-01 | 8.932E+01 | 9.521E+01 | 5.516E-05 | 5.237E-03 | 5.87E+01 | 1.314E+00 | 1.721E+00 | 1.861E-01 | 1.258E+01 | 1.122E+00 |
| 15 | 9.659E-01 | -2.847E+00 | 1.08E+00 | 8.848E+01 | 9.431E+01 | 5.622E-05 | 5.336E-03 | 4.75E+01 | 2.269E+00 | 2.617E+00 | 7.587E-02 | 5.482E+00 | 1.673E+00 |
| 20 | 9.397E-01 | -5.040E+00 | 1.45E+00 | 8.731E+01 | 9.307E+01 | 5.773E-05 | 5.479E-03 | 3.92E+01 | 3.500E+00 | 3.862E+00 | 3.410E-02 | 2.644E+00 | 2.211E+00 |
| 25 | 9.063E-01 | -7.830E+00 | 1.82E+00 | 8.583E+01 | 9.148E+01 | 5.975E-05 | 5.669E-03 | 3.29E+01 | 5.024E+00 | 5.447E+00 | 1.700E-02 | 1.389E+00 | 2.732E+00 |
| 30 | 8.660E-01 | -1.120E+01 | 2.20E+00 | 8.403E+01 | 8.957E+01 | 6.233E-05 | 5.913E-03 | 2.82E+01 | 6.841E+00 | 7.359E+00 | 9.276E-03 | 7.870E-01 | 3.232E+00 |
| 35 | 8.192E-01 | -1.511E+01 | 2.59E+00 | 8.195E+01 | 8.734E+01 | 6.554E-05 | 6.216E-03 | 2.45E+01 | 8.943E+00 | 9.584E+00 | 5.459E-03 | 4.754E-01 | 3.708E+00 |
| 40 | 7.660E-01 | -1.955E+01 | 2.99E+00 | 7.958E+01 | 8.482E+01 | 6.950E-05 | 6.589E-03 | 2.15E+01 | 1.132E+01 | 1.210E+01 | 3.418E-03 | 3.034E-01 | 4.155E+00 |
| 45 | 7.071E-01 | -2.448E+01 | 3.41E+00 | 7.696E+01 | 8.203E+01 | 7.432E-05 | 7.043E-03 | 1.91E+01 | 1.395E+01 | 1.490E+01 | 2.254E-03 | 2.029E-01 | 4.571E+00 |
| 50 | 6.428E-01 | -2.985E+01 | 3.83E+00 | 7.409E+01 | 7.897E+01 | 8.017E-05 | 7.595E-03 | 1.71E+01 | 1.682E+01 | 1.795E+01 | 1.552E-03 | 1.411E-01 | 4.952E+00 |
| 55 | 5.736E-01 | -3.564E+01 | 4.28E+00 | 7.101E+01 | 7.569E+01 | 8.728E-05 | 8.264E-03 | 1.54E+01 | 1.991E+01 | 2.124E+01 | 1.109E-03 | 1.016E-01 | 5.295E+00 |
| 60 | 5.000E-01 | -4.178E+01 | 4.74E+00 | 6.773E+01 | 7.220E+01 | 9.593E-05 | 9.077E-03 | 1.40E+01 | 2.319E+01 | 2.473E+01 | 8.178E-04 | 7.543E-02 | 5.598E+00 |
| 65 | 4.226E-01 | -4.825E+01 | 5.23E+00 | 6.429E+01 | 6.852E+01 | 1.065E-04 | 1.007E-02 | 1.27E+01 | 2.663E+01 | 2.840E+01 | 6.199E-04 | 5.746E-02 | 5.858E+00 |
| 70 | 3.420E-01 | -5.499E+01 | 5.74E+00 | 6.070E+01 | 6.470E+01 | 1.195E-04 | 1.129E-02 | 1.16E+01 | 3.023E+01 | 3.223E+01 | 4.814E-04 | 4.480E-02 | 6.074E+00 |
| 75 | 2.588E-01 | -6.194E+01 | 6.29E+00 | 5.699E+01 | 6.075E+01 | 1.355E-04 | 1.279E-02 | 1.06E+01 | 3.393E+01 | 3.618E+01 | 3.821E-04 | 3.567E-02 | 6.244E+00 |
| 80 | 1.736E-01 | -6.906E+01 | 6.87E+00 | 5.320E+01 | 5.671E+01 | 1.555E-04 | 1.466E-02 | 9.71E+00 | 3.773E+01 | 4.022E+01 | 3.091E-04 | 2.894E-02 | 6.366E+00 |
| 85 | 8.716E-02 | -7.628E+01 | 7.50E+00 | 4.934E+01 | 5.260E+01 | 1.807E-04 | 1.701E-02 | 8.91E+00 | 4.158E+01 | 4.433E+01 | 2.545E-04 | 2.388E-02 | 6.439E+00 |
| 90 | 0. | -8.357E+01 | 8.17E+00 | 4.546E+01 | 4.846E+01 | 2.129E-04 | 2.001E-02 | 8.17E+00 | 4.546E+01 | 4.846E+01 | 2.129E-04 | 2.001E-02 | 6.464E+00 |
| 95 | -8.716E-02 | -9.085E+01 | 8.91E+00 | 4.158E+01 | 4.433E+01 | 2.545E-04 | 2.388E-02 | 7.50E+00 | 4.934E+01 | 5.260E+01 | 1.807E-04 | 1.701E-02 | 6.439E+00 |
| 100 | -1.736E-01 | -9.808E+01 | 9.71E+00 | 3.773E+01 | 4.022E+01 | 3.091E-04 | 2.894E-02 | 6.87E+00 | 5.320E+01 | 5.671E+01 | 1.555E-04 | 1.466E-02 | 6.366E+00 |
| 105 | -2.588E-01 | -1.052E+02 | 1.06E+01 | 3.393E+01 | 3.618E+01 | 3.821E-04 | 3.567E-02 | 6.29E+00 | 5.699E+01 | 6.075E+01 | 1.355E-04 | 1.279E-02 | 6.244E+00 |
| 110 | -3.420E-01 | -1.121E+02 | 1.16E+01 | 3.023E+01 | 3.223E+01 | 4.814E-04 | 4.480E-02 | 5.74E+00 | 6.070E+01 | 6.470E+01 | 1.195E-04 | 1.129E-02 | 6.074E+00 |
| 115 | -4.226E-01 | -1.189E+02 | 1.27E+01 | 2.663E+01 | 2.840E+01 | 6.199E-04 | 5.746E-02 | 5.23E+00 | 6.429E+01 | 6.852E+01 | 1.065E-04 | 1.007E-02 | 5.858E+00 |
| 120 | -5.000E-01 | -1.254E+02 | 1.40E+01 | 2.319E+01 | 2.473E+01 | 8.178E-04 | 7.543E-02 | 4.74E+00 | 6.773E+01 | 7.220E+01 | 9.593E-05 | 9.077E-03 | 5.598E+00 |
| 125 | -5.736E-01 | -1.315E+02 | 1.54E+01 | 1.991E+01 | 2.124E+01 | 1.109E-03 | 1.016E-01 | 4.28E+00 | 7.101E+01 | 7.569E+01 | 8.728E-05 | 8.264E-03 | 5.295E+00 |
| 130 | -6.428E-01 | -1.373E+02 | 1.71E+01 | 1.682E+01 | 1.795E+01 | 1.552E-03 | 1.411E-01 | 3.83E+00 | 7.409E+01 | 7.897E+01 | 8.017E-05 | 7.595E-03 | 4.952E+00 |
| 135 | -7.071E-01 | -1.427E+02 | 1.91E+01 | 1.395E+01 | 1.490E+01 | 2.254E-03 | 2.029E-01 | 3.41E+00 | 7.696E+01 | 8.203E+01 | 7.432E-05 | 7.043E-03 | 4.571E+00 |
| 140 | -7.660E-01 | -1.476E+02 | 2.15E+01 | 1.132E+01 | 1.210E+01 | 3.418E-03 | 3.034E-01 | 2.99E+00 | 7.958E+01 | 8.482E+01 | 6.950E-05 | 6.589E-03 | 4.155E+00 |
| 145 | -8.192E-01 | -1.520E+02 | 2.45E+01 | 8.943E+00 | 9.584E+00 | 5.459E-03 | 4.754E-01 | 2.59E+00 | 8.195E+01 | 8.734E+01 | 6.554E-05 | 6.216E-03 | 3.708E+00 |
| 150 | -8.660E-01 | -1.559E+02 | 2.82E+01 | 6.841E+00 | 7.359E+00 | 9.276E-03 | 7.870E-01 | 2.20E+00 | 8.403E+01 | 8.957E+01 | 6.233E-05 | 5.913E-03 | 3.232E+00 |
| 155 | -9.063E-01 | -1.593E+02 | 3.29E+01 | 5.024E+00 | 5.447E+00 | 1.700E-02 | 1.389E+00 | 1.82E+00 | 8.583E+01 | 9.148E+01 | 5.975E-05 | 5.669E-03 | 2.732E+00 |
| 160 | -9.397E-01 | -1.621E+02 | 3.92E+01 | 3.500E+00 | 3.862E+00 | 3.410E-02 | 2.644E+00 | 1.45E+00 | 8.731E+01 | 9.307E+01 | 5.773E-05 | 5.479E-03 | 2.211E+00 |
| 165 | -9.659E-01 | -1.643E+02 | 4.75E+01 | 2.269E+00 | 2.617E+00 | 7.587E-02 | 5.482E+00 | 1.08E+00 | 8.848E+01 | 9.431E+01 | 5.622E-05 | 5.336E-03 | 1.673E+00 |
| 170 | -9.848E-01 | -1.659E+02 | 5.87E+01 | 1.314E+00 | 1.721E+00 | 1.861E-01 | 1.258E+01 | 7.20E-01 | 8.932E+01 | 9.521E+01 | 5.516E-05 | 5.237E-03 | 1.122E+00 |
| 175 | -9.962E-01 | -1.668E+02 | 7.31E+01 | 5.888E-01 | 1.181E+00 | 4.684E-01 | 3.505E+01 | 3.59E-01 | 8.983E+01 | 9.575E+01 | 5.454E-05 | 5.178E-03 | 5.634E-01 |
| 180 | -1.000E+00 | -1.671E+02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. | 9.000E+01 | 9.593E+01 | 5.434E-05 | 5.158E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + PROTON (4) AT 100 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 9.38259E-01
P2CM= 6.81725E+00 P3CM= 6.81725E+00
E1CM= 6.88151E+00 E2CM= 6.88151E+00 E3CM= 6.88151E+00 E4CM= 6.88151E+00

1-V1LAB = 4.401E-05 1-VCM = 9.339E-03 GCM = 7.33434E+00 ETCM= 1.37630E+01 S = 1.89421E+02 -U=( 1.85899E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 1.000E+02 | 1.066E+02 | 4.401E-05 | 4.647E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -1.416E-02 | 6.82E-02 | 9.999E+01 | 1.066E+02 | 4.402E-05 | 4.648E-03 | 8.63E+01 | 1.192E-01 | 1.008E+00 | 8.739E-01 | 2.089E+02 | 1.190E-01 |
| 2 | 9.994E-01 | -5.662E-02 | 1.36E-01 | 9.997E+01 | 1.066E+02 | 4.404E-05 | 4.650E-03 | 8.27E+01 | 2.399E-01 | 1.032E+00 | 7.523E-01 | 1.026E+02 | 2.379E-01 |
| 3 | 9.986E-01 | -1.274E-01 | 2.05E-01 | 9.993E+01 | 1.065E+02 | 4.407E-05 | 4.654E-03 | 7.91E+01 | 3.633E-01 | 1.072E+00 | 6.389E-01 | 6.641E+01 | 3.568E-01 |
| 4 | 9.976E-01 | -2.264E-01 | 2.73E-01 | 9.988E+01 | 1.065E+02 | 4.412E-05 | 4.659E-03 | 7.56E+01 | 4.909E-01 | 1.129E+00 | 5.364E-01 | 4.785E+01 | 4.755E-01 |
| 5 | 9.962E-01 | -3.537E-01 | 3.41E-01 | 9.981E+01 | 1.064E+02 | 4.418E-05 | 4.665E-03 | 7.22E+01 | 6.239E-01 | 1.201E+00 | 4.463E-01 | 3.641E+01 | 5.942E-01 |
| 6 | 9.945E-01 | -5.092E-01 | 4.09E-01 | 9.973E+01 | 1.063E+02 | 4.425E-05 | 4.673E-03 | 6.90E+01 | 7.634E-01 | 1.289E+00 | 3.649E-01 | 2.861E+01 | 7.126E-01 |
| 7 | 9.925E-01 | -6.928E-01 | 4.78E-01 | 9.963E+01 | 1.062E+02 | 4.434E-05 | 4.682E-03 | 6.58E+01 | 9.106E-01 | 1.394E+00 | 3.036E-01 | 2.294E+01 | 8.308E-01 |
| 8 | 9.903E-01 | -9.046E-01 | 5.46E-01 | 9.952E+01 | 1.061E+02 | 4.444E-05 | 4.692E-03 | 6.28E+01 | 1.066E+00 | 1.514E+00 | 2.493E-01 | 1.865E+01 | 9.488E-01 |
| 9 | 9.877E-01 | -1.144E+00 | 6.15E-01 | 9.939E+01 | 1.059E+02 | 4.456E-05 | 4.704E-03 | 6.00E+01 | 1.231E+00 | 1.650E+00 | 2.046E-01 | 1.532E+01 | 1.066E+00 |
| 10 | 9.848E-01 | -1.412E+00 | 6.83E-01 | 9.925E+01 | 1.058E+02 | 4.468E-05 | 4.718E-03 | 5.73E+01 | 1.407E+00 | 1.802E+00 | 1.681E-01 | 1.269E+01 | 1.184E+00 |
| 15 | 9.659E-01 | -3.167E+00 | 1.03E+00 | 9.831E+01 | 1.048E+02 | 4.554E-05 | 4.808E-03 | 4.60E+01 | 2.453E+00 | 2.799E+00 | 6.601E-02 | 5.366E+00 | 1.764E+00 |
| 20 | 9.397E-01 | -5.606E+00 | 1.38E+00 | 9.701E+01 | 1.034E+02 | 4.677E-05 | 4.937E-03 | 3.77E+01 | 3.812E+00 | 4.184E+00 | 2.898E-02 | 2.530E+00 | 2.332E+00 |
| 25 | 9.063E-01 | -8.709E+00 | 1.73E+00 | 9.536E+01 | 1.016E+02 | 4.843E-05 | 5.109E-03 | 3.16E+01 | 5.500E+00 | 5.946E+00 | 1.424E-02 | 1.309E+00 | 2.881E+00 |
| 30 | 8.660E-01 | -1.245E+01 | 2.09E+00 | 9.336E+01 | 9.951E+01 | 5.049E-05 | 5.328E-03 | 2.70E+01 | 7.516E+00 | 8.073E+00 | 7.702E-03 | 7.332E-01 | 3.409E+00 |
| 35 | 8.192E-01 | -1.681E+01 | 2.46E+00 | 9.104E+01 | 9.704E+01 | 5.313E-05 | 5.602E-03 | 2.34E+01 | 9.852E+00 | 1.055E+01 | 4.595E-03 | 4.395E-01 | 3.910E+00 |
| 40 | 7.660E-01 | -2.175E+01 | 2.84E+00 | 8.841E+01 | 9.423E+01 | 5.631E-05 | 5.938E-03 | 2.05E+01 | 1.249E+01 | 1.335E+01 | 2.809E-03 | 2.789E-01 | 4.382E+00 |
| 45 | 7.071E-01 | -2.722E+01 | 3.23E+00 | 8.549E+01 | 9.112E+01 | 6.022E-05 | 6.349E-03 | 1.82E+01 | 1.542E+01 | 1.646E+01 | 1.847E-03 | 1.857E-01 | 4.821E+00 |
| 50 | 6.428E-01 | -3.320E+01 | 3.64E+00 | 8.231E+01 | 8.773E+01 | 6.497E-05 | 6.847E-03 | 1.63E+01 | 1.861E+01 | 1.986E+01 | 1.269E-03 | 1.288E-01 | 5.222E+00 |
| 55 | 5.736E-01 | -3.964E+01 | 4.06E+00 | 7.888E+01 | 8.407E+01 | 7.074E-05 | 7.451E-03 | 1.47E+01 | 2.204E+01 | 2.351E+01 | 9.049E-04 | 9.259E-02 | 5.584E+00 |
| 60 | 5.000E-01 | -4.647E+01 | 4.50E+00 | 7.523E+01 | 8.019E+01 | 7.776E-05 | 8.186E-03 | 1.33E+01 | 2.569E+01 | 2.740E+01 | 6.664E-04 | 6.855E-02 | 5.904E+00 |
| 65 | 4.226E-01 | -5.367E+01 | 4.96E+00 | 7.140E+01 | 7.610E+01 | 8.633E-05 | 9.042E-03 | 1.21E+01 | 2.952E+01 | 3.148E+01 | 5.046E-04 | 5.214E-02 | 6.179E+00 |
| 70 | 3.420E-01 | -6.116E+01 | 5.45E+00 | 6.741E+01 | 7.185E+01 | 9.686E-05 | 1.018E-02 | 1.10E+01 | 3.352E+01 | 3.574E+01 | 3.916E-04 | 4.061E-02 | 6.406E+00 |
| 75 | 2.588E-01 | -6.889E+01 | 5.97E+00 | 6.328E+01 | 6.746E+01 | 1.099E-04 | 1.154E-02 | 1.01E+01 | 3.764E+01 | 4.013E+01 | 3.105E-04 | 3.230E-02 | 6.585E+00 |
| 80 | 1.736E-01 | -7.681E+01 | 6.53E+00 | 5.907E+01 | 6.296E+01 | 1.261E-04 | 1.324E-02 | 9.23E+00 | 4.186E+01 | 4.463E+01 | 2.511E-04 | 2.618E-02 | 6.714E+00 |
| 85 | 8.716E-02 | -8.485E+01 | 7.12E+00 | 5.478E+01 | 5.839E+01 | 1.466E-04 | 1.537E-02 | 8.46E+00 | 4.614E+01 | 4.919E+01 | 2.067E-04 | 2.159E-02 | 6.791E+00 |
| 90 | 0. | -9.295E+01 | 7.76E+00 | 5.046E+01 | 5.379E+01 | 1.728E-04 | 1.808E-02 | 7.76E+00 | 5.046E+01 | 5.379E+01 | 1.728E-04 | 1.808E-02 | 6.817E+00 |
| 95 | -8.716E-02 | -1.011E+02 | 8.46E+00 | 4.614E+01 | 4.919E+01 | 2.067E-04 | 2.159E-02 | 7.12E+00 | 5.478E+01 | 5.839E+01 | 1.466E-04 | 1.537E-02 | 6.791E+00 |
| 100 | -1.736E-01 | -1.091E+02 | 9.23E+00 | 4.186E+01 | 4.463E+01 | 2.511E-04 | 2.618E-02 | 6.53E+00 | 5.907E+01 | 6.296E+01 | 1.261E-04 | 1.324E-02 | 6.714E+00 |
| 105 | -2.588E-01 | -1.170E+02 | 1.01E+01 | 3.764E+01 | 4.013E+01 | 3.105E-04 | 3.230E-02 | 5.97E+00 | 6.328E+01 | 6.746E+01 | 1.099E-04 | 1.154E-02 | 6.585E+00 |
| 110 | -3.420E-01 | -1.247E+02 | 1.10E+01 | 3.352E+01 | 3.574E+01 | 3.916E-04 | 4.061E-02 | 5.45E+00 | 6.741E+01 | 7.185E+01 | 9.686E-05 | 1.018E-02 | 6.406E+00 |
| 115 | -4.226E-01 | -1.322E+02 | 1.21E+01 | 2.952E+01 | 3.148E+01 | 5.046E-04 | 5.214E-02 | 4.96E+00 | 7.140E+01 | 7.610E+01 | 8.633E-05 | 9.082E-03 | 6.179E+00 |
| 120 | -5.000E-01 | -1.394E+02 | 1.33E+01 | 2.569E+01 | 2.740E+01 | 6.664E-04 | 6.855E-02 | 4.50E+00 | 7.523E+01 | 8.019E+01 | 7.776E-05 | 8.186E-03 | 5.904E+00 |
| 125 | -5.736E-01 | -1.463E+02 | 1.47E+01 | 2.204E+01 | 2.351E+01 | 9.049E-04 | 9.255E-02 | 4.06E+00 | 7.888E+01 | 8.407E+01 | 7.074E-05 | 7.451E-03 | 5.584E+00 |
| 130 | -6.428E-01 | -1.527E+02 | 1.63E+01 | 1.861E+01 | 1.986E+01 | 1.269E-03 | 1.288E-01 | 3.64E+00 | 8.231E+01 | 8.773E+01 | 6.497E-05 | 6.847E-03 | 5.222E+00 |
| 135 | -7.071E-01 | -1.587E+02 | 1.82E+01 | 1.542E+01 | 1.646E+01 | 1.847E-03 | 1.857E-01 | 3.23E+00 | 8.549E+01 | 9.112E+01 | 6.022E-05 | 6.349E-03 | 4.821E+00 |
| 140 | -7.660E-01 | -1.642E+02 | 2.05E+01 | 1.249E+01 | 1.335E+01 | 2.809E-03 | 2.789E-01 | 2.84E+00 | 8.841E+01 | 9.423E+01 | 5.631E-05 | 5.938E-03 | 4.382E+00 |
| 145 | -8.192E-01 | -1.691E+02 | 2.34E+01 | 9.852E+00 | 1.055E+01 | 4.595E-03 | 4.395E-01 | 2.46E+00 | 9.104E+01 | 9.704E+01 | 5.310E-05 | 5.602E-03 | 3.910E+00 |
| 150 | -8.660E-01 | -1.734E+02 | 2.70E+01 | 7.516E+00 | 8.073E+00 | 7.702E-03 | 7.332E-01 | 2.09E+00 | 9.336E+01 | 9.951E+01 | 5.049E-05 | 5.328E-03 | 3.409E+00 |
| 155 | -9.063E-01 | -1.772E+02 | 3.16E+01 | 5.500E+00 | 5.946E+00 | 1.424E-02 | 1.309E+00 | 1.73E+00 | 9.536E+01 | 1.016E+02 | 4.840E-05 | 5.109E-03 | 2.881E+00 |
| 160 | -9.397E-01 | -1.803E+02 | 3.77E+01 | 3.812E+00 | 4.184E+00 | 2.898E-02 | 2.530E+00 | 1.38E+00 | 9.701E+01 | 1.034E+02 | 4.677E-05 | 4.937E-03 | 2.332E+00 |
| 165 | -9.659E-01 | -1.827E+02 | 4.60E+01 | 2.453E+00 | 2.799E+00 | 6.601E-02 | 5.366E+00 | 1.03E+00 | 9.831E+01 | 1.048E+02 | 4.554E-05 | 4.808E-03 | 1.764E+00 |
| 170 | -9.848E-01 | -1.845E+02 | 5.73E+01 | 1.407E+00 | 1.802E+00 | 1.681E-01 | 1.269E+01 | 6.83E-01 | 9.925E+01 | 1.058E+02 | 4.468E-05 | 4.718E-03 | 1.184E+00 |
| 175 | -9.962E-01 | -1.855E+02 | 7.22E+01 | 6.239E-01 | 1.201E+00 | 4.463E-01 | 3.641E+01 | 3.41E-01 | 9.981E+01 | 1.064E+02 | 4.418E-05 | 4.665E-03 | 5.942E-01 |
| 180 | -1.000E+00 | -1.859E+02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. | 1.000E+02 | 1.066E+02 | 4.401E-05 | 4.647E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + PROTON (4) AT 125 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 9.38259E-01
P2CM= 7.62907E+00 P3CM= 7.62907E+00
E1CM= 7.68655E+00 E2CM= 7.68655E+00 E3CM= 7.68655E+00 E4CM= 7.68655E+00

1-V1LAB = 2.817E-05 1-VCM = 7.478E-03 GCM = 8.19235E+00 ETCM= 1.53731E+01 S = 2.36332E+02 -U=( 2.32811E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 1.250E+02 | 1.332E+02 | 2.817E-05 | 3.725E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -1.773E-02 | 6.10E-02 | 1.250E+02 | 1.332E+02 | 2.817E-05 | 3.726E-03 | 8.59E+01 | 1.335E-01 | 1.010E+00 | 8.591E-01 | 2.329E+02 | 1.331E-01 |
| 2 | 9.994E-01 | -7.091E-02 | 1.22E-01 | 1.250E+02 | 1.332E+02 | 2.819E-05 | 3.727E-03 | 8.19E+01 | 2.690E-01 | 1.040E+00 | 7.244E-01 | 1.139E+02 | 2.663E-01 |
| 3 | 9.986E-01 | -1.595E-01 | 1.83E-01 | 1.249E+02 | 1.331E+02 | 2.821E-05 | 3.730E-03 | 7.79E+01 | 4.084E-01 | 1.091E+00 | 6.009E-01 | 7.321E+01 | 3.993E-01 |
| 4 | 9.976E-01 | -2.836E-01 | 2.44E-01 | 1.248E+02 | 1.331E+02 | 2.824E-05 | 3.734E-03 | 7.40E+01 | 5.535E-01 | 1.161E+00 | 4.919E-01 | 5.225E+01 | 5.322E-01 |
| 5 | 9.962E-01 | -4.430E-01 | 3.05E-01 | 1.248E+02 | 1.330E+02 | 2.828E-05 | 3.739E-03 | 7.03E+01 | 7.062E-01 | 1.252E+00 | 3.987E-01 | 3.931E+01 | 6.649E-01 |
| 6 | 9.945E-01 | -6.377E-01 | 3.67E-01 | 1.247E+02 | 1.329E+02 | 2.832E-05 | 3.745E-03 | 6.68E+01 | 8.678E-01 | 1.362E+00 | 3.210E-01 | 3.049E+01 | 7.975E-01 |
| 7 | 9.925E-01 | -8.677E-01 | 4.28E-01 | 1.245E+02 | 1.327E+02 | 2.838E-05 | 3.753E-03 | 6.34E+01 | 1.040E+00 | 1.493E+00 | 2.575E-01 | 2.411E+01 | 9.297E-01 |
| 8 | 9.903E-01 | -1.133E+00 | 4.89E-01 | 1.244E+02 | 1.326E+02 | 2.844E-05 | 3.761E-03 | 6.02E+01 | 1.224E+00 | 1.643E+00 | 2.064E-01 | 1.932E+01 | 1.062E+00 |
| 9 | 9.877E-01 | -1.433E+00 | 5.50E-01 | 1.242E+02 | 1.324E+02 | 2.852E-05 | 3.771E-03 | 5.72E+01 | 1.420E+00 | 1.814E+00 | 1.657E-01 | 1.564E+01 | 1.193E+00 |
| 10 | 9.848E-01 | -1.768E+00 | 6.12E-01 | 1.241E+02 | 1.322E+02 | 2.860E-05 | 3.782E-03 | 5.44E+01 | 1.630E+00 | 2.004E+00 | 1.333E-01 | 1.276E+01 | 1.325E+00 |
| 15 | 9.659E-01 | -3.966E+00 | 9.21E-01 | 1.229E+02 | 1.310E+02 | 2.915E-05 | 3.854E-03 | 4.28E+01 | 2.904E+00 | 3.253E+00 | 4.843E-02 | 5.060E+00 | 1.975E+00 |
| 20 | 9.397E-01 | -7.020E+00 | 1.23E+00 | 1.213E+02 | 1.292E+02 | 2.993E-05 | 3.957E-03 | 3.47E+01 | 4.584E+00 | 4.987E+00 | 2.031E-02 | 2.277E+00 | 2.609E+00 |
| 25 | 9.063E-01 | -1.091E+01 | 1.55E+00 | 1.192E+02 | 1.270E+02 | 3.098E-05 | 4.096E-03 | 2.88E+01 | 6.685E+00 | 7.194E+00 | 9.707E-03 | 1.141E+00 | 3.224E+00 |
| 30 | 8.660E-01 | -1.560E+01 | 1.87E+00 | 1.167E+02 | 1.244E+02 | 3.232E-05 | 4.272E-03 | 2.45E+01 | 9.201E+00 | 9.858E+00 | 5.159E-03 | 6.256E-01 | 3.815E+00 |
| 35 | 8.192E-01 | -2.105E+01 | 2.20E+00 | 1.138E+02 | 1.213E+02 | 3.400E-05 | 4.492E-03 | 2.12E+01 | 1.212E+01 | 1.296E+01 | 2.983E-03 | 3.695E-01 | 4.376E+00 |
| 40 | 7.660E-01 | -2.723E+01 | 2.54E+00 | 1.105E+02 | 1.178E+02 | 3.606E-05 | 4.763E-03 | 1.85E+01 | 1.542E+01 | 1.647E+01 | 1.845E-03 | 2.320E-01 | 4.904E+00 |
| 45 | 7.071E-01 | -3.409E+01 | 2.89E+00 | 1.068E+02 | 1.139E+02 | 3.857E-05 | 5.093E-03 | 1.64E+01 | 1.908E+01 | 2.036E+01 | 1.206E-03 | 1.533E-01 | 5.395E+00 |
| 50 | 6.428E-01 | -4.158E+01 | 3.26E+00 | 1.028E+02 | 1.096E+02 | 4.162E-05 | 5.494E-03 | 1.47E+01 | 2.308E+01 | 2.462E+01 | 8.254E-04 | 1.057E-01 | 5.844E+00 |
| 55 | 5.736E-01 | -4.964E+01 | 3.64E+00 | 9.855E+01 | 1.050E+02 | 4.532E-05 | 5.981E-03 | 1.32E+01 | 2.737E+01 | 2.919E+01 | 5.869E-04 | 7.562E-02 | 6.249E+00 |
| 60 | 5.000E-01 | -5.820E+01 | 4.03E+00 | 9.398E+01 | 1.002E+02 | 4.983E-05 | 6.573E-03 | 1.19E+01 | 3.194E+01 | 3.406E+01 | 4.312E-04 | 5.582E-02 | 6.607E+00 |
| 65 | 4.226E-01 | -6.721E+01 | 4.45E+00 | 8.918E+01 | 9.506E+01 | 5.534E-05 | 7.296E-03 | 1.08E+01 | 3.674E+01 | 3.917E+01 | 3.259E-04 | 4.234E-02 | 6.914E+00 |
| 70 | 3.420E-01 | -7.659E+01 | 4.89E+00 | 8.418E+01 | 8.973E+01 | 6.211E-05 | 8.183E-03 | 9.89E+00 | 4.174E+01 | 4.450E+01 | 2.525E-04 | 3.290E-02 | 7.169E+00 |
| 75 | 2.588E-01 | -8.628E+01 | 5.35E+00 | 7.902E+01 | 8.423E+01 | 7.048E-05 | 9.280E-03 | 9.04E+00 | 4.691E+01 | 5.000E+01 | 2.000E-04 | 2.612E-02 | 7.369E+00 |
| 80 | 1.736E-01 | -9.619E+01 | 5.85E+00 | 7.374E+01 | 7.860E+01 | 8.095E-05 | 1.065E-02 | 8.28E+00 | 5.219E+01 | 5.563E+01 | 1.616E-04 | 2.115E-02 | 7.513E+00 |
| 85 | 8.716E-02 | -1.063E+02 | 6.38E+00 | 6.837E+01 | 7.288E+01 | 9.415E-05 | 1.237E-02 | 7.59E+00 | 5.756E+01 | 6.135E+01 | 1.328E-04 | 1.742E-02 | 7.600E+00 |
| 90 | 0. | -1.164E+02 | 6.96E+00 | 6.296E+01 | 6.711E+01 | 1.110E-04 | 1.457E-02 | 6.96E+00 | 6.296E+01 | 6.711E+01 | 1.110E-04 | 1.457E-02 | 7.629E+00 |
| 95 | -8.716E-02 | -1.266E+02 | 7.59E+00 | 5.756E+01 | 6.135E+01 | 1.328E-04 | 1.742E-02 | 6.38E+00 | 6.837E+01 | 7.288E+01 | 9.415E-05 | 1.237E-02 | 7.600E+00 |
| 100 | -1.736E-01 | -1.366E+02 | 8.28E+00 | 5.219E+01 | 5.563E+01 | 1.616E-04 | 2.115E-02 | 5.85E+00 | 7.374E+01 | 7.860E+01 | 8.095E-05 | 1.065E-02 | 7.513E+00 |
| 105 | -2.588E-01 | -1.465E+02 | 9.04E+00 | 4.691E+01 | 5.000E+01 | 2.000E-04 | 2.612E-02 | 5.35E+00 | 7.902E+01 | 8.423E+01 | 7.048E-05 | 9.280E-03 | 7.369E+00 |
| 110 | -3.420E-01 | -1.562E+02 | 9.89E+00 | 4.174E+01 | 4.450E+01 | 2.525E-04 | 3.290E-02 | 4.89E+00 | 8.418E+01 | 8.973E+01 | 6.211E-05 | 8.183E-03 | 7.169E+00 |
| 115 | -4.226E-01 | -1.656E+02 | 1.08E+01 | 3.674E+01 | 3.917E+01 | 3.259E-04 | 4.234E-02 | 4.45E+00 | 8.918E+01 | 9.506E+01 | 5.534E-05 | 7.296E-03 | 6.914E+00 |
| 120 | -5.000E-01 | -1.746E+02 | 1.19E+01 | 3.194E+01 | 3.406E+01 | 4.312E-04 | 5.582E-02 | 4.03E+00 | 9.398E+01 | 1.002E+02 | 4.983E-05 | 6.573E-03 | 6.607E+00 |
| 125 | -5.736E-01 | -1.832E+02 | 1.32E+01 | 2.737E+01 | 2.919E+01 | 5.869E-04 | 7.562E-02 | 3.64E+00 | 9.855E+01 | 1.050E+02 | 4.532E-05 | 5.981E-03 | 6.249E+00 |
| 130 | -6.428E-01 | -1.912E+02 | 1.47E+01 | 2.308E+01 | 2.462E+01 | 8.254E-04 | 1.057E-01 | 3.26E+00 | 1.028E+02 | 1.096E+02 | 4.162E-05 | 5.494E-03 | 5.844E+00 |
| 135 | -7.071E-01 | -1.987E+02 | 1.64E+01 | 1.908E+01 | 2.036E+01 | 1.206E-03 | 1.533E-01 | 2.89E+00 | 1.068E+02 | 1.139E+02 | 3.857E-05 | 5.093E-03 | 5.395E+00 |
| 140 | -7.660E-01 | -2.056E+02 | 1.85E+01 | 1.542E+01 | 1.647E+01 | 1.845E-03 | 2.320E-01 | 2.54E+00 | 1.105E+02 | 1.178E+02 | 3.606E-05 | 4.763E-03 | 4.904E+00 |
| 145 | -8.192E-01 | -2.118E+02 | 2.12E+01 | 1.212E+01 | 1.296E+01 | 2.983E-03 | 3.695E-01 | 2.20E+00 | 1.138E+02 | 1.213E+02 | 3.400E-05 | 4.492E-03 | 4.376E+00 |
| 150 | -8.660E-01 | -2.172E+02 | 2.45E+01 | 9.201E+00 | 9.858E+00 | 5.159E-03 | 6.256E-01 | 1.87E+00 | 1.167E+02 | 1.244E+02 | 3.232E-05 | 4.272E-03 | 3.815E+00 |
| 155 | -9.063E-01 | -2.219E+02 | 2.88E+01 | 6.685E+00 | 7.194E+00 | 9.707E-03 | 1.141E+00 | 1.55E+00 | 1.192E+02 | 1.270E+02 | 3.098E-05 | 4.096E-03 | 3.224E+00 |
| 160 | -9.397E-01 | -2.258E+02 | 3.47E+01 | 4.584E+00 | 4.987E+00 | 2.031E-02 | 2.277E+00 | 1.23E+00 | 1.213E+02 | 1.292E+02 | 2.993E-05 | 3.957E-03 | 2.609E+00 |
| 165 | -9.659E-01 | -2.288E+02 | 4.28E+01 | 2.904E+00 | 3.253E+00 | 4.843E-02 | 5.060E+00 | 9.21E-01 | 1.229E+02 | 1.310E+02 | 2.915E-05 | 3.854E-03 | 1.975E+00 |
| 170 | -9.848E-01 | -2.310E+02 | 5.44E+01 | 1.630E+00 | 2.004E+00 | 1.333E-01 | 1.276E+01 | 6.12E-01 | 1.241E+02 | 1.322E+02 | 2.860E-05 | 3.782E-03 | 1.325E+00 |
| 175 | -9.962E-01 | -2.324E+02 | 7.03E+01 | 7.062E-01 | 1.252E+00 | 3.987E-01 | 3.931E+01 | 3.05E-01 | 1.248E+02 | 1.330E+02 | 2.828E-05 | 3.739E-03 | 6.649E-01 |
| 180 | -1.000E+00 | -2.328E+02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. | 1.250E+02 | 1.332E+02 | 2.817E-05 | 3.725E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + PROTON (4) AT 150 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 9.38259E-01
P2CM= 8.36245E+00 P3CM= 8.36245E+00
E1CM= 8.41493E+00 E2CM= 8.41493E+00 E3CM= 8.41493E+00 E4CM= 8.41493E+00

1-V1LAB = 1.956E-05 1-VCM = 6.235E-03 GCM = 8.96866E+00 ETCM= 1.68299E+01 S = 2.83244E+02 -U=( 2.79723E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 1.500E+02 | 1.599E+02 | 1.956E-05 | 3.108E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -2.130E-02 | 5.58E-02 | 1.500E+02 | 1.599E+02 | 1.957E-05 | 3.108E-03 | 8.55E+01 | 1.464E-01 | 1.012E+00 | 8.458E-01 | 2.546E+02 | 1.459E-01 |
| 2 | 9.994E-01 | -8.520E-02 | 1.12E-01 | 1.500E+02 | 1.598E+02 | 1.957E-05 | 3.110E-03 | 8.11E+01 | 2.954E-01 | 1.048E+00 | 6.997E-01 | 1.239E+02 | 2.918E-01 |
| 3 | 9.986E-01 | -1.917E-01 | 1.67E-01 | 1.499E+02 | 1.598E+02 | 1.959E-05 | 3.112E-03 | 7.68E+01 | 4.496E-01 | 1.109E+00 | 5.679E-01 | 7.911E+01 | 4.377E-01 |
| 4 | 9.976E-01 | -3.407E-01 | 2.23E-01 | 1.498E+02 | 1.597E+02 | 1.961E-05 | 3.116E-03 | 7.26E+01 | 6.113E-01 | 1.194E+00 | 4.541E-01 | 5.594E+01 | 5.833E-01 |
| 5 | 9.962E-01 | -5.322E-01 | 2.79E-01 | 1.497E+02 | 1.596E+02 | 1.964E-05 | 3.120E-03 | 6.86E+01 | 7.827E-01 | 1.302E+00 | 3.594E-01 | 4.162E+01 | 7.288E-01 |
| 6 | 9.945E-01 | -7.662E-01 | 3.35E-01 | 1.496E+02 | 1.594E+02 | 1.967E-05 | 3.125E-03 | 6.48E+01 | 9.659E-01 | 1.435E+00 | 2.827E-01 | 3.189E+01 | 8.741E-01 |
| 7 | 9.925E-01 | -1.043E+00 | 3.91E-01 | 1.494E+02 | 1.593E+02 | 1.971E-05 | 3.131E-03 | 6.13E+01 | 1.162E+00 | 1.592E+00 | 2.219E-01 | 2.489E+01 | 1.019E+00 |
| 8 | 9.903E-01 | -1.361E+00 | 4.47E-01 | 1.493E+02 | 1.591E+02 | 1.975E-05 | 3.138E-03 | 5.79E+01 | 1.374E+00 | 1.773E+00 | 1.742E-01 | 1.969E+01 | 1.164E+00 |
| 9 | 9.877E-01 | -1.722E+00 | 5.03E-01 | 1.491E+02 | 1.589E+02 | 1.980E-05 | 3.146E-03 | 5.48E+01 | 1.601E+00 | 1.978E+00 | 1.372E-01 | 1.573E+01 | 1.308E+00 |
| 10 | 9.848E-01 | -2.125E+00 | 5.59E-01 | 1.489E+02 | 1.587E+02 | 1.986E-05 | 3.155E-03 | 5.19E+01 | 1.846E+00 | 2.207E+00 | 1.086E-01 | 1.267E+01 | 1.452E+00 |
| 15 | 9.659E-01 | -4.766E+00 | 8.41E-01 | 1.475E+02 | 1.572E+02 | 2.024E-05 | 3.216E-03 | 4.03E+01 | 3.349E+00 | 3.707E+00 | 3.708E-02 | 4.758E+00 | 2.164E+00 |
| 20 | 9.397E-01 | -8.435E+00 | 1.13E+00 | 1.455E+02 | 1.551E+02 | 2.079E-05 | 3.302E-03 | 3.23E+01 | 5.351E+00 | 5.791E+00 | 1.502E-02 | 2.064E+00 | 2.860E+00 |
| 25 | 9.063E-01 | -1.310E+01 | 1.42E+00 | 1.430E+02 | 1.524E+02 | 2.152E-05 | 3.418E-03 | 2.67E+01 | 7.866E+00 | 8.443E+00 | 7.040E-03 | 1.010E+00 | 3.534E+00 |
| 30 | 8.660E-01 | -1.874E+01 | 1.71E+00 | 1.400E+02 | 1.492E+02 | 2.245E-05 | 3.566E-03 | 2.26E+01 | 1.088E+01 | 1.164E+01 | 3.696E-03 | 5.451E-01 | 4.181E+00 |
| 35 | 8.192E-01 | -2.529E+01 | 2.01E+00 | 1.365E+02 | 1.455E+02 | 2.362E-05 | 3.750E-03 | 1.95E+01 | 1.439E+01 | 1.537E+01 | 2.120E-03 | 3.185E-01 | 4.797E+00 |
| 40 | 7.660E-01 | -3.272E+01 | 2.32E+00 | 1.326E+02 | 1.413E+02 | 2.505E-05 | 3.976E-03 | 1.70E+01 | 1.835E+01 | 1.958E+01 | 1.304E-03 | 1.985E-01 | 5.375E+00 |
| 45 | 7.071E-01 | -4.096E+01 | 2.64E+00 | 1.282E+02 | 1.366E+02 | 2.679E-05 | 4.252E-03 | 1.51E+01 | 2.275E+01 | 2.427E+01 | 8.495E-04 | 1.305E-01 | 5.913E+00 |
| 50 | 6.428E-01 | -4.996E+01 | 2.98E+00 | 1.234E+02 | 1.315E+02 | 2.892E-05 | 4.588E-03 | 1.34E+01 | 2.755E+01 | 2.938E+01 | 5.796E-04 | 8.963E-02 | 6.406E+00 |
| 55 | 5.736E-01 | -5.964E+01 | 3.32E+00 | 1.182E+02 | 1.260E+02 | 3.149E-05 | 4.995E-03 | 1.21E+01 | 3.271E+01 | 3.487E+01 | 4.112E-04 | 6.392E-02 | 6.850E+00 |
| 60 | 5.000E-01 | -6.993E+01 | 3.68E+00 | 1.127E+02 | 1.202E+02 | 3.463E-05 | 5.491E-03 | 1.09E+01 | 3.819E+01 | 4.072E+01 | 3.016E-04 | 4.707E-02 | 7.242E+00 |
| 65 | 4.226E-01 | -8.075E+01 | 4.06E+00 | 1.070E+02 | 1.140E+02 | 3.847E-05 | 6.097E-03 | 9.93E+00 | 4.396E+01 | 4.687E+01 | 2.277E-04 | 3.564E-02 | 7.579E+00 |
| 70 | 3.420E-01 | -9.203E+01 | 4.46E+00 | 1.010E+02 | 1.076E+02 | 4.318E-05 | 6.840E-03 | 9.05E+00 | 4.997E+01 | 5.327E+01 | 1.762E-04 | 2.766E-02 | 7.858E+00 |
| 75 | 2.588E-01 | -1.037E+02 | 4.89E+00 | 9.476E+01 | 1.010E+02 | 4.902E-05 | 7.760E-03 | 8.27E+00 | 5.617E+01 | 5.988E+01 | 1.395E-04 | 2.193E-02 | 8.078E+00 |
| 80 | 1.736E-01 | -1.156E+02 | 5.34E+00 | 8.841E+01 | 9.423E+01 | 5.631E-05 | 8.908E-03 | 7.57E+00 | 6.252E+01 | 6.664E+01 | 1.126E-04 | 1.773E-02 | 8.235E+00 |
| 85 | 8.716E-02 | -1.277E+02 | 5.83E+00 | 8.196E+01 | 8.736E+01 | 6.552E-05 | 1.036E-02 | 6.94E+00 | 6.897E+01 | 7.351E+01 | 9.252E-05 | 1.459E-02 | 8.331E+00 |
| 90 | 0. | -1.399E+02 | 6.36E+00 | 7.546E+01 | 8.044E+01 | 7.728E-05 | 1.220E-02 | 6.36E+00 | 7.546E+01 | 8.044E+01 | 7.728E-05 | 1.220E-02 | 8.362E+00 |
| 95 | -8.716E-02 | -1.521E+02 | 6.94E+00 | 6.897E+01 | 7.351E+01 | 9.252E-05 | 1.459E-02 | 5.83E+00 | 8.196E+01 | 8.736E+01 | 6.552E-05 | 1.036E-02 | 8.331E+00 |
| 100 | -1.736E-01 | -1.641E+02 | 7.57E+00 | 6.252E+01 | 6.664E+01 | 1.126E-04 | 1.773E-02 | 5.34E+00 | 8.841E+01 | 9.423E+01 | 5.631E-05 | 8.908E-03 | 8.235E+00 |
| 105 | -2.588E-01 | -1.761E+02 | 8.27E+00 | 5.617E+01 | 5.988E+01 | 1.395E-04 | 2.193E-02 | 4.89E+00 | 9.476E+01 | 1.010E+02 | 4.902E-05 | 7.760E-03 | 8.078E+00 |
| 110 | -3.420E-01 | -1.877E+02 | 9.05E+00 | 4.997E+01 | 5.327E+01 | 1.762E-04 | 2.766E-02 | 4.46E+00 | 1.010E+02 | 1.076E+02 | 4.318E-05 | 6.840E-03 | 7.858E+00 |
| 115 | -4.226E-01 | -1.990E+02 | 9.93E+00 | 4.396E+01 | 4.687E+01 | 2.277E-04 | 3.564E-02 | 4.06E+00 | 1.070E+02 | 1.140E+02 | 3.847E-05 | 6.097E-03 | 7.579E+00 |
| 120 | -5.000E-01 | -2.098E+02 | 1.09E+01 | 3.819E+01 | 4.072E+01 | 3.016E-04 | 4.707E-02 | 3.68E+00 | 1.127E+02 | 1.202E+02 | 3.463E-05 | 5.491E-03 | 7.242E+00 |
| 125 | -5.736E-01 | -2.201E+02 | 1.21E+01 | 3.271E+01 | 3.487E+01 | 4.112E-04 | 6.392E-02 | 3.32E+00 | 1.182E+02 | 1.260E+02 | 3.149E-05 | 4.995E-03 | 6.850E+00 |
| 130 | -6.428E-01 | -2.298E+02 | 1.34E+01 | 2.755E+01 | 2.938E+01 | 5.796E-04 | 8.963E-02 | 2.98E+00 | 1.234E+02 | 1.315E+02 | 2.892E-05 | 4.588E-03 | 6.406E+00 |
| 135 | -7.071E-01 | -2.388E+02 | 1.51E+01 | 2.275E+01 | 2.427E+01 | 8.495E-04 | 1.305E-01 | 2.64E+00 | 1.282E+02 | 1.366E+02 | 2.679E-05 | 4.252E-03 | 5.913E+00 |
| 140 | -7.660E-01 | -2.470E+02 | 1.70E+01 | 1.835E+01 | 1.958E+01 | 1.304E-03 | 1.985E-01 | 2.32E+00 | 1.326E+02 | 1.413E+02 | 2.505E-05 | 3.976E-03 | 5.375E+00 |
| 145 | -8.192E-01 | -2.544E+02 | 1.95E+01 | 1.439E+01 | 1.537E+01 | 2.120E-03 | 3.185E-01 | 2.01E+00 | 1.365E+02 | 1.455E+02 | 2.362E-05 | 3.750E-03 | 4.797E+00 |
| 150 | -8.660E-01 | -2.610E+02 | 2.26E+01 | 1.088E+01 | 1.164E+01 | 3.696E-03 | 5.451E-01 | 1.71E+00 | 1.400E+02 | 1.492E+02 | 2.245E-05 | 3.566E-03 | 4.181E+00 |
| 155 | -9.063E-01 | -2.666E+02 | 2.67E+01 | 7.866E+00 | 8.443E+00 | 7.040E-03 | 1.010E+00 | 1.42E+00 | 1.430E+02 | 1.524E+02 | 2.152E-05 | 3.418E-03 | 3.534E+00 |
| 160 | -9.397E-01 | -2.713E+02 | 3.23E+01 | 5.351E+00 | 5.791E+00 | 1.502E-02 | 2.064E+00 | 1.13E+00 | 1.455E+02 | 1.551E+02 | 2.079E-05 | 3.302E-03 | 2.860E+00 |
| 165 | -9.659E-01 | -2.750E+02 | 4.03E+01 | 3.349E+00 | 3.707E+00 | 3.708E-02 | 4.758E+00 | 8.41E-01 | 1.475E+02 | 1.572E+02 | 2.024E-05 | 3.216E-03 | 2.164E+00 |
| 170 | -9.848E-01 | -2.776E+02 | 5.19E+01 | 1.846E+00 | 2.207E+00 | 1.086E-01 | 1.267E+01 | 5.59E-01 | 1.489E+02 | 1.587E+02 | 1.986E-05 | 3.155E-03 | 1.452E+00 |
| 175 | -9.962E-01 | -2.792E+02 | 6.86E+01 | 7.827E-01 | 1.302E+00 | 3.594E-01 | 4.162E+01 | 2.79E-01 | 1.497E+02 | 1.596E+02 | 1.964E-05 | 3.120E-03 | 7.288E-01 |
| 180 | -1.000E+00 | -2.797E+02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. | 1.500E+02 | 1.599E+02 | 1.956E-05 | 3.108E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + PROTON (4) AT 175 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 9.38259E-01

P2CM= 9.03652E+00 P3CM= 9.03652E+00

E1CM= 9.08510E+00 E2CM= 9.08510E+00 E3CM= 9.08510E+00 E4CM= 9.08510E+00

1-V1LAB = 1.437E-05 1-VCM = 5.347E-03 GCM = 9.68293E+00 ETCM= 1.81702E+01 S = 3.30156E+02 -U=( 3.26675E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 1.750E+02 | 1.865E+02 | 1.437E-05 | 2.666E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -2.487E-02 | 5.16E-02 | 1.750E+02 | 1.865E+02 | 1.437E-05 | 2.667E-03 | 8.52E+01 | 1.583E-01 | 1.014E+00 | 8.337E-01 | 2.745E+02 | 1.577E-01 |
| 2 | 9.994E-01 | -9.949E-02 | 1.03E-01 | 1.749E+02 | 1.865E+02 | 1.438E-05 | 2.668E-03 | 8.04E+01 | 3.198E-01 | 1.057E+00 | 6.773E-01 | 1.330E+02 | 3.154E-01 |
| 3 | 9.986E-01 | -2.238E-01 | 1.55E-01 | 1.749E+02 | 1.864E+02 | 1.439E-05 | 2.670E-03 | 7.58E+01 | 4.879E-01 | 1.127E+00 | 5.386E-01 | 8.431E+01 | 4.729E-01 |
| 4 | 9.976E-01 | -3.978E-01 | 2.07E-01 | 1.748E+02 | 1.863E+02 | 1.441E-05 | 2.673E-03 | 7.13E+01 | 6.654E-01 | 1.226E+00 | 4.215E-01 | 5.907E+01 | 6.304E-01 |
| 5 | 9.962E-01 | -6.215E-01 | 2.58E-01 | 1.747E+02 | 1.862E+02 | 1.443E-05 | 2.677E-03 | 6.71E+01 | 8.551E-01 | 1.353E+00 | 3.264E-01 | 4.349E+01 | 7.876E-01 |
| 6 | 9.945E-01 | -8.947E-01 | 3.10E-01 | 1.745E+02 | 1.860E+02 | 1.445E-05 | 2.681E-03 | 6.31E+01 | 1.059E+00 | 1.508E+00 | 2.514E-01 | 3.294E+01 | 9.446E-01 |
| 7 | 9.925E-01 | -1.217E+00 | 3.62E-01 | 1.744E+02 | 1.858E+02 | 1.448E-05 | 2.686E-03 | 5.94E+01 | 1.280E+00 | 1.691E+00 | 1.935E-01 | 2.540E+01 | 1.101E+00 |
| 8 | 9.903E-01 | -1.589E+00 | 4.14E-01 | 1.742E+02 | 1.856E+02 | 1.451E-05 | 2.692E-03 | 5.59E+01 | 1.519E+00 | 1.903E+00 | 1.492E-01 | 1.985E+01 | 1.258E+00 |
| 9 | 9.877E-01 | -2.011E+00 | 4.66E-01 | 1.739E+02 | 1.854E+02 | 1.455E-05 | 2.699E-03 | 5.27E+01 | 1.777E+00 | 2.142E+00 | 1.157E-01 | 1.567E+01 | 1.414E+00 |
| 10 | 9.848E-01 | -2.481E+00 | 5.18E-01 | 1.737E+02 | 1.851E+02 | 1.459E-05 | 2.707E-03 | 4.97E+01 | 2.057E+00 | 2.409E+00 | 9.021E-02 | 1.248E+01 | 1.569E+00 |
| 15 | 9.659E-01 | -5.565E+00 | 7.79E-01 | 1.720E+02 | 1.834E+02 | 1.487E-05 | 2.759E-03 | 3.81E+01 | 3.789E+00 | 4.161E+00 | 2.931E-02 | 4.474E+00 | 2.339E+00 |
| 20 | 9.397E-01 | -9.849E+00 | 1.04E+00 | 1.698E+02 | 1.809E+02 | 1.527E-05 | 2.833E-03 | 3.04E+01 | 6.115E+00 | 6.594E+00 | 1.157E-02 | 1.884E+00 | 3.091E+00 |
| 25 | 9.063E-01 | -1.530E+01 | 1.31E+00 | 1.668E+02 | 1.778E+02 | 1.581E-05 | 2.933E-03 | 2.50E+01 | 9.044E+00 | 9.691E+00 | 5.338E-03 | 9.050E-01 | 3.819E+00 |
| 30 | 8.660E-01 | -2.188E+01 | 1.59E+00 | 1.633E+02 | 1.741E+02 | 1.650E-05 | 3.060E-03 | 2.11E+01 | 1.256E+01 | 1.343E+01 | 2.777E-03 | 4.827E-01 | 4.518E+00 |
| 35 | 8.192E-01 | -2.954E+01 | 1.87E+00 | 1.593E+02 | 1.697E+02 | 1.735E-05 | 3.218E-03 | 1.81E+01 | 1.665E+01 | 1.778E+01 | 1.584E-03 | 2.799E-01 | 5.183E+00 |
| 40 | 7.660E-01 | -3.821E+01 | 2.15E+00 | 1.546E+02 | 1.648E+02 | 1.841E-05 | 3.412E-03 | 1.58E+01 | 2.128E+01 | 2.270E+01 | 9.707E-04 | 1.735E-01 | 5.809E+00 |
| 45 | 7.071E-01 | -4.783E+01 | 2.45E+00 | 1.495E+02 | 1.593E+02 | 1.969E-05 | 3.650E-03 | 1.40E+01 | 2.641E+01 | 2.817E+01 | 6.303E-04 | 1.136E-01 | 6.390E+00 |
| 50 | 6.428E-01 | -5.834E+01 | 2.76E+00 | 1.439E+02 | 1.534E+02 | 2.125E-05 | 3.938E-03 | 1.25E+01 | 3.201E+01 | 3.413E+01 | 4.292E-04 | 7.779E-02 | 6.922E+00 |
| 55 | 5.736E-01 | -6.964E+01 | 3.08E+00 | 1.379E+02 | 1.470E+02 | 2.315E-05 | 4.289E-03 | 1.12E+01 | 3.804E+01 | 4.055E+01 | 3.041E-04 | 5.535E-02 | 7.402E+00 |
| 60 | 5.000E-01 | -8.166E+01 | 3.41E+00 | 1.315E+02 | 1.401E+02 | 2.546E-05 | 4.715E-03 | 1.01E+01 | 4.444E+01 | 4.738E+01 | 2.228E-04 | 4.069E-02 | 7.826E+00 |
| 65 | 4.226E-01 | -9.430E+01 | 3.76E+00 | 1.247E+02 | 1.330E+02 | 2.828E-05 | 5.236E-03 | 9.21E+00 | 5.118E+01 | 5.456E+01 | 1.680E-04 | 3.077E-02 | 8.190E+00 |
| 70 | 3.420E-01 | -1.075E+02 | 4.14E+00 | 1.177E+02 | 1.255E+02 | 3.175E-05 | 5.876E-03 | 8.39E+00 | 5.820E+01 | 6.203E+01 | 1.299E-04 | 2.385E-02 | 8.492E+00 |
| 75 | 2.588E-01 | -1.210E+02 | 4.53E+00 | 1.105E+02 | 1.178E+02 | 3.605E-05 | 6.668E-03 | 7.67E+00 | 6.544E+01 | 6.975E+01 | 1.028E-04 | 1.890E-02 | 8.729E+00 |
| 80 | 1.736E-01 | -1.350E+02 | 4.95E+00 | 1.031E+02 | 1.099E+02 | 4.142E-05 | 7.657E-03 | 7.02E+00 | 7.285E+01 | 7.765E+01 | 8.293E-05 | 1.527E-02 | 8.899E+00 |
| 85 | 8.716E-02 | -1.491E+02 | 5.41E+00 | 9.555E+01 | 1.018E+02 | 4.821E-05 | 8.904E-03 | 6.43E+00 | 8.038E+01 | 8.567E+01 | 6.812E-05 | 1.256E-02 | 9.002E+00 |
| 90 | 0. | -1.633E+02 | 5.90E+00 | 8.797E+01 | 9.376E+01 | 5.688E-05 | 1.050E-02 | 5.90E+00 | 8.797E+01 | 9.376E+01 | 5.688E-05 | 1.050E-02 | 9.037E+00 |
| 95 | -8.716E-02 | -1.776E+02 | 6.43E+00 | 8.038E+01 | 8.567E+01 | 6.812E-05 | 1.256E-02 | 5.41E+00 | 9.555E+01 | 1.018E+02 | 4.821E-05 | 8.904E-03 | 9.002E+00 |
| 100 | -1.736E-01 | -1.917E+02 | 7.02E+00 | 7.285E+01 | 7.765E+01 | 8.293E-05 | 1.527E-02 | 4.95E+00 | 1.031E+02 | 1.099E+02 | 4.142E-05 | 7.657E-03 | 8.899E+00 |
| 105 | -2.588E-01 | -2.056E+02 | 7.67E+00 | 6.544E+01 | 6.975E+01 | 1.028E-04 | 1.890E-02 | 4.53E+00 | 1.105E+02 | 1.178E+02 | 3.605E-05 | 6.668E-03 | 8.729E+00 |
| 110 | -3.420E-01 | -2.192E+02 | 8.39E+00 | 5.820E+01 | 6.203E+01 | 1.299E-04 | 2.385E-02 | 4.14E+00 | 1.177E+02 | 1.255E+02 | 3.175E-05 | 5.876E-03 | 8.492E+00 |
| 115 | -4.226E-01 | -2.323E+02 | 9.21E+00 | 5.118E+01 | 5.456E+01 | 1.680E-04 | 3.077E-02 | 3.76E+00 | 1.247E+02 | 1.330E+02 | 2.828E-05 | 5.236E-03 | 8.190E+00 |
| 120 | -5.000E-01 | -2.450E+02 | 1.01E+01 | 4.444E+01 | 4.738E+01 | 2.228E-04 | 4.069E-02 | 3.41E+00 | 1.315E+02 | 1.401E+02 | 2.546E-05 | 4.715E-03 | 7.826E+00 |
| 125 | -5.736E-01 | -2.570E+02 | 1.12E+01 | 3.804E+01 | 4.055E+01 | 3.041E-04 | 5.535E-02 | 3.08E+00 | 1.379E+02 | 1.470E+02 | 2.315E-05 | 4.289E-03 | 7.402E+00 |
| 130 | -6.428E-01 | -2.683E+02 | 1.25E+01 | 3.201E+01 | 3.413E+01 | 4.292E-04 | 7.779E-02 | 2.76E+00 | 1.439E+02 | 1.534E+02 | 2.125E-05 | 3.938E-03 | 6.922E+00 |
| 135 | -7.071E-01 | -2.788E+02 | 1.40E+01 | 2.641E+01 | 2.817E+01 | 6.303E-04 | 1.136E-01 | 2.45E+00 | 1.495E+02 | 1.593E+02 | 1.969E-05 | 3.650E-03 | 6.390E+00 |
| 140 | -7.660E-01 | -2.884E+02 | 1.58E+01 | 2.128E+01 | 2.270E+01 | 9.707E-04 | 1.735E-01 | 2.15E+00 | 1.546E+02 | 1.648E+02 | 1.841E-05 | 3.412E-03 | 5.809E+00 |
| 145 | -8.192E-01 | -2.971E+02 | 1.81E+01 | 1.665E+01 | 1.778E+01 | 1.584E-03 | 2.799E-01 | 1.87E+00 | 1.593E+02 | 1.697E+02 | 1.735E-05 | 3.218E-03 | 5.183E+00 |
| 150 | -8.660E-01 | -3.048E+02 | 2.11E+01 | 1.256E+01 | 1.343E+01 | 2.777E-03 | 4.827E-01 | 1.59E+00 | 1.633E+02 | 1.741E+02 | 1.650E-05 | 3.060E-03 | 4.518E+00 |
| 155 | -9.063E-01 | -3.113E+02 | 2.50E+01 | 9.044E+00 | 9.691E+00 | 5.338E-03 | 9.050E-01 | 1.31E+00 | 1.668E+02 | 1.778E+02 | 1.581E-05 | 2.933E-03 | 3.819E+00 |
| 160 | -9.397E-01 | -3.168E+02 | 3.04E+01 | 6.115E+00 | 6.594E+00 | 1.157E-02 | 1.884E+00 | 1.04E+00 | 1.698E+02 | 1.809E+02 | 1.527E-05 | 2.833E-03 | 3.091E+00 |
| 165 | -9.659E-01 | -3.211E+02 | 3.81E+01 | 3.789E+00 | 4.161E+00 | 2.931E-02 | 4.474E+00 | 7.79E-01 | 1.720E+02 | 1.834E+02 | 1.487E-05 | 2.759E-03 | 2.339E+00 |
| 170 | -9.848E-01 | -3.242E+02 | 4.97E+01 | 2.057E+00 | 2.409E+00 | 9.021E-02 | 1.248E+01 | 5.18E-01 | 1.737E+02 | 1.851E+02 | 1.459E-05 | 2.707E-03 | 1.569E+00 |
| 175 | -9.962E-01 | -3.260E+02 | 6.71E+01 | 8.551E-01 | 1.353E+00 | 3.264E-01 | 4.349E+01 | 2.58E-01 | 1.747E+02 | 1.862E+02 | 1.443E-05 | 2.677E-03 | 7.876E-01 |
| 180 | -1.000E+00 | -3.266E+02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. | 1.750E+02 | 1.865E+02 | 1.437E-05 | 2.666E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + PROTON (4) AT 200 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 9.38259E-01
P2CM= 9.66368E+00 P3CM= 9.66368E+00
E1CM= 9.70913E+00 E2CM= 9.70913E+00 E3CM= 9.70913E+00 E4CM= 9.70913E+00

1-V1LAB = 1.100E-05 1-VCM = 4.680E-03 GCM = 1.03480E+01 ETCM= 1.94183E+01 S = 3.77068E+02 -U=( 3.73547E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 2.000E+02 | 2.132E+02 | 1.100E-05 | 2.335E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -2.845E-02 | 4.83E-02 | 2.000E+02 | 2.131E+02 | 1.101E-05 | 2.335E-03 | 8.48E+01 | 1.693E-01 | 1.016E+00 | 8.224E-01 | 2.929E+02 | 1.687E-01 |
| 2 | 9.994E-01 | -1.138E-01 | 9.66E-02 | 1.999E+02 | 2.131E+02 | 1.101E-05 | 2.336E-03 | 7.98E+01 | 3.427E-01 | 1.065E+00 | 6.569E-01 | 1.413E+02 | 3.373E-01 |
| 3 | 9.986E-01 | -2.560E-01 | 1.45E-01 | 1.999E+02 | 2.130E+02 | 1.102E-05 | 2.338E-03 | 7.48E+01 | 5.240E-01 | 1.145E+00 | 5.124E-01 | 8.895E+01 | 5.058E-01 |
| 4 | 9.976E-01 | -4.550E-01 | 1.93E-01 | 1.998E+02 | 2.129E+02 | 1.103E-05 | 2.340E-03 | 7.01E+01 | 7.168E-01 | 1.258E+00 | 3.929E-01 | 6.178E+01 | 6.741E-01 |
| 5 | 9.962E-01 | -7.107E-01 | 2.42E-01 | 1.996E+02 | 2.128E+02 | 1.105E-05 | 2.344E-03 | 6.57E+01 | 9.242E-01 | 1.404E+00 | 2.982E-01 | 4.501E+01 | 8.422E-01 |
| 6 | 9.945E-01 | -1.023E+00 | 2.90E-01 | 1.995E+02 | 2.126E+02 | 1.106E-05 | 2.347E-03 | 6.15E+01 | 1.149E+00 | 1.581E+00 | 2.254E-01 | 3.372E+01 | 1.010E+00 |
| 7 | 9.925E-01 | -1.392E+00 | 3.39E-01 | 1.993E+02 | 2.124E+02 | 1.109E-05 | 2.352E-03 | 5.77E+01 | 1.394E+00 | 1.791E+00 | 1.705E-01 | 2.571E+01 | 1.178E+00 |
| 8 | 9.903E-01 | -1.818E+00 | 3.87E-01 | 1.990E+02 | 2.121E+02 | 1.111E-05 | 2.357E-03 | 5.41E+01 | 1.660E+00 | 2.032E+00 | 1.294E-01 | 1.986E+01 | 1.345E+00 |
| 9 | 9.877E-01 | -2.299E+00 | 4.36E-01 | 1.988E+02 | 2.119E+02 | 1.114E-05 | 2.363E-03 | 5.08E+01 | 1.950E+00 | 2.386E+00 | 9.892E-02 | 1.551E+01 | 1.512E+00 |
| 10 | 9.848E-01 | -2.838E+00 | 4.84E-01 | 1.985E+02 | 2.116E+02 | 1.117E-05 | 2.370E-03 | 4.78E+01 | 2.264E+00 | 2.612E+00 | 7.621E-02 | 1.223E+01 | 1.678E+00 |
| 15 | 9.659E-01 | -6.364E+00 | 7.29E-01 | 1.966E+02 | 2.095E+02 | 1.139E-05 | 2.416E-03 | 3.63E+01 | 4.227E+00 | 4.615E+00 | 2.376E-02 | 4.214E+00 | 2.501E+00 |
| 20 | 9.397E-01 | -1.126E+01 | 9.76E-01 | 1.940E+02 | 2.068E+02 | 1.170E-05 | 2.481E-03 | 2.87E+01 | 6.877E+00 | 7.397E+00 | 9.179E-03 | 1.732E+00 | 3.305E+00 |
| 25 | 9.063E-01 | -1.750E+01 | 1.23E+00 | 1.907E+02 | 2.032E+02 | 1.211E-05 | 2.568E-03 | 2.36E+01 | 1.022E+01 | 1.094E+01 | 4.187E-03 | 8.195E-01 | 4.084E+00 |
| 30 | 8.660E-01 | -2.502E+01 | 1.48E+00 | 1.867E+02 | 1.990E+02 | 1.263E-05 | 2.679E-03 | 1.98E+01 | 1.424E+01 | 1.521E+01 | 2.163E-03 | 4.331E-01 | 4.832E+00 |
| 35 | 8.192E-01 | -3.378E+01 | 1.75E+00 | 1.820E+02 | 1.940E+02 | 1.329E-05 | 2.818E-03 | 1.70E+01 | 1.892E+01 | 2.018E+01 | 1.228E-03 | 2.496E-01 | 5.543E+00 |
| 40 | 7.660E-01 | -4.370E+01 | 2.01E+00 | 1.767E+02 | 1.883E+02 | 1.410E-05 | 2.989E-03 | 1.49E+01 | 2.421E+01 | 2.582E+01 | 7.504E-04 | 1.540E-01 | 6.212E+00 |
| 45 | 7.071E-01 | -5.470E+01 | 2.29E+00 | 1.708E+02 | 1.821E+02 | 1.508E-05 | 3.197E-03 | 1.31E+01 | 3.008E+01 | 3.207E+01 | 4.863E-04 | 1.005E-01 | 6.833E+00 |
| 50 | 6.428E-01 | -6.672E+01 | 2.58E+00 | 1.644E+02 | 1.753E+02 | 1.628E-05 | 3.450E-03 | 1.17E+01 | 3.648E+01 | 3.889E+01 | 3.306E-04 | 6.871E-02 | 7.403E+00 |
| 55 | 5.736E-01 | -7.964E+01 | 2.88E+00 | 1.576E+02 | 1.679E+02 | 1.773E-05 | 3.757E-03 | 1.05E+01 | 4.337E+01 | 4.624E+01 | 2.339E-04 | 4.881E-02 | 7.916E+00 |
| 60 | 5.000E-01 | -9.339E+01 | 3.19E+00 | 1.502E+02 | 1.601E+02 | 1.950E-05 | 4.131E-03 | 9.50E+00 | 5.070E+01 | 5.404E+01 | 1.712E-04 | 3.584E-02 | 8.369E+00 |
| 65 | 4.226E-01 | -1.078E+02 | 3.52E+00 | 1.425E+02 | 1.519E+02 | 2.167E-05 | 4.588E-03 | 8.63E+00 | 5.840E+01 | 6.225E+01 | 1.290E-04 | 2.707E-02 | 8.758E+00 |
| 70 | 3.420E-01 | -1.229E+02 | 3.87E+00 | 1.345E+02 | 1.434E+02 | 2.433E-05 | 5.150E-03 | 7.86E+00 | 6.642E+01 | 7.080E+01 | 9.975E-05 | 2.097E-02 | 9.081E+00 |
| 75 | 2.588E-01 | -1.384E+02 | 4.24E+00 | 1.262E+02 | 1.345E+02 | 2.762E-05 | 5.845E-03 | 7.18E+00 | 7.470E+01 | 7.963E+01 | 7.886E-05 | 1.660E-02 | 9.334E+00 |
| 80 | 1.736E-01 | -1.543E+02 | 4.64E+00 | 1.178E+02 | 1.255E+02 | 3.174E-05 | 6.713E-03 | 6.57E+00 | 8.318E+01 | 8.866E+01 | 6.361E-05 | 1.341E-02 | 9.517E+00 |
| 85 | 8.716E-02 | -1.705E+02 | 5.06E+00 | 1.091E+02 | 1.163E+02 | 3.695E-05 | 7.809E-03 | 6.02E+00 | 9.179E+01 | 9.784E+01 | 5.224E-05 | 1.102E-02 | 9.627E+00 |
| 90 | 0. | -1.868E+02 | 5.52E+00 | 1.005E+02 | 1.071E+02 | 4.361E-05 | 9.209E-03 | 5.52E+00 | 1.005E+02 | 1.071E+02 | 4.361E-05 | 9.209E-03 | 9.664E+00 |
| 95 | -8.716E-02 | -2.031E+02 | 6.02E+00 | 9.179E+01 | 9.784E+01 | 5.224E-05 | 1.102E-02 | 5.06E+00 | 1.091E+02 | 1.163E+02 | 3.695E-05 | 7.809E-03 | 9.627E+00 |
| 100 | -1.736E-01 | -2.192E+02 | 6.57E+00 | 8.318E+01 | 8.866E+01 | 6.361E-05 | 1.341E-02 | 4.64E+00 | 1.178E+02 | 1.255E+02 | 3.174E-05 | 6.713E-03 | 9.517E+00 |
| 105 | -2.588E-01 | -2.351E+02 | 7.18E+00 | 7.470E+01 | 7.963E+01 | 7.886E-05 | 1.660E-02 | 4.24E+00 | 1.262E+02 | 1.345E+02 | 2.762E-05 | 5.845E-03 | 9.334E+00 |
| 110 | -3.420E-01 | -2.507E+02 | 7.86E+00 | 6.642E+01 | 7.080E+01 | 9.975E-05 | 2.097E-02 | 3.87E+00 | 1.345E+02 | 1.434E+02 | 2.433E-05 | 5.150E-03 | 9.081E+00 |
| 115 | -4.226E-01 | -2.657E+02 | 8.63E+00 | 5.840E+01 | 6.225E+01 | 1.290E-04 | 2.707E-02 | 3.52E+00 | 1.425E+02 | 1.519E+02 | 2.167E-05 | 4.588E-03 | 8.758E+00 |
| 120 | -5.000E-01 | -2.802E+02 | 9.50E+00 | 5.070E+01 | 5.404E+01 | 1.712E-04 | 3.584E-02 | 3.19E+00 | 1.502E+02 | 1.601E+02 | 1.950E-05 | 4.131E-03 | 8.369E+00 |
| 125 | -5.736E-01 | -2.939E+02 | 1.05E+01 | 4.337E+01 | 4.624E+01 | 2.339E-04 | 4.881E-02 | 2.88E+00 | 1.576E+02 | 1.679E+02 | 1.773E-05 | 3.757E-03 | 7.916E+00 |
| 130 | -6.428E-01 | -3.068E+02 | 1.17E+01 | 3.648E+01 | 3.889E+01 | 3.306E-04 | 6.871E-02 | 2.58E+00 | 1.644E+02 | 1.753E+02 | 1.628E-05 | 3.450E-03 | 7.403E+00 |
| 135 | -7.071E-01 | -3.188E+02 | 1.31E+01 | 3.008E+01 | 3.207E+01 | 4.863E-04 | 1.005E-01 | 2.29E+00 | 1.708E+02 | 1.821E+02 | 1.508E-05 | 3.197E-03 | 6.833E+00 |
| 140 | -7.660E-01 | -3.299E+02 | 1.49E+01 | 2.421E+01 | 2.582E+01 | 7.504E-04 | 1.540E-01 | 2.01E+00 | 1.767E+02 | 1.883E+02 | 1.410E-05 | 2.989E-03 | 6.212E+00 |
| 145 | -8.192E-01 | -3.398E+02 | 1.70E+01 | 1.892E+01 | 2.018E+01 | 1.228E-03 | 2.496E-01 | 1.75E+00 | 1.820E+02 | 1.940E+02 | 1.329E-05 | 2.818E-03 | 5.543E+00 |
| 150 | -8.660E-01 | -3.485E+02 | 1.98E+01 | 1.424E+01 | 1.521E+01 | 2.163E-03 | 4.331E-01 | 1.48E+00 | 1.867E+02 | 1.990E+02 | 1.263E-05 | 2.679E-03 | 4.832E+00 |
| 155 | -9.063E-01 | -3.560E+02 | 2.36E+01 | 1.022E+01 | 1.094E+01 | 4.187E-03 | 8.195E-01 | 1.23E+00 | 1.907E+02 | 2.032E+02 | 1.211E-05 | 2.568E-03 | 4.084E+00 |
| 160 | -9.397E-01 | -3.623E+02 | 2.87E+01 | 6.877E+00 | 7.397E+00 | 9.179E-03 | 1.732E+00 | 9.76E-01 | 1.940E+02 | 2.068E+02 | 1.179E-05 | 2.481E-03 | 3.305E+00 |
| 165 | -9.659E-01 | -3.672E+02 | 3.63E+01 | 4.227E+00 | 4.615E+00 | 2.376E-02 | 4.214E+00 | 7.29E-01 | 1.966E+02 | 2.095E+02 | 1.139E-05 | 2.416E-03 | 2.501E+00 |
| 170 | -9.848E-01 | -3.707E+02 | 4.78E+01 | 2.264E+00 | 2.612E+00 | 7.621E-02 | 1.223E+01 | 4.84E-01 | 1.985E+02 | 2.116E+02 | 1.117E-05 | 2.370E-03 | 1.678E+00 |
| 175 | -9.962E-01 | -3.728E+02 | 6.57E+01 | 9.242E-01 | 1.404E+00 | 2.982E-01 | 4.501E+01 | 2.42E-01 | 1.996E+02 | 2.128E+02 | 1.105E-05 | 2.344E-03 | 8.422E-01 |
| 180 | -1.000E+00 | -3.735E+02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. | 2.000E+02 | 2.132E+02 | 1.100E-05 | 2.335E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + PROTON (4) AT 225 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 9.38259E-01
P2CM= 1.02526E+01 P3CM= 1.02526E+01
E1CM= 1.02954E+01 E2CM= 1.02954E+01 E3CM= 1.02954E+01 E4CM= 1.02954E+01

1-V1LAB = 8.695E-06 1-VCM = 4.161E-03 GCM = 1.09729E+01 PTCM= 2.05908E+01 S = 4.23981E+02 -U=( 4.20460E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 2.250E+02 | 2.398E+02 | 8.695E-06 | 2.076E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -3.202E-02 | 4.56E-02 | 2.250E+02 | 2.398E+02 | 8.696E-06 | 2.077E-03 | 8.45E+01 | 1.798E-01 | 1.018E+00 | 8.118E-01 | 3.101E+02 | 1.789E-01 |
| 2 | 9.994E-01 | -1.281E-01 | 9.11E-02 | 2.249E+02 | 2.397E+02 | 8.700E-06 | 2.078E-03 | 7.92E+01 | 3.643E-01 | 1.073E+00 | 6.380E-01 | 1.490E+02 | 3.578E-01 |
| 3 | 9.986E-01 | -2.881E-01 | 1.37E-01 | 2.248E+02 | 2.396E+02 | 8.706E-06 | 2.079E-03 | 7.40E+01 | 5.583E-01 | 1.164E+00 | 4.887E-01 | 9.313E+01 | 5.366E-01 |
| 4 | 9.976E-01 | -5.121E-01 | 1.82E-01 | 2.247E+02 | 2.395E+02 | 8.716E-06 | 2.081E-03 | 6.90E+01 | 7.659E-01 | 1.291E+00 | 3.676E-01 | 6.412E+01 | 7.152E-01 |
| 5 | 9.962E-01 | -8.000E-01 | 2.28E-01 | 2.246E+02 | 2.394E+02 | 8.728E-06 | 2.084E-03 | 6.44E+01 | 9.908E-01 | 1.454E+00 | 2.739E-01 | 4.626E+01 | 8.936E-01 |
| 6 | 9.945E-01 | -1.152E+00 | 2.74E-01 | 2.244E+02 | 2.392E+02 | 8.742E-06 | 2.088E-03 | 6.01E+01 | 1.236E+00 | 1.654E+00 | 2.034E-01 | 3.429E+01 | 1.072E+00 |
| 7 | 9.925E-01 | -1.567E+00 | 3.19E-01 | 2.242E+02 | 2.389E+02 | 8.759E-06 | 2.092E-03 | 5.61E+01 | 1.505E+00 | 1.890E+00 | 1.514E-01 | 2.587E+01 | 1.249E+00 |
| 8 | 9.903E-01 | -2.046E+00 | 3.65E-01 | 2.239E+02 | 2.386E+02 | 8.779E-06 | 2.097E-03 | 5.25E+01 | 1.799E+00 | 2.162E+00 | 1.134E-01 | 1.978E+01 | 1.427E+00 |
| 9 | 9.877E-01 | -2.588E+00 | 4.11E-01 | 2.236E+02 | 2.383E+02 | 8.802E-06 | 2.102E-03 | 4.92E+01 | 2.119E+00 | 2.470E+00 | 8.562E-02 | 1.530E+01 | 1.604E+00 |
| 10 | 9.848E-01 | -3.194E+00 | 4.57E-01 | 2.233E+02 | 2.380E+02 | 8.828E-06 | 2.108E-03 | 4.62E+01 | 2.468E+00 | 2.814E+00 | 6.527E-02 | 1.195E+01 | 1.780E+00 |
| 15 | 9.659E-01 | -7.163E+00 | 6.87E-01 | 2.212E+02 | 2.357E+02 | 8.997E-06 | 2.148E-03 | 3.47E+01 | 4.662E+00 | 5.069E+00 | 1.966E-02 | 3.976E+00 | 2.654E+00 |
| 20 | 9.397E-01 | -1.268E+01 | 9.21E-01 | 2.182E+02 | 2.326E+02 | 9.241E-06 | 2.207E-03 | 2.73E+01 | 7.637E+00 | 8.201E+00 | 7.462E-03 | 1.601E+00 | 3.507E+00 |
| 25 | 9.063E-01 | -1.970E+01 | 1.16E+00 | 2.145E+02 | 2.286E+02 | 9.566E-06 | 2.284E-03 | 2.23E+01 | 1.140E+01 | 1.219E+01 | 3.372E-03 | 7.486E-01 | 4.333E+00 |
| 30 | 8.660E-01 | -2.817E+01 | 1.40E+00 | 2.100E+02 | 2.238E+02 | 9.982E-06 | 2.383E-03 | 1.88E+01 | 1.592E+01 | 1.700E+01 | 1.732E-03 | 3.926E-01 | 5.126E+00 |
| 35 | 8.192E-01 | -3.802E+01 | 1.65E+00 | 2.047E+02 | 2.182E+02 | 1.050E-05 | 2.507E-03 | 1.61E+01 | 2.118E+01 | 2.259E+01 | 9.799E-04 | 2.251E-01 | 5.881E+00 |
| 40 | 7.660E-01 | -4.918E+01 | 1.90E+00 | 1.988E+02 | 2.119E+02 | 1.114E-05 | 2.659E-03 | 1.41E+01 | 2.713E+01 | 2.894E+01 | 5.974E-04 | 1.385E-01 | 6.590E+00 |
| 45 | 7.071E-01 | -6.157E+01 | 2.16E+00 | 1.922E+02 | 2.048E+02 | 1.192E-05 | 2.844E-03 | 1.24E+01 | 3.374E+01 | 3.597E+01 | 3.865E-04 | 9.019E-02 | 7.250E+00 |
| 50 | 6.428E-01 | -7.510E+01 | 2.43E+00 | 1.850E+02 | 1.972E+02 | 1.286E-05 | 3.069E-03 | 1.11E+01 | 4.095E+01 | 4.365E+01 | 2.624E-04 | 6.153E-02 | 7.854E+00 |
| 55 | 5.736E-01 | -8.965E+01 | 2.72E+00 | 1.772E+02 | 1.889E+02 | 1.401E-05 | 3.343E-03 | 9.93E+00 | 4.870E+01 | 5.192E+01 | 1.855E-04 | 4.365E-02 | 8.398E+00 |
| 60 | 5.000E-01 | -1.051E+02 | 3.01E+00 | 1.690E+02 | 1.801E+02 | 1.541E-05 | 3.676E-03 | 8.97E+00 | 5.695E+01 | 6.070E+01 | 1.357E-04 | 3.202E-02 | 8.879E+00 |
| 65 | 4.226E-01 | -1.214E+02 | 3.32E+00 | 1.603E+02 | 1.709E+02 | 1.713E-05 | 4.083E-03 | 8.14E+00 | 6.562E+01 | 6.994E+01 | 1.022E-04 | 2.417E-02 | 9.292E+00 |
| 70 | 3.420E-01 | -1.383E+02 | 3.65E+00 | 1.513E+02 | 1.612E+02 | 1.923E-05 | 4.583E-03 | 7.42E+00 | 7.465E+01 | 7.957E+01 | 7.898E-05 | 1.871E-02 | 9.634E+00 |
| 75 | 2.588E-01 | -1.558E+02 | 4.00E+00 | 1.420E+02 | 1.513E+02 | 2.184E-05 | 5.203E-03 | 6.77E+00 | 8.397E+01 | 8.950E+01 | 6.242E-05 | 1.480E-02 | 9.903E+00 |
| 80 | 1.736E-01 | -1.737E+02 | 4.37E+00 | 1.324E+02 | 1.411E+02 | 2.510E-05 | 5.977E-03 | 6.20E+00 | 9.351E+01 | 9.967E+01 | 5.033E-05 | 1.195E-02 | 1.010E+01 |
| 85 | 8.716E-02 | -1.919E+02 | 4.77E+00 | 1.227E+02 | 1.308E+02 | 2.922E-05 | 6.954E-03 | 5.68E+00 | 1.032E+02 | 1.100E+02 | 4.133E-05 | 9.821E-03 | 1.021E+01 |
| 90 | 0. | -2.102E+02 | 5.21E+00 | 1.130E+02 | 1.204E+02 | 3.449E-05 | 8.203E-03 | 5.21E+00 | 1.130E+02 | 1.204E+02 | 3.449E-05 | 8.203E-03 | 1.025E+01 |
| 95 | -8.716E-02 | -2.286E+02 | 5.68E+00 | 1.032E+02 | 1.100E+02 | 4.133E-05 | 9.821E-03 | 4.77E+00 | 1.227E+02 | 1.308E+02 | 2.922E-05 | 6.954E-03 | 1.021E+01 |
| 100 | -1.736E-01 | -2.467E+02 | 6.20E+00 | 9.351E+01 | 9.967E+01 | 5.033E-05 | 1.195E-02 | 4.37E+00 | 1.324E+02 | 1.411E+02 | 2.510E-05 | 5.977E-03 | 1.010E+01 |
| 105 | -2.588E-01 | -2.646E+02 | 6.77E+00 | 8.397E+01 | 8.950E+01 | 6.242E-05 | 1.480E-02 | 4.00E+00 | 1.420E+02 | 1.513E+02 | 2.184E-05 | 5.203E-03 | 9.903E+00 |
| 110 | -3.420E-01 | -2.821E+02 | 7.42E+00 | 7.465E+01 | 7.957E+01 | 7.898E-05 | 1.871E-02 | 3.65E+00 | 1.513E+02 | 1.612E+02 | 1.923E-05 | 4.583E-03 | 9.634E+00 |
| 115 | -4.226E-01 | -2.991E+02 | 8.14E+00 | 6.562E+01 | 6.994E+01 | 1.022E-04 | 2.417E-02 | 3.32E+00 | 1.603E+02 | 1.709E+02 | 1.713E-05 | 4.083E-03 | 9.292E+00 |
| 120 | -5.000E-01 | -3.153E+02 | 8.97E+00 | 5.695E+01 | 6.070E+01 | 1.357E-04 | 3.202E-02 | 3.01E+00 | 1.690E+02 | 1.801E+02 | 1.541E-05 | 3.676E-03 | 8.879E+00 |
| 125 | -5.736E-01 | -3.308E+02 | 9.93E+00 | 4.870E+01 | 5.192E+01 | 1.855E-04 | 4.365E-02 | 2.72E+00 | 1.772E+02 | 1.889E+02 | 1.401E-05 | 3.343E-03 | 8.398E+00 |
| 130 | -6.428E-01 | -3.454E+02 | 1.11E+01 | 4.095E+01 | 4.365E+01 | 2.624E-04 | 6.153E-02 | 2.43E+00 | 1.850E+02 | 1.972E+02 | 1.286E-05 | 3.069E-03 | 7.854E+00 |
| 135 | -7.071E-01 | -3.589E+02 | 1.24E+01 | 3.374E+01 | 3.597E+01 | 3.865E-04 | 9.019E-02 | 2.16E+00 | 1.922E+02 | 2.048E+02 | 1.192E-05 | 2.844E-03 | 7.250E+00 |
| 140 | -7.660E-01 | -3.713E+02 | 1.41E+01 | 2.713E+01 | 2.894E+01 | 5.974E-04 | 1.385E-01 | 1.90E+00 | 1.988E+02 | 2.119E+02 | 1.114E-05 | 2.659E-03 | 6.590E+00 |
| 145 | -8.192E-01 | -3.824E+02 | 1.61E+01 | 2.118E+01 | 2.259E+01 | 9.799E-04 | 2.251E-01 | 1.65E+00 | 2.047E+02 | 2.182E+02 | 1.050E-05 | 2.507E-03 | 5.881E+00 |
| 150 | -8.660E-01 | -3.923E+02 | 1.88E+01 | 1.592E+01 | 1.700E+01 | 1.732E-03 | 3.926E-01 | 1.40E+00 | 2.100E+02 | 2.238E+02 | 9.982E-06 | 2.383E-03 | 5.126E+00 |
| 155 | -9.063E-01 | -4.008E+02 | 2.23E+01 | 1.140E+01 | 1.219E+01 | 3.372E-03 | 7.486E-01 | 1.16E+00 | 2.145E+02 | 2.286E+02 | 9.566E-06 | 2.284E-03 | 4.333E+00 |
| 160 | -9.397E-01 | -4.078E+02 | 2.73E+01 | 7.637E+00 | 8.201E+00 | 7.462E-03 | 1.601E+00 | 9.21E-01 | 2.182E+02 | 2.326E+02 | 9.241E-06 | 2.207E-03 | 3.507E+00 |
| 165 | -9.659E-01 | -4.133E+02 | 3.47E+01 | 4.662E+00 | 5.069E+00 | 1.966E-02 | 3.976E+00 | 6.87E-01 | 2.212E+02 | 2.357E+02 | 8.997E-06 | 2.148E-03 | 2.654E+00 |
| 170 | -9.848E-01 | -4.173E+02 | 4.62E+01 | 2.468E+00 | 2.814E+00 | 6.527E-02 | 1.195E+01 | 4.57E-01 | 2.233E+02 | 2.380E+02 | 8.828E-06 | 2.108E-03 | 1.780E+00 |
| 175 | -9.962E-01 | -4.197E+02 | 6.44E+01 | 9.908E-01 | 1.454E+00 | 2.739E-01 | 4.626E+01 | 2.28E-01 | 2.246E+02 | 2.394E+02 | 8.728E-06 | 2.084E-03 | 8.936E-01 |
| 180 | -1.000E+00 | -4.205E+02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. | 2.250E+02 | 2.398E+02 | 8.695E-06 | 2.076E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + PROTON (4) AT 250 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 9.38259E-01
P2CM= 1.08094E+01 P3CM= 1.08094E+01
E1CM= 1.08500E+01 E2CM= 1.08500E+01 E3CM= 1.08500E+01 E4CM= 1.08500E+01

1-V1LAB = 7.043E-06 1-VCM = 3.746E-03 GCM = 1.15640E+01 ETCM= 2.17001E+01 S = 4.70894E+02 -U=( 4.67372E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 2.500E+02 | 2.665E+02 | 7.043E-06 | 1.869E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -3.559E-02 | 4.32E-02 | 2.500E+02 | 2.664E+02 | 7.044E-06 | 1.870E-03 | 8.42E+01 | 1.896E-01 | 1.020E+00 | 8.019E-01 | 3.263E+02 | 1.886E-01 |
| 2 | 9.994E-01 | -1.424E-01 | 8.65E-02 | 2.499E+02 | 2.664E+02 | 7.047E-06 | 1.871E-03 | 7.86E+01 | 3.849E-01 | 1.081E+00 | 6.205E-01 | 1.561E+02 | 3.772E-01 |
| 3 | 9.986E-01 | -3.203E-01 | 1.30E-01 | 2.498E+02 | 2.663E+02 | 7.052E-06 | 1.872E-03 | 7.32E+01 | 5.911E-01 | 1.102E+00 | 4.670E-01 | 9.692E+01 | 5.657E-01 |
| 4 | 9.976E-01 | -5.692E-01 | 1.73E-01 | 2.497E+02 | 2.661E+02 | 7.060E-06 | 1.874E-03 | 6.80E+01 | 8.132E-01 | 1.123E+00 | 3.451E-01 | 6.616E+01 | 7.540E-01 |
| 5 | 9.962E-01 | -8.892E-01 | 2.16E-01 | 2.495E+02 | 2.659E+02 | 7.069E-06 | 1.877E-03 | 6.32E+01 | 1.055E+00 | 1.505E+00 | 2.526E-01 | 4.728E+01 | 9.421E-01 |
| 6 | 9.945E-01 | -1.280E+00 | 2.60E-01 | 2.493E+02 | 2.657E+02 | 7.081E-06 | 1.880E-03 | 5.88E+01 | 1.321E+00 | 1.727E+00 | 1.847E-01 | 3.469E+01 | 1.130E+00 |
| 7 | 9.925E-01 | -1.742E+00 | 3.03E-01 | 2.491E+02 | 2.655E+02 | 7.095E-06 | 1.883E-03 | 5.47E+01 | 1.614E+00 | 1.989E+00 | 1.355E-01 | 2.592E+01 | 1.317E+00 |
| 8 | 9.903E-01 | -2.274E+00 | 3.46E-01 | 2.488E+02 | 2.652E+02 | 7.111E-06 | 1.888E-03 | 5.10E+01 | 1.935E+00 | 2.292E+00 | 1.002E-01 | 1.963E+01 | 1.504E+00 |
| 9 | 9.877E-01 | -2.877E+00 | 3.90E-01 | 2.485E+02 | 2.648E+02 | 7.130E-06 | 1.893E-03 | 4.77E+01 | 2.286E+00 | 2.634E+00 | 7.487E-02 | 1.504E+01 | 1.691E+00 |
| 10 | 9.848E-01 | -3.550E+00 | 4.33E-01 | 2.481E+02 | 2.644E+02 | 7.150E-06 | 1.898E-03 | 4.47E+01 | 2.670E+00 | 3.016E+00 | 5.655E-02 | 1.166E+01 | 1.877E+00 |
| 15 | 9.659E-01 | -7.963E+00 | 6.52E-01 | 2.458E+02 | 2.619E+02 | 7.288E-06 | 1.934E-03 | 3.33E+01 | 5.096E+00 | 5.523E+00 | 1.653E-02 | 3.761E+00 | 2.798E+00 |
| 20 | 9.397E-01 | -1.409E+01 | 8.74E-01 | 2.425E+02 | 2.584E+02 | 7.486E-06 | 1.987E-03 | 2.61E+01 | 8.396E+00 | 9.004E+00 | 6.186E-03 | 1.488E+00 | 3.697E+00 |
| 25 | 9.063E-01 | -2.189E+01 | 1.10E+00 | 2.383E+02 | 2.540E+02 | 7.749E-06 | 2.057E-03 | 2.13E+01 | 1.257E+01 | 1.344E+01 | 2.774E-03 | 6.888E-01 | 4.568E+00 |
| 30 | 8.660E-01 | -3.131E+01 | 1.33E+00 | 2.333E+02 | 2.487E+02 | 8.086E-06 | 2.146E-03 | 1.79E+01 | 1.760E+01 | 1.878E+01 | 1.418E-03 | 3.591E-01 | 5.405E+00 |
| 35 | 8.192E-01 | -4.226E+01 | 1.56E+00 | 2.275E+02 | 2.424E+02 | 8.506E-06 | 2.257E-03 | 1.53E+01 | 2.344E+01 | 2.500E+01 | 8.001E-04 | 2.051E-01 | 6.200E+00 |
| 40 | 7.660E-01 | -5.467E+01 | 1.80E+00 | 2.209E+02 | 2.354E+02 | 9.023E-06 | 2.394E-03 | 1.34E+01 | 3.006E+01 | 3.205E+01 | 4.868E-04 | 1.258E-01 | 6.948E+00 |
| 45 | 7.071E-01 | -6.845E+01 | 2.05E+00 | 2.135E+02 | 2.276E+02 | 9.654E-06 | 2.561E-03 | 1.18E+01 | 3.740E+01 | 3.987E+01 | 3.145E-04 | 8.177E-02 | 7.643E+00 |
| 50 | 6.428E-01 | -8.348E+01 | 2.31E+00 | 2.055E+02 | 2.190E+02 | 1.042E-05 | 2.764E-03 | 1.05E+01 | 4.541E+01 | 4.841E+01 | 2.134E-04 | 5.571E-02 | 8.280E+00 |
| 55 | 5.736E-01 | -9.965E+01 | 2.58E+00 | 1.969E+02 | 2.099E+02 | 1.135E-05 | 3.011E-03 | 9.43E+00 | 5.403E+01 | 5.760E+01 | 1.507E-04 | 3.948E-02 | 8.855E+00 |
| 60 | 5.000E-01 | -1.168E+02 | 2.86E+00 | 1.877E+02 | 2.001E+02 | 1.249E-05 | 3.311E-03 | 8.52E+00 | 6.320E+01 | 6.736E+01 | 1.102E-04 | 2.893E-02 | 9.361E+00 |
| 65 | 4.226E-01 | -1.349E+02 | 3.15E+00 | 1.781E+02 | 1.898E+02 | 1.388E-05 | 3.678E-03 | 7.73E+00 | 7.283E+01 | 7.763E+01 | 8.296E-05 | 2.183E-02 | 9.797E+00 |
| 70 | 3.420E-01 | -1.538E+02 | 3.47E+00 | 1.681E+02 | 1.791E+02 | 1.558E-05 | 4.129E-03 | 7.04E+00 | 8.287E+01 | 8.833E+01 | 6.408E-05 | 1.688E-02 | 1.016E+01 |
| 75 | 2.588E-01 | -1.732E+02 | 3.80E+00 | 1.577E+02 | 1.681E+02 | 1.770E-05 | 4.688E-03 | 6.43E+00 | 9.323E+01 | 9.937E+01 | 5.063E-05 | 1.336E-02 | 1.044E+01 |
| 80 | 1.736E-01 | -1.931E+02 | 4.15E+00 | 1.471E+02 | 1.568E+02 | 2.034E-05 | 5.386E-03 | 5.88E+00 | 1.038E+02 | 1.107E+02 | 4.082E-05 | 1.078E-02 | 1.065E+01 |
| 85 | 8.716E-02 | -2.133E+02 | 4.53E+00 | 1.363E+02 | 1.453E+02 | 2.369E-05 | 6.268E-03 | 5.39E+00 | 1.146E+02 | 1.222E+02 | 3.351E-05 | 8.856E-03 | 1.077E+01 |
| 90 | 0. | -2.337E+02 | 4.94E+00 | 1.255E+02 | 1.337E+02 | 2.796E-05 | 7.395E-03 | 4.94E+00 | 1.255E+02 | 1.337E+02 | 2.796E-05 | 7.395E-03 | 1.081E+01 |
| 95 | -8.716E-02 | -2.541E+02 | 5.39E+00 | 1.146E+02 | 1.222E+02 | 3.351E-05 | 8.856E-03 | 4.53E+00 | 1.363E+02 | 1.453E+02 | 2.369E-05 | 6.268E-03 | 1.077E+01 |
| 100 | -1.736E-01 | -2.743E+02 | 5.88E+00 | 1.038E+02 | 1.107E+02 | 4.082E-05 | 1.078E-02 | 4.15E+00 | 1.471E+02 | 1.568E+02 | 2.034E-05 | 5.386E-03 | 1.065E+01 |
| 105 | -2.588E-01 | -2.942E+02 | 6.43E+00 | 9.323E+01 | 9.937E+01 | 5.063E-05 | 1.336E-02 | 3.80E+00 | 1.577E+02 | 1.681E+02 | 1.770E-05 | 4.688E-03 | 1.044E+01 |
| 110 | -3.420E-01 | -3.136E+02 | 7.04E+00 | 8.287E+01 | 8.833E+01 | 6.408E-05 | 1.688E-02 | 3.47E+00 | 1.681E+02 | 1.791E+02 | 1.558E-05 | 4.129E-03 | 1.016E+01 |
| 115 | -4.226E-01 | -3.324E+02 | 7.73E+00 | 7.283E+01 | 7.763E+01 | 8.296E-05 | 2.183E-02 | 3.15E+00 | 1.781E+02 | 1.898E+02 | 1.388E-05 | 3.678E-03 | 9.797E+00 |
| 120 | -5.000E-01 | -3.505E+02 | 8.52E+00 | 6.320E+01 | 6.736E+01 | 1.102E-04 | 2.893E-02 | 2.86E+00 | 1.877E+02 | 2.001E+02 | 1.249E-05 | 3.311E-03 | 9.361E+00 |
| 125 | -5.736E-01 | -3.677E+02 | 9.43E+00 | 5.403E+01 | 5.760E+01 | 1.507E-04 | 3.948E-02 | 2.58E+00 | 1.969E+02 | 2.099E+02 | 1.135E-05 | 3.011E-03 | 8.855E+00 |
| 130 | -6.428E-01 | -3.839E+02 | 1.05E+01 | 4.541E+01 | 4.841E+01 | 2.134E-04 | 5.571E-02 | 2.31E+00 | 2.055E+02 | 2.190E+02 | 1.042E-05 | 2.764E-03 | 8.280E+00 |
| 135 | -7.071E-01 | -3.989E+02 | 1.18E+01 | 3.740E+01 | 3.987E+01 | 3.145E-04 | 8.177E-02 | 2.05E+00 | 2.135E+02 | 2.276E+02 | 9.654E-06 | 2.561E-03 | 7.643E+00 |
| 140 | -7.660E-01 | -4.127E+02 | 1.34E+01 | 3.006E+01 | 3.205E+01 | 4.868E-04 | 1.258E-01 | 1.80E+00 | 2.209E+02 | 2.354E+02 | 9.023E-06 | 2.394E-03 | 6.948E+00 |
| 145 | -8.192E-01 | -4.251E+02 | 1.53E+01 | 2.344E+01 | 2.500E+01 | 8.001E-04 | 2.051E-01 | 1.56E+00 | 2.275E+02 | 2.424E+02 | 8.506E-06 | 2.257E-03 | 6.200E+00 |
| 150 | -8.660E-01 | -4.361E+02 | 1.79E+01 | 1.760E+01 | 1.878E+01 | 1.418E-03 | 3.591E-01 | 1.33E+00 | 2.333E+02 | 2.487E+02 | 8.086E-06 | 2.146E-03 | 5.405E+00 |
| 155 | -9.063E-01 | -4.455E+02 | 2.13E+01 | 1.257E+01 | 1.344E+01 | 2.774E-03 | 6.888E-01 | 1.10E+00 | 2.383E+02 | 2.540E+02 | 7.749E-06 | 2.057E-03 | 4.568E+00 |
| 160 | -9.397E-01 | -4.533E+02 | 2.61E+01 | 8.396E+00 | 9.004E+00 | 6.186E-03 | 1.488E+00 | 8.74E-01 | 2.425E+02 | 2.584E+02 | 7.486E-06 | 1.987E-03 | 3.697E+00 |
| 165 | -9.659E-01 | -4.594E+02 | 3.33E+01 | 5.096E+00 | 5.523E+00 | 1.653E-02 | 3.761E+00 | 6.52E-01 | 2.458E+02 | 2.619E+02 | 7.288E-06 | 1.934E-03 | 2.798E+00 |
| 170 | -9.848E-01 | -4.638E+02 | 4.47E+01 | 2.670E+00 | 3.016E+00 | 5.655E-02 | 1.166E+01 | 4.33E-01 | 2.481E+02 | 2.644E+02 | 7.150E-06 | 1.898E-03 | 1.877E+00 |
| 175 | -9.962E-01 | -4.665E+02 | 6.32E+01 | 1.055E+00 | 1.505E+00 | 2.526E-01 | 4.728E+01 | 2.16E-01 | 2.495E+02 | 2.659E+02 | 7.069E-06 | 1.877E-03 | 9.421E-01 |
| 180 | -1.000E+00 | -4.674E+02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. | 2.500E+02 | 2.665E+02 | 7.043E-06 | 1.869E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + PROTON (4) AT 275 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 9.38259E-01
P2CM= 1.13389E+01 P3CM= 1.13389E+01
E1CM= 1.13777E+01 E2CM= 1.13777E+01 E3CM= 1.13777E+01 E4CM= 1.13777E+01

1-V1LAB = 5.820E-06 1-VCM = 3.406E-03 GCM = 1.21264E+01 ETCM= 2.27554E+01 S = 5.17806E+02 -U=( 5.14285E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 2.750E+02 | 2.931E+02 | 5.820E-06 | 1.700E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -3.916E-02 | 4.12E-02 | 2.750E+02 | 2.931E+02 | 5.821E-06 | 1.700E-03 | 8.40E+01 | 1.990E-01 | 1.022E+00 | 7.925E-01 | 3.417E+02 | 1.979E-01 |
| 2 | 9.994E-01 | -1.566E-01 | 8.25E-02 | 2.749E+02 | 2.930E+02 | 5.824E-06 | 1.701E-03 | 7.80E+01 | 4.045E-01 | 1.089E+00 | 6.041E-01 | 1.627E+02 | 3.957E-01 |
| 3 | 9.986E-01 | -3.524E-01 | 1.24E-01 | 2.748E+02 | 2.929E+02 | 5.828E-06 | 1.702E-03 | 7.24E+01 | 6.226E-01 | 1.200E+00 | 4.471E-01 | 1.004E+02 | 5.934E-01 |
| 4 | 9.976E-01 | -6.264E-01 | 1.65E-01 | 2.747E+02 | 2.927E+02 | 5.834E-06 | 1.704E-03 | 6.70E+01 | 8.590E-01 | 1.356E+00 | 3.248E-01 | 6.795E+01 | 7.910E-01 |
| 5 | 9.962E-01 | -9.785E-01 | 2.06E-01 | 2.745E+02 | 2.925E+02 | 5.842E-06 | 1.707E-03 | 6.21E+01 | 1.118E+00 | 1.556E+00 | 2.339E-01 | 4.811E+01 | 9.883E-01 |
| 6 | 9.945E-01 | -1.409E+00 | 2.48E-01 | 2.742E+02 | 2.923E+02 | 5.852E-06 | 1.709E-03 | 5.76E+01 | 1.404E+00 | 1.800E+00 | 1.685E-01 | 3.497E+01 | 1.185E+00 |
| 7 | 9.925E-01 | -1.917E+00 | 2.89E-01 | 2.740E+02 | 2.920E+02 | 5.864E-06 | 1.713E-03 | 5.34E+01 | 1.720E+00 | 2.089E+00 | 1.221E-01 | 2.588E+01 | 1.382E+00 |
| 8 | 9.903E-01 | -2.502E+00 | 3.30E-01 | 2.737E+02 | 2.917E+02 | 5.877E-06 | 1.717E-03 | 4.97E+01 | 2.069E+00 | 2.421E+00 | 8.927E-02 | 1.942E+01 | 1.578E+00 |
| 9 | 9.877E-01 | -3.166E+00 | 3.72E-01 | 2.733E+02 | 2.913E+02 | 5.892E-06 | 1.721E-03 | 4.63E+01 | 2.452E+00 | 2.798E+00 | 6.604E-02 | 1.476E+01 | 1.774E+00 |
| 10 | 9.848E-01 | -3.907E+00 | 4.13E-01 | 2.729E+02 | 2.909E+02 | 5.909E-06 | 1.726E-03 | 4.33E+01 | 2.871E+00 | 3.219E+00 | 4.948E-02 | 1.135E+01 | 1.969E+00 |
| 15 | 9.659E-01 | -8.762E+00 | 6.22E-01 | 2.703E+02 | 2.881E+02 | 6.023E-06 | 1.759E-03 | 3.21E+01 | 5.528E+00 | 5.976E+00 | 1.410E-02 | 3.565E+00 | 2.935E+00 |
| 20 | 9.397E-01 | -1.551E+01 | 8.33E-01 | 2.667E+02 | 2.843E+02 | 6.187E-06 | 1.807E-03 | 2.51E+01 | 9.154E+00 | 9.808E+00 | 5.211E-03 | 1.390E+00 | 3.878E+00 |
| 25 | 9.063E-01 | -2.409E+01 | 1.05E+00 | 2.622E+02 | 2.794E+02 | 6.404E-06 | 1.870E-03 | 2.04E+01 | 1.375E+01 | 1.468E+01 | 2.322E-03 | 6.378E-01 | 4.792E+00 |
| 30 | 8.660E-01 | -3.445E+01 | 1.27E+00 | 2.566E+02 | 2.735E+02 | 6.683E-06 | 1.952E-03 | 1.71E+01 | 1.927E+01 | 2.057E+01 | 1.183E-03 | 3.308E-01 | 5.669E+00 |
| 35 | 8.192E-01 | -4.650E+01 | 1.49E+00 | 2.502E+02 | 2.667E+02 | 7.030E-06 | 2.053E-03 | 1.47E+01 | 2.570E+01 | 2.741E+01 | 6.656E-04 | 1.883E-01 | 6.504E+00 |
| 40 | 7.660E-01 | -6.016E+01 | 1.72E+00 | 2.429E+02 | 2.589E+02 | 7.458E-06 | 2.177E-03 | 1.28E+01 | 3.298E+01 | 3.517E+01 | 4.043E-04 | 1.153E-01 | 7.289E+00 |
| 45 | 7.071E-01 | -7.532E+01 | 1.96E+00 | 2.349E+02 | 2.503E+02 | 7.980E-06 | 2.329E-03 | 1.13E+01 | 4.106E+01 | 4.378E+01 | 2.609E-04 | 7.478E-02 | 8.018E+00 |
| 50 | 6.428E-01 | -9.185E+01 | 2.20E+00 | 2.261E+02 | 2.409E+02 | 8.614E-06 | 2.514E-03 | 1.00E+01 | 4.988E+01 | 5.317E+01 | 1.769E-04 | 5.089E-02 | 8.686E+00 |
| 55 | 5.736E-01 | -1.097E+02 | 2.46E+00 | 2.166E+02 | 2.308E+02 | 9.385E-06 | 2.739E-03 | 9.00E+00 | 5.936E+01 | 6.328E+01 | 1.249E-04 | 3.603E-02 | 9.288E+00 |
| 60 | 5.000E-01 | -1.286E+02 | 2.73E+00 | 2.065E+02 | 2.201E+02 | 1.032E-05 | 3.012E-03 | 8.13E+00 | 6.945E+01 | 7.402E+01 | 9.125E-05 | 2.639E-02 | 9.820E+00 |
| 65 | 4.226E-01 | -1.485E+02 | 3.01E+00 | 1.959E+02 | 2.088E+02 | 1.147E-05 | 3.346E-03 | 7.38E+00 | 8.005E+01 | 8.533E+01 | 6.868E-05 | 1.990E-02 | 1.028E+01 |
| 70 | 3.420E-01 | -1.692E+02 | 3.30E+00 | 1.848E+02 | 1.970E+02 | 1.288E-05 | 3.757E-03 | 6.72E+00 | 9.110E+01 | 9.710E+01 | 5.304E-05 | 1.539E-02 | 1.066E+01 |
| 75 | 2.588E-01 | -1.906E+02 | 3.62E+00 | 1.734E+02 | 1.848E+02 | 1.463E-05 | 4.266E-03 | 6.13E+00 | 1.025E+02 | 1.092E+02 | 4.189E-05 | 1.217E-02 | 1.095E+01 |
| 80 | 1.736E-01 | -2.125E+02 | 3.96E+00 | 1.618E+02 | 1.724E+02 | 1.682E-05 | 4.902E-03 | 5.61E+00 | 1.142E+02 | 1.217E+02 | 3.377E-05 | 9.816E-03 | 1.117E+01 |
| 85 | 8.716E-02 | -2.347E+02 | 4.32E+00 | 1.499E+02 | 1.598E+02 | 1.959E-05 | 5.705E-03 | 5.14E+00 | 1.260E+02 | 1.343E+02 | 2.771E-05 | 8.063E-03 | 1.130E+01 |
| 90 | 0. | -2.571E+02 | 4.71E+00 | 1.380E+02 | 1.470E+02 | 2.312E-05 | 6.732E-03 | 4.71E+00 | 1.380E+02 | 1.470E+02 | 2.312E-05 | 6.732E-03 | 1.134E+01 |
| 95 | -8.716E-02 | -2.796E+02 | 5.14E+00 | 1.260E+02 | 1.343E+02 | 2.771E-05 | 8.063E-03 | 4.32E+00 | 1.499E+02 | 1.598E+02 | 1.959E-05 | 5.705E-03 | 1.130E+01 |
| 100 | -1.736E-01 | -3.018E+02 | 5.61E+00 | 1.142E+02 | 1.217E+02 | 3.377E-05 | 9.816E-03 | 3.96E+00 | 1.618E+02 | 1.724E+02 | 1.682E-05 | 4.902E-03 | 1.117E+01 |
| 105 | -2.588E-01 | -3.237E+02 | 6.13E+00 | 1.025E+02 | 1.092E+02 | 4.189E-05 | 1.217E-02 | 3.62E+00 | 1.734E+02 | 1.848E+02 | 1.463E-05 | 4.266E-03 | 1.095E+01 |
| 110 | -3.420E-01 | -3.451E+02 | 6.72E+00 | 9.110E+01 | 9.710E+01 | 5.304E-05 | 1.539E-02 | 3.30E+00 | 1.848E+02 | 1.970E+02 | 1.288E-05 | 3.757E-03 | 1.066E+01 |
| 115 | -4.226E-01 | -3.658E+02 | 7.38E+00 | 8.005E+01 | 8.533E+01 | 6.868E-05 | 1.990E-02 | 3.01E+00 | 1.959E+02 | 2.088E+02 | 1.147E-05 | 3.346E-03 | 1.028E+01 |
| 120 | -5.000E-01 | -3.857E+02 | 8.13E+00 | 6.945E+01 | 7.402E+01 | 9.125E-05 | 2.639E-02 | 2.73E+00 | 2.065E+02 | 2.201E+02 | 1.032E-05 | 3.012E-03 | 9.820E+00 |
| 125 | -5.736E-01 | -4.046E+02 | 9.00E+00 | 5.936E+01 | 6.328E+01 | 1.249E-04 | 3.603E-02 | 2.46E+00 | 2.166E+02 | 2.308E+02 | 9.385E-06 | 2.739E-03 | 9.288E+00 |
| 130 | -6.428E-01 | -4.224E+02 | 1.00E+01 | 4.988E+01 | 5.317E+01 | 1.769E-04 | 5.089E-02 | 2.20E+00 | 2.261E+02 | 2.409E+02 | 8.614E-06 | 2.514E-03 | 8.686E+00 |
| 135 | -7.071E-01 | -4.390E+02 | 1.13E+01 | 4.106E+01 | 4.378E+01 | 2.609E-04 | 7.478E-02 | 1.96E+00 | 2.349E+02 | 2.503E+02 | 7.980E-06 | 2.329E-03 | 8.018E+00 |
| 140 | -7.660E-01 | -4.541E+02 | 1.28E+01 | 3.298E+01 | 3.517E+01 | 4.043E-04 | 1.153E-01 | 1.72E+00 | 2.429E+02 | 2.589E+02 | 7.458E-06 | 2.177E-03 | 7.289E+00 |
| 145 | -8.192E-01 | -4.678E+02 | 1.47E+01 | 2.570E+01 | 2.741E+01 | 6.656E-04 | 1.883E-01 | 1.49E+00 | 2.502E+02 | 2.667E+02 | 7.030E-06 | 2.053E-03 | 6.504E+00 |
| 150 | -8.660E-01 | -4.798E+02 | 1.71E+01 | 1.927E+01 | 2.057E+01 | 1.183E-03 | 3.308E-01 | 1.27E+00 | 2.566E+02 | 2.735E+02 | 6.683E-06 | 1.952E-03 | 5.669E+00 |
| 155 | -9.063E-01 | -4.902E+02 | 2.04E+01 | 1.375E+01 | 1.468E+01 | 2.322E-03 | 6.378E-01 | 1.05E+00 | 2.622E+02 | 2.794E+02 | 6.404E-06 | 1.870E-03 | 4.792E+00 |
| 160 | -9.397E-01 | -4.988E+02 | 2.51E+01 | 9.154E+00 | 9.808E+00 | 5.211E-03 | 1.390E+00 | 8.33E-01 | 2.667E+02 | 2.843E+02 | 6.187E-06 | 1.807E-03 | 3.878E+00 |
| 165 | -9.659E-01 | -5.055E+02 | 3.21E+01 | 5.528E+00 | 5.976E+00 | 1.410E-02 | 3.565E+00 | 6.22E-01 | 2.703E+02 | 2.881E+02 | 6.023E-06 | 1.759E-03 | 2.935E+00 |
| 170 | -9.848E-01 | -5.104E+02 | 4.33E+01 | 2.871E+00 | 3.219E+00 | 4.948E-02 | 1.135E+01 | 4.13E-01 | 2.729E+02 | 2.909E+02 | 5.909E-06 | 1.726E-03 | 1.969E+00 |
| 175 | -9.962E-01 | -5.133E+02 | 6.21E+01 | 1.118E+00 | 1.556E+00 | 2.339E-01 | 4.811E+01 | 2.06E-01 | 2.745E+02 | 2.925E+02 | 5.842E-06 | 1.707E-03 | 9.883E-01 |
| 180 | -1.000E+00 | -5.143E+02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. | 2.750E+02 | 2.931E+02 | 5.820E-06 | 1.700E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + PROTON (4) AT 300 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 9.38259E-01
P2CM= 1.18448E+01 P3CM= 1.18448E+01
E1CM= 1.18819E+01 E2CM= 1.18819E+01 E3CM= 1.18819E+01 E4CM= 1.18819E+01

1-V1LAB = 4.891E-06 1-VCM = 3.123E-03 GCM = 1.26638E+01 ETCM= 2.37638E+01 S = 5.64719E+02 -U=( 5.61198E+02) +T

| 83 CM | COS(83) CM | 4-MOM TSFR SQUARE, T | 83 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | 84 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 3.000E+02 | 3.197E+02 | 4.891E-06 | 1.559E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -4.274E-02 | 3.95E-02 | 3.000E+02 | 3.197E+02 | 4.891E-06 | 1.559E-03 | 8.37E+01 | 2.080E-01 | 1.024E+00 | 7.836E-01 | 3.563E+02 | 2.067E-01 |
| 2 | 9.994E-01 | -1.709E-01 | 7.90E-02 | 2.999E+02 | 3.196E+02 | 4.894E-06 | 1.560E-03 | 7.75E+01 | 4.234E-01 | 1.097E+00 | 5.887E-01 | 1.690E+02 | 4.134E-01 |
| 3 | 9.986E-01 | -3.846E-01 | 1.18E-01 | 2.998E+02 | 3.195E+02 | 4.897E-06 | 1.561E-03 | 7.17E+01 | 6.531E-01 | 1.218E+00 | 4.287E-01 | 1.035E+02 | 6.199E-01 |
| 4 | 9.976E-01 | -6.835E-01 | 1.58E-01 | 2.996E+02 | 3.194E+02 | 4.903E-06 | 1.563E-03 | 6.61E+01 | 9.034E-01 | 1.388E+00 | 3.064E-01 | 6.952E+01 | 8.263E-01 |
| 5 | 9.962E-01 | -1.068E+00 | 1.98E-01 | 2.994E+02 | 3.191E+02 | 4.909E-06 | 1.565E-03 | 6.11E+01 | 1.180E+00 | 1.606E+00 | 2.174E-01 | 4.879E+01 | 1.032E+00 |
| 6 | 9.945E-01 | -1.537E+00 | 2.37E-01 | 2.992E+02 | 3.189E+02 | 4.918E-06 | 1.567E-03 | 5.64E+01 | 1.486E+00 | 1.873E+00 | 1.544E-01 | 3.513E+01 | 1.238E+00 |
| 7 | 9.925E-01 | -2.092E+00 | 2.77E-01 | 2.989E+02 | 3.186E+02 | 4.927E-06 | 1.571E-03 | 5.22E+01 | 1.826E+00 | 2.188E+00 | 1.106E-01 | 2.577E+01 | 1.444E+00 |
| 8 | 9.903E-01 | -2.731E+00 | 3.16E-01 | 2.985E+02 | 3.182E+02 | 4.938E-06 | 1.574E-03 | 4.85E+01 | 2.202E+00 | 2.551E+00 | 8.004E-02 | 1.918E+01 | 1.648E+00 |
| 9 | 9.877E-01 | -3.455E+00 | 3.56E-01 | 2.982E+02 | 3.178E+02 | 4.951E-06 | 1.578E-03 | 4.51E+01 | 2.616E+00 | 2.962E+00 | 5.871E-02 | 1.447E+01 | 1.853E+00 |
| 10 | 9.848E-01 | -4.263E+00 | 3.96E-01 | 2.977E+02 | 3.173E+02 | 4.966E-06 | 1.583E-03 | 4.21E+01 | 3.070E+00 | 3.421E+00 | 4.367E-02 | 1.105E+01 | 2.057E+00 |
| 15 | 9.659E-01 | -9.561E+00 | 5.96E-01 | 2.949E+02 | 3.143E+02 | 5.061E-06 | 1.613E-03 | 3.10E+01 | 5.960E+00 | 6.430E+00 | 1.217E-02 | 3.387E+00 | 3.066E+00 |
| 20 | 9.397E-01 | -1.692E+01 | 7.98E-01 | 2.910E+02 | 3.101E+02 | 5.199E-06 | 1.657E-03 | 2.41E+01 | 9.912E+00 | 1.061E+01 | 4.450E-03 | 1.303E+00 | 4.051E+00 |
| 25 | 9.063E-01 | -2.629E+01 | 1.00E+00 | 2.860E+02 | 3.048E+02 | 5.382E-06 | 1.715E-03 | 1.96E+01 | 1.492E+01 | 1.593E+01 | 1.972E-03 | 5.938E-01 | 5.006E+00 |
| 30 | 8.660E-01 | -3.759E+01 | 1.21E+00 | 2.800E+02 | 2.984E+02 | 5.616E-06 | 1.790E-03 | 1.64E+01 | 2.095E+01 | 2.235E+01 | 1.001E-03 | 3.066E-01 | 5.922E+00 |
| 35 | 8.192E-01 | -5.075E+01 | 1.43E+00 | 2.730E+02 | 2.909E+02 | 5.908E-06 | 1.882E-03 | 1.41E+01 | 2.797E+01 | 2.982E+01 | 5.624E-04 | 1.740E-01 | 6.794E+00 |
| 40 | 7.660E-01 | -6.565E+01 | 1.65E+00 | 2.650E+02 | 2.825E+02 | 6.267E-06 | 1.997E-03 | 1.22E+01 | 3.591E+01 | 3.829E+01 | 3.412E-04 | 1.063E-01 | 7.614E+00 |
| 45 | 7.071E-01 | -8.219E+01 | 1.87E+00 | 2.562E+02 | 2.731E+02 | 6.706E-06 | 2.136E-03 | 1.08E+01 | 4.473E+01 | 4.768E+01 | 2.200E-04 | 6.890E-02 | 8.376E+00 |
| 50 | 6.428E-01 | -1.002E+02 | 2.11E+00 | 2.466E+02 | 2.628E+02 | 7.239E-06 | 2.306E-03 | 9.61E+00 | 5.434E+01 | 5.793E+01 | 1.490E-04 | 4.684E-02 | 9.074E+00 |
| 55 | 5.736E-01 | -1.197E+02 | 2.35E+00 | 2.362E+02 | 2.518E+02 | 7.887E-06 | 2.512E-03 | 8.63E+00 | 6.470E+01 | 6.896E+01 | 1.051E-04 | 3.314E-02 | 9.703E+00 |
| 60 | 5.000E-01 | -1.403E+02 | 2.61E+00 | 2.252E+02 | 2.401E+02 | 8.676E-06 | 2.763E-03 | 7.79E+00 | 7.570E+01 | 8.069E+01 | 7.681E-05 | 2.426E-02 | 1.026E+01 |
| 65 | 4.226E-01 | -1.620E+02 | 2.88E+00 | 2.137E+02 | 2.277E+02 | 9.642E-06 | 3.069E-03 | 7.07E+00 | 8.727E+01 | 9.302E+01 | 5.779E-05 | 1.828E-02 | 1.074E+01 |
| 70 | 3.420E-01 | -1.846E+02 | 3.16E+00 | 2.016E+02 | 2.149E+02 | 1.083E-05 | 3.446E-03 | 6.43E+00 | 9.932E+01 | 1.059E+02 | 4.462E-05 | 1.413E-02 | 1.113E+01 |
| 75 | 2.588E-01 | -2.080E+02 | 3.47E+00 | 1.892E+02 | 2.016E+02 | 1.230E-05 | 3.913E-03 | 5.88E+00 | 1.118E+02 | 1.191E+02 | 3.524E-05 | 1.117E-02 | 1.144E+01 |
| 80 | 1.736E-01 | -2.319E+02 | 3.79E+00 | 1.764E+02 | 1.880E+02 | 1.414E-05 | 4.497E-03 | 5.38E+00 | 1.245E+02 | 1.327E+02 | 2.840E-05 | 9.012E-03 | 1.166E+01 |
| 85 | 8.716E-02 | -2.561E+02 | 4.14E+00 | 1.635E+02 | 1.743E+02 | 1.647E-05 | 5.235E-03 | 4.93E+00 | 1.374E+02 | 1.465E+02 | 2.330E-05 | 7.400E-03 | 1.180E+01 |
| 90 | 0. | -2.806E+02 | 4.52E+00 | 1.505E+02 | 1.604E+02 | 1.944E-05 | 6.178E-03 | 4.52E+00 | 1.505E+02 | 1.604E+02 | 1.944E-05 | 6.178E-03 | 1.184E+01 |
| 95 | -8.716E-02 | -3.051E+02 | 4.93E+00 | 1.374E+02 | 1.465E+02 | 2.330E-05 | 7.400E-03 | 4.14E+00 | 1.635E+02 | 1.743E+02 | 1.647E-05 | 5.235E-03 | 1.180E+01 |
| 100 | -1.736E-01 | -3.293E+02 | 5.38E+00 | 1.245E+02 | 1.327E+02 | 2.840E-05 | 9.012E-03 | 3.79E+00 | 1.764E+02 | 1.880E+02 | 1.414E-05 | 4.497E-03 | 1.166E+01 |
| 105 | -2.588E-01 | -3.532E+02 | 5.88E+00 | 1.118E+02 | 1.191E+02 | 3.524E-05 | 1.117E-02 | 3.47E+00 | 1.892E+02 | 2.016E+02 | 1.230E-05 | 3.913E-03 | 1.144E+01 |
| 110 | -3.420E-01 | -3.766E+02 | 6.43E+00 | 9.932E+01 | 1.059E+02 | 4.462E-05 | 1.413E-02 | 3.16E+00 | 2.016E+02 | 2.149E+02 | 1.083E-05 | 3.446E-03 | 1.113E+01 |
| 115 | -4.226E-01 | -3.992E+02 | 7.07E+00 | 8.727E+01 | 9.302E+01 | 5.779E-05 | 1.828E-02 | 2.88E+00 | 2.137E+02 | 2.277E+02 | 9.642E-06 | 3.069E-03 | 1.074E+01 |
| 120 | -5.000E-01 | -4.209E+02 | 7.79E+00 | 7.570E+01 | 8.069E+01 | 7.681E-05 | 2.426E-02 | 2.61E+00 | 2.252E+02 | 2.401E+02 | 8.676E-06 | 2.763E-03 | 1.026E+01 |
| 125 | -5.736E-01 | -4.415E+02 | 8.63E+00 | 6.470E+01 | 6.896E+01 | 1.051E-04 | 3.314E-02 | 2.35E+00 | 2.362E+02 | 2.518E+02 | 7.887E-06 | 2.512E-03 | 9.703E+00 |
| 130 | -6.428E-01 | -4.610E+02 | 9.61E+00 | 5.434E+01 | 5.793E+01 | 1.490E-04 | 4.684E-02 | 2.11E+00 | 2.466E+02 | 2.628E+02 | 7.239E-06 | 2.306E-03 | 9.074E+00 |
| 135 | -7.071E-01 | -4.790E+02 | 1.08E+01 | 4.473E+01 | 4.768E+01 | 2.200E-04 | 6.890E-02 | 1.87E+00 | 2.562E+02 | 2.731E+02 | 6.706E-06 | 2.136E-03 | 8.376E+00 |
| 140 | -7.660E-01 | -4.955E+02 | 1.22E+01 | 3.591E+01 | 3.829E+01 | 3.412E-04 | 1.063E-01 | 1.65E+00 | 2.650E+02 | 2.825E+02 | 6.267E-06 | 1.997E-03 | 7.614E+00 |
| 145 | -8.192E-01 | -5.105E+02 | 1.41E+01 | 2.797E+01 | 2.982E+01 | 5.624E-04 | 1.740E-01 | 1.43E+00 | 2.730E+02 | 2.909E+02 | 5.908E-06 | 1.882E-03 | 6.794E+00 |
| 150 | -8.660E-01 | -5.236E+02 | 1.64E+01 | 2.095E+01 | 2.235E+01 | 1.001E-03 | 3.066E-01 | 1.21E+00 | 2.800E+02 | 2.984E+02 | 5.616E-06 | 1.790E-03 | 5.922E+00 |
| 155 | -9.063E-01 | -5.349E+02 | 1.96E+01 | 1.492E+01 | 1.593E+01 | 1.972E-03 | 5.938E-01 | 1.00E+00 | 2.860E+02 | 3.048E+02 | 5.382E-06 | 1.715E-03 | 5.006E+00 |
| 160 | -9.397E-01 | -5.443E+02 | 2.41E+01 | 9.912E+00 | 1.061E+01 | 4.450E-03 | 1.303E+00 | 7.98E-01 | 2.910E+02 | 3.101E+02 | 5.199E-06 | 1.657E-03 | 4.051E+00 |
| 165 | -9.659E-01 | -5.516E+02 | 3.10E+01 | 5.960E+00 | 6.430E+00 | 1.217E-02 | 3.387E+00 | 5.96E-01 | 2.949E+02 | 3.143E+02 | 5.061E-06 | 1.613E-03 | 3.066E+00 |
| 170 | -9.848E-01 | -5.569E+02 | 4.21E+01 | 3.070E+00 | 3.421E+00 | 4.367E-02 | 1.105E+01 | 3.96E-01 | 2.977E+02 | 3.173E+02 | 4.966E-06 | 1.583E-03 | 2.057E+00 |
| 175 | -9.962E-01 | -5.601E+02 | 6.11E+01 | 1.180E+00 | 1.606E+00 | 2.174E-01 | 4.879E+01 | 1.98E-01 | 2.994E+02 | 3.191E+02 | 4.909E-06 | 1.565E-03 | 1.032E+00 |
| 180 | -1.000E+00 | -5.612E+02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. | 3.000E+02 | 3.197E+02 | 4.891E-06 | 1.559E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + PROTON (4) AT 350 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 9.38259E-01
P2CM= 1.27967E+01 P3CM= 1.27967E+01
E1CM= 1.28311E+01 E2CM= 1.28311E+01 E3CM= 1.28311E+01 E4CM= 1.28311E+01

1-V1LAB = 3.593E-06 1-VCM = 2.677E-03 GCM = 1.36754E+01 ETCM= 2.56621E+01 S = 6.58544E+02 -U=( 6.55023E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 3.500E+02 | 3.730E+02 | 3.593E-06 | 1.337E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -4.988E-02 | 3.66E-02 | 3.500E+02 | 3.730E+02 | 3.594E-06 | 1.337E-03 | 8.32E+01 | 2.249E-01 | 1.028E+00 | 7.669E-01 | 3.836E+02 | 2.233E-01 |
| 2 | 9.994E-01 | -1.995E-01 | 7.31E-02 | 3.499E+02 | 3.729E+02 | 3.595E-06 | 1.338E-03 | 7.66E+01 | 4.591E-01 | 1.113E+00 | 5.604E-01 | 1.804E+02 | 4.466E-01 |
| 3 | 9.986E-01 | -4.488E-01 | 1.10E-01 | 3.498E+02 | 3.728E+02 | 3.598E-06 | 1.339E-03 | 7.03E+01 | 7.114E-01 | 1.255E+00 | 3.958E-01 | 1.091E+02 | 6.697E-01 |
| 4 | 9.976E-01 | -7.978E-01 | 1.46E-01 | 3.496E+02 | 3.726E+02 | 3.602E-06 | 1.340E-03 | 6.45E+01 | 9.892E-01 | 1.453E+00 | 2.745E-01 | 7.212E+01 | 8.927E-01 |
| 5 | 9.962E-01 | -1.246E+00 | 1.83E-01 | 3.493E+02 | 3.723E+02 | 3.607E-06 | 1.342E-03 | 5.92E+01 | 1.299E+00 | 1.708E+00 | 1.894E-01 | 4.975E+01 | 1.115E+00 |
| 6 | 9.945E-01 | -1.794E+00 | 2.20E-01 | 3.490E+02 | 3.720E+02 | 3.613E-06 | 1.344E-03 | 5.44E+01 | 1.646E+00 | 2.019E+00 | 1.313E-01 | 3.522E+01 | 1.338E+00 |
| 7 | 9.925E-01 | -2.441E+00 | 2.56E-01 | 3.487E+02 | 3.716E+02 | 3.620E-06 | 1.347E-03 | 5.01E+01 | 2.033E+00 | 2.387E+00 | 9.202E-02 | 2.542E+01 | 1.560E+00 |
| 8 | 9.903E-01 | -3.187E+00 | 2.93E-01 | 3.483E+02 | 3.712E+02 | 3.628E-06 | 1.350E-03 | 4.63E+01 | 2.464E+00 | 2.810E+00 | 6.545E-02 | 1.864E+01 | 1.781E+00 |
| 9 | 9.877E-01 | -4.032E+00 | 3.30E-01 | 3.479E+02 | 3.707E+02 | 3.638E-06 | 1.353E-03 | 4.29E+01 | 2.941E+00 | 3.290E+00 | 4.731E-02 | 1.387E+01 | 2.002E+00 |
| 10 | 9.848E-01 | -4.976E+00 | 3.67E-01 | 3.473E+02 | 3.702E+02 | 3.648E-06 | 1.357E-03 | 3.99E+01 | 3.465E+00 | 3.826E+00 | 3.476E-02 | 1.047E+01 | 2.222E+00 |
| 15 | 9.659E-01 | -1.116E+01 | 5.52E-01 | 3.441E+02 | 3.667E+02 | 3.718E-06 | 1.383E-03 | 2.90E+01 | 6.821E+00 | 7.338E+00 | 9.328E-03 | 3.077E+00 | 3.312E+00 |
| 20 | 9.397E-01 | -1.975E+01 | 7.39E-01 | 3.395E+02 | 3.618E+02 | 3.819E-06 | 1.421E-03 | 2.25E+01 | 1.143E+01 | 1.222E+01 | 3.355E-03 | 1.159E+00 | 4.377E+00 |
| 25 | 9.063E-01 | -3.069E+01 | 9.29E-01 | 3.336E+02 | 3.556E+02 | 3.954E-06 | 1.471E-03 | 1.83E+01 | 1.727E+01 | 1.843E+01 | 1.473E-03 | 5.217E-01 | 5.408E+00 |
| 30 | 8.660E-01 | -4.388E+01 | 1.12E+00 | 3.266E+02 | 3.481E+02 | 4.126E-06 | 1.535E-03 | 1.53E+01 | 2.430E+01 | 2.592E+01 | 7.444E-04 | 2.675E-01 | 6.398E+00 |
| 35 | 8.192E-01 | -5.923E+01 | 1.32E+00 | 3.184E+02 | 3.394E+02 | 4.341E-06 | 1.614E-03 | 1.31E+01 | 3.249E+01 | 3.464E+01 | 4.168E-04 | 1.511E-01 | 7.340E+00 |
| 40 | 7.660E-01 | -7.662E+01 | 1.52E+00 | 3.092E+02 | 3.295E+02 | 4.605E-06 | 1.713E-03 | 1.14E+01 | 4.176E+01 | 4.452E+01 | 2.523E-04 | 9.206E-02 | 8.226E+00 |
| 45 | 7.071E-01 | -9.593E+01 | 1.73E+00 | 2.989E+02 | 3.185E+02 | 4.927E-06 | 1.832E-03 | 1.00E+01 | 5.205E+01 | 5.548E+01 | 1.624E-04 | 5.953E-02 | 9.049E+00 |
| 50 | 6.428E-01 | -1.170E+02 | 1.95E+00 | 2.877E+02 | 3.066E+02 | 5.319E-06 | 1.978E-03 | 8.91E+00 | 6.328E+01 | 6.745E+01 | 1.099E-04 | 4.041E-02 | 9.803E+00 |
| 55 | 5.736E-01 | -1.397E+02 | 2.18E+00 | 2.756E+02 | 2.937E+02 | 5.796E-06 | 2.155E-03 | 8.00E+00 | 7.536E+01 | 8.032E+01 | 7.750E-05 | 2.856E-02 | 1.048E+01 |
| 60 | 5.000E-01 | -1.638E+02 | 2.42E+00 | 2.627E+02 | 2.800E+02 | 6.376E-06 | 2.370E-03 | 7.22E+00 | 8.820E+01 | 9.401E+01 | 5.658E-05 | 2.089E-02 | 1.108E+01 |
| 65 | 4.226E-01 | -1.891E+02 | 2.67E+00 | 2.492E+02 | 2.656E+02 | 7.086E-06 | 2.633E-03 | 6.55E+00 | 1.017E+02 | 1.084E+02 | 4.255E-05 | 1.573E-02 | 1.160E+01 |
| 70 | 3.420E-01 | -2.155E+02 | 2.93E+00 | 2.352E+02 | 2.506E+02 | 7.959E-06 | 2.957E-03 | 5.96E+00 | 1.158E+02 | 1.234E+02 | 3.284E-05 | 1.215E-02 | 1.202E+01 |
| 75 | 2.588E-01 | -2.427E+02 | 3.21E+00 | 2.206E+02 | 2.352E+02 | 9.042E-06 | 3.359E-03 | 5.44E+00 | 1.303E+02 | 1.389E+02 | 2.593E-05 | 9.602E-03 | 1.236E+01 |
| 80 | 1.736E-01 | -2.706E+02 | 3.51E+00 | 2.058E+02 | 2.193E+02 | 1.040E-05 | 3.860E-03 | 4.98E+00 | 1.452E+02 | 1.547E+02 | 2.089E-05 | 7.742E-03 | 1.260E+01 |
| 85 | 8.716E-02 | -2.990E+02 | 3.83E+00 | 1.907E+02 | 2.032E+02 | 1.211E-05 | 4.494E-03 | 4.56E+00 | 1.603E+02 | 1.708E+02 | 1.714E-05 | 6.356E-03 | 1.275E+01 |
| 90 | 0. | -3.275E+02 | 4.18E+00 | 1.755E+02 | 1.870E+02 | 1.430E-05 | 5.305E-03 | 4.18E+00 | 1.755E+02 | 1.870E+02 | 1.430E-05 | 5.305E-03 | 1.280E+01 |
| 95 | -8.716E-02 | -3.561E+02 | 4.56E+00 | 1.603E+02 | 1.708E+02 | 1.714E-05 | 6.356E-03 | 3.83E+00 | 1.907E+02 | 2.032E+02 | 1.211E-05 | 4.494E-03 | 1.275E+01 |
| 100 | -1.736E-01 | -3.844E+02 | 4.98E+00 | 1.452E+02 | 1.547E+02 | 2.089E-05 | 7.742E-03 | 3.51E+00 | 2.058E+02 | 2.193E+02 | 1.040E-05 | 3.860E-03 | 1.260E+01 |
| 105 | -2.588E-01 | -4.123E+02 | 5.44E+00 | 1.303E+02 | 1.389E+02 | 2.593E-05 | 9.602E-03 | 3.21E+00 | 2.206E+02 | 2.352E+02 | 9.042E-06 | 3.359E-03 | 1.236E+01 |
| 110 | -3.420E-01 | -4.395E+02 | 5.96E+00 | 1.158E+02 | 1.234E+02 | 3.284E-05 | 1.215E-02 | 2.93E+00 | 2.352E+02 | 2.506E+02 | 7.959E-06 | 2.957E-03 | 1.202E+01 |
| 115 | -4.226E-01 | -4.659E+02 | 6.55E+00 | 1.017E+02 | 1.084E+02 | 4.255E-05 | 1.573E-02 | 2.67E+00 | 2.492E+02 | 2.656E+02 | 7.086E-06 | 2.633E-03 | 1.160E+01 |
| 120 | -5.000E-01 | -4.913E+02 | 7.22E+00 | 8.820E+01 | 9.401E+01 | 5.658E-05 | 2.088E-02 | 2.42E+00 | 2.627E+02 | 2.800E+02 | 6.376E-06 | 2.370E-03 | 1.108E+01 |
| 125 | -5.736E-01 | -5.154E+02 | 8.00E+00 | 7.536E+01 | 8.032E+01 | 7.750E-05 | 2.856E-02 | 2.18E+00 | 2.756E+02 | 2.937E+02 | 5.796E-06 | 2.155E-03 | 1.048E+01 |
| 130 | -6.428E-01 | -5.380E+02 | 8.91E+00 | 6.328E+01 | 6.745E+01 | 1.099E-04 | 4.041E-02 | 1.95E+00 | 2.877E+02 | 3.066E+02 | 5.319E-06 | 1.978E-03 | 9.803E+00 |
| 135 | -7.071E-01 | -5.591E+02 | 1.00E+01 | 5.205E+01 | 5.548E+01 | 1.624E-04 | 5.953E-02 | 1.73E+00 | 2.989E+02 | 3.185E+02 | 4.927E-06 | 1.832E-03 | 9.049E+00 |
| 140 | -7.660E-01 | -5.784E+02 | 1.14E+01 | 4.176E+01 | 4.452E+01 | 2.523E-04 | 9.206E-02 | 1.52E+00 | 3.092E+02 | 3.295E+02 | 4.605E-06 | 1.713E-03 | 8.226E+00 |
| 145 | -8.192E-01 | -5.958E+02 | 1.31E+01 | 3.249E+01 | 3.464E+01 | 4.168E-04 | 1.511E-01 | 1.32E+00 | 3.184E+02 | 3.394E+02 | 4.341E-06 | 1.614E-03 | 7.340E+00 |
| 150 | -8.660E-01 | -6.111E+02 | 1.53E+01 | 2.430E+01 | 2.592E+01 | 7.444E-04 | 2.675E-01 | 1.12E+00 | 3.266E+02 | 3.481E+02 | 4.126E-06 | 1.535E-03 | 6.398E+00 |
| 155 | -9.063E-01 | -6.243E+02 | 1.83E+01 | 1.727E+01 | 1.843E+01 | 1.473E-03 | 5.217E-01 | 9.29E-01 | 3.336E+02 | 3.556E+02 | 3.954E-06 | 1.471E-03 | 5.408E+00 |
| 160 | -9.397E-01 | -6.353E+02 | 2.25E+01 | 1.143E+01 | 1.222E+01 | 3.355E-03 | 1.159E+00 | 7.39E-01 | 3.395E+02 | 3.618E+02 | 3.819E-06 | 1.421E-03 | 4.377E+00 |
| 165 | -9.659E-01 | -6.439E+02 | 2.90E+01 | 6.821E+00 | 7.338E+00 | 9.328E-03 | 3.077E+00 | 5.52E-01 | 3.441E+02 | 3.667E+02 | 3.718E-06 | 1.383E-03 | 3.312E+00 |
| 170 | -9.848E-01 | -6.500E+02 | 3.99E+01 | 3.465E+00 | 3.826E+00 | 3.476E-02 | 1.047E+01 | 3.67E-01 | 3.473E+02 | 3.702E+02 | 3.648E-06 | 1.357E-03 | 2.222E+00 |
| 175 | -9.962E-01 | -6.538E+02 | 5.92E+01 | 1.299E+00 | 1.708E+00 | 1.894E-01 | 4.975E+01 | 1.83E-01 | 3.493E+02 | 3.723E+02 | 3.607E-06 | 1.342E-03 | 1.115E+00 |
| 180 | -1.000E+00 | -6.550E+02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. | 3.500E+02 | 3.730E+02 | 3.593E-06 | 1.337E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + PROTON (4) AT 400 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 9.38259E-01
P2CM= 1.36826E+01 P3CM= 1.36826E+01
E1CM= 1.37147E+01 E2CM= 1.37147E+01 E3CM= 1.37147E+01 E4CM= 1.37147E+01

1-V1LAB = 2.751E-06 1-VCM = 2.343E-03 GCM = 1.46172E+01 ETCM= 2.74294E+01 S = 7.52370E+02 -U=( 7.48849E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACORIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 4.000E+02 | 4.263E+02 | 2.751E-06 | 1.170E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -5.703E-02 | 3.42E-02 | 4.000E+02 | 4.263E+02 | 2.751E-06 | 1.170E-03 | 8.27E+01 | 2.407E-01 | 1.032E+00 | 7.515E-01 | 4.088E+02 | 2.388E-01 |
| 2 | 9.994E-01 | -2.281E-01 | 6.84E-02 | 3.999E+02 | 4.262E+02 | 2.753E-06 | 1.171E-03 | 7.57E+01 | 4.928E-01 | 1.130E+00 | 5.350E-01 | 1.906E+02 | 4.775E-01 |
| 3 | 9.986E-01 | -5.131E-01 | 1.03E-01 | 3.997E+02 | 4.260E+02 | 2.755E-06 | 1.172E-03 | 6.91E+01 | 7.668E-01 | 1.291E+00 | 3.672E-01 | 1.138E+02 | 7.161E-01 |
| 4 | 9.976E-01 | -9.121E-01 | 1.37E-01 | 3.995E+02 | 4.258E+02 | 2.758E-06 | 1.173E-03 | 6.30E+01 | 1.072E+00 | 1.518E+00 | 2.476E-01 | 7.412E+01 | 9.544E-01 |
| 5 | 9.962E-01 | -1.425E+00 | 1.71E-01 | 3.992E+02 | 4.255E+02 | 2.761E-06 | 1.175E-03 | 5.75E+01 | 1.415E+00 | 1.809E+00 | 1.666E-01 | 5.033E+01 | 1.193E+00 |
| 6 | 9.945E-01 | -2.051E+00 | 2.05E-01 | 3.989E+02 | 4.252E+02 | 2.766E-06 | 1.176E-03 | 5.25E+01 | 1.802E+00 | 2.165E+00 | 1.131E-01 | 3.507E+01 | 1.430E+00 |
| 7 | 9.925E-01 | -2.791E+00 | 2.40E-01 | 3.985E+02 | 4.247E+02 | 2.772E-06 | 1.179E-03 | 4.82E+01 | 2.237E+00 | 2.585E+00 | 7.785E-02 | 2.494E+01 | 1.667E+00 |
| 8 | 9.903E-01 | -3.644E+00 | 2.74E-01 | 3.981E+02 | 4.243E+02 | 2.778E-06 | 1.182E-03 | 4.44E+01 | 2.723E+00 | 3.070E+00 | 5.455E-02 | 1.805E+01 | 1.904E+00 |
| 9 | 9.877E-01 | -4.610E+00 | 3.08E-01 | 3.975E+02 | 4.237E+02 | 2.785E-06 | 1.185E-03 | 4.10E+01 | 3.263E+00 | 3.618E+00 | 3.895E-02 | 1.327E+01 | 2.140E+00 |
| 10 | 9.848E-01 | -5.688E+00 | 3.43E-01 | 3.970E+02 | 4.231E+02 | 2.793E-06 | 1.188E-03 | 3.80E+01 | 3.857E+00 | 4.231E+00 | 2.833E-02 | 9.913E+00 | 2.376E+00 |
| 15 | 9.659E-01 | -1.276E+01 | 5.16E-01 | 3.932E+02 | 4.191E+02 | 2.847E-06 | 1.211E-03 | 2.75E+01 | 7.680E+00 | 8.246E+00 | 7.380E-03 | 2.816E+00 | 3.541E+00 |
| 20 | 9.397E-01 | -2.258E+01 | 6.91E-01 | 3.880E+02 | 4.135E+02 | 2.924E-06 | 1.244E-03 | 2.12E+01 | 1.294E+01 | 1.383E+01 | 2.619E-03 | 1.043E+00 | 4.680E+00 |
| 25 | 9.063E-01 | -3.508E+01 | 8.69E-01 | 3.813E+02 | 4.064E+02 | 3.027E-06 | 1.287E-03 | 1.71E+01 | 1.961E+01 | 2.092E+01 | 1.143E-03 | 4.652E-01 | 5.782E+00 |
| 30 | 8.660E-01 | -5.016E+01 | 1.05E+00 | 3.733E+02 | 3.978E+02 | 3.159E-06 | 1.343E-03 | 1.43E+01 | 2.765E+01 | 2.949E+01 | 5.751E-04 | 2.372E-01 | 6.841E+00 |
| 35 | 8.192E-01 | -6.771E+01 | 1.24E+00 | 3.639E+02 | 3.879E+02 | 3.324E-06 | 1.413E-03 | 1.22E+01 | 3.701E+01 | 3.946E+01 | 3.212E-04 | 1.336E-01 | 7.848E+00 |
| 40 | 7.660E-01 | -8.760E+01 | 1.43E+00 | 3.533E+02 | 3.766E+02 | 3.526E-06 | 1.499E-03 | 1.06E+01 | 4.761E+01 | 5.075E+01 | 1.941E-04 | 8.117E-02 | 8.795E+00 |
| 45 | 7.071E-01 | -1.097E+02 | 1.62E+00 | 3.416E+02 | 3.640E+02 | 3.773E-06 | 1.604E-03 | 9.38E+00 | 5.937E+01 | 6.329E+01 | 1.248E-04 | 5.240E-02 | 9.675E+00 |
| 50 | 6.428E-01 | -1.337E+02 | 1.83E+00 | 3.287E+02 | 3.504E+02 | 4.073E-06 | 1.732E-03 | 8.35E+00 | 7.221E+01 | 7.697E+01 | 8.441E-05 | 3.553E-02 | 1.048E+01 |
| 55 | 5.736E-01 | -1.597E+02 | 2.04E+00 | 3.149E+02 | 3.356E+02 | 4.438E-06 | 1.887E-03 | 7.49E+00 | 8.602E+01 | 9.168E+01 | 5.948E-05 | 2.509E-02 | 1.121E+01 |
| 60 | 5.000E-01 | -1.872E+02 | 2.26E+00 | 3.002E+02 | 3.200E+02 | 4.883E-06 | 2.075E-03 | 6.76E+00 | 1.007E+02 | 1.073E+02 | 4.340E-05 | 1.833E-02 | 1.185E+01 |
| 65 | 4.226E-01 | -2.162E+02 | 2.50E+00 | 2.848E+02 | 3.035E+02 | 5.427E-06 | 2.306E-03 | 6.13E+00 | 1.161E+02 | 1.238E+02 | 3.263E-05 | 1.380E-02 | 1.240E+01 |
| 70 | 3.420E-01 | -2.464E+02 | 2.74E+00 | 2.687E+02 | 2.864E+02 | 6.096E-06 | 2.590E-03 | 5.58E+00 | 1.322E+02 | 1.409E+02 | 2.518E-05 | 1.066E-02 | 1.286E+01 |
| 75 | 2.588E-01 | -2.775E+02 | 3.00E+00 | 2.521E+02 | 2.687E+02 | 6.925E-06 | 2.941E-03 | 5.09E+00 | 1.488E+02 | 1.586E+02 | 1.987E-05 | 8.419E-03 | 1.322E+01 |
| 80 | 1.736E-01 | -3.094E+02 | 3.29E+00 | 2.351E+02 | 2.506E+02 | 7.962E-06 | 3.381E-03 | 4.66E+00 | 1.658E+02 | 1.767E+02 | 1.601E-05 | 6.786E-03 | 1.347E+01 |
| 85 | 8.716E-02 | -3.418E+02 | 3.59E+00 | 2.179E+02 | 2.322E+02 | 9.274E-06 | 3.937E-03 | 4.27E+00 | 1.831E+02 | 1.951E+02 | 1.313E-05 | 5.570E-03 | 1.363E+01 |
| 90 | 0. | -3.744E+02 | 3.91E+00 | 2.005E+02 | 2.137E+02 | 1.095E-05 | 4.648E-03 | 3.91E+00 | 2.005E+02 | 2.137E+02 | 1.095E-05 | 4.648E-03 | 1.368E+01 |
| 95 | -8.716E-02 | -4.071E+02 | 4.27E+00 | 1.831E+02 | 1.951E+02 | 1.313E-05 | 5.570E-03 | 3.59E+00 | 2.179E+02 | 2.322E+02 | 9.274E-06 | 3.937E-03 | 1.363E+01 |
| 100 | -1.736E-01 | -4.394E+02 | 4.66E+00 | 1.658E+02 | 1.767E+02 | 1.601E-05 | 6.786E-03 | 3.29E+00 | 2.351E+02 | 2.506E+02 | 7.962E-06 | 3.381E-03 | 1.347E+01 |
| 105 | -2.588E-01 | -4.713E+02 | 5.09E+00 | 1.488E+02 | 1.586E+02 | 1.987E-05 | 8.419E-03 | 3.00E+00 | 2.521E+02 | 2.687E+02 | 6.925E-06 | 2.941E-03 | 1.322E+01 |
| 110 | -3.420E-01 | -5.025E+02 | 5.58E+00 | 1.322E+02 | 1.409E+02 | 2.518E-05 | 1.066E-02 | 2.74E+00 | 2.687E+02 | 2.864E+02 | 6.096E-06 | 2.590E-03 | 1.286E+01 |
| 115 | -4.226E-01 | -5.327E+02 | 6.13E+00 | 1.161E+02 | 1.238E+02 | 3.263E-05 | 1.380E-02 | 2.50E+00 | 2.848E+02 | 3.035E+02 | 5.427E-06 | 2.306E-03 | 1.240E+01 |
| 120 | -5.000E-01 | -5.616E+02 | 6.76E+00 | 1.007E+02 | 1.073E+02 | 4.340E-05 | 1.833E-02 | 2.26E+00 | 3.002E+02 | 3.200E+02 | 4.883E-06 | 2.075E-03 | 1.185E+01 |
| 125 | -5.736E-01 | -5.892E+02 | 7.49E+00 | 8.602E+01 | 9.168E+01 | 5.948E-05 | 2.509E-02 | 2.04E+00 | 3.149E+02 | 3.356E+02 | 4.438E-06 | 1.887E-03 | 1.121E+01 |
| 130 | -6.428E-01 | -6.151E+02 | 8.35E+00 | 7.221E+01 | 7.697E+01 | 8.441E-05 | 3.553E-02 | 1.83E+00 | 3.287E+02 | 3.504E+02 | 4.073E-06 | 1.732E-03 | 1.048E+01 |
| 135 | -7.071E-01 | -6.392E+02 | 9.38E+00 | 5.937E+01 | 6.329E+01 | 1.248E-04 | 5.240E-02 | 1.62E+00 | 3.416E+02 | 3.640E+02 | 3.773E-06 | 1.604E-03 | 9.675E+00 |
| 140 | -7.660E-01 | -6.613E+02 | 1.06E+01 | 4.761E+01 | 5.075E+01 | 1.941E-04 | 8.117E-02 | 1.43E+00 | 3.533E+02 | 3.766E+02 | 3.526E-06 | 1.499E-03 | 8.795E+00 |
| 145 | -8.192E-01 | -6.811E+02 | 1.22E+01 | 3.701E+01 | 3.946E+01 | 3.212E-04 | 1.336E-01 | 1.24E+00 | 3.639E+02 | 3.879E+02 | 3.324E-06 | 1.413E-03 | 7.848E+00 |
| 150 | -8.660E-01 | -6.987E+02 | 1.43E+01 | 2.765E+01 | 2.949E+01 | 5.751E-04 | 2.372E-01 | 1.05E+00 | 3.733E+02 | 3.978E+02 | 3.159E-06 | 1.343E-03 | 6.841E+00 |
| 155 | -9.063E-01 | -7.138E+02 | 1.71E+01 | 1.961E+01 | 2.092E+01 | 1.143E-03 | 4.652E-01 | 8.69E-01 | 3.813E+02 | 4.064E+02 | 3.027E-06 | 1.287E-03 | 5.782E+00 |
| 160 | -9.397E-01 | -7.263E+02 | 2.12E+01 | 1.294E+01 | 1.383E+01 | 2.619E-03 | 1.043E+00 | 6.91E-01 | 3.880E+02 | 4.135E+02 | 2.924E-06 | 1.244E-03 | 4.680E+00 |
| 165 | -9.659E-01 | -7.361E+02 | 2.75E+01 | 7.680E+00 | 8.246E+00 | 7.380E-03 | 2.816E+00 | 5.16E-01 | 3.932E+02 | 4.191E+02 | 2.847E-06 | 1.211E-03 | 3.541E+00 |
| 170 | -9.848E-01 | -7.432E+02 | 3.80E+01 | 3.857E+00 | 4.231E+00 | 2.833E-02 | 9.913E+00 | 3.43E-01 | 3.970E+02 | 4.231E+02 | 2.793E-06 | 1.188E-03 | 2.376E+00 |
| 175 | -9.962E-01 | -7.474E+02 | 5.75E+01 | 1.415E+00 | 1.809E+00 | 1.666E-01 | 5.033E+01 | 1.71E-01 | 3.992E+02 | 4.255E+02 | 2.761E-06 | 1.175E-03 | 1.193E+00 |
| 180 | -1.000E+00 | -7.488E+02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. | 4.000E+02 | 4.263E+02 | 2.751E-06 | 1.170E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + PROTON (4) AT 450 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 9.38259E-01

P2CM= 1.45144E+01 P3CM= 1.45144E+01

E1CM= 1.45447E+01 E2CM= 1.45447E+01 E3CM= 1.45447E+01 E4CM= 1.45447E+01

1-V1LAB = 2.174E-06 1-VCM = 2.083E-03 GCM = 1.55018E+01 ETCM= 2.90894E+01 S = 8.46196E+02 -U=( 8.42674E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 4.500E+02 | 4.796E+02 | 2.174E-06 | 1.040E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -6.417E-02 | 3.23E-02 | 4.500E+02 | 4.796E+02 | 2.174E-06 | 1.040E-03 | 8.23E+01 | 2.556E-01 | 1.036E+00 | 7.371E-01 | 4.322E+02 | 2.533E-01 |
| 2 | 9.994E-01 | -2.567E-01 | 6.45E-02 | 4.499E+02 | 4.795E+02 | 2.175E-06 | 1.041E-03 | 7.49E+01 | 5.248E-01 | 1.146E+00 | 5.119E-01 | 1.998E+02 | 5.065E-01 |
| 3 | 9.986E-01 | -5.774E-01 | 9.68E-02 | 4.497E+02 | 4.793E+02 | 2.177E-06 | 1.042E-03 | 6.79E+01 | 8.198E-01 | 1.328E+00 | 3.420E-01 | 1.179E+02 | 7.596E-01 |
| 4 | 9.976E-01 | -1.026E+00 | 1.29E-01 | 4.495E+02 | 4.790E+02 | 2.179E-06 | 1.043E-03 | 6.16E+01 | 1.151E+00 | 1.583E+00 | 2.248E-01 | 7.566E+01 | 1.012E+00 |
| 5 | 9.962E-01 | -1.603E+00 | 1.61E-01 | 4.491E+02 | 4.787E+02 | 2.182E-06 | 1.044E-03 | 5.59E+01 | 1.528E+00 | 1.911E+00 | 1.479E-01 | 5.061E+01 | 1.265E+00 |
| 6 | 9.945E-01 | -2.308E+00 | 1.94E-01 | 4.488E+02 | 4.783E+02 | 2.186E-06 | 1.046E-03 | 5.09E+01 | 1.955E+00 | 2.311E+00 | 9.847E-02 | 3.476E+01 | 1.517E+00 |
| 7 | 9.925E-01 | -3.141E+00 | 2.26E-01 | 4.483E+02 | 4.778E+02 | 2.190E-06 | 1.048E-03 | 4.65E+01 | 2.438E+00 | 2.784E+00 | 6.675E-02 | 2.440E+01 | 1.769E+00 |
| 8 | 9.903E-01 | -4.100E+00 | 2.58E-01 | 4.478E+02 | 4.773E+02 | 2.195E-06 | 1.051E-03 | 4.27E+01 | 2.979E+00 | 3.329E+00 | 4.619E-02 | 1.745E+01 | 2.020E+00 |
| 9 | 9.877E-01 | -5.187E+00 | 2.91E-01 | 4.472E+02 | 4.767E+02 | 2.201E-06 | 1.053E-03 | 3.93E+01 | 3.582E+00 | 3.946E+00 | 3.264E-02 | 1.270E+01 | 2.271E+00 |
| 10 | 9.848E-01 | -6.401E+00 | 3.23E-01 | 4.466E+02 | 4.760E+02 | 2.207E-06 | 1.056E-03 | 3.64E+01 | 4.247E+00 | 4.636E+00 | 2.355E-02 | 9.401E+00 | 2.520E+00 |
| 15 | 9.659E-01 | -1.436E+01 | 4.87E-01 | 4.423E+02 | 4.715E+02 | 2.249E-06 | 1.077E-03 | 2.61E+01 | 8.538E+00 | 9.154E+00 | 5.985E-03 | 2.595E+00 | 3.757E+00 |
| 20 | 9.397E-01 | -2.541E+01 | 6.52E-01 | 4.365E+02 | 4.652E+02 | 2.311E-06 | 1.106E-03 | 2.01E+01 | 1.445E+01 | 1.543E+01 | 2.102E-03 | 9.477E-01 | 4.964E+00 |
| 25 | 9.063E-01 | -3.948E+01 | 8.19E-01 | 4.290E+02 | 4.572E+02 | 2.392E-06 | 1.145E-03 | 1.62E+01 | 2.196E+01 | 2.342E+01 | 9.119E-04 | 4.196E-01 | 6.134E+00 |
| 30 | 8.660E-01 | -5.645E+01 | 9.90E-01 | 4.199E+02 | 4.476E+02 | 2.496E-06 | 1.195E-03 | 1.35E+01 | 3.101E+01 | 3.306E+01 | 4.575E-04 | 2.131E-01 | 7.257E+00 |
| 35 | 8.192E-01 | -7.620E+01 | 1.17E+00 | 4.094E+02 | 4.363E+02 | 2.626E-06 | 1.257E-03 | 1.16E+01 | 4.153E+01 | 4.428E+01 | 2.551E-04 | 1.196E-01 | 8.325E+00 |
| 40 | 7.660E-01 | -9.857E+01 | 1.35E+00 | 3.975E+02 | 4.236E+02 | 2.786E-06 | 1.333E-03 | 1.01E+01 | 5.346E+01 | 5.699E+01 | 1.540E-04 | 7.258E-02 | 9.330E+00 |
| 45 | 7.071E-01 | -1.234E+02 | 1.53E+00 | 3.842E+02 | 4.095E+02 | 2.981E-06 | 1.426E-03 | 8.85E+00 | 6.670E+01 | 7.109E+01 | 9.894E-05 | 4.680E-02 | 1.026E+01 |
| 50 | 6.428E-01 | -1.505E+02 | 1.72E+00 | 3.698E+02 | 3.941E+02 | 3.219E-06 | 1.540E-03 | 7.88E+00 | 8.114E+01 | 8.648E+01 | 6.685E-05 | 3.170E-02 | 1.112E+01 |
| 55 | 5.736E-01 | -1.797E+02 | 1.92E+00 | 3.543E+02 | 3.776E+02 | 3.507E-06 | 1.678E-03 | 7.06E+00 | 9.668E+01 | 1.030E+02 | 4.709E-05 | 2.237E-02 | 1.189E+01 |
| 60 | 5.000E-01 | -2.107E+02 | 2.13E+00 | 3.377E+02 | 3.600E+02 | 3.859E-06 | 1.846E-03 | 6.38E+00 | 1.132E+02 | 1.207E+02 | 3.435E-05 | 1.634E-02 | 1.257E+01 |
| 65 | 4.226E-01 | -2.433E+02 | 2.35E+00 | 3.204E+02 | 3.414E+02 | 4.289E-06 | 2.051E-03 | 5.78E+00 | 1.306E+02 | 1.392E+02 | 2.582E-05 | 1.229E-02 | 1.315E+01 |
| 70 | 3.420E-01 | -2.772E+02 | 2.59E+00 | 3.023E+02 | 3.222E+02 | 4.818E-06 | 2.304E-03 | 5.26E+00 | 1.487E+02 | 1.585E+02 | 1.991E-05 | 9.491E-03 | 1.364E+01 |
| 75 | 2.588E-01 | -3.123E+02 | 2.83E+00 | 2.836E+02 | 3.022E+02 | 5.473E-06 | 2.616E-03 | 4.81E+00 | 1.674E+02 | 1.784E+02 | 1.572E-05 | 7.495E-03 | 1.402E+01 |
| 80 | 1.736E-01 | -3.482E+02 | 3.10E+00 | 2.645E+02 | 2.819E+02 | 6.294E-06 | 3.008E-03 | 4.40E+00 | 1.865E+02 | 1.988E+02 | 1.266E-05 | 6.040E-03 | 1.429E+01 |
| 85 | 8.716E-02 | -3.846E+02 | 3.38E+00 | 2.450E+02 | 2.612E+02 | 7.331E-06 | 3.503E-03 | 4.03E+00 | 2.059E+02 | 2.194E+02 | 1.038E-05 | 4.957E-03 | 1.446E+01 |
| 90 | 0. | -4.213E+02 | 3.69E+00 | 2.255E+02 | 2.403E+02 | 8.658E-06 | 4.136E-03 | 3.69E+00 | 2.255E+02 | 2.403E+02 | 8.658E-06 | 4.136E-03 | 1.451E+01 |
| 95 | -8.716E-02 | -4.581E+02 | 4.03E+00 | 2.059E+02 | 2.194E+02 | 1.038E-05 | 4.957E-03 | 3.38E+00 | 2.450E+02 | 2.612E+02 | 7.331E-06 | 3.503E-03 | 1.446E+01 |
| 100 | -1.736E-01 | -4.945E+02 | 4.40E+00 | 1.865E+02 | 1.988E+02 | 1.266E-05 | 6.040E-03 | 3.10E+00 | 2.645E+02 | 2.819E+02 | 6.294E-06 | 3.008E-03 | 1.429E+01 |
| 105 | -2.588E-01 | -5.304E+02 | 4.81E+00 | 1.674E+02 | 1.784E+02 | 1.572E-05 | 7.495E-03 | 2.83E+00 | 2.836E+02 | 3.022E+02 | 5.473E-06 | 2.616E-03 | 1.402E+01 |
| 110 | -3.420E-01 | -5.654E+02 | 5.26E+00 | 1.487E+02 | 1.585E+02 | 1.991E-05 | 9.491E-03 | 2.59E+00 | 3.023E+02 | 3.222E+02 | 4.818E-06 | 2.304E-03 | 1.364E+01 |
| 115 | -4.226E-01 | -5.994E+02 | 5.78E+00 | 1.306E+02 | 1.392E+02 | 2.582E-05 | 1.229E-02 | 2.35E+00 | 3.204E+02 | 3.414E+02 | 4.289E-06 | 2.051E-03 | 1.315E+01 |
| 120 | -5.000E-01 | -6.320E+02 | 6.38E+00 | 1.132E+02 | 1.207E+02 | 3.435E-05 | 1.634E-02 | 2.13E+00 | 3.377E+02 | 3.600E+02 | 3.859E-06 | 1.846E-03 | 1.257E+01 |
| 125 | -5.736E-01 | -6.630E+02 | 7.06E+00 | 9.668E+01 | 1.030E+02 | 4.709E-05 | 2.237E-02 | 1.92E+00 | 3.543E+02 | 3.776E+02 | 3.507E-06 | 1.678E-03 | 1.189E+01 |
| 130 | -6.428E-01 | -6.922E+02 | 7.88E+00 | 8.114E+01 | 8.648E+01 | 6.685E-05 | 3.170E-02 | 1.72E+00 | 3.698E+02 | 3.941E+02 | 3.219E-06 | 1.540E-03 | 1.112E+01 |
| 135 | -7.071E-01 | -7.193E+02 | 8.85E+00 | 6.670E+01 | 7.109E+01 | 9.894E-05 | 4.680E-02 | 1.53E+00 | 3.842E+02 | 4.095E+02 | 2.981E-06 | 1.426E-03 | 1.026E+01 |
| 140 | -7.660E-01 | -7.441E+02 | 1.01E+01 | 5.346E+01 | 5.699E+01 | 1.540E-04 | 7.258E-02 | 1.35E+00 | 3.975E+02 | 4.236E+02 | 2.786E-06 | 1.333E-03 | 9.330E+00 |
| 145 | -8.192E-01 | -7.665E+02 | 1.16E+01 | 4.153E+01 | 4.428E+01 | 2.551E-04 | 1.196E-01 | 1.17E+00 | 4.094E+02 | 4.363E+02 | 2.626E-06 | 1.257E-03 | 8.325E+00 |
| 150 | -8.660E-01 | -7.862E+02 | 1.35E+01 | 3.101E+01 | 3.306E+01 | 4.575E-04 | 2.131E-01 | 9.90E-01 | 4.199E+02 | 4.476E+02 | 2.496E-06 | 1.195E-03 | 7.257E+00 |
| 155 | -9.063E-01 | -8.032E+02 | 1.62E+01 | 2.196E+01 | 2.342E+01 | 9.119E-04 | 4.196E-01 | 8.19E-01 | 4.290E+02 | 4.572E+02 | 2.392E-06 | 1.145E-03 | 6.134E+00 |
| 160 | -9.397E-01 | -8.173E+02 | 2.01E+01 | 1.445E+01 | 1.543E+01 | 2.102E-03 | 9.477E-01 | 6.52E-01 | 4.365E+02 | 4.652E+02 | 2.311E-06 | 1.106E-03 | 4.964E+00 |
| 165 | -9.659E-01 | -8.283E+02 | 2.61E+01 | 8.538E+00 | 9.154E+00 | 5.985E-03 | 2.595E+00 | 4.87E-01 | 4.423E+02 | 4.715E+02 | 2.249E-06 | 1.077E-03 | 3.757E+00 |
| 170 | -9.848E-01 | -8.363E+02 | 3.64E+01 | 4.247E+00 | 4.636E+00 | 2.355E-02 | 9.401E+00 | 3.23E-01 | 4.466E+02 | 4.760E+02 | 2.207E-06 | 1.056E-03 | 2.520E+00 |
| 175 | -9.962E-01 | -8.411E+02 | 5.59E+01 | 1.528E+00 | 1.911E+00 | 1.479E-01 | 5.061E+01 | 1.61E-01 | 4.491E+02 | 4.787E+02 | 2.182E-06 | 1.044E-03 | 1.265E+00 |
| 180 | -1.000E+00 | -8.427E+02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. | 4.500E+02 | 4.796E+02 | 2.174E-06 | 1.040E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + PROTON (4) AT 500 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 9.38259E-01

P2CM= 1.53011E+01 P3CM= 1.53011E+01

E1CM= 1.53299E+01 E2CM= 1.53299E+01 E3CM= 1.53299E+01 E4CM= 1.53299E+01

1-V1LAB = 1.761E-06 1-VCM = 1.875E-03 GCM = 1.63386E+01 ETCM= 3.06598E+01 S = 9.40022E+02 -U=( 9.36500E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 5.000E+02 | 5.329E+02 | 1.761E-06 | 9.365E-04 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -7.132E-02 | 3.06E-02 | 5.000E+02 | 5.329E+02 | 1.761E-06 | 9.366E-04 | 8.19E+01 | 2.697E-01 | 1.041E+00 | 7.237E-01 | 4.542E+02 | 2.670E-01 |
| 2 | 9.994E-01 | -2.852E-01 | 6.12E-02 | 4.998E+02 | 5.327E+02 | 1.762E-06 | 9.371E-04 | 7.41E+01 | 5.553E-01 | 1.162E+00 | 4.907E-01 | 2.682E+02 | 5.340E-01 |
| 3 | 9.986E-01 | -6.417E-01 | 9.18E-02 | 4.997E+02 | 5.325E+02 | 1.763E-06 | 9.378E-04 | 6.68E+01 | 8.710E-01 | 1.364E+00 | 3.196E-01 | 1.214E+02 | 8.008E-01 |
| 4 | 9.976E-01 | -1.141E+00 | 1.22E-01 | 4.994E+02 | 5.323E+02 | 1.765E-06 | 9.388E-04 | 6.03E+01 | 1.229E+00 | 1.648E+00 | 2.052E-01 | 7.683E+01 | 1.067E+00 |
| 5 | 9.962E-01 | -1.782E+00 | 1.53E-01 | 4.991E+02 | 5.319E+02 | 1.767E-06 | 9.401E-04 | 5.45E+01 | 1.638E+00 | 2.012E+00 | 1.323E-01 | 5.067E+01 | 1.334E+00 |
| 6 | 9.945E-01 | -2.565E+00 | 1.84E-01 | 4.986E+02 | 5.314E+02 | 1.770E-06 | 9.416E-04 | 4.94E+01 | 2.106E+00 | 2.457E+00 | 8.658E-02 | 3.435E+01 | 1.599E+00 |
| 7 | 9.925E-01 | -3.490E+00 | 2.14E-01 | 4.981E+02 | 5.309E+02 | 1.774E-06 | 9.435E-04 | 4.50E+01 | 2.636E+00 | 2.982E+00 | 5.789E-02 | 2.381E+01 | 1.865E+00 |
| 8 | 9.903E-01 | -4.557E+00 | 2.45E-01 | 4.976E+02 | 5.303E+02 | 1.778E-06 | 9.457E-04 | 4.12E+01 | 3.233E+00 | 3.588E+00 | 3.962E-02 | 1.685E+01 | 2.130E+00 |
| 9 | 9.877E-01 | -5.765E+00 | 2.76E-01 | 4.969E+02 | 5.296E+02 | 1.782E-06 | 9.481E-04 | 3.79E+01 | 3.899E+00 | 4.274E+00 | 2.775E-02 | 1.216E+01 | 2.394E+00 |
| 10 | 9.848E-01 | -7.114E+00 | 3.07E-01 | 4.962E+02 | 5.289E+02 | 1.788E-06 | 9.509E-04 | 3.50E+01 | 4.635E+00 | 5.040E+00 | 1.988E-02 | 8.929E+00 | 2.657E+00 |
| 15 | 9.659E-01 | -1.596E+01 | 4.62E-01 | 4.915E+02 | 5.238E+02 | 1.822E-06 | 9.692E-04 | 2.49E+01 | 9.394E+00 | 1.006E+01 | 4.951E-03 | 2.406E+00 | 3.960E+00 |
| 20 | 9.397E-01 | -2.824E+01 | 6.18E-01 | 4.850E+02 | 5.169E+02 | 1.872E-06 | 9.955E-04 | 1.91E+01 | 1.596E+01 | 1.704E+01 | 1.724E-03 | 8.684E-01 | 5.233E+00 |
| 25 | 9.063E-01 | -4.387E+01 | 7.77E-01 | 4.766E+02 | 5.080E+02 | 1.938E-06 | 1.031E-03 | 1.54E+01 | 2.430E+01 | 2.592E+01 | 7.446E-04 | 3.822E-01 | 6.467E+00 |
| 30 | 8.660E-01 | -6.273E+01 | 9.40E-01 | 4.666E+02 | 4.973E+02 | 2.022E-06 | 1.075E-03 | 1.29E+01 | 3.436E+01 | 3.663E+01 | 3.727E-04 | 1.934E-01 | 7.651E+00 |
| 35 | 8.192E-01 | -8.468E+01 | 1.11E+00 | 4.549E+02 | 4.848E+02 | 2.127E-06 | 1.131E-03 | 1.10E+01 | 4.606E+01 | 4.910E+01 | 2.074E-04 | 1.084E-01 | 8.776E+00 |
| 40 | 7.660E-01 | -1.095E+02 | 1.28E+00 | 4.416E+02 | 4.707E+02 | 2.257E-06 | 1.200E-03 | 9.55E+00 | 5.931E+01 | 6.322E+01 | 1.251E-04 | 6.564E-02 | 9.835E+00 |
| 45 | 7.071E-01 | -1.371E+02 | 1.45E+00 | 4.269E+02 | 4.550E+02 | 2.415E-06 | 1.284E-03 | 8.41E+00 | 7.402E+01 | 7.890E+01 | 8.033E-05 | 4.227E-02 | 1.082E+01 |
| 50 | 6.428E-01 | -1.673E+02 | 1.63E+00 | 4.109E+02 | 4.379E+02 | 2.607E-06 | 1.386E-03 | 7.48E+00 | 9.007E+01 | 9.600E+01 | 5.425E-05 | 2.861E-02 | 1.172E+01 |
| 55 | 5.736E-01 | -1.997E+02 | 1.82E+00 | 3.936E+02 | 4.195E+02 | 2.841E-06 | 1.511E-03 | 6.71E+00 | 1.073E+02 | 1.144E+02 | 3.820E-05 | 2.018E-02 | 1.253E+01 |
| 60 | 5.000E-01 | -2.341E+02 | 2.02E+00 | 3.752E+02 | 3.999E+02 | 3.126E-06 | 1.662E-03 | 6.05E+00 | 1.257E+02 | 1.340E+02 | 2.786E-05 | 1.473E-02 | 1.325E+01 |
| 65 | 4.226E-01 | -2.704E+02 | 2.23E+00 | 3.559E+02 | 3.793E+02 | 3.475E-06 | 1.847E-03 | 5.49E+00 | 1.450E+02 | 1.546E+02 | 2.093E-05 | 1.108E-02 | 1.387E+01 |
| 70 | 3.420E-01 | -3.081E+02 | 2.45E+00 | 3.358E+02 | 3.579E+02 | 3.903E-06 | 2.074E-03 | 5.00E+00 | 1.651E+02 | 1.760E+02 | 1.614E-05 | 8.554E-03 | 1.438E+01 |
| 75 | 2.588E-01 | -3.471E+02 | 2.69E+00 | 3.151E+02 | 3.358E+02 | 4.435E-06 | 2.356E-03 | 4.56E+00 | 1.859E+02 | 1.981E+02 | 1.274E-05 | 6.754E-03 | 1.478E+01 |
| 80 | 1.736E-01 | -3.869E+02 | 2.94E+00 | 2.938E+02 | 3.131E+02 | 5.099E-06 | 2.709E-03 | 4.17E+00 | 2.471E+02 | 2.208E+02 | 1.026E-05 | 5.442E-03 | 1.507E+01 |
| 85 | 8.716E-02 | -4.274E+02 | 3.21E+00 | 2.722E+02 | 2.901E+02 | 5.940E-06 | 3.155E-03 | 3.82E+00 | 2.287E+02 | 2.438E+02 | 8.414E-06 | 4.466E-03 | 1.524E+01 |
| 90 | 0. | -4.683E+02 | 3.50E+00 | 2.505E+02 | 2.670E+02 | 7.016E-06 | 3.725E-03 | 3.50E+00 | 2.505E+02 | 2.670E+02 | 7.016E-06 | 3.725E-03 | 1.530E+01 |
| 95 | -8.716E-02 | -5.091E+02 | 3.82E+00 | 2.287E+02 | 2.438E+02 | 8.414E-06 | 4.466E-03 | 3.21E+00 | 2.722E+02 | 2.901E+02 | 5.940E-06 | 3.155E-03 | 1.524E+01 |
| 100 | -1.736E-01 | -5.496E+02 | 4.17E+00 | 2.071E+02 | 2.208E+02 | 1.026E-05 | 5.442E-03 | 2.94E+00 | 2.938E+02 | 3.131E+02 | 5.099E-06 | 2.709E-03 | 1.507E+01 |
| 105 | -2.588E-01 | -5.894E+02 | 4.56E+00 | 1.859E+02 | 1.981E+02 | 1.274E-05 | 6.754E-03 | 2.69E+00 | 3.151E+02 | 3.358E+02 | 4.435E-06 | 2.356E-03 | 1.478E+01 |
| 110 | -3.420E-01 | -6.284E+02 | 5.00E+00 | 1.651E+02 | 1.760E+02 | 1.614E-05 | 8.554E-03 | 2.45E+00 | 3.358E+02 | 3.579E+02 | 3.903E-06 | 2.074E-03 | 1.438E+01 |
| 115 | -4.226E-01 | -6.661E+02 | 5.49E+00 | 1.450E+02 | 1.546E+02 | 2.093E-05 | 1.108E-02 | 2.23E+00 | 3.559E+02 | 3.793E+02 | 3.475E-06 | 1.847E-03 | 1.387E+01 |
| 120 | -5.000E-01 | -7.024E+02 | 6.05E+00 | 1.257E+02 | 1.340E+02 | 2.786E-05 | 1.473E-02 | 2.02E+00 | 3.752E+02 | 3.999E+02 | 3.126E-06 | 1.662E-03 | 1.325E+01 |
| 125 | -5.736E-01 | -7.368E+02 | 6.71E+00 | 1.073E+02 | 1.144E+02 | 3.820E-05 | 2.018E-02 | 1.82E+00 | 3.936E+02 | 4.195E+02 | 2.841E-06 | 1.511E-03 | 1.253E+01 |
| 130 | -6.428E-01 | -7.692E+02 | 7.48E+00 | 9.007E+01 | 9.600E+01 | 5.425E-05 | 2.861E-02 | 1.63E+00 | 4.109E+02 | 4.379E+02 | 2.607E-06 | 1.386E-03 | 1.172E+01 |
| 135 | -7.071E-01 | -7.994E+02 | 8.41E+00 | 7.402E+01 | 7.890E+01 | 8.033E-05 | 4.227E-02 | 1.45E+00 | 4.269E+02 | 4.550E+02 | 2.415E-06 | 1.284E-03 | 1.082E+01 |
| 140 | -7.660E-01 | -8.270E+02 | 9.55E+00 | 5.931E+01 | 6.322E+01 | 1.251E-04 | 6.564E-02 | 1.28E+00 | 4.416E+02 | 4.707E+02 | 2.257E-06 | 1.200E-03 | 9.835E+00 |
| 145 | -8.192E-01 | -8.518E+02 | 1.10E+01 | 4.606E+01 | 4.910E+01 | 2.074E-04 | 1.084E-01 | 1.11E+00 | 4.549E+02 | 4.848E+02 | 2.127E-06 | 1.131E-03 | 8.776E+00 |
| 150 | -8.660E-01 | -8.738E+02 | 1.29E+01 | 3.436E+01 | 3.663E+01 | 3.727E-04 | 1.934E-01 | 9.40E-01 | 4.666E+02 | 4.973E+02 | 2.022E-06 | 1.075E-03 | 7.651E+00 |
| 155 | -9.063E-01 | -8.926E+02 | 1.54E+01 | 2.430E+01 | 2.592E+01 | 7.446E-04 | 3.822E-01 | 7.77E-01 | 4.766E+02 | 5.080E+02 | 1.938E-06 | 1.031E-03 | 6.467E+00 |
| 160 | -9.397E-01 | -9.083E+02 | 1.91E+01 | 1.596E+01 | 1.704E+01 | 1.724E-03 | 8.684E-01 | 6.18E-01 | 4.850E+02 | 5.169E+02 | 1.872E-06 | 9.955E-04 | 5.233E+00 |
| 165 | -9.659E-01 | -9.205E+02 | 2.49E+01 | 9.394E+00 | 1.006E+01 | 4.951E-03 | 2.406E+00 | 4.62E-01 | 4.915E+02 | 5.238E+02 | 1.822E-06 | 9.692E-04 | 3.960E+00 |
| 170 | -9.848E-01 | -9.294E+02 | 3.50E+01 | 4.635E+00 | 5.040E+00 | 1.988E-02 | 8.929E+00 | 3.07E-01 | 4.962E+02 | 5.289E+02 | 1.788E-06 | 9.509E-04 | 2.657E+00 |
| 175 | -9.962E-01 | -9.347E+02 | 5.45E+01 | 1.638E+00 | 2.012E+00 | 1.323E-01 | 5.067E+01 | 1.53E-01 | 4.991E+02 | 5.319E+02 | 1.767E-06 | 9.401E-04 | 1.334E+00 |
| 180 | -1.000E+00 | -9.365E+02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. | 5.000E+02 | 5.329E+02 | 1.761E-06 | 9.365E-04 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + PROTON (4) AT 750 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 9.38259E-01
P2CM= 1.87459E+01 P3CM= 1.87459E+01
E1CM= 1.87693E+01 E2CM= 1.87693E+01 E3CM= 1.87693E+01 E4CM= 1.87693E+01

1-V1LAB = 7.825E-07 1-VCM = 1.250E-03 GCM = 2.00044E+01 PTCM= 3.75387E+01 S = 1.40915E+03 -U=( 1.40563E+03) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 7.500E+02 | 7.994E+02 | 7.825E-07 | 6.247E-04 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -1.070E-01 | 2.50E-02 | 7.499E+02 | 7.993E+02 | 7.826E-07 | 6.248E-04 | 8.01E+01 | 3.321E-01 | 1.061E+00 | 6.663E-01 | 5.479E+02 | 3.272E-01 |
| 2 | 9.994E-01 | -4.281E-01 | 5.00E-02 | 7.498E+02 | 7.991E+02 | 7.830E-07 | 6.251E-04 | 7.08E+01 | 6.930E-01 | 1.243E+00 | 4.059E-01 | 2.412E+02 | 6.542E-01 |
| 3 | 9.986E-01 | -9.632E-01 | 7.50E-02 | 7.495E+02 | 7.988E+02 | 7.836E-07 | 6.256E-04 | 6.24E+01 | 1.108E+00 | 1.547E+00 | 2.370E-01 | 1.329E+02 | 9.811E-01 |
| 4 | 9.976E-01 | -1.712E+00 | 1.00E-01 | 7.491E+02 | 7.984E+02 | 7.844E-07 | 6.262E-04 | 5.51E+01 | 1.595E+00 | 1.972E+00 | 1.381E-01 | 7.909E+01 | 1.308E+00 |
| 5 | 9.962E-01 | -2.674E+00 | 1.25E-01 | 7.486E+02 | 7.978E+02 | 7.855E-07 | 6.271E-04 | 4.89E+01 | 2.169E+00 | 2.519E+00 | 8.217E-02 | 4.913E+01 | 1.634E+00 |
| 6 | 9.945E-01 | -3.850E+00 | 1.50E-01 | 7.479E+02 | 7.972E+02 | 7.868E-07 | 6.282E-04 | 4.36E+01 | 2.839E+00 | 3.187E+00 | 5.051E-02 | 3.155E+01 | 1.959E+00 |
| 7 | 9.925E-01 | -5.239E+00 | 1.75E-01 | 7.472E+02 | 7.964E+02 | 7.884E-07 | 6.294E-04 | 3.93E+01 | 3.619E+00 | 3.975E+00 | 3.215E-02 | 2.088E+01 | 2.285E+00 |
| 8 | 9.903E-01 | -6.840E+00 | 2.00E-01 | 7.464E+02 | 7.955E+02 | 7.902E-07 | 6.308E-04 | 3.56E+01 | 4.486E+00 | 4.885E+00 | 2.118E-02 | 1.420E+01 | 2.609E+00 |
| 9 | 9.877E-01 | -8.653E+00 | 2.25E-01 | 7.454E+02 | 7.944E+02 | 7.922E-07 | 6.325E-04 | 3.24E+01 | 5.469E+00 | 5.915E+00 | 1.440E-02 | 9.916E+00 | 2.932E+00 |
| 10 | 9.848E-01 | -1.068E+01 | 2.51E-01 | 7.443E+02 | 7.933E+02 | 7.945E-07 | 6.343E-04 | 2.97E+01 | 6.561E+00 | 7.064E+00 | 1.007E-02 | 7.087E+00 | 3.255E+00 |
| 15 | 9.659E-01 | -2.395E+01 | 3.77E-01 | 7.372E+02 | 7.858E+02 | 8.098E-07 | 6.465E-04 | 2.08E+01 | 1.367E+01 | 1.460E+01 | 2.348E-03 | 1.759E+00 | 4.852E+00 |
| 20 | 9.397E-01 | -4.238E+01 | 5.05E-01 | 7.274E+02 | 7.753E+02 | 8.319E-07 | 6.641E-04 | 1.58E+01 | 2.351E+01 | 2.507E+01 | 7.956E-04 | 6.119E-01 | 6.411E+00 |
| 25 | 9.063E-01 | -6.585E+01 | 6.35E-01 | 7.149E+02 | 7.620E+02 | 8.612E-07 | 6.875E-04 | 1.27E+01 | 3.602E+01 | 3.840E+01 | 3.391E-04 | 2.643E-01 | 7.922E+00 |
| 30 | 8.660E-01 | -9.416E+01 | 7.67E-01 | 6.998E+02 | 7.459E+02 | 8.988E-07 | 7.175E-04 | 1.06E+01 | 5.111E+01 | 5.448E+01 | 1.685E-04 | 1.323E-01 | 9.373E+00 |
| 35 | 8.192E-01 | -1.271E+02 | 9.03E-01 | 6.823E+02 | 7.272E+02 | 9.456E-07 | 7.548E-04 | 9.01E+00 | 6.867E+01 | 7.319E+01 | 9.334E-05 | 7.361E-02 | 1.075E+01 |
| 40 | 7.660E-01 | -1.644E+02 | 1.04E+00 | 6.624E+02 | 7.060E+02 | 1.003E-06 | 8.008E-04 | 7.82E+00 | 8.856E+01 | 9.439E+01 | 5.612E-05 | 4.439E-02 | 1.205E+01 |
| 45 | 7.071E-01 | -2.058E+02 | 1.19E+00 | 6.403E+02 | 6.824E+02 | 1.074E-06 | 8.569E-04 | 6.88E+00 | 1.106E+02 | 1.179E+02 | 3.596E-05 | 2.850E-02 | 1.326E+01 |
| 50 | 6.428E-01 | -2.511E+02 | 1.34E+00 | 6.162E+02 | 6.568E+02 | 1.159E-06 | 9.252E-04 | 6.12E+00 | 1.347E+02 | 1.436E+02 | 2.425E-05 | 1.925E-02 | 1.436E+01 |
| 55 | 5.736E-01 | -2.997E+02 | 1.49E+00 | 5.903E+02 | 6.291E+02 | 1.263E-06 | 1.008E-03 | 5.49E+00 | 1.606E+02 | 1.712E+02 | 1.706E-05 | 1.355E-02 | 1.536E+01 |
| 60 | 5.000E-01 | -3.514E+02 | 1.65E+00 | 5.627E+02 | 5.998E+02 | 1.390E-06 | 1.109E-03 | 4.95E+00 | 1.882E+02 | 2.006E+02 | 1.243E-05 | 9.884E-03 | 1.623E+01 |
| 65 | 4.226E-01 | -4.058E+02 | 1.82E+00 | 5.338E+02 | 5.689E+02 | 1.545E-06 | 1.233E-03 | 4.49E+00 | 2.172E+02 | 2.315E+02 | 9.332E-06 | 7.427E-03 | 1.699E+01 |
| 70 | 3.420E-01 | -4.624E+02 | 2.00E+00 | 5.036E+02 | 5.367E+02 | 1.736E-06 | 1.385E-03 | 4.08E+00 | 2.474E+02 | 2.637E+02 | 7.193E-06 | 5.728E-03 | 1.762E+01 |
| 75 | 2.588E-01 | -5.209E+02 | 2.20E+00 | 4.724E+02 | 5.035E+02 | 1.972E-06 | 1.573E-03 | 3.73E+00 | 2.785E+02 | 2.969E+02 | 5.674E-06 | 4.520E-03 | 1.811E+01 |
| 80 | 1.736E-01 | -5.808E+02 | 2.40E+00 | 4.405E+02 | 4.695E+02 | 2.268E-06 | 1.809E-03 | 3.41E+00 | 3.104E+02 | 3.309E+02 | 4.568E-06 | 3.640E-03 | 1.846E+01 |
| 85 | 8.716E-02 | -6.416E+02 | 2.62E+00 | 4.081E+02 | 4.350E+02 | 2.643E-06 | 2.108E-03 | 3.12E+00 | 3.428E+02 | 3.654E+02 | 3.745E-06 | 2.986E-03 | 1.867E+01 |
| 90 | 0. | -7.028E+02 | 2.86E+00 | 3.755E+02 | 4.002E+02 | 3.122E-06 | 2.490E-03 | 2.86E+00 | 3.755E+02 | 4.002E+02 | 3.122E-06 | 2.490E-03 | 1.875E+01 |
| 95 | -8.716E-02 | -7.641E+02 | 3.12E+00 | 3.428E+02 | 3.654E+02 | 3.745E-06 | 2.986E-03 | 2.62E+00 | 4.081E+02 | 4.350E+02 | 2.643E-06 | 2.108E-03 | 1.867E+01 |
| 100 | -1.736E-01 | -8.249E+02 | 3.41E+00 | 3.104E+02 | 3.309E+02 | 4.568E-06 | 3.640E-03 | 2.40E+00 | 4.405E+02 | 4.695E+02 | 2.268E-06 | 1.809E-03 | 1.846E+01 |
| 105 | -2.588E-01 | -8.847E+02 | 3.73E+00 | 2.785E+02 | 2.969E+02 | 5.674E-06 | 4.520E-03 | 2.20E+00 | 4.724E+02 | 5.035E+02 | 1.972E-06 | 1.573E-03 | 1.811E+01 |
| 110 | -3.420E-01 | -9.432E+02 | 4.08E+00 | 2.474E+02 | 2.637E+02 | 7.193E-06 | 5.728E-03 | 2.00E+00 | 5.036E+02 | 5.367E+02 | 1.736E-06 | 1.385E-03 | 1.762E+01 |
| 115 | -4.226E-01 | -9.998E+02 | 4.49E+00 | 2.172E+02 | 2.315E+02 | 9.332E-06 | 7.427E-03 | 1.82E+00 | 5.338E+02 | 5.689E+02 | 1.545E-06 | 1.233E-03 | 1.699E+01 |
| 120 | -5.000E-01 | -1.054E+03 | 4.95E+00 | 1.882E+02 | 2.006E+02 | 1.243E-05 | 9.884E-03 | 1.65E+00 | 5.627E+02 | 5.998E+02 | 1.390E-06 | 1.109E-03 | 1.623E+01 |
| 125 | -5.736E-01 | -1.106E+03 | 5.49E+00 | 1.606E+02 | 1.712E+02 | 1.706E-05 | 1.355E-02 | 1.49E+00 | 5.903E+02 | 6.291E+02 | 1.263E-06 | 1.008E-03 | 1.536E+01 |
| 130 | -6.428E-01 | -1.155E+03 | 6.12E+00 | 1.347E+02 | 1.436E+02 | 2.425E-05 | 1.925E-02 | 1.34E+00 | 6.162E+02 | 6.568E+02 | 1.159E-06 | 9.252E-04 | 1.436E+01 |
| 135 | -7.071E-01 | -1.200E+03 | 6.88E+00 | 1.106E+02 | 1.179E+02 | 3.596E-05 | 2.850E-02 | 1.19E+00 | 6.403E+02 | 6.824E+02 | 1.074E-06 | 8.569E-04 | 1.326E+01 |
| 140 | -7.660E-01 | -1.241E+03 | 7.82E+00 | 8.856E+01 | 9.439E+01 | 5.612E-05 | 4.439E-02 | 1.04E+00 | 6.624E+02 | 7.060E+02 | 1.003E-06 | 8.008E-04 | 1.205E+01 |
| 145 | -8.192E-01 | -1.279E+03 | 9.01E+00 | 6.867E+01 | 7.319E+01 | 9.334E-05 | 7.361E-02 | 9.03E-01 | 6.823E+02 | 7.272E+02 | 9.456E-07 | 7.548E-04 | 1.075E+01 |
| 150 | -8.660E-01 | -1.311E+03 | 1.06E+01 | 5.111E+01 | 5.448E+01 | 1.685E-04 | 1.323E-01 | 7.67E-01 | 6.998E+02 | 7.459E+02 | 8.988E-07 | 7.175E-04 | 9.373E+00 |
| 155 | -9.063E-01 | -1.340E+03 | 1.27E+01 | 3.602E+01 | 3.840E+01 | 3.391E-04 | 2.643E-01 | 6.35E-01 | 7.149E+02 | 7.620E+02 | 8.612E-07 | 6.875E-04 | 7.922E+00 |
| 160 | -9.397E-01 | -1.363E+03 | 1.58E+01 | 2.351E+01 | 2.507E+01 | 7.956E-04 | 6.119E-01 | 5.05E-01 | 7.274E+02 | 7.753E+02 | 8.319E-07 | 6.641E-04 | 6.411E+00 |
| 165 | -9.659E-01 | -1.382E+03 | 2.08E+01 | 1.367E+01 | 1.460E+01 | 2.348E-03 | 1.759E+00 | 3.77E-01 | 7.372E+02 | 7.858E+02 | 8.098E-07 | 6.465E-04 | 4.852E+00 |
| 170 | -9.848E-01 | -1.395E+03 | 2.97E+01 | 6.561E+00 | 7.064E+00 | 1.007E-02 | 7.087E+00 | 2.51E-01 | 7.443E+02 | 7.933E+02 | 7.945E-07 | 6.343E-04 | 3.255E+00 |
| 175 | -9.962E-01 | -1.403E+03 | 4.89E+01 | 2.169E+00 | 2.519E+00 | 8.217E-02 | 4.913E+01 | 1.25E-01 | 7.486E+02 | 7.978E+02 | 7.855E-07 | 6.271E-04 | 1.634E+00 |
| 180 | -1.000E+00 | -1.406E+03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. | 7.500E+02 | 7.994E+02 | 7.825E-07 | 6.247E-04 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + PROTON (4) AT 1000 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 9.38259E-01
P2CM= 2.16492E+01 P3CM= 2.16492E+01
E1CM= 2.16696E+01 E2CM= 2.16696E+01 E3CM= 2.16696E+01 E4CM= 2.16696E+01

1-V1LAB = 4.402E-07 1-VCM = 9.378E-04 GCM = 2.30955E+01 ETCM= 4.33391E+01 S = 1.87828E+03 -U=( 1.87476E+03) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 1.000E+03 | 1.066E+03 | 4.402E-07 | 4.687E-04 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -1.428E-01 | 2.16E-02 | 9.999E+02 | 1.066E+03 | 4.402E-07 | 4.688E-04 | 7.86E+01 | 3.854E-01 | 1.081E+00 | 6.200E-01 | 6.234E+02 | 3.778E-01 |
| 2 | 9.994E-01 | -5.710E-01 | 4.33E-02 | 9.997E+02 | 1.065E+03 | 4.404E-07 | 4.690E-04 | 6.80E+01 | 8.146E-01 | 1.324E+00 | 3.444E-01 | 2.641E+02 | 7.555E-01 |
| 3 | 9.986E-01 | -1.285E+00 | 6.50E-02 | 9.993E+02 | 1.065E+03 | 4.408E-07 | 4.693E-04 | 5.88E+01 | 1.324E+00 | 1.730E+00 | 1.841E-01 | 1.383E+02 | 1.133E+00 |
| 4 | 9.976E-01 | -2.283E+00 | 8.66E-02 | 9.988E+02 | 1.065E+03 | 4.412E-07 | 4.698E-04 | 5.11E+01 | 1.940E+00 | 2.297E+00 | 9.975E-02 | 7.817E+01 | 1.510E+00 |
| 5 | 9.962E-01 | -3.567E+00 | 1.08E-01 | 9.981E+02 | 1.064E+03 | 4.418E-07 | 4.705E-04 | 4.48E+01 | 2.680E+00 | 3.026E+00 | 5.619E-02 | 4.635E+01 | 1.887E+00 |
| 6 | 9.945E-01 | -5.135E+00 | 1.30E-01 | 9.973E+02 | 1.063E+03 | 4.426E-07 | 4.713E-04 | 3.96E+01 | 3.553E+00 | 3.917E+00 | 3.315E-02 | 2.862E+01 | 2.263E+00 |
| 7 | 9.925E-01 | -6.987E+00 | 1.52E-01 | 9.963E+02 | 1.062E+03 | 4.435E-07 | 4.722E-04 | 3.53E+01 | 4.566E+00 | 4.968E+00 | 2.046E-02 | 1.835E+01 | 2.638E+00 |
| 8 | 9.903E-01 | -9.123E+00 | 1.73E-01 | 9.951E+02 | 1.061E+03 | 4.445E-07 | 4.733E-04 | 3.18E+01 | 5.723E+00 | 6.181E+00 | 1.317E-02 | 1.217E+01 | 3.013E+00 |
| 9 | 9.877E-01 | -1.154E+01 | 1.95E-01 | 9.938E+02 | 1.059E+03 | 4.456E-07 | 4.745E-04 | 2.88E+01 | 7.026E+00 | 7.555E+00 | 8.799E-03 | 8.319E+00 | 3.387E+00 |
| 10 | 9.848E-01 | -1.424E+01 | 2.17E-01 | 9.924E+02 | 1.058E+03 | 4.469E-07 | 4.759E-04 | 2.63E+01 | 8.475E+00 | 9.088E+00 | 6.072E-03 | 5.848E+00 | 3.759E+00 |
| 15 | 9.659E-01 | -3.194E+01 | 3.27E-01 | 9.830E+02 | 1.048E+03 | 4.555E-07 | 4.851E-04 | 1.82E+01 | 1.793E+01 | 1.914E+01 | 1.366E-03 | 1.384E+00 | 5.603E+00 |
| 20 | 9.397E-01 | -5.653E+01 | 4.37E-01 | 9.699E+02 | 1.034E+03 | 4.679E-07 | 4.982E-04 | 1.38E+01 | 3.105E+01 | 3.311E+01 | 4.563E-04 | 4.721E-01 | 7.404E+00 |
| 25 | 9.063E-01 | -8.783E+01 | 5.50E-01 | 9.532E+02 | 1.016E+03 | 4.845E-07 | 5.158E-04 | 1.11E+01 | 4.773E+01 | 5.088E+01 | 1.931E-04 | 2.019E-01 | 9.149E+00 |
| 30 | 8.660E-01 | -1.256E+02 | 6.65E-01 | 9.331E+02 | 9.945E+02 | 5.056E-07 | 5.383E-04 | 9.18E+00 | 6.786E+01 | 7.233E+01 | 9.558E-05 | 1.005E-01 | 1.082E+01 |
| 35 | 8.192E-01 | -1.695E+02 | 7.82E-01 | 9.097E+02 | 9.695E+02 | 5.319E-07 | 5.664E-04 | 7.82E+00 | 9.127E+01 | 9.728E+01 | 5.283E-05 | 5.574E-02 | 1.242E+01 |
| 40 | 7.660E-01 | -2.193E+02 | 9.03E-01 | 8.831E+02 | 9.412E+02 | 5.644E-07 | 6.009E-04 | 6.78E+00 | 1.178E+02 | 1.256E+02 | 3.172E-05 | 3.354E-02 | 1.392E+01 |
| 45 | 7.071E-01 | -2.746E+02 | 1.03E+00 | 8.537E+02 | 9.099E+02 | 6.040E-07 | 6.430E-04 | 5.97E+00 | 1.472E+02 | 1.569E+02 | 2.030E-05 | 2.150E-02 | 1.531E+01 |
| 50 | 6.428E-01 | -3.348E+02 | 1.16E+00 | 8.216E+02 | 8.756E+02 | 6.521E-07 | 6.943E-04 | 5.30E+00 | 1.794E+02 | 1.912E+02 | 1.368E-05 | 1.450E-02 | 1.658E+01 |
| 55 | 5.736E-01 | -3.997E+02 | 1.29E+00 | 7.870E+02 | 8.388E+02 | 7.107E-07 | 7.566E-04 | 4.75E+00 | 2.139E+02 | 2.280E+02 | 9.616E-06 | 1.020E-02 | 1.773E+01 |
| 60 | 5.000E-01 | -4.687E+02 | 1.43E+00 | 7.502E+02 | 7.996E+02 | 7.820E-07 | 8.324E-04 | 4.29E+00 | 2.507E+02 | 2.672E+02 | 7.003E-06 | 7.436E-03 | 1.875E+01 |
| 65 | 4.226E-01 | -5.412E+02 | 1.58E+00 | 7.116E+02 | 7.584E+02 | 8.693E-07 | 9.253E-04 | 3.89E+00 | 2.894E+02 | 3.084E+02 | 5.257E-06 | 5.585E-03 | 1.962E+01 |
| 70 | 3.420E-01 | -6.168E+02 | 1.74E+00 | 6.713E+02 | 7.155E+02 | 9.767E-07 | 1.040E-03 | 3.54E+00 | 3.296E+02 | 3.513E+02 | 4.051E-06 | 4.306E-03 | 2.034E+01 |
| 75 | 2.588E-01 | -6.948E+02 | 1.90E+00 | 6.298E+02 | 6.712E+02 | 1.110E-06 | 1.181E-03 | 3.23E+00 | 3.712E+02 | 3.956E+02 | 3.195E-06 | 3.396E-03 | 2.091E+01 |
| 80 | 1.736E-01 | -7.746E+02 | 2.08E+00 | 5.872E+02 | 6.259E+02 | 1.277E-06 | 1.358E-03 | 2.95E+00 | 4.137E+02 | 4.410E+02 | 2.572E-06 | 2.735E-03 | 2.132E+01 |
| 85 | 8.716E-02 | -8.557E+02 | 2.27E+00 | 5.440E+02 | 5.798E+02 | 1.487E-06 | 1.582E-03 | 2.71E+00 | 4.569E+02 | 4.870E+02 | 2.108E-06 | 2.242E-03 | 2.157E+01 |
| 90 | 0. | -9.374E+02 | 2.48E+00 | 5.005E+02 | 5.334E+02 | 1.757E-06 | 1.869E-03 | 2.48E+00 | 5.005E+02 | 5.334E+02 | 1.757E-06 | 1.869E-03 | 2.165E+01 |
| 95 | -8.716E-02 | -1.019E+03 | 2.71E+00 | 4.569E+02 | 4.870E+02 | 2.108E-06 | 2.242E-03 | 2.27E+00 | 5.440E+02 | 5.798E+02 | 1.487E-06 | 1.582E-03 | 2.157E+01 |
| 100 | -1.736E-01 | -1.100E+03 | 2.95E+00 | 4.137E+02 | 4.410E+02 | 2.572E-06 | 2.735E-03 | 2.08E+00 | 5.872E+02 | 6.259E+02 | 1.277E-06 | 1.358E-03 | 2.132E+01 |
| 105 | -2.588E-01 | -1.180E+03 | 3.23E+00 | 3.712E+02 | 3.956E+02 | 3.195E-06 | 3.396E-03 | 1.90E+00 | 6.298E+02 | 6.712E+02 | 1.110E-06 | 1.181E-03 | 2.091E+01 |
| 110 | -3.420E-01 | -1.258E+03 | 3.54E+00 | 3.296E+02 | 3.513E+02 | 4.051E-06 | 4.306E-03 | 1.74E+00 | 6.713E+02 | 7.155E+02 | 9.767E-07 | 1.040E-03 | 2.034E+01 |
| 115 | -4.226E-01 | -1.334E+03 | 3.89E+00 | 2.894E+02 | 3.084E+02 | 5.257E-06 | 5.585E-03 | 1.58E+00 | 7.116E+02 | 7.584E+02 | 8.693E-07 | 9.253E-04 | 1.962E+01 |
| 120 | -5.000E-01 | -1.406E+03 | 4.29E+00 | 2.507E+02 | 2.672E+02 | 7.003E-06 | 7.436E-03 | 1.43E+00 | 7.502E+02 | 7.996E+02 | 7.820E-07 | 8.324E-04 | 1.875E+01 |
| 125 | -5.736E-01 | -1.475E+03 | 4.75E+00 | 2.139E+02 | 2.280E+02 | 9.616E-06 | 1.020E-02 | 1.29E+00 | 7.870E+02 | 8.388E+02 | 7.107E-07 | 7.566E-04 | 1.773E+01 |
| 130 | -6.428E-01 | -1.540E+03 | 5.30E+00 | 1.794E+02 | 1.912E+02 | 1.368E-05 | 1.450E-02 | 1.16E+00 | 8.216E+02 | 8.756E+02 | 6.521E-07 | 6.943E-04 | 1.658E+01 |
| 135 | -7.071E-01 | -1.600E+03 | 5.97E+00 | 1.472E+02 | 1.569E+02 | 2.030E-05 | 2.150E-02 | 1.03E+00 | 8.537E+02 | 9.099E+02 | 6.040E-07 | 6.430E-04 | 1.531E+01 |
| 140 | -7.660E-01 | -1.655E+03 | 6.78E+00 | 1.178E+02 | 1.256E+02 | 3.172E-05 | 3.354E-02 | 9.03E-01 | 8.831E+02 | 9.412E+02 | 5.644E-07 | 6.009E-04 | 1.392E+01 |
| 145 | -8.192E-01 | -1.705E+03 | 7.82E+00 | 9.127E+01 | 9.728E+01 | 5.283E-05 | 5.574E-02 | 7.82E-01 | 9.097E+02 | 9.695E+02 | 5.319E-07 | 5.664E-04 | 1.242E+01 |
| 150 | -8.660E-01 | -1.749E+03 | 9.18E+00 | 6.786E+01 | 7.233E+01 | 9.558E-05 | 1.005E-01 | 6.65E-01 | 9.331E+02 | 9.945E+02 | 5.056E-07 | 5.383E-04 | 1.082E+01 |
| 155 | -9.063E-01 | -1.787E+03 | 1.11E+01 | 4.773E+01 | 5.088E+01 | 1.931E-04 | 2.019E-01 | 5.50E-01 | 9.532E+02 | 1.016E+03 | 4.845E-07 | 5.158E-04 | 9.149E+00 |
| 160 | -9.397E-01 | -1.818E+03 | 1.38E+01 | 3.105E+01 | 3.311E+01 | 4.563E-04 | 4.721E-01 | 4.37E-01 | 9.699E+02 | 1.034E+03 | 4.679E-07 | 4.982E-04 | 7.404E+00 |
| 165 | -9.659E-01 | -1.843E+03 | 1.82E+01 | 1.793E+01 | 1.914E+01 | 1.366E-03 | 1.384E+00 | 3.27E-01 | 9.830E+02 | 1.048E+03 | 4.555E-07 | 4.851E-04 | 5.603E+00 |
| 170 | -9.848E-01 | -1.861E+03 | 2.63E+01 | 8.475E+00 | 9.088E+00 | 6.072E-03 | 5.848E+00 | 2.17E-01 | 9.924E+02 | 1.058E+03 | 4.469E-07 | 4.759E-04 | 3.759E+00 |
| 175 | -9.962E-01 | -1.871E+03 | 4.48E+01 | 2.680E+00 | 3.026E+00 | 5.619E-02 | 4.635E+01 | 1.08E-01 | 9.981E+02 | 1.064E+03 | 4.418E-07 | 4.705E-04 | 1.887E+00 |
| 180 | -1.000E+00 | -1.875E+03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. | 1.000E+03 | 1.066E+03 | 4.402E-07 | 4.687E-04 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + DELTA(1236) (4) AT 10 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 1.23600E+00
P2CM= 2.06682E+00 P3CM= 1.98825E+00
E1CM= 2.26982E+00 E2CM= 2.26982E+00 E3CM= 2.19851E+00 E4CM= 2.34112E+00

1-V1LAB = 4.373E-03 1-VCM = 8.943E-02 GCM = 2.41918E+00 ETCM= 4.53963E+00 S = 2.06083E+01 -U=( 1.64396E+01) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -1.089E-03 | 0. | 9.653E+00 | 1.034E+01 | 4.691E-03 | 4.243E-02 | 0. | 3.471E-01 | 1.039E+00 | 7.296E-01 | -3.281E+01 | 0. |
| 1 | 9.998E-01 | -2.341E-03 | 2.06E-01 | 9.652E+00 | 1.034E+01 | 4.691E-03 | 4.243E-02 | 5.70E+00 | 3.496E-01 | 1.039E+00 | 7.278E-01 | -3.205E+01 | 3.470E-02 |
| 2 | 9.994E-01 | -6.096E-03 | 4.12E-01 | 9.650E+00 | 1.033E+01 | 4.693E-03 | 4.245E-02 | 1.12E+01 | 3.569E-01 | 1.041E+00 | 7.226E-01 | -2.992E+01 | 6.939E-02 |
| 3 | 9.986E-01 | -1.235E-02 | 6.18E-01 | 9.647E+00 | 1.033E+01 | 4.697E-03 | 4.248E-02 | 1.64E+01 | 3.687E-01 | 1.044E+00 | 7.141E-01 | -2.682E+01 | 1.041E-01 |
| 4 | 9.976E-01 | -2.111E-02 | 8.24E-01 | 9.642E+00 | 1.033E+01 | 4.701E-03 | 4.252E-02 | 2.11E+01 | 3.847E-01 | 1.047E+00 | 7.028E-01 | -2.323E+01 | 1.387E-01 |
| 5 | 9.962E-01 | -3.236E-02 | 1.03E+00 | 9.636E+00 | 1.032E+01 | 4.707E-03 | 4.257E-02 | 2.54E+01 | 4.044E-01 | 1.052E+00 | 6.890E-01 | -1.957E+01 | 1.733E-01 |
| 6 | 9.945E-01 | -4.611E-02 | 1.24E+00 | 9.629E+00 | 1.031E+01 | 4.714E-03 | 4.263E-02 | 2.91E+01 | 4.274E-01 | 1.058E+00 | 6.732E-01 | -1.614E+01 | 2.078E-01 |
| 7 | 9.925E-01 | -6.235E-02 | 1.44E+00 | 9.620E+00 | 1.030E+01 | 4.723E-03 | 4.270E-02 | 3.23E+01 | 4.532E-01 | 1.065E+00 | 6.557E-01 | -1.311E+01 | 2.423E-01 |
| 8 | 9.903E-01 | -8.107E-02 | 1.65E+00 | 9.610E+00 | 1.029E+01 | 4.732E-03 | 4.279E-02 | 3.51E+01 | 4.814E-01 | 1.073E+00 | 6.371E-01 | -1.052E+01 | 2.767E-01 |
| 9 | 9.877E-01 | -1.023E-01 | 1.86E+00 | 9.599E+00 | 1.028E+01 | 4.743E-03 | 4.288E-02 | 3.74E+01 | 5.117E-01 | 1.082E+00 | 6.175E-01 | -8.368E+00 | 3.110E-01 |
| 10 | 9.848E-01 | -1.259E-01 | 2.06E+00 | 9.586E+00 | 1.027E+01 | 4.756E-03 | 4.299E-02 | 3.94E+01 | 5.439E-01 | 1.093E+00 | 5.973E-01 | -6.605E+00 | 3.453E-01 |
| 15 | 9.659E-01 | -2.811E-01 | 3.10E+00 | 9.503E+00 | 1.018E+01 | 4.839E-03 | 4.371E-02 | 4.52E+01 | 7.252E-01 | 1.159E+00 | 4.939E-01 | -1.776E+00 | 5.146E-01 |
| 20 | 9.397E-01 | -4.967E-01 | 4.15E+00 | 9.387E+00 | 1.006E+01 | 4.958E-03 | 4.473E-02 | 4.69E+01 | 9.319E-01 | 1.252E+00 | 3.980E-01 | -1.765E-01 | 6.800E-01 |
| 25 | 9.063E-01 | -7.711E-01 | 5.22E+00 | 9.240E+00 | 9.899E+00 | 5.115E-03 | 4.609E-02 | 4.65E+01 | 1.159E+00 | 1.371E+00 | 3.161E-01 | 3.457E-01 | 8.403E-01 |
| 30 | 8.660E-01 | -1.102E+00 | 6.30E+00 | 9.063E+00 | 9.711E+00 | 5.316E-03 | 4.781E-02 | 4.51E+01 | 1.404E+00 | 1.513E+00 | 2.494E-01 | 4.910E-01 | 9.941E-01 |
| 35 | 8.192E-01 | -1.487E+00 | 7.40E+00 | 8.857E+00 | 9.492E+00 | 5.565E-03 | 4.994E-02 | 4.31E+01 | 1.668E+00 | 1.680E+00 | 1.966E-01 | 4.989E-01 | 1.140E+00 |
| 40 | 7.660E-01 | -1.924E+00 | 8.52E+00 | 8.623E+00 | 9.244E+00 | 5.868E-03 | 5.253E-02 | 4.10E+01 | 1.950E+00 | 1.868E+00 | 1.554E-01 | 4.584E-01 | 1.278E+00 |
| 45 | 7.071E-01 | -2.408E+00 | 9.68E+00 | 8.363E+00 | 8.969E+00 | 6.235E-03 | 5.565E-02 | 3.87E+01 | 2.249E+00 | 2.077E+00 | 1.236E-01 | 4.041E-01 | 1.406E+00 |
| 50 | 6.428E-01 | -2.937E+00 | 1.09E+01 | 8.080E+00 | 8.669E+00 | 6.675E-03 | 5.938E-02 | 3.64E+01 | 2.566E+00 | 2.304E+00 | 9.906E-02 | 3.497E-01 | 1.523E+00 |
| 55 | 5.736E-01 | -3.506E+00 | 1.21E+01 | 7.774E+00 | 8.346E+00 | 7.204E-03 | 6.384E-02 | 3.42E+01 | 2.899E+00 | 2.550E+00 | 8.012E-02 | 3.005E-01 | 1.629E+00 |
| 60 | 5.000E-01 | -4.110E+00 | 1.34E+01 | 7.450E+00 | 8.003E+00 | 7.838E-03 | 6.915E-02 | 3.20E+01 | 3.246E+00 | 2.810E+00 | 6.544E-02 | 2.578E-01 | 1.722E+00 |
| 65 | 4.226E-01 | -4.746E+00 | 1.47E+01 | 7.108E+00 | 7.641E+00 | 8.600E-03 | 7.548E-02 | 3.00E+01 | 3.607E+00 | 3.085E+00 | 5.401E-02 | 2.216E-01 | 1.802E+00 |
| 70 | 3.420E-01 | -5.409E+00 | 1.61E+01 | 6.752E+00 | 7.265E+00 | 9.518E-03 | 8.305E-02 | 2.80E+01 | 3.978E+00 | 3.370E+00 | 4.503E-02 | 1.913E-01 | 1.868E+00 |
| 75 | 2.588E-01 | -6.093E+00 | 1.75E+01 | 6.384E+00 | 6.877E+00 | 1.063E-02 | 9.214E-02 | 2.61E+01 | 4.358E+00 | 3.665E+00 | 3.794E-02 | 1.660E-01 | 1.921E+00 |
| 80 | 1.736E-01 | -6.793E+00 | 1.90E+01 | 6.006E+00 | 6.479E+00 | 1.198E-02 | 1.031E-01 | 2.44E+01 | 4.745E+00 | 3.967E+00 | 3.230E-02 | 1.449E-01 | 1.958E+00 |
| 85 | 8.716E-02 | -7.503E+00 | 2.06E+01 | 5.623E+00 | 6.075E+00 | 1.364E-02 | 1.164E-01 | 2.27E+01 | 5.135E+00 | 4.273E+00 | 2.777E-02 | 1.273E-01 | 1.981E+00 |
| 90 | 0. | -8.220E+00 | 2.23E+01 | 5.235E+00 | 5.669E+00 | 1.568E-02 | 1.325E-01 | 2.11E+01 | 5.527E+00 | 4.582E+00 | 2.410E-02 | 1.126E-01 | 1.988E+00 |
| 95 | -8.716E-02 | -8.936E+00 | 2.41E+01 | 4.847E+00 | 5.262E+00 | 1.823E-02 | 1.523E-01 | 1.96E+01 | 5.918E+00 | 4.891E+00 | 2.112E-02 | 1.003E-01 | 1.981E+00 |
| 100 | -1.736E-01 | -9.647E+00 | 2.60E+01 | 4.460E+00 | 4.858E+00 | 2.142E-02 | 1.768E-01 | 1.81E+01 | 6.304E+00 | 5.198E+00 | 1.868E-02 | 9.003E-02 | 1.958E+00 |
| 105 | -2.588E-01 | -1.035E+01 | 2.81E+01 | 4.079E+00 | 4.460E+00 | 2.546E-02 | 2.072E-01 | 1.67E+01 | 6.684E+00 | 5.499E+00 | 1.667E-02 | 8.135E-02 | 1.921E+00 |
| 110 | -3.420E-01 | -1.103E+01 | 3.03E+01 | 3.704E+00 | 4.072E+00 | 3.062E-02 | 2.454E-01 | 1.54E+01 | 7.054E+00 | 5.794E+00 | 1.501E-02 | 7.403E-02 | 1.868E+00 |
| 115 | -4.226E-01 | -1.169E+01 | 3.27E+01 | 3.338E+00 | 3.696E+00 | 3.730E-02 | 2.936E-01 | 1.41E+01 | 7.412E+00 | 6.080E+00 | 1.362E-02 | 6.785E-02 | 1.802E+00 |
| 120 | -5.000E-01 | -1.233E+01 | 3.52E+01 | 2.985E+00 | 3.335E+00 | 4.602E-02 | 3.551E-01 | 1.28E+01 | 7.756E+00 | 6.354E+00 | 1.246E-02 | 6.261E-02 | 1.722E+00 |
| 125 | -5.736E-01 | -1.293E+01 | 3.80E+01 | 2.645E+00 | 2.991E+00 | 5.754E-02 | 4.341E-01 | 1.16E+01 | 8.082E+00 | 6.615E+00 | 1.149E-02 | 5.817E-02 | 1.629E+00 |
| 130 | -6.428E-01 | -1.350E+01 | 4.10E+01 | 2.321E+00 | 2.668E+00 | 7.290E-02 | 5.366E-01 | 1.05E+01 | 8.388E+00 | 6.860E+00 | 1.068E-02 | 5.442E-02 | 1.523E+00 |
| 135 | -7.071E-01 | -1.403E+01 | 4.43E+01 | 2.014E+00 | 2.368E+00 | 9.356E-02 | 6.706E-01 | 9.33E+00 | 8.673E+00 | 7.088E+00 | 1.000E-02 | 5.124E-02 | 1.406E+00 |
| 140 | -7.660E-01 | -1.452E+01 | 4.78E+01 | 1.725E+00 | 2.093E+00 | 1.216E-01 | 8.474E-01 | 8.22E+00 | 8.934E+00 | 7.297E+00 | 9.436E-03 | 4.857E-02 | 1.278E+00 |
| 145 | -8.192E-01 | -1.495E+01 | 5.16E+01 | 1.455E+00 | 1.845E+00 | 1.597E-01 | 1.083E+00 | 7.15E+00 | 9.168E+00 | 7.485E+00 | 8.965E-03 | 4.634E-02 | 1.140E+00 |
| 150 | -8.660E-01 | -1.534E+01 | 5.57E+01 | 1.203E+00 | 1.626E+00 | 2.115E-01 | 1.398E+00 | 6.09E+00 | 9.375E+00 | 7.651E+00 | 8.578E-03 | 4.450E-02 | 9.941E-01 |
| 155 | -9.063E-01 | -1.567E+01 | 6.01E+01 | 9.695E-01 | 1.438E+00 | 2.814E-01 | 1.825E+00 | 5.05E+00 | 9.553E+00 | 7.794E+00 | 8.266E-03 | 4.300E-02 | 8.403E-01 |
| 160 | -9.397E-01 | -1.594E+01 | 6.46E+01 | 7.529E-01 | 1.282E+00 | 3.742E-01 | 2.400E+00 | 4.02E+00 | 9.701E+00 | 7.912E+00 | 8.019E-03 | 4.181E-02 | 6.800E-01 |
| 165 | -9.659E-01 | -1.616E+01 | 6.91E+01 | 5.510E-01 | 1.160E+00 | 4.936E-01 | 3.120E+00 | 3.00E+00 | 9.817E+00 | 8.005E+00 | 7.834E-03 | 4.092E-02 | 5.146E-01 |
| 170 | -9.848E-01 | -1.631E+01 | 7.29E+01 | 3.612E-01 | 1.072E+00 | 6.407E-01 | 3.404E+00 | 2.00E+00 | 9.900E+00 | 8.072E+00 | 7.704E-03 | 4.029E-02 | 3.453E-01 |
| 175 | -9.962E-01 | -1.641E+01 | 7.35E+01 | 1.807E-01 | 1.018E+00 | 8.109E-01 | -9.762E+00 | 9.98E-01 | 9.950E+00 | 8.112E+00 | 7.627E-03 | 3.992E-02 | 1.733E-01 |
| 180 | -1.000E+00 | -1.644E+01 | 0. | 3.301E-02 | 1.001E+00 | 9.648E-01 | -3.629E+03 | 0. | 9.967E+00 | 8.126E+00 | 7.602E-03 | 3.979E-02 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + DELTA(1236) (4) AT 20 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 1.23600E+00
P2CM= 2.99211E+00 P3CM= 2.93798E+00
E1CM= 3.13577E+00 E2CM= 3.13577E+00 E3CM= 3.08416E+00 E4CM= 3.18738E+00

1-V1LAB = 1.099E-03 1-VCM = 4.581E-02 GCM = 3.34212E+00 ETCM= 6.27155E+00 S = 3.93323E+01 -U=( 3.51636E+01) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -2.668E-04 | 0. | 1.965E+01 | 2.097E+01 | 1.137E-03 | 2.234E-02 | 0. | 3.455E-01 | 1.038E+00 | 7.308E-01 | -7.231E+01 | 0. |
| 1 | 9.998E-01 | -2.945E-03 | 1.49E-01 | 1.965E+01 | 2.097E+01 | 1.138E-03 | 2.235E-02 | 8.41E+00 | 3.508E-01 | 1.039E+00 | 7.270E-01 | -6.879E+01 | 5.127E-02 |
| 2 | 9.994E-01 | -1.098E-02 | 2.99E-01 | 1.965E+01 | 2.097E+01 | 1.138E-03 | 2.236E-02 | 1.63E+01 | 3.661E-01 | 1.043E+00 | 7.160E-01 | -5.967E+01 | 1.025E-01 |
| 3 | 9.986E-01 | -2.436E-02 | 4.49E-01 | 1.964E+01 | 2.096E+01 | 1.139E-03 | 2.237E-02 | 2.32E+01 | 3.905E-01 | 1.049E+00 | 6.987E-01 | -4.806E+01 | 1.538E-01 |
| 4 | 9.976E-01 | -4.309E-02 | 5.98E-01 | 1.963E+01 | 2.095E+01 | 1.140E-03 | 2.240E-02 | 2.90E+01 | 4.225E-01 | 1.057E+00 | 6.766E-01 | -3.672E+01 | 2.049E-01 |
| 5 | 9.962E-01 | -6.717E-02 | 7.48E-01 | 1.962E+01 | 2.093E+01 | 1.142E-03 | 2.242E-02 | 3.38E+01 | 4.606E-01 | 1.067E+00 | 6.508E-01 | -2.710E+01 | 2.561E-01 |
| 6 | 9.945E-01 | -9.658E-02 | 8.98E-01 | 1.960E+01 | 2.092E+01 | 1.143E-03 | 2.246E-02 | 3.76E+01 | 5.037E-01 | 1.080E+00 | 6.226E-01 | -1.957E+01 | 3.071E-01 |
| 7 | 9.925E-01 | -1.313E-01 | 1.05E+00 | 1.958E+01 | 2.090E+01 | 1.146E-03 | 2.250E-02 | 4.05E+01 | 5.509E-01 | 1.095E+00 | 5.929E-01 | -1.392E+01 | 3.580E-01 |
| 8 | 9.903E-01 | -1.714E-01 | 1.20E+00 | 1.956E+01 | 2.087E+01 | 1.148E-03 | 2.255E-02 | 4.28E+01 | 6.014E-01 | 1.112E+00 | 5.624E-01 | -9.783E+00 | 4.089E-01 |
| 9 | 9.877E-01 | -2.167E-01 | 1.35E+00 | 1.954E+01 | 2.085E+01 | 1.151E-03 | 2.260E-02 | 4.46E+01 | 6.548E-01 | 1.132E+00 | 5.319E-01 | -6.775E+00 | 4.596E-01 |
| 10 | 9.848E-01 | -2.674E-01 | 1.50E+00 | 1.951E+01 | 2.082E+01 | 1.154E-03 | 2.266E-02 | 4.59E+01 | 7.106E-01 | 1.153E+00 | 5.016E-01 | -4.596E+00 | 5.102E-01 |
| 15 | 9.659E-01 | -5.993E-01 | 2.25E+00 | 1.933E+01 | 2.063E+01 | 1.175E-03 | 2.307E-02 | 4.82E+01 | 1.020E+00 | 1.297E+00 | 3.634E-01 | 6.823E-03 | 7.604E-01 |
| 20 | 9.397E-01 | -1.061E+00 | 3.02E+00 | 1.909E+01 | 2.037E+01 | 1.206E-03 | 2.365E-02 | 4.70E+01 | 1.374E+00 | 1.495E+00 | 2.564E-01 | 8.893E-01 | 1.005E+00 |
| 25 | 9.063E-01 | -1.648E+00 | 3.79E+00 | 1.878E+01 | 2.004E+01 | 1.246E-03 | 2.443E-02 | 4.45E+01 | 1.773E+00 | 1.749E+00 | 1.797E-01 | 9.400E-01 | 1.242E+00 |
| 30 | 8.660E-01 | -2.356E+00 | 4.58E+00 | 1.840E+01 | 1.963E+01 | 1.298E-03 | 2.542E-02 | 4.15E+01 | 2.217E+00 | 2.054E+00 | 1.265E-01 | 8.046E-01 | 1.469E+00 |
| 35 | 8.192E-01 | -3.180E+00 | 5.38E+00 | 1.796E+01 | 1.917E+01 | 1.362E-03 | 2.664E-02 | 3.85E+01 | 2.709E+00 | 2.409E+00 | 9.021E-02 | 6.480E-01 | 1.685E+00 |
| 40 | 7.660E-01 | -4.114E+00 | 6.21E+00 | 1.746E+01 | 1.864E+01 | 1.441E-03 | 2.814E-02 | 3.55E+01 | 3.248E+00 | 2.812E+00 | 6.538E-02 | 5.120E-01 | 1.888E+00 |
| 45 | 7.071E-01 | -5.150E+00 | 7.06E+00 | 1.691E+01 | 1.805E+01 | 1.536E-03 | 2.996E-02 | 3.28E+01 | 3.833E+00 | 3.259E+00 | 4.825E-02 | 4.033E-01 | 2.077E+00 |
| 50 | 6.428E-01 | -6.281E+00 | 7.93E+00 | 1.630E+01 | 1.740E+01 | 1.652E-03 | 3.215E-02 | 3.03E+01 | 4.462E+00 | 3.746E+00 | 3.629E-02 | 3.192E-01 | 2.251E+00 |
| 55 | 5.736E-01 | -7.497E+00 | 8.84E+00 | 1.565E+01 | 1.671E+01 | 1.792E-03 | 3.479E-02 | 2.80E+01 | 5.132E+00 | 4.271E+00 | 2.780E-02 | 2.548E-01 | 2.407E+00 |
| 60 | 5.000E-01 | -8.791E+00 | 9.79E+00 | 1.496E+01 | 1.598E+01 | 1.960E-03 | 3.797E-02 | 2.58E+01 | 5.839E+00 | 4.828E+00 | 2.168E-02 | 2.054E-01 | 2.544E+00 |
| 65 | 4.226E-01 | -1.015E+01 | 1.08E+01 | 1.424E+01 | 1.521E+01 | 2.165E-03 | 4.181E-02 | 2.39E+01 | 6.578E+00 | 5.415E+00 | 1.720E-02 | 1.675E-01 | 2.663E+00 |
| 70 | 3.420E-01 | -1.157E+01 | 1.18E+01 | 1.348E+01 | 1.440E+01 | 2.414E-03 | 4.646E-02 | 2.21E+01 | 7.345E+00 | 6.026E+00 | 1.387E-02 | 1.382E-01 | 2.761E+00 |
| 75 | 2.588E-01 | -1.303E+01 | 1.29E+01 | 1.270E+01 | 1.357E+01 | 2.719E-03 | 5.213E-02 | 2.04E+01 | 8.134E+00 | 6.657E+00 | 1.135E-02 | 1.153E-01 | 2.838E+00 |
| 80 | 1.736E-01 | -1.453E+01 | 1.41E+01 | 1.190E+01 | 1.272E+01 | 3.095E-03 | 5.908E-02 | 1.89E+01 | 8.941E+00 | 7.302E+00 | 9.421E-03 | 9.728E-02 | 2.893E+00 |
| 85 | 8.716E-02 | -1.605E+01 | 1.53E+01 | 1.108E+01 | 1.186E+01 | 3.563E-03 | 6.766E-02 | 1.75E+01 | 9.758E+00 | 7.958E+00 | 7.927E-03 | 8.299E-02 | 2.927E+00 |
| 90 | 0. | -1.758E+01 | 1.66E+01 | 1.026E+01 | 1.099E+01 | 4.151E-03 | 7.836E-02 | 1.61E+01 | 1.058E+01 | 8.619E+00 | 6.754E-03 | 7.155E-02 | 2.938E+00 |
| 95 | -8.716E-02 | -1.911E+01 | 1.81E+01 | 9.445E+00 | 1.012E+01 | 4.898E-03 | 9.182E-02 | 1.49E+01 | 1.140E+01 | 9.279E+00 | 5.824E-03 | 6.233E-02 | 2.927E+00 |
| 100 | -1.736E-01 | -2.063E+01 | 1.96E+01 | 8.630E+00 | 9.252E+00 | 5.858E-03 | 1.089E-01 | 1.37E+01 | 1.222E+01 | 9.935E+00 | 5.079E-03 | 5.483E-02 | 2.893E+00 |
| 105 | -2.588E-01 | -2.213E+01 | 2.13E+01 | 7.827E+00 | 8.401E+00 | 7.109E-03 | 1.310E-01 | 1.26E+01 | 1.302E+01 | 1.058E+01 | 4.476E-03 | 4.870E-02 | 2.838E+00 |
| 110 | -3.420E-01 | -2.360E+01 | 2.31E+01 | 7.041E+00 | 7.571E+00 | 8.762E-03 | 1.596E-01 | 1.15E+01 | 1.380E+01 | 1.121E+01 | 3.986E-03 | 4.365E-02 | 2.761E+00 |
| 115 | -4.226E-01 | -2.501E+01 | 2.51E+01 | 6.278E+00 | 6.766E+00 | 1.098E-02 | 1.975E-01 | 1.05E+01 | 1.456E+01 | 1.182E+01 | 3.584E-03 | 3.947E-02 | 2.663E+00 |
| 120 | -5.000E-01 | -2.637E+01 | 2.73E+01 | 5.544E+00 | 5.993E+00 | 1.402E-02 | 2.483E-01 | 9.58E+00 | 1.529E+01 | 1.241E+01 | 3.253E-03 | 3.600E-02 | 2.544E+00 |
| 125 | -5.736E-01 | -2.767E+01 | 2.98E+01 | 4.844E+00 | 5.258E+00 | 1.825E-02 | 3.173E-01 | 8.66E+00 | 1.598E+01 | 1.297E+01 | 2.978E-03 | 3.311E-02 | 2.407E+00 |
| 130 | -6.428E-01 | -2.888E+01 | 3.26E+01 | 4.181E+00 | 4.567E+00 | 2.426E-02 | 4.129E-01 | 7.78E+00 | 1.663E+01 | 1.349E+01 | 2.751E-03 | 3.070E-02 | 2.251E+00 |
| 135 | -7.071E-01 | -3.001E+01 | 3.57E+01 | 3.561E+00 | 3.925E+00 | 3.300E-02 | 5.475E-01 | 6.92E+00 | 1.723E+01 | 1.398E+01 | 2.562E-03 | 2.868E-02 | 2.077E+00 |
| 140 | -7.660E-01 | -3.105E+01 | 3.92E+01 | 2.986E+00 | 3.336E+00 | 4.597E-02 | 7.404E-01 | 6.09E+00 | 1.779E+01 | 1.443E+01 | 2.406E-03 | 2.700E-02 | 1.888E+00 |
| 145 | -8.192E-01 | -3.198E+01 | 4.32E+01 | 2.460E+00 | 2.806E+00 | 6.566E-02 | 1.022E+00 | 5.29E+00 | 1.829E+01 | 1.483E+01 | 2.277E-03 | 2.562E-02 | 1.685E+00 |
| 150 | -8.660E-01 | -3.281E+01 | 4.78E+01 | 1.983E+00 | 2.338E+00 | 9.609E-02 | 1.441E+00 | 4.50E+00 | 1.873E+01 | 1.518E+01 | 2.171E-03 | 2.448E-02 | 1.469E+00 |
| 155 | -9.063E-01 | -3.352E+01 | 5.30E+01 | 1.555E+00 | 1.936E+00 | 1.438E-01 | 2.078E+00 | 3.73E+00 | 1.910E+01 | 1.549E+01 | 2.066E-03 | 2.356E-02 | 1.242E+00 |
| 160 | -9.397E-01 | -3.410E+01 | 5.88E+01 | 1.175E+00 | 1.602E+00 | 2.186E-01 | 3.071E+00 | 2.97E+00 | 1.942E+01 | 1.574E+01 | 2.020E-03 | 2.284E-02 | 1.005E+00 |
| 165 | -9.659E-01 | -3.456E+01 | 6.52E+01 | 8.375E-01 | 1.340E+00 | 3.341E-01 | 4.685E+00 | 2.22E+00 | 1.966E+01 | 1.594E+01 | 1.970E-03 | 2.229E-02 | 7.604E-01 |
| 170 | -9.848E-01 | -3.490E+01 | 7.20E+01 | 5.363E-01 | 1.152E+00 | 5.037E-01 | 7.446E+00 | 1.47E+00 | 1.984E+01 | 1.608E+01 | 1.935E-03 | 2.191E-02 | 5.102E-01 |
| 175 | -9.962E-01 | -3.510E+01 | 7.82E+01 | 2.616E-01 | 1.038E+00 | 7.314E-01 | 1.017E+01 | 7.35E-01 | 1.995E+01 | 1.617E+01 | 1.914E-03 | 2.169E-02 | 2.561E-01 |
| 180 | -1.000E+00 | -3.516E+01 | 0. | 1.633E-02 | 1.000E+00 | 9.826E-01 | -3.236E+04 | 0. | 1.998E+01 | 1.620E+01 | 1.907E-03 | 2.161E-02 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + DELTA(1236) (4) AT 30 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 1.23600E+00
P2CM= 3.69332E+00 P3CM= 3.64948E+00
E1CM= 3.81063E+00 E2CM= 3.81063E+00 E3CM= 3.76816E+00 E4CM= 3.85311E+00

1-V1LAB = 4.887E-04 1-VCM = 3.079E-02 GCM = 4.06139E+00 ETCM= 7.62127E+00 S = 5.80837E+01 -U=( 5.39151E+01) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -1.178E-04 | 0. | 2.965E+01 | 3.162E+01 | 5.001E-04 | 1.515E-02 | 0. | 3.452E-01 | 1.038E+00 | 7.310E-01 | -1.118E+02 | 0. |
| 1 | 9.998E-01 | -4.224E-03 | 1.23E-01 | 2.965E+01 | 3.162E+01 | 5.002E-04 | 1.515E-02 | 1.04E+01 | 3.533E-01 | 1.040E+00 | 7.252E-01 | -1.036E+02 | 6.369E-02 |
| 2 | 9.994E-01 | -1.654E-02 | 2.46E-01 | 2.965E+01 | 3.161E+01 | 5.004E-04 | 1.515E-02 | 1.98E+01 | 3.764E-01 | 1.045E+00 | 7.086E-01 | -8.388E+01 | 1.274E-01 |
| 3 | 9.986E-01 | -3.706E-02 | 3.69E-01 | 2.964E+01 | 3.160E+01 | 5.008E-04 | 1.516E-02 | 2.76E+01 | 4.124E-01 | 1.054E+00 | 6.835E-01 | -6.160E+01 | 1.910E-01 |
| 4 | 9.976E-01 | -6.578E-02 | 4.92E-01 | 2.962E+01 | 3.158E+01 | 5.013E-04 | 1.518E-02 | 3.37E+01 | 4.585E-01 | 1.067E+00 | 6.522E-01 | -4.260E+01 | 2.546E-01 |
| 5 | 9.962E-01 | -1.027E-01 | 6.16E-01 | 2.960E+01 | 3.156E+01 | 5.020E-04 | 1.520E-02 | 3.84E+01 | 5.123E-01 | 1.082E+00 | 6.171E-01 | -2.848E+01 | 3.181E-01 |
| 6 | 9.945E-01 | -1.478E-01 | 7.39E-01 | 2.958E+01 | 3.154E+01 | 5.028E-04 | 1.522E-02 | 4.18E+01 | 5.721E-01 | 1.102E+00 | 5.799E-01 | -1.864E+01 | 3.815E-01 |
| 7 | 9.925E-01 | -2.011E-01 | 8.62E-01 | 2.955E+01 | 3.151E+01 | 5.038E-04 | 1.525E-02 | 4.43E+01 | 6.368E-01 | 1.125E+00 | 5.420E-01 | -1.198E+01 | 4.448E-01 |
| 8 | 9.903E-01 | -2.625E-01 | 9.86E-01 | 2.951E+01 | 3.147E+01 | 5.049E-04 | 1.529E-02 | 4.61E+01 | 7.054E-01 | 1.151E+00 | 5.043E-01 | -7.499E+00 | 5.079E-01 |
| 9 | 9.877E-01 | -3.320E-01 | 1.11E+00 | 2.948E+01 | 3.143E+01 | 5.062E-04 | 1.532E-02 | 4.73E+01 | 7.774E-01 | 1.181E+00 | 4.676E-01 | -4.492E+00 | 5.709E-01 |
| 10 | 9.848E-01 | -4.097E-01 | 1.23E+00 | 2.944E+01 | 3.139E+01 | 5.076E-04 | 1.537E-02 | 4.80E+01 | 8.526E-01 | 1.215E+00 | 4.322E-01 | -2.467E+00 | 6.337E-01 |
| 15 | 9.659E-01 | -9.187E-01 | 1.86E+00 | 2.917E+01 | 3.110E+01 | 5.171E-04 | 1.565E-02 | 4.80E+01 | 1.271E+00 | 1.434E+00 | 2.831E-01 | 1.113E+00 | 9.446E-01 |
| 20 | 9.397E-01 | -1.626E+00 | 2.49E+00 | 2.879E+01 | 3.070E+01 | 5.307E-04 | 1.606E-02 | 4.52E+01 | 1.759E+00 | 1.739E+00 | 1.818E-01 | 1.394E+00 | 1.248E+00 |
| 25 | 9.063E-01 | -2.526E+00 | 3.12E+00 | 2.831E+01 | 3.019E+01 | 5.488E-04 | 1.660E-02 | 4.17E+01 | 2.321E+00 | 2.127E+00 | 1.174E-01 | 1.147E+00 | 1.542E+00 |
| 30 | 8.660E-01 | -3.612E+00 | 3.77E+00 | 2.773E+01 | 2.957E+01 | 5.720E-04 | 1.728E-02 | 3.81E+01 | 2.960E+00 | 2.595E+00 | 7.721E-02 | 8.660E-01 | 1.825E+00 |
| 35 | 8.192E-01 | -4.875E+00 | 4.44E+00 | 2.706E+01 | 2.885E+01 | 6.008E-04 | 1.814E-02 | 3.47E+01 | 3.679E+00 | 3.140E+00 | 5.206E-02 | 6.412E-01 | 2.093E+00 |
| 40 | 7.660E-01 | -6.307E+00 | 5.12E+00 | 2.629E+01 | 2.804E+01 | 6.361E-04 | 1.919E-02 | 3.16E+01 | 4.477E+00 | 3.757E+00 | 3.606E-02 | 4.755E-01 | 2.346E+00 |
| 45 | 7.071E-01 | -7.896E+00 | 5.82E+00 | 2.544E+01 | 2.714E+01 | 6.792E-04 | 2.046E-02 | 2.88E+01 | 5.350E+00 | 4.442E+00 | 2.566E-02 | 3.564E-01 | 2.581E+00 |
| 50 | 6.428E-01 | -9.630E+00 | 6.55E+00 | 2.452E+01 | 2.615E+01 | 7.313E-04 | 2.200E-02 | 2.64E+01 | 6.295E+00 | 5.190E+00 | 1.874E-02 | 2.709E-01 | 2.796E+00 |
| 55 | 5.736E-01 | -1.150E+01 | 7.30E+00 | 2.353E+01 | 2.509E+01 | 7.944E-04 | 2.387E-02 | 2.42E+01 | 7.305E+00 | 5.994E+00 | 1.401E-02 | 2.092E-01 | 2.989E+00 |
| 60 | 5.000E-01 | -1.348E+01 | 8.09E+00 | 2.247E+01 | 2.397E+01 | 8.709E-04 | 2.612E-02 | 2.22E+01 | 8.375E+00 | 6.850E+00 | 1.071E-02 | 1.641E-01 | 3.161E+00 |
| 65 | 4.226E-01 | -1.556E+01 | 8.91E+00 | 2.135E+01 | 2.278E+01 | 9.638E-04 | 2.885E-02 | 2.04E+01 | 9.498E+00 | 7.749E+00 | 8.362E-03 | 1.308E-01 | 3.308E+00 |
| 70 | 3.420E-01 | -1.774E+01 | 9.78E+00 | 2.020E+01 | 2.155E+01 | 1.077E-03 | 3.217E-02 | 1.88E+01 | 1.066E+01 | 8.686E+00 | 6.650E-03 | 1.058E-01 | 3.429E+00 |
| 75 | 2.588E-01 | -1.998E+01 | 1.07E+01 | 1.900E+01 | 2.027E+01 | 1.217E-03 | 3.624E-02 | 1.73E+01 | 1.187E+01 | 9.653E+00 | 5.381E-03 | 8.685E-02 | 3.525E+00 |
| 80 | 1.736E-01 | -2.228E+01 | 1.17E+01 | 1.777E+01 | 1.897E+01 | 1.390E-03 | 4.127E-02 | 1.59E+01 | 1.310E+01 | 1.064E+01 | 4.424E-03 | 7.227E-02 | 3.594E+00 |
| 85 | 8.716E-02 | -2.461E+01 | 1.27E+01 | 1.653E+01 | 1.765E+01 | 1.607E-03 | 4.752E-02 | 1.47E+01 | 1.436E+01 | 1.165E+01 | 3.692E-03 | 6.093E-02 | 3.636E+00 |
| 90 | 0. | -2.696E+01 | 1.38E+01 | 1.528E+01 | 1.631E+01 | 1.881E-03 | 5.539E-02 | 1.35E+01 | 1.560E+01 | 1.266E+01 | 3.124E-03 | 5.200E-02 | 3.649E+00 |
| 95 | -8.716E-02 | -2.931E+01 | 1.50E+01 | 1.402E+01 | 1.498E+01 | 2.232E-03 | 6.538E-02 | 1.25E+01 | 1.686E+01 | 1.367E+01 | 2.678E-03 | 4.490E-02 | 3.636E+00 |
| 100 | -1.736E-01 | -3.164E+01 | 1.63E+01 | 1.277E+01 | 1.365E+01 | 2.686E-03 | 7.823E-02 | 1.15E+01 | 1.810E+01 | 1.468E+01 | 2.323E-03 | 3.920E-02 | 3.594E+00 |
| 105 | -2.588E-01 | -3.393E+01 | 1.78E+01 | 1.155E+01 | 1.235E+01 | 3.285E-03 | 9.499E-02 | 1.05E+01 | 1.933E+01 | 1.567E+01 | 2.039E-03 | 3.458E-02 | 3.525E+00 |
| 110 | -3.420E-01 | -3.618E+01 | 1.94E+01 | 1.035E+01 | 1.107E+01 | 4.085E-03 | 1.172E-01 | 9.62E+00 | 2.053E+01 | 1.664E+01 | 1.808E-03 | 3.082E-02 | 3.429E+00 |
| 115 | -4.226E-01 | -3.835E+01 | 2.11E+01 | 9.185E+00 | 9.840E+00 | 5.177E-03 | 1.470E-01 | 8.77E+00 | 2.168E+01 | 1.757E+01 | 1.620E-03 | 2.773E-02 | 3.308E+00 |
| 120 | -5.000E-01 | -4.044E+01 | 2.31E+01 | 8.067E+00 | 8.656E+00 | 6.696E-03 | 1.879E-01 | 7.97E+00 | 2.280E+01 | 1.847E+01 | 1.466E-03 | 2.518E-02 | 3.161E+00 |
| 125 | -5.736E-01 | -4.242E+01 | 2.53E+01 | 7.002E+00 | 7.529E+00 | 8.860E-03 | 2.450E-01 | 7.20E+00 | 2.386E+01 | 1.933E+01 | 1.339E-03 | 2.307E-02 | 2.989E+00 |
| 130 | -6.428E-01 | -4.429E+01 | 2.78E+01 | 5.997E+00 | 6.469E+00 | 1.202E-02 | 3.265E-01 | 6.46E+00 | 2.485E+01 | 2.013E+01 | 1.234E-03 | 2.132E-02 | 2.796E+00 |
| 135 | -7.071E-01 | -4.602E+01 | 3.07E+01 | 5.060E+00 | 5.485E+00 | 1.676E-02 | 4.456E-01 | 5.75E+00 | 2.578E+01 | 2.088E+01 | 1.148E-03 | 1.986E-02 | 2.581E+00 |
| 140 | -7.660E-01 | -4.761E+01 | 3.40E+01 | 4.196E+00 | 4.582E+00 | 2.410E-02 | 6.238E-01 | 5.05E+00 | 2.663E+01 | 2.156E+01 | 1.076E-03 | 1.866E-02 | 2.346E+00 |
| 145 | -8.192E-01 | -4.904E+01 | 3.79E+01 | 3.410E+00 | 3.769E+00 | 3.584E-02 | 8.977E-01 | 4.38E+00 | 2.739E+01 | 2.218E+01 | 1.017E-03 | 1.766E-02 | 2.093E+00 |
| 150 | -8.660E-01 | -5.030E+01 | 4.24E+01 | 2.705E+00 | 3.051E+00 | 5.523E-02 | 1.330E+00 | 3.73E+00 | 2.806E+01 | 2.273E+01 | 9.685E-04 | 1.685E-02 | 1.825E+00 |
| 155 | -9.063E-01 | -5.139E+01 | 4.78E+01 | 2.083E+00 | 2.435E+00 | 8.825E-02 | 2.033E+00 | 3.09E+00 | 2.864E+01 | 2.319E+01 | 9.298E-04 | 1.619E-02 | 1.542E+00 |
| 160 | -9.397E-01 | -5.229E+01 | 5.41E+01 | 1.542E+00 | 1.923E+00 | 1.458E-01 | 3.212E+00 | 2.46E+00 | 2.912E+01 | 2.358E+01 | 8.995E-04 | 1.568E-02 | 1.248E+00 |
| 165 | -9.659E-01 | -5.300E+01 | 6.14E+01 | 1.076E+00 | 1.522E+00 | 2.462E-01 | 5.284E+00 | 1.83E+00 | 2.950E+01 | 2.389E+01 | 8.766E-04 | 1.529E-02 | 9.446E-01 |
| 170 | -9.848E-01 | -5.351E+01 | 6.96E+01 | 6.763E-01 | 1.233E+00 | 4.153E-01 | 9.237E+00 | 1.22E+00 | 2.977E+01 | 2.411E+01 | 8.607E-04 | 1.502E-02 | 6.337E-01 |
| 175 | -9.962E-01 | -5.381E+01 | 7.81E+01 | 3.251E-01 | 1.058E+00 | 6.726E-01 | 1.767E+01 | 6.09E-01 | 2.993E+01 | 2.424E+01 | 8.514E-04 | 1.486E-02 | 3.181E-01 |
| 180 | -1.000E+00 | -5.391E+01 | 0. | 1.085E-02 | 1.000E+00 | 9.884E-01 | -1.130E+05 | 0. | 2.999E+01 | 2.428E+01 | 8.483E-04 | 1.481E-02 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + DELTA(1236) (4) AT 40 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 1.23600E+00
P2CM= 4.28138E+00 P3CM= 4.24357E+00
E1CM= 4.38298E+00 E2CM= 4.38298E+00 E3CM= 4.34605E+00 E4CM= 4.41990E+00

1-V1LAB = 2.750E-04 1-VCM = 2.318E-02 GCM = 4.67140E+00 ETCM= 8.76596E+00 S = 7.68420E+01 -U=( 7.26734E+01) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -6.606E-05 | 0. | 3.965E+01 | 4.228E+01 | 2.798E-04 | 1.145E-02 | 0. | 3.451E-01 | 1.038E+00 | 7.311E-01 | -1.512E+02 | 0. |
| 1 | 9.998E-01 | -5.600E-03 | 1.07E-01 | 3.965E+01 | 4.227E+01 | 2.798E-04 | 1.145E-02 | 1.20E+01 | 3.559E-01 | 1.041E+00 | 7.233E-01 | -1.366E+02 | 7.406E-02 |
| 2 | 9.994E-01 | -2.220E-02 | 2.14E-01 | 3.964E+01 | 4.226E+01 | 2.800E-04 | 1.146E-02 | 2.25E+01 | 3.867E-01 | 1.048E+00 | 7.014E-01 | -1.037E+02 | 1.481E-01 |
| 3 | 9.986E-01 | -4.986E-02 | 3.21E-01 | 3.963E+01 | 4.225E+01 | 2.802E-04 | 1.147E-02 | 3.08E+01 | 4.335E-01 | 1.060E+00 | 6.690E-01 | -7.018E+01 | 2.221E-01 |
| 4 | 9.976E-01 | -8.858E-02 | 4.28E-01 | 3.961E+01 | 4.223E+01 | 2.805E-04 | 1.148E-02 | 3.70E+01 | 4.923E-01 | 1.076E+00 | 6.299E-01 | -4.466E+01 | 2.960E-01 |
| 5 | 9.962E-01 | -1.383E-01 | 5.35E-01 | 3.958E+01 | 4.220E+01 | 2.808E-04 | 1.149E-02 | 4.13E+01 | 5.600E-01 | 1.098E+00 | 5.873E-01 | -2.751E+01 | 3.699E-01 |
| 6 | 9.945E-01 | -1.991E-01 | 6.43E-01 | 3.955E+01 | 4.216E+01 | 2.813E-04 | 1.151E-02 | 4.44E+01 | 6.345E-01 | 1.124E+00 | 5.433E-01 | -1.654E+01 | 4.436E-01 |
| 7 | 9.925E-01 | -2.709E-01 | 7.50E-01 | 3.951E+01 | 4.212E+01 | 2.818E-04 | 1.153E-02 | 4.64E+01 | 7.144E-01 | 1.155E+00 | 4.996E-01 | -9.620E+00 | 5.172E-01 |
| 8 | 9.903E-01 | -3.537E-01 | 8.57E-01 | 3.947E+01 | 4.208E+01 | 2.825E-04 | 1.156E-02 | 4.77E+01 | 7.989E-01 | 1.191E+00 | 4.572E-01 | -5.256E+00 | 5.906E-01 |
| 9 | 9.877E-01 | -4.474E-01 | 9.65E-01 | 3.942E+01 | 4.202E+01 | 2.832E-04 | 1.159E-02 | 4.84E+01 | 8.876E-01 | 1.231E+00 | 4.167E-01 | -2.493E+00 | 6.638E-01 |
| 10 | 9.848E-01 | -5.521E-01 | 1.07E+00 | 3.936E+01 | 4.196E+01 | 2.840E-04 | 1.162E-02 | 4.87E+01 | 9.801E-01 | 1.276E+00 | 3.787E-01 | -7.403E-01 | 7.369E-01 |
| 15 | 9.659E-01 | -1.238E+00 | 1.61E+00 | 3.899E+01 | 4.157E+01 | 2.893E-04 | 1.184E-02 | 4.71E+01 | 1.499E+00 | 1.572E+00 | 2.284E-01 | 1.828E+00 | 1.098E+00 |
| 20 | 9.397E-01 | -2.191E+00 | 2.16E+00 | 3.849E+01 | 4.103E+01 | 2.970E-04 | 1.215E-02 | 4.33E+01 | 2.117E+00 | 1.983E+00 | 1.365E-01 | 1.654E+00 | 1.451E+00 |
| 25 | 9.063E-01 | -3.405E+00 | 2.72E+00 | 3.784E+01 | 4.034E+01 | 3.073E-04 | 1.256E-02 | 3.92E+01 | 2.840E+00 | 2.506E+00 | 8.306E-02 | 1.214E+00 | 1.793E+00 |
| 30 | 8.660E-01 | -4.868E+00 | 3.28E+00 | 3.706E+01 | 3.951E+01 | 3.203E-04 | 1.309E-02 | 3.53E+01 | 3.675E+00 | 3.137E+00 | 5.216E-02 | 8.550E-01 | 2.122E+00 |
| 35 | 8.192E-01 | -6.571E+00 | 3.86E+00 | 3.615E+01 | 3.854E+01 | 3.366E-04 | 1.375E-02 | 3.18E+01 | 4.623E+00 | 3.872E+00 | 3.393E-02 | 6.020E-01 | 2.434E+00 |
| 40 | 7.660E-01 | -8.501E+00 | 4.45E+00 | 3.512E+01 | 3.745E+01 | 3.566E-04 | 1.455E-02 | 2.87E+01 | 5.681E+00 | 4.704E+00 | 2.286E-02 | 4.296E-01 | 2.728E+00 |
| 45 | 7.071E-01 | -1.064E+01 | 5.07E+00 | 3.398E+01 | 3.623E+01 | 3.810E-04 | 1.553E-02 | 2.60E+01 | 6.844E+00 | 5.627E+00 | 1.592E-02 | 3.124E-01 | 3.001E+00 |
| 50 | 6.428E-01 | -1.298E+01 | 5.70E+00 | 3.274E+01 | 3.490E+01 | 4.105E-04 | 1.672E-02 | 2.36E+01 | 8.107E+00 | 6.635E+00 | 1.142E-02 | 2.319E-01 | 3.251E+00 |
| 55 | 5.736E-01 | -1.549E+01 | 6.36E+00 | 3.139E+01 | 3.348E+01 | 4.463E-04 | 1.816E-02 | 2.16E+01 | 9.460E+00 | 7.719E+00 | 8.428E-03 | 1.756E-01 | 3.476E+00 |
| 60 | 5.000E-01 | -1.817E+01 | 7.04E+00 | 2.997E+01 | 3.196E+01 | 4.897E-04 | 1.990E-02 | 1.97E+01 | 1.090E+01 | 8.872E+00 | 6.373E-03 | 1.356E-01 | 3.675E+00 |
| 65 | 4.226E-01 | -2.098E+01 | 7.76E+00 | 2.847E+01 | 3.036E+01 | 5.426E-04 | 2.201E-02 | 1.81E+01 | 1.240E+01 | 1.008E+01 | 4.929E-03 | 1.067E-01 | 3.846E+00 |
| 70 | 3.420E-01 | -2.391E+01 | 8.52E+00 | 2.691E+01 | 2.870E+01 | 6.073E-04 | 2.459E-02 | 1.66E+01 | 1.397E+01 | 1.135E+01 | 3.891E-03 | 8.538E-02 | 3.988E+00 |
| 75 | 2.588E-01 | -2.693E+01 | 9.33E+00 | 2.530E+01 | 2.698E+01 | 6.871E-04 | 2.776E-02 | 1.52E+01 | 1.559E+01 | 1.265E+01 | 3.129E-03 | 6.945E-02 | 4.099E+00 |
| 80 | 1.736E-01 | -3.003E+01 | 1.02E+01 | 2.365E+01 | 2.522E+01 | 7.863E-04 | 3.169E-02 | 1.40E+01 | 1.724E+01 | 1.398E+01 | 2.560E-03 | 5.736E-02 | 4.179E+00 |
| 85 | 8.716E-02 | -3.317E+01 | 1.11E+01 | 2.197E+01 | 2.344E+01 | 9.107E-04 | 3.660E-02 | 1.29E+01 | 1.892E+01 | 1.534E+01 | 2.127E-03 | 4.804E-02 | 4.227E+00 |
| 90 | 0. | -3.634E+01 | 1.21E+01 | 2.028E+01 | 2.164E+01 | 1.068E-03 | 4.280E-02 | 1.19E+01 | 2.061E+01 | 1.670E+01 | 1.793E-03 | 4.078E-02 | 4.244E+00 |
| 95 | -8.716E-02 | -3.950E+01 | 1.31E+01 | 1.859E+01 | 1.984E+01 | 1.271E-03 | 5.071E-02 | 1.09E+01 | 2.230E+01 | 1.807E+01 | 1.532E-03 | 3.504E-02 | 4.227E+00 |
| 100 | -1.736E-01 | -4.265E+01 | 1.43E+01 | 1.691E+01 | 1.805E+01 | 1.535E-03 | 6.096E-02 | 1.00E+01 | 2.398E+01 | 1.943E+01 | 1.326E-03 | 3.047E-02 | 4.179E+00 |
| 105 | -2.588E-01 | -4.574E+01 | 1.56E+01 | 1.526E+01 | 1.630E+01 | 1.884E-03 | 7.442E-02 | 9.20E+00 | 2.563E+01 | 2.076E+01 | 1.161E-03 | 2.679E-02 | 4.099E+00 |
| 110 | -3.420E-01 | -4.876E+01 | 1.70E+01 | 1.365E+01 | 1.458E+01 | 2.355E-03 | 9.239E-02 | 8.42E+00 | 2.724E+01 | 2.206E+01 | 1.028E-03 | 2.380E-02 | 3.988E+00 |
| 115 | -4.226E-01 | -5.169E+01 | 1.86E+01 | 1.208E+01 | 1.292E+01 | 3.002E-03 | 1.168E-01 | 7.67E+00 | 2.880E+01 | 2.333E+01 | 9.194E-04 | 2.136E-02 | 3.846E+00 |
| 120 | -5.000E-01 | -5.450E+01 | 2.03E+01 | 1.058E+01 | 1.132E+01 | 3.910E-03 | 1.507E-01 | 6.97E+00 | 3.030E+01 | 2.454E+01 | 8.307E-04 | 1.935E-02 | 3.675E+00 |
| 125 | -5.736E-01 | -5.718E+01 | 2.23E+01 | 9.148E+00 | 9.801E+00 | 5.219E-03 | 1.988E-01 | 6.29E+00 | 3.173E+01 | 2.569E+01 | 7.578E-04 | 1.770E-02 | 3.476E+00 |
| 130 | -6.428E-01 | -5.969E+01 | 2.46E+01 | 7.799E+00 | 8.372E+00 | 7.159E-03 | 2.686E-01 | 5.64E+00 | 3.307E+01 | 2.678E+01 | 6.977E-04 | 1.632E-02 | 3.251E+00 |
| 135 | -7.071E-01 | -6.203E+01 | 2.73E+01 | 6.543E+00 | 7.045E+00 | 1.013E-02 | 3.729E-01 | 5.02E+00 | 3.432E+01 | 2.778E+01 | 6.480E-04 | 1.519E-02 | 3.001E+00 |
| 140 | -7.660E-01 | -6.417E+01 | 3.04E+01 | 5.387E+00 | 5.828E+00 | 1.483E-02 | 5.334E-01 | 4.41E+00 | 3.546E+01 | 2.871E+01 | 6.070E-04 | 1.425E-02 | 2.728E+00 |
| 145 | -8.192E-01 | -6.610E+01 | 3.41E+01 | 4.340E+00 | 4.732E+00 | 2.258E-02 | 7.883E-01 | 3.82E+00 | 3.649E+01 | 2.954E+01 | 5.732E-04 | 1.347E-02 | 2.434E+00 |
| 150 | -8.660E-01 | -6.781E+01 | 3.85E+01 | 3.406E+00 | 3.765E+00 | 3.592E-02 | 1.208E+00 | 3.25E+00 | 3.740E+01 | 3.027E+01 | 5.458E-04 | 1.284E-02 | 2.122E+00 |
| 155 | -9.063E-01 | -6.927E+01 | 4.39E+01 | 2.588E+00 | 2.934E+00 | 5.989E-02 | 1.923E+00 | 2.69E+00 | 3.818E+01 | 3.090E+01 | 5.237E-04 | 1.233E-02 | 1.793E+00 |
| 160 | -9.397E-01 | -7.048E+01 | 5.03E+01 | 1.886E+00 | 2.245E+00 | 1.047E-01 | 3.191E+00 | 2.14E+00 | 3.882E+01 | 3.143E+01 | 5.064E-04 | 1.193E-02 | 1.451E+00 |
| 165 | -9.659E-01 | -7.144E+01 | 5.81E+01 | 1.294E+00 | 1.703E+00 | 1.905E-01 | 5.553E+00 | 1.60E+00 | 3.933E+01 | 3.184E+01 | 4.934E-04 | 1.163E-02 | 1.098E+00 |
| 170 | -9.848E-01 | -7.212E+01 | 6.72E+01 | 7.992E-01 | 1.314E+00 | 3.516E-01 | 1.034E+01 | 1.06E+00 | 3.970E+01 | 3.213E+01 | 4.844E-04 | 1.142E-02 | 7.369E-01 |
| 175 | -9.962E-01 | -7.254E+01 | 7.73E+01 | 3.792E-01 | 1.079E+00 | 6.253E-01 | 2.224E+01 | 5.31E-01 | 3.992E+01 | 3.231E+01 | 4.790E-04 | 1.130E-02 | 3.699E-01 |
| 180 | -1.000E+00 | -7.267E+01 | 0. | 8.128E-03 | 1.000E+00 | 9.913E-01 | -2.726E+05 | 0. | 3.999E+01 | 3.237E+01 | 4.773E-04 | 1.126E-02 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + DELTA(1236) (4) AT 50 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 1.23600E+00
P2CM= 4.79796E+00 P3CM= 4.76423E+00
E1CM= 4.88884E+00 E2CM= 4.88884E+00 E3CM= 4.85574E+00 E4CM= 4.92195E+00

1-V1LAB = 1.760E-04 1-VCM = 1.859E-02 GCM = 5.21055E+00 ETCM= 9.77768E+00 S = 9.56031E+01 -U=( 9.14344E+01) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -4.220E-05 | 0. | 4.965E+01 | 5.293E+01 | 1.785E-04 | 9.206E-03 | 0. | 3.451E-01 | 1.038E+00 | 7.311E-01 | -1.906E+02 | 0. |
| 1 | 9.998E-01 | -7.005E-03 | 9.59E-02 | 4.965E+01 | 5.293E+01 | 1.785E-04 | 9.207E-03 | 1.34E+01 | 3.586E-01 | 1.041E+00 | 7.213E-01 | -1.679E+02 | 8.315E-02 |
| 2 | 9.994E-01 | -2.789E-02 | 1.92E-01 | 4.964E+01 | 5.292E+01 | 1.786E-04 | 9.211E-03 | 2.48E+01 | 3.967E-01 | 1.050E+00 | 6.944E-01 | -1.199E+02 | 1.663E-01 |
| 3 | 9.986E-01 | -6.270E-02 | 2.88E-01 | 4.962E+01 | 5.290E+01 | 1.787E-04 | 9.218E-03 | 3.33E+01 | 4.537E-01 | 1.065E+00 | 6.554E-01 | -7.546E+01 | 2.493E-01 |
| 4 | 9.976E-01 | -1.114E-01 | 3.84E-01 | 4.960E+01 | 5.287E+01 | 1.789E-04 | 9.228E-03 | 3.93E+01 | 5.243E-01 | 1.086E+00 | 6.095E-01 | -4.468E+01 | 3.323E-01 |
| 5 | 9.962E-01 | -1.740E-01 | 4.80E-01 | 4.956E+01 | 5.283E+01 | 1.791E-04 | 9.240E-03 | 4.34E+01 | 6.047E-01 | 1.113E+00 | 5.606E-01 | -2.560E+01 | 4.152E-01 |
| 6 | 9.945E-01 | -2.505E-01 | 5.76E-01 | 4.952E+01 | 5.279E+01 | 1.794E-04 | 9.255E-03 | 4.60E+01 | 6.924E-01 | 1.146E+00 | 5.113E-01 | -1.417E+01 | 4.980E-01 |
| 7 | 9.925E-01 | -3.408E-01 | 6.72E-01 | 4.947E+01 | 5.274E+01 | 1.798E-04 | 9.273E-03 | 4.76E+01 | 7.862E-01 | 1.185E+00 | 4.633E-01 | -7.354E+00 | 5.806E-01 |
| 8 | 9.903E-01 | -4.450E-01 | 7.69E-01 | 4.942E+01 | 5.268E+01 | 1.802E-04 | 9.293E-03 | 4.85E+01 | 8.853E-01 | 1.230E+00 | 4.177E-01 | -3.275E+00 | 6.631E-01 |
| 9 | 9.877E-01 | -5.629E-01 | 8.65E-01 | 4.935E+01 | 5.261E+01 | 1.806E-04 | 9.317E-03 | 4.89E+01 | 9.894E-01 | 1.281E+00 | 3.751E-01 | -8.248E-01 | 7.453E-01 |
| 10 | 9.848E-01 | -6.946E-01 | 9.62E-01 | 4.928E+01 | 5.254E+01 | 1.812E-04 | 9.343E-03 | 4.89E+01 | 1.098E+00 | 1.338E+00 | 3.358E-01 | 6.395E-01 | 8.273E-01 |
| 15 | 9.659E-01 | -1.558E+00 | 1.45E+00 | 4.882E+01 | 5.205E+01 | 1.846E-04 | 9.518E-03 | 4.60E+01 | 1.714E+00 | 1.710E+00 | 1.889E-01 | 2.309E+00 | 1.233E+00 |
| 20 | 9.397E-01 | -2.757E+00 | 1.94E+00 | 4.819E+01 | 5.137E+01 | 1.895E-04 | 9.770E-03 | 4.15E+01 | 2.459E+00 | 2.227E+00 | 1.065E-01 | 1.789E+00 | 1.629E+00 |
| 25 | 9.063E-01 | -4.283E+00 | 2.44E+00 | 4.737E+01 | 5.050E+01 | 1.961E-04 | 1.011E-02 | 3.70E+01 | 3.345E+00 | 2.885E+00 | 6.199E-02 | 1.221E+00 | 2.013E+00 |
| 30 | 8.660E-01 | -6.125E+00 | 2.94E+00 | 4.639E+01 | 4.945E+01 | 2.045E-04 | 1.053E-02 | 3.30E+01 | 4.376E+00 | 3.679E+00 | 3.765E-02 | 8.199E-01 | 2.382E+00 |
| 35 | 8.192E-01 | -8.268E+00 | 3.46E+00 | 4.525E+01 | 4.824E+01 | 2.149E-04 | 1.107E-02 | 2.95E+01 | 5.553E+00 | 4.603E+00 | 2.388E-02 | 5.575E-01 | 2.733E+00 |
| 40 | 7.660E-01 | -1.070E+01 | 4.00E+00 | 4.395E+01 | 4.686E+01 | 2.278E-04 | 1.172E-02 | 2.65E+01 | 6.873E+00 | 5.650E+00 | 1.579E-02 | 3.876E-01 | 3.062E+00 |
| 45 | 7.071E-01 | -1.339E+01 | 4.54E+00 | 4.252E+01 | 4.533E+01 | 2.434E-04 | 1.252E-02 | 2.39E+01 | 8.328E+00 | 6.811E+00 | 1.084E-02 | 2.762E-01 | 3.369E+00 |
| 50 | 6.428E-01 | -1.633E+01 | 5.11E+00 | 4.095E+01 | 4.366E+01 | 2.624E-04 | 1.348E-02 | 2.16E+01 | 9.909E+00 | 8.079E+00 | 7.690E-03 | 2.017E-01 | 3.650E+00 |
| 55 | 5.736E-01 | -1.949E+01 | 5.70E+00 | 3.926E+01 | 4.186E+01 | 2.854E-04 | 1.465E-02 | 1.96E+01 | 1.161E+01 | 9.443E+00 | 5.623E-03 | 1.508E-01 | 3.903E+00 |
| 60 | 5.000E-01 | -2.286E+01 | 6.32E+00 | 3.747E+01 | 3.995E+01 | 3.133E-04 | 1.607E-02 | 1.79E+01 | 1.341E+01 | 1.089E+01 | 4.222E-03 | 1.153E-01 | 4.126E+00 |
| 65 | 4.226E-01 | -2.640E+01 | 6.97E+00 | 3.558E+01 | 3.794E+01 | 3.474E-04 | 1.779E-02 | 1.64E+01 | 1.530E+01 | 1.242E+01 | 3.247E-03 | 8.991E-02 | 4.318E+00 |
| 70 | 3.420E-01 | -3.008E+01 | 7.65E+00 | 3.362E+01 | 3.585E+01 | 3.892E-04 | 1.990E-02 | 1.50E+01 | 1.727E+01 | 1.401E+01 | 2.551E-03 | 7.147E-02 | 4.477E+00 |
| 75 | 2.588E-01 | -3.388E+01 | 8.38E+00 | 3.159E+01 | 3.369E+01 | 4.407E-04 | 2.250E-02 | 1.38E+01 | 1.930E+01 | 1.565E+01 | 2.044E-03 | 5.780E-02 | 4.602E+00 |
| 80 | 1.736E-01 | -3.778E+01 | 9.15E+00 | 2.952E+01 | 3.147E+01 | 5.048E-04 | 2.572E-02 | 1.27E+01 | 2.138E+01 | 1.733E+01 | 1.667E-03 | 4.751E-02 | 4.692E+00 |
| 85 | 8.716E-02 | -4.173E+01 | 9.97E+00 | 2.741E+01 | 2.923E+01 | 5.854E-04 | 2.975E-02 | 1.17E+01 | 2.349E+01 | 1.903E+01 | 1.381E-03 | 3.963E-02 | 4.746E+00 |
| 90 | 0. | -4.572E+01 | 1.09E+01 | 2.528E+01 | 2.697E+01 | 6.878E-04 | 3.486E-02 | 1.07E+01 | 2.562E+01 | 2.075E+01 | 1.162E-03 | 3.352E-02 | 4.764E+00 |
| 95 | -8.716E-02 | -4.970E+01 | 1.18E+01 | 2.316E+01 | 2.470E+01 | 8.197E-04 | 4.141E-02 | 9.85E+00 | 2.774E+01 | 2.247E+01 | 9.910E-04 | 2.872E-02 | 4.746E+00 |
| 100 | -1.736E-01 | -5.366E+01 | 1.29E+01 | 2.105E+01 | 2.246E+01 | 9.919E-04 | 4.992E-02 | 9.04E+00 | 2.985E+01 | 2.417E+01 | 8.561E-04 | 2.491E-02 | 4.692E+00 |
| 105 | -2.588E-01 | -5.755E+01 | 1.40E+01 | 1.897E+01 | 2.025E+01 | 1.221E-03 | 6.115E-02 | 8.29E+00 | 3.193E+01 | 2.585E+01 | 7.485E-04 | 2.186E-02 | 4.602E+00 |
| 110 | -3.420E-01 | -6.135E+01 | 1.53E+01 | 1.694E+01 | 1.809E+01 | 1.530E-03 | 7.622E-02 | 7.58E+00 | 3.396E+01 | 2.749E+01 | 6.618E-04 | 1.938E-02 | 4.477E+00 |
| 115 | -4.226E-01 | -6.504E+01 | 1.68E+01 | 1.498E+01 | 1.599E+01 | 1.957E-03 | 9.685E-02 | 6.90E+00 | 3.592E+01 | 2.908E+01 | 5.915E-04 | 1.737E-02 | 4.318E+00 |
| 120 | -5.000E-01 | -6.858E+01 | 1.84E+01 | 1.309E+01 | 1.398E+01 | 2.561E-03 | 1.257E-01 | 6.27E+00 | 3.781E+01 | 3.060E+01 | 5.340E-04 | 1.571E-02 | 4.126E+00 |
| 125 | -5.736E-01 | -7.194E+01 | 2.02E+01 | 1.129E+01 | 1.207E+01 | 3.437E-03 | 1.670E-01 | 5.66E+00 | 3.960E+01 | 3.205E+01 | 4.867E-04 | 1.435E-02 | 3.903E+00 |
| 130 | -6.428E-01 | -7.510E+01 | 2.24E+01 | 9.595E+00 | 1.028E+01 | 4.747E-03 | 2.277E-01 | 5.07E+00 | 4.129E+01 | 3.342E+01 | 4.478E-04 | 1.322E-02 | 3.650E+00 |
| 135 | -7.071E-01 | -7.804E+01 | 2.48E+01 | 8.019E+00 | 8.605E+00 | 6.775E-03 | 3.198E-01 | 4.51E+00 | 4.286E+01 | 3.469E+01 | 4.156E-04 | 1.229E-02 | 3.369E+00 |
| 140 | -7.660E-01 | -8.074E+01 | 2.78E+01 | 6.571E+00 | 7.075E+00 | 1.004E-02 | 4.641E-01 | 3.96E+00 | 4.429E+01 | 3.585E+01 | 3.891E-04 | 1.152E-02 | 3.062E+00 |
| 145 | -8.192E-01 | -8.317E+01 | 3.13E+01 | 5.261E+00 | 5.696E+00 | 1.553E-02 | 6.989E-01 | 3.44E+00 | 4.559E+01 | 3.690E+01 | 3.674E-04 | 1.089E-02 | 2.733E+00 |
| 150 | -8.660E-01 | -8.531E+01 | 3.56E+01 | 4.096E+00 | 4.479E+00 | 2.524E-02 | 1.096E+00 | 2.92E+00 | 4.673E+01 | 3.782E+01 | 3.496E-04 | 1.037E-02 | 2.382E+00 |
| 155 | -9.063E-01 | -8.715E+01 | 4.08E+01 | 3.081E+00 | 3.433E+00 | 4.337E-02 | 1.800E+00 | 2.42E+00 | 4.771E+01 | 3.861E+01 | 3.354E-04 | 9.956E-03 | 2.013E+00 |
| 160 | -9.397E-01 | -8.868E+01 | 4.73E+01 | 2.217E+00 | 2.566E+00 | 7.907E-02 | 3.105E+00 | 1.92E+00 | 4.852E+01 | 3.927E+01 | 3.243E-04 | 9.630E-03 | 1.629E+00 |
| 165 | -9.659E-01 | -8.988E+01 | 5.53E+01 | 1.499E+00 | 1.885E+00 | 1.524E-01 | 5.658E+00 | 1.44E+00 | 4.916E+01 | 3.979E+01 | 3.159E-04 | 9.386E-03 | 1.233E+00 |
| 170 | -9.848E-01 | -9.074E+01 | 6.51E+01 | 9.119E-01 | 1.395E+00 | 3.030E-01 | 1.110E+01 | 9.55E-01 | 4.962E+01 | 4.016E+01 | 3.101E-04 | 9.215E-03 | 8.273E-01 |
| 175 | -9.962E-01 | -9.126E+01 | 7.63E+01 | 4.273E-01 | 1.099E+00 | 5.855E-01 | 2.559E+01 | 4.77E-01 | 4.990E+01 | 4.039E+01 | 3.066E-04 | 9.115E-03 | 4.152E-01 |
| 180 | -1.000E+00 | -9.143E+01 | 0. | 6.497E-03 | 1.000E+00 | 9.931E-01 | -5.378E+05 | 0. | 4.999E+01 | 4.046E+01 | 3.055E-04 | 9.082E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + DELTA(1236) (4) AT 60 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 1.23600E+00
P2CM= 5.26413E+00 P3CM= 5.23338E+00
E1CM= 5.34709E+00 E2CM= 5.34709E+00 E3CM= 5.31682E+00 E4CM= 5.37736E+00

1-V1LAB = 1.222E-04 1-VCM = 1.552E-02 GCM = 5.69895E+00 ETCM= 1.06942E+01 S = 1.14366E+02 -U=( 1.10197E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -2.927E-05 | 0. | 5.965E+01 | 6.359E+01 | 1.237E-04 | 7.696E-03 | 0. | 3.450E-01 | 1.038E+00 | 7.311E-01 | -2.301E+02 | 0. |
| 1 | 9.998E-01 | -8.421E-03 | 8.77E-02 | 5.965E+01 | 6.358E+01 | 1.237E-04 | 7.697E-03 | 1.46E+01 | 3.613E-01 | 1.042E+00 | 7.194E-01 | -1.977E+02 | 9.134E-02 |
| 2 | 9.994E-01 | -3.359E-02 | 1.75E-01 | 5.964E+01 | 6.357E+01 | 1.237E-04 | 7.701E-03 | 2.67E+01 | 4.065E-01 | 1.053E+00 | 6.875E-01 | -1.331E+02 | 1.826E-01 |
| 3 | 9.986E-01 | -7.554E-02 | 2.63E-01 | 5.961E+01 | 6.355E+01 | 1.238E-04 | 7.706E-03 | 3.54E+01 | 4.732E-01 | 1.071E+00 | 6.424E-01 | -7.848E+01 | 2.739E-01 |
| 4 | 9.976E-01 | -1.342E-01 | 3.51E-01 | 5.958E+01 | 6.351E+01 | 1.240E-04 | 7.714E-03 | 4.12E+01 | 5.547E-01 | 1.096E+00 | 5.905E-01 | -4.357E+01 | 3.651E-01 |
| 5 | 9.962E-01 | -2.097E-01 | 4.39E-01 | 5.954E+01 | 6.347E+01 | 1.241E-04 | 7.725E-03 | 4.48E+01 | 6.468E-01 | 1.129E+00 | 5.364E-01 | -2.331E+01 | 4.561E-01 |
| 6 | 9.945E-01 | -3.019E-01 | 5.27E-01 | 5.949E+01 | 6.342E+01 | 1.243E-04 | 7.737E-03 | 4.71E+01 | 7.468E-01 | 1.168E+00 | 4.828E-01 | -1.182E+01 | 5.470E-01 |
| 7 | 9.925E-01 | -4.107E-01 | 6.15E-01 | 5.944E+01 | 6.336E+01 | 1.246E-04 | 7.752E-03 | 4.83E+01 | 8.536E-01 | 1.215E+00 | 4.317E-01 | -5.291E+00 | 6.378E-01 |
| 8 | 9.903E-01 | -5.362E-01 | 7.03E-01 | 5.937E+01 | 6.328E+01 | 1.249E-04 | 7.770E-03 | 4.89E+01 | 9.665E-01 | 1.269E+00 | 3.840E-01 | -1.560E+00 | 7.283E-01 |
| 9 | 9.877E-01 | -6.784E-01 | 7.91E-01 | 5.929E+01 | 6.320E+01 | 1.252E-04 | 7.790E-03 | 4.90E+01 | 1.085E+00 | 1.331E+00 | 3.402E-01 | 5.659E-01 | 8.187E-01 |
| 10 | 9.848E-01 | -8.371E-01 | 8.79E-01 | 5.921E+01 | 6.311E+01 | 1.255E-04 | 7.812E-03 | 4.87E+01 | 1.210E+00 | 1.399E+00 | 3.006E-01 | 1.754E+00 | 9.088E-01 |
| 15 | 9.659E-01 | -1.877E+00 | 1.32E+00 | 5.865E+01 | 6.252E+01 | 1.279E-04 | 7.959E-03 | 4.49E+01 | 1.920E+00 | 1.848E+00 | 1.591E-01 | 2.641E+00 | 1.354E+00 |
| 20 | 9.397E-01 | -3.323E+00 | 1.77E+00 | 5.788E+01 | 6.170E+01 | 1.313E-04 | 8.170E-03 | 3.99E+01 | 2.793E+00 | 2.471E+00 | 8.556E-02 | 1.854E+00 | 1.790E+00 |
| 25 | 9.063E-01 | -5.162E+00 | 2.23E+00 | 5.690E+01 | 6.066E+01 | 1.359E-04 | 8.452E-03 | 3.52E+01 | 3.840E+00 | 3.264E+00 | 4.809E-02 | 1.200E+00 | 2.212E+00 |
| 30 | 8.660E-01 | -7.382E+00 | 2.69E+00 | 5.572E+01 | 5.940E+01 | 1.417E-04 | 8.811E-03 | 3.11E+01 | 5.068E+00 | 4.221E+00 | 2.847E-02 | 7.776E-01 | 2.617E+00 |
| 35 | 8.192E-01 | -9.964E+00 | 3.17E+00 | 5.434E+01 | 5.793E+01 | 1.490E-04 | 9.259E-03 | 2.76E+01 | 6.476E+00 | 5.334E+00 | 1.773E-02 | 5.153E-01 | 3.002E+00 |
| 40 | 7.660E-01 | -1.289E+01 | 3.65E+00 | 5.278E+01 | 5.627E+01 | 1.579E-04 | 9.810E-03 | 2.47E+01 | 8.058E+00 | 6.596E+00 | 1.156E-02 | 3.514E-01 | 3.364E+00 |
| 45 | 7.071E-01 | -1.614E+01 | 4.16E+00 | 5.105E+01 | 5.442E+01 | 1.688E-04 | 1.048E-02 | 2.22E+01 | 9.806E+00 | 7.996E+00 | 7.851E-03 | 2.467E-01 | 3.701E+00 |
| 50 | 6.428E-01 | -1.968E+01 | 4.68E+00 | 4.916E+01 | 5.241E+01 | 1.820E-04 | 1.129E-02 | 2.00E+01 | 1.171E+01 | 9.524E+00 | 5.527E-03 | 1.781E-01 | 4.009E+00 |
| 55 | 5.736E-01 | -2.350E+01 | 5.22E+00 | 4.713E+01 | 5.024E+01 | 1.981E-04 | 1.228E-02 | 1.82E+01 | 1.375E+01 | 1.117E+01 | 4.017E-03 | 1.319E-01 | 4.287E+00 |
| 60 | 5.000E-01 | -2.755E+01 | 5.78E+00 | 4.497E+01 | 4.794E+01 | 2.176E-04 | 1.347E-02 | 1.65E+01 | 1.592E+01 | 1.292E+01 | 3.002E-03 | 1.001E-01 | 4.532E+00 |
| 65 | 4.226E-01 | -3.181E+01 | 6.38E+00 | 4.270E+01 | 4.552E+01 | 2.413E-04 | 1.493E-02 | 1.51E+01 | 1.819E+01 | 1.475E+01 | 2.299E-03 | 7.764E-02 | 4.743E+00 |
| 70 | 3.420E-01 | -3.625E+01 | 7.00E+00 | 4.033E+01 | 4.300E+01 | 2.705E-04 | 1.671E-02 | 1.38E+01 | 2.057E+01 | 1.667E+01 | 1.801E-03 | 6.142E-02 | 4.918E+00 |
| 75 | 2.588E-01 | -4.064E+01 | 7.67E+00 | 3.789E+01 | 4.039E+01 | 3.065E-04 | 1.891E-02 | 1.27E+01 | 2.301E+01 | 1.865E+01 | 1.439E-03 | 4.948E-02 | 5.055E+00 |
| 80 | 1.736E-01 | -4.553E+01 | 8.37E+00 | 3.539E+01 | 3.773E+01 | 3.513E-04 | 2.164E-02 | 1.17E+01 | 2.552E+01 | 2.067E+01 | 1.171E-03 | 4.053E-02 | 5.154E+00 |
| 85 | 8.716E-02 | -5.030E+01 | 9.13E+00 | 3.265E+01 | 3.502E+01 | 4.077E-04 | 2.506E-02 | 1.07E+01 | 2.806E+01 | 2.272E+01 | 9.688E-04 | 3.372E-02 | 5.213E+00 |
| 90 | 0. | -5.510E+01 | 9.95E+00 | 3.029E+01 | 3.229E+01 | 4.795E-04 | 2.941E-02 | 9.84E+00 | 3.062E+01 | 2.479E+01 | 8.137E-04 | 2.845E-02 | 5.233E+00 |
| 95 | -8.716E-02 | -5.990E+01 | 1.08E+01 | 2.773E+01 | 2.957E+01 | 5.721E-04 | 3.499E-02 | 9.04E+00 | 3.318E+01 | 2.686E+01 | 6.931E-04 | 2.433E-02 | 5.213E+00 |
| 100 | -1.736E-01 | -6.467E+01 | 1.18E+01 | 2.518E+01 | 2.686E+01 | 6.933E-04 | 4.226E-02 | 8.30E+00 | 3.572E+01 | 2.892E+01 | 5.980E-04 | 2.107E-02 | 5.154E+00 |
| 105 | -2.588E-01 | -6.936E+01 | 1.29E+01 | 2.268E+01 | 2.419E+01 | 8.545E-04 | 5.188E-02 | 7.60E+00 | 3.822E+01 | 3.094E+01 | 5.224E-04 | 1.845E-02 | 5.055E+00 |
| 110 | -3.420E-01 | -7.394E+01 | 1.41E+01 | 2.024E+01 | 2.159E+01 | 1.073E-03 | 6.485E-02 | 6.95E+00 | 4.067E+01 | 3.292E+01 | 4.615E-04 | 1.635E-02 | 4.918E+00 |
| 115 | -4.226E-01 | -7.838E+01 | 1.54E+01 | 1.787E+01 | 1.907E+01 | 1.376E-03 | 8.268E-02 | 6.33E+00 | 4.304E+01 | 3.483E+01 | 4.122E-04 | 1.463E-02 | 4.743E+00 |
| 120 | -5.000E-01 | -8.265E+01 | 1.69E+01 | 1.559E+01 | 1.665E+01 | 1.806E-03 | 1.077E-01 | 5.74E+00 | 4.531E+01 | 3.667E+01 | 3.719E-04 | 1.322E-02 | 4.532E+00 |
| 125 | -5.736E-01 | -8.670E+01 | 1.86E+01 | 1.343E+01 | 1.434E+01 | 2.433E-03 | 1.439E-01 | 5.18E+00 | 4.747E+01 | 3.842E+01 | 3.388E-04 | 1.207E-02 | 4.287E+00 |
| 130 | -6.428E-01 | -9.051E+01 | 2.06E+01 | 1.139E+01 | 1.218E+01 | 3.377E-03 | 1.975E-01 | 4.65E+00 | 4.950E+01 | 4.006E+01 | 3.116E-04 | 1.111E-02 | 4.009E+00 |
| 135 | -7.071E-01 | -9.406E+01 | 2.29E+01 | 9.492E+00 | 1.017E+01 | 4.850E-03 | 2.796E-01 | 4.13E+00 | 5.139E+01 | 4.159E+01 | 2.891E-04 | 1.032E-02 | 3.701E+00 |
| 140 | -7.660E-01 | -9.731E+01 | 2.57E+01 | 7.751E+00 | 8.321E+00 | 7.247E-03 | 4.101E-01 | 3.63E+00 | 5.312E+01 | 4.299E+01 | 2.706E-04 | 9.671E-03 | 3.364E+00 |
| 145 | -8.192E-01 | -1.002E+02 | 2.91E+01 | 6.177E+00 | 6.660E+00 | 1.134E-02 | 6.261E-01 | 3.15E+00 | 5.468E+01 | 4.425E+01 | 2.553E-04 | 9.135E-03 | 3.002E+00 |
| 150 | -8.660E-01 | -1.028E+02 | 3.32E+01 | 4.781E+00 | 5.193E+00 | 1.872E-02 | 1.000E+00 | 2.68E+00 | 5.606E+01 | 4.537E+01 | 2.430E-04 | 8.698E-03 | 2.617E+00 |
| 155 | -9.063E-01 | -1.050E+02 | 3.83E+01 | 3.568E+00 | 3.932E+00 | 3.288E-02 | 1.682E+00 | 2.21E+00 | 5.724E+01 | 4.632E+01 | 2.330E-04 | 8.347E-03 | 2.212E+00 |
| 160 | -9.397E-01 | -1.069E+02 | 4.48E+01 | 2.541E+00 | 2.887E+00 | 6.189E-02 | 2.993E+00 | 1.76E+00 | 5.822E+01 | 4.712E+01 | 2.252E-04 | 8.073E-03 | 1.790E+00 |
| 165 | -9.659E-01 | -1.083E+02 | 5.30E+01 | 1.697E+00 | 2.066E+00 | 1.249E-01 | 5.670E+00 | 1.32E+00 | 5.899E+01 | 4.774E+01 | 2.194E-04 | 7.866E-03 | 1.354E+00 |
| 170 | -9.848E-01 | -1.094E+02 | 6.32E+01 | 1.018E+00 | 1.475E+00 | 2.647E-01 | 1.163E+01 | 8.74E-01 | 5.955E+01 | 4.819E+01 | 2.153E-04 | 7.722E-03 | 9.088E-01 |
| 175 | -9.962E-01 | -1.100E+02 | 7.54E+01 | 4.714E-01 | 1.119E+00 | 5.511E-01 | 2.827E+01 | 4.36E-01 | 5.988E+01 | 4.846E+01 | 2.129E-04 | 7.637E-03 | 4.561E-01 |
| 180 | -1.000E+00 | -1.102E+02 | 0. | 5.411E-03 | 1.000E+00 | 9.942E-01 | -9.356E+05 | 0. | 5.999E+01 | 4.855E+01 | 2.122E-04 | 7.609E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + DELTA(1236) (4) AT 70 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 1.23600E+00
P2CM= 5.69226E+00 P3CM= 5.66383E+00
E1CM= 5.76907E+00 E2CM= 5.76907E+00 E3CM= 5.74102E+00 E4CM= 5.79712E+00

1-V1LAB = 8.982E-05 1-VCM = 1.331E-02 GCM = 6.14870E+00 ETCM= 1.15381E+01 S = 1.33129E+02 -U=( 1.28960E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -2.149E-05 | 0. | 6.965E+01 | 7.425E+01 | 9.071E-05 | 6.612E-03 | 0. | 3.450E-01 | 1.038E+00 | 7.311E-01 | -2.695E+02 | 0. |
| 1 | 9.998E-01 | -9.842E-03 | 8.13E-02 | 6.965E+01 | 7.424E+01 | 9.072E-05 | 6.613E-03 | 1.58E+01 | 3.640E-01 | 1.042E+00 | 7.175E-01 | -2.259E+02 | 9.885E-02 |
| 2 | 9.994E-01 | -3.930E-02 | 1.63E-01 | 6.963E+01 | 7.422E+01 | 9.076E-05 | 6.616E-03 | 2.84E+01 | 4.162E-01 | 1.055E+00 | 6.809E-01 | -1.440E+02 | 1.977E-01 |
| 3 | 9.986E-01 | -8.839E-02 | 2.44E-01 | 6.961E+01 | 7.420E+01 | 9.083E-05 | 6.621E-03 | 3.70E+01 | 4.921E-01 | 1.076E+00 | 6.301E-01 | -7.992E+01 | 2.964E-01 |
| 4 | 9.976E-01 | -1.571E-01 | 3.25E-01 | 6.957E+01 | 7.416E+01 | 9.093E-05 | 6.628E-03 | 4.26E+01 | 5.838E-01 | 1.106E+00 | 5.729E-01 | -4.180E+01 | 3.951E-01 |
| 5 | 9.962E-01 | -2.454E-01 | 4.07E-01 | 6.952E+01 | 7.411E+01 | 9.105E-05 | 6.636E-03 | 4.59E+01 | 6.868E-01 | 1.144E+00 | 5.143E-01 | -2.091E+01 | 4.936E-01 |
| 6 | 9.945E-01 | -3.532E-01 | 4.88E-01 | 6.947E+01 | 7.404E+01 | 9.120E-05 | 6.647E-03 | 4.79E+01 | 7.985E-01 | 1.191E+00 | 4.574E-01 | -9.600E+00 | 5.920E-01 |
| 7 | 9.925E-01 | -4.806E-01 | 5.70E-01 | 6.940E+01 | 7.397E+01 | 9.138E-05 | 6.660E-03 | 4.88E+01 | 9.176E-01 | 1.245E+00 | 4.039E-01 | -3.441E+00 | 6.902E-01 |
| 8 | 9.903E-01 | -6.275E-01 | 6.52E-01 | 6.932E+01 | 7.389E+01 | 9.159E-05 | 6.675E-03 | 4.91E+01 | 1.044E+00 | 1.309E+00 | 3.549E-01 | -7.764E-02 | 7.883E-01 |
| 9 | 9.877E-01 | -7.939E-01 | 7.33E-01 | 6.923E+01 | 7.379E+01 | 9.182E-05 | 6.692E-03 | 4.89E+01 | 1.176E+00 | 1.381E+00 | 3.106E-01 | 1.734E+00 | 8.860E-01 |
| 10 | 9.848E-01 | -9.796E-01 | 8.15E-01 | 6.913E+01 | 7.369E+01 | 9.208E-05 | 6.711E-03 | 4.84E+01 | 1.316E+00 | 1.461E+00 | 2.711E-01 | 2.665E+00 | 9.835E-01 |
| 15 | 9.659E-01 | -2.197E+00 | 1.23E+00 | 6.848E+01 | 7.300E+01 | 9.384E-05 | 6.838E-03 | 4.37E+01 | 2.120E+00 | 1.986E+00 | 1.361E-01 | 2.873E+00 | 1.466E+00 |
| 20 | 9.397E-01 | -3.889E+00 | 1.64E+00 | 6.758E+01 | 7.204E+01 | 9.636E-05 | 7.021E-03 | 3.84E+01 | 3.120E+00 | 2.715E+00 | 7.031E-02 | 1.877E+00 | 1.937E+00 |
| 25 | 9.063E-01 | -6.041E+00 | 2.06E+00 | 6.644E+01 | 7.081E+01 | 9.971E-05 | 7.263E-03 | 3.36E+01 | 4.330E+00 | 3.643E+00 | 3.841E-02 | 1.166E+00 | 2.394E+00 |
| 30 | 8.660E-01 | -8.639E+00 | 2.50E+00 | 6.505E+01 | 6.934E+01 | 1.040E-04 | 7.574E-03 | 2.95E+01 | 5.756E+00 | 4.763E+00 | 2.229E-02 | 7.347E-01 | 2.832E+00 |
| 35 | 8.192E-01 | -1.166E+01 | 2.94E+00 | 6.344E+01 | 6.762E+01 | 1.093E-04 | 7.960E-03 | 2.61E+01 | 7.395E+00 | 6.066E+00 | 1.368E-02 | 4.772E-01 | 3.249E+00 |
| 40 | 7.660E-01 | -1.509E+01 | 3.39E+00 | 6.162E+01 | 6.568E+01 | 1.159E-04 | 8.435E-03 | 2.32E+01 | 9.240E+00 | 7.542E+00 | 8.828E-03 | 3.206E-01 | 3.641E+00 |
| 45 | 7.071E-01 | -1.889E+01 | 3.85E+00 | 5.959E+01 | 6.352E+01 | 1.239E-04 | 9.013E-03 | 2.08E+01 | 1.128E+01 | 9.181E+00 | 5.950E-03 | 2.225E-01 | 4.005E+00 |
| 50 | 6.428E-01 | -2.303E+01 | 4.34E+00 | 5.738E+01 | 6.116E+01 | 1.337E-04 | 9.715E-03 | 1.87E+01 | 1.350E+01 | 1.097E+01 | 4.164E-03 | 1.593E-01 | 4.339E+00 |
| 55 | 5.736E-01 | -2.750E+01 | 4.84E+00 | 5.500E+01 | 5.863E+01 | 1.455E-04 | 1.057E-02 | 1.70E+01 | 1.589E+01 | 1.289E+01 | 3.012E-03 | 1.172E-01 | 4.640E+00 |
| 60 | 5.000E-01 | -3.224E+01 | 5.36E+00 | 5.247E+01 | 5.593E+01 | 1.598E-04 | 1.160E-02 | 1.54E+01 | 1.842E+01 | 1.494E+01 | 2.243E-03 | 8.845E-02 | 4.905E+00 |
| 65 | 4.226E-01 | -3.723E+01 | 5.91E+00 | 4.981E+01 | 5.310E+01 | 1.773E-04 | 1.286E-02 | 1.41E+01 | 2.109E+01 | 1.709E+01 | 1.713E-03 | 6.829E-02 | 5.133E+00 |
| 70 | 3.420E-01 | -4.243E+01 | 6.50E+00 | 4.704E+01 | 5.015E+01 | 1.988E-04 | 1.440E-02 | 1.29E+01 | 2.386E+01 | 1.933E+01 | 1.339E-03 | 5.383E-02 | 5.322E+00 |
| 75 | 2.588E-01 | -4.779E+01 | 7.11E+00 | 4.418E+01 | 4.710E+01 | 2.254E-04 | 1.630E-02 | 1.18E+01 | 2.672E+01 | 2.164E+01 | 1.068E-03 | 4.324E-02 | 5.471E+00 |
| 80 | 1.736E-01 | -5.328E+01 | 7.77E+00 | 4.126E+01 | 4.398E+01 | 2.585E-04 | 1.867E-02 | 1.08E+01 | 2.965E+01 | 2.401E+01 | 8.676E-04 | 3.533E-02 | 5.578E+00 |
| 85 | 8.716E-02 | -5.886E+01 | 8.48E+00 | 3.828E+01 | 4.081E+01 | 3.002E-04 | 2.165E-02 | 9.96E+00 | 3.263E+01 | 2.642E+01 | 7.168E-04 | 2.933E-02 | 5.642E+00 |
| 90 | 0. | -6.448E+01 | 9.24E+00 | 3.529E+01 | 3.762E+01 | 3.533E-04 | 2.542E-02 | 9.15E+00 | 3.562E+01 | 2.884E+01 | 6.014E-04 | 2.471E-02 | 5.664E+00 |
| 95 | -8.716E-02 | -7.010E+01 | 1.01E+01 | 3.229E+01 | 3.443E+01 | 4.219E-04 | 3.029E-02 | 8.40E+00 | 3.862E+01 | 3.126E+01 | 5.117E-04 | 2.110E-02 | 5.642E+00 |
| 100 | -1.736E-01 | -7.568E+01 | 1.10E+01 | 2.932E+01 | 3.126E+01 | 5.117E-04 | 3.663E-02 | 7.71E+00 | 4.159E+01 | 3.367E+01 | 4.412E-04 | 1.825E-02 | 5.578E+00 |
| 105 | -2.588E-01 | -8.117E+01 | 1.20E+01 | 2.639E+01 | 2.814E+01 | 6.314E-04 | 4.505E-02 | 7.06E+00 | 4.452E+01 | 3.603E+01 | 3.851E-04 | 1.597E-02 | 5.471E+00 |
| 110 | -3.420E-01 | -8.653E+01 | 1.31E+01 | 2.353E+01 | 2.510E+01 | 7.941E-04 | 5.643E-02 | 6.45E+00 | 4.738E+01 | 3.835E+01 | 3.401E-04 | 1.413E-02 | 5.322E+00 |
| 115 | -4.226E-01 | -9.173E+01 | 1.43E+01 | 2.076E+01 | 2.215E+01 | 1.020E-03 | 7.212E-02 | 5.87E+00 | 5.015E+01 | 4.059E+01 | 3.036E-04 | 1.264E-02 | 5.133E+00 |
| 120 | -5.000E-01 | -9.672E+01 | 1.57E+01 | 1.809E+01 | 1.931E+01 | 1.342E-03 | 9.427E-02 | 5.33E+00 | 5.281E+01 | 4.274E+01 | 2.738E-04 | 1.141E-02 | 4.905E+00 |
| 125 | -5.736E-01 | -1.015E+02 | 1.73E+01 | 1.556E+01 | 1.662E+01 | 1.812E-03 | 1.264E-01 | 4.81E+00 | 5.534E+01 | 4.478E+01 | 2.493E-04 | 1.041E-02 | 4.640E+00 |
| 130 | -6.428E-01 | -1.059E+02 | 1.92E+01 | 1.318E+01 | 1.408E+01 | 2.525E-03 | 1.743E-01 | 4.31E+00 | 5.772E+01 | 4.671E+01 | 2.292E-04 | 9.581E-03 | 4.339E+00 |
| 135 | -7.071E-01 | -1.101E+02 | 2.14E+01 | 1.096E+01 | 1.173E+01 | 3.643E-03 | 2.483E-01 | 3.83E+00 | 5.993E+01 | 4.850E+01 | 2.126E-04 | 8.897E-03 | 4.035E+00 |
| 140 | -7.660E-01 | -1.139E+02 | 2.41E+01 | 8.928E+00 | 9.568E+00 | 5.477E-03 | 3.671E-01 | 3.37E+00 | 6.195E+01 | 5.014E+01 | 1.989E-04 | 8.332E-03 | 3.641E+00 |
| 145 | -8.192E-01 | -1.173E+02 | 2.73E+01 | 7.091E+00 | 7.623E+00 | 8.641E-03 | 5.664E-01 | 2.92E+00 | 6.378E+01 | 5.161E+01 | 1.877E-04 | 7.868E-03 | 3.249E+00 |
| 150 | -8.660E-01 | -1.203E+02 | 3.12E+01 | 5.462E+00 | 5.907E+00 | 1.444E-02 | 9.178E-01 | 2.48E+00 | 6.539E+01 | 5.291E+01 | 1.786E-04 | 7.490E-03 | 2.832E+00 |
| 155 | -9.063E-01 | -1.229E+02 | 3.62E+01 | 4.050E+00 | 4.431E+00 | 2.580E-02 | 1.573E+00 | 2.05E+00 | 6.678E+01 | 5.403E+01 | 1.713E-04 | 7.186E-03 | 2.394E+00 |
| 160 | -9.397E-01 | -1.251E+02 | 4.26E+01 | 2.861E+00 | 3.209E+00 | 4.981E-02 | 2.872E+00 | 1.63E+00 | 6.792E+01 | 5.496E+01 | 1.655E-04 | 6.948E-03 | 1.937E+00 |
| 165 | -9.659E-01 | -1.268E+02 | 5.09E+01 | 1.889E+00 | 2.248E+00 | 1.044E-01 | 5.627E+00 | 1.22E+00 | 6.882E+01 | 5.569E+01 | 1.612E-04 | 6.778E-03 | 1.466E+00 |
| 170 | -9.848E-01 | -1.280E+02 | 6.15E+01 | 1.119E+00 | 1.556E+00 | 2.337E-01 | 1.201E+01 | 8.11E-01 | 6.947E+01 | 5.622E+01 | 1.582E-04 | 6.645E-03 | 9.835E-01 |
| 175 | -9.962E-01 | -1.287E+02 | 7.45E+01 | 5.123E-01 | 1.139E+00 | 5.207E-01 | 3.051E+01 | 4.05E-01 | 6.986E+01 | 5.653E+01 | 1.565E-04 | 6.572E-03 | 4.936E-01 |
| 180 | -1.000E+00 | -1.290E+02 | 0. | 4.636E-03 | 1.000E+00 | 9.951E-01 | -1.493E+06 | 0. | 7.000E+01 | 5.664E+01 | 1.559E-04 | 6.548E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + DELTA(1236) (4) AT 80 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 1.23600E+00
P2CM= 6.09038E+00 P3CM= 6.06381E+00
E1CM= 6.16223E+00 E2CM= 6.16223E+00 E3CM= 6.13597E+00 E4CM= 6.18850E+00

1-V1LAB = 6.877E-05 1-VCM = 1.166E-02 GCM = 6.56773E+00 ETCM= 1.23245E+01 S = 1.51892E+02 -U=( 1.47724E+02) +T

| 03 CM | COS(03) CM | 4-MOM TSFR SQUARE, T | 03 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | 04 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -1.644E-05 | 0. | 7.965E+01 | 8.490E+01 | 6.937E-05 | 5.795E-03 | 0. | 3.450E-01 | 1.038E+00 | 7.311E-01 | -3.089E+02 | 0. |
| 1 | 9.998E-01 | -1.127E-02 | 7.61E-02 | 7.965E+01 | 8.490E+01 | 6.938E-05 | 5.796E-03 | 1.68E+01 | 3.667E-01 | 1.043E+00 | 7.156E-01 | -2.527E+02 | 1.058E-01 |
| 2 | 9.994E-01 | -4.501E-02 | 1.52E-01 | 7.963E+01 | 8.488E+01 | 6.941E-05 | 5.799E-03 | 2.98E+01 | 4.256E-01 | 1.058E+00 | 6.744E-01 | -1.529E+02 | 2.116E-01 |
| 3 | 9.986E-01 | -1.012E-01 | 2.28E-01 | 7.960E+01 | 8.484E+01 | 6.946E-05 | 5.803E-03 | 3.85E+01 | 5.103E-01 | 1.082E+00 | 6.184E-01 | -8.024E+01 | 3.174E-01 |
| 4 | 9.976E-01 | -1.799E-01 | 3.05E-01 | 7.956E+01 | 8.480E+01 | 6.953E-05 | 5.809E-03 | 4.37E+01 | 6.118E-01 | 1.116E+00 | 5.564E-01 | -3.969E+01 | 4.230E-01 |
| 5 | 9.962E-01 | -2.811E-01 | 3.81E-01 | 7.951E+01 | 8.474E+01 | 6.963E-05 | 5.817E-03 | 4.68E+01 | 7.252E-01 | 1.159E+00 | 4.940E-01 | -1.853E+01 | 5.285E-01 |
| 6 | 9.945E-01 | -4.046E-01 | 4.57E-01 | 7.944E+01 | 8.467E+01 | 6.974E-05 | 5.826E-03 | 4.84E+01 | 8.479E-01 | 1.213E+00 | 4.343E-01 | -7.537E+00 | 6.338E-01 |
| 7 | 9.925E-01 | -5.506E-01 | 5.34E-01 | 7.936E+01 | 8.459E+01 | 6.988E-05 | 5.838E-03 | 4.90E+01 | 9.788E-01 | 1.276E+00 | 3.792E-01 | -1.787E+00 | 7.390E-01 |
| 8 | 9.903E-01 | -7.188E-01 | 6.10E-01 | 7.927E+01 | 8.449E+01 | 7.004E-05 | 5.851E-03 | 4.90E+01 | 1.118E+00 | 1.348E+00 | 3.293E-01 | 1.210E+00 | 8.439E-01 |
| 9 | 9.877E-01 | -9.094E-01 | 6.87E-01 | 7.917E+01 | 8.439E+01 | 7.022E-05 | 5.866E-03 | 4.86E+01 | 1.264E+00 | 1.430E+00 | 2.850E-01 | 2.723E+00 | 9.486E-01 |
| 10 | 9.848E-01 | -1.122E+00 | 7.63E-01 | 7.906E+01 | 8.427E+01 | 7.042E-05 | 5.883E-03 | 4.79E+01 | 1.418E+00 | 1.522E+00 | 2.461E-01 | 3.419E+00 | 1.053E+00 |
| 15 | 9.659E-01 | -2.517E+00 | 1.15E+00 | 7.831E+01 | 8.347E+01 | 7.176E-05 | 5.994E-03 | 4.27E+01 | 2.315E+00 | 2.123E+00 | 1.178E-01 | 3.033E+00 | 1.569E+00 |
| 20 | 9.397E-01 | -4.454E+00 | 1.54E+00 | 7.728E+01 | 8.237E+01 | 7.369E-05 | 6.154E-03 | 3.71E+01 | 3.442E+00 | 2.959E+00 | 5.885E-02 | 1.874E+00 | 2.074E+00 |
| 25 | 9.063E-01 | -6.920E+00 | 1.93E+00 | 7.597E+01 | 8.097E+01 | 7.626E-05 | 6.368E-03 | 3.22E+01 | 4.815E+00 | 4.022E+00 | 3.140E-02 | 1.126E+00 | 2.563E+00 |
| 30 | 8.660E-01 | -9.896E+00 | 2.34E+00 | 7.438E+01 | 7.928E+01 | 7.955E-05 | 6.640E-03 | 2.81E+01 | 6.439E+00 | 5.305E+00 | 1.793E-02 | 6.937E-01 | 3.032E+00 |
| 35 | 8.192E-01 | -1.336E+01 | 2.75E+00 | 7.254E+01 | 7.732E+01 | 8.365E-05 | 6.980E-03 | 2.47E+01 | 8.310E+00 | 6.797E+00 | 1.088E-02 | 4.433E-01 | 3.478E+00 |
| 40 | 7.660E-01 | -1.728E+01 | 3.17E+00 | 7.045E+01 | 7.509E+01 | 8.869E-05 | 7.398E-03 | 2.20E+01 | 1.042E+01 | 8.489E+00 | 6.963E-03 | 2.943E-01 | 3.898E+00 |
| 45 | 7.071E-01 | -2.163E+01 | 3.61E+00 | 6.813E+01 | 7.262E+01 | 9.483E-05 | 7.907E-03 | 1.96E+01 | 1.275E+01 | 1.037E+01 | 4.664E-03 | 2.025E-01 | 4.288E+00 |
| 50 | 6.428E-01 | -2.638E+01 | 4.06E+00 | 6.559E+01 | 6.992E+01 | 1.023E-04 | 8.524E-03 | 1.77E+01 | 1.529E+01 | 1.241E+01 | 3.250E-03 | 1.440E-01 | 4.645E+00 |
| 55 | 5.736E-01 | -3.150E+01 | 4.53E+00 | 6.287E+01 | 6.701E+01 | 1.113E-04 | 9.274E-03 | 1.60E+01 | 1.803E+01 | 1.462E+01 | 2.343E-03 | 1.054E-01 | 4.967E+00 |
| 60 | 5.000E-01 | -3.693E+01 | 5.02E+00 | 5.997E+01 | 6.393E+01 | 1.224E-04 | 1.018E-02 | 1.45E+01 | 2.093E+01 | 1.696E+01 | 1.740E-03 | 7.920E-02 | 5.251E+00 |
| 65 | 4.226E-01 | -4.265E+01 | 5.54E+00 | 5.693E+01 | 6.068E+01 | 1.358E-04 | 1.129E-02 | 1.32E+01 | 2.398E+01 | 1.943E+01 | 1.326E-03 | 6.094E-02 | 5.496E+00 |
| 70 | 3.420E-01 | -4.860E+01 | 6.09E+00 | 5.375E+01 | 5.730E+01 | 1.523E-04 | 1.265E-02 | 1.21E+01 | 2.715E+01 | 2.199E+01 | 1.034E-03 | 4.791E-02 | 5.698E+00 |
| 75 | 2.588E-01 | -5.475E+01 | 6.66E+00 | 5.048E+01 | 5.381E+01 | 1.727E-04 | 1.433E-02 | 1.11E+01 | 3.043E+01 | 2.464E+01 | 8.238E-04 | 3.839E-02 | 5.857E+00 |
| 80 | 1.736E-01 | -6.104E+01 | 7.28E+00 | 4.713E+01 | 5.024E+01 | 1.981E-04 | 1.642E-02 | 1.02E+01 | 3.379E+01 | 2.735E+01 | 6.685E-04 | 3.132E-02 | 5.972E+00 |
| 85 | 8.716E-02 | -6.742E+01 | 7.94E+00 | 4.372E+01 | 4.661E+01 | 2.302E-04 | 1.905E-02 | 9.35E+00 | 3.719E+01 | 3.011E+01 | 5.517E-04 | 2.596E-02 | 6.041E+00 |
| 90 | 0. | -7.386E+01 | 8.66E+00 | 4.029E+01 | 4.295E+01 | 2.711E-04 | 2.239E-02 | 8.58E+00 | 4.063E+01 | 3.288E+01 | 4.625E-04 | 2.184E-02 | 6.064E+00 |
| 95 | -8.716E-02 | -8.030E+01 | 9.43E+00 | 3.686E+01 | 3.929E+01 | 3.239E-04 | 2.670E-02 | 7.88E+00 | 4.406E+01 | 3.566E+01 | 3.933E-04 | 1.863E-02 | 6.041E+00 |
| 100 | -1.736E-01 | -8.669E+01 | 1.03E+01 | 3.345E+01 | 3.567E+01 | 3.931E-04 | 3.233E-02 | 7.23E+00 | 4.746E+01 | 3.841E+01 | 3.389E-04 | 1.609E-02 | 5.972E+00 |
| 105 | -2.588E-01 | -9.298E+01 | 1.12E+01 | 3.010E+01 | 3.209E+01 | 4.856E-04 | 3.981E-02 | 6.62E+00 | 5.082E+01 | 4.113E+01 | 2.957E-04 | 1.407E-02 | 5.857E+00 |
| 110 | -3.420E-01 | -9.912E+01 | 1.23E+01 | 2.682E+01 | 2.860E+01 | 6.113E-04 | 4.994E-02 | 6.05E+00 | 5.409E+01 | 4.378E+01 | 2.610E-04 | 1.244E-02 | 5.698E+00 |
| 115 | -4.226E-01 | -1.051E+02 | 1.34E+01 | 2.365E+01 | 2.522E+01 | 7.863E-04 | 6.395E-02 | 5.51E+00 | 5.727E+01 | 4.634E+01 | 2.328E-04 | 1.112E-02 | 5.496E+00 |
| 120 | -5.000E-01 | -1.108E+02 | 1.48E+01 | 2.060E+01 | 2.198E+01 | 1.036E-03 | 8.378E-02 | 5.00E+00 | 6.031E+01 | 4.881E+01 | 2.099E-04 | 1.004E-02 | 5.251E+00 |
| 125 | -5.736E-01 | -1.162E+02 | 1.63E+01 | 1.770E+01 | 1.889E+01 | 1.402E-03 | 1.126E-01 | 4.51E+00 | 6.321E+01 | 5.115E+01 | 1.911E-04 | 9.153E-03 | 4.967E+00 |
| 130 | -6.428E-01 | -1.213E+02 | 1.81E+01 | 1.497E+01 | 1.599E+01 | 1.959E-03 | 1.559E-01 | 4.04E+00 | 6.593E+01 | 5.335E+01 | 1.757E-04 | 8.421E-03 | 4.645E+00 |
| 135 | -7.071E-01 | -1.261E+02 | 2.02E+01 | 1.243E+01 | 1.329E+01 | 2.836E-03 | 2.232E-01 | 3.59E+00 | 6.847E+01 | 5.540E+01 | 1.629E-04 | 7.817E-03 | 4.288E+00 |
| 140 | -7.660E-01 | -1.304E+02 | 2.27E+01 | 1.010E+01 | 1.081E+01 | 4.284E-03 | 3.321E-01 | 3.16E+00 | 7.079E+01 | 5.728E+01 | 1.524E-04 | 7.319E-03 | 3.898E+00 |
| 145 | -8.192E-01 | -1.344E+02 | 2.58E+01 | 8.002E+00 | 8.587E+00 | 6.804E-03 | 5.167E-01 | 2.74E+00 | 7.288E+01 | 5.897E+01 | 1.438E-04 | 6.910E-03 | 3.478E+00 |
| 150 | -8.660E-01 | -1.378E+02 | 2.96E+01 | 6.140E+00 | 6.620E+00 | 1.147E-02 | 8.468E-01 | 2.33E+00 | 7.472E+01 | 6.046E+01 | 1.368E-04 | 6.576E-03 | 3.032E+00 |
| 155 | -9.063E-01 | -1.408E+02 | 3.45E+01 | 4.530E+00 | 4.931E+00 | 2.078E-02 | 1.475E+00 | 1.92E+00 | 7.631E+01 | 6.175E+01 | 1.312E-04 | 6.308E-03 | 2.563E+00 |
| 160 | -9.397E-01 | -1.433E+02 | 4.08E+01 | 3.176E+00 | 3.530E+00 | 4.097E-02 | 2.751E+00 | 1.53E+00 | 7.762E+01 | 6.281E+01 | 1.268E-04 | 6.099E-03 | 2.074E+00 |
| 165 | -9.659E-01 | -1.452E+02 | 4.91E+01 | 2.077E+00 | 2.429E+00 | 8.864E-02 | 5.550E+00 | 1.14E+00 | 7.865E+01 | 6.364E+01 | 1.234E-04 | 5.941E-03 | 1.569E+00 |
| 170 | -9.848E-01 | -1.466E+02 | 6.00E+01 | 1.216E+00 | 1.637E+00 | 2.082E-01 | 1.228E+01 | 7.60E-01 | 7.940E+01 | 6.425E+01 | 1.211E-04 | 5.832E-03 | 1.053E+00 |
| 175 | -9.962E-01 | -1.474E+02 | 7.36E+01 | 5.509E-01 | 1.160E+00 | 4.937E-01 | 3.244E+01 | 3.79E-01 | 7.985E+01 | 6.461E+01 | 1.198E-04 | 5.767E-03 | 5.285E-01 |
| 180 | -1.000E+00 | -1.477E+02 | 0. | 4.055E-03 | 1.000E+00 | 9.957E-01 | -2.236E+06 | 0. | 8.000E+01 | 6.473E+01 | 1.193E-04 | 5.746E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + DELTA(1236) (4) AT 90 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 1.23600E+00
P2CM= 6.46404E+00 P3CM= 6.43900E+00
E1CM= 6.53178E+00 E2CM= 6.53178E+00 E3CM= 6.50700E+00 E4CM= 6.55656E+00

1-V1LAB = 5.434E-05 1-VCM = 1.037E-02 GCM = 6.96159E+00 ETCM= 1.30636E+01 S = 1.70656E+02 -U=( 1.66488E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -1.298E-05 | 0. | 8.965E+01 | 9.556E+01 | 5.476E-05 | 5.158E-03 | 0. | 3.450E-01 | 1.038E+00 | 7.311E-01 | -3.483E+02 | 0. |
| 1 | 9.998E-01 | -1.269E-02 | 7.18E-02 | 8.965E+01 | 9.555E+01 | 5.476E-05 | 5.159E-03 | 1.77E+01 | 3.693E-01 | 1.044E+00 | 7.137E-01 | -2.782E+02 | 1.124E-01 |
| 2 | 9.994E-01 | -5.072E-02 | 1.44E-01 | 8.963E+01 | 9.553E+01 | 5.479E-05 | 5.161E-03 | 3.11E+01 | 4.349E-01 | 1.060E+00 | 6.681E-01 | -1.601E+02 | 2.247E-01 |
| 3 | 9.986E-01 | -1.141E-01 | 2.16E-01 | 8.959E+01 | 9.550E+01 | 5.483E-05 | 5.165E-03 | 3.97E+01 | 5.280E-01 | 1.087E+00 | 6.072E-01 | -7.975E+01 | 3.370E-01 |
| 4 | 9.976E-01 | -2.028E-01 | 2.87E-01 | 8.955E+01 | 9.544E+01 | 5.489E-05 | 5.170E-03 | 4.47E+01 | 6.388E-01 | 1.126E+00 | 5.409E-01 | -3.738E+01 | 4.492E-01 |
| 5 | 9.962E-01 | -3.168E-01 | 3.59E-01 | 8.949E+01 | 9.538E+01 | 5.496E-05 | 5.177E-03 | 4.74E+01 | 7.621E-01 | 1.175E+00 | 4.752E-01 | -1.622E+01 | 5.612E-01 |
| 6 | 9.945E-01 | -4.560E-01 | 4.31E-01 | 8.941E+01 | 9.530E+01 | 5.505E-05 | 5.186E-03 | 4.87E+01 | 8.954E-01 | 1.235E+00 | 4.133E-01 | -5.634E+00 | 6.731E-01 |
| 7 | 9.925E-01 | -6.205E-01 | 5.03E-01 | 8.932E+01 | 9.521E+01 | 5.516E-05 | 5.196E-03 | 4.91E+01 | 1.038E+00 | 1.306E+00 | 3.570E-01 | -3.084E-01 | 7.847E-01 |
| 8 | 9.903E-01 | -8.101E-01 | 5.75E-01 | 8.922E+01 | 9.510E+01 | 5.529E-05 | 5.208E-03 | 4.89E+01 | 1.189E+00 | 1.388E+00 | 3.068E-01 | 2.334E+00 | 8.961E-01 |
| 9 | 9.877E-01 | -1.025E+00 | 6.48E-01 | 8.911E+01 | 9.498E+01 | 5.543E-05 | 5.221E-03 | 4.83E+01 | 1.349E+00 | 1.480E+00 | 2.628E-01 | 3.568E+00 | 1.007E+00 |
| 10 | 9.848E-01 | -1.265E+00 | 7.20E-01 | 8.898E+01 | 9.484E+01 | 5.559E-05 | 5.236E-03 | 4.75E+01 | 1.518E+00 | 1.583E+00 | 2.246E-01 | 4.048E+00 | 1.118E+00 |
| 15 | 9.659E-01 | -2.836E+00 | 1.08E+00 | 8.814E+01 | 9.395E+01 | 5.665E-05 | 5.336E-03 | 4.17E+01 | 2.507E+00 | 2.261E+00 | 1.031E-01 | 3.144E+00 | 1.667E+00 |
| 20 | 9.397E-01 | -5.020E+00 | 1.45E+00 | 8.698E+01 | 9.271E+01 | 5.818E-05 | 5.479E-03 | 3.58E+01 | 3.761E+00 | 3.203E+00 | 5.000E-02 | 1.855E+00 | 2.202E+00 |
| 25 | 9.063E-01 | -7.799E+00 | 1.82E+00 | 8.550E+01 | 9.113E+01 | 6.021E-05 | 5.669E-03 | 3.09E+01 | 5.297E+00 | 4.401E+00 | 2.616E-02 | 1.084E+00 | 2.721E+00 |
| 30 | 8.660E-01 | -1.115E+01 | 2.20E+00 | 8.371E+01 | 8.923E+01 | 6.281E-05 | 5.912E-03 | 2.69E+01 | 7.120E+00 | 5.847E+00 | 1.474E-02 | 6.555E-01 | 3.220E+00 |
| 35 | 8.192E-01 | -1.505E+01 | 2.59E+00 | 8.163E+01 | 8.701E+01 | 6.605E-05 | 6.215E-03 | 2.36E+01 | 9.223E+00 | 7.529E+00 | 8.860E-03 | 4.134E-01 | 3.693E+00 |
| 40 | 7.660E-01 | -1.948E+01 | 2.99E+00 | 7.928E+01 | 8.450E+01 | 7.003E-05 | 6.588E-03 | 2.09E+01 | 1.160E+01 | 9.435E+00 | 5.633E-03 | 2.718E-01 | 4.139E+00 |
| 45 | 7.071E-01 | -2.438E+01 | 3.40E+00 | 7.666E+01 | 8.171E+01 | 7.489E-05 | 7.042E-03 | 1.87E+01 | 1.422E+01 | 1.155E+01 | 3.755E-03 | 1.857E-01 | 4.553E+00 |
| 50 | 6.428E-01 | -2.974E+01 | 3.83E+00 | 7.381E+01 | 7.867E+01 | 8.079E-05 | 7.594E-03 | 1.68E+01 | 1.708E+01 | 1.386E+01 | 2.607E-03 | 1.313E-01 | 4.933E+00 |
| 55 | 5.736E-01 | -3.550E+01 | 4.28E+00 | 7.074E+01 | 7.540E+01 | 8.796E-05 | 8.263E-03 | 1.52E+01 | 2.016E+01 | 1.634E+01 | 1.874E-03 | 9.570E-02 | 5.275E+00 |
| 60 | 5.000E-01 | -4.162E+01 | 4.74E+00 | 6.747E+01 | 7.192E+01 | 9.667E-05 | 9.076E-03 | 1.38E+01 | 2.343E+01 | 1.898E+01 | 1.388E-03 | 7.168E-02 | 5.576E+00 |
| 65 | 4.226E-01 | -4.806E+01 | 5.23E+00 | 6.404E+01 | 6.826E+01 | 1.073E-04 | 1.007E-02 | 1.25E+01 | 2.687E+01 | 2.176E+01 | 1.056E-03 | 5.501E-02 | 5.836E+00 |
| 70 | 3.420E-01 | -5.477E+01 | 5.74E+00 | 6.046E+01 | 6.445E+01 | 1.204E-04 | 1.128E-02 | 1.15E+01 | 3.045E+01 | 2.465E+01 | 8.230E-04 | 4.315E-02 | 6.051E+00 |
| 75 | 2.588E-01 | -6.170E+01 | 6.29E+00 | 5.677E+01 | 6.052E+01 | 1.365E-04 | 1.279E-02 | 1.05E+01 | 3.414E+01 | 2.764E+01 | 6.547E-04 | 3.452E-02 | 6.220E+00 |
| 80 | 1.736E-01 | -6.879E+01 | 6.87E+00 | 5.299E+01 | 5.649E+01 | 1.567E-04 | 1.466E-02 | 9.63E+00 | 3.792E+01 | 3.070E+01 | 5.308E-04 | 2.812E-02 | 6.341E+00 |
| 85 | 8.716E-02 | -7.599E+01 | 7.50E+00 | 4.916E+01 | 5.240E+01 | 1.821E-04 | 1.701E-02 | 8.84E+00 | 4.176E+01 | 3.380E+01 | 4.377E-04 | 2.328E-02 | 6.414E+00 |
| 90 | 0. | -8.324E+01 | 8.17E+00 | 4.529E+01 | 4.828E+01 | 2.145E-04 | 2.001E-02 | 8.11E+00 | 4.563E+01 | 3.693E+01 | 3.667E-04 | 1.957E-02 | 6.439E+00 |
| 95 | -8.716E-02 | -9.050E+01 | 8.91E+00 | 4.142E+01 | 4.416E+01 | 2.564E-04 | 2.387E-02 | 7.45E+00 | 4.949E+01 | 4.006E+01 | 3.117E-04 | 1.667E-02 | 6.414E+00 |
| 100 | -1.736E-01 | -9.770E+01 | 9.71E+00 | 3.758E+01 | 4.007E+01 | 3.115E-04 | 2.893E-02 | 6.83E+00 | 5.333E+01 | 4.316E+01 | 2.684E-04 | 1.439E-02 | 6.341E+00 |
| 105 | -2.588E-01 | -1.048E+02 | 1.06E+01 | 3.380E+01 | 3.604E+01 | 3.850E-04 | 3.566E-02 | 6.25E+00 | 5.711E+01 | 4.622E+01 | 2.341E-04 | 1.258E-02 | 6.220E+00 |
| 110 | -3.420E-01 | -1.117E+02 | 1.16E+01 | 3.011E+01 | 3.211E+01 | 4.851E-04 | 4.478E-02 | 5.71E+00 | 6.080E+01 | 4.920E+01 | 2.065E-04 | 1.112E-02 | 6.051E+00 |
| 115 | -4.226E-01 | -1.184E+02 | 1.27E+01 | 2.653E+01 | 2.830E+01 | 6.246E-04 | 5.743E-02 | 5.20E+00 | 6.438E+01 | 5.210E+01 | 1.842E-04 | 9.931E-03 | 5.836E+00 |
| 120 | -5.000E-01 | -1.249E+02 | 1.40E+01 | 2.310E+01 | 2.464E+01 | 8.239E-04 | 7.538E-02 | 4.72E+00 | 6.781E+01 | 5.487E+01 | 1.661E-04 | 8.962E-03 | 5.576E+00 |
| 125 | -5.736E-01 | -1.310E+02 | 1.54E+01 | 1.983E+01 | 2.116E+01 | 1.117E-03 | 1.016E-01 | 4.26E+00 | 7.108E+01 | 5.751E+01 | 1.512E-04 | 8.167E-03 | 5.275E+00 |
| 130 | -6.428E-01 | -1.368E+02 | 1.71E+01 | 1.676E+01 | 1.789E+01 | 1.564E-03 | 1.410E-01 | 3.81E+00 | 7.415E+01 | 6.000E+01 | 1.389E-04 | 7.512E-03 | 4.933E+00 |
| 135 | -7.071E-01 | -1.421E+02 | 1.91E+01 | 1.390E+01 | 1.485E+01 | 2.271E-03 | 2.027E-01 | 3.39E+00 | 7.700E+01 | 6.231E+01 | 1.288E-04 | 6.971E-03 | 4.553E+00 |
| 140 | -7.660E-01 | -1.470E+02 | 2.15E+01 | 1.128E+01 | 1.206E+01 | 3.443E-03 | 3.030E-01 | 2.98E+00 | 7.962E+01 | 6.442E+01 | 1.205E-04 | 6.525E-03 | 4.139E+00 |
| 145 | -8.192E-01 | -1.514E+02 | 2.45E+01 | 8.912E+00 | 9.550E+00 | 5.497E-03 | 4.747E-01 | 2.58E+00 | 8.197E+01 | 6.633E+01 | 1.137E-04 | 6.159E-03 | 3.693E+00 |
| 150 | -8.660E-01 | -1.553E+02 | 2.82E+01 | 6.817E+00 | 7.334E+00 | 9.339E-03 | 7.855E-01 | 2.20E+00 | 8.405E+01 | 6.801E+01 | 1.081E-04 | 5.861E-03 | 3.220E+00 |
| 155 | -9.063E-01 | -1.587E+02 | 3.29E+01 | 5.007E+00 | 5.430E+00 | 1.711E-02 | 1.386E+00 | 1.82E+00 | 8.584E+01 | 6.946E+01 | 1.036E-04 | 5.622E-03 | 2.721E+00 |
| 160 | -9.397E-01 | -1.615E+02 | 3.91E+01 | 3.490E+00 | 3.851E+00 | 3.430E-02 | 2.634E+00 | 1.45E+00 | 8.732E+01 | 7.066E+01 | 1.002E-04 | 5.434E-03 | 2.202E+00 |
| 165 | -9.659E-01 | -1.637E+02 | 4.74E+01 | 2.263E+00 | 2.611E+00 | 7.625E-02 | 5.452E+00 | 1.08E+00 | 8.848E+01 | 7.160E+01 | 9.755E-05 | 5.294E-03 | 1.667E+00 |
| 170 | -9.848E-01 | -1.652E+02 | 5.85E+01 | 1.311E+00 | 1.718E+00 | 1.868E-01 | 1.246E+01 | 7.17E-01 | 8.932E+01 | 7.227E+01 | 9.572E-05 | 5.196E-03 | 1.118E+00 |
| 175 | -9.962E-01 | -1.662E+02 | 7.28E+01 | 5.876E-01 | 1.180E+00 | 4.692E-01 | 3.412E+01 | 3.58E-01 | 8.983E+01 | 7.268E+01 | 9.465E-05 | 5.134E-03 | 5.612E-02 |
| 180 | -1.000E+00 | -1.665E+02 | 0. | 3.603E-03 | 1.000E+00 | 9.962E-01 | -3.193E+06 | 0. | 9.000E+01 | 7.282E+01 | 9.430E-05 | 5.119E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + DELTA(1236) (4) AT 100 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 1.23600E+00
P2CM= 6.81725E+00 P3CM= 6.79351E+00
E1CM= 6.88151E+00 E2CM= 6.88151E+00 E3CM= 6.85799E+00 E4CM= 6.90503E+00

1-V1LAB = 4.401E-05 1-VCM = 9.339E-03 GCM = 7.33434E+00 ETCM= 1.37630E+01 S = 1.89421E+02 -U=( 1.85252E+02) +T

| 03 CM | COS(03) CM | 4-MOM TSFR SQUARE, T | 03 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | 04 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -1.051E-05 | 0. | 9.965E+01 | 1.062E+02 | 4.432E-05 | 4.647E-03 | 0. | 3.450E-01 | 1.038E+00 | 7.311E-01 | -3.877E+02 | 0. |
| 1 | 9.998E-01 | -1.412E-02 | 6.82E-02 | 9.965E+01 | 1.062E+02 | 4.433E-05 | 4.648E-03 | 1.86E+01 | 3.720E-01 | 1.044E+00 | 7.118E-01 | -3.825E+02 | 1.186E-01 |
| 2 | 9.994E-01 | -5.644E-02 | 1.36E-01 | 9.962E+01 | 1.062E+02 | 4.435E-05 | 4.650E-03 | 3.23E+01 | 4.440E-01 | 1.063E+00 | 6.620E-01 | -1.658E+02 | 2.371E-01 |
| 3 | 9.986E-01 | -1.270E-01 | 2.05E-01 | 9.959E+01 | 1.061E+02 | 4.438E-05 | 4.653E-03 | 4.07E+01 | 5.452E-01 | 1.093E+00 | 5.964E-01 | -7.868E+01 | 3.555E-01 |
| 4 | 9.976E-01 | -2.256E-01 | 2.73E-01 | 9.953E+01 | 1.061E+02 | 4.443E-05 | 4.658E-03 | 4.55E+01 | 6.649E-01 | 1.136E+00 | 5.263E-01 | -3.498E+01 | 4.739E-01 |
| 5 | 9.962E-01 | -3.525E-01 | 3.41E-01 | 9.947E+01 | 1.060E+02 | 4.449E-05 | 4.665E-03 | 4.79E+01 | 7.977E-01 | 1.190E+00 | 4.577E-01 | -1.401E+01 | 5.921E-01 |
| 6 | 9.945E-01 | -5.074E-01 | 4.09E-01 | 9.938E+01 | 1.059E+02 | 4.456E-05 | 4.672E-03 | 4.90E+01 | 9.413E-01 | 1.257E+00 | 3.941E-01 | -3.882E+00 | 7.101E-01 |
| 7 | 9.925E-01 | -6.904E-01 | 4.78E-01 | 9.929E+01 | 1.058E+02 | 4.465E-05 | 4.682E-03 | 4.91E+01 | 1.095E+00 | 1.336E+00 | 3.369E-01 | 1.019E+00 | 8.279E-01 |
| 8 | 9.903E-01 | -9.014E-01 | 5.46E-01 | 9.917E+01 | 1.057E+02 | 4.475E-05 | 4.692E-03 | 4.87E+01 | 1.258E+00 | 1.427E+00 | 2.867E-01 | 3.321E+00 | 9.455E-01 |
| 9 | 9.877E-01 | -1.140E+00 | 6.15E-01 | 9.905E+01 | 1.056E+02 | 4.486E-05 | 4.704E-03 | 4.80E+01 | 1.431E+00 | 1.530E+00 | 2.432E-01 | 4.294E+00 | 1.063E+00 |
| 10 | 9.848E-01 | -1.407E+00 | 6.83E-01 | 9.891E+01 | 1.054E+02 | 4.499E-05 | 4.718E-03 | 4.70E+01 | 1.614E+00 | 1.645E+00 | 2.060E-01 | 4.577E+00 | 1.180E+00 |
| 15 | 9.659E-01 | -3.156E+00 | 1.03E+00 | 9.797E+01 | 1.044E+02 | 4.585E-05 | 4.807E-03 | 4.07E+01 | 2.695E+00 | 2.399E+00 | 9.102E-02 | 3.216E+00 | 1.758E+00 |
| 20 | 9.397E-01 | -5.586E+00 | 1.38E+00 | 9.668E+01 | 1.030E+02 | 4.709E-05 | 4.936E-03 | 3.47E+01 | 4.077E+00 | 3.447E+00 | 4.301E-02 | 1.826E+00 | 2.324E+00 |
| 25 | 9.063E-01 | -8.678E+00 | 1.73E+00 | 9.503E+01 | 1.013E+02 | 4.874E-05 | 5.108E-03 | 2.98E+01 | 5.777E+00 | 4.780E+00 | 2.213E-02 | 1.043E+00 | 2.871E+00 |
| 30 | 8.660E-01 | -1.241E+01 | 2.09E+00 | 9.304E+01 | 9.917E+01 | 5.084E-05 | 5.328E-03 | 2.58E+01 | 7.799E+00 | 6.389E+00 | 1.233E-02 | 6.204E-01 | 3.397E+00 |
| 35 | 8.192E-01 | -1.675E+01 | 2.46E+00 | 9.073E+01 | 9.670E+01 | 5.347E-05 | 5.601E-03 | 2.26E+01 | 1.013E+01 | 8.261E+00 | 7.355E-03 | 3.870E-01 | 3.897E+00 |
| 40 | 7.660E-01 | -2.167E+01 | 2.84E+00 | 8.811E+01 | 9.391E+01 | 5.670E-05 | 5.938E-03 | 2.00E+01 | 1.277E+01 | 1.038E+01 | 4.650E-03 | 2.524E-01 | 4.367E+00 |
| 45 | 7.071E-01 | -2.713E+01 | 3.23E+00 | 8.520E+01 | 9.081E+01 | 6.064E-05 | 6.348E-03 | 1.78E+01 | 1.569E+01 | 1.274E+01 | 3.088E-03 | 1.714E-01 | 4.804E+00 |
| 50 | 6.428E-01 | -3.309E+01 | 3.64E+00 | 8.202E+01 | 8.742E+01 | 6.542E-05 | 6.846E-03 | 1.60E+01 | 1.888E+01 | 1.530E+01 | 2.137E-03 | 1.206E-01 | 5.204E+00 |
| 55 | 5.736E-01 | -3.950E+01 | 4.06E+00 | 7.861E+01 | 8.378E+01 | 7.123E-05 | 7.451E-03 | 1.45E+01 | 2.230E+01 | 1.807E+01 | 1.533E-03 | 8.763E-02 | 5.565E+00 |
| 60 | 5.000E-01 | -4.631E+01 | 4.50E+00 | 7.497E+01 | 7.991E+01 | 7.830E-05 | 8.185E-03 | 1.31E+01 | 2.593E+01 | 2.101E+01 | 1.134E-03 | 6.546E-02 | 5.883E+00 |
| 65 | 4.226E-01 | -5.348E+01 | 4.96E+00 | 7.115E+01 | 7.584E+01 | 8.693E-05 | 9.081E-03 | 1.19E+01 | 2.976E+01 | 2.410E+01 | 8.615E-04 | 5.013E-02 | 6.157E+00 |
| 70 | 3.420E-01 | -6.095E+01 | 5.45E+00 | 6.717E+01 | 7.160E+01 | 9.753E-05 | 1.018E-02 | 1.09E+01 | 3.374E+01 | 2.732E+01 | 6.704E-04 | 3.926E-02 | 6.384E+00 |
| 75 | 2.588E-01 | -6.865E+01 | 5.97E+00 | 6.307E+01 | 6.722E+01 | 1.106E-04 | 1.154E-02 | 9.98E+00 | 3.785E+01 | 3.064E+01 | 5.328E-04 | 3.136E-02 | 6.562E+00 |
| 80 | 1.736E-01 | -7.654E+01 | 6.53E+00 | 5.886E+01 | 6.274E+01 | 1.270E-04 | 1.323E-02 | 9.15E+00 | 4.205E+01 | 3.404E+01 | 4.316E-04 | 2.551E-02 | 6.690E+00 |
| 85 | 8.716E-02 | -8.455E+01 | 7.12E+00 | 5.459E+01 | 5.819E+01 | 1.477E-04 | 1.536E-02 | 8.40E+00 | 4.633E+01 | 3.749E+01 | 3.557E-04 | 2.110E-02 | 6.768E+00 |
| 90 | 0. | -9.263E+01 | 7.76E+00 | 5.029E+01 | 5.361E+01 | 1.740E-04 | 1.808E-02 | 7.71E+00 | 5.063E+01 | 4.097E+01 | 2.979E-04 | 1.772E-02 | 6.794E+00 |
| 95 | -8.716E-02 | -1.007E+02 | 8.46E+00 | 4.599E+01 | 4.902E+01 | 2.081E-04 | 2.158E-02 | 7.08E+00 | 5.493E+01 | 4.445E+01 | 2.530E-04 | 1.509E-02 | 6.768E+00 |
| 100 | -1.736E-01 | -1.087E+02 | 9.23E+00 | 4.172E+01 | 4.447E+01 | 2.528E-04 | 2.617E-02 | 6.49E+00 | 5.920E+01 | 4.791E+01 | 2.179E-04 | 1.302E-02 | 6.690E+00 |
| 105 | -2.588E-01 | -1.166E+02 | 1.01E+01 | 3.751E+01 | 3.999E+01 | 3.127E-04 | 3.229E-02 | 5.94E+00 | 6.341E+01 | 5.131E+01 | 1.899E-04 | 1.137E-02 | 6.562E+00 |
| 110 | -3.420E-01 | -1.243E+02 | 1.10E+01 | 3.340E+01 | 3.562E+01 | 3.943E-04 | 4.059E-02 | 5.43E+00 | 6.751E+01 | 5.463E+01 | 1.675E-04 | 1.005E-02 | 6.384E+00 |
| 115 | -4.226E-01 | -1.318E+02 | 1.21E+01 | 2.942E+01 | 3.138E+01 | 5.080E-04 | 5.212E-02 | 4.94E+00 | 7.149E+01 | 5.785E+01 | 1.494E-04 | 8.971E-03 | 6.157E+00 |
| 120 | -5.000E-01 | -1.389E+02 | 1.33E+01 | 2.560E+01 | 2.730E+01 | 6.709E-04 | 6.852E-02 | 4.48E+00 | 7.531E+01 | 6.094E+01 | 1.346E-04 | 8.093E-03 | 5.883E+00 |
| 125 | -5.736E-01 | -1.458E+02 | 1.47E+01 | 2.197E+01 | 2.343E+01 | 9.109E-04 | 9.250E-02 | 4.04E+00 | 7.895E+01 | 6.388E+01 | 1.225E-04 | 7.373E-03 | 5.565E+00 |
| 130 | -6.428E-01 | -1.522E+02 | 1.63E+01 | 1.855E+01 | 1.979E+01 | 1.277E-03 | 1.287E-01 | 3.62E+00 | 8.236E+01 | 6.664E+01 | 1.126E-04 | 6.780E-03 | 5.204E+00 |
| 135 | -7.071E-01 | -1.581E+02 | 1.82E+01 | 1.537E+01 | 1.641E+01 | 1.859E-03 | 1.856E-01 | 3.22E+00 | 8.554E+01 | 6.921E+01 | 1.044E-04 | 6.290E-03 | 4.804E+00 |
| 140 | -7.660E-01 | -1.636E+02 | 2.05E+01 | 1.245E+01 | 1.331E+01 | 2.827E-03 | 2.786E-01 | 2.83E+00 | 8.845E+01 | 7.157E+01 | 9.763E-05 | 5.887E-03 | 4.367E+00 |
| 145 | -8.192E-01 | -1.685E+02 | 2.34E+01 | 9.820E+00 | 1.051E+01 | 4.533E-03 | 4.390E-01 | 2.45E+00 | 9.107E+01 | 7.369E+01 | 9.209E-05 | 5.556E-03 | 3.897E+00 |
| 150 | -8.660E-01 | -1.728E+02 | 2.70E+01 | 7.493E+00 | 8.048E+00 | 7.749E-03 | 7.321E-01 | 2.08E+00 | 9.338E+01 | 7.556E+01 | 8.758E-05 | 5.286E-03 | 3.397E+00 |
| 155 | -9.063E-01 | -1.766E+02 | 3.16E+01 | 5.483E+00 | 5.929E+00 | 1.433E-02 | 1.306E+00 | 1.73E+00 | 9.537E+01 | 7.717E+01 | 8.397E-05 | 5.070E-03 | 2.871E+00 |
| 160 | -9.397E-01 | -1.797E+02 | 3.77E+01 | 3.801E+00 | 4.173E+00 | 2.914E-02 | 2.523E+00 | 1.37E+00 | 9.702E+01 | 7.850E+01 | 8.114E-05 | 4.901E-03 | 2.324E+00 |
| 165 | -9.659E-01 | -1.821E+02 | 4.59E+01 | 2.446E+00 | 2.793E+00 | 6.631E-02 | 5.342E+00 | 1.02E+00 | 9.831E+01 | 7.955E+01 | 7.902E-05 | 4.773E-03 | 1.758E+00 |
| 170 | -9.848E-01 | -1.838E+02 | 5.72E+01 | 1.403E+00 | 1.799E+00 | 1.687E-01 | 1.259E+01 | 6.81E-01 | 9.925E+01 | 8.030E+01 | 7.754E-05 | 4.685E-03 | 1.180E+00 |
| 175 | -9.962E-01 | -1.849E+02 | 7.20E+01 | 6.227E-01 | 1.200E+00 | 4.470E-01 | 3.562E+01 | 3.40E-01 | 9.981E+01 | 8.076E+01 | 7.667E-05 | 4.633E-03 | 5.921E-01 |
| 180 | -1.000E+00 | -1.853E+02 | 0. | 3.242E-03 | 1.000E+00 | 9.965E-01 | -4.390E+06 | 0. | 1.000E+02 | 8.091E+01 | 7.638E-05 | 4.615E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + DELTA(1236) (4) AT 125 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 1.23600E+00
P2CM= 7.62907E+00 P3CM= 7.60785E+00
E1CM= 7.68655E+00 E2CM= 7.68655E+00 E3CM= 7.66549E+00 E4CM= 7.70760E+00

1-V1LAB = 2.817E-05 1-VCM = 7.478E-03 GCM = 8.19235E+00 ETCM= 1.53731E+01 S = 2.36332E+02 -U=( 2.32163E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -6.724E-06 | 0. | 1.247E+02 | 1.329E+02 | 2.833E-05 | 3.725E-03 | 0. | 3.450E-01 | 1.038E+00 | 7.312E-01 | -4.863E+02 | 0. |
| 1 | 9.998E-01 | -1.769E-02 | 6.10E-02 | 1.246E+02 | 1.329E+02 | 2.833E-05 | 3.725E-03 | 2.05E+01 | 3.785E-01 | 1.046E+00 | 7.072E-01 | -3.580E+02 | 1.328E-01 |
| 2 | 9.994E-01 | -7.072E-02 | 1.22E-01 | 1.246E+02 | 1.328E+02 | 2.834E-05 | 3.727E-03 | 3.47E+01 | 4.660E-01 | 1.069E+00 | 6.472E-01 | -1.755E+02 | 2.655E-01 |
| 3 | 9.986E-01 | -1.591E-01 | 1.83E-01 | 1.246E+02 | 1.328E+02 | 2.836E-05 | 3.730E-03 | 4.28E+01 | 5.863E-01 | 1.107E+00 | 5.714E-01 | -7.440E+01 | 3.982E-01 |
| 4 | 9.976E-01 | -2.828E-01 | 2.44E-01 | 1.245E+02 | 1.327E+02 | 2.839E-05 | 3.734E-03 | 4.69E+01 | 7.270E-01 | 1.160E+00 | 4.930E-01 | -2.898E+01 | 5.307E-01 |
| 5 | 9.962E-01 | -4.417E-01 | 3.05E-01 | 1.244E+02 | 1.326E+02 | 2.843E-05 | 3.739E-03 | 4.87E+01 | 8.824E-01 | 1.229E+00 | 4.190E-01 | -8.974E+00 | 6.631E-01 |
| 6 | 9.945E-01 | -6.359E-01 | 3.67E-01 | 1.243E+02 | 1.325E+02 | 2.848E-05 | 3.745E-03 | 4.92E+01 | 1.051E+00 | 1.312E+00 | 3.524E-01 | -8.369E-02 | 7.952E-01 |
| 7 | 9.925E-01 | -8.653E-01 | 4.28E-01 | 1.242E+02 | 1.324E+02 | 2.854E-05 | 3.752E-03 | 4.89E+01 | 1.231E+00 | 1.411E+00 | 2.944E-01 | 3.791E+00 | 9.272E-01 |
| 8 | 9.903E-01 | -1.130E+00 | 4.89E-01 | 1.241E+02 | 1.322E+02 | 2.860E-05 | 3.761E-03 | 4.81E+01 | 1.424E+00 | 1.525E+00 | 2.449E-01 | 5.315E+00 | 1.059E+00 |
| 9 | 9.877E-01 | -1.429E+00 | 5.50E-01 | 1.239E+02 | 1.320E+02 | 2.867E-05 | 3.771E-03 | 4.69E+01 | 1.629E+00 | 1.654E+00 | 2.034E-01 | 5.712E+00 | 1.190E+00 |
| 10 | 9.848E-01 | -1.764E+00 | 6.12E-01 | 1.237E+02 | 1.319E+02 | 2.876E-05 | 3.781E-03 | 4.56E+01 | 1.848E+00 | 1.799E+00 | 1.688E-01 | 5.570E+00 | 1.321E+00 |
| 15 | 9.659E-01 | -3.955E+00 | 9.21E-01 | 1.225E+02 | 1.306E+02 | 2.931E-05 | 3.854E-03 | 3.86E+01 | 3.158E+00 | 2.744E+00 | 6.879E-02 | 3.291E+00 | 1.969E+00 |
| 20 | 9.397E-01 | -7.001E+00 | 1.23E+00 | 1.209E+02 | 1.289E+02 | 3.010E-05 | 3.957E-03 | 3.24E+01 | 4.859E+00 | 4.057E+00 | 3.086E-02 | 1.733E+00 | 2.602E+00 |
| 25 | 9.063E-01 | -1.088E+01 | 1.55E+00 | 1.189E+02 | 1.267E+02 | 3.116E-05 | 4.095E-03 | 2.75E+01 | 6.970E+00 | 5.727E+00 | 1.536E-02 | 9.446E-01 | 3.215E+00 |
| 30 | 8.660E-01 | -1.555E+01 | 1.87E+00 | 1.164E+02 | 1.240E+02 | 3.250E-05 | 4.272E-03 | 2.36E+01 | 9.491E+00 | 7.743E+00 | 8.374E-03 | 5.451E-01 | 3.804E+00 |
| 35 | 8.192E-01 | -2.099E+01 | 2.20E+00 | 1.135E+02 | 1.209E+02 | 3.419E-05 | 4.492E-03 | 2.06E+01 | 1.241E+01 | 1.009E+01 | 4.924E-03 | 3.329E-01 | 4.364E+00 |
| 40 | 7.660E-01 | -2.716E+01 | 2.54E+00 | 1.102E+02 | 1.174E+02 | 3.626E-05 | 4.763E-03 | 1.81E+01 | 1.571E+01 | 1.275E+01 | 3.082E-03 | 2.138E-01 | 4.890E+00 |
| 45 | 7.071E-01 | -3.400E+01 | 2.89E+00 | 1.065E+02 | 1.136E+02 | 3.878E-05 | 5.093E-03 | 1.61E+01 | 1.936E+01 | 1.570E+01 | 2.031E-03 | 1.436E-01 | 5.380E+00 |
| 50 | 6.428E-01 | -4.147E+01 | 3.26E+00 | 1.026E+02 | 1.093E+02 | 4.185E-05 | 5.494E-03 | 1.45E+01 | 2.335E+01 | 1.892E+01 | 1.398E-03 | 1.002E-01 | 5.828E+00 |
| 55 | 5.736E-01 | -4.950E+01 | 3.64E+00 | 9.828E+01 | 1.047E+02 | 4.557E-05 | 5.981E-03 | 1.30E+01 | 2.763E+01 | 2.238E+01 | 9.988E-04 | 7.235E-02 | 6.232E+00 |
| 60 | 5.000E-01 | -5.804E+01 | 4.03E+00 | 9.372E+01 | 9.990E+01 | 5.011E-05 | 6.573E-03 | 1.18E+01 | 3.219E+01 | 2.606E+01 | 7.364E-04 | 5.378E-02 | 6.589E+00 |
| 65 | 4.226E-01 | -6.702E+01 | 4.45E+00 | 8.894E+01 | 9.479E+01 | 5.564E-05 | 7.295E-03 | 1.07E+01 | 3.698E+01 | 2.994E+01 | 5.581E-04 | 4.102E-02 | 6.895E+00 |
| 70 | 3.420E-01 | -7.638E+01 | 4.89E+00 | 8.395E+01 | 8.948E+01 | 6.245E-05 | 8.183E-03 | 9.81E+00 | 4.197E+01 | 3.397E+01 | 4.334E-04 | 3.202E-02 | 7.149E+00 |
| 75 | 2.588E-01 | -8.604E+01 | 5.35E+00 | 7.880E+01 | 8.399E+01 | 7.007E-05 | 9.280E-03 | 8.97E+00 | 4.712E+01 | 3.813E+01 | 3.439E-04 | 2.551E-02 | 7.349E+00 |
| 80 | 1.736E-01 | -9.592E+01 | 5.85E+00 | 7.353E+01 | 7.838E+01 | 8.139E-05 | 1.065E-02 | 8.22E+00 | 5.239E+01 | 4.240E+01 | 2.782E-04 | 2.071E-02 | 7.492E+00 |
| 85 | 8.716E-02 | -1.060E+02 | 6.38E+00 | 6.818E+01 | 7.268E+01 | 9.467E-05 | 1.237E-02 | 7.54E+00 | 5.774E+01 | 4.672E+01 | 2.290E-04 | 1.710E-02 | 7.579E+00 |
| 90 | 0. | -1.161E+02 | 6.96E+00 | 6.279E+01 | 6.693E+01 | 1.116E-04 | 1.457E-02 | 6.92E+00 | 6.313E+01 | 5.109E+01 | 1.916E-04 | 1.434E-02 | 7.608E+00 |
| 95 | -8.716E-02 | -1.262E+02 | 7.59E+00 | 5.740E+01 | 6.118E+01 | 1.336E-04 | 1.741E-02 | 6.35E+00 | 6.852E+01 | 5.545E+01 | 1.626E-04 | 1.219E-02 | 7.579E+00 |
| 100 | -1.736E-01 | -1.362E+02 | 8.28E+00 | 5.205E+01 | 5.548E+01 | 1.624E-04 | 2.114E-02 | 5.82E+00 | 7.387E+01 | 5.978E+01 | 1.399E-04 | 1.051E-02 | 7.492E+00 |
| 105 | -2.588E-01 | -1.461E+02 | 9.04E+00 | 4.678E+01 | 4.987E+01 | 2.011E-04 | 2.612E-02 | 5.33E+00 | 7.914E+01 | 6.404E+01 | 1.219E-04 | 9.171E-03 | 7.349E+00 |
| 110 | -3.420E-01 | -1.558E+02 | 9.89E+00 | 4.163E+01 | 4.438E+01 | 2.539E-04 | 3.290E-02 | 4.87E+00 | 8.429E+01 | 6.820E+01 | 1.075E-04 | 8.095E-03 | 7.149E+00 |
| 115 | -4.226E-01 | -1.651E+02 | 1.08E+01 | 3.664E+01 | 3.907E+01 | 3.277E-04 | 4.233E-02 | 4.43E+00 | 8.928E+01 | 7.224E+01 | 9.582E-05 | 7.224E-03 | 6.895E+00 |
| 120 | -5.000E-01 | -1.741E+02 | 1.19E+01 | 3.185E+01 | 3.397E+01 | 4.335E-04 | 5.580E-02 | 4.02E+00 | 9.407E+01 | 7.611E+01 | 8.632E-05 | 6.513E-03 | 6.589E+00 |
| 125 | -5.736E-01 | -1.827E+02 | 1.32E+01 | 2.730E+01 | 2.911E+01 | 5.900E-04 | 7.559E-02 | 3.62E+00 | 9.862E+01 | 7.979E+01 | 7.853E-05 | 5.931E-03 | 6.232E+00 |
| 130 | -6.428E-01 | -1.907E+02 | 1.47E+01 | 2.302E+01 | 2.455E+01 | 8.299E-04 | 1.057E-01 | 3.25E+00 | 1.029E+02 | 8.326E+01 | 7.213E-05 | 5.451E-03 | 5.828E+00 |
| 135 | -7.071E-01 | -1.982E+02 | 1.64E+01 | 1.903E+01 | 2.031E+01 | 1.213E-03 | 1.532E-01 | 2.89E+00 | 1.069E+02 | 8.648E+01 | 6.686E-05 | 5.056E-03 | 5.380E+00 |
| 140 | -7.660E-01 | -2.050E+02 | 1.85E+01 | 1.538E+01 | 1.642E+01 | 1.855E-03 | 2.319E-01 | 2.54E+00 | 1.105E+02 | 8.943E+01 | 6.252E-05 | 4.730E-03 | 4.890E+00 |
| 145 | -8.192E-01 | -2.112E+02 | 2.12E+01 | 1.209E+01 | 1.292E+01 | 2.998E-03 | 3.692E-01 | 2.20E+00 | 1.138E+02 | 9.208E+01 | 5.897E-05 | 4.463E-03 | 4.364E+00 |
| 150 | -8.660E-01 | -2.166E+02 | 2.45E+01 | 9.178E+00 | 9.833E+00 | 5.185E-03 | 6.249E-01 | 1.87E+00 | 1.167E+02 | 9.443E+01 | 5.607E-05 | 4.245E-03 | 3.804E+00 |
| 155 | -9.063E-01 | -2.213E+02 | 2.88E+01 | 6.668E+00 | 7.177E+00 | 9.754E-03 | 1.139E+00 | 1.55E+00 | 1.192E+02 | 9.645E+01 | 5.375E-05 | 4.071E-03 | 3.215E+00 |
| 160 | -9.397E-01 | -2.252E+02 | 3.47E+01 | 4.574E+00 | 4.976E+00 | 2.040E-02 | 2.272E+00 | 1.23E+00 | 1.213E+02 | 9.812E+01 | 5.194E-05 | 3.934E-03 | 2.602E+00 |
| 165 | -9.659E-01 | -2.282E+02 | 4.28E+01 | 2.898E+00 | 3.247E+00 | 4.862E-02 | 5.044E+00 | 9.18E-01 | 1.229E+02 | 9.943E+01 | 5.058E-05 | 3.832E-03 | 1.969E+00 |
| 170 | -9.848E-01 | -2.304E+02 | 5.43E+01 | 1.627E+00 | 2.002E+00 | 1.337E-01 | 1.269E+01 | 6.10E-01 | 1.241E+02 | 1.004E+02 | 4.963E-05 | 3.760E-03 | 1.321E+00 |
| 175 | -9.962E-01 | -2.317E+02 | 7.01E+01 | 7.051E-01 | 1.251E+00 | 3.992E-01 | 3.873E+01 | 3.05E-01 | 1.248E+02 | 1.009E+02 | 4.907E-05 | 3.718E-03 | 6.631E-01 |
| 180 | -1.000E+00 | -2.322E+02 | 0. | 2.593E-03 | 1.000E+00 | 9.972E-01 | -8.608E+06 | 0. | 1.250E+02 | 1.011E+02 | 4.888E-05 | 3.704E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + DELTA(1236) (4) AT 150 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 1.23600E+00
P2CM= 8.36245E+00 P3CM= 8.34310E+00
E1CM= 8.41493E+00 E2CM= 8.41493E+00 E3CM= 8.39569E+00 E4CM= 8.43416E+00

1-V1LAB = 1.956E-05 1-VCM = 6.235E-03 GCM = 8.96866E+00 ETCM= 1.68299E+01 S = 2.83244E+02 -U=( 2.79075E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -4.667E-06 | 0. | 1.497E+02 | 1.595E+02 | 1.965E-05 | 3.108E-03 | 0. | 3.450E-01 | 1.038E+00 | 7.312E-01 | -5.848E+02 | 0. |
| 1 | 9.998E-01 | -2.126E-02 | 5.58E-02 | 1.496E+02 | 1.595E+02 | 1.966E-05 | 3.108E-03 | 2.22E+01 | 3.850E-01 | 1.047E+00 | 7.026E-01 | -4.069E+02 | 1.456E-01 |
| 2 | 9.994E-01 | -8.501E-02 | 1.12E-01 | 1.496E+02 | 1.595E+02 | 1.966E-05 | 3.110E-03 | 3.67E+01 | 4.872E-01 | 1.075E+00 | 6.333E-01 | -1.801E+02 | 2.912E-01 |
| 3 | 9.986E-01 | -1.912E-01 | 1.67E-01 | 1.496E+02 | 1.594E+02 | 1.968E-05 | 3.112E-03 | 4.43E+01 | 6.253E-01 | 1.121E+00 | 5.486E-01 | -6.890E+01 | 4.366E-01 |
| 4 | 9.976E-01 | -3.399E-01 | 2.23E-01 | 1.495E+02 | 1.593E+02 | 1.970E-05 | 3.115E-03 | 4.78E+01 | 7.853E-01 | 1.185E+00 | 4.637E-01 | -2.327E+01 | 5.820E-01 |
| 5 | 9.962E-01 | -5.310E-01 | 2.79E-01 | 1.494E+02 | 1.592E+02 | 1.973E-05 | 3.120E-03 | 4.91E+01 | 9.619E-01 | 1.267E+00 | 3.858E-01 | -4.609E+00 | 7.271E-01 |
| 6 | 9.945E-01 | -7.644E-01 | 3.35E-01 | 1.492E+02 | 1.591E+02 | 1.976E-05 | 3.125E-03 | 4.91E+01 | 1.153E+00 | 1.368E+00 | 3.177E-01 | 3.030E+00 | 8.721E-01 |
| 7 | 9.925E-01 | -1.040E+00 | 3.91E-01 | 1.491E+02 | 1.589E+02 | 1.980E-05 | 3.131E-03 | 4.84E+01 | 1.360E+00 | 1.487E+00 | 2.600E-01 | 5.963E+00 | 1.017E+00 |
| 8 | 9.903E-01 | -1.358E+00 | 4.47E-01 | 1.489E+02 | 1.587E+02 | 1.984E-05 | 3.138E-03 | 4.73E+01 | 1.581E+00 | 1.624E+00 | 2.122E-01 | 6.807E+00 | 1.161E+00 |
| 9 | 9.877E-01 | -1.718E+00 | 5.03E-01 | 1.487E+02 | 1.585E+02 | 1.990E-05 | 3.146E-03 | 4.59E+01 | 1.818E+00 | 1.779E+00 | 1.730E-01 | 6.720E+00 | 1.305E+00 |
| 10 | 9.848E-01 | -2.120E+00 | 5.59E-01 | 1.485E+02 | 1.583E+02 | 1.995E-05 | 3.155E-03 | 4.44E+01 | 2.072E+00 | 1.952E+00 | 1.412E-01 | 6.234E+00 | 1.449E+00 |
| 15 | 9.659E-01 | -4.755E+00 | 8.41E-01 | 1.471E+02 | 1.568E+02 | 2.034E-05 | 3.216E-03 | 3.67E+01 | 3.611E+00 | 3.088E+00 | 5.388E-02 | 3.276E+00 | 2.159E+00 |
| 20 | 9.397E-01 | -8.415E+00 | 1.13E+00 | 1.452E+02 | 1.547E+02 | 2.089E-05 | 3.302E-03 | 3.04E+01 | 5.634E+00 | 4.666E+00 | 2.323E-02 | 1.631E+00 | 2.854E+00 |
| 25 | 9.063E-01 | -1.307E+01 | 1.42E+00 | 1.427E+02 | 1.521E+02 | 2.162E-05 | 3.418E-03 | 2.56E+01 | 8.157E+00 | 6.675E+00 | 1.129E-02 | 8.590E-01 | 3.526E+00 |
| 30 | 8.660E-01 | -1.869E+01 | 1.71E+00 | 1.397E+02 | 1.489E+02 | 2.256E-05 | 3.565E-03 | 2.19E+01 | 1.118E+01 | 9.098E+00 | 6.058E-03 | 4.848E-01 | 4.172E+00 |
| 35 | 8.192E-01 | -2.524E+01 | 2.01E+00 | 1.362E+02 | 1.452E+02 | 2.372E-05 | 3.750E-03 | 1.90E+01 | 1.468E+01 | 1.192E+01 | 3.526E-03 | 2.916E-01 | 4.785E+00 |
| 40 | 7.660E-01 | -3.265E+01 | 2.32E+00 | 1.323E+02 | 1.410E+02 | 2.516E-05 | 3.976E-03 | 1.67E+01 | 1.864E+01 | 1.511E+01 | 2.191E-03 | 1.853E-01 | 5.363E+00 |
| 45 | 7.071E-01 | -4.087E+01 | 2.64E+00 | 1.279E+02 | 1.363E+02 | 2.692E-05 | 4.252E-03 | 1.48E+01 | 2.303E+01 | 1.866E+01 | 1.437E-03 | 1.235E-01 | 5.899E+00 |
| 50 | 6.428E-01 | -4.984E+01 | 2.98E+00 | 1.231E+02 | 1.312E+02 | 2.905E-05 | 4.588E-03 | 1.33E+01 | 2.782E+01 | 2.253E+01 | 9.856E-04 | 8.571E-02 | 6.391E+00 |
| 55 | 5.736E-01 | -5.950E+01 | 3.32E+00 | 1.179E+02 | 1.257E+02 | 3.164E-05 | 4.995E-03 | 1.20E+01 | 3.297E+01 | 2.669E+01 | 7.020E-04 | 6.159E-02 | 6.834E+00 |
| 60 | 5.000E-01 | -6.977E+01 | 3.68E+00 | 1.125E+02 | 1.199E+02 | 3.479E-05 | 5.491E-03 | 1.08E+01 | 3.844E+01 | 3.112E+01 | 5.165E-04 | 4.563E-02 | 7.225E+00 |
| 65 | 4.226E-01 | -8.057E+01 | 4.06E+00 | 1.067E+02 | 1.137E+02 | 3.865E-05 | 6.096E-03 | 9.85E+00 | 4.420E+01 | 3.577E+01 | 3.908E-04 | 3.471E-02 | 7.561E+00 |
| 70 | 3.420E-01 | -9.181E+01 | 4.46E+00 | 1.007E+02 | 1.074E+02 | 4.338E-05 | 6.840E-03 | 8.99E+00 | 5.020E+01 | 4.062E+01 | 3.030E-04 | 2.703E-02 | 7.840E+00 |
| 75 | 2.588E-01 | -1.034E+02 | 4.89E+00 | 9.454E+01 | 1.008E+02 | 4.924E-05 | 7.760E-03 | 8.22E+00 | 5.638E+01 | 4.563E+01 | 2.402E-04 | 2.150E-02 | 8.059E+00 |
| 80 | 1.736E-01 | -1.153E+02 | 5.34E+00 | 8.821E+01 | 9.402E+01 | 5.657E-05 | 8.908E-03 | 7.53E+00 | 6.272E+01 | 5.075E+01 | 1.941E-04 | 1.743E-02 | 8.216E+00 |
| 85 | 8.716E-02 | -1.274E+02 | 5.83E+00 | 8.177E+01 | 8.716E+01 | 6.582E-05 | 1.036E-02 | 6.90E+00 | 6.915E+01 | 5.596E+01 | 1.597E-04 | 1.437E-02 | 8.311E+00 |
| 90 | 0. | -1.395E+02 | 6.36E+00 | 7.529E+01 | 8.025E+01 | 7.764E-05 | 1.220E-02 | 6.33E+00 | 7.563E+01 | 6.120E+01 | 1.335E-04 | 1.204E-02 | 8.343E+00 |
| 95 | -8.716E-02 | -1.517E+02 | 6.94E+00 | 6.881E+01 | 7.335E+01 | 9.295E-05 | 1.459E-02 | 5.81E+00 | 8.211E+01 | 6.644E+01 | 1.133E-04 | 1.023E-02 | 8.311E+00 |
| 100 | -1.736E-01 | -1.638E+02 | 7.57E+00 | 6.238E+01 | 6.649E+01 | 1.131E-04 | 1.773E-02 | 5.32E+00 | 8.855E+01 | 7.165E+01 | 9.741E-05 | 8.811E-03 | 8.216E+00 |
| 105 | -2.588E-01 | -1.757E+02 | 8.27E+00 | 5.604E+01 | 5.974E+01 | 1.401E-04 | 2.193E-02 | 4.87E+00 | 9.488E+01 | 7.677E+01 | 8.484E-05 | 7.683E-03 | 8.059E+00 |
| 110 | -3.420E-01 | -1.873E+02 | 9.05E+00 | 4.986E+01 | 5.315E+01 | 1.770E-04 | 2.765E-02 | 4.45E+00 | 1.011E+02 | 8.178E+01 | 7.477E-05 | 6.779E-03 | 7.840E+00 |
| 115 | -4.226E-01 | -1.985E+02 | 9.93E+00 | 4.386E+01 | 4.676E+01 | 2.287E-04 | 3.564E-02 | 4.05E+00 | 1.071E+02 | 8.663E+01 | 6.663E-05 | 6.046E-03 | 7.561E+00 |
| 120 | -5.000E-01 | -2.093E+02 | 1.09E+01 | 3.811E+01 | 4.063E+01 | 3.030E-04 | 4.706E-02 | 3.67E+00 | 1.128E+02 | 9.128E+01 | 6.001E-05 | 5.449E-03 | 7.225E+00 |
| 125 | -5.736E-01 | -2.196E+02 | 1.21E+01 | 3.263E+01 | 3.480E+01 | 4.131E-04 | 6.391E-02 | 3.31E+00 | 1.183E+02 | 9.571E+01 | 5.459E-05 | 4.960E-03 | 6.834E+00 |
| 130 | -6.428E-01 | -2.292E+02 | 1.34E+01 | 2.748E+01 | 2.931E+01 | 5.822E-04 | 8.961E-02 | 2.97E+00 | 1.234E+02 | 9.987E+01 | 5.013E-05 | 4.558E-03 | 6.391E+00 |
| 135 | -7.071E-01 | -2.382E+02 | 1.51E+01 | 2.270E+01 | 2.421E+01 | 8.532E-04 | 1.304E-01 | 2.64E+00 | 1.282E+02 | 1.037E+02 | 4.646E-05 | 4.226E-03 | 5.899E+00 |
| 140 | -7.660E-01 | -2.464E+02 | 1.70E+01 | 1.831E+01 | 1.954E+01 | 1.310E-03 | 1.985E-01 | 2.32E+00 | 1.326E+02 | 1.073E+02 | 4.344E-05 | 3.953E-03 | 5.363E+00 |
| 145 | -8.192E-01 | -2.538E+02 | 1.95E+01 | 1.436E+01 | 1.533E+01 | 2.129E-03 | 3.184E-01 | 2.01E+00 | 1.365E+02 | 1.105E+02 | 4.096E-05 | 3.729E-03 | 4.785E+00 |
| 150 | -8.660E-01 | -2.604E+02 | 2.26E+01 | 1.086E+01 | 1.162E+01 | 3.711E-03 | 5.447E-01 | 1.71E+00 | 1.400E+02 | 1.133E+02 | 3.895E-05 | 3.547E-03 | 4.172E+00 |
| 155 | -9.063E-01 | -2.660E+02 | 2.67E+01 | 7.849E+00 | 8.425E+00 | 7.069E-03 | 1.009E+00 | 1.41E+00 | 1.430E+02 | 1.157E+02 | 3.734E-05 | 3.401E-03 | 3.526E+00 |
| 160 | -9.397E-01 | -2.707E+02 | 3.23E+01 | 5.341E+00 | 5.780E+00 | 1.508E-02 | 2.061E+00 | 1.12E+00 | 1.455E+02 | 1.177E+02 | 3.607E-05 | 3.286E-03 | 2.854E+00 |
| 165 | -9.659E-01 | -2.743E+02 | 4.02E+01 | 3.343E+00 | 3.700E+00 | 3.721E-02 | 4.747E+00 | 8.39E-01 | 1.475E+02 | 1.193E+02 | 3.512E-05 | 3.200E-03 | 2.159E+00 |
| 170 | -9.848E-01 | -2.770E+02 | 5.18E+01 | 1.843E+00 | 2.204E+00 | 1.089E-01 | 1.262E+01 | 5.58E-01 | 1.489E+02 | 1.204E+02 | 3.447E-05 | 3.141E-03 | 1.449E+00 |
| 175 | -9.962E-01 | -2.785E+02 | 6.85E+01 | 7.817E-01 | 1.302E+00 | 3.599E-01 | 4.118E+01 | 2.78E-01 | 1.497E+02 | 1.211E+02 | 3.408E-05 | 3.105E-03 | 7.271E-01 |
| 180 | -1.000E+00 | -2.791E+02 | 0. | 2.160E-03 | 1.000E+00 | 9.977E-01 | -1.491E+07 | 0. | 1.500E+02 | 1.214E+02 | 3.395E-05 | 3.094E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + DELTA(1236) (4) AT 175 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 1.23600E+00
P2CM= 9.03652E+00 P3CM= 9.01861E+00
E1CM= 9.08510E+00 E2CM= 9.08510E+00 E3CM= 9.06729E+00 E4CM= 9.10291E+00

1-V1LAB = 1.437E-05 1-VCM = 5.347E-03 GCM = 9.68293E+00 ETCM= 1.81702E+01 S = 3.30156E+02 -U=( 3.25987E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -3.428E-06 | 0. | 1.747E+02 | 1.862E+02 | 1.443E-05 | 2.666E-03 | 0. | 3.450E-01 | 1.038E+00 | 7.312E-01 | -6.834E+02 | 0. |
| 1 | 9.998E-01 | -2.483E-02 | 5.16E-02 | 1.746E+02 | 1.861E+02 | 1.443E-05 | 2.667E-03 | 2.37E+01 | 3.913E-01 | 1.049E+00 | 6.982E-01 | -4.501E+02 | 1.574E-01 |
| 2 | 9.994E-01 | -9.929E-02 | 1.03E-01 | 1.746E+02 | 1.861E+02 | 1.444E-05 | 2.668E-03 | 3.83E+01 | 5.076E-01 | 1.081E+00 | 6.201E-01 | -1.814E+02 | 3.147E-01 |
| 3 | 9.986E-01 | -2.234E-01 | 1.55E-01 | 1.745E+02 | 1.860E+02 | 1.445E-05 | 2.670E-03 | 4.54E+01 | 6.623E-01 | 1.135E+00 | 5.277E-01 | -6.294E+01 | 4.720E-01 |
| 4 | 9.976E-01 | -3.970E-01 | 2.07E-01 | 1.744E+02 | 1.859E+02 | 1.446E-05 | 2.673E-03 | 4.84E+01 | 8.407E-01 | 1.209E+00 | 4.376E-01 | -1.799E+01 | 6.291E-01 |
| 5 | 9.962E-01 | -6.202E-01 | 2.58E-01 | 1.743E+02 | 1.858E+02 | 1.448E-05 | 2.676E-03 | 4.92E+01 | 1.038E+00 | 1.306E+00 | 3.571E-01 | -8.281E-01 | 7.860E-01 |
| 6 | 9.945E-01 | -8.929E-01 | 3.10E-01 | 1.742E+02 | 1.856E+02 | 1.451E-05 | 2.681E-03 | 4.89E+01 | 1.252E+00 | 1.423E+00 | 2.885E-01 | 5.612E+00 | 9.427E-01 |
| 7 | 9.925E-01 | -1.215E+00 | 3.62E-01 | 1.740E+02 | 1.855E+02 | 1.454E-05 | 2.686E-03 | 4.78E+01 | 1.483E+00 | 1.562E+00 | 2.318E-01 | 7.690E+00 | 1.099E+00 |
| 8 | 9.903E-01 | -1.586E+00 | 4.14E-01 | 1.738E+02 | 1.852E+02 | 1.457E-05 | 2.692E-03 | 4.64E+01 | 1.733E+00 | 1.722E+00 | 1.859E-01 | 7.943E+00 | 1.255E+00 |
| 9 | 9.877E-01 | -2.007E+00 | 4.66E-01 | 1.736E+02 | 1.850E+02 | 1.461E-05 | 2.699E-03 | 4.48E+01 | 2.002E+00 | 1.903E+00 | 1.491E-01 | 7.446E+00 | 1.411E+00 |
| 10 | 9.848E-01 | -2.476E+00 | 5.18E-01 | 1.733E+02 | 1.847E+02 | 1.465E-05 | 2.707E-03 | 4.31E+01 | 2.291E+00 | 2.106E+00 | 1.199E-01 | 6.679E+00 | 1.566E+00 |
| 15 | 9.659E-01 | -5.554E+00 | 7.79E-01 | 1.717E+02 | 1.830E+02 | 1.493E-05 | 2.759E-03 | 3.51E+01 | 4.059E+00 | 3.433E+00 | 4.337E-02 | 3.214E+00 | 2.334E+00 |
| 20 | 9.397E-01 | -9.830E+00 | 1.04E+00 | 1.694E+02 | 1.806E+02 | 1.534E-05 | 2.833E-03 | 2.88E+01 | 6.403E+00 | 5.276E+00 | 1.812E-02 | 1.531E+00 | 3.085E+00 |
| 25 | 9.063E-01 | -1.527E+01 | 1.31E+00 | 1.665E+02 | 1.775E+02 | 1.587E-05 | 2.933E-03 | 2.41E+01 | 9.340E+00 | 7.622E+00 | 8.643E-03 | 7.856E-01 | 3.811E+00 |
| 30 | 8.660E-01 | -2.184E+01 | 1.59E+00 | 1.630E+02 | 1.737E+02 | 1.656E-05 | 3.059E-03 | 2.05E+01 | 1.286E+01 | 1.045E+01 | 4.586E-03 | 4.359E-01 | 4.509E+00 |
| 35 | 8.192E-01 | -2.948E+01 | 1.87E+00 | 1.589E+02 | 1.694E+02 | 1.742E-05 | 3.218E-03 | 1.78E+01 | 1.695E+01 | 1.375E+01 | 2.649E-03 | 2.592E-01 | 5.173E+00 |
| 40 | 7.660E-01 | -3.813E+01 | 2.15E+00 | 1.543E+02 | 1.645E+02 | 1.848E-05 | 3.412E-03 | 1.56E+01 | 2.157E+01 | 1.748E+01 | 1.638E-03 | 1.635E-01 | 5.797E+00 |
| 45 | 7.071E-01 | -4.774E+01 | 2.45E+00 | 1.492E+02 | 1.590E+02 | 1.977E-05 | 3.650E-03 | 1.38E+01 | 2.670E+01 | 2.162E+01 | 1.070E-03 | 1.083E-01 | 6.377E+00 |
| 50 | 6.428E-01 | -5.822E+01 | 2.76E+00 | 1.436E+02 | 1.531E+02 | 2.134E-05 | 3.938E-03 | 1.24E+01 | 3.229E+01 | 2.614E+01 | 7.319E-04 | 7.485E-02 | 6.909E+00 |
| 55 | 5.736E-01 | -6.950E+01 | 3.08E+00 | 1.376E+02 | 1.467E+02 | 2.324E-05 | 4.289E-03 | 1.11E+01 | 3.830E+01 | 3.101E+01 | 5.203E-04 | 5.361E-02 | 7.388E+00 |
| 60 | 5.000E-01 | -8.150E+01 | 3.41E+00 | 1.312E+02 | 1.399E+02 | 2.556E-05 | 4.715E-03 | 1.01E+01 | 4.470E+01 | 3.618E+01 | 3.821E-04 | 3.962E-02 | 7.810E+00 |
| 65 | 4.226E-01 | -9.411E+01 | 3.76E+00 | 1.245E+02 | 1.327E+02 | 2.839E-05 | 5.236E-03 | 9.15E+00 | 5.142E+01 | 4.161E+01 | 2.888E-04 | 3.008E-02 | 8.174E+00 |
| 70 | 3.420E-01 | -1.072E+02 | 4.14E+00 | 1.175E+02 | 1.252E+02 | 3.188E-05 | 5.876E-03 | 8.34E+00 | 5.842E+01 | 4.728E+01 | 2.237E-04 | 2.339E-02 | 8.475E+00 |
| 75 | 2.588E-01 | -1.208E+02 | 4.53E+00 | 1.103E+02 | 1.175E+02 | 3.619E-05 | 6.667E-03 | 7.63E+00 | 6.565E+01 | 5.312E+01 | 1.772E-04 | 1.858E-02 | 8.711E+00 |
| 80 | 1.736E-01 | -1.347E+02 | 4.95E+00 | 1.029E+02 | 1.097E+02 | 4.159E-05 | 7.656E-03 | 6.98E+00 | 7.305E+01 | 5.911E+01 | 1.431E-04 | 1.504E-02 | 8.882E+00 |
| 85 | 8.716E-02 | -1.488E+02 | 5.41E+00 | 9.536E+01 | 1.016E+02 | 4.840E-05 | 8.904E-03 | 6.40E+00 | 8.056E+01 | 6.519E+01 | 1.177E-04 | 1.240E-02 | 8.984E+00 |
| 90 | 0. | -1.630E+02 | 5.90E+00 | 8.779E+01 | 9.358E+01 | 5.710E-05 | 1.050E-02 | 5.87E+00 | 8.813E+01 | 7.131E+01 | 9.832E-05 | 1.038E-02 | 9.019E+00 |
| 95 | -8.716E-02 | -1.772E+02 | 6.43E+00 | 8.022E+01 | 8.551E+01 | 6.839E-05 | 1.256E-02 | 5.39E+00 | 9.571E+01 | 7.744E+01 | 8.338E-05 | 8.811E-03 | 8.984E+00 |
| 100 | -1.736E-01 | -1.913E+02 | 7.02E+00 | 7.271E+01 | 7.750E+01 | 8.325E-05 | 1.527E-02 | 4.94E+00 | 1.032E+02 | 8.352E+01 | 7.169E-05 | 7.585E-03 | 8.882E+00 |
| 105 | -2.588E-01 | -2.052E+02 | 7.67E+00 | 6.531E+01 | 6.962E+01 | 1.032E-04 | 1.890E-02 | 4.52E+00 | 1.106E+02 | 8.950E+01 | 6.242E-05 | 6.611E-03 | 8.711E+00 |
| 110 | -3.420E-01 | -2.187E+02 | 8.39E+00 | 5.808E+01 | 6.191E+01 | 1.304E-04 | 2.385E-02 | 4.12E+00 | 1.178E+02 | 9.535E+01 | 5.500E-05 | 5.830E-03 | 8.475E+00 |
| 115 | -4.226E-01 | -2.319E+02 | 9.21E+00 | 5.108E+01 | 5.445E+01 | 1.687E-04 | 3.077E-02 | 3.75E+00 | 1.248E+02 | 1.010E+02 | 4.900E-05 | 5.199E-03 | 8.174E+00 |
| 120 | -5.000E-01 | -2.445E+02 | 1.01E+01 | 4.436E+01 | 4.729E+01 | 2.236E-04 | 4.069E-02 | 3.40E+00 | 1.316E+02 | 1.065E+02 | 4.413E-05 | 4.684E-03 | 7.810E+00 |
| 125 | -5.736E-01 | -2.565E+02 | 1.12E+01 | 3.797E+01 | 4.048E+01 | 3.052E-04 | 5.535E-02 | 3.07E+00 | 1.380E+02 | 1.116E+02 | 4.013E-05 | 4.263E-03 | 7.388E+00 |
| 130 | -6.428E-01 | -2.678E+02 | 1.25E+01 | 3.195E+01 | 3.407E+01 | 4.309E-04 | 7.778E-02 | 2.75E+00 | 1.440E+02 | 1.165E+02 | 3.685E-05 | 3.916E-03 | 6.909E+00 |
| 135 | -7.071E-01 | -2.782E+02 | 1.40E+01 | 2.636E+01 | 2.811E+01 | 6.328E-04 | 1.135E-01 | 2.44E+00 | 1.496E+02 | 1.210E+02 | 3.415E-05 | 3.631E-03 | 6.377E+00 |
| 140 | -7.660E-01 | -2.879E+02 | 1.58E+01 | 2.124E+01 | 2.266E+01 | 9.744E-04 | 1.734E-01 | 2.15E+00 | 1.547E+02 | 1.251E+02 | 3.193E-05 | 3.395E-03 | 5.797E+00 |
| 145 | -8.192E-01 | -2.965E+02 | 1.81E+01 | 1.662E+01 | 1.774E+01 | 1.590E-03 | 2.798E-01 | 1.86E+00 | 1.593E+02 | 1.289E+02 | 3.010E-05 | 3.203E-03 | 5.173E+00 |
| 150 | -8.660E-01 | -3.042E+02 | 2.11E+01 | 1.254E+01 | 1.340E+01 | 2.787E-03 | 4.825E-01 | 1.58E+00 | 1.634E+02 | 1.322E+02 | 2.862E-05 | 3.046E-03 | 4.509E+00 |
| 155 | -9.063E-01 | -3.107E+02 | 2.50E+01 | 9.028E+00 | 9.674E+00 | 5.357E-03 | 9.043E-01 | 1.31E+00 | 1.669E+02 | 1.350E+02 | 2.743E-05 | 2.920E-03 | 3.811E+00 |
| 160 | -9.397E-01 | -3.162E+02 | 3.03E+01 | 6.105E+00 | 6.583E+00 | 1.161E-02 | 1.882E+00 | 1.04E+00 | 1.698E+02 | 1.373E+02 | 2.650E-05 | 2.822E-03 | 3.085E+00 |
| 165 | -9.659E-01 | -3.204E+02 | 3.81E+01 | 3.783E+00 | 4.154E+00 | 2.940E-02 | 4.467E+00 | 7.77E-01 | 1.720E+02 | 1.392E+02 | 2.581E-05 | 2.748E-03 | 2.334E+00 |
| 170 | -9.848E-01 | -3.235E+02 | 4.97E+01 | 2.054E+00 | 2.406E+00 | 9.043E-02 | 1.244E+01 | 5.17E-01 | 1.737E+02 | 1.405E+02 | 2.532E-05 | 2.696E-03 | 1.566E+00 |
| 175 | -9.962E-01 | -3.254E+02 | 6.70E+01 | 8.541E-01 | 1.352E+00 | 3.268E-01 | 4.314E+01 | 2.58E-01 | 1.747E+02 | 1.413E+02 | 2.504E-05 | 2.666E-03 | 7.860E-01 |
| 180 | -1.000E+00 | -3.260E+02 | 0. | 1.851E-03 | 1.000E+00 | 9.980E-01 | -2.373E+07 | 0. | 1.750E+02 | 1.416E+02 | 2.494E-05 | 2.656E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + DELTA(1236) (4) AT 200 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 1.23600E+00
P2CM= 9.66368E+00 P3CM= 9.64694E+00
E1CM= 9.70913E+00 E2CM= 9.70913E+00 E3CM= 9.69246E+00 E4CM= 9.72579E+00

1-V1LAB = 1.100E-05 1-VCM = 4.680E-03 GCM = 1.03480E+01 ETCM= 1.94183E+01 S = 3.77068E+02 -U=( 3.72900E+02) +T

| Θ3 CM | COS(Θ3) CM | 4-MOM TSFR SQUARE, T | Θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | Θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -2.624E-06 | 0. | 1.997E+02 | 2.128E+02 | 1.104E-05 | 2.335E-03 | 0. | 3.450E-01 | 1.038E+00 | 7.312E-01 | -7.819E+02 | 0. |
| 1 | 9.998E-01 | -2.840E-02 | 4.83E-02 | 1.996E+02 | 2.128E+02 | 1.104E-05 | 2.335E-03 | 2.51E+01 | 3.976E-01 | 1.050E+00 | 6.938E-01 | -4.882E+02 | 1.684E-01 |
| 2 | 9.994E-01 | -1.136E-01 | 9.66E-02 | 1.996E+02 | 2.127E+02 | 1.105E-05 | 2.336E-03 | 3.97E+01 | 5.273E-01 | 1.087E+00 | 6.076E-01 | -1.803E+02 | 3.367E-01 |
| 3 | 9.986E-01 | -2.555E-01 | 1.45E-01 | 1.995E+02 | 2.127E+02 | 1.106E-05 | 2.338E-03 | 4.63E+01 | 6.979E-01 | 1.148E+00 | 5.083E-01 | -5.687E+01 | 5.049E-01 |
| 4 | 9.976E-01 | -4.542E-01 | 1.93E-01 | 1.994E+02 | 2.125E+02 | 1.107E-05 | 2.340E-03 | 4.88E+01 | 8.937E-01 | 1.234E+00 | 4.140E-01 | -1.316E+01 | 6.729E-01 |
| 5 | 9.962E-01 | -7.095E-01 | 2.42E-01 | 1.993E+02 | 2.124E+02 | 1.108E-05 | 2.343E-03 | 4.92E+01 | 1.110E+00 | 1.344E+00 | 3.318E-01 | 2.462E+00 | 8.408E-01 |
| 6 | 9.945E-01 | -1.021E+00 | 2.90E-01 | 1.991E+02 | 2.122E+02 | 1.110E-05 | 2.347E-03 | 4.85E+01 | 1.346E+00 | 1.479E+00 | 2.634E-01 | 7.773E+00 | 1.008E+00 |
| 7 | 9.925E-01 | -1.390E+00 | 3.39E-01 | 1.989E+02 | 2.120E+02 | 1.112E-05 | 2.352E-03 | 4.72E+01 | 1.603E+00 | 1.637E+00 | 2.082E-01 | 9.082E+00 | 1.176E+00 |
| 8 | 9.903E-01 | -1.815E+00 | 3.87E-01 | 1.987E+02 | 2.118E+02 | 1.115E-05 | 2.357E-03 | 4.56E+01 | 1.880E+00 | 1.821E+00 | 1.644E-01 | 8.817E+00 | 1.343E+00 |
| 9 | 9.877E-01 | -2.296E+00 | 4.36E-01 | 1.984E+02 | 2.115E+02 | 1.118E-05 | 2.363E-03 | 4.38E+01 | 2.181E+00 | 2.028E+00 | 1.300E-01 | 7.973E+00 | 1.509E+00 |
| 10 | 9.848E-01 | -2.833E+00 | 4.84E-01 | 1.981E+02 | 2.112E+02 | 1.121E-05 | 2.370E-03 | 4.20E+01 | 2.504E+00 | 2.259E+00 | 1.033E-01 | 6.973E+00 | 1.675E+00 |
| 15 | 9.659E-01 | -6.353E+00 | 7.29E-01 | 1.963E+02 | 2.092E+02 | 1.143E-05 | 2.416E-03 | 3.37E+01 | 4.502E+00 | 3.777E+00 | 3.568E-02 | 3.129E+00 | 2.497E+00 |
| 20 | 9.397E-01 | -1.124E+01 | 9.76E-01 | 1.937E+02 | 2.064E+02 | 1.174E-05 | 2.481E-03 | 2.74E+01 | 7.170E+00 | 5.886E+00 | 1.454E-02 | 1.438E+00 | 3.299E+00 |
| 25 | 9.063E-01 | -1.747E+01 | 1.23E+00 | 1.903E+02 | 2.029E+02 | 1.215E-05 | 2.568E-03 | 2.28E+01 | 1.052E+01 | 8.570E+00 | 6.831E-03 | 7.226E-01 | 4.077E+00 |
| 30 | 8.660E-01 | -2.498E+01 | 1.48E+00 | 1.863E+02 | 1.986E+02 | 1.268E-05 | 2.679E-03 | 1.94E+01 | 1.454E+01 | 1.181E+01 | 3.592E-03 | 3.957E-01 | 4.823E+00 |
| 35 | 8.192E-01 | -3.372E+01 | 1.75E+00 | 1.817E+02 | 1.936E+02 | 1.333E-05 | 2.818E-03 | 1.67E+01 | 1.921E+01 | 1.558E+01 | 2.063E-03 | 2.332E-01 | 5.533E+00 |
| 40 | 7.660E-01 | -4.362E+01 | 2.01E+00 | 1.764E+02 | 1.880E+02 | 1.414E-05 | 2.989E-03 | 1.47E+01 | 2.450E+01 | 1.985E+01 | 1.270E-03 | 1.462E-01 | 6.201E+00 |
| 45 | 7.071E-01 | -5.461E+01 | 2.29E+00 | 1.706E+02 | 1.818E+02 | 1.513E-05 | 3.197E-03 | 1.30E+01 | 3.036E+01 | 2.458E+01 | 8.277E-04 | 9.643E-02 | 6.821E+00 |
| 50 | 6.428E-01 | -6.660E+01 | 2.58E+00 | 1.642E+02 | 1.750E+02 | 1.633E-05 | 3.450E-03 | 1.16E+01 | 3.675E+01 | 2.975E+01 | 5.649E-04 | 6.642E-02 | 7.390E+00 |
| 55 | 5.736E-01 | -7.951E+01 | 2.88E+00 | 1.573E+02 | 1.676E+02 | 1.779E-05 | 3.757E-03 | 1.04E+01 | 4.363E+01 | 3.532E+01 | 4.009E-04 | 4.746E-02 | 7.902E+00 |
| 60 | 5.000E-01 | -9.322E+01 | 3.19E+00 | 1.500E+02 | 1.598E+02 | 1.957E-05 | 4.131E-03 | 9.44E+00 | 5.095E+01 | 4.123E+01 | 2.941E-04 | 3.500E-02 | 8.354E+00 |
| 65 | 4.226E-01 | -1.077E+02 | 3.52E+00 | 1.423E+02 | 1.517E+02 | 2.174E-05 | 4.588E-03 | 8.57E+00 | 5.864E+01 | 4.745E+01 | 2.221E-04 | 2.654E-02 | 8.743E+00 |
| 70 | 3.420E-01 | -1.227E+02 | 3.87E+00 | 1.343E+02 | 1.431E+02 | 2.441E-05 | 5.150E-03 | 7.82E+00 | 6.665E+01 | 5.393E+01 | 1.719E-04 | 2.061E-02 | 9.065E+00 |
| 75 | 2.588E-01 | -1.382E+02 | 4.24E+00 | 1.260E+02 | 1.343E+02 | 2.772E-05 | 5.845E-03 | 7.15E+00 | 7.492E+01 | 6.062E+01 | 1.361E-04 | 1.636E-02 | 9.318E+00 |
| 80 | 1.736E-01 | -1.541E+02 | 4.64E+00 | 1.175E+02 | 1.253E+02 | 3.185E-05 | 6.713E-03 | 6.54E+00 | 8.338E+01 | 6.747E+01 | 1.099E-04 | 1.323E-02 | 9.500E+00 |
| 85 | 8.716E-02 | -1.702E+02 | 5.06E+00 | 1.090E+02 | 1.161E+02 | 3.708E-05 | 7.809E-03 | 6.00E+00 | 9.197E+01 | 7.442E+01 | 9.028E-05 | 1.090E-02 | 9.610E+00 |
| 90 | 0. | -1.864E+02 | 5.52E+00 | 1.003E+02 | 1.069E+02 | 4.376E-05 | 9.209E-03 | 5.50E+00 | 1.006E+02 | 8.143E+01 | 7.542E-05 | 9.115E-03 | 9.647E+00 |
| 95 | -8.716E-02 | -2.027E+02 | 6.02E+00 | 9.163E+01 | 9.767E+01 | 5.242E-05 | 1.102E-02 | 5.04E+00 | 1.093E+02 | 8.843E+01 | 6.394E-05 | 7.738E-03 | 9.610E+00 |
| 100 | -1.736E-01 | -2.188E+02 | 6.57E+00 | 8.304E+01 | 8.851E+01 | 6.383E-05 | 1.341E-02 | 4.62E+00 | 1.179E+02 | 9.539E+01 | 5.496E-05 | 6.658E-03 | 9.500E+00 |
| 105 | -2.588E-01 | -2.347E+02 | 7.18E+00 | 7.458E+01 | 7.949E+01 | 7.914E-05 | 1.660E-02 | 4.23E+00 | 1.264E+02 | 1.022E+02 | 4.784E-05 | 5.802E-03 | 9.318E+00 |
| 110 | -3.420E-01 | -2.502E+02 | 7.86E+00 | 6.631E+01 | 7.068E+01 | 1.001E-04 | 2.097E-02 | 3.86E+00 | 1.346E+02 | 1.089E+02 | 4.215E-05 | 5.115E-03 | 9.065E+00 |
| 115 | -4.226E-01 | -2.652E+02 | 8.63E+00 | 5.830E+01 | 6.214E+01 | 1.295E-04 | 2.707E-02 | 3.51E+00 | 1.426E+02 | 1.154E+02 | 3.755E-05 | 4.560E-03 | 8.743E+00 |
| 120 | -5.000E-01 | -2.797E+02 | 9.50E+00 | 5.061E+01 | 5.395E+01 | 1.718E-04 | 3.583E-02 | 3.19E+00 | 1.503E+02 | 1.216E+02 | 3.380E-05 | 4.108E-03 | 8.354E+00 |
| 125 | -5.736E-01 | -2.934E+02 | 1.05E+01 | 4.330E+01 | 4.616E+01 | 2.347E-04 | 4.881E-02 | 2.87E+00 | 1.576E+02 | 1.275E+02 | 3.074E-05 | 3.737E-03 | 7.902E+00 |
| 130 | -6.428E-01 | -3.063E+02 | 1.17E+01 | 3.642E+01 | 3.883E+01 | 3.317E-04 | 6.870E-02 | 2.57E+00 | 1.645E+02 | 1.331E+02 | 2.822E-05 | 3.433E-03 | 7.390E+00 |
| 135 | -7.071E-01 | -3.183E+02 | 1.31E+01 | 3.003E+01 | 3.202E+01 | 4.879E-04 | 1.005E-01 | 2.29E+00 | 1.709E+02 | 1.383E+02 | 2.615E-05 | 3.182E-03 | 6.821E+00 |
| 140 | -7.660E-01 | -3.293E+02 | 1.49E+01 | 2.417E+01 | 2.578E+01 | 7.529E-04 | 1.540E-01 | 2.01E+00 | 1.768E+02 | 1.430E+02 | 2.445E-05 | 2.976E-03 | 6.201E+00 |
| 145 | -8.192E-01 | -3.392E+02 | 1.70E+01 | 1.888E+01 | 2.015E+01 | 1.232E-03 | 2.495E-01 | 1.74E+00 | 1.820E+02 | 1.473E+02 | 2.305E-05 | 2.806E-03 | 5.533E+00 |
| 150 | -8.660E-01 | -3.479E+02 | 1.98E+01 | 1.422E+01 | 1.519E+01 | 2.170E-03 | 4.329E-01 | 1.48E+00 | 1.867E+02 | 1.510E+02 | 2.192E-05 | 2.669E-03 | 4.823E+00 |
| 155 | -9.063E-01 | -3.554E+02 | 2.35E+01 | 1.020E+01 | 1.092E+01 | 4.200E-03 | 8.190E-01 | 1.23E+00 | 1.907E+02 | 1.543E+02 | 2.101E-05 | 2.558E-03 | 4.077E+00 |
| 160 | -9.397E-01 | -3.617E+02 | 2.87E+01 | 6.867E+00 | 7.386E+00 | 9.207E-03 | 1.730E+00 | 9.74E-01 | 1.940E+02 | 1.570E+02 | 2.029E-05 | 2.472E-03 | 3.299E+00 |
| 165 | -9.659E-01 | -3.665E+02 | 3.63E+01 | 4.221E+00 | 4.608E+00 | 2.383E-02 | 4.208E+00 | 7.28E-01 | 1.966E+02 | 1.591E+02 | 1.976E-05 | 2.407E-03 | 2.497E+00 |
| 170 | -9.848E-01 | -3.701E+02 | 4.78E+01 | 2.261E+00 | 2.609E+00 | 7.638E-02 | 1.220E+01 | 4.84E-01 | 1.985E+02 | 1.606E+02 | 1.939E-05 | 2.362E-03 | 1.675E+00 |
| 175 | -9.962E-01 | -3.722E+02 | 6.56E+01 | 9.233E-01 | 1.403E+00 | 2.986E-01 | 4.473E+01 | 2.41E-01 | 1.996E+02 | 1.615E+02 | 1.917E-05 | 2.335E-03 | 8.408E-01 |
| 180 | -1.000E+00 | -3.729E+02 | 0. | 1.620E-03 | 1.000E+00 | 9.983E-01 | -3.547E+07 | 0. | 2.000E+02 | 1.618E+02 | 1.910E-05 | 2.327E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + DELTA(1236) (4) AT 225 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 1.23600E+00
P2CM= 1.02526E+01 P3CM= 1.02368E+01
E1CM= 1.02954E+01 E2CM= 1.02954E+01 E3CM= 1.02797E+01 E4CM= 1.03111E+01

1-V1LAB = 8.695E-06 1-VCM = 4.161E-03 GCM = 1.09729E+01 ETCM= 2.05908E+01 S = 4.23981E+02 -U=( 4.19812E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -2.073E-06 | 0. | 2.247E+02 | 2.394E+02 | 8.721E-06 | 2.076E-03 | 0. | 3.450E-01 | 1.038E+00 | 7.312E-01 | -8.805E+02 | 0. |
| 1 | 9.998E-01 | -3.197E-02 | 4.56E-02 | 2.246E+02 | 2.394E+02 | 8.723E-06 | 2.077E-03 | 2.63E+01 | 4.038E-01 | 1.052E+00 | 6.895E-01 | -5.219E+02 | 1.787E-01 |
| 2 | 9.994E-01 | -1.279E-01 | 9.11E-02 | 2.246E+02 | 2.394E+02 | 8.727E-06 | 2.078E-03 | 4.08E+01 | 5.464E-01 | 1.093E+00 | 5.957E-01 | -1.775E+02 | 3.573E-01 |
| 3 | 9.986E-01 | -2.877E-01 | 1.37E-01 | 2.245E+02 | 2.393E+02 | 8.733E-06 | 2.079E-03 | 4.70E+01 | 7.321E-01 | 1.162E+00 | 4.904E-01 | -5.090E+01 | 5.358E-01 |
| 4 | 9.976E-01 | -5.113E-01 | 1.82E-01 | 2.244E+02 | 2.391E+02 | 8.742E-06 | 2.081E-03 | 4.91E+01 | 9.448E-01 | 1.259E+00 | 3.927E-01 | -8.764E+00 | 7.141E-01 |
| 5 | 9.962E-01 | -7.988E-01 | 2.28E-01 | 2.242E+02 | 2.390E+02 | 8.754E-06 | 2.084E-03 | 4.91E+01 | 1.180E+00 | 1.383E+00 | 3.094E-01 | 5.341E+00 | 8.922E-01 |
| 6 | 9.945E-01 | -1.150E+00 | 2.74E-01 | 2.240E+02 | 2.388E+02 | 8.769E-06 | 2.088E-03 | 4.81E+01 | 1.438E+00 | 1.534E+00 | 2.417E-01 | 9.599E+00 | 1.070E+00 |
| 7 | 9.925E-01 | -1.565E+00 | 3.19E-01 | 2.238E+02 | 2.386E+02 | 8.786E-06 | 2.092E-03 | 4.65E+01 | 1.719E+00 | 1.713E+00 | 1.881E-01 | 1.021E+01 | 1.248E+00 |
| 8 | 9.903E-01 | -2.043E+00 | 3.65E-01 | 2.236E+02 | 2.383E+02 | 8.806E-06 | 2.097E-03 | 4.47E+01 | 2.024E+00 | 1.919E+00 | 1.465E-01 | 9.493E+00 | 1.425E+00 |
| 9 | 9.877E-01 | -2.584E+00 | 4.11E-01 | 2.233E+02 | 2.380E+02 | 8.829E-06 | 2.102E-03 | 4.28E+01 | 2.356E+00 | 2.152E+00 | 1.145E-01 | 8.353E+00 | 1.601E+00 |
| 10 | 9.848E-01 | -3.189E+00 | 4.57E-01 | 2.230E+02 | 2.376E+02 | 8.855E-06 | 2.108E-03 | 4.09E+01 | 2.714E+00 | 2.413E+00 | 8.990E-02 | 7.161E+00 | 1.778E+00 |
| 15 | 9.659E-01 | -7.152E+00 | 6.87E-01 | 2.208E+02 | 2.354E+02 | 9.025E-06 | 2.148E-03 | 3.24E+01 | 4.943E+00 | 4.122E+00 | 2.987E-02 | 3.033E+00 | 2.649E+00 |
| 20 | 9.397E-01 | -1.266E+01 | 9.21E-01 | 2.179E+02 | 2.323E+02 | 9.270E-06 | 2.207E-03 | 2.62E+01 | 7.933E+00 | 6.496E+00 | 1.192E-02 | 1.354E+00 | 3.501E+00 |
| 25 | 9.063E-01 | -1.967E+01 | 1.16E+00 | 2.142E+02 | 2.283E+02 | 9.596E-06 | 2.284E-03 | 2.17E+01 | 1.170E+01 | 9.517E+00 | 5.535E-03 | 6.684E-01 | 4.326E+00 |
| 30 | 8.660E-01 | -2.812E+01 | 1.40E+00 | 2.097E+02 | 2.235E+02 | 1.001E-05 | 2.383E-03 | 1.84E+01 | 1.622E+01 | 1.316E+01 | 2.890E-03 | 3.620E-01 | 5.118E+00 |
| 35 | 8.192E-01 | -3.796E+01 | 1.65E+00 | 2.044E+02 | 2.179E+02 | 1.053E-05 | 2.507E-03 | 1.59E+01 | 2.148E+01 | 1.741E+01 | 1.652E-03 | 2.119E-01 | 5.872E+00 |
| 40 | 7.660E-01 | -4.911E+01 | 1.90E+00 | 1.985E+02 | 2.115E+02 | 1.117E-05 | 2.658E-03 | 1.39E+01 | 2.743E+01 | 2.221E+01 | 1.014E-03 | 1.322E-01 | 6.580E+00 |
| 45 | 7.071E-01 | -6.148E+01 | 2.16E+00 | 1.919E+02 | 2.045E+02 | 1.195E-05 | 2.844E-03 | 1.23E+01 | 3.402E+01 | 2.755E+01 | 6.592E-04 | 8.688E-02 | 7.238E+00 |
| 50 | 6.428E-01 | -7.498E+01 | 2.43E+00 | 1.847E+02 | 1.969E+02 | 1.290E-05 | 3.069E-03 | 1.10E+01 | 4.122E+01 | 3.337E+01 | 4.492E-04 | 5.969E-02 | 7.842E+00 |
| 55 | 5.736E-01 | -8.951E+01 | 2.72E+00 | 1.770E+02 | 1.886E+02 | 1.406E-05 | 3.343E-03 | 9.86E+00 | 4.897E+01 | 3.963E+01 | 3.184E-04 | 4.257E-02 | 8.385E+00 |
| 60 | 5.000E-01 | -1.050E+02 | 3.01E+00 | 1.687E+02 | 1.798E+02 | 1.546E-05 | 3.676E-03 | 8.92E+00 | 5.720E+01 | 4.629E+01 | 2.334E-04 | 3.135E-02 | 8.865E+00 |
| 65 | 4.226E-01 | -1.212E+02 | 3.32E+00 | 1.601E+02 | 1.706E+02 | 1.718E-05 | 4.083E-03 | 8.10E+00 | 6.586E+01 | 5.329E+01 | 1.761E-04 | 2.374E-02 | 9.278E+00 |
| 70 | 3.420E-01 | -1.381E+02 | 3.65E+00 | 1.511E+02 | 1.610E+02 | 1.929E-05 | 4.583E-03 | 7.38E+00 | 7.487E+01 | 6.059E+01 | 1.362E-04 | 1.842E-02 | 9.619E+00 |
| 75 | 2.588E-01 | -1.556E+02 | 4.00E+00 | 1.417E+02 | 1.511E+02 | 2.191E-05 | 5.203E-03 | 6.75E+00 | 8.418E+01 | 6.812E+01 | 1.078E-04 | 1.461E-02 | 9.888E+00 |
| 80 | 1.736E-01 | -1.735E+02 | 4.37E+00 | 1.322E+02 | 1.409E+02 | 2.518E-05 | 5.977E-03 | 6.18E+00 | 9.371E+01 | 7.582E+01 | 8.697E-05 | 1.181E-02 | 1.008E+01 |
| 85 | 8.716E-02 | -1.916E+02 | 4.77E+00 | 1.225E+02 | 1.306E+02 | 2.931E-05 | 6.954E-03 | 5.66E+00 | 1.034E+02 | 8.365E+01 | 7.146E-05 | 9.721E-03 | 1.020E+01 |
| 90 | 0. | -2.099E+02 | 5.21E+00 | 1.128E+02 | 1.202E+02 | 3.460E-05 | 8.203E-03 | 5.19E+00 | 1.131E+02 | 9.154E+01 | 5.967E-05 | 8.128E-03 | 1.024E+01 |
| 95 | -8.716E-02 | -2.282E+02 | 5.68E+00 | 1.030E+02 | 1.098E+02 | 4.145E-05 | 9.821E-03 | 4.76E+00 | 1.229E+02 | 9.943E+01 | 5.058E-05 | 6.898E-03 | 1.020E+01 |
| 100 | -1.736E-01 | -2.464E+02 | 6.20E+00 | 9.337E+01 | 9.952E+01 | 5.049E-05 | 1.195E-02 | 4.36E+00 | 1.326E+02 | 1.073E+02 | 4.347E-05 | 5.933E-03 | 1.008E+01 |
| 105 | -2.588E-01 | -2.642E+02 | 6.77E+00 | 8.384E+01 | 8.936E+01 | 6.261E-05 | 1.480E-02 | 3.99E+00 | 1.421E+02 | 1.150E+02 | 3.783E-05 | 5.169E-03 | 9.888E+00 |
| 110 | -3.420E-01 | -2.817E+02 | 7.42E+00 | 7.453E+01 | 7.944E+01 | 7.922E-05 | 1.871E-02 | 3.64E+00 | 1.514E+02 | 1.225E+02 | 3.332E-05 | 4.556E-03 | 9.619E+00 |
| 115 | -4.226E-01 | -2.986E+02 | 8.14E+00 | 6.552E+01 | 6.984E+01 | 1.025E-04 | 2.417E-02 | 3.32E+00 | 1.604E+02 | 1.298E+02 | 2.968E-05 | 4.061E-03 | 9.278E+00 |
| 120 | -5.000E-01 | -3.149E+02 | 8.97E+00 | 5.686E+01 | 6.061E+01 | 1.361E-04 | 3.201E-02 | 3.01E+00 | 1.691E+02 | 1.368E+02 | 2.672E-05 | 3.657E-03 | 8.865E+00 |
| 125 | -5.736E-01 | -3.303E+02 | 9.93E+00 | 4.863E+01 | 5.184E+01 | 1.861E-04 | 4.365E-02 | 2.71E+00 | 1.773E+02 | 1.434E+02 | 2.430E-05 | 3.327E-03 | 8.385E+00 |
| 130 | -6.428E-01 | -3.448E+02 | 1.11E+01 | 4.089E+01 | 4.359E+01 | 2.632E-04 | 6.152E-02 | 2.43E+00 | 1.850E+02 | 1.497E+02 | 2.231E-05 | 3.056E-03 | 7.842E+00 |
| 135 | -7.071E-01 | -3.583E+02 | 1.24E+01 | 3.369E+01 | 3.592E+01 | 3.876E-04 | 9.017E-02 | 2.16E+00 | 1.922E+02 | 1.555E+02 | 2.067E-05 | 2.832E-03 | 7.238E+00 |
| 140 | -7.660E-01 | -3.707E+02 | 1.41E+01 | 2.709E+01 | 2.889E+01 | 5.992E-04 | 1.385E-01 | 1.90E+00 | 1.988E+02 | 1.609E+02 | 1.932E-05 | 2.648E-03 | 6.580E+00 |
| 145 | -8.192E-01 | -3.819E+02 | 1.61E+01 | 2.115E+01 | 2.256E+01 | 9.828E-04 | 2.251E-01 | 1.64E+00 | 2.048E+02 | 1.657E+02 | 1.822E-05 | 2.497E-03 | 5.872E+00 |
| 150 | -8.660E-01 | -3.917E+02 | 1.88E+01 | 1.590E+01 | 1.697E+01 | 1.737E-03 | 3.925E-01 | 1.40E+00 | 2.100E+02 | 1.699E+02 | 1.732E-05 | 2.375E-03 | 5.118E+00 |
| 155 | -9.063E-01 | -4.001E+02 | 2.23E+01 | 1.138E+01 | 1.217E+01 | 3.382E-03 | 7.482E-01 | 1.16E+00 | 2.145E+02 | 1.736E+02 | 1.660E-05 | 2.276E-03 | 4.326E+00 |
| 160 | -9.397E-01 | -4.072E+02 | 2.73E+01 | 7.627E+00 | 8.190E+00 | 7.482E-03 | 1.600E+00 | 9.19E-01 | 2.183E+02 | 1.766E+02 | 1.604E-05 | 2.199E-03 | 3.501E+00 |
| 165 | -9.659E-01 | -4.127E+02 | 3.47E+01 | 4.656E+00 | 5.062E+00 | 1.970E-02 | 3.972E+00 | 6.86E-01 | 2.212E+02 | 1.790E+02 | 1.561E-05 | 2.142E-03 | 2.649E+00 |
| 170 | -9.848E-01 | -4.166E+02 | 4.61E+01 | 2.465E+00 | 2.811E+00 | 6.541E-02 | 1.193E+01 | 4.56E-01 | 2.233E+02 | 1.807E+02 | 1.532E-05 | 2.101E-03 | 1.778E+00 |
| 175 | -9.962E-01 | -4.190E+02 | 6.43E+01 | 9.899E-01 | 1.454E+00 | 2.742E-01 | 4.602E+01 | 2.28E-01 | 2.246E+02 | 1.817E+02 | 1.515E-05 | 2.078E-03 | 8.922E-01 |
| 180 | -1.000E+00 | -4.198E+02 | 0. | 1.440E-03 | 1.000E+00 | 9.985E-01 | -5.056E+07 | 0. | 2.250E+02 | 1.820E+02 | 1.509E-05 | 2.070E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + DELTA(1236) (4) AT 250 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 1.23600E+00
P2CM= 1.08094E+01 P3CM= 1.07944E+01
E1CM= 1.08500E+01 E2CM= 1.08500E+01 E3CM= 1.08351E+01 E4CM= 1.08650E+01

1-V1LAB = 7.043E-06 1-VCM = 3.746E-03 GCM = 1.15640E+01 ETCM= 2.17001E+01 S = 4.70894E+02 -U=( 4.66725E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -1.679E-06 | 0. | 2.497E+02 | 2.661E+02 | 7.062E-06 | 1.869E-03 | 0. | 3.450E-01 | 1.038E+00 | 7.312E-01 | -9.790E+02 | 0. |
| 1 | 9.998E-01 | -3.554E-02 | 4.32E-02 | 2.496E+02 | 2.661E+02 | 7.063E-06 | 1.870E-03 | 2.74E+01 | 4.099E-01 | 1.054E+00 | 6.853E-01 | -5.516E+02 | 1.884E-01 |
| 2 | 9.994E-01 | -1.422E-01 | 8.65E-02 | 2.496E+02 | 2.660E+02 | 7.066E-06 | 1.871E-03 | 4.18E+01 | 5.650E-01 | 1.100E+00 | 5.843E-01 | -1.736E+02 | 3.767E-01 |
| 3 | 9.986E-01 | -3.198E-01 | 1.30E-01 | 2.495E+02 | 2.659E+02 | 7.072E-06 | 1.872E-03 | 4.76E+01 | 7.652E-01 | 1.176E+00 | 4.736E-01 | -4.511E+01 | 5.649E-01 |
| 4 | 9.976E-01 | -5.685E-01 | 1.73E-01 | 2.494E+02 | 2.658E+02 | 7.079E-06 | 1.874E-03 | 4.92E+01 | 9.941E-01 | 1.283E+00 | 3.733E-01 | -4.753E+00 | 7.530E-01 |
| 5 | 9.962E-01 | -8.880E-01 | 2.16E-01 | 2.492E+02 | 2.656E+02 | 7.089E-06 | 1.877E-03 | 4.89E+01 | 1.248E+00 | 1.421E+00 | 2.895E-01 | 7.873E+00 | 9.408E-01 |
| 6 | 9.945E-01 | -1.278E+00 | 2.60E-01 | 2.490E+02 | 2.654E+02 | 7.101E-06 | 1.880E-03 | 4.76E+01 | 1.527E+00 | 1.589E+00 | 2.227E-01 | 1.115E+01 | 1.128E+00 |
| 7 | 9.925E-01 | -1.739E+00 | 3.03E-01 | 2.487E+02 | 2.651E+02 | 7.115E-06 | 1.883E-03 | 4.59E+01 | 1.832E+00 | 1.788E+00 | 1.710E-01 | 1.114E+01 | 1.316E+00 |
| 8 | 9.903E-01 | -2.271E+00 | 3.46E-01 | 2.484E+02 | 2.648E+02 | 7.131E-06 | 1.888E-03 | 4.39E+01 | 2.166E+00 | 2.017E+00 | 1.315E-01 | 1.002E+01 | 1.502E+00 |
| 9 | 9.877E-01 | -2.873E+00 | 3.90E-01 | 2.481E+02 | 2.645E+02 | 7.149E-06 | 1.893E-03 | 4.19E+01 | 2.528E+00 | 2.277E+00 | 1.016E-01 | 8.623E+00 | 1.689E+00 |
| 10 | 9.848E-01 | -3.545E+00 | 4.33E-01 | 2.478E+02 | 2.641E+02 | 7.170E-06 | 1.898E-03 | 3.99E+01 | 2.922E+00 | 2.567E+00 | 7.901E-02 | 7.271E+00 | 1.874E+00 |
| 15 | 9.659E-01 | -7.952E+00 | 6.52E-01 | 2.454E+02 | 2.616E+02 | 7.308E-06 | 1.934E-03 | 3.13E+01 | 5.381E+00 | 4.467E+00 | 2.538E-02 | 2.932E+00 | 2.794E+00 |
| 20 | 9.397E-01 | -1.407E+01 | 8.74E-01 | 2.422E+02 | 2.581E+02 | 7.506E-06 | 1.987E-03 | 2.51E+01 | 8.696E+00 | 7.106E+00 | 9.951E-03 | 1.277E+00 | 3.692E+00 |
| 25 | 9.063E-01 | -2.186E+01 | 1.10E+00 | 2.380E+02 | 2.537E+02 | 7.770E-06 | 2.057E-03 | 2.08E+01 | 1.288E+01 | 1.046E+01 | 4.576E-03 | 6.214E-01 | 4.562E+00 |
| 30 | 8.660E-01 | -3.126E+01 | 1.33E+00 | 2.330E+02 | 2.483E+02 | 8.108E-06 | 2.146E-03 | 1.75E+01 | 1.790E+01 | 1.452E+01 | 2.375E-03 | 3.336E-01 | 5.397E+00 |
| 35 | 8.192E-01 | -4.220E+01 | 1.56E+00 | 2.272E+02 | 2.421E+02 | 8.530E-06 | 2.257E-03 | 1.51E+01 | 2.374E+01 | 1.923E+01 | 1.352E-03 | 1.941E-01 | 6.191E+00 |
| 40 | 7.660E-01 | -5.460E+01 | 1.80E+00 | 2.206E+02 | 2.351E+02 | 9.048E-06 | 2.394E-03 | 1.32E+01 | 3.035E+01 | 2.458E+01 | 8.281E-04 | 1.206E-01 | 6.939E+00 |
| 45 | 7.071E-01 | -6.835E+01 | 2.05E+00 | 2.132E+02 | 2.273E+02 | 9.681E-06 | 2.561E-03 | 1.17E+01 | 3.769E+01 | 3.051E+01 | 5.374E-04 | 7.906E-02 | 7.633E+00 |
| 50 | 6.428E-01 | -8.336E+01 | 2.31E+00 | 2.052E+02 | 2.187E+02 | 1.045E-05 | 2.764E-03 | 1.04E+01 | 4.569E+01 | 3.698E+01 | 3.657E-04 | 5.420E-02 | 8.269E+00 |
| 55 | 5.736E-01 | -9.951E+01 | 2.58E+00 | 1.966E+02 | 2.096E+02 | 1.138E-05 | 3.011E-03 | 9.37E+00 | 5.430E+01 | 4.394E+01 | 2.590E-04 | 3.860E-02 | 8.842E+00 |
| 60 | 5.000E-01 | -1.167E+02 | 2.86E+00 | 1.875E+02 | 1.998E+02 | 1.252E-05 | 3.311E-03 | 8.47E+00 | 6.345E+01 | 5.135E+01 | 1.897E-04 | 2.839E-02 | 9.348E+00 |
| 65 | 4.226E-01 | -1.347E+02 | 3.15E+00 | 1.779E+02 | 1.896E+02 | 1.392E-05 | 3.678E-03 | 7.69E+00 | 7.308E+01 | 5.913E+01 | 1.430E-04 | 2.148E-02 | 9.783E+00 |
| 70 | 3.420E-01 | -1.535E+02 | 3.47E+00 | 1.678E+02 | 1.789E+02 | 1.563E-05 | 4.129E-03 | 7.01E+00 | 8.310E+01 | 6.724E+01 | 1.106E-04 | 1.665E-02 | 1.014E+01 |
| 75 | 2.588E-01 | -1.730E+02 | 3.80E+00 | 1.575E+02 | 1.678E+02 | 1.775E-05 | 4.688E-03 | 6.41E+00 | 9.345E+01 | 7.561E+01 | 8.746E-05 | 1.320E-02 | 1.043E+01 |
| 80 | 1.736E-01 | -1.928E+02 | 4.15E+00 | 1.469E+02 | 1.566E+02 | 2.040E-05 | 5.386E-03 | 5.86E+00 | 1.040E+02 | 8.418E+01 | 7.056E-05 | 1.067E-02 | 1.063E+01 |
| 85 | 8.716E-02 | -2.130E+02 | 4.53E+00 | 1.361E+02 | 1.451E+02 | 2.375E-05 | 6.268E-03 | 5.37E+00 | 1.148E+02 | 9.288E+01 | 5.796E-05 | 8.774E-03 | 1.075E+01 |
| 90 | 0. | -2.334E+02 | 4.94E+00 | 1.253E+02 | 1.335E+02 | 2.804E-05 | 7.395E-03 | 4.93E+00 | 1.256E+02 | 1.017E+02 | 4.839E-05 | 7.334E-03 | 1.079E+01 |
| 95 | -8.716E-02 | -2.537E+02 | 5.39E+00 | 1.145E+02 | 1.220E+02 | 3.360E-05 | 8.855E-03 | 4.52E+00 | 1.365E+02 | 1.104E+02 | 4.101E-05 | 6.222E-03 | 1.075E+01 |
| 100 | -1.736E-01 | -2.739E+02 | 5.88E+00 | 1.037E+02 | 1.105E+02 | 4.093E-05 | 1.078E-02 | 4.14E+00 | 1.472E+02 | 1.191E+02 | 3.524E-05 | 5.351E-03 | 1.063E+01 |
| 105 | -2.588E-01 | -2.938E+02 | 6.43E+00 | 9.311E+01 | 9.924E+01 | 5.077E-05 | 1.336E-02 | 3.79E+00 | 1.578E+02 | 1.277E+02 | 3.066E-05 | 4.660E-03 | 1.043E+01 |
| 110 | -3.420E-01 | -3.132E+02 | 7.04E+00 | 8.276E+01 | 8.821E+01 | 6.426E-05 | 1.688E-02 | 3.46E+00 | 1.682E+02 | 1.361E+02 | 2.701E-05 | 4.107E-03 | 1.014E+01 |
| 115 | -4.226E-01 | -3.320E+02 | 7.73E+00 | 7.273E+01 | 7.753E+01 | 8.319E-05 | 2.182E-02 | 3.15E+00 | 1.782E+02 | 1.442E+02 | 2.405E-05 | 3.660E-03 | 9.783E+00 |
| 120 | -5.000E-01 | -3.500E+02 | 8.52E+00 | 6.311E+01 | 6.727E+01 | 1.105E-04 | 2.893E-02 | 2.85E+00 | 1.879E+02 | 1.520E+02 | 2.165E-05 | 3.296E-03 | 9.348E+00 |
| 125 | -5.736E-01 | -3.672E+02 | 9.43E+00 | 5.396E+01 | 5.752E+01 | 1.511E-04 | 3.948E-02 | 2.57E+00 | 1.970E+02 | 1.594E+02 | 1.969E-05 | 2.998E-03 | 8.842E+00 |
| 130 | -6.428E-01 | -3.834E+02 | 1.05E+01 | 4.535E+01 | 4.835E+01 | 2.139E-04 | 5.570E-02 | 2.31E+00 | 2.056E+02 | 1.663E+02 | 1.807E-05 | 2.753E-03 | 8.269E+00 |
| 135 | -7.071E-01 | -3.984E+02 | 1.18E+01 | 3.735E+01 | 3.982E+01 | 3.154E-04 | 8.176E-02 | 2.05E+00 | 2.136E+02 | 1.728E+02 | 1.675E-05 | 2.552E-03 | 7.633E+00 |
| 140 | -7.660E-01 | -4.121E+02 | 1.34E+01 | 3.002E+01 | 3.201E+01 | 4.881E-04 | 1.258E-01 | 1.80E+00 | 2.209E+02 | 1.787E+02 | 1.565E-05 | 2.386E-03 | 6.939E+00 |
| 145 | -8.192E-01 | -4.245E+02 | 1.53E+01 | 2.341E+01 | 2.497E+01 | 8.022E-04 | 2.050E-01 | 1.56E+00 | 2.275E+02 | 1.841E+02 | 1.476E-05 | 2.250E-03 | 6.191E+00 |
| 150 | -8.660E-01 | -4.355E+02 | 1.79E+01 | 1.757E+01 | 1.876E+01 | 1.422E-03 | 3.590E-01 | 1.33E+00 | 2.333E+02 | 1.888E+02 | 1.403E-05 | 2.139E-03 | 5.397E+00 |
| 155 | -9.063E-01 | -4.449E+02 | 2.13E+01 | 1.255E+01 | 1.342E+01 | 2.781E-03 | 6.886E-01 | 1.10E+00 | 2.383E+02 | 1.928E+02 | 1.345E-05 | 2.050E-03 | 4.562E+00 |
| 160 | -9.397E-01 | -4.527E+02 | 2.61E+01 | 8.386E+00 | 8.993E+00 | 6.201E-03 | 1.487E+00 | 8.72E-01 | 2.425E+02 | 1.962E+02 | 1.299E-05 | 1.981E-03 | 3.692E+00 |
| 165 | -9.659E-01 | -4.588E+02 | 3.33E+01 | 5.090E+00 | 5.516E+00 | 1.657E-02 | 3.757E+00 | 6.51E-01 | 2.458E+02 | 1.988E+02 | 1.265E-05 | 1.929E-03 | 2.794E+00 |
| 170 | -9.848E-01 | -4.632E+02 | 4.46E+01 | 2.667E+00 | 3.014E+00 | 5.666E-02 | 1.164E+01 | 4.33E-01 | 2.481E+02 | 2.007E+02 | 1.241E-05 | 1.893E-03 | 1.874E+00 |
| 175 | -9.962E-01 | -4.658E+02 | 6.31E+01 | 1.054E+00 | 1.504E+00 | 2.529E-01 | 4.707E+01 | 2.16E-01 | 2.495E+02 | 2.019E+02 | 1.227E-05 | 1.871E-03 | 9.408E-01 |
| 180 | -1.000E+00 | -4.667E+02 | 0. | 1.296E-03 | 1.000E+00 | 9.986E-01 | -6.941E+07 | 0. | 2.500E+02 | 2.023E+02 | 1.222E-05 | 1.864E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + DELTA(1236) (4) AT 275 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 1.23690E+00
P2CM= 1.13389E+01 P3CM= 1.13247E+01
E1CM= 1.13777E+01 E2CM= 1.13777E+01 E3CM= 1.13635E+01 E4CM= 1.13919E+01

1-V1LAB = 5.820E-06 1-VCM = 3.406E-03 GCM = 1.21264E+01 ETCM= 2.27554E+01 S = 5.17806E+02 -U=( 5.13678E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -1.387E-06 | 0. | 2.747E+02 | 2.927E+02 | 5.835E-06 | 1.700E-03 | 0. | 3.450E-01 | 1.038E+00 | 7.312E-01 | -1.078E+03 | 0. |
| 1 | 9.998E-01 | -3.912E-02 | 4.12E-02 | 2.746E+02 | 2.927E+02 | 5.836E-06 | 1.700E-03 | 2.84E+01 | 4.159E-01 | 1.055E+00 | 6.811E-01 | -5.778E+02 | 1.976E-01 |
| 2 | 9.994E-01 | -1.564E-01 | 8.25E-02 | 2.746E+02 | 2.926E+02 | 5.838E-06 | 1.701E-03 | 4.27E+01 | 5.830E-01 | 1.106E+00 | 5.734E-01 | -1.690E+02 | 3.952E-01 |
| 3 | 9.986E-01 | -3.520E-01 | 1.24E-01 | 2.745E+02 | 2.925E+02 | 5.843E-06 | 1.702E-03 | 4.80E+01 | 7.972E-01 | 1.190E+00 | 4.580E-01 | -3.956E+01 | 5.927E-01 |
| 4 | 9.976E-01 | -6.256E-01 | 1.65E-01 | 2.743E+02 | 2.924E+02 | 5.849E-06 | 1.704E-03 | 4.93E+01 | 1.042E+00 | 1.308E+00 | 3.554E-01 | -1.091E+00 | 7.900E-01 |
| 5 | 9.962E-01 | -9.773E-01 | 2.06E-01 | 2.741E+02 | 2.922E+02 | 5.857E-06 | 1.707E-03 | 4.87E+01 | 1.314E+00 | 1.460E+00 | 2.716E-01 | 1.011E+01 | 9.870E-01 |
| 6 | 9.945E-01 | -1.407E+00 | 2.48E-01 | 2.739E+02 | 2.919E+02 | 5.867E-06 | 1.709E-03 | 4.72E+01 | 1.614E+00 | 1.645E+00 | 2.060E-01 | 1.248E+01 | 1.184E+00 |
| 7 | 9.925E-01 | -1.914E+00 | 2.89E-01 | 2.736E+02 | 2.916E+02 | 5.879E-06 | 1.713E-03 | 4.52E+01 | 1.944E+00 | 1.864E+00 | 1.562E-01 | 1.190E+01 | 1.380E+00 |
| 8 | 9.903E-01 | -2.499E+00 | 3.30E-01 | 2.733E+02 | 2.913E+02 | 5.892E-06 | 1.717E-03 | 4.31E+01 | 2.305E+00 | 2.116E+00 | 1.187E-01 | 1.042E+01 | 1.576E+00 |
| 9 | 9.877E-01 | -3.162E+00 | 3.72E-01 | 2.730E+02 | 2.909E+02 | 5.907E-06 | 1.721E-03 | 4.10E+01 | 2.699E+00 | 2.401E+00 | 9.082E-02 | 8.810E+00 | 1.772E+00 |
| 10 | 9.848E-01 | -3.902E+00 | 4.13E-01 | 2.726E+02 | 2.905E+02 | 5.924E-06 | 1.726E-03 | 3.90E+01 | 3.127E+00 | 2.720E+00 | 7.001E-02 | 7.326E+00 | 1.967E+00 |
| 15 | 9.659E-01 | -8.751E+00 | 6.22E-01 | 2.700E+02 | 2.878E+02 | 6.038E-06 | 1.759E-03 | 3.03E+01 | 5.817E+00 | 4.811E+00 | 2.184E-02 | 2.832E+00 | 2.931E+00 |
| 20 | 9.397E-01 | -1.549E+01 | 8.33E-01 | 2.664E+02 | 2.839E+02 | 6.202E-06 | 1.807E-03 | 2.42E+01 | 9.456E+00 | 7.716E+00 | 8.434E-03 | 1.207E+00 | 3.873E+00 |
| 25 | 9.063E-01 | -2.406E+01 | 1.05E+00 | 2.618E+02 | 2.791E+02 | 6.420E-06 | 1.870E-03 | 1.99E+01 | 1.405E+01 | 1.141E+01 | 3.846E-03 | 5.803E-01 | 4.786E+00 |
| 30 | 8.660E-01 | -3.441E+01 | 1.27E+00 | 2.563E+02 | 2.732E+02 | 6.700E-06 | 1.952E-03 | 1.68E+01 | 1.958E+01 | 1.587E+01 | 1.987E-03 | 3.092E-01 | 5.662E+00 |
| 35 | 8.192E-01 | -4.645E+01 | 1.49E+00 | 2.499E+02 | 2.664E+02 | 7.048E-06 | 2.053E-03 | 1.45E+01 | 2.600E+01 | 2.106E+01 | 1.128E-03 | 1.791E-01 | 6.496E+00 |
| 40 | 7.660E-01 | -6.008E+01 | 1.72E+00 | 2.426E+02 | 2.586E+02 | 7.477E-06 | 2.177E-03 | 1.26E+01 | 3.328E+01 | 2.694E+01 | 6.890E-04 | 1.109E-01 | 7.279E+00 |
| 45 | 7.071E-01 | -7.522E+01 | 1.96E+00 | 2.346E+02 | 2.500E+02 | 8.000E-06 | 2.329E-03 | 1.12E+01 | 4.135E+01 | 3.347E+01 | 4.464E-04 | 7.252E-02 | 8.008E+00 |
| 50 | 6.428E-01 | -9.174E+01 | 2.20E+00 | 2.258E+02 | 2.406E+02 | 8.636E-06 | 2.514E-03 | 9.96E+00 | 5.016E+01 | 4.059E+01 | 3.035E-04 | 4.964E-02 | 8.675E+00 |
| 55 | 5.736E-01 | -1.095E+02 | 2.46E+00 | 2.163E+02 | 2.305E+02 | 9.408E-06 | 2.739E-03 | 8.95E+00 | 5.963E+01 | 4.826E+01 | 2.147E-04 | 3.530E-02 | 9.277E+00 |
| 60 | 5.000E-01 | -1.284E+02 | 2.73E+00 | 2.062E+02 | 2.198E+02 | 1.035E-05 | 3.012E-03 | 8.09E+00 | 6.970E+01 | 5.640E+01 | 1.572E-04 | 2.594E-02 | 9.807E+00 |
| 65 | 4.226E-01 | -1.483E+02 | 3.01E+00 | 1.956E+02 | 2.085E+02 | 1.150E-05 | 3.346E-03 | 7.34E+00 | 8.029E+01 | 6.497E+01 | 1.185E-04 | 1.961E-02 | 1.026E+01 |
| 70 | 3.420E-01 | -1.690E+02 | 3.30E+00 | 1.846E+02 | 1.968E+02 | 1.292E-05 | 3.757E-03 | 6.69E+00 | 9.133E+01 | 7.389E+01 | 9.157E-05 | 1.519E-02 | 1.064E+01 |
| 75 | 2.588E-01 | -1.903E+02 | 3.62E+00 | 1.732E+02 | 1.846E+02 | 1.467E-05 | 4.266E-03 | 6.11E+00 | 1.027E+02 | 8.311E+01 | 7.239E-05 | 1.204E-02 | 1.094E+01 |
| 80 | 1.736E-01 | -2.122E+02 | 3.96E+00 | 1.616E+02 | 1.722E+02 | 1.686E-05 | 4.902E-03 | 5.60E+00 | 1.144E+02 | 9.254E+01 | 5.839E-05 | 9.723E-03 | 1.115E+01 |
| 85 | 8.716E-02 | -2.344E+02 | 4.32E+00 | 1.497E+02 | 1.596E+02 | 1.963E-05 | 5.705E-03 | 5.13E+00 | 1.262E+02 | 1.021E+02 | 4.795E-05 | 7.995E-03 | 1.128E+01 |
| 90 | 0. | -2.568E+02 | 4.71E+00 | 1.378E+02 | 1.469E+02 | 2.318E-05 | 6.732E-03 | 4.70E+00 | 1.381E+02 | 1.118E+02 | 4.003E-05 | 6.682E-03 | 1.132E+01 |
| 95 | -8.716E-02 | -2.792E+02 | 5.14E+00 | 1.259E+02 | 1.342E+02 | 2.778E-05 | 8.063E-03 | 4.31E+00 | 1.501E+02 | 1.214E+02 | 3.392E-05 | 5.667E-03 | 1.128E+01 |
| 100 | -1.736E-01 | -3.014E+02 | 5.61E+00 | 1.140E+02 | 1.215E+02 | 3.385E-05 | 9.816E-03 | 3.95E+00 | 1.619E+02 | 1.310E+02 | 2.914E-05 | 4.872E-03 | 1.115E+01 |
| 105 | -2.588E-01 | -3.233E+02 | 6.13E+00 | 1.024E+02 | 1.091E+02 | 4.200E-05 | 1.217E-02 | 3.61E+00 | 1.736E+02 | 1.404E+02 | 2.536E-05 | 4.243E-03 | 1.094E+01 |
| 110 | -3.420E-01 | -3.447E+02 | 6.72E+00 | 9.098E+01 | 9.698E+01 | 5.317E-05 | 1.539E-02 | 3.30E+00 | 1.849E+02 | 1.496E+02 | 2.233E-05 | 3.739E-03 | 1.064E+01 |
| 115 | -4.226E-01 | -3.654E+02 | 7.38E+00 | 7.995E+01 | 8.522E+01 | 6.885E-05 | 1.990E-02 | 3.00E+00 | 1.960E+02 | 1.586E+02 | 1.989E-05 | 3.331E-03 | 1.026E+01 |
| 120 | -5.000E-01 | -3.852E+02 | 8.13E+00 | 6.936E+01 | 7.393E+01 | 9.148E-05 | 2.639E-02 | 2.72E+00 | 2.066E+02 | 1.671E+02 | 1.790E-05 | 3.000E-03 | 9.807E+00 |
| 125 | -5.736E-01 | -4.041E+02 | 9.00E+00 | 5.929E+01 | 6.320E+01 | 1.252E-04 | 3.603E-02 | 2.45E+00 | 2.166E+02 | 1.753E+02 | 1.628E-05 | 2.728E-03 | 9.277E+00 |
| 130 | -6.428E-01 | -4.219E+02 | 1.00E+01 | 4.982E+01 | 5.310E+01 | 1.773E-04 | 5.088E-02 | 2.20E+00 | 2.261E+02 | 1.829E+02 | 1.494E-05 | 2.505E-03 | 8.675E+00 |
| 135 | -7.071E-01 | -4.384E+02 | 1.13E+01 | 4.101E+01 | 4.372E+01 | 2.616E-04 | 7.477E-02 | 1.95E+00 | 2.349E+02 | 1.901E+02 | 1.384E-05 | 2.322E-03 | 8.008E+00 |
| 140 | -7.660E-01 | -4.536E+02 | 1.28E+01 | 3.294E+01 | 3.513E+01 | 4.053E-04 | 1.152E-01 | 1.72E+00 | 2.430E+02 | 1.966E+02 | 1.294E-05 | 2.171E-03 | 7.279E+00 |
| 145 | -8.192E-01 | -4.672E+02 | 1.47E+01 | 2.567E+01 | 2.738E+01 | 6.672E-04 | 1.882E-01 | 1.49E+00 | 2.502E+02 | 2.025E+02 | 1.220E-05 | 2.047E-03 | 6.496E+00 |
| 150 | -8.660E-01 | -4.792E+02 | 1.71E+01 | 1.925E+01 | 2.054E+01 | 1.186E-03 | 3.307E-01 | 1.26E+00 | 2.567E+02 | 2.077E+02 | 1.160E-05 | 1.946E-03 | 5.662E+00 |
| 155 | -9.063E-01 | -4.896E+02 | 2.04E+01 | 1.373E+01 | 1.467E+01 | 2.327E-03 | 6.376E-01 | 1.05E+00 | 2.622E+02 | 2.121E+02 | 1.111E-05 | 1.865E-03 | 4.786E+00 |
| 160 | -9.397E-01 | -4.981E+02 | 2.51E+01 | 9.144E+00 | 9.797E+00 | 5.223E-03 | 1.389E+00 | 8.32E-01 | 2.667E+02 | 2.158E+02 | 1.074E-05 | 1.802E-03 | 3.873E+00 |
| 165 | -9.659E-01 | -5.049E+02 | 3.21E+01 | 5.522E+00 | 5.970E+00 | 1.413E-02 | 3.562E+00 | 6.21E-01 | 2.703E+02 | 2.187E+02 | 1.045E-05 | 1.755E-03 | 2.931E+00 |
| 170 | -9.848E-01 | -5.097E+02 | 4.33E+01 | 2.868E+00 | 3.216E+00 | 4.957E-02 | 1.134E+01 | 4.13E-01 | 2.729E+02 | 2.208E+02 | 1.025E-05 | 1.722E-03 | 1.967E+00 |
| 175 | -9.962E-01 | -5.127E+02 | 6.20E+01 | 1.117E+00 | 1.555E+00 | 2.342E-01 | 4.793E+01 | 2.06E-01 | 2.745E+02 | 2.221E+02 | 1.014E-05 | 1.702E-03 | 9.870E-01 |
| 180 | -1.000E+00 | -5.136E+02 | 0. | 1.178E-03 | 1.000E+00 | 9.987E-01 | -9.245E+07 | 0. | 2.750E+02 | 2.225E+02 | 1.010E-05 | 1.696E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + DELTA(1236) (4) AT 300 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 1.23600E+00
P2CM= 1.18448E+01 P3CM= 1.18311E+01
E1CM= 1.18819E+01 E2CM= 1.18819E+01 E3CM= 1.18683E+01 E4CM= 1.18955E+01

1-V1LAB = 4.891E-06 1-VCM = 3.123E-03 GCM = 1.26638E+01 ETCM= 2.37638E+01 S = 5.64719E+02 -U=( 5.60550E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -1.165E-06 | 0. | 2.997E+02 | 3.194E+02 | 4.902E-06 | 1.559E-03 | 0. | 3.450E-01 | 1.038E+00 | 7.312E-01 | -1.176E+03 | 0. |
| 1 | 9.998E-01 | -4.269E-02 | 3.95E-02 | 2.996E+02 | 3.194E+02 | 4.903E-06 | 1.559E-03 | 2.93E+01 | 4.218E-01 | 1.057E+00 | 6.770E-01 | -6.008E+02 | 2.065E-01 |
| 2 | 9.994E-01 | -1.707E-01 | 7.90E-02 | 2.996E+02 | 3.193E+02 | 4.905E-06 | 1.560E-03 | 4.34E+01 | 6.007E-01 | 1.112E+00 | 5.629E-01 | -1.637E+02 | 4.129E-01 |
| 3 | 9.986E-01 | -3.841E-01 | 1.18E-01 | 2.995E+02 | 3.192E+02 | 4.909E-06 | 1.561E-03 | 4.84E+01 | 8.284E-01 | 1.204E+00 | 4.433E-01 | -3.427E+01 | 6.192E-01 |
| 4 | 9.976E-01 | -6.827E-01 | 1.58E-01 | 2.993E+02 | 3.190E+02 | 4.914E-06 | 1.563E-03 | 4.93E+01 | 1.089E+00 | 1.333E+00 | 3.390E-01 | 2.259E+00 | 8.253E-01 |
| 5 | 9.962E-01 | -1.067E+00 | 1.98E-01 | 2.991E+02 | 3.188E+02 | 4.921E-06 | 1.565E-03 | 4.84E+01 | 1.379E+00 | 1.498E+00 | 2.554E-01 | 1.210E+01 | 1.031E+00 |
| 6 | 9.945E-01 | -1.535E+00 | 2.37E-01 | 2.988E+02 | 3.185E+02 | 4.929E-06 | 1.567E-03 | 4.67E+01 | 1.700E+00 | 1.700E+00 | 1.913E-01 | 1.362E+01 | 1.237E+00 |
| 7 | 9.925E-01 | -2.089E+00 | 2.77E-01 | 2.985E+02 | 3.182E+02 | 4.939E-06 | 1.571E-03 | 4.46E+01 | 2.053E+00 | 1.939E+00 | 1.433E-01 | 1.252E+01 | 1.442E+00 |
| 8 | 9.903E-01 | -2.728E+00 | 3.16E-01 | 2.982E+02 | 3.178E+02 | 4.950E-06 | 1.574E-03 | 4.24E+01 | 2.442E+00 | 2.214E+00 | 1.078E-01 | 1.073E+01 | 1.647E+00 |
| 9 | 9.877E-01 | -3.451E+00 | 3.56E-01 | 2.978E+02 | 3.174E+02 | 4.963E-06 | 1.578E-03 | 4.02E+01 | 2.867E+00 | 2.526E+00 | 8.170E-02 | 8.933E+00 | 1.851E+00 |
| 10 | 9.848E-01 | -4.258E+00 | 3.96E-01 | 2.974E+02 | 3.170E+02 | 4.977E-06 | 1.583E-03 | 3.81E+01 | 3.330E+00 | 2.874E+00 | 6.248E-02 | 7.338E+00 | 2.054E+00 |
| 15 | 9.659E-01 | -9.550E+00 | 5.96E-01 | 2.946E+02 | 3.140E+02 | 5.073E-06 | 1.613E-03 | 2.93E+01 | 6.252E+00 | 5.156E+00 | 1.899E-02 | 2.734E+00 | 3.062E+00 |
| 20 | 9.397E-01 | -1.690E+01 | 7.98E-01 | 2.906E+02 | 3.098E+02 | 5.210E-06 | 1.657E-03 | 2.33E+01 | 1.022E+01 | 8.326E+00 | 7.239E-03 | 1.144E+00 | 4.046E+00 |
| 25 | 9.063E-01 | -2.626E+01 | 1.00E+00 | 2.857E+02 | 3.045E+02 | 5.394E-06 | 1.715E-03 | 1.92E+01 | 1.523E+01 | 1.236E+01 | 3.278E-03 | 5.442E-01 | 5.000E+00 |
| 30 | 8.660E-01 | -3.755E+01 | 1.21E+00 | 2.796E+02 | 2.980E+02 | 5.629E-06 | 1.790E-03 | 1.62E+01 | 2.126E+01 | 1.723E+01 | 1.686E-03 | 2.881E-01 | 5.916E+00 |
| 35 | 8.192E-01 | -5.069E+01 | 1.43E+00 | 2.726E+02 | 2.906E+02 | 5.921E-06 | 1.882E-03 | 1.39E+01 | 2.827E+01 | 2.289E+01 | 9.546E-04 | 1.662E-01 | 6.786E+00 |
| 40 | 7.660E-01 | -6.557E+01 | 1.65E+00 | 2.647E+02 | 2.821E+02 | 6.282E-06 | 1.997E-03 | 1.21E+01 | 3.621E+01 | 2.931E+01 | 5.822E-04 | 1.026E-01 | 7.605E+00 |
| 45 | 7.071E-01 | -8.209E+01 | 1.87E+00 | 2.559E+02 | 2.728E+02 | 6.721E-06 | 2.136E-03 | 1.07E+01 | 4.501E+01 | 3.643E+01 | 3.768E-04 | 6.698E-02 | 8.366E+00 |
| 50 | 6.428E-01 | -1.001E+02 | 2.11E+00 | 2.463E+02 | 2.625E+02 | 7.256E-06 | 2.306E-03 | 9.55E+00 | 5.462E+01 | 4.420E+01 | 2.559E-04 | 4.578E-02 | 9.063E+00 |
| 55 | 5.736E-01 | -1.195E+02 | 2.35E+00 | 2.360E+02 | 2.515E+02 | 7.905E-06 | 2.512E-03 | 8.58E+00 | 6.496E+01 | 5.257E+01 | 1.810E-04 | 3.252E-02 | 9.692E+00 |
| 60 | 5.000E-01 | -1.401E+02 | 2.61E+00 | 2.250E+02 | 2.398E+02 | 8.696E-06 | 2.763E-03 | 7.75E+00 | 7.595E+01 | 6.146E+01 | 1.324E-04 | 2.388E-02 | 1.025E+01 |
| 65 | 4.226E-01 | -1.618E+02 | 2.88E+00 | 2.134E+02 | 2.275E+02 | 9.664E-06 | 3.069E-03 | 7.04E+00 | 8.751E+01 | 7.081E+01 | 9.973E-05 | 1.804E-02 | 1.072E+01 |
| 70 | 3.420E-01 | -1.844E+02 | 3.16E+00 | 2.014E+02 | 2.146E+02 | 1.085E-05 | 3.446E-03 | 6.41E+00 | 9.955E+01 | 8.055E+01 | 7.707E-05 | 1.397E-02 | 1.112E+01 |
| 75 | 2.588E-01 | -2.077E+02 | 3.47E+00 | 1.890E+02 | 2.014E+02 | 1.233E-05 | 3.913E-03 | 5.86E+00 | 1.120E+02 | 9.060E+01 | 6.091E-05 | 1.106E-02 | 1.143E+01 |
| 80 | 1.736E-01 | -2.316E+02 | 3.79E+00 | 1.762E+02 | 1.878E+02 | 1.417E-05 | 4.497E-03 | 5.36E+00 | 1.247E+02 | 1.009E+02 | 4.912E-05 | 8.933E-03 | 1.165E+01 |
| 85 | 8.716E-02 | -2.558E+02 | 4.14E+00 | 1.633E+02 | 1.741E+02 | 1.650E-05 | 5.235E-03 | 4.91E+00 | 1.376E+02 | 1.113E+02 | 4.033E-05 | 7.344E-03 | 1.179E+01 |
| 90 | 0. | -2.803E+02 | 4.51E+00 | 1.503E+02 | 1.602E+02 | 1.949E-05 | 6.178E-03 | 4.50E+00 | 1.506E+02 | 1.219E+02 | 3.366E-05 | 6.135E-03 | 1.183E+01 |
| 95 | -8.716E-02 | -3.047E+02 | 4.93E+00 | 1.373E+02 | 1.463E+02 | 2.336E-05 | 7.400E-03 | 4.13E+00 | 1.637E+02 | 1.324E+02 | 2.852E-05 | 5.203E-03 | 1.179E+01 |
| 100 | -1.736E-01 | -3.289E+02 | 5.38E+00 | 1.244E+02 | 1.325E+02 | 2.846E-05 | 9.011E-03 | 3.78E+00 | 1.766E+02 | 1.429E+02 | 2.450E-05 | 4.472E-03 | 1.165E+01 |
| 105 | -2.588E-01 | -3.528E+02 | 5.88E+00 | 1.116E+02 | 1.190E+02 | 3.532E-05 | 1.117E-02 | 3.46E+00 | 1.893E+02 | 1.532E+02 | 2.132E-05 | 3.894E-03 | 1.143E+01 |
| 110 | -3.420E-01 | -3.761E+02 | 6.43E+00 | 9.921E+01 | 1.057E+02 | 4.472E-05 | 1.413E-02 | 3.16E+00 | 2.017E+02 | 1.632E+02 | 1.877E-05 | 3.431E-03 | 1.112E+01 |
| 115 | -4.226E-01 | -3.987E+02 | 7.07E+00 | 8.717E+01 | 9.291E+01 | 5.792E-05 | 1.828E-02 | 2.88E+00 | 2.138E+02 | 1.729E+02 | 1.672E-05 | 3.057E-03 | 1.072E+01 |
| 120 | -5.000E-01 | -4.204E+02 | 7.79E+00 | 7.561E+01 | 8.059E+01 | 7.698E-05 | 2.426E-02 | 2.61E+00 | 2.253E+02 | 1.823E+02 | 1.505E-05 | 2.752E-03 | 1.025E+01 |
| 125 | -5.736E-01 | -4.410E+02 | 8.63E+00 | 6.462E+01 | 6.888E+01 | 1.054E-04 | 3.314E-02 | 2.35E+00 | 2.363E+02 | 1.912E+02 | 1.368E-05 | 2.503E-03 | 9.692E+00 |
| 130 | -6.428E-01 | -4.604E+02 | 9.61E+00 | 5.428E+01 | 5.786E+01 | 1.493E-04 | 4.684E-02 | 2.11E+00 | 2.466E+02 | 1.996E+02 | 1.256E-05 | 2.298E-03 | 9.063E+00 |
| 135 | -7.071E-01 | -4.785E+02 | 1.08E+01 | 4.467E+01 | 4.762E+01 | 2.205E-04 | 6.889E-02 | 1.87E+00 | 2.563E+02 | 2.073E+02 | 1.163E-05 | 2.130E-03 | 8.366E+00 |
| 140 | -7.660E-01 | -4.950E+02 | 1.22E+01 | 3.587E+01 | 3.824E+01 | 3.419E-04 | 1.063E-01 | 1.64E+00 | 2.651E+02 | 2.144E+02 | 1.087E-05 | 1.991E-03 | 7.605E+00 |
| 145 | -8.192E-01 | -5.099E+02 | 1.41E+01 | 2.793E+01 | 2.979E+01 | 5.636E-04 | 1.740E-01 | 1.42E+00 | 2.730E+02 | 2.209E+02 | 1.025E-05 | 1.877E-03 | 6.786E+00 |
| 150 | -8.660E-01 | -5.230E+02 | 1.64E+01 | 2.093E+01 | 2.233E+01 | 1.004E-03 | 3.065E-01 | 1.21E+00 | 2.800E+02 | 2.265E+02 | 9.744E-06 | 1.785E-03 | 5.916E+00 |
| 155 | -9.063E-01 | -5.343E+02 | 1.96E+01 | 1.490E+01 | 1.591E+01 | 1.976E-03 | 5.937E-01 | 1.00E+00 | 2.860E+02 | 2.314E+02 | 9.338E-06 | 1.711E-03 | 5.000E+00 |
| 160 | -9.397E-01 | -5.436E+02 | 2.41E+01 | 9.901E+00 | 1.060E+01 | 4.460E-03 | 1.303E+00 | 7.97E-01 | 2.910E+02 | 2.354E+02 | 9.021E-06 | 1.653E-03 | 4.046E+00 |
| 165 | -9.659E-01 | -5.510E+02 | 3.10E+01 | 5.954E+00 | 6.424E+00 | 1.219E-02 | 3.385E+00 | 5.95E-01 | 2.949E+02 | 2.386E+02 | 8.783E-06 | 1.609E-03 | 3.062E+00 |
| 170 | -9.848E-01 | -5.563E+02 | 4.21E+01 | 3.067E+00 | 3.418E+00 | 4.374E-02 | 1.104E+01 | 3.95E-01 | 2.977E+02 | 2.409E+02 | 8.617E-06 | 1.579E-03 | 2.054E+00 |
| 175 | -9.962E-01 | -5.595E+02 | 6.10E+01 | 1.179E+00 | 1.606E+00 | 2.176E-01 | 4.863E+01 | 1.97E-01 | 2.994E+02 | 2.423E+02 | 8.519E-06 | 1.561E-03 | 1.031E+00 |
| 180 | -1.000E+00 | -5.606E+02 | 0. | 1.080E-03 | 1.000E+00 | 9.988E-01 | -1.201E+08 | 0. | 3.000E+02 | 2.427E+02 | 8.487E-06 | 1.555E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + DELTA(1236) (4) AT 350 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 1.23600E+00
P2CM= 1.27967E+01 P3CM= 1.27841E+01
E1CM= 1.28311E+01 E2CM= 1.28311E+01 E3CM= 1.28184E+01 E4CM= 1.28437E+01

1-V1LAB = 3.593E-06 1-VCM = 2.677E-03 GCM = 1.36754E+01 ETCM= 2.56621E+01 S = 6.58544E+02 -U=( 6.54376E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -8.561E-07 | 0. | 3.497E+02 | 3.727E+02 | 3.600E-06 | 1.337E-03 | 0. | 3.450E-01 | 1.038E+00 | 7.312E-01 | -1.373E+03 | 0. |
| 1 | 9.998E-01 | -4.983E-02 | 3.66E-02 | 3.496E+02 | 3.726E+02 | 3.601E-06 | 1.337E-03 | 3.10E+01 | 4.334E-01 | 1.060E+00 | 6.691E-01 | -6.388E+02 | 2.231E-01 |
| 2 | 9.994E-01 | -1.993E-01 | 7.31E-02 | 3.495E+02 | 3.726E+02 | 3.602E-06 | 1.338E-03 | 4.47E+01 | 6.347E-01 | 1.124E+00 | 5.432E-01 | -1.523E+02 | 4.462E-01 |
| 3 | 9.986E-01 | -4.484E-01 | 1.10E-01 | 3.494E+02 | 3.724E+02 | 3.605E-06 | 1.339E-03 | 4.89E+01 | 8.885E-01 | 1.232E+00 | 4.163E-01 | -2.445E+01 | 6.691E-01 |
| 4 | 9.976E-01 | -7.970E-01 | 1.46E-01 | 3.492E+02 | 3.722E+02 | 3.609E-06 | 1.340E-03 | 4.92E+01 | 1.179E+00 | 1.382E+00 | 3.098E-01 | 8.155E+00 | 8.918E-01 |
| 5 | 9.962E-01 | -1.245E+00 | 1.83E-01 | 3.490E+02 | 3.720E+02 | 3.614E-06 | 1.342E-03 | 4.78E+01 | 1.504E+00 | 1.575E+00 | 2.274E-01 | 1.545E+01 | 1.114E+00 |
| 6 | 9.945E-01 | -1.792E+00 | 2.20E-01 | 3.487E+02 | 3.716E+02 | 3.620E-06 | 1.344E-03 | 4.57E+01 | 1.866E+00 | 1.811E+00 | 1.663E-01 | 1.545E+01 | 1.336E+00 |
| 7 | 9.925E-01 | -2.439E+00 | 2.56E-01 | 3.484E+02 | 3.713E+02 | 3.627E-06 | 1.347E-03 | 4.34E+01 | 2.268E+00 | 2.090E+00 | 1.219E-01 | 1.346E+01 | 1.558E+00 |
| 8 | 9.903E-01 | -3.184E+00 | 2.93E-01 | 3.480E+02 | 3.709E+02 | 3.635E-06 | 1.350E-03 | 4.10E+01 | 2.712E+00 | 2.411E+00 | 9.007E-02 | 1.115E+01 | 1.779E+00 |
| 9 | 9.877E-01 | -4.028E+00 | 3.30E-01 | 3.475E+02 | 3.704E+02 | 3.645E-06 | 1.353E-03 | 3.87E+01 | 3.199E+00 | 2.775E+00 | 6.719E-02 | 9.041E+00 | 2.000E+00 |
| 10 | 9.848E-01 | -4.971E+00 | 3.67E-01 | 3.470E+02 | 3.698E+02 | 3.655E-06 | 1.357E-03 | 3.65E+01 | 3.733E+00 | 3.181E+00 | 5.069E-02 | 7.278E+00 | 2.220E+00 |
| 15 | 9.659E-01 | -1.115E+01 | 5.52E-01 | 3.437E+02 | 3.663E+02 | 3.726E-06 | 1.383E-03 | 2.77E+01 | 7.118E+00 | 5.845E+00 | 1.474E-02 | 2.549E+00 | 3.309E+00 |
| 20 | 9.397E-01 | -1.973E+01 | 7.39E-01 | 3.391E+02 | 3.615E+02 | 3.827E-06 | 1.421E-03 | 2.19E+01 | 1.173E+01 | 9.546E+00 | 5.502E-03 | 1.034E+00 | 4.372E+00 |
| 25 | 9.063E-01 | -3.065E+01 | 9.29E-01 | 3.333E+02 | 3.553E+02 | 3.962E-06 | 1.471E-03 | 1.79E+01 | 1.758E+01 | 1.426E+01 | 2.464E-03 | 4.836E-01 | 5.403E+00 |
| 30 | 8.660E-01 | -4.383E+01 | 1.12E+00 | 3.263E+02 | 3.478E+02 | 4.134E-06 | 1.535E-03 | 1.51E+01 | 2.461E+01 | 1.994E+01 | 1.259E-03 | 2.535E-01 | 6.392E+00 |
| 35 | 8.192E-01 | -5.917E+01 | 1.32E+00 | 3.181E+02 | 3.391E+02 | 4.349E-06 | 1.614E-03 | 1.29E+01 | 3.279E+01 | 2.655E+01 | 7.096E-04 | 1.452E-01 | 7.333E+00 |
| 40 | 7.660E-01 | -7.655E+01 | 1.52E+00 | 3.089E+02 | 3.292E+02 | 4.614E-06 | 1.713E-03 | 1.13E+01 | 4.206E+01 | 3.404E+01 | 4.316E-04 | 8.928E-02 | 8.217E+00 |
| 45 | 7.071E-01 | -9.583E+01 | 1.73E+00 | 2.986E+02 | 3.182E+02 | 4.937E-06 | 1.832E-03 | 9.95E+00 | 5.234E+01 | 4.236E+01 | 2.787E-04 | 5.810E-02 | 9.040E+00 |
| 50 | 6.428E-01 | -1.169E+02 | 1.95E+00 | 2.874E+02 | 3.063E+02 | 5.330E-06 | 1.978E-03 | 8.86E+00 | 6.355E+01 | 5.143E+01 | 1.891E-04 | 3.962E-02 | 9.793E+00 |
| 55 | 5.736E-01 | -1.395E+02 | 2.18E+00 | 2.753E+02 | 2.934E+02 | 5.807E-06 | 2.155E-03 | 7.96E+00 | 7.562E+01 | 6.119E+01 | 1.335E-04 | 2.810E-02 | 1.047E+01 |
| 60 | 5.000E-01 | -1.636E+02 | 2.42E+00 | 2.625E+02 | 2.797E+02 | 6.389E-06 | 2.370E-03 | 7.19E+00 | 8.845E+01 | 7.157E+01 | 9.761E-05 | 2.060E-02 | 1.107E+01 |
| 65 | 4.226E-01 | -1.889E+02 | 2.67E+00 | 2.490E+02 | 2.654E+02 | 7.100E-06 | 2.633E-03 | 6.53E+00 | 1.019E+02 | 8.249E+01 | 7.349E-05 | 1.555E-02 | 1.159E+01 |
| 70 | 3.420E-01 | -2.153E+02 | 2.93E+00 | 2.349E+02 | 2.504E+02 | 7.975E-06 | 2.957E-03 | 5.94E+00 | 1.160E+02 | 9.386E+01 | 5.676E-05 | 1.203E-02 | 1.201E+01 |
| 75 | 2.588E-01 | -2.425E+02 | 3.21E+00 | 2.204E+02 | 2.349E+02 | 9.059E-06 | 3.358E-03 | 5.43E+00 | 1.305E+02 | 1.056E+02 | 4.484E-05 | 9.520E-03 | 1.235E+01 |
| 80 | 1.736E-01 | -2.704E+02 | 3.51E+00 | 2.056E+02 | 2.191E+02 | 1.042E-05 | 3.860E-03 | 4.97E+00 | 1.454E+02 | 1.176E+02 | 3.615E-05 | 7.684E-03 | 1.259E+01 |
| 85 | 8.716E-02 | -2.987E+02 | 3.83E+00 | 1.905E+02 | 2.030E+02 | 1.213E-05 | 4.494E-03 | 4.55E+00 | 1.604E+02 | 1.298E+02 | 2.967E-05 | 6.314E-03 | 1.274E+01 |
| 90 | 0. | -3.272E+02 | 4.18E+00 | 1.753E+02 | 1.868E+02 | 1.432E-05 | 5.304E-03 | 4.17E+00 | 1.756E+02 | 1.421E+02 | 2.476E-05 | 5.273E-03 | 1.278E+01 |
| 95 | -8.716E-02 | -3.557E+02 | 4.56E+00 | 1.601E+02 | 1.706E+02 | 1.717E-05 | 6.356E-03 | 3.83E+00 | 1.908E+02 | 1.544E+02 | 2.097E-05 | 4.470E-03 | 1.274E+01 |
| 100 | -1.736E-01 | -3.840E+02 | 4.98E+00 | 1.450E+02 | 1.546E+02 | 2.093E-05 | 7.742E-03 | 3.51E+00 | 2.059E+02 | 1.666E+02 | 1.801E-05 | 3.842E-03 | 1.259E+01 |
| 105 | -2.588E-01 | -4.119E+02 | 5.44E+00 | 1.302E+02 | 1.387E+02 | 2.598E-05 | 9.602E-03 | 3.21E+00 | 2.204E+02 | 1.786E+02 | 1.567E-05 | 3.344E-03 | 1.235E+01 |
| 110 | -3.420E-01 | -4.391E+02 | 5.96E+00 | 1.157E+02 | 1.233E+02 | 3.290E-05 | 1.215E-02 | 2.93E+00 | 2.353E+02 | 1.904E+02 | 1.380E-05 | 2.946E-03 | 1.201E+01 |
| 115 | -4.226E-01 | -4.655E+02 | 6.55E+00 | 1.016E+02 | 1.083E+02 | 4.263E-05 | 1.573E-02 | 2.66E+00 | 2.493E+02 | 2.017E+02 | 1.229E-05 | 2.624E-03 | 1.159E+01 |
| 120 | -5.000E-01 | -4.908E+02 | 7.22E+00 | 8.811E+01 | 9.392E+01 | 5.669E-05 | 2.088E-02 | 2.41E+00 | 2.628E+02 | 2.126E+02 | 1.106E-05 | 2.362E-03 | 1.107E+01 |
| 125 | -5.736E-01 | -5.149E+02 | 8.00E+00 | 7.528E+01 | 8.024E+01 | 7.765E-05 | 2.856E-02 | 2.18E+00 | 2.756E+02 | 2.230E+02 | 1.005E-05 | 2.148E-03 | 1.047E+01 |
| 130 | -6.428E-01 | -5.375E+02 | 8.91E+00 | 6.321E+01 | 6.738E+01 | 1.101E-04 | 4.040E-02 | 1.95E+00 | 2.877E+02 | 2.328E+02 | 9.227E-06 | 1.972E-03 | 9.793E+00 |
| 135 | -7.071E-01 | -5.585E+02 | 1.00E+01 | 5.200E+01 | 5.543E+01 | 1.628E-04 | 5.952E-02 | 1.73E+00 | 2.989E+02 | 2.419E+02 | 8.548E-06 | 1.827E-03 | 9.040E+00 |
| 140 | -7.660E-01 | -5.778E+02 | 1.14E+01 | 4.172E+01 | 4.448E+01 | 2.528E-04 | 9.205E-02 | 1.52E+00 | 3.092E+02 | 2.502E+02 | 7.989E-06 | 1.708E-03 | 8.217E+00 |
| 145 | -8.192E-01 | -5.952E+02 | 1.31E+01 | 3.246E+01 | 3.461E+01 | 4.176E-04 | 1.511E-01 | 1.32E+00 | 3.185E+02 | 2.577E+02 | 7.531E-06 | 1.611E-03 | 7.333E+00 |
| 150 | -8.660E-01 | -6.105E+02 | 1.53E+01 | 2.428E+01 | 2.590E+01 | 7.458E-04 | 2.674E-01 | 1.12E+00 | 3.266E+02 | 2.643E+02 | 7.159E-06 | 1.531E-03 | 6.392E+00 |
| 155 | -9.063E-01 | -6.237E+02 | 1.83E+01 | 1.725E+01 | 1.841E+01 | 1.476E-03 | 5.216E-01 | 9.28E-01 | 3.337E+02 | 2.700E+02 | 6.861E-06 | 1.468E-03 | 5.403E+00 |
| 160 | -9.397E-01 | -6.346E+02 | 2.25E+01 | 1.141E+01 | 1.221E+01 | 3.361E-03 | 1.158E+00 | 7.38E-01 | 3.395E+02 | 2.747E+02 | 6.628E-06 | 1.418E-03 | 4.372E+00 |
| 165 | -9.659E-01 | -6.432E+02 | 2.90E+01 | 6.815E+00 | 7.332E+00 | 9.344E-03 | 3.075E+00 | 5.51E-01 | 3.441E+02 | 2.784E+02 | 6.453E-06 | 1.381E-03 | 3.309E+00 |
| 170 | -9.848E-01 | -6.494E+02 | 3.99E+01 | 3.462E+00 | 3.823E+00 | 3.481E-02 | 1.046E+01 | 3.66E-01 | 3.474E+02 | 2.810E+02 | 6.331E-06 | 1.355E-03 | 2.220E+00 |
| 175 | -9.962E-01 | -6.531E+02 | 5.91E+01 | 1.298E+00 | 1.707E+00 | 1.895E-01 | 4.963E+01 | 1.83E-01 | 3.493E+02 | 2.826E+02 | 6.259E-06 | 1.339E-03 | 1.114E+00 |
| 180 | -1.000E+00 | -6.544E+02 | 0. | 9.253E-04 | 1.000E+00 | 9.990E-01 | -1.909E+08 | 0. | 3.500E+02 | 2.832E+02 | 6.235E-06 | 1.334E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + DELTA(1236) (4) AT 400 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 1.23600E+00
P2CM= 1.36826E+01 P3CM= 1.36707E+01
E1CM= 1.37147E+01 E2CM= 1.37147E+01 E3CM= 1.37029E+01 E4CM= 1.37265E+01

1-V1LAB = 2.751E-06 1-VCM = 2.343E-03 GCM = 1.46172E+01 ETCM= 2.74294E+01 S = 7.52370E+02 -U=( 7.48201E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -6.554E-07 | 0. | 3.997E+02 | 4.260E+02 | 2.756E-06 | 1.170E-03 | 0. | 3.450E-01 | 1.038E+00 | 7.312E-01 | -1.570E+03 | 0. |
| 1 | 9.998E-01 | -5.698E-02 | 3.42E-02 | 3.996E+02 | 4.259E+02 | 2.756E-06 | 1.170E-03 | 3.24E+01 | 4.448E-01 | 1.063E+00 | 6.614E-01 | -6.678E+02 | 2.386E-01 |
| 2 | 9.994E-01 | -2.279E-01 | 6.84E-02 | 3.995E+02 | 4.258E+02 | 2.757E-06 | 1.171E-03 | 4.56E+01 | 6.674E-01 | 1.136E+00 | 5.249E-01 | -1.402E+02 | 4.771E-01 |
| 3 | 9.986E-01 | -5.127E-01 | 1.03E-01 | 3.994E+02 | 4.257E+02 | 2.760E-06 | 1.172E-03 | 4.91E+01 | 9.460E-01 | 1.259E+00 | 3.922E-01 | -1.560E+01 | 7.155E-01 |
| 4 | 9.976E-01 | -9.113E-01 | 1.37E-01 | 3.992E+02 | 4.254E+02 | 2.762E-06 | 1.173E-03 | 4.89E+01 | 1.265E+00 | 1.431E+00 | 2.846E-01 | 1.316E+01 | 9.536E-01 |
| 5 | 9.962E-01 | -1.424E+00 | 1.71E-01 | 3.989E+02 | 4.251E+02 | 2.766E-06 | 1.175E-03 | 4.71E+01 | 1.625E+00 | 1.652E+00 | 2.040E-01 | 1.814E+01 | 1.191E+00 |
| 6 | 9.945E-01 | -2.049E+00 | 2.05E-01 | 3.986E+02 | 4.248E+02 | 2.771E-06 | 1.176E-03 | 4.48E+01 | 2.028E+00 | 1.922E+00 | 1.460E-01 | 1.683E+01 | 1.429E+00 |
| 7 | 9.925E-01 | -2.788E+00 | 2.40E-01 | 3.982E+02 | 4.244E+02 | 2.776E-06 | 1.179E-03 | 4.22E+01 | 2.478E+00 | 2.240E+00 | 1.051E-01 | 1.409E+01 | 1.666E+00 |
| 8 | 9.903E-01 | -3.641E+00 | 2.74E-01 | 3.977E+02 | 4.239E+02 | 2.783E-06 | 1.182E-03 | 3.97E+01 | 2.977E+00 | 2.608E+00 | 7.644E-02 | 1.136E+01 | 1.903E+00 |
| 9 | 9.877E-01 | -4.606E+00 | 3.08E-01 | 3.972E+02 | 4.233E+02 | 2.790E-06 | 1.185E-03 | 3.73E+01 | 3.527E+00 | 3.024E+00 | 5.626E-02 | 9.025E+00 | 2.139E+00 |
| 10 | 9.848E-01 | -5.683E+00 | 3.43E-01 | 3.966E+02 | 4.227E+02 | 2.798E-06 | 1.188E-03 | 3.51E+01 | 4.131E+00 | 3.489E+00 | 4.196E-02 | 7.147E+00 | 2.374E+00 |
| 15 | 9.659E-01 | -1.275E+01 | 5.16E-01 | 3.929E+02 | 4.187E+02 | 2.852E-06 | 1.211E-03 | 2.63E+01 | 7.981E+00 | 6.534E+00 | 1.178E-02 | 2.381E+00 | 3.538E+00 |
| 20 | 9.397E-01 | -2.256E+01 | 6.91E-01 | 3.876E+02 | 4.131E+02 | 2.929E-06 | 1.244E-03 | 2.07E+01 | 1.325E+01 | 1.077E+01 | 4.324E-03 | 9.425E-01 | 4.676E+00 |
| 25 | 9.063E-01 | -3.505E+01 | 8.69E-01 | 3.810E+02 | 4.060E+02 | 3.033E-06 | 1.287E-03 | 1.69E+01 | 1.992E+01 | 1.615E+01 | 1.919E-03 | 4.351E-01 | 5.777E+00 |
| 30 | 8.660E-01 | -5.012E+01 | 1.05E+00 | 3.729E+02 | 3.975E+02 | 3.165E-06 | 1.343E-03 | 1.41E+01 | 2.796E+01 | 2.265E+01 | 9.753E-04 | 2.262E-01 | 6.835E+00 |
| 35 | 8.192E-01 | -6.766E+01 | 1.24E+00 | 3.636E+02 | 3.875E+02 | 3.329E-06 | 1.413E-03 | 1.21E+01 | 3.732E+01 | 3.021E+01 | 5.481E-04 | 1.290E-01 | 7.841E+00 |
| 40 | 7.660E-01 | -8.752E+01 | 1.43E+00 | 3.530E+02 | 3.762E+02 | 3.532E-06 | 1.499E-03 | 1.06E+01 | 4.791E+01 | 3.877E+01 | 3.326E-04 | 7.901E-02 | 8.787E+00 |
| 45 | 7.071E-01 | -1.096E+02 | 1.62E+00 | 3.413E+02 | 3.637E+02 | 3.779E-06 | 1.604E-03 | 9.32E+00 | 5.966E+01 | 4.828E+01 | 2.145E-04 | 5.129E-02 | 9.667E+00 |
| 50 | 6.428E-01 | -1.336E+02 | 1.83E+00 | 3.284E+02 | 3.501E+02 | 4.080E-06 | 1.732E-03 | 8.31E+00 | 7.249E+01 | 5.865E+01 | 1.453E-04 | 3.492E-02 | 1.047E+01 |
| 55 | 5.736E-01 | -1.595E+02 | 2.04E+00 | 3.146E+02 | 3.353E+02 | 4.446E-06 | 1.887E-03 | 7.46E+00 | 8.629E+01 | 6.982E+01 | 1.026E-04 | 2.473E-02 | 1.120E+01 |
| 60 | 5.000E-01 | -1.871E+02 | 2.26E+00 | 3.000E+02 | 3.197E+02 | 4.891E-06 | 2.075E-03 | 6.73E+00 | 1.010E+02 | 8.169E+01 | 7.494E-05 | 1.812E-02 | 1.184E+01 |
| 65 | 4.226E-01 | -2.160E+02 | 2.50E+00 | 2.845E+02 | 3.033E+02 | 5.436E-06 | 2.306E-03 | 6.11E+00 | 1.164E+02 | 9.417E+01 | 5.639E-05 | 1.366E-02 | 1.239E+01 |
| 70 | 3.420E-01 | -2.462E+02 | 2.74E+00 | 2.685E+02 | 2.861E+02 | 6.106E-06 | 2.590E-03 | 5.57E+00 | 1.325E+02 | 1.072E+02 | 4.354E-05 | 1.057E-02 | 1.285E+01 |
| 75 | 2.588E-01 | -2.773E+02 | 3.00E+00 | 2.519E+02 | 2.685E+02 | 6.937E-06 | 2.941E-03 | 5.08E+00 | 1.490E+02 | 1.206E+02 | 3.439E-05 | 8.356E-03 | 1.320E+01 |
| 80 | 1.736E-01 | -3.091E+02 | 3.29E+00 | 2.349E+02 | 2.504E+02 | 7.976E-06 | 3.381E-03 | 4.65E+00 | 1.660E+02 | 1.343E+02 | 2.771E-05 | 6.742E-03 | 1.346E+01 |
| 85 | 8.716E-02 | -3.415E+02 | 3.59E+00 | 2.177E+02 | 2.320E+02 | 9.290E-06 | 3.937E-03 | 4.26E+00 | 1.833E+02 | 1.483E+02 | 2.274E-05 | 5.538E-03 | 1.362E+01 |
| 90 | 0. | -3.741E+02 | 3.91E+00 | 2.003E+02 | 2.135E+02 | 1.097E-05 | 4.648E-03 | 3.91E+00 | 2.006E+02 | 1.623E+02 | 1.897E-05 | 4.624E-03 | 1.367E+01 |
| 95 | -8.716E-02 | -4.067E+02 | 4.27E+00 | 1.829E+02 | 1.950E+02 | 1.315E-05 | 5.570E-03 | 3.58E+00 | 2.180E+02 | 1.764E+02 | 1.607E-05 | 3.919E-03 | 1.362E+01 |
| 100 | -1.736E-01 | -4.391E+02 | 4.66E+00 | 1.657E+02 | 1.766E+02 | 1.604E-05 | 6.786E-03 | 3.28E+00 | 2.353E+02 | 1.903E+02 | 1.380E-05 | 3.367E-03 | 1.346E+01 |
| 105 | -2.588E-01 | -4.709E+02 | 5.09E+00 | 1.487E+02 | 1.585E+02 | 1.991E-05 | 8.419E-03 | 3.00E+00 | 2.522E+02 | 2.041E+02 | 1.201E-05 | 2.930E-03 | 1.320E+01 |
| 110 | -3.420E-01 | -5.021E+02 | 5.58E+00 | 1.321E+02 | 1.408E+02 | 2.522E-05 | 1.066E-02 | 2.74E+00 | 2.688E+02 | 2.175E+02 | 1.057E-05 | 2.581E-03 | 1.285E+01 |
| 115 | -4.226E-01 | -5.322E+02 | 6.13E+00 | 1.160E+02 | 1.237E+02 | 3.269E-05 | 1.380E-02 | 2.49E+00 | 2.849E+02 | 2.305E+02 | 9.411E-06 | 2.299E-03 | 1.239E+01 |
| 120 | -5.000E-01 | -5.612E+02 | 6.76E+00 | 1.006E+02 | 1.072E+02 | 4.348E-05 | 1.833E-02 | 2.26E+00 | 3.003E+02 | 2.430E+02 | 8.469E-06 | 2.069E-03 | 1.184E+01 |
| 125 | -5.736E-01 | -5.887E+02 | 7.49E+00 | 8.594E+01 | 9.161E+01 | 5.959E-05 | 2.509E-02 | 2.04E+00 | 3.150E+02 | 2.548E+02 | 7.699E-06 | 1.882E-03 | 1.120E+01 |
| 130 | -6.428E-01 | -6.146E+02 | 8.35E+00 | 7.215E+01 | 7.690E+01 | 8.456E-05 | 3.552E-02 | 1.83E+00 | 3.288E+02 | 2.660E+02 | 7.066E-06 | 1.727E-03 | 1.047E+01 |
| 135 | -7.071E-01 | -6.386E+02 | 9.38E+00 | 5.932E+01 | 6.323E+01 | 1.251E-04 | 5.240E-02 | 1.62E+00 | 3.416E+02 | 2.764E+02 | 6.546E-06 | 1.600E-03 | 9.667E+00 |
| 140 | -7.660E-01 | -6.607E+02 | 1.06E+01 | 4.757E+01 | 5.071E+01 | 1.945E-04 | 8.116E-02 | 1.42E+00 | 3.534E+02 | 2.859E+02 | 6.117E-06 | 1.496E-03 | 8.787E+00 |
| 145 | -8.192E-01 | -6.805E+02 | 1.22E+01 | 3.698E+01 | 3.943E+01 | 3.217E-04 | 1.335E-01 | 1.23E+00 | 3.639E+02 | 2.945E+02 | 5.767E-06 | 1.410E-03 | 7.841E+00 |
| 150 | -8.660E-01 | -6.981E+02 | 1.43E+01 | 2.763E+01 | 2.947E+01 | 5.760E-04 | 2.372E-01 | 1.05E+00 | 3.733E+02 | 3.020E+02 | 5.482E-06 | 1.341E-03 | 6.835E+00 |
| 155 | -9.063E-01 | -7.132E+02 | 1.71E+01 | 1.959E+01 | 2.091E+01 | 1.144E-03 | 4.651E-01 | 8.68E-01 | 3.813E+02 | 3.085E+02 | 5.253E-06 | 1.285E-03 | 5.777E+00 |
| 160 | -9.397E-01 | -7.256E+02 | 2.12E+01 | 1.293E+01 | 1.381E+01 | 2.624E-03 | 1.043E+00 | 6.91E-01 | 3.880E+02 | 3.139E+02 | 5.074E-06 | 1.241E-03 | 4.676E+00 |
| 165 | -9.659E-01 | -7.355E+02 | 2.75E+01 | 7.674E+00 | 8.240E+00 | 7.391E-03 | 2.815E+00 | 5.16E-01 | 3.932E+02 | 3.181E+02 | 4.940E-06 | 1.209E-03 | 3.538E+00 |
| 170 | -9.848E-01 | -7.425E+02 | 3.80E+01 | 3.854E+00 | 4.228E+00 | 2.837E-02 | 9.905E+00 | 3.43E-01 | 3.970E+02 | 3.212E+02 | 4.847E-06 | 1.186E-03 | 2.374E+00 |
| 175 | -9.962E-01 | -7.468E+02 | 5.74E+01 | 1.414E+00 | 1.809E+00 | 1.668E-01 | 5.023E+01 | 1.71E-01 | 3.992E+02 | 3.230E+02 | 4.792E-06 | 1.172E-03 | 1.191E+00 |
| 180 | -1.000E+00 | -7.482E+02 | 0. | 8.096E-04 | 1.000E+00 | 9.991E-01 | -2.852E+08 | 0. | 4.000E+02 | 3.236E+02 | 4.774E-06 | 1.168E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + DELTA(1236) (4) AT 450 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 1.23600E+00
P2CM= 1.45144E+01 P3CM= 1.45033E+01
E1CM= 1.45447E+01 E2CM= 1.45447E+01 E3CM= 1.45336E+01 E4CM= 1.45558E+01

1-V1LAB = 2.174E-06 1-VCM = 2.083E-03 GCM = 1.55018E+01 ETCM= 2.90894E+01 S = 8.46196E+02 -U=( 8.42027E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -5.178E-07 | 0. | 4.497E+02 | 4.792E+02 | 2.177E-06 | 1.040E-03 | 0. | 3.450E-01 | 1.038E+00 | 7.312E-01 | -1.767E+03 | 0. |
| 1 | 9.998E-01 | -6.412E-02 | 3.23E-02 | 4.496E+02 | 4.792E+02 | 2.177E-06 | 1.040E-03 | 3.37E+01 | 4.559E-01 | 1.066E+00 | 6.539E-01 | -6.895E+02 | 2.531E-01 |
| 2 | 9.994E-01 | -2.565E-01 | 6.45E-02 | 4.495E+02 | 4.791E+02 | 2.178E-06 | 1.041E-03 | 4.64E+01 | 6.989E-01 | 1.149E+00 | 5.078E-01 | -1.280E+02 | 5.062E-01 |
| 3 | 9.986E-01 | -5.770E-01 | 9.68E-02 | 4.493E+02 | 4.789E+02 | 2.180E-06 | 1.042E-03 | 4.93E+01 | 1.001E+00 | 1.287E+00 | 3.705E-01 | -7.624E+00 | 7.590E-01 |
| 4 | 9.976E-01 | -1.026E+00 | 1.29E-01 | 4.491E+02 | 4.787E+02 | 2.182E-06 | 1.043E-03 | 4.86E+01 | 1.349E+00 | 1.480E+00 | 2.626E-01 | 1.743E+01 | 1.012E+00 |
| 5 | 9.962E-01 | -1.602E+00 | 1.61E-01 | 4.488E+02 | 4.783E+02 | 2.185E-06 | 1.044E-03 | 4.65E+01 | 1.743E+00 | 1.729E+00 | 1.842E-01 | 2.032E+01 | 1.264E+00 |
| 6 | 9.945E-01 | -2.306E+00 | 1.94E-01 | 4.484E+02 | 4.779E+02 | 2.189E-06 | 1.046E-03 | 4.39E+01 | 2.187E+00 | 2.033E+00 | 1.294E-01 | 1.786E+01 | 1.516E+00 |
| 7 | 9.925E-01 | -3.138E+00 | 2.26E-01 | 4.480E+02 | 4.775E+02 | 2.193E-06 | 1.048E-03 | 4.12E+01 | 2.685E+00 | 2.391E+00 | 9.164E-02 | 1.449E+01 | 1.768E+00 |
| 8 | 9.903E-01 | -4.097E+00 | 2.58E-01 | 4.475E+02 | 4.769E+02 | 2.198E-06 | 1.051E-03 | 3.86E+01 | 3.239E+00 | 2.805E+00 | 6.572E-02 | 1.143E+01 | 2.018E+00 |
| 9 | 9.877E-01 | -5.183E+00 | 2.91E-01 | 4.469E+02 | 4.763E+02 | 2.204E-06 | 1.053E-03 | 3.61E+01 | 3.852E+00 | 3.273E+00 | 4.782E-02 | 8.933E+00 | 2.269E+00 |
| 10 | 9.848E-01 | -6.396E+00 | 3.23E-01 | 4.462E+02 | 4.756E+02 | 2.210E-06 | 1.056E-03 | 3.38E+01 | 4.526E+00 | 3.796E+00 | 3.532E-02 | 6.978E+00 | 2.518E+00 |
| 15 | 9.659E-01 | -1.435E+01 | 4.87E-01 | 4.420E+02 | 4.711E+02 | 2.253E-06 | 1.077E-03 | 2.51E+01 | 8.842E+00 | 7.223E+00 | 9.629E-03 | 2.230E+00 | 3.754E+00 |
| 20 | 9.397E-01 | -2.539E+01 | 6.52E-01 | 4.361E+02 | 4.648E+02 | 2.314E-06 | 1.106E-03 | 1.96E+01 | 1.476E+01 | 1.199E+01 | 3.487E-03 | 8.654E-01 | 4.960E+00 |
| 25 | 9.063E-01 | -3.945E+01 | 8.19E-01 | 4.286E+02 | 4.568E+02 | 2.396E-06 | 1.145E-03 | 1.60E+01 | 2.227E+01 | 1.805E+01 | 1.537E-03 | 3.952E-01 | 6.129E+00 |
| 30 | 8.660E-01 | -5.641E+01 | 9.90E-01 | 4.196E+02 | 4.472E+02 | 2.500E-06 | 1.195E-03 | 1.34E+01 | 3.132E+01 | 2.536E+01 | 7.779E-04 | 2.042E-01 | 7.252E+00 |
| 35 | 8.192E-01 | -7.614E+01 | 1.17E+00 | 4.091E+02 | 4.360E+02 | 2.630E-06 | 1.257E-03 | 1.15E+01 | 4.184E+01 | 3.387E+01 | 4.361E-04 | 1.160E-01 | 8.319E+00 |
| 40 | 7.660E-01 | -9.850E+01 | 1.35E+00 | 3.972E+02 | 4.233E+02 | 2.790E-06 | 1.333E-03 | 9.99E+00 | 5.376E+01 | 4.351E+01 | 2.642E-04 | 7.086E-02 | 9.323E+00 |
| 45 | 7.071E-01 | -1.233E+02 | 1.53E+00 | 3.839E+02 | 4.092E+02 | 2.986E-06 | 1.426E-03 | 8.81E+00 | 6.699E+01 | 5.420E+01 | 1.702E-04 | 4.591E-02 | 1.026E+01 |
| 50 | 6.428E-01 | -1.504E+02 | 1.72E+00 | 3.695E+02 | 3.938E+02 | 3.224E-06 | 1.540E-03 | 7.84E+00 | 8.142E+01 | 6.588E+01 | 1.152E-04 | 3.121E-02 | 1.111E+01 |
| 55 | 5.736E-01 | -1.795E+02 | 1.92E+00 | 3.540E+02 | 3.773E+02 | 3.513E-06 | 1.678E-03 | 7.04E+00 | 9.695E+01 | 7.844E+01 | 8.126E-05 | 2.209E-02 | 1.188E+01 |
| 60 | 5.000E-01 | -2.105E+02 | 2.13E+00 | 3.375E+02 | 3.597E+02 | 3.865E-06 | 1.846E-03 | 6.36E+00 | 1.135E+02 | 9.180E+01 | 5.934E-05 | 1.617E-02 | 1.256E+01 |
| 65 | 4.226E-01 | -2.431E+02 | 2.35E+00 | 3.201E+02 | 3.412E+02 | 4.295E-06 | 2.051E-03 | 5.77E+00 | 1.308E+02 | 1.058E+02 | 4.463E-05 | 1.218E-02 | 1.314E+01 |
| 70 | 3.420E-01 | -2.770E+02 | 2.59E+00 | 3.020E+02 | 3.219E+02 | 4.825E-06 | 2.303E-03 | 5.25E+00 | 1.489E+02 | 1.205E+02 | 3.445E-05 | 9.418E-03 | 1.363E+01 |
| 75 | 2.588E-01 | -3.120E+02 | 2.83E+00 | 2.834E+02 | 3.020E+02 | 5.482E-06 | 2.616E-03 | 4.80E+00 | 1.676E+02 | 1.356E+02 | 2.720E-05 | 7.445E-03 | 1.401E+01 |
| 80 | 1.736E-01 | -3.479E+02 | 3.10E+00 | 2.643E+02 | 2.816E+02 | 6.303E-06 | 3.008E-03 | 4.39E+00 | 1.867E+02 | 1.510E+02 | 2.192E-05 | 6.005E-03 | 1.428E+01 |
| 85 | 8.716E-02 | -3.843E+02 | 3.38E+00 | 2.448E+02 | 2.610E+02 | 7.342E-06 | 3.502E-03 | 4.02E+00 | 2.061E+02 | 1.667E+02 | 1.798E-05 | 4.932E-03 | 1.445E+01 |
| 90 | 0. | -4.210E+02 | 3.69E+00 | 2.253E+02 | 2.401E+02 | 8.672E-06 | 4.135E-03 | 3.69E+00 | 2.256E+02 | 1.826E+02 | 1.500E-05 | 4.117E-03 | 1.450E+01 |
| 95 | -8.716E-02 | -4.577E+02 | 4.03E+00 | 2.057E+02 | 2.193E+02 | 1.040E-05 | 4.957E-03 | 3.38E+00 | 2.452E+02 | 1.984E+02 | 1.271E-05 | 3.488E-03 | 1.445E+01 |
| 100 | -1.736E-01 | -4.941E+02 | 4.40E+00 | 1.863E+02 | 1.986E+02 | 1.268E-05 | 6.040E-03 | 3.09E+00 | 2.646E+02 | 2.141E+02 | 1.091E-05 | 2.997E-03 | 1.428E+01 |
| 105 | -2.588E-01 | -5.300E+02 | 4.81E+00 | 1.672E+02 | 1.782E+02 | 1.574E-05 | 7.495E-03 | 2.83E+00 | 2.837E+02 | 2.295E+02 | 9.490E-06 | 2.608E-03 | 1.401E+01 |
| 110 | -3.420E-01 | -5.650E+02 | 5.26E+00 | 1.486E+02 | 1.583E+02 | 1.994E-05 | 9.491E-03 | 2.58E+00 | 3.024E+02 | 2.446E+02 | 8.354E-06 | 2.297E-03 | 1.363E+01 |
| 115 | -4.226E-01 | -5.989E+02 | 5.78E+00 | 1.305E+02 | 1.391E+02 | 2.585E-05 | 1.229E-02 | 2.35E+00 | 3.205E+02 | 2.593E+02 | 7.438E-06 | 2.045E-03 | 1.314E+01 |
| 120 | -5.000E-01 | -6.315E+02 | 6.38E+00 | 1.131E+02 | 1.206E+02 | 3.440E-05 | 1.634E-02 | 2.13E+00 | 3.378E+02 | 2.733E+02 | 6.693E-06 | 1.841E-03 | 1.256E+01 |
| 125 | -5.736E-01 | -6.625E+02 | 7.06E+00 | 9.661E+01 | 1.030E+02 | 4.716E-05 | 2.237E-02 | 1.92E+00 | 3.543E+02 | 2.867E+02 | 6.084E-06 | 1.674E-03 | 1.188E+01 |
| 130 | -6.428E-01 | -6.916E+02 | 7.88E+00 | 8.108E+01 | 8.642E+01 | 6.695E-05 | 3.170E-02 | 1.72E+00 | 3.699E+02 | 2.992E+02 | 5.584E-06 | 1.536E-03 | 1.111E+01 |
| 135 | -7.071E-01 | -7.187E+02 | 8.85E+00 | 6.664E+01 | 7.104E+01 | 9.909E-05 | 4.679E-02 | 1.53E+00 | 3.843E+02 | 3.109E+02 | 5.172E-06 | 1.423E-03 | 1.026E+01 |
| 140 | -7.660E-01 | -7.435E+02 | 1.01E+01 | 5.342E+01 | 5.694E+01 | 1.542E-04 | 7.258E-02 | 1.34E+00 | 3.975E+02 | 3.216E+02 | 4.834E-06 | 1.331E-03 | 9.323E+00 |
| 145 | -8.192E-01 | -7.659E+02 | 1.16E+01 | 4.150E+01 | 4.424E+01 | 2.554E-04 | 1.196E-01 | 1.16E+00 | 4.094E+02 | 3.313E+02 | 4.557E-06 | 1.254E-03 | 8.319E+00 |
| 150 | -8.660E-01 | -7.856E+02 | 1.35E+01 | 3.098E+01 | 3.304E+01 | 4.582E-04 | 2.130E-01 | 9.89E-01 | 4.199E+02 | 3.398E+02 | 4.331E-06 | 1.192E-03 | 7.252E+00 |
| 155 | -9.063E-01 | -8.026E+02 | 1.62E+01 | 2.194E+01 | 2.340E+01 | 9.133E-04 | 4.196E-01 | 8.19E-01 | 4.290E+02 | 3.471E+02 | 4.151E-06 | 1.143E-03 | 6.129E+00 |
| 160 | -9.397E-01 | -8.166E+02 | 2.01E+01 | 1.444E+01 | 1.542E+01 | 2.105E-03 | 9.475E-01 | 6.51E-01 | 4.365E+02 | 3.531E+02 | 4.010E-06 | 1.104E-03 | 4.960E+00 |
| 165 | -9.659E-01 | -8.277E+02 | 2.61E+01 | 8.532E+00 | 9.148E+00 | 5.993E-03 | 2.595E+00 | 4.86E-01 | 4.424E+02 | 3.579E+02 | 3.904E-06 | 1.075E-03 | 3.754E+00 |
| 170 | -9.848E-01 | -8.356E+02 | 3.64E+01 | 4.244E+00 | 4.633E+00 | 2.357E-02 | 9.395E+00 | 3.23E-01 | 4.466E+02 | 3.613E+02 | 3.830E-06 | 1.055E-03 | 2.518E+00 |
| 175 | -9.962E-01 | -8.404E+02 | 5.59E+01 | 1.527E+00 | 1.910E+00 | 1.480E-01 | 5.052E+01 | 1.61E-01 | 4.491E+02 | 3.634E+02 | 3.786E-06 | 1.043E-03 | 1.264E+00 |
| 180 | -1.000E+00 | -8.420E+02 | 1.15E-01 | 7.196E-04 | 1.000E+00 | 9.992E-01 | -4.062E+08 | 0. | 4.500E+02 | 3.641E+02 | 3.772E-06 | 1.039E-03 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + DELTA(1236) (4) AT 500 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 1.23690E+00
P2CM= 1.53011E+01 P3CM= 1.52906E+01
E1CM= 1.53299E+01 E2CM= 1.53299E+01 E3CM= 1.53193E+01 E4CM= 1.53404E+01

1-V1LAB = 1.761E-06 1-VCM = 1.875E-03 GCM = 1.63386E+01 ETCM= 3.06598E+01 S = 9.40022E+02 -U=( 9.35853E+02) +T

| Θ3 CM | COS(Θ3) CM | 4-MOM TSFR SQUARE, T | Θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | Θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -4.194E-07 | 0. | 4.997E+02 | 5.325E+02 | 1.763E-06 | 9.365E-04 | 0. | 3.450E-01 | 1.038E+00 | 7.312E-01 | -1.964E+03 | 0. |
| 1 | 9.998E-01 | -7.127E-02 | 3.06E-02 | 4.996E+02 | 5.325E+02 | 1.763E-06 | 9.366E-04 | 3.49E+01 | 4.668E-01 | 1.069E+00 | 6.467E-01 | -7.053E+02 | 2.669E-01 |
| 2 | 9.994E-01 | -2.850E-01 | 6.12E-02 | 4.995E+02 | 5.324E+02 | 1.764E-06 | 9.371E-04 | 4.70E+01 | 7.293E-01 | 1.161E+00 | 4.918E-01 | -1.161E+02 | 5.336E-01 |
| 3 | 9.986E-01 | -6.413E-01 | 9.18E-02 | 4.993E+02 | 5.322E+02 | 1.766E-06 | 9.378E-04 | 4.93E+01 | 1.055E+00 | 1.315E+00 | 3.508E-01 | -4.244E+01 | 8.002E-01 |
| 4 | 9.976E-01 | -1.140E+00 | 1.22E-01 | 4.990E+02 | 5.319E+02 | 1.767E-06 | 9.388E-04 | 4.82E+01 | 1.431E+00 | 1.530E+00 | 2.433E-01 | 2.111E+01 | 1.067E+00 |
| 5 | 9.962E-01 | -1.781E+00 | 1.53E-01 | 4.987E+02 | 5.315E+02 | 1.770E-06 | 9.401E-04 | 4.58E+01 | 1.859E+00 | 1.806E+00 | 1.673E-01 | 2.210E+01 | 1.333E+00 |
| 6 | 9.945E-01 | -2.563E+00 | 1.84E-01 | 4.983E+02 | 5.311E+02 | 1.773E-06 | 9.416E-04 | 4.30E+01 | 2.343E+00 | 2.143E+00 | 1.155E-01 | 1.863E+01 | 1.598E+00 |
| 7 | 9.925E-01 | -3.488E+00 | 2.14E-01 | 4.978E+02 | 5.306E+02 | 1.776E-06 | 9.435E-04 | 4.02E+01 | 2.889E+00 | 2.542E+00 | 8.063E-02 | 1.474E+01 | 1.863E+00 |
| 8 | 9.903E-01 | -4.554E+00 | 2.45E-01 | 4.972E+02 | 5.299E+02 | 1.780E-06 | 9.457E-04 | 3.75E+01 | 3.498E+00 | 3.002E+00 | 5.713E-02 | 1.141E+01 | 2.128E+00 |
| 9 | 9.877E-01 | -5.761E+00 | 2.76E-01 | 4.966E+02 | 5.293E+02 | 1.785E-06 | 9.481E-04 | 3.50E+01 | 4.174E+00 | 3.522E+00 | 4.115E-02 | 8.793E+00 | 2.392E+00 |
| 10 | 9.848E-01 | -7.109E+00 | 3.07E-01 | 4.959E+02 | 5.285E+02 | 1.790E-06 | 9.508E-04 | 3.27E+01 | 4.919E+00 | 4.103E+00 | 3.015E-02 | 6.790E+00 | 2.655E+00 |
| 15 | 9.659E-01 | -1.594E+01 | 4.62E-01 | 4.912E+02 | 5.235E+02 | 1.825E-06 | 9.691E-04 | 2.41E+01 | 9.702E+00 | 7.913E+00 | 8.018E-03 | 2.094E+00 | 3.957E+00 |
| 20 | 9.397E-01 | -2.822E+01 | 6.18E-01 | 4.846E+02 | 5.165E+02 | 1.874E-06 | 9.955E-04 | 1.87E+01 | 1.627E+01 | 1.321E+01 | 2.872E-03 | 7.996E-01 | 5.230E+00 |
| 25 | 9.063E-01 | -4.384E+01 | 7.77E-01 | 4.763E+02 | 5.076E+02 | 1.940E-06 | 1.031E-03 | 1.52E+01 | 2.462E+01 | 1.994E+01 | 1.258E-03 | 3.620E-01 | 6.462E+00 |
| 30 | 8.660E-01 | -6.269E+01 | 9.40E-01 | 4.662E+02 | 4.969E+02 | 2.025E-06 | 1.075E-03 | 1.27E+01 | 3.467E+01 | 2.807E+01 | 6.349E-04 | 1.861E-01 | 7.645E+00 |
| 35 | 8.192E-01 | -8.462E+01 | 1.11E+00 | 4.546E+02 | 4.845E+02 | 2.130E-06 | 1.131E-03 | 1.09E+01 | 4.636E+01 | 3.752E+01 | 3.552E-04 | 1.053E-01 | 8.770E+00 |
| 40 | 7.660E-01 | -1.095E+02 | 1.28E+00 | 4.413E+02 | 4.704E+02 | 2.260E-06 | 1.200E-03 | 9.49E+00 | 5.961E+01 | 4.824E+01 | 2.149E-04 | 6.423E-02 | 9.829E+00 |
| 45 | 7.071E-01 | -1.371E+02 | 1.45E+00 | 4.266E+02 | 4.547E+02 | 2.418E-06 | 1.284E-03 | 8.37E+00 | 7.431E+01 | 6.013E+01 | 1.383E-04 | 4.156E-02 | 1.081E+01 |
| 50 | 6.428E-01 | -1.671E+02 | 1.63E+00 | 4.106E+02 | 4.376E+02 | 2.611E-06 | 1.386E-03 | 7.45E+00 | 9.035E+01 | 7.310E+01 | 9.356E-05 | 2.822E-02 | 1.171E+01 |
| 55 | 5.736E-01 | -1.995E+02 | 1.82E+00 | 3.933E+02 | 4.192E+02 | 2.845E-06 | 1.511E-03 | 6.68E+00 | 1.076E+02 | 8.707E+01 | 6.596E-05 | 1.995E-02 | 1.253E+01 |
| 60 | 5.000E-01 | -2.340E+02 | 2.02E+00 | 3.750E+02 | 3.997E+02 | 3.130E-06 | 1.662E-03 | 6.03E+00 | 1.260E+02 | 1.019E+02 | 4.814E-05 | 1.459E-02 | 1.324E+01 |
| 65 | 4.226E-01 | -2.702E+02 | 2.23E+00 | 3.557E+02 | 3.791E+02 | 3.479E-06 | 1.847E-03 | 5.47E+00 | 1.453E+02 | 1.175E+02 | 3.620E-05 | 1.099E-02 | 1.386E+01 |
| 70 | 3.420E-01 | -3.079E+02 | 2.45E+00 | 3.356E+02 | 3.577E+02 | 3.909E-06 | 2.074E-03 | 4.99E+00 | 1.654E+02 | 1.338E+02 | 2.794E-05 | 8.495E-03 | 1.437E+01 |
| 75 | 2.588E-01 | -3.468E+02 | 2.69E+00 | 3.148E+02 | 3.356E+02 | 4.441E-06 | 2.356E-03 | 4.55E+00 | 1.861E+02 | 1.506E+02 | 2.205E-05 | 6.714E-03 | 1.477E+01 |
| 80 | 1.736E-01 | -3.867E+02 | 2.94E+00 | 2.936E+02 | 3.129E+02 | 5.106E-06 | 2.709E-03 | 4.16E+00 | 2.073E+02 | 1.678E+02 | 1.777E-05 | 5.414E-03 | 1.506E+01 |
| 85 | 8.716E-02 | -4.271E+02 | 3.21E+00 | 2.720E+02 | 2.899E+02 | 5.948E-06 | 3.155E-03 | 3.82E+00 | 2.289E+02 | 1.852E+02 | 1.458E-05 | 4.445E-03 | 1.523E+01 |
| 90 | 0. | -4.679E+02 | 3.50E+00 | 2.503E+02 | 2.668E+02 | 7.026E-06 | 3.725E-03 | 3.50E+00 | 2.506E+02 | 2.028E+02 | 1.216E-05 | 3.710E-03 | 1.529E+01 |
| 95 | -8.716E-02 | -5.087E+02 | 3.82E+00 | 2.286E+02 | 2.436E+02 | 8.426E-06 | 4.466E-03 | 3.21E+00 | 2.724E+02 | 2.204E+02 | 1.039E-05 | 3.143E-03 | 1.523E+01 |
| 100 | -1.736E-01 | -5.492E+02 | 4.17E+00 | 2.070E+02 | 2.206E+02 | 1.027E-05 | 5.442E-03 | 2.94E+00 | 2.939E+02 | 2.378E+02 | 8.841E-06 | 2.700E-03 | 1.506E+01 |
| 105 | -2.588E-01 | -5.890E+02 | 4.56E+00 | 1.858E+02 | 1.980E+02 | 1.276E-05 | 6.754E-03 | 2.69E+00 | 3.152E+02 | 2.550E+02 | 7.689E-06 | 2.349E-03 | 1.477E+01 |
| 110 | -3.420E-01 | -6.280E+02 | 5.00E+00 | 1.650E+02 | 1.759E+02 | 1.617E-05 | 8.554E-03 | 2.45E+00 | 3.359E+02 | 2.718E+02 | 6.769E-06 | 2.069E-03 | 1.437E+01 |
| 115 | -4.226E-01 | -6.657E+02 | 5.49E+00 | 1.449E+02 | 1.544E+02 | 2.096E-05 | 1.108E-02 | 2.23E+00 | 3.560E+02 | 2.880E+02 | 6.026E-06 | 1.842E-03 | 1.386E+01 |
| 120 | -5.000E-01 | -7.019E+02 | 6.05E+00 | 1.256E+02 | 1.339E+02 | 2.789E-05 | 1.473E-02 | 2.02E+00 | 3.753E+02 | 3.037E+02 | 5.423E-06 | 1.658E-03 | 1.324E+01 |
| 125 | -5.736E-01 | -7.363E+02 | 6.71E+00 | 1.073E+02 | 1.143E+02 | 3.825E-05 | 2.018E-02 | 1.82E+00 | 3.937E+02 | 3.185E+02 | 4.929E-06 | 1.507E-03 | 1.253E+01 |
| 130 | -6.428E-01 | -7.687E+02 | 7.48E+00 | 9.001E+01 | 9.594E+01 | 5.433E-05 | 2.861E-02 | 1.63E+00 | 4.109E+02 | 3.325E+02 | 4.524E-06 | 1.384E-03 | 1.171E+01 |
| 135 | -7.071E-01 | -7.988E+02 | 8.41E+00 | 7.397E+01 | 7.884E+01 | 8.044E-05 | 4.227E-02 | 1.45E+00 | 4.270E+02 | 3.454E+02 | 4.190E-06 | 1.282E-03 | 1.081E+01 |
| 140 | -7.660E-01 | -8.264E+02 | 9.55E+00 | 5.927E+01 | 6.318E+01 | 1.253E-04 | 6.563E-02 | 1.28E+00 | 4.417E+02 | 3.573E+02 | 3.916E-06 | 1.198E-03 | 9.829E+00 |
| 145 | -8.192E-01 | -8.512E+02 | 1.10E+01 | 4.602E+01 | 4.906E+01 | 2.077E-04 | 1.083E-01 | 1.10E+00 | 4.549E+02 | 3.680E+02 | 3.691E-06 | 1.129E-03 | 8.770E+00 |
| 150 | -8.660E-01 | -8.732E+02 | 1.29E+01 | 3.433E+01 | 3.661E+01 | 3.732E-04 | 1.934E-01 | 9.39E-01 | 4.666E+02 | 3.775E+02 | 3.509E-06 | 1.074E-03 | 7.645E+00 |
| 155 | -9.063E-01 | -8.920E+02 | 1.54E+01 | 2.428E+01 | 2.590E+01 | 7.456E-04 | 3.822E-01 | 7.77E-01 | 4.766E+02 | 3.856E+02 | 3.362E-06 | 1.029E-03 | 6.462E+00 |
| 160 | -9.397E-01 | -9.076E+02 | 1.91E+01 | 1.595E+01 | 1.703E+01 | 1.726E-03 | 8.683E-01 | 6.18E-01 | 4.850E+02 | 3.924E+02 | 3.248E-06 | 9.946E-04 | 5.230E+00 |
| 165 | -9.659E-01 | -9.199E+02 | 2.49E+01 | 9.388E+00 | 1.006E+01 | 4.957E-03 | 2.405E+00 | 4.61E-01 | 4.915E+02 | 3.977E+02 | 3.162E-06 | 9.678E-04 | 3.957E+00 |
| 170 | -9.848E-01 | -9.287E+02 | 3.50E+01 | 4.633E+00 | 5.038E+00 | 1.990E-02 | 8.925E+00 | 3.07E-01 | 4.962E+02 | 4.015E+02 | 3.102E-06 | 9.495E-04 | 2.655E+00 |
| 175 | -9.962E-01 | -9.341E+02 | 5.45E+01 | 1.637E+00 | 2.011E+00 | 1.324E-01 | 5.060E+01 | 1.53E-01 | 4.991E+02 | 4.039E+02 | 3.067E-06 | 9.388E-04 | 1.333E+00 |
| 180 | -1.000E+00 | -9.359E+02 | 1.35E-01 | 6.476E-04 | 1.000E+00 | 9.993E-01 | -5.575E+08 | 0. | 5.000E+02 | 4.045E+02 | 3.055E-06 | 9.352E-04 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + DELTA(1236) (4) AT 750 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 1.23600E+00
P2CM= 1.87459E+01 P3CM= 1.87372E+01
E1CM= 1.87693E+01 E2CM= 1.87693E+01 E3CM= 1.87607E+01 E4CM= 1.87779E+01

1-V1LAB = 7.825E-07 1-VCM = 1.250E-03 GCM = 2.00044E+01 ETCM= 3.75387E+01 S = 1.40915E+03 -U=( 1.40498E+03) +T

| 03 CM | COS(03) CM | 4-MOM TSFR SQUARE, T | 03 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | 04 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACORIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -1.863E-07 | 0. | 7.497E+02 | 7.990E+02 | 7.832E-07 | 6.247E-04 | 0. | 3.450E-01 | 1.038E+00 | 7.312E-01 | -2.950E+03 | 0. |
| 1 | 9.998E-01 | -1.070E-01 | 2.50E-02 | 7.496E+02 | 7.989E+02 | 7.834E-07 | 6.248E-04 | 3.91E+01 | 5.183E-01 | 1.084E+00 | 6.133E-01 | -7.260E+02 | 3.270E-01 |
| 2 | 9.994E-01 | -4.279E-01 | 5.00E-02 | 7.494E+02 | 7.987E+02 | 7.837E-07 | 6.251E-04 | 4.88E+01 | 8.697E-01 | 1.223E+00 | 4.246E-01 | -6.215E+01 | 6.539E-01 |
| 3 | 9.986E-01 | -9.627E-01 | 7.50E-02 | 7.491E+02 | 7.984E+02 | 7.843E-07 | 6.256E-04 | 4.88E+01 | 1.303E+00 | 1.453E+00 | 2.744E-01 | 2.682E+01 | 9.806E-01 |
| 4 | 9.976E-01 | -1.711E+00 | 1.00E-01 | 7.487E+02 | 7.980E+02 | 7.851E-07 | 6.262E-04 | 4.61E+01 | 1.814E+00 | 1.776E+00 | 1.736E-01 | 3.346E+01 | 1.307E+00 |
| 5 | 9.962E-01 | -2.673E+00 | 1.25E-01 | 7.482E+02 | 7.975E+02 | 7.862E-07 | 6.271E-04 | 4.27E+01 | 2.409E+00 | 2.191E+00 | 1.103E-01 | 2.718E+01 | 1.633E+00 |
| 6 | 9.945E-01 | -3.848E+00 | 1.50E-01 | 7.476E+02 | 7.968E+02 | 7.875E-07 | 6.282E-04 | 3.92E+01 | 3.096E+00 | 2.697E+00 | 7.126E-02 | 2.022E+01 | 1.959E+00 |
| 7 | 9.925E-01 | -5.236E+00 | 1.75E-01 | 7.469E+02 | 7.960E+02 | 7.891E-07 | 6.294E-04 | 3.60E+01 | 3.882E+00 | 3.296E+00 | 4.714E-02 | 1.472E+01 | 2.283E+00 |
| 8 | 9.903E-01 | -6.837E+00 | 2.00E-01 | 7.460E+02 | 7.951E+02 | 7.909E-07 | 6.308E-04 | 3.31E+01 | 4.769E+00 | 3.986E+00 | 3.198E-02 | 1.070E+01 | 2.608E+00 |
| 9 | 9.877E-01 | -8.649E+00 | 2.25E-01 | 7.450E+02 | 7.941E+02 | 7.930E-07 | 6.325E-04 | 3.06E+01 | 5.761E+00 | 4.767E+00 | 2.225E-02 | 7.847E+00 | 2.931E+00 |
| 10 | 9.848E-01 | -1.067E+01 | 2.51E-01 | 7.440E+02 | 7.929E+02 | 7.953E-07 | 6.343E-04 | 2.83E+01 | 6.860E+00 | 5.640E+00 | 1.585E-02 | 5.823E+00 | 3.254E+00 |
| 15 | 9.659E-01 | -2.394E+01 | 3.77E-01 | 7.369E+02 | 7.854E+02 | 8.106E-07 | 6.465E-04 | 2.03E+01 | 1.398E+01 | 1.136E+01 | 3.883E-03 | 1.597E+00 | 4.850E+00 |
| 20 | 9.397E-01 | -4.237E+01 | 5.05E-01 | 7.271E+02 | 7.749E+02 | 8.326E-07 | 6.641E-04 | 1.56E+01 | 2.383E+01 | 1.930E+01 | 1.343E-03 | 5.782E-01 | 6.409E+00 |
| 25 | 9.063E-01 | -6.582E+01 | 6.35E-01 | 7.146E+02 | 7.616E+02 | 8.620E-07 | 6.875E-04 | 1.26E+01 | 3.634E+01 | 2.942E+01 | 5.780E-04 | 2.547E-01 | 7.919E+00 |
| 30 | 8.660E-01 | -9.412E+01 | 7.67E-01 | 6.995E+02 | 7.455E+02 | 8.996E-07 | 7.175E-04 | 1.05E+01 | 5.142E+01 | 4.162E+01 | 2.887E-04 | 1.289E-01 | 9.369E+00 |
| 35 | 8.192E-01 | -1.270E+02 | 9.03E-01 | 6.820E+02 | 7.268E+02 | 9.465E-07 | 7.548E-04 | 8.96E+00 | 6.897E+01 | 5.581E+01 | 1.605E-04 | 7.222E-02 | 1.075E+01 |
| 40 | 7.660E-01 | -1.644E+02 | 1.04E+00 | 6.621E+02 | 7.056E+02 | 1.004E-06 | 8.008E-04 | 7.79E+00 | 8.866E+01 | 7.190E+01 | 9.673E-05 | 4.375E-02 | 1.204E+01 |
| 45 | 7.071E-01 | -2.058E+02 | 1.19E+00 | 6.400E+02 | 6.821E+02 | 1.075E-06 | 8.569E-04 | 6.86E+00 | 1.109E+02 | 8.975E+01 | 6.208E-05 | 2.818E-02 | 1.325E+01 |
| 50 | 6.428E-01 | -2.509E+02 | 1.34E+00 | 6.159E+02 | 6.565E+02 | 1.160E-06 | 9.252E-04 | 6.10E+00 | 1.350E+02 | 1.092E+02 | 4.191E-05 | 1.907E-02 | 1.435E+01 |
| 55 | 5.736E-01 | -2.996E+02 | 1.49E+00 | 5.900E+02 | 6.288E+02 | 1.264E-06 | 1.008E-03 | 5.47E+00 | 1.609E+02 | 1.302E+02 | 2.950E-05 | 1.345E-02 | 1.535E+01 |
| 60 | 5.000E-01 | -3.512E+02 | 1.65E+00 | 5.625E+02 | 5.995E+02 | 1.391E-06 | 1.109E-03 | 4.94E+00 | 1.885E+02 | 1.525E+02 | 2.151E-05 | 9.821E-03 | 1.623E+01 |
| 65 | 4.226E-01 | -4.056E+02 | 1.82E+00 | 5.335E+02 | 5.686E+02 | 1.546E-06 | 1.233E-03 | 4.48E+00 | 2.174E+02 | 1.759E+02 | 1.616E-05 | 7.387E-03 | 1.698E+01 |
| 70 | 3.420E-01 | -4.622E+02 | 2.00E+00 | 5.033E+02 | 5.365E+02 | 1.737E-06 | 1.385E-03 | 4.08E+00 | 2.476E+02 | 2.003E+02 | 1.246E-05 | 5.702E-03 | 1.761E+01 |
| 75 | 2.588E-01 | -5.207E+02 | 2.20E+00 | 4.722E+02 | 5.033E+02 | 1.974E-06 | 1.573E-03 | 3.72E+00 | 2.787E+02 | 2.255E+02 | 9.831E-06 | 4.502E-03 | 1.810E+01 |
| 80 | 1.736E-01 | -5.805E+02 | 2.40E+00 | 4.403E+02 | 4.693E+02 | 2.270E-06 | 1.809E-03 | 3.41E+00 | 3.106E+02 | 2.513E+02 | 7.916E-06 | 3.627E-03 | 1.845E+01 |
| 85 | 8.716E-02 | -6.413E+02 | 2.62E+00 | 4.079E+02 | 4.348E+02 | 2.645E-06 | 2.108E-03 | 3.12E+00 | 3.430E+02 | 2.775E+02 | 6.492E-06 | 2.976E-03 | 1.867E+01 |
| 90 | 0. | -7.025E+02 | 2.86E+00 | 3.753E+02 | 4.000E+02 | 3.125E-06 | 2.490E-03 | 2.86E+00 | 3.756E+02 | 3.039E+02 | 5.413E-06 | 2.483E-03 | 1.874E+01 |
| 95 | -8.716E-02 | -7.637E+02 | 3.12E+00 | 3.427E+02 | 3.652E+02 | 3.749E-06 | 2.986E-03 | 2.62E+00 | 4.083E+02 | 3.303E+02 | 4.583E-06 | 2.102E-03 | 1.867E+01 |
| 100 | -1.736E-01 | -8.245E+02 | 3.41E+00 | 3.103E+02 | 3.307E+02 | 4.572E-06 | 3.640E-03 | 2.40E+00 | 4.406E+02 | 3.565E+02 | 3.934E-06 | 1.805E-03 | 1.845E+01 |
| 105 | -2.588E-01 | -8.843E+02 | 3.73E+00 | 2.784E+02 | 2.967E+02 | 5.679E-06 | 4.520E-03 | 2.20E+00 | 4.725E+02 | 3.823E+02 | 3.421E-06 | 1.570E-03 | 1.810E+01 |
| 110 | -3.420E-01 | -9.428E+02 | 4.08E+00 | 2.473E+02 | 2.635E+02 | 7.200E-06 | 5.728E-03 | 2.00E+00 | 5.037E+02 | 4.075E+02 | 3.011E-06 | 1.382E-03 | 1.761E+01 |
| 115 | -4.226E-01 | -9.994E+02 | 4.49E+00 | 2.171E+02 | 2.314E+02 | 9.340E-06 | 7.427E-03 | 1.82E+00 | 5.339E+02 | 4.319E+02 | 2.680E-06 | 1.231E-03 | 1.698E+01 |
| 120 | -5.000E-01 | -1.054E+03 | 4.95E+00 | 1.881E+02 | 2.005E+02 | 1.244E-05 | 9.884E-03 | 1.65E+00 | 5.628E+02 | 4.554E+02 | 2.411E-06 | 1.108E-03 | 1.623E+01 |
| 125 | -5.736E-01 | -1.105E+03 | 5.49E+00 | 1.606E+02 | 1.711E+02 | 1.707E-05 | 1.355E-02 | 1.49E+00 | 5.904E+02 | 4.776E+02 | 2.192E-06 | 1.007E-03 | 1.535E+01 |
| 130 | -6.428E-01 | -1.154E+03 | 6.12E+00 | 1.347E+02 | 1.435E+02 | 2.427E-05 | 1.925E-02 | 1.33E+00 | 6.163E+02 | 4.986E+02 | 2.011E-06 | 9.240E-04 | 1.435E+01 |
| 135 | -7.071E-01 | -1.199E+03 | 6.88E+00 | 1.106E+02 | 1.179E+02 | 3.599E-05 | 2.850E-02 | 1.19E+00 | 6.404E+02 | 5.181E+02 | 1.863E-06 | 8.559E-04 | 1.325E+01 |
| 140 | -7.660E-01 | -1.241E+03 | 7.82E+00 | 8.852E+01 | 9.435E+01 | 5.617E-05 | 4.439E-02 | 1.04E+00 | 6.624E+02 | 5.359E+02 | 1.741E-06 | 7.999E-04 | 1.204E+01 |
| 145 | -8.192E-01 | -1.278E+03 | 9.01E+00 | 6.863E+01 | 7.316E+01 | 9.343E-05 | 7.361E-02 | 9.03E-01 | 6.823E+02 | 5.520E+02 | 1.641E-06 | 7.540E-04 | 1.075E+01 |
| 150 | -8.660E-01 | -1.311E+03 | 1.06E+01 | 5.108E+01 | 5.445E+01 | 1.686E-04 | 1.323E-01 | 7.67E-01 | 6.998E+02 | 5.662E+02 | 1.560E-06 | 7.167E-04 | 9.369E+00 |
| 155 | -9.063E-01 | -1.339E+03 | 1.27E+01 | 3.600E+01 | 3.838E+01 | 3.395E-04 | 2.642E-01 | 6.35E-01 | 7.149E+02 | 5.784E+02 | 1.494E-06 | 6.868E-04 | 7.919E+00 |
| 160 | -9.397E-01 | -1.363E+03 | 1.58E+01 | 2.350E+01 | 2.506E+01 | 7.964E-04 | 6.118E-01 | 5.05E-01 | 7.274E+02 | 5.885E+02 | 1.444E-06 | 6.634E-04 | 6.409E+00 |
| 165 | -9.659E-01 | -1.381E+03 | 2.08E+01 | 1.366E+01 | 1.460E+01 | 2.350E-03 | 1.758E+00 | 3.77E-01 | 7.372E+02 | 5.965E+02 | 1.405E-06 | 6.459E-04 | 4.850E+00 |
| 170 | -9.848E-01 | -1.394E+03 | 2.97E+01 | 6.559E+00 | 7.062E+00 | 1.008E-02 | 7.085E+00 | 2.50E-01 | 7.443E+02 | 6.022E+02 | 1.379E-06 | 6.337E-04 | 3.254E+00 |
| 175 | -9.962E-01 | -1.402E+03 | 4.89E+01 | 2.169E+00 | 2.518E+00 | 8.222E-02 | 4.909E+01 | 1.25E-01 | 7.486E+02 | 6.056E+02 | 1.363E-06 | 6.265E-04 | 1.633E+00 |
| 180 | -1.000E+00 | -1.405E+03 | 2.49E-01 | 4.317E-04 | 1.000E+00 | 9.995E-01 | -1.884E+09 | 0. | 7.500E+02 | 6.068E+02 | 1.358E-06 | 6.241E-04 | 0. |

PROTON (1) + PROTON (2) => PROTON (3) + DELTA(1236) (4) AT 1000 GEV/C P1 LAB

M1 = 9.38259E-01 M2 = 9.38259E-01 M3 = 9.38259E-01 M4 = 1.23600E+00
P2CM= 2.16492E+01 P3CM= 2.16418E+01
E1CM= 2.16696E+01 E2CM= 2.16696E+01 E3CM= 2.16621E+01 E4CM= 2.16770E+01

1-V1LAB = 4.402E-07 1-VCM = 9.378E-04 GCM = 2.30955E+01 ETCM= 4.33391E+01 S = 1.87828E+03 -U=( 1.87411E+03) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -1.048E-07 | 0. | 9.997E+02 | 1.065E+03 | 4.405E-07 | 4.687E-04 | 0. | 3.450E-01 | 1.038E+00 | 7.312E-01 | -3.935E+03 | 0. |
| 1 | 9.998E-01 | -1.427E-01 | 2.16E-02 | 9.996E+02 | 1.065E+03 | 4.405E-07 | 4.688E-04 | 4.19E+01 | 5.657E-01 | 1.100E+00 | 5.838E-01 | -6.955E+02 | 3.777E-01 |
| 2 | 9.994E-01 | -5.708E-01 | 4.33E-02 | 9.994E+02 | 1.065E+03 | 4.407E-07 | 4.690E-04 | 4.93E+01 | 9.961E-01 | 1.284E+00 | 3.725E-01 | -1.909E+01 | 7.553E-01 |
| 3 | 9.986E-01 | -1.284E+00 | 6.50E-02 | 9.990E+02 | 1.065E+03 | 4.411E-07 | 4.693E-04 | 4.77E+01 | 1.531E+00 | 1.592E+00 | 2.219E-01 | 4.444E+01 | 1.133E+00 |
| 4 | 9.976E-01 | -2.283E+00 | 8.66E-02 | 9.984E+02 | 1.064E+03 | 4.415E-07 | 4.698E-04 | 4.40E+01 | 2.173E+00 | 2.022E+00 | 1.308E-01 | 3.989E+01 | 1.510E+00 |
| 5 | 9.962E-01 | -3.566E+00 | 1.08E-01 | 9.978E+02 | 1.063E+03 | 4.421E-07 | 4.705E-04 | 4.00E+01 | 2.934E+00 | 2.576E+00 | 7.845E-02 | 2.891E+01 | 1.886E+00 |
| 6 | 9.945E-01 | -5.133E+00 | 1.30E-01 | 9.969E+02 | 1.063E+03 | 4.429E-07 | 4.713E-04 | 3.63E+01 | 3.824E+00 | 3.251E+00 | 4.847E-02 | 2.006E+01 | 2.262E+00 |
| 7 | 9.925E-01 | -6.985E+00 | 1.52E-01 | 9.959E+02 | 1.061E+03 | 4.438E-07 | 4.722E-04 | 3.29E+01 | 4.850E+00 | 4.050E+00 | 3.097E-02 | 1.389E+01 | 2.637E+00 |
| 8 | 9.903E-01 | -9.119E+00 | 1.73E-01 | 9.948E+02 | 1.060E+03 | 4.448E-07 | 4.733E-04 | 3.00E+01 | 6.017E+00 | 4.970E+00 | 2.045E-02 | 9.722E+00 | 3.012E+00 |
| 9 | 9.877E-01 | -1.154E+01 | 1.95E-01 | 9.935E+02 | 1.059E+03 | 4.459E-07 | 4.745E-04 | 2.75E+01 | 7.328E+00 | 6.012E+00 | 1.393E-02 | 6.920E+00 | 3.386E+00 |
| 10 | 9.848E-01 | -1.424E+01 | 2.17E-01 | 9.921E+02 | 1.057E+03 | 4.472E-07 | 4.759E-04 | 2.53E+01 | 8.783E+00 | 7.176E+00 | 9.757E-03 | 5.014E+00 | 3.758E+00 |
| 15 | 9.659E-01 | -3.193E+01 | 3.27E-01 | 9.826E+02 | 1.047E+03 | 4.559E-07 | 4.851E-04 | 1.79E+01 | 1.826E+01 | 1.480E+01 | 2.284E-03 | 1.285E+00 | 5.601E+00 |
| 20 | 9.397E-01 | -5.651E+01 | 4.37E-01 | 9.695E+02 | 1.033E+03 | 4.683E-07 | 4.982E-04 | 1.36E+01 | 3.137E+01 | 2.540E+01 | 7.751E-04 | 4.522E-01 | 7.402E+00 |
| 25 | 9.063E-01 | -8.779E+01 | 5.50E-01 | 9.529E+02 | 1.016E+03 | 4.848E-07 | 5.158E-04 | 1.10E+01 | 4.805E+01 | 3.889E+01 | 3.306E-04 | 1.963E-01 | 9.146E+00 |
| 30 | 8.660E-01 | -1.255E+02 | 6.65E-01 | 9.328E+02 | 9.941E+02 | 5.059E-07 | 5.383E-04 | 9.13E+00 | 6.817E+01 | 5.517E+01 | 1.643E-04 | 9.855E-02 | 1.082E+01 |
| 35 | 8.192E-01 | -1.695E+02 | 7.82E-01 | 9.093E+02 | 9.692E+02 | 5.323E-07 | 5.664E-04 | 7.79E+00 | 9.158E+01 | 7.410E+01 | 9.106E-05 | 5.494E-02 | 1.241E+01 |
| 40 | 7.660E-01 | -2.192E+02 | 9.03E-01 | 8.828E+02 | 9.409E+02 | 5.648E-07 | 6.009E-04 | 6.76E+00 | 1.181E+02 | 9.556E+01 | 5.476E-05 | 3.317E-02 | 1.391E+01 |
| 45 | 7.071E-01 | -2.745E+02 | 1.03E+00 | 8.534E+02 | 9.096E+02 | 6.044E-07 | 6.430E-04 | 5.95E+00 | 1.475E+02 | 1.194E+02 | 3.509E-05 | 2.132E-02 | 1.530E+01 |
| 50 | 6.428E-01 | -3.347E+02 | 1.16E+00 | 8.213E+02 | 8.753E+02 | 6.526E-07 | 6.943E-04 | 5.29E+00 | 1.797E+02 | 1.454E+02 | 2.367E-05 | 1.440E-02 | 1.658E+01 |
| 55 | 5.736E-01 | -3.996E+02 | 1.29E+00 | 7.867E+02 | 8.385E+02 | 7.112E-07 | 7.566E-04 | 4.75E+00 | 2.142E+02 | 1.733E+02 | 1.665E-05 | 1.015E-02 | 1.773E+01 |
| 60 | 5.000E-01 | -4.685E+02 | 1.43E+00 | 7.500E+02 | 7.993E+02 | 7.826E-07 | 8.324E-04 | 4.28E+00 | 2.510E+02 | 2.030E+02 | 1.213E-05 | 7.401E-03 | 1.874E+01 |
| 65 | 4.226E-01 | -5.410E+02 | 1.58E+00 | 7.113E+02 | 7.581E+02 | 8.699E-07 | 9.253E-04 | 3.88E+00 | 2.896E+02 | 2.343E+02 | 9.108E-06 | 5.562E-03 | 1.961E+01 |
| 70 | 3.420E-01 | -6.166E+02 | 1.74E+00 | 6.711E+02 | 7.152E+02 | 9.774E-07 | 1.040E-03 | 3.53E+00 | 3.298E+02 | 2.669E+02 | 7.021E-06 | 4.291E-03 | 2.034E+01 |
| 75 | 2.588E-01 | -6.945E+02 | 1.90E+00 | 6.295E+02 | 6.710E+02 | 1.111E-06 | 1.181E-03 | 3.23E+00 | 3.714E+02 | 3.005E+02 | 5.538E-06 | 3.386E-03 | 2.090E+01 |
| 80 | 1.736E-01 | -7.743E+02 | 2.08E+00 | 5.870E+02 | 6.256E+02 | 1.277E-06 | 1.358E-03 | 2.95E+00 | 4.139E+02 | 3.349E+02 | 4.458E-06 | 2.727E-03 | 2.131E+01 |
| 85 | 8.716E-02 | -8.554E+02 | 2.27E+00 | 5.438E+02 | 5.796E+02 | 1.488E-06 | 1.582E-03 | 2.70E+00 | 4.571E+02 | 3.698E+02 | 3.656E-06 | 2.237E-03 | 2.156E+01 |
| 90 | 0. | -9.371E+02 | 2.48E+00 | 5.003E+02 | 5.332E+02 | 1.759E-06 | 1.869E-03 | 2.48E+00 | 5.006E+02 | 4.051E+02 | 3.048E-06 | 1.866E-03 | 2.164E+01 |
| 95 | -8.716E-02 | -1.019E+03 | 2.71E+00 | 4.568E+02 | 4.868E+02 | 2.110E-06 | 2.242E-03 | 2.27E+00 | 5.442E+02 | 4.403E+02 | 2.580E-06 | 1.580E-03 | 2.156E+01 |
| 100 | -1.736E-01 | -1.100E+03 | 2.95E+00 | 4.136E+02 | 4.408E+02 | 2.573E-06 | 2.735E-03 | 2.08E+00 | 5.874E+02 | 4.752E+02 | 2.214E-06 | 1.356E-03 | 2.131E+01 |
| 105 | -2.588E-01 | -1.180E+03 | 3.23E+00 | 3.711E+02 | 3.955E+02 | 3.197E-06 | 3.396E-03 | 1.90E+00 | 6.299E+02 | 5.096E+02 | 1.925E-06 | 1.179E-03 | 2.090E+01 |
| 110 | -3.420E-01 | -1.258E+03 | 3.54E+00 | 3.295E+02 | 3.512E+02 | 4.054E-06 | 4.306E-03 | 1.74E+00 | 6.714E+02 | 5.432E+02 | 1.694E-06 | 1.038E-03 | 2.034E+01 |
| 115 | -4.226E-01 | -1.333E+03 | 3.89E+00 | 2.893E+02 | 3.083E+02 | 5.261E-06 | 5.585E-03 | 1.58E+00 | 7.117E+02 | 5.758E+02 | 1.508E-06 | 9.241E-04 | 1.961E+01 |
| 120 | -5.000E-01 | -1.406E+03 | 4.29E+00 | 2.506E+02 | 2.671E+02 | 7.008E-06 | 7.436E-03 | 1.43E+00 | 7.503E+02 | 6.071E+02 | 1.357E-06 | 8.315E-04 | 1.874E+01 |
| 125 | -5.736E-01 | -1.475E+03 | 4.75E+00 | 2.139E+02 | 2.280E+02 | 9.623E-06 | 1.020E-02 | 1.29E+00 | 7.871E+02 | 6.368E+02 | 1.233E-06 | 7.557E-04 | 1.773E+01 |
| 130 | -6.428E-01 | -1.539E+03 | 5.30E+00 | 1.793E+02 | 1.911E+02 | 1.369E-05 | 1.450E-02 | 1.16E+00 | 8.216E+02 | 6.647E+02 | 1.132E-06 | 6.936E-04 | 1.658E+01 |
| 135 | -7.071E-01 | -1.600E+03 | 5.97E+00 | 1.472E+02 | 1.569E+02 | 2.032E-05 | 2.150E-02 | 1.03E+00 | 8.537E+02 | 6.907E+02 | 1.048E-06 | 6.424E-04 | 1.530E+01 |
| 140 | -7.660E-01 | -1.655E+03 | 6.78E+00 | 1.178E+02 | 1.255E+02 | 3.174E-05 | 3.354E-02 | 9.03E-01 | 8.832E+02 | 7.145E+02 | 9.793E-07 | 6.003E-04 | 1.391E+01 |
| 145 | -8.192E-01 | -1.705E+03 | 7.82E+00 | 9.124E+01 | 9.725E+01 | 5.287E-05 | 5.574E-02 | 7.82E-01 | 9.097E+02 | 7.360E+02 | 9.230E-07 | 5.659E-04 | 1.241E+01 |
| 150 | -8.660E-01 | -1.749E+03 | 9.18E+00 | 6.783E+01 | 7.230E+01 | 9.565E-05 | 1.005E-01 | 6.64E-01 | 9.331E+02 | 7.549E+02 | 8.773E-07 | 5.379E-04 | 1.082E+01 |
| 155 | -9.063E-01 | -1.786E+03 | 1.11E+01 | 4.772E+01 | 5.086E+01 | 1.933E-04 | 2.019E-01 | 5.50E-01 | 9.532E+02 | 7.712E+02 | 8.407E-07 | 5.154E-04 | 9.146E+00 |
| 160 | -9.397E-01 | -1.818E+03 | 1.38E+01 | 3.104E+01 | 3.310E+01 | 4.566E-04 | 4.721E-01 | 4.37E-01 | 9.699E+02 | 7.847E+02 | 8.120E-07 | 4.979E-04 | 7.402E+00 |
| 165 | -9.659E-01 | -1.842E+03 | 1.82E+01 | 1.793E+01 | 1.913E+01 | 1.367E-03 | 1.384E+00 | 3.26E-01 | 9.830E+02 | 7.953E+02 | 7.905E-07 | 4.847E-04 | 5.601E+00 |
| 170 | -9.848E-01 | -1.860E+03 | 2.63E+01 | 8.473E+00 | 9.086E+00 | 6.076E-03 | 5.847E+00 | 2.17E-01 | 9.924E+02 | 8.029E+02 | 7.756E-07 | 4.755E-04 | 3.758E+00 |
| 175 | -9.962E-01 | -1.871E+03 | 4.48E+01 | 2.679E+00 | 3.025E+00 | 5.621E-02 | 4.633E+01 | 1.08E-01 | 9.981E+02 | 8.075E+02 | 7.668E-07 | 4.701E-04 | 1.886E+00 |
| 180 | -1.000E+00 | -1.874E+03 | 3.83E-01 | 3.237E-04 | 1.000E+00 | 9.997E-01 | -4.469E+09 | 0. | 1.000E+03 | 8.091E+02 | 7.638E-07 | 4.684E-04 | 0. |

PION (1) + PROTON (2) => PION (3) + PROTON (4) AT 10 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 1.39569E-01 M4 = 9.38259E-01
P2CM= 2.11571E+00 P3CM= 2.11571E+00
E1CM= 2.12031E+00 E2CM= 2.31442E+00 E3CM= 2.12031E+00 E4CM= 2.31442E+00

1-V1LAB = 9.738E-05 1-VCM = 8.586E-02 GCM = 2.46672E+00 ETCM= 4.43473E+00 S = 1.96668E+01 -U=( 1.78672E+01) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 1.000E+01 | 7.166E+01 | 9.738E-05 | 4.476E-02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -1.364E-03 | 2.12E-01 | 9.999E+00 | 7.165E+01 | 9.740E-05 | 4.477E-02 | 8.88E+01 | 3.693E-02 | 1.001E+00 | 9.607E-01 | 7.063E+01 | 3.692E-02 |
| 2 | 9.994E-01 | -5.454E-03 | 4.23E-01 | 9.997E+00 | 7.164E+01 | 9.744E-05 | 4.479E-02 | 8.75E+01 | 7.391E-02 | 1.003E+00 | 9.215E-01 | 3.525E+01 | 7.384E-02 |
| 3 | 9.986E-01 | -1.227E-02 | 6.35E-01 | 9.993E+00 | 7.161E+01 | 9.751E-05 | 4.482E-02 | 8.63E+01 | 1.110E-01 | 1.007E+00 | 8.826E-01 | 2.344E+01 | 1.107E-01 |
| 4 | 9.976E-01 | -2.181E-02 | 8.47E-01 | 9.988E+00 | 7.157E+01 | 9.761E-05 | 4.487E-02 | 8.51E+01 | 1.481E-01 | 1.012E+00 | 8.441E-01 | 1.751E+01 | 1.476E-01 |
| 5 | 9.962E-01 | -3.407E-02 | 1.06E+00 | 9.982E+00 | 7.153E+01 | 9.774E-05 | 4.493E-02 | 8.39E+01 | 1.855E-01 | 1.019E+00 | 8.061E-01 | 1.394E+01 | 1.844E-01 |
| 6 | 9.945E-01 | -4.904E-02 | 1.27E+00 | 9.974E+00 | 7.147E+01 | 9.789E-05 | 4.500E-02 | 8.26E+01 | 2.230E-01 | 1.028E+00 | 7.688E-01 | 1.154E+01 | 2.212E-01 |
| 7 | 9.925E-01 | -6.673E-02 | 1.48E+00 | 9.964E+00 | 7.140E+01 | 9.808E-05 | 4.508E-02 | 8.14E+01 | 2.608E-01 | 1.038E+00 | 7.322E-01 | 9.821E+00 | 2.578E-01 |
| 8 | 9.903E-01 | -8.712E-02 | 1.70E+00 | 9.954E+00 | 7.132E+01 | 9.829E-05 | 4.518E-02 | 8.02E+01 | 2.988E-01 | 1.049E+00 | 6.966E-01 | 8.522E+00 | 2.944E-01 |
| 9 | 9.877E-01 | -1.102E-01 | 1.91E+00 | 9.941E+00 | 7.124E+01 | 9.854E-05 | 4.529E-02 | 7.90E+01 | 3.371E-01 | 1.063E+00 | 6.618E-01 | 7.505E+00 | 3.310E-01 |
| 10 | 9.848E-01 | -1.360E-01 | 2.12E+00 | 9.928E+00 | 7.114E+01 | 9.881E-05 | 4.542E-02 | 7.78E+01 | 3.758E-01 | 1.077E+00 | 6.281E-01 | 6.685E+00 | 3.674E-01 |
| 15 | 9.659E-01 | -3.050E-01 | 3.19E+00 | 9.837E+00 | 7.049E+01 | 1.006E-04 | 4.625E-02 | 7.20E+01 | 5.757E-01 | 1.173E+00 | 4.770E-01 | 4.171E+00 | 5.476E-01 |
| 20 | 9.397E-01 | -5.399E-01 | 4.27E+00 | 9.712E+00 | 6.959E+01 | 1.032E-04 | 4.745E-02 | 6.65E+01 | 7.891E-01 | 1.307E+00 | 3.563E-01 | 2.867E+00 | 7.236E-01 |
| 25 | 9.063E-01 | -8.388E-01 | 5.37E+00 | 9.553E+00 | 6.845E+01 | 1.067E-04 | 4.904E-02 | 6.13E+01 | 1.019E+00 | 1.476E+00 | 2.643E-01 | 2.068E+00 | 8.941E-01 |
| 30 | 8.660E-01 | -1.199E+00 | 6.49E+00 | 9.361E+00 | 6.708E+01 | 1.111E-04 | 5.108E-02 | 5.65E+01 | 1.268E+00 | 1.681E+00 | 1.961E-01 | 1.535E+00 | 1.058E+00 |
| 35 | 8.192E-01 | -1.619E+00 | 7.63E+00 | 9.137E+00 | 6.547E+01 | 1.166E-04 | 5.361E-02 | 5.21E+01 | 1.537E+00 | 1.920E+00 | 1.464E-01 | 1.163E+00 | 1.214E+00 |
| 40 | 7.660E-01 | -2.094E+00 | 8.81E+00 | 8.884E+00 | 6.366E+01 | 1.234E-04 | 5.670E-02 | 4.81E+01 | 1.828E+00 | 2.190E+00 | 1.104E-01 | 8.953E-01 | 1.360E+00 |
| 45 | 7.071E-01 | -2.622E+00 | 1.00E+01 | 8.603E+00 | 6.164E+01 | 1.316E-04 | 6.047E-02 | 4.44E+01 | 2.139E+00 | 2.489E+00 | 8.424E-02 | 6.993E-01 | 1.496E+00 |
| 50 | 6.428E-01 | -3.198E+00 | 1.13E+01 | 8.296E+00 | 5.945E+01 | 1.415E-04 | 6.502E-02 | 4.10E+01 | 2.470E+00 | 2.816E+00 | 6.516E-02 | 5.536E-01 | 1.621E+00 |
| 55 | 5.736E-01 | -3.818E+00 | 1.26E+01 | 7.965E+00 | 5.708E+01 | 1.535E-04 | 7.051E-02 | 3.79E+01 | 2.821E+00 | 3.168E+00 | 5.112E-02 | 4.439E-01 | 1.733E+00 |
| 60 | 5.000E-01 | -4.476E+00 | 1.39E+01 | 7.614E+00 | 5.457E+01 | 1.679E-04 | 7.716E-02 | 3.51E+01 | 3.188E+00 | 3.542E+00 | 4.067E-02 | 3.603E-01 | 1.832E+00 |
| 65 | 4.226E-01 | -5.169E+00 | 1.53E+01 | 7.245E+00 | 5.192E+01 | 1.855E-04 | 8.521E-02 | 3.25E+01 | 3.572E+00 | 3.936E+00 | 3.282E-02 | 2.960E-01 | 1.917E+00 |
| 70 | 3.420E-01 | -5.891E+00 | 1.68E+01 | 6.860E+00 | 4.917E+01 | 2.069E-04 | 9.502E-02 | 3.01E+01 | 3.968E+00 | 4.346E+00 | 2.684E-02 | 2.460E-01 | 1.988E+00 |
| 75 | 2.588E-01 | -6.635E+00 | 1.84E+01 | 6.463E+00 | 4.632E+01 | 2.331E-04 | 1.070E-01 | 2.78E+01 | 4.375E+00 | 4.769E+00 | 2.223E-02 | 2.068E-01 | 2.044E+00 |
| 80 | 1.736E-01 | -7.398E+00 | 2.01E+01 | 6.057E+00 | 4.341E+01 | 2.654E-04 | 1.218E-01 | 2.58E+01 | 4.790E+00 | 5.202E+00 | 1.865E-02 | 1.757E-01 | 2.084E+00 |
| 85 | 8.716E-02 | -8.172E+00 | 2.19E+01 | 5.644E+00 | 4.045E+01 | 3.056E-04 | 1.403E-01 | 2.39E+01 | 5.209E+00 | 5.642E+00 | 1.584E-02 | 1.508E-01 | 2.108E+00 |
| 90 | 0. | -8.952E+00 | 2.39E+01 | 5.228E+00 | 3.747E+01 | 3.561E-04 | 1.635E-01 | 2.21E+01 | 5.631E+00 | 6.085E+00 | 1.360E-02 | 1.308E-01 | 2.116E+00 |
| 95 | -8.716E-02 | -9.733E+00 | 2.60E+01 | 4.812E+00 | 3.449E+01 | 4.203E-04 | 1.929E-01 | 2.04E+01 | 6.053E+00 | 6.528E+00 | 1.180E-02 | 1.145E-01 | 2.108E+00 |
| 100 | -1.736E-01 | -1.051E+01 | 2.83E+01 | 4.400E+00 | 3.154E+01 | 5.028E-04 | 2.307E-01 | 1.88E+01 | 6.470E+00 | 6.968E+00 | 1.035E-02 | 1.012E-01 | 2.084E+00 |
| 105 | -2.588E-01 | -1.127E+01 | 3.08E+01 | 3.993E+00 | 2.863E+01 | 6.103E-04 | 2.799E-01 | 1.73E+01 | 6.880E+00 | 7.401E+00 | 9.171E-03 | 9.029E-02 | 2.044E+00 |
| 110 | -3.420E-01 | -1.201E+01 | 3.36E+01 | 3.596E+00 | 2.578E+01 | 7.524E-04 | 3.450E-01 | 1.58E+01 | 7.281E+00 | 7.824E+00 | 8.202E-03 | 8.124E-02 | 1.988E+00 |
| 115 | -4.226E-01 | -1.274E+01 | 3.67E+01 | 3.211E+00 | 2.303E+01 | 9.433E-04 | 4.324E-01 | 1.45E+01 | 7.668E+00 | 8.234E+00 | 7.403E-03 | 7.371E-02 | 1.917E+00 |
| 120 | -5.000E-01 | -1.343E+01 | 4.02E+01 | 2.841E+00 | 2.038E+01 | 1.204E-03 | 5.519E-01 | 1.32E+01 | 8.040E+00 | 8.627E+00 | 6.741E-03 | 6.743E-02 | 1.832E+00 |
| 125 | -5.736E-01 | -1.409E+01 | 4.41E+01 | 2.490E+00 | 1.787E+01 | 1.567E-03 | 7.181E-01 | 1.19E+01 | 8.393E+00 | 9.001E+00 | 6.190E-03 | 6.217E-02 | 1.733E+00 |
| 130 | -6.428E-01 | -1.471E+01 | 4.86E+01 | 2.159E+00 | 1.550E+01 | 2.083E-03 | 9.542E-01 | 1.07E+01 | 8.725E+00 | 9.353E+00 | 5.732E-03 | 5.777E-02 | 1.621E+00 |
| 135 | -7.071E-01 | -1.528E+01 | 5.39E+01 | 1.852E+00 | 1.330E+01 | 2.829E-03 | 1.296E+00 | 9.53E+00 | 9.034E+00 | 9.680E+00 | 5.350E-03 | 5.409E-02 | 1.496E+00 |
| 140 | -7.660E-01 | -1.581E+01 | 6.01E+01 | 1.569E+00 | 1.129E+01 | 3.931E-03 | 1.802E+00 | 8.39E+00 | 9.317E+00 | 9.980E+00 | 5.033E-03 | 5.102E-02 | 1.360E+00 |
| 145 | -8.192E-01 | -1.629E+01 | 6.74E+01 | 1.315E+00 | 9.474E+00 | 5.587E-03 | 2.565E+00 | 7.28E+00 | 9.571E+00 | 1.025E+01 | 4.771E-03 | 4.847E-02 | 1.214E+00 |
| 150 | -8.660E-01 | -1.671E+01 | 7.61E+01 | 1.090E+00 | 7.871E+00 | 8.103E-03 | 3.730E+00 | 6.20E+00 | 9.796E+00 | 1.049E+01 | 4.556E-03 | 4.637E-02 | 1.058E+00 |
| 155 | -9.063E-01 | -1.707E+01 | 8.67E+01 | 8.956E-01 | 6.494E+00 | 1.193E-02 | 5.519E+00 | 5.14E+00 | 9.989E+00 | 1.069E+01 | 4.383E-03 | 4.468E-02 | 8.941E-01 |
| 160 | -9.397E-01 | -1.736E+01 | 9.96E+01 | 7.340E-01 | 5.353E+00 | 1.760E-02 | 8.219E+00 | 4.09E+00 | 1.015E+01 | 1.086E+01 | 4.246E-03 | 4.335E-02 | 7.236E-01 |
| 165 | -9.659E-01 | -1.760E+01 | 1.15E+02 | 6.061E-01 | 4.457E+00 | 2.550E-02 | 1.207E+01 | 3.06E+00 | 1.027E+01 | 1.100E+01 | 4.144E-03 | 4.234E-02 | 5.476E-01 |
| 170 | -9.848E-01 | -1.777E+01 | 1.34E+02 | 5.133E-01 | 3.811E+00 | 3.504E-02 | 1.689E+01 | 2.03E+00 | 1.036E+01 | 1.109E+01 | 4.072E-03 | 4.164E-02 | 3.674E-01 |
| 175 | -9.962E-01 | -1.787E+01 | 1.56E+02 | 4.567E-01 | 3.422E+00 | 4.365E-02 | 2.142E+01 | 1.01E+00 | 1.042E+01 | 1.115E+01 | 4.030E-03 | 4.122E-02 | 1.844E-01 |
| 180 | -1.000E+00 | -1.790E+01 | 1.80E+02 | 4.377E-01 | 3.292E+00 | 4.726E-02 | 2.336E+01 | 0. | 1.044E+01 | 1.117E+01 | 4.016E-03 | 4.109E-02 | 0. |

PION (1) + PROTON (2) => PION (3) + PROTON (4) AT 20 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 1.39569E-01 M4 = 9.38259E-01
P2CM= 3.02699E+00 P3CM= 3.02699E+00
E1CM= 3.03021E+00 E2CM= 3.16907E+00 E3CM= 3.03021E+00 E4CM= 3.16907E+00

1-V1LAB = 2.435E-05 1-VCM = 4.483E-02 GCM = 3.37761E+00 ETCM= 6.19928E+00 S = 3.84311E+01 -U=( 3.66315E+01) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 2.000E+01 | 1.433E+02 | 2.435E-05 | 2.291E-02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -2.791E-03 | 1.51E-01 | 2.000E+01 | 1.433E+02 | 2.435E-05 | 2.291E-02 | 8.83E+01 | 5.285E-02 | 1.002E+00 | 9.438E-01 | 9.665E+01 | 5.283E-02 |
| 2 | 9.994E-01 | -1.116E-02 | 3.03E-01 | 1.999E+01 | 1.433E+02 | 2.436E-05 | 2.292E-02 | 8.66E+01 | 1.058E-01 | 1.006E+00 | 8.879E-01 | 4.815E+01 | 1.056E-01 |
| 3 | 9.986E-01 | -2.511E-02 | 4.54E-01 | 1.999E+01 | 1.432E+02 | 2.438E-05 | 2.294E-02 | 8.49E+01 | 1.590E-01 | 1.014E+00 | 8.329E-01 | 3.192E+01 | 1.584E-01 |
| 4 | 9.976E-01 | -4.464E-02 | 6.06E-01 | 1.998E+01 | 1.431E+02 | 2.441E-05 | 2.296E-02 | 8.33E+01 | 2.126E-01 | 1.025E+00 | 7.790E-01 | 2.374E+01 | 2.112E-01 |
| 5 | 9.962E-01 | -6.973E-02 | 7.57E-01 | 1.996E+01 | 1.430E+02 | 2.444E-05 | 2.299E-02 | 8.16E+01 | 2.667E-01 | 1.040E+00 | 7.266E-01 | 1.880E+01 | 2.638E-01 |
| 6 | 9.945E-01 | -1.004E-01 | 9.09E-01 | 1.995E+01 | 1.429E+02 | 2.448E-05 | 2.303E-02 | 8.00E+01 | 3.213E-01 | 1.057E+00 | 6.760E-01 | 1.547E+01 | 3.164E-01 |
| 7 | 9.925E-01 | -1.366E-01 | 1.06E+00 | 1.993E+01 | 1.428E+02 | 2.453E-05 | 2.307E-02 | 7.83E+01 | 3.767E-01 | 1.078E+00 | 6.274E-01 | 1.306E+01 | 3.689E-01 |
| 8 | 9.903E-01 | -1.783E-01 | 1.21E+00 | 1.990E+01 | 1.426E+02 | 2.458E-05 | 2.313E-02 | 7.67E+01 | 4.329E-01 | 1.101E+00 | 5.811E-01 | 1.124E+01 | 4.213E-01 |
| 9 | 9.877E-01 | -2.256E-01 | 1.36E+00 | 1.988E+01 | 1.424E+02 | 2.464E-05 | 2.318E-02 | 7.51E+01 | 4.900E-01 | 1.128E+00 | 5.371E-01 | 9.805E+00 | 4.735E-01 |
| 10 | 9.848E-01 | -2.784E-01 | 1.52E+00 | 1.985E+01 | 1.422E+02 | 2.471E-05 | 2.325E-02 | 7.35E+01 | 5.481E-01 | 1.158E+00 | 4.956E-01 | 8.643E+00 | 5.256E-01 |
| 15 | 9.659E-01 | -6.244E-01 | 2.28E+00 | 1.967E+01 | 1.409E+02 | 2.518E-05 | 2.369E-02 | 6.60E+01 | 8.574E-01 | 1.355E+00 | 3.254E-01 | 5.064E+00 | 7.834E-01 |
| 20 | 9.397E-01 | -1.105E+00 | 3.06E+00 | 1.941E+01 | 1.391E+02 | 2.585E-05 | 2.432E-02 | 5.92E+01 | 1.205E+00 | 1.628E+00 | 2.110E-01 | 3.229E+00 | 1.035E+00 |
| 25 | 9.063E-01 | -1.717E+00 | 3.84E+00 | 1.909E+01 | 1.367E+02 | 2.674E-05 | 2.515E-02 | 5.32E+01 | 1.598E+00 | 1.975E+00 | 1.376E-01 | 2.150E+00 | 1.279E+00 |
| 30 | 8.660E-01 | -2.455E+00 | 4.64E+00 | 1.869E+01 | 1.339E+02 | 2.788E-05 | 2.622E-02 | 4.79E+01 | 2.041E+00 | 2.394E+00 | 9.138E-02 | 1.476E+00 | 1.513E+00 |
| 35 | 8.192E-01 | -3.314E+00 | 5.46E+00 | 1.823E+01 | 1.306E+02 | 2.929E-05 | 2.756E-02 | 4.32E+01 | 2.536E+00 | 2.882E+00 | 6.211E-02 | 1.038E+00 | 1.736E+00 |
| 40 | 7.660E-01 | -4.287E+00 | 6.31E+00 | 1.772E+01 | 1.269E+02 | 3.103E-05 | 2.919E-02 | 3.91E+01 | 3.083E+00 | 3.435E+00 | 4.331E-02 | 7.476E-01 | 1.946E+00 |
| 45 | 7.071E-01 | -5.367E+00 | 7.17E+00 | 1.714E+01 | 1.228E+02 | 3.315E-05 | 3.118E-02 | 3.56E+01 | 3.681E+00 | 4.049E+00 | 3.099E-02 | 5.502E-01 | 2.140E+00 |
| 50 | 6.428E-01 | -6.546E+00 | 8.07E+00 | 1.651E+01 | 1.183E+02 | 3.572E-05 | 3.360E-02 | 3.24E+01 | 4.326E+00 | 4.718E+00 | 2.272E-02 | 4.133E-01 | 2.319E+00 |
| 55 | 5.736E-01 | -7.814E+00 | 9.01E+00 | 1.584E+01 | 1.135E+02 | 3.884E-05 | 3.653E-02 | 2.96E+01 | 5.016E+00 | 5.438E+00 | 1.705E-02 | 3.166E-01 | 2.480E+00 |
| 60 | 5.000E-01 | -9.163E+00 | 9.99E+00 | 1.512E+01 | 1.083E+02 | 4.262E-05 | 4.008E-02 | 2.71E+01 | 5.745E+00 | 6.204E+00 | 1.308E-02 | 2.470E-01 | 2.621E+00 |
| 65 | 4.226E-01 | -1.058E+01 | 1.10E+01 | 1.436E+01 | 1.029E+02 | 4.722E-05 | 4.441E-02 | 2.49E+01 | 6.509E+00 | 7.010E+00 | 1.023E-02 | 1.961E-01 | 2.743E+00 |
| 70 | 3.420E-01 | -1.206E+01 | 1.21E+01 | 1.357E+01 | 9.726E+01 | 5.285E-05 | 4.970E-02 | 2.29E+01 | 7.304E+00 | 7.848E+00 | 8.150E-03 | 1.582E-01 | 2.844E+00 |
| 75 | 2.588E-01 | -1.358E+01 | 1.32E+01 | 1.276E+01 | 9.144E+01 | 5.980E-05 | 5.623E-02 | 2.11E+01 | 8.122E+00 | 8.714E+00 | 6.606E-03 | 1.296E-01 | 2.924E+00 |
| 80 | 1.736E-01 | -1.514E+01 | 1.45E+01 | 1.193E+01 | 8.548E+01 | 6.843E-05 | 6.434E-02 | 1.94E+01 | 8.959E+00 | 9.601E+00 | 5.439E-03 | 1.077E-01 | 2.981E+00 |
| 85 | 8.716E-02 | -1.673E+01 | 1.58E+01 | 1.109E+01 | 7.943E+01 | 7.925E-05 | 7.451E-02 | 1.79E+01 | 9.808E+00 | 1.050E+01 | 4.545E-03 | 9.064E-02 | 3.015E+00 |
| 90 | 0. | -1.833E+01 | 1.72E+01 | 1.023E+01 | 7.333E+01 | 9.298E-05 | 8.740E-02 | 1.65E+01 | 1.066E+01 | 1.141E+01 | 3.849E-03 | 7.728E-02 | 3.027E+00 |
| 95 | -8.716E-02 | -1.992E+01 | 1.87E+01 | 9.383E+00 | 6.723E+01 | 1.106E-04 | 1.040E-01 | 1.52E+01 | 1.152E+01 | 1.232E+01 | 3.302E-03 | 6.667E-02 | 3.015E+00 |
| 100 | -1.736E-01 | -2.151E+01 | 2.04E+01 | 8.538E+00 | 6.118E+01 | 1.336E-04 | 1.255E-01 | 1.40E+01 | 1.236E+01 | 1.322E+01 | 2.867E-03 | 5.817E-02 | 2.981E+00 |
| 105 | -2.588E-01 | -2.307E+01 | 2.23E+01 | 7.706E+00 | 5.522E+01 | 1.640E-04 | 1.541E-01 | 1.28E+01 | 1.320E+01 | 1.410E+01 | 2.517E-03 | 5.129E-02 | 2.924E+00 |
| 110 | -3.420E-01 | -2.459E+01 | 2.44E+01 | 6.893E+00 | 4.940E+01 | 2.049E-04 | 1.925E-01 | 1.17E+01 | 1.401E+01 | 1.497E+01 | 2.234E-03 | 4.569E-02 | 2.844E+00 |
| 115 | -4.226E-01 | -2.607E+01 | 2.67E+01 | 6.106E+00 | 4.376E+01 | 2.611E-04 | 2.452E-01 | 1.07E+01 | 1.480E+01 | 1.581E+01 | 2.003E-03 | 4.110E-02 | 2.743E+00 |
| 120 | -5.000E-01 | -2.749E+01 | 2.93E+01 | 5.350E+00 | 3.835E+01 | 3.401E-04 | 3.192E-01 | 9.70E+00 | 1.556E+01 | 1.661E+01 | 1.813E-03 | 3.731E-02 | 2.621E+00 |
| 125 | -5.736E-01 | -2.884E+01 | 3.24E+01 | 4.631E+00 | 3.320E+01 | 4.538E-04 | 4.258E-01 | 8.76E+00 | 1.628E+01 | 1.738E+01 | 1.657E-03 | 3.418E-02 | 2.480E+00 |
| 130 | -6.428E-01 | -3.010E+01 | 3.59E+01 | 3.955E+00 | 2.836E+01 | 6.220E-04 | 5.835E-01 | 7.86E+00 | 1.696E+01 | 1.810E+01 | 1.528E-03 | 3.157E-02 | 2.319E+00 |
| 135 | -7.071E-01 | -3.128E+01 | 4.00E+01 | 3.327E+00 | 2.386E+01 | 8.790E-04 | 8.242E-01 | 6.99E+00 | 1.758E+01 | 1.877E+01 | 1.421E-03 | 2.941E-02 | 2.140E+00 |
| 140 | -7.660E-01 | -3.236E+01 | 4.50E+01 | 2.750E+00 | 1.973E+01 | 1.285E-03 | 1.205E+00 | 6.15E+00 | 1.816E+01 | 1.938E+01 | 1.332E-03 | 2.762E-02 | 1.946E+00 |
| 145 | -8.192E-01 | -3.334E+01 | 5.11E+01 | 2.231E+00 | 1.602E+01 | 1.951E-03 | 1.829E+00 | 5.33E+00 | 1.868E+01 | 1.993E+01 | 1.259E-03 | 2.615E-02 | 1.736E+00 |
| 150 | -8.660E-01 | -3.420E+01 | 5.87E+01 | 1.772E+00 | 1.274E+01 | 3.087E-03 | 2.894E+00 | 4.54E+00 | 1.914E+01 | 2.042E+01 | 1.200E-03 | 2.494E-02 | 1.513E+00 |
| 155 | -9.063E-01 | -3.493E+01 | 6.83E+01 | 1.377E+00 | 9.918E+00 | 5.096E-03 | 4.785E+00 | 3.76E+00 | 1.953E+01 | 2.084E+01 | 1.152E-03 | 2.397E-02 | 1.279E+00 |
| 160 | -9.397E-01 | -3.555E+01 | 8.08E+01 | 1.049E+00 | 7.582E+00 | 8.736E-03 | 8.238E+00 | 2.99E+00 | 1.986E+01 | 2.119E+01 | 1.114E-03 | 2.320E-02 | 1.035E+00 |
| 165 | -9.659E-01 | -3.603E+01 | 9.72E+01 | 7.898E-01 | 5.746E+00 | 1.526E-02 | 1.453E+01 | 2.23E+00 | 2.011E+01 | 2.146E+01 | 1.086E-03 | 2.263E-02 | 7.834E-01 |
| 170 | -9.848E-01 | -3.637E+01 | 1.19E+02 | 6.016E-01 | 4.425E+00 | 2.587E-02 | 2.510E+01 | 1.48E+00 | 2.030E+01 | 2.166E+01 | 1.066E-03 | 2.223E-02 | 5.256E-01 |
| 175 | -9.962E-01 | -3.658E+01 | 1.47E+02 | 4.868E-01 | 3.628E+00 | 3.873E-02 | 3.854E+01 | 7.41E-01 | 2.041E+01 | 2.178E+01 | 1.055E-03 | 2.199E-02 | 2.638E-01 |
| 180 | -1.000E+00 | -3.665E+01 | 1.80E+02 | 4.480E-01 | 3.362E+00 | 4.526E-02 | 4.565E+01 | 0. | 2.045E+01 | 2.182E+01 | 1.051E-03 | 2.191E-02 | 0. |

PION (1) + PROTON (2) => PION (3) + PROTON (4) AT 30 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 1.39569E-01 M4 = 9.38259E-01
P2CM= 3.72187E+00 P3CM= 3.72187E+00
E1CM= 3.72449E+00 E2CM= 3.83831E+00 E3CM= 3.72449E+00 E4CM= 3.83831E+00

1-V1LAB = 1.082E-05 1-VCM = 3.034E-02 GCM = 4.09089E+00 ETCM= 7.56280E+00 S = 5.71960E+01 -U=( 5.53964E+01) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 3.000E+01 | 2.150E+02 | 1.082E-05 | 1.539E-02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -4.220E-03 | 1.24E-01 | 3.000E+01 | 2.149E+02 | 1.082E-05 | 1.539E-02 | 8.80E+01 | 6.500E-02 | 1.002E+00 | 9.309E-01 | 1.170E+02 | 6.496E-02 |
| 2 | 9.994E-01 | -1.688E-02 | 2.48E-01 | 2.999E+01 | 2.149E+02 | 1.083E-05 | 1.540E-02 | 8.59E+01 | 1.302E-01 | 1.010E+00 | 8.625E-01 | 5.818E+01 | 1.299E-01 |
| 3 | 9.986E-01 | -3.797E-02 | 3.72E-01 | 2.998E+01 | 2.148E+02 | 1.084E-05 | 1.541E-02 | 8.39E+01 | 1.959E-01 | 1.022E+00 | 7.956E-01 | 3.845E+01 | 1.948E-01 |
| 4 | 9.976E-01 | -6.749E-02 | 4.96E-01 | 2.996E+01 | 2.147E+02 | 1.085E-05 | 1.543E-02 | 8.19E+01 | 2.623E-01 | 1.038E+00 | 7.308E-01 | 2.848E+01 | 2.596E-01 |
| 5 | 9.962E-01 | -1.054E-01 | 6.21E-01 | 2.994E+01 | 2.145E+02 | 1.086E-05 | 1.545E-02 | 7.99E+01 | 3.295E-01 | 1.060E+00 | 6.686E-01 | 2.243E+01 | 3.244E-01 |
| 6 | 9.945E-01 | -1.518E-01 | 7.45E-01 | 2.992E+01 | 2.144E+02 | 1.088E-05 | 1.547E-02 | 7.79E+01 | 3.979E-01 | 1.086E+00 | 6.096E-01 | 1.834E+01 | 3.890E-01 |
| 7 | 9.925E-01 | -2.065E-01 | 8.70E-01 | 2.989E+01 | 2.142E+02 | 1.090E-05 | 1.550E-02 | 7.60E+01 | 4.676E-01 | 1.117E+00 | 5.540E-01 | 1.538E+01 | 4.536E-01 |
| 8 | 9.903E-01 | -2.696E-01 | 9.94E-01 | 2.986E+01 | 2.139E+02 | 1.093E-05 | 1.554E-02 | 7.40E+01 | 5.388E-01 | 1.153E+00 | 5.020E-01 | 1.313E+01 | 5.180E-01 |
| 9 | 9.877E-01 | -3.411E-01 | 1.12E+00 | 2.982E+01 | 2.136E+02 | 1.095E-05 | 1.558E-02 | 7.22E+01 | 6.117E-01 | 1.194E+00 | 4.539E-01 | 1.135E+01 | 5.822E-01 |
| 10 | 9.848E-01 | -4.209E-01 | 1.24E+00 | 2.978E+01 | 2.133E+02 | 1.099E-05 | 1.562E-02 | 7.03E+01 | 6.864E-01 | 1.239E+00 | 4.095E-01 | 9.906E+00 | 6.463E-01 |
| 15 | 9.659E-01 | -9.440E-01 | 1.87E+00 | 2.950E+01 | 2.113E+02 | 1.119E-05 | 1.592E-02 | 6.17E+01 | 1.094E+00 | 1.536E+00 | 2.409E-01 | 5.487E+00 | 9.633E-01 |
| 20 | 9.397E-01 | -1.671E+00 | 2.51E+00 | 2.911E+01 | 2.086E+02 | 1.149E-05 | 1.635E-02 | 5.42E+01 | 1.570E+00 | 1.949E+00 | 1.417E-01 | 3.289E+00 | 1.273E+00 |
| 25 | 9.063E-01 | -2.596E+00 | 3.15E+00 | 2.862E+01 | 2.050E+02 | 1.189E-05 | 1.691E-02 | 4.78E+01 | 2.123E+00 | 2.474E+00 | 8.531E-02 | 2.064E+00 | 1.573E+00 |
| 30 | 8.660E-01 | -3.712E+00 | 3.81E+00 | 2.802E+01 | 2.008E+02 | 1.240E-05 | 1.764E-02 | 4.24E+01 | 2.761E+00 | 3.108E+00 | 5.317E-02 | 1.342E+00 | 1.861E+00 |
| 35 | 8.192E-01 | -5.010E+00 | 4.48E+00 | 2.733E+01 | 1.958E+02 | 1.304E-05 | 1.854E-02 | 3.78E+01 | 3.484E+00 | 3.846E+00 | 3.440E-02 | 9.018E-01 | 2.135E+00 |
| 40 | 7.660E-01 | -6.482E+00 | 5.17E+00 | 2.655E+01 | 1.902E+02 | 1.382E-05 | 1.966E-02 | 3.39E+01 | 4.291E+00 | 4.681E+00 | 2.308E-02 | 6.246E-01 | 2.392E+00 |
| 45 | 7.071E-01 | -8.115E+00 | 5.88E+00 | 2.568E+01 | 1.840E+02 | 1.477E-05 | 2.101E-02 | 3.05E+01 | 5.178E+00 | 5.609E+00 | 1.602E-02 | 4.449E-01 | 2.632E+00 |
| 50 | 6.428E-01 | -9.896E+00 | 6.62E+00 | 2.473E+01 | 1.772E+02 | 1.593E-05 | 2.265E-02 | 2.77E+01 | 6.141E+00 | 6.621E+00 | 1.147E-02 | 3.253E-01 | 2.851E+00 |
| 55 | 5.736E-01 | -1.181E+01 | 7.39E+00 | 2.370E+01 | 1.698E+02 | 1.733E-05 | 2.465E-02 | 2.52E+01 | 7.173E+00 | 7.710E+00 | 8.447E-03 | 2.437E-01 | 3.049E+00 |
| 60 | 5.000E-01 | -1.385E+01 | 8.19E+00 | 2.262E+01 | 1.621E+02 | 1.904E-05 | 2.707E-02 | 2.29E+01 | 8.267E+00 | 8.868E+00 | 6.379E-03 | 1.866E-01 | 3.223E+00 |
| 65 | 4.226E-01 | -1.600E+01 | 9.04E+00 | 2.148E+01 | 1.539E+02 | 2.112E-05 | 3.003E-02 | 2.10E+01 | 9.416E+00 | 1.009E+01 | 4.928E-03 | 1.459E-01 | 3.373E+00 |
| 70 | 3.420E-01 | -1.823E+01 | 9.93E+00 | 2.029E+01 | 1.453E+02 | 2.367E-05 | 3.365E-02 | 1.92E+01 | 1.061E+01 | 1.135E+01 | 3.886E-03 | 1.162E-01 | 3.497E+00 |
| 75 | 2.588E-01 | -2.053E+01 | 1.09E+01 | 1.906E+01 | 1.365E+02 | 2.682E-05 | 3.813E-02 | 1.77E+01 | 1.184E+01 | 1.266E+01 | 3.123E-03 | 9.409E-02 | 3.595E+00 |
| 80 | 1.736E-01 | -2.289E+01 | 1.19E+01 | 1.780E+01 | 1.275E+02 | 3.074E-05 | 4.370E-02 | 1.62E+01 | 1.310E+01 | 1.400E+01 | 2.553E-03 | 7.744E-02 | 3.665E+00 |
| 85 | 8.716E-02 | -2.529E+01 | 1.30E+01 | 1.652E+01 | 1.184E+02 | 3.568E-05 | 5.071E-02 | 1.49E+01 | 1.438E+01 | 1.536E+01 | 2.120E-03 | 6.468E-02 | 3.708E+00 |
| 90 | 0. | -2.770E+01 | 1.41E+01 | 1.524E+01 | 1.092E+02 | 4.196E-05 | 5.964E-02 | 1.37E+01 | 1.567E+01 | 1.674E+01 | 1.787E-03 | 5.477E-02 | 3.722E+00 |
| 95 | -8.716E-02 | -3.012E+01 | 1.54E+01 | 1.395E+01 | 9.995E+01 | 5.005E-05 | 7.114E-02 | 1.26E+01 | 1.696E+01 | 1.811E+01 | 1.526E-03 | 4.698E-02 | 3.708E+00 |
| 100 | -1.736E-01 | -3.252E+01 | 1.68E+01 | 1.267E+01 | 9.080E+01 | 6.065E-05 | 8.618E-02 | 1.16E+01 | 1.824E+01 | 1.947E+01 | 1.320E-03 | 4.078E-02 | 3.665E+00 |
| 105 | -2.588E-01 | -3.488E+01 | 1.84E+01 | 1.141E+01 | 8.179E+01 | 7.475E-05 | 1.062E-01 | 1.06E+01 | 1.950E+01 | 2.081E+01 | 1.155E-03 | 3.580E-02 | 3.595E+00 |
| 110 | -3.420E-01 | -3.718E+01 | 2.01E+01 | 1.019E+01 | 7.299E+01 | 9.386E-05 | 1.333E-01 | 9.71E+00 | 2.073E+01 | 2.212E+01 | 1.023E-03 | 3.177E-02 | 3.497E+00 |
| 115 | -4.226E-01 | -3.941E+01 | 2.20E+01 | 8.996E+00 | 6.446E+01 | 1.203E-04 | 1.709E-01 | 8.85E+00 | 2.192E+01 | 2.339E+01 | 9.147E-04 | 2.848E-02 | 3.373E+00 |
| 120 | -5.000E-01 | -4.156E+01 | 2.42E+01 | 7.853E+00 | 5.628E+01 | 1.579E-04 | 2.242E-01 | 8.03E+00 | 2.316E+01 | 2.460E+01 | 8.264E-04 | 2.578E-02 | 3.223E+00 |
| 125 | -5.736E-01 | -4.360E+01 | 2.68E+01 | 6.767E+00 | 4.849E+01 | 2.126E-04 | 3.018E-01 | 7.25E+00 | 2.415E+01 | 2.576E+01 | 7.537E-04 | 2.356E-02 | 3.049E+00 |
| 130 | -6.428E-01 | -4.551E+01 | 2.98E+01 | 5.745E+00 | 4.117E+01 | 2.950E-04 | 4.186E-01 | 6.50E+00 | 2.517E+01 | 2.685E+01 | 6.938E-04 | 2.172E-02 | 2.851E+00 |
| 135 | -7.071E-01 | -4.729E+01 | 3.33E+01 | 4.795E+00 | 3.437E+01 | 4.234E-04 | 6.005E-01 | 5.78E+00 | 2.612E+01 | 2.786E+01 | 6.443E-04 | 2.019E-02 | 2.632E+00 |
| 140 | -7.660E-01 | -4.893E+01 | 3.76E+01 | 3.924E+00 | 2.813E+01 | 6.319E-04 | 8.958E-01 | 5.08E+00 | 2.700E+01 | 2.879E+01 | 6.034E-04 | 1.893E-02 | 2.392E+00 |
| 145 | -8.192E-01 | -5.040E+01 | 4.28E+01 | 3.140E+00 | 2.252E+01 | 9.867E-04 | 1.398E+00 | 4.41E+00 | 2.778E+01 | 2.963E+01 | 5.699E-04 | 1.790E-02 | 2.135E+00 |
| 150 | -8.660E-01 | -5.170E+01 | 4.95E+01 | 2.447E+00 | 1.756E+01 | 1.623E-03 | 2.299E+00 | 3.75E+00 | 2.847E+01 | 3.036E+01 | 5.425E-04 | 1.705E-02 | 1.861E+00 |
| 155 | -9.063E-01 | -5.281E+01 | 5.82E+01 | 1.851E+00 | 1.330E+01 | 2.832E-03 | 4.012E+00 | 3.10E+00 | 2.907E+01 | 3.100E+01 | 5.205E-04 | 1.637E-02 | 1.573E+00 |
| 160 | -9.397E-01 | -5.374E+01 | 6.99E+01 | 1.356E+00 | 9.766E+00 | 5.257E-03 | 7.462E+00 | 2.47E+00 | 2.956E+01 | 3.152E+01 | 5.033E-04 | 1.584E-02 | 1.273E+00 |
| 165 | -9.659E-01 | -5.447E+01 | 8.60E+01 | 9.656E-01 | 6.991E+00 | 1.028E-02 | 1.469E+01 | 1.84E+00 | 2.995E+01 | 3.193E+01 | 4.904E-04 | 1.544E-02 | 9.633E-01 |
| 170 | -9.848E-01 | -5.499E+01 | 1.09E+02 | 6.828E-01 | 4.993E+00 | 2.026E-02 | 2.942E+01 | 1.23E+00 | 3.023E+01 | 3.223E+01 | 4.814E-04 | 1.516E-02 | 6.463E-01 |
| 175 | -9.962E-01 | -5.530E+01 | 1.41E+02 | 5.100E-01 | 3.789E+00 | 3.546E-02 | 5.301E+01 | 6.11E-01 | 3.040E+01 | 3.241E+01 | 4.761E-04 | 1.499E-02 | 3.244E-01 |
| 180 | -1.000E+00 | -5.541E+01 | 1.80E+02 | 4.515E-01 | 3.386E+00 | 4.460E-02 | 6.794E+01 | 0. | 3.045E+01 | 3.247E+01 | 4.743E-04 | 1.494E-02 | 0. |

PION (1) + PROTON (2) => PION (3) + PROTON (4) AT 40 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 1.39569E-01 M4 = 9.38259E-01
P2CM= 4.30613E+00 P3CM= 4.30613E+00
E1CM= 4.30839E+00 E2CM= 4.40717E+00 E3CM= 4.30839E+00 E4CM= 4.40717E+00

1-V1LAB = 6.087E-06 1-VCM = 2.292E-02 GCM = 4.69717E+00 ETCM= 8.71556E+00 S = 7.59610E+01 -U=( 7.41614E+01) +T

| Θ3 CM | COS(Θ3) CM | 4-MOM TSFR SQUARE, T | Θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | Θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 4.000E+01 | 2.866E+02 | 6.087E-06 | 1.159E-02 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -5.648E-03 | 1.08E-01 | 4.000E+01 | 2.866E+02 | 6.088E-06 | 1.159E-02 | 8.77E+01 | 7.522E-02 | 1.003E+00 | 9.201E-01 | 1.342E+02 | 7.515E-02 |
| 2 | 9.994E-01 | -2.259E-02 | 2.15E-01 | 3.999E+01 | 2.865E+02 | 6.091E-06 | 1.160E-02 | 8.53E+01 | 1.508E-01 | 1.013E+00 | 8.413E-01 | 6.664E+01 | 1.503E-01 |
| 3 | 9.986E-01 | -5.082E-02 | 3.23E-01 | 3.997E+01 | 2.864E+02 | 6.096E-06 | 1.160E-02 | 8.30E+01 | 2.271E-01 | 1.029E+00 | 7.648E-01 | 4.391E+01 | 2.254E-01 |
| 4 | 9.976E-01 | -9.034E-02 | 4.31E-01 | 3.995E+01 | 2.863E+02 | 6.102E-06 | 1.162E-02 | 8.07E+01 | 3.044E-01 | 1.051E+00 | 6.914E-01 | 3.239E+01 | 3.004E-01 |
| 5 | 9.962E-01 | -1.411E-01 | 5.39E-01 | 3.992E+01 | 2.861E+02 | 6.110E-06 | 1.163E-02 | 7.84E+01 | 3.831E-01 | 1.080E+00 | 6.220E-01 | 2.538E+01 | 3.753E-01 |
| 6 | 9.945E-01 | -2.032E-01 | 6.47E-01 | 3.989E+01 | 2.858E+02 | 6.120E-06 | 1.165E-02 | 7.62E+01 | 4.636E-01 | 1.115E+00 | 5.571E-01 | 2.063E+01 | 4.501E-01 |
| 7 | 9.925E-01 | -2.764E-01 | 7.55E-01 | 3.985E+01 | 2.855E+02 | 6.132E-06 | 1.168E-02 | 7.40E+01 | 5.460E-01 | 1.157E+00 | 4.970E-01 | 1.717E+01 | 5.248E-01 |
| 8 | 9.903E-01 | -3.609E-01 | 8.63E-01 | 3.981E+01 | 2.852E+02 | 6.146E-06 | 1.170E-02 | 7.18E+01 | 6.308E-01 | 1.205E+00 | 4.421E-01 | 1.454E+01 | 5.993E-01 |
| 9 | 9.877E-01 | -4.566E-01 | 9.71E-01 | 3.976E+01 | 2.849E+02 | 6.162E-06 | 1.173E-02 | 6.97E+01 | 7.182E-01 | 1.259E+00 | 3.922E-01 | 1.247E+01 | 6.736E-01 |
| 10 | 9.848E-01 | -5.634E-01 | 1.08E+00 | 3.970E+01 | 2.844E+02 | 6.180E-06 | 1.177E-02 | 6.77E+01 | 8.084E-01 | 1.320E+00 | 3.473E-01 | 1.078E+01 | 7.478E-01 |
| 15 | 9.659E-01 | -1.264E+00 | 1.62E+00 | 3.933E+01 | 2.818E+02 | 6.298E-06 | 1.199E-02 | 5.83E+01 | 1.718E+00 | 1.869E-01 | 5.680E+00 | 1.115E+00 | |
| 20 | 9.397E-01 | -2.237E+00 | 2.17E+00 | 3.881E+01 | 2.781E+02 | 6.467E-06 | 1.231E-02 | 5.04E+01 | 1.912E+00 | 2.270E+00 | 1.022E-01 | 3.234E+00 | 1.473E+00 |
| 25 | 9.063E-01 | -3.475E+00 | 2.73E+00 | 3.815E+01 | 2.733E+02 | 6.693E-06 | 1.274E-02 | 4.38E+01 | 2.627E+00 | 2.973E+00 | 5.825E-02 | 1.937E+00 | 1.820E+00 |
| 30 | 8.660E-01 | -4.969E+00 | 3.30E+00 | 3.735E+01 | 2.676E+02 | 6.981E-06 | 1.329E-02 | 3.85E+01 | 3.461E+00 | 3.822E+00 | 3.484E-02 | 1.212E+00 | 2.153E+00 |
| 35 | 8.192E-01 | -6.707E+00 | 3.89E+00 | 3.643E+01 | 2.610E+02 | 7.340E-06 | 1.397E-02 | 3.40E+01 | 4.414E+00 | 4.809E+00 | 2.186E-02 | 7.889E-01 | 2.470E+00 |
| 40 | 7.660E-01 | -8.676E+00 | 4.49E+00 | 3.538E+01 | 2.535E+02 | 7.782E-06 | 1.482E-02 | 3.03E+01 | 5.482E+00 | 5.928E+00 | 1.433E-02 | 5.326E-01 | 2.768E+00 |
| 45 | 7.071E-01 | -1.086E+01 | 5.11E+00 | 3.421E+01 | 2.451E+02 | 8.321E-06 | 1.584E-02 | 2.72E+01 | 6.661E+00 | 7.169E+00 | 9.776E-03 | 3.717E-01 | 3.045E+00 |
| 50 | 6.428E-01 | -1.325E+01 | 5.75E+00 | 3.294E+01 | 2.360E+02 | 8.976E-06 | 1.709E-02 | 2.45E+01 | 7.943E+00 | 8.524E+00 | 6.905E-03 | 2.674E-01 | 3.299E+00 |
| 55 | 5.736E-01 | -1.581E+01 | 6.41E+00 | 3.157E+01 | 2.262E+02 | 9.771E-06 | 1.860E-02 | 2.22E+01 | 9.319E+00 | 9.982E+00 | 5.031E-03 | 1.977E-01 | 3.527E+00 |
| 60 | 5.000E-01 | -1.854E+01 | 7.11E+00 | 3.012E+01 | 2.158E+02 | 1.074E-05 | 2.044E-02 | 2.02E+01 | 1.078E+01 | 1.153E+01 | 3.767E-03 | 1.497E-01 | 3.729E+00 |
| 65 | 4.226E-01 | -2.141E+01 | 7.85E+00 | 2.859E+01 | 2.048E+02 | 1.192E-05 | 2.268E-02 | 1.85E+01 | 1.231E+01 | 1.316E+01 | 2.891E-03 | 1.160E-01 | 3.903E+00 |
| 70 | 3.420E-01 | -2.440E+01 | 8.62E+00 | 2.700E+01 | 1.934E+02 | 1.336E-05 | 2.544E-02 | 1.69E+01 | 1.391E+01 | 1.486E+01 | 2.267E-03 | 9.169E-02 | 4.046E+00 |
| 75 | 2.588E-01 | -2.749E+01 | 9.44E+00 | 2.535E+01 | 1.816E+02 | 1.515E-05 | 2.884E-02 | 1.55E+01 | 1.556E+01 | 1.661E+01 | 1.814E-03 | 7.382E-02 | 4.159E+00 |
| 80 | 1.736E-01 | -3.065E+01 | 1.03E+01 | 2.367E+01 | 1.696E+02 | 1.739E-05 | 3.309E-02 | 1.42E+01 | 1.724E+01 | 1.841E+01 | 1.477E-03 | 6.044E-02 | 4.241E+00 |
| 85 | 8.716E-02 | -3.385E+01 | 1.13E+01 | 2.196E+01 | 1.573E+02 | 2.020E-05 | 3.844E-02 | 1.31E+01 | 1.896E+01 | 2.023E+01 | 1.223E-03 | 5.027E-02 | 4.290E+00 |
| 90 | 0. | -3.709E+01 | 1.23E+01 | 2.024E+01 | 1.450E+02 | 2.378E-05 | 4.526E-02 | 1.20E+01 | 2.068E+01 | 2.206E+01 | 1.028E-03 | 4.241E-02 | 4.306E+00 |
| 95 | -8.716E-02 | -4.032E+01 | 1.34E+01 | 1.851E+01 | 1.327E+02 | 2.841E-05 | 5.406E-02 | 1.10E+01 | 2.240E+01 | 2.390E+01 | 8.758E-04 | 3.626E-02 | 4.290E+00 |
| 100 | -1.736E-01 | -4.353E+01 | 1.46E+01 | 1.680E+01 | 1.204E+02 | 3.449E-05 | 6.561E-02 | 1.01E+01 | 2.411E+01 | 2.572E+01 | 7.561E-04 | 3.139E-02 | 4.241E+00 |
| 105 | -2.588E-01 | -4.668E+01 | 1.60E+01 | 1.512E+01 | 1.083E+02 | 4.259E-05 | 8.102E-02 | 9.28E+00 | 2.580E+01 | 2.752E+01 | 6.607E-04 | 2.749E-02 | 4.159E+00 |
| 110 | -3.420E-01 | -4.977E+01 | 1.75E+01 | 1.348E+01 | 9.657E+01 | 5.362E-05 | 1.020E-01 | 8.48E+00 | 2.744E+01 | 2.927E+01 | 5.839E-04 | 2.435E-02 | 4.046E+00 |
| 115 | -4.226E-01 | -5.276E+01 | 1.92E+01 | 1.188E+01 | 8.516E+01 | 6.895E-05 | 1.311E-01 | 7.72E+00 | 2.904E+01 | 3.097E+01 | 5.216E-04 | 2.179E-02 | 3.903E+00 |
| 120 | -5.000E-01 | -5.563E+01 | 2.11E+01 | 1.035E+01 | 7.420E+01 | 9.082E-05 | 1.727E-01 | 7.01E+00 | 3.057E+01 | 3.260E+01 | 4.707E-04 | 1.970E-02 | 3.729E+00 |
| 125 | -5.736E-01 | -5.836E+01 | 2.33E+01 | 8.901E+00 | 6.378E+01 | 1.229E-04 | 2.337E-01 | 6.32E+00 | 3.202E+01 | 3.414E+01 | 4.290E-04 | 1.797E-02 | 3.527E+00 |
| 130 | -6.428E-01 | -6.092E+01 | 2.60E+01 | 7.533E+00 | 5.398E+01 | 1.716E-04 | 3.261E-01 | 5.67E+00 | 3.339E+01 | 3.560E+01 | 3.945E-04 | 1.655E-02 | 3.299E+00 |
| 135 | -7.071E-01 | -6.331E+01 | 2.91E+01 | 6.261E+00 | 4.487E+01 | 2.484E-04 | 4.718E-01 | 5.04E+00 | 3.466E+01 | 3.696E+01 | 3.661E-04 | 1.537E-02 | 3.045E+00 |
| 140 | -7.660E-01 | -6.549E+01 | 3.29E+01 | 5.096E+00 | 3.653E+01 | 3.748E-04 | 7.117E-01 | 4.43E+00 | 3.583E+01 | 3.820E+01 | 3.427E-04 | 1.440E-02 | 2.768E+00 |
| 145 | -8.192E-01 | -6.746E+01 | 3.76E+01 | 4.046E+00 | 2.901E+01 | 5.944E-04 | 1.128E+00 | 3.84E+00 | 3.688E+01 | 3.932E+01 | 3.235E-04 | 1.360E-02 | 2.470E+00 |
| 150 | -8.660E-01 | -6.920E+01 | 4.37E+01 | 3.119E+00 | 2.237E+01 | 9.997E-04 | 1.896E+00 | 3.26E+00 | 3.780E+01 | 4.030E+01 | 3.078E-04 | 1.295E-02 | 2.153E+00 |
| 155 | -9.063E-01 | -7.070E+01 | 5.16E+01 | 2.322E+00 | 1.667E+01 | 1.802E-03 | 3.416E+00 | 2.70E+00 | 3.860E+01 | 4.115E+01 | 2.953E-04 | 1.243E-02 | 1.820E+00 |
| 160 | -9.397E-01 | -7.193E+01 | 6.25E+01 | 1.660E+00 | 1.194E+01 | 3.515E-03 | 6.668E+00 | 2.15E+00 | 3.926E+01 | 4.186E+01 | 2.854E-04 | 1.202E-02 | 1.473E+00 |
| 165 | -9.659E-01 | -7.291E+01 | 7.80E+01 | 1.139E+00 | 8.223E+00 | 7.421E-03 | 1.414E+01 | 1.61E+00 | 3.978E+01 | 4.241E+01 | 2.780E-04 | 1.171E-02 | 1.115E+00 |
| 170 | -9.848E-01 | -7.361E+01 | 1.01E+02 | 7.619E-01 | 5.550E+00 | 1.637E-02 | 3.160E+01 | 1.07E+00 | 4.015E+01 | 4.281E+01 | 2.729E-04 | 1.150E-02 | 7.478E-01 |
| 175 | -9.962E-01 | -7.403E+01 | 1.35E+02 | 5.315E-01 | 3.937E+00 | 3.279E-02 | 6.528E+01 | 5.33E-01 | 4.038E+01 | 4.305E+01 | 2.699E-04 | 1.137E-02 | 3.753E-01 |
| 180 | -1.000E+00 | -7.417E+01 | 1.80E+02 | 4.533E-01 | 3.398E+00 | 4.427E-02 | 9.024E+01 | 0. | 4.045E+01 | 4.313E+01 | 2.689E-04 | 1.133E-02 | 0. |

PION (1) + PROTON (2) => PION (3) + PROTON (4) AT 50 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 1.39569E-01 M4 = 9.38259E-01
P2CM= 4.82012E+00 P3CM= 4.82012E+00
E1CM= 4.82214E+00 E2CM= 4.91059E+00 E3CM= 4.82214E+00 E4CM= 4.91059E+00

1-V1LAB = 3.896E-06 1-VCM = 1.842E-02 GCM = 5.23373E+00 PTCM= 9.73273E+00 S = 9.47261E+01 -U=( 9.29265E+01) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 5.000E+01 | 3.582E+02 | 3.896E-06 | 9.293E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -7.077E-03 | 9.64E-02 | 5.000E+01 | 3.582E+02 | 3.896E-06 | 9.295E-03 | 8.74E+01 | 8.421E-02 | 1.004E+00 | 9.106E-01 | 1.495E+02 | 8.412E-02 |
| 2 | 9.994E-01 | -2.831E-02 | 1.93E-01 | 4.998E+01 | 3.581E+02 | 3.898E-06 | 9.299E-03 | 8.48E+01 | 1.689E-01 | 1.016E+00 | 8.228E-01 | 7.408E+01 | 1.682E-01 |
| 3 | 9.986E-01 | -6.368E-02 | 2.89E-01 | 4.997E+01 | 3.580E+02 | 3.901E-06 | 9.306E-03 | 8.22E+01 | 2.546E-01 | 1.036E+00 | 7.381E-01 | 4.866E+01 | 2.523E-01 |
| 4 | 9.976E-01 | -1.132E-01 | 3.86E-01 | 4.994E+01 | 3.578E+02 | 3.905E-06 | 9.316E-03 | 7.96E+01 | 3.418E-01 | 1.064E+00 | 6.577E-01 | 3.575E+01 | 3.362E-01 |
| 5 | 9.962E-01 | -1.768E-01 | 4.82E-01 | 4.991E+01 | 3.576E+02 | 3.911E-06 | 9.329E-03 | 7.71E+01 | 4.309E-01 | 1.100E+00 | 5.826E-01 | 2.787E+01 | 4.201E-01 |
| 6 | 9.945E-01 | -2.546E-01 | 5.79E-01 | 4.986E+01 | 3.573E+02 | 3.917E-06 | 9.344E-03 | 7.47E+01 | 5.224E-01 | 1.145E+00 | 5.135E-01 | 2.252E+01 | 5.038E-01 |
| 7 | 9.925E-01 | -3.464E-01 | 6.76E-01 | 4.982E+01 | 3.569E+02 | 3.925E-06 | 9.362E-03 | 7.22E+01 | 6.168E-01 | 1.197E+00 | 4.507E-01 | 1.862E+01 | 5.874E-01 |
| 8 | 9.903E-01 | -4.522E-01 | 7.72E-01 | 4.976E+01 | 3.565E+02 | 3.934E-06 | 9.384E-03 | 6.99E+01 | 7.143E-01 | 1.257E+00 | 3.942E-01 | 1.565E+01 | 6.708E-01 |
| 9 | 9.877E-01 | -5.721E-01 | 8.69E-01 | 4.970E+01 | 3.561E+02 | 3.944E-06 | 9.408E-03 | 6.76E+01 | 8.155E-01 | 1.325E+00 | 3.440E-01 | 1.331E+01 | 7.540E-01 |
| 10 | 9.848E-01 | -7.059E-01 | 9.66E-01 | 4.962E+01 | 3.556E+02 | 3.955E-06 | 9.435E-03 | 6.54E+01 | 9.206E-01 | 1.401E+00 | 2.997E-01 | 1.141E+01 | 8.370E-01 |
| 15 | 9.659E-01 | -1.583E+00 | 1.45E+00 | 4.916E+01 | 3.522E+02 | 4.031E-06 | 9.615E-03 | 5.54E+01 | 1.515E+00 | 1.899E+00 | 1.498E-01 | 5.743E+00 | 1.248E+00 |
| 20 | 9.397E-01 | -2.802E+00 | 1.95E+00 | 4.851E+01 | 3.475E+02 | 4.139E-06 | 9.874E-03 | 4.73E+01 | 2.243E+00 | 2.592E+00 | 7.744E-02 | 3.131E+00 | 1.649E+00 |
| 25 | 9.063E-01 | -4.354E+00 | 2.45E+00 | 4.768E+01 | 3.416E+02 | 4.284E-06 | 1.022E-02 | 4.08E+01 | 3.120E+00 | 3.473E+00 | 4.236E-02 | 1.808E+00 | 2.037E+00 |
| 30 | 8.660E-01 | -6.225E+00 | 2.96E+00 | 4.668E+01 | 3.345E+02 | 4.469E-06 | 1.066E-02 | 3.55E+01 | 4.151E+00 | 4.536E+00 | 2.461E-02 | 1.098E+00 | 2.410E+00 |
| 35 | 8.192E-01 | -8.403E+00 | 3.48E+00 | 4.552E+01 | 3.262E+02 | 4.700E-06 | 1.121E-02 | 3.12E+01 | 5.335E+00 | 5.773E+00 | 1.512E-02 | 6.982E-01 | 2.765E+00 |
| 40 | 7.660E-01 | -1.087E+01 | 4.02E+00 | 4.421E+01 | 3.167E+02 | 4.984E-06 | 1.189E-02 | 2.77E+01 | 6.666E+00 | 7.175E+00 | 9.761E-03 | 4.630E-01 | 3.098E+00 |
| 45 | 7.071E-01 | -1.361E+01 | 4.57E+00 | 4.275E+01 | 3.063E+02 | 5.330E-06 | 1.271E-02 | 2.48E+01 | 8.137E+00 | 8.730E+00 | 6.582E-03 | 3.186E-01 | 3.408E+00 |
| 50 | 6.428E-01 | -1.660E+01 | 5.15E+00 | 4.115E+01 | 2.949E+02 | 5.751E-06 | 1.372E-02 | 2.23E+01 | 9.739E+00 | 1.043E+01 | 4.609E-03 | 2.267E-01 | 3.692E+00 |
| 55 | 5.736E-01 | -1.981E+01 | 5.75E+00 | 3.944E+01 | 2.826E+02 | 6.261E-06 | 1.493E-02 | 2.02E+01 | 1.146E+01 | 1.225E+01 | 3.335E-03 | 1.661E-01 | 3.948E+00 |
| 60 | 5.000E-01 | -2.323E+01 | 6.37E+00 | 3.762E+01 | 2.695E+02 | 6.882E-06 | 1.642E-02 | 1.83E+01 | 1.329E+01 | 1.420E+01 | 2.484E-03 | 1.249E-01 | 4.174E+00 |
| 65 | 4.226E-01 | -2.683E+01 | 7.03E+00 | 3.570E+01 | 2.558E+02 | 7.641E-06 | 1.822E-02 | 1.67E+01 | 1.521E+01 | 1.624E+01 | 1.898E-03 | 9.624E-02 | 4.369E+00 |
| 70 | 3.420E-01 | -3.057E+01 | 7.72E+00 | 3.371E+01 | 2.415E+02 | 8.573E-06 | 2.045E-02 | 1.53E+01 | 1.721E+01 | 1.837E+01 | 1.484E-03 | 7.571E-02 | 4.529E+00 |
| 75 | 2.588E-01 | -3.444E+01 | 8.46E+00 | 3.165E+01 | 2.267E+02 | 9.725E-06 | 2.319E-02 | 1.40E+01 | 1.927E+01 | 2.056E+01 | 1.183E-03 | 6.072E-02 | 4.656E+00 |
| 80 | 1.736E-01 | -3.840E+01 | 9.25E+00 | 2.954E+01 | 2.116E+02 | 1.116E-05 | 2.662E-02 | 1.28E+01 | 2.138E+01 | 2.281E+01 | 9.615E-04 | 4.956E-02 | 4.747E+00 |
| 85 | 8.716E-02 | -4.242E+01 | 1.01E+01 | 2.740E+01 | 1.963E+02 | 1.298E-05 | 3.095E-02 | 1.18E+01 | 2.352E+01 | 2.509E+01 | 7.945E-04 | 4.110E-02 | 4.802E+00 |
| 90 | 0. | -4.647E+01 | 1.10E+01 | 2.524E+01 | 1.808E+02 | 1.529E-05 | 3.646E-02 | 1.08E+01 | 2.568E+01 | 2.739E+01 | 6.666E-04 | 3.460E-02 | 4.820E+00 |
| 95 | -8.716E-02 | -5.052E+01 | 1.20E+01 | 2.308E+01 | 1.654E+02 | 1.828E-05 | 4.360E-02 | 9.93E+00 | 2.784E+01 | 2.969E+01 | 5.673E-04 | 2.952E-02 | 4.802E+00 |
| 100 | -1.736E-01 | -5.454E+01 | 1.31E+01 | 2.094E+01 | 1.500E+02 | 2.222E-05 | 5.297E-02 | 9.11E+00 | 2.999E+01 | 3.197E+01 | 4.892E-04 | 2.551E-02 | 4.747E+00 |
| 105 | -2.588E-01 | -5.849E+01 | 1.43E+01 | 1.883E+01 | 1.349E+02 | 2.747E-05 | 6.549E-02 | 8.34E+00 | 3.210E+01 | 3.422E+01 | 4.270E-04 | 2.232E-02 | 4.656E+00 |
| 110 | -3.420E-01 | -6.236E+01 | 1.57E+01 | 1.677E+01 | 1.201E+02 | 3.464E-05 | 8.257E-02 | 7.62E+00 | 3.416E+01 | 3.642E+01 | 3.771E-04 | 1.974E-02 | 4.529E+00 |
| 115 | -4.226E-01 | -6.611E+01 | 1.72E+01 | 1.477E+01 | 1.058E+02 | 4.463E-05 | 1.064E-01 | 6.94E+00 | 3.615E+01 | 3.855E+01 | 3.366E-04 | 1.764E-02 | 4.369E+00 |
| 120 | -5.000E-01 | -6.970E+01 | 1.89E+01 | 1.286E+01 | 9.212E+01 | 5.893E-05 | 1.404E-01 | 6.30E+00 | 3.807E+01 | 4.059E+01 | 3.036E-04 | 1.593E-02 | 4.174E+00 |
| 125 | -5.736E-01 | -7.312E+01 | 2.10E+01 | 1.103E+01 | 7.906E+01 | 7.999E-05 | 1.906E-01 | 5.68E+00 | 3.989E+01 | 4.253E+01 | 2.765E-04 | 1.453E-02 | 3.948E+00 |
| 130 | -6.428E-01 | -7.634E+01 | 2.33E+01 | 9.320E+00 | 6.678E+01 | 1.121E-04 | 2.670E-01 | 5.09E+00 | 4.161E+01 | 4.436E+01 | 2.542E-04 | 1.337E-02 | 3.692E+00 |
| 135 | -7.071E-01 | -7.932E+01 | 2.62E+01 | 7.727E+00 | 5.537E+01 | 1.631E-04 | 3.883E-01 | 4.53E+00 | 4.320E+01 | 4.605E+01 | 2.358E-04 | 1.241E-02 | 3.408E+00 |
| 140 | -7.660E-01 | -8.206E+01 | 2.96E+01 | 6.267E+00 | 4.491E+01 | 2.479E-04 | 5.899E-01 | 3.98E+00 | 4.466E+01 | 4.761E+01 | 2.206E-04 | 1.162E-02 | 3.098E+00 |
| 145 | -8.192E-01 | -8.453E+01 | 3.39E+01 | 4.952E+00 | 3.549E+01 | 3.970E-04 | 9.443E-01 | 3.45E+00 | 4.598E+01 | 4.901E+01 | 2.082E-04 | 1.097E-02 | 2.765E+00 |
| 150 | -8.660E-01 | -8.671E+01 | 3.95E+01 | 3.790E+00 | 2.718E+01 | 6.773E-04 | 1.610E+00 | 2.93E+00 | 4.714E+01 | 5.025E+01 | 1.981E-04 | 1.044E-02 | 2.410E+00 |
| 155 | -9.063E-01 | -8.858E+01 | 4.69E+01 | 2.792E+00 | 2.003E+01 | 1.247E-03 | 2.963E+00 | 2.43E+00 | 4.813E+01 | 5.131E+01 | 1.899E-04 | 1.002E-02 | 2.037E+00 |
| 160 | -9.397E-01 | -9.013E+01 | 5.71E+01 | 1.964E+00 | 1.411E+01 | 2.516E-03 | 5.978E+00 | 1.93E+00 | 4.896E+01 | 5.219E+01 | 1.836E-04 | 9.687E-03 | 1.649E+00 |
| 165 | -9.659E-01 | -9.135E+01 | 7.20E+01 | 1.312E+00 | 9.451E+00 | 5.613E-03 | 1.337E+01 | 1.44E+00 | 4.961E+01 | 5.288E+01 | 1.788E-04 | 9.437E-03 | 1.248E+00 |
| 170 | -9.848E-01 | -9.223E+01 | 9.49E+01 | 8.400E-01 | 6.101E+00 | 1.352E-02 | 3.256E+01 | 9.58E-01 | 5.008E+01 | 5.338E+01 | 1.755E-04 | 9.263E-03 | 8.370E-01 |
| 175 | -9.962E-01 | -9.276E+01 | 1.30E+02 | 5.522E-01 | 4.081E+00 | 3.049E-02 | 7.570E+01 | 4.78E-01 | 5.036E+01 | 5.368E+01 | 1.735E-04 | 9.161E-03 | 4.201E-01 |
| 180 | -1.000E+00 | -9.293E+01 | 1.80E+02 | 4.544E-01 | 3.406E+00 | 4.408E-02 | 1.125E+02 | 0. | 5.045E+01 | 5.378E+01 | 1.729E-04 | 9.127E-03 | 0. |

PION (1) + PROTON (2) => PION (3) + PROTON (4) AT 60 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 1.39569E-01 M4 = 9.38259E-01
P2CM= 5.28437E+00 P3CM= 5.28437E+00
E1CM= 5.28621E+00 E2CM= 5.36702E+00 E3CM= 5.28621E+00 E4CM= 5.36702E+00

1-V1LAB = 2.705E-06 1-VCM = 1.540E-02 GCM = 5.72018E+00 ETCM= 1.06532E+01 S = 1.13491E+02 -U=( 1.11692E+02) +T

| 03 CM | COS(03) CM | 4-MOM TSFR SQUARE, T | 03 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | 04 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 6.000E+01 | 4.299E+02 | 2.705E-06 | 7.757E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -8.506E-03 | 8.81E-02 | 6.000E+01 | 4.299E+02 | 2.706E-06 | 7.758E-03 | 8.71E+01 | 9.234E-02 | 1.005E+00 | 9.021E-01 | 1.633E+02 | 9.222E-02 |
| 2 | 9.994E-01 | -3.402E-02 | 1.76E-01 | 5.998E+01 | 4.298E+02 | 2.707E-06 | 7.762E-03 | 8.43E+01 | 1.853E-01 | 1.019E+00 | 8.062E-01 | 8.077E+01 | 1.844E-01 |
| 3 | 9.986E-01 | -7.654E-02 | 2.64E-01 | 5.996E+01 | 4.296E+02 | 2.709E-06 | 7.767E-03 | 8.15E+01 | 2.796E-01 | 1.043E+00 | 7.144E-01 | 5.290E+01 | 2.766E-01 |
| 4 | 9.976E-01 | -1.360E-01 | 3.52E-01 | 5.993E+01 | 4.294E+02 | 2.712E-06 | 7.776E-03 | 7.87E+01 | 3.759E-01 | 1.077E+00 | 6.281E-01 | 3.871E+01 | 3.686E-01 |
| 5 | 9.962E-01 | -2.125E-01 | 4.41E-01 | 5.989E+01 | 4.291E+02 | 2.716E-06 | 7.786E-03 | 7.60E+01 | 4.747E-01 | 1.121E+00 | 5.485E-01 | 3.003E+01 | 4.606E-01 |
| 6 | 9.945E-01 | -3.059E-01 | 5.29E-01 | 5.984E+01 | 4.287E+02 | 2.720E-06 | 7.799E-03 | 7.33E+01 | 5.767E-01 | 1.174E+00 | 4.764E-01 | 2.411E+01 | 5.524E-01 |
| 7 | 9.925E-01 | -4.163E-01 | 6.17E-01 | 5.978E+01 | 4.283E+02 | 2.726E-06 | 7.814E-03 | 7.07E+01 | 6.823E-01 | 1.236E+00 | 4.119E-01 | 1.981E+01 | 6.440E-01 |
| 8 | 9.903E-01 | -5.435E-01 | 7.06E-01 | 5.971E+01 | 4.278E+02 | 2.732E-06 | 7.832E-03 | 6.82E+01 | 7.921E-01 | 1.309E+00 | 3.549E-01 | 1.653E+01 | 7.354E-01 |
| 9 | 9.877E-01 | -6.876E-01 | 7.94E-01 | 5.963E+01 | 4.273E+02 | 2.739E-06 | 7.852E-03 | 6.58E+01 | 9.066E-01 | 1.391E+00 | 3.051E-01 | 1.395E+01 | 8.267E-01 |
| 10 | 9.848E-01 | -8.485E-01 | 8.83E-01 | 5.955E+01 | 4.267E+02 | 2.747E-06 | 7.875E-03 | 6.34E+01 | 1.026E+00 | 1.482E+00 | 2.620E-01 | 1.187E+01 | 9.176E-01 |
| 15 | 9.659E-01 | -1.903E+00 | 1.33E+00 | 5.899E+01 | 4.226E+02 | 2.799E-06 | 8.026E-03 | 5.30E+01 | 1.712E+00 | 2.081E+00 | 1.230E-01 | 5.730E+00 | 1.368E+00 |
| 20 | 9.397E-01 | -3.368E+00 | 1.78E+00 | 5.821E+01 | 4.170E+02 | 2.875E-06 | 8.242E-03 | 4.48E+01 | 2.567E+00 | 2.913E+00 | 6.077E-02 | 3.009E+00 | 1.807E+00 |
| 25 | 9.063E-01 | -5.233E+00 | 2.24E+00 | 5.721E+01 | 4.099E+02 | 2.976E-06 | 8.531E-03 | 3.83E+01 | 3.607E+00 | 3.972E+00 | 3.221E-02 | 1.686E+00 | 2.233E+00 |
| 30 | 8.660E-01 | -7.482E+00 | 2.70E+00 | 5.601E+01 | 4.013E+02 | 3.104E-06 | 8.900E-03 | 3.31E+01 | 4.835E+00 | 5.250E+00 | 1.831E-02 | 1.000E+00 | 2.642E+00 |
| 35 | 8.192E-01 | -1.010E+01 | 3.18E+00 | 5.462E+01 | 3.913E+02 | 3.265E-06 | 9.361E-03 | 2.90E+01 | 6.251E+00 | 6.737E+00 | 1.108E-02 | 6.251E-01 | 3.031E+00 |
| 40 | 7.660E-01 | -1.307E+01 | 3.67E+00 | 5.304E+01 | 3.800E+02 | 3.462E-06 | 9.927E-03 | 2.57E+01 | 7.845E+00 | 8.421E+00 | 7.076E-03 | 4.090E-01 | 3.397E+00 |
| 45 | 7.071E-01 | -1.636E+01 | 4.18E+00 | 5.128E+01 | 3.674E+02 | 3.703E-06 | 1.062E-02 | 2.29E+01 | 9.610E+00 | 1.029E+01 | 4.733E-03 | 2.786E-01 | 3.737E+00 |
| 50 | 6.428E-01 | -1.995E+01 | 4.70E+00 | 4.937E+01 | 3.537E+02 | 3.996E-06 | 1.146E-02 | 2.06E+01 | 1.153E+01 | 1.233E+01 | 3.294E-03 | 1.966E-01 | 4.048E+00 |
| 55 | 5.736E-01 | -2.382E+01 | 5.25E+00 | 4.731E+01 | 3.390E+02 | 4.352E-06 | 1.248E-02 | 1.86E+01 | 1.360E+01 | 1.453E+01 | 2.372E-03 | 1.432E-01 | 4.329E+00 |
| 60 | 5.000E-01 | -2.792E+01 | 5.82E+00 | 4.512E+01 | 3.233E+02 | 4.784E-06 | 1.372E-02 | 1.68E+01 | 1.579E+01 | 1.686E+01 | 1.760E-03 | 1.072E-01 | 4.576E+00 |
| 65 | 4.226E-01 | -3.225E+01 | 6.42E+00 | 4.282E+01 | 3.068E+02 | 5.313E-06 | 1.523E-02 | 1.53E+01 | 1.810E+01 | 1.931E+01 | 1.341E-03 | 8.222E-02 | 4.789E+00 |
| 70 | 3.420E-01 | -3.675E+01 | 7.06E+00 | 4.042E+01 | 2.896E+02 | 5.962E-06 | 1.709E-02 | 1.40E+01 | 2.050E+01 | 2.187E+01 | 1.046E-03 | 6.447E-02 | 4.966E+00 |
| 75 | 2.588E-01 | -4.139E+01 | 7.73E+00 | 3.794E+01 | 2.718E+02 | 6.766E-06 | 1.939E-02 | 1.28E+01 | 2.298E+01 | 2.451E+01 | 8.326E-04 | 5.157E-02 | 5.104E+00 |
| 80 | 1.736E-01 | -4.615E+01 | 8.45E+00 | 3.541E+01 | 2.537E+02 | 7.769E-06 | 2.227E-02 | 1.18E+01 | 2.551E+01 | 2.721E+01 | 6.754E-04 | 4.199E-02 | 5.204E+00 |
| 85 | 8.716E-02 | -5.098E+01 | 9.23E+00 | 3.283E+01 | 2.352E+02 | 9.036E-06 | 2.590E-02 | 1.08E+01 | 2.809E+01 | 2.996E+01 | 5.573E-04 | 3.476E-02 | 5.264E+00 |
| 90 | 0. | -5.585E+01 | 1.01E+01 | 3.024E+01 | 2.167E+02 | 1.065E-05 | 3.053E-02 | 9.92E+00 | 3.069E+01 | 3.272E+01 | 4.671E-04 | 2.921E-02 | 5.284E+00 |
| 95 | -8.716E-02 | -6.072E+01 | 1.10E+01 | 2.764E+01 | 1.981E+02 | 1.275E-05 | 3.653E-02 | 9.10E+00 | 3.328E+01 | 3.549E+01 | 3.972E-04 | 2.489E-02 | 5.264E+00 |
| 100 | -1.736E-01 | -6.555E+01 | 1.20E+01 | 2.507E+01 | 1.796E+02 | 1.550E-05 | 4.441E-02 | 8.35E+00 | 3.586E+01 | 3.823E+01 | 3.422E-04 | 2.149E-02 | 5.204E+00 |
| 105 | -2.588E-01 | -7.030E+01 | 1.31E+01 | 2.253E+01 | 1.615E+02 | 1.918E-05 | 5.496E-02 | 7.64E+00 | 3.839E+01 | 4.093E+01 | 2.985E-04 | 1.878E-02 | 5.104E+00 |
| 110 | -3.420E-01 | -7.495E+01 | 1.43E+01 | 2.006E+01 | 1.437E+02 | 2.421E-05 | 6.936E-02 | 6.98E+00 | 4.087E+01 | 4.357E+01 | 2.634E-04 | 1.659E-02 | 4.966E+00 |
| 115 | -4.226E-01 | -7.945E+01 | 1.57E+01 | 1.766E+01 | 1.265E+02 | 3.123E-05 | 8.947E-02 | 6.35E+00 | 4.327E+01 | 4.613E+01 | 2.350E-04 | 1.482E-02 | 4.789E+00 |
| 120 | -5.000E-01 | -8.377E+01 | 1.73E+01 | 1.536E+01 | 1.100E+02 | 4.130E-05 | 1.183E-01 | 5.76E+00 | 4.557E+01 | 4.858E+01 | 2.119E-04 | 1.338E-02 | 4.576E+00 |
| 125 | -5.736E-01 | -8.788E+01 | 1.92E+01 | 1.317E+01 | 9.434E+01 | 5.618E-05 | 1.609E-01 | 5.20E+00 | 4.776E+01 | 5.091E+01 | 1.929E-04 | 1.219E-02 | 4.329E+00 |
| 130 | -6.428E-01 | -9.175E+01 | 2.14E+01 | 1.111E+01 | 7.958E+01 | 7.895E-05 | 2.260E-01 | 4.66E+00 | 4.982E+01 | 5.311E+01 | 1.773E-04 | 1.121E-02 | 4.048E+00 |
| 135 | -7.071E-01 | -9.534E+01 | 2.40E+01 | 9.192E+00 | 6.587E+01 | 1.153E-04 | 3.299E-01 | 4.14E+00 | 5.174E+01 | 5.515E+01 | 1.644E-04 | 1.041E-02 | 3.737E+00 |
| 140 | -7.660E-01 | -9.863E+01 | 2.72E+01 | 7.438E+00 | 5.330E+01 | 1.760E-04 | 5.036E-01 | 3.64E+00 | 5.349E+01 | 5.702E+01 | 1.538E-04 | 9.740E-03 | 3.397E+00 |
| 145 | -8.192E-01 | -1.016E+02 | 3.12E+01 | 5.857E+00 | 4.198E+01 | 2.838E-04 | 8.117E-01 | 3.15E+00 | 5.507E+01 | 5.870E+01 | 1.451E-04 | 9.193E-03 | 3.031E+00 |
| 150 | -8.660E-01 | -1.042E+02 | 3.63E+01 | 4.461E+00 | 3.198E+01 | 4.890E-04 | 1.398E+00 | 2.68E+00 | 5.647E+01 | 6.019E+01 | 1.380E-04 | 8.748E-03 | 2.642E+00 |
| 155 | -9.063E-01 | -1.065E+02 | 4.32E+01 | 3.262E+00 | 2.339E+01 | 9.143E-04 | 2.611E+00 | 2.22E+00 | 5.767E+01 | 6.147E+01 | 1.323E-04 | 8.391E-03 | 2.233E+00 |
| 160 | -9.397E-01 | -1.083E+02 | 5.29E+01 | 2.267E+00 | 1.627E+01 | 1.890E-03 | 5.397E+00 | 1.77E+00 | 5.866E+01 | 6.253E+01 | 1.279E-04 | 8.111E-03 | 1.807E+00 |
| 165 | -9.659E-01 | -1.098E+02 | 6.72E+01 | 1.484E+00 | 1.068E+01 | 4.396E-03 | 1.257E+01 | 1.32E+00 | 5.944E+01 | 6.336E+01 | 1.246E-04 | 7.901E-03 | 1.368E+00 |
| 170 | -9.848E-01 | -1.108E+02 | 8.97E+01 | 9.176E-01 | 6.650E+00 | 1.137E-02 | 3.279E+01 | 8.76E-01 | 6.000E+01 | 6.396E+01 | 1.222E-04 | 7.755E-03 | 9.176E-01 |
| 175 | -9.962E-01 | -1.115E+02 | 1.26E+02 | 5.725E-01 | 4.222E+00 | 2.845E-02 | 8.458E+01 | 4.37E-01 | 6.034E+01 | 6.432E+01 | 1.209E-04 | 7.669E-03 | 4.606E-01 |
| 180 | -1.000E+00 | -1.117E+02 | 1.80E+02 | 4.551E-01 | 3.411E+00 | 4.395E-02 | 1.348E+02 | 0. | 6.046E+01 | 6.444E+01 | 1.204E-04 | 7.640E-03 | 0. |

PION (1) + PROTON (2) => PION (3) + PROTON (4) AT 70 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 1.39569E-01 M4 = 9.38259E-01
P2CM= 5.71101E+00 P3CM= 5.71101E+00
E1CM= 5.71271E+00 E2CM= 5.78757E+00 E3CM= 5.71271E+00 E4CM= 5.78757E+00

1-V1LAB = 1.988E-06 1-VCM = 1.323E-02 GCM = 6.16841E+00 ETCM= 1.15003E+01 S = 1.32256E+02 -U=( 1.30457E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 7.000E+01 | 5.015E+02 | 1.988E-06 | 6.656E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -9.935E-03 | 8.16E-02 | 6.999E+01 | 5.015E+02 | 1.988E-06 | 6.657E-03 | 8.69E+01 | 9.982E-02 | 1.006E+00 | 8.942E-01 | 1.760E+02 | 9.967E-02 |
| 2 | 9.994E-01 | -3.974E-02 | 1.63E-01 | 6.998E+01 | 5.014E+02 | 1.989E-06 | 6.660E-03 | 8.39E+01 | 2.005E-01 | 1.023E+00 | 7.911E-01 | 8.689E+01 | 1.993E-01 |
| 3 | 9.986E-01 | -8.940E-02 | 2.45E-01 | 6.995E+01 | 5.012E+02 | 1.990E-06 | 6.665E-03 | 8.08E+01 | 3.028E-01 | 1.051E+00 | 6.929E-01 | 5.674E+01 | 2.989E-01 |
| 4 | 9.976E-01 | -1.589E-01 | 3.26E-01 | 6.992E+01 | 5.009E+02 | 1.993E-06 | 6.672E-03 | 7.78E+01 | 4.075E-01 | 1.090E+00 | 6.016E-01 | 4.136E+01 | 3.984E-01 |
| 5 | 9.962E-01 | -2.482E-01 | 4.08E-01 | 6.987E+01 | 5.006E+02 | 1.995E-06 | 6.681E-03 | 7.49E+01 | 5.155E-01 | 1.141E+00 | 5.185E-01 | 3.192E+01 | 4.977E-01 |
| 6 | 9.945E-01 | -3.573E-01 | 4.90E-01 | 6.981E+01 | 5.002E+02 | 1.999E-06 | 6.693E-03 | 7.21E+01 | 6.274E-01 | 1.203E+00 | 4.442E-01 | 2.549E+01 | 5.970E-01 |
| 7 | 9.925E-01 | -4.862E-01 | 5.72E-01 | 6.974E+01 | 4.997E+02 | 2.002E-06 | 6.706E-03 | 6.93E+01 | 7.439E-01 | 1.276E+00 | 3.787E-01 | 2.081E+01 | 6.960E-01 |
| 8 | 9.903E-01 | -6.348E-01 | 6.54E-01 | 6.966E+01 | 4.991E+02 | 2.007E-06 | 6.721E-03 | 6.67E+01 | 8.656E-01 | 1.361E+00 | 3.219E-01 | 1.724E+01 | 7.948E-01 |
| 9 | 9.877E-01 | -8.031E-01 | 7.36E-01 | 6.957E+01 | 4.985E+02 | 2.012E-06 | 6.738E-03 | 6.41E+01 | 9.931E-01 | 1.456E+00 | 2.731E-01 | 1.444E+01 | 8.934E-01 |
| 10 | 9.848E-01 | -9.910E-01 | 8.18E-01 | 6.947E+01 | 4.978E+02 | 2.018E-06 | 6.758E-03 | 6.16E+01 | 1.127E+00 | 1.563E+00 | 2.315E-01 | 1.220E+01 | 9.917E-01 |
| 15 | 9.659E-01 | -2.223E+00 | 1.23E+00 | 6.882E+01 | 4.931E+02 | 2.057E-06 | 6.887E-03 | 5.09E+01 | 1.904E+00 | 2.262E+00 | 1.030E-01 | 5.671E+00 | 1.478E+00 |
| 20 | 9.397E-01 | -3.934E+00 | 1.65E+00 | 6.790E+01 | 4.865E+02 | 2.112E-06 | 7.074E-03 | 4.26E+01 | 2.886E+00 | 3.234E+00 | 4.900E-02 | 2.883E+00 | 1.953E+00 |
| 25 | 9.063E-01 | -6.112E+00 | 2.07E+00 | 6.674E+01 | 4.782E+02 | 2.186E-06 | 7.322E-03 | 3.62E+01 | 4.089E+00 | 4.471E+00 | 2.533E-02 | 1.575E+00 | 2.414E+00 |
| 30 | 8.660E-01 | -8.739E+00 | 2.50E+00 | 6.534E+01 | 4.682E+02 | 2.281E-06 | 7.639E-03 | 3.12E+01 | 5.516E+00 | 5.964E+00 | 1.416E-02 | 9.171E-01 | 2.856E+00 |
| 35 | 8.192E-01 | -1.180E+01 | 2.95E+00 | 6.371E+01 | 4.565E+02 | 2.399E-06 | 8.034E-03 | 2.72E+01 | 7.164E+00 | 7.700E+00 | 8.468E-03 | 5.652E-01 | 3.276E+00 |
| 40 | 7.660E-01 | -1.526E+01 | 3.40E+00 | 6.187E+01 | 4.433E+02 | 2.545E-06 | 8.521E-03 | 2.40E+01 | 9.022E+00 | 9.668E+00 | 5.364E-03 | 3.660E-01 | 3.671E+00 |
| 45 | 7.071E-01 | -1.911E+01 | 3.87E+00 | 5.982E+01 | 4.286E+02 | 2.722E-06 | 9.114E-03 | 2.14E+01 | 1.108E+01 | 1.185E+01 | 3.566E-03 | 2.474E-01 | 4.038E+00 |
| 50 | 6.428E-01 | -2.330E+01 | 4.36E+00 | 5.758E+01 | 4.126E+02 | 2.937E-06 | 9.836E-03 | 1.92E+01 | 1.332E+01 | 1.423E+01 | 2.471E-03 | 1.736E-01 | 4.375E+00 |
| 55 | 5.736E-01 | -2.782E+01 | 4.86E+00 | 5.518E+01 | 3.953E+02 | 3.199E-06 | 1.071E-02 | 1.73E+01 | 1.573E+01 | 1.680E+01 | 1.773E-03 | 1.258E-01 | 4.678E+00 |
| 60 | 5.000E-01 | -3.262E+01 | 5.39E+00 | 5.262E+01 | 3.770E+02 | 3.518E-06 | 1.178E-02 | 1.57E+01 | 1.830E+01 | 1.952E+01 | 1.312E-03 | 9.382E-02 | 4.946E+00 |
| 65 | 4.226E-01 | -3.766E+01 | 5.95E+00 | 4.993E+01 | 3.577E+02 | 3.907E-06 | 1.308E-02 | 1.43E+01 | 2.099E+01 | 2.239E+01 | 9.977E-04 | 7.176E-02 | 5.176E+00 |
| 70 | 3.420E-01 | -4.292E+01 | 6.54E+00 | 4.713E+01 | 3.377E+02 | 4.385E-06 | 1.468E-02 | 1.30E+01 | 2.379E+01 | 2.538E+01 | 7.767E-04 | 5.613E-02 | 5.367E+00 |
| 75 | 2.588E-01 | -4.835E+01 | 7.16E+00 | 4.424E+01 | 3.169E+02 | 4.977E-06 | 1.667E-02 | 1.19E+01 | 2.669E+01 | 2.846E+01 | 6.175E-04 | 4.481E-02 | 5.516E+00 |
| 80 | 1.736E-01 | -5.390E+01 | 7.83E+00 | 4.127E+01 | 2.957E+02 | 5.717E-06 | 1.914E-02 | 1.09E+01 | 2.965E+01 | 3.162E+01 | 5.003E-04 | 3.643E-02 | 5.624E+00 |
| 85 | 8.716E-02 | -5.955E+01 | 8.55E+00 | 3.827E+01 | 2.742E+02 | 6.651E-06 | 2.227E-02 | 1.00E+01 | 3.266E+01 | 3.482E+01 | 4.125E-04 | 3.011E-02 | 5.689E+00 |
| 90 | 0. | -6.523E+01 | 9.33E+00 | 3.524E+01 | 2.525E+02 | 7.844E-06 | 2.626E-02 | 9.21E+00 | 3.569E+01 | 3.805E+01 | 3.454E-04 | 2.528E-02 | 5.711E+00 |
| 95 | -8.716E-02 | -7.092E+01 | 1.02E+01 | 3.221E+01 | 2.308E+02 | 9.389E-06 | 3.143E-02 | 8.45E+00 | 3.872E+01 | 4.128E+01 | 2.935E-04 | 2.152E-02 | 5.689E+00 |
| 100 | -1.736E-01 | -7.656E+01 | 1.11E+01 | 2.920E+01 | 2.092E+02 | 1.142E-05 | 3.823E-02 | 7.75E+00 | 4.173E+01 | 4.448E+01 | 2.527E-04 | 1.856E-02 | 5.624E+00 |
| 105 | -2.588E-01 | -8.211E+01 | 1.21E+01 | 2.624E+01 | 1.880E+02 | 1.414E-05 | 4.734E-02 | 7.09E+00 | 4.469E+01 | 4.764E+01 | 2.203E-04 | 1.621E-02 | 5.516E+00 |
| 110 | -3.420E-01 | -8.754E+01 | 1.33E+01 | 2.335E+01 | 1.673E+02 | 1.787E-05 | 5.979E-02 | 6.48E+00 | 4.758E+01 | 5.072E+01 | 1.944E-04 | 1.432E-02 | 5.367E+00 |
| 115 | -4.226E-01 | -9.280E+01 | 1.46E+01 | 2.055E+01 | 1.472E+02 | 2.307E-05 | 7.720E-02 | 5.90E+00 | 5.038E+01 | 5.371E+01 | 1.734E-04 | 1.278E-02 | 5.176E+00 |
| 120 | -5.000E-01 | -9.785E+01 | 1.61E+01 | 1.786E+01 | 1.279E+02 | 3.054E-05 | 1.022E-01 | 5.35E+00 | 5.307E+01 | 5.657E+01 | 1.562E-04 | 1.153E-02 | 4.946E+00 |
| 125 | -5.736E-01 | -1.026E+02 | 1.78E+01 | 1.530E+01 | 1.096E+02 | 4.161E-05 | 1.392E-01 | 4.82E+00 | 5.563E+01 | 5.930E+01 | 1.422E-04 | 1.050E-02 | 4.678E+00 |
| 130 | -6.428E-01 | -1.072E+02 | 1.98E+01 | 1.289E+01 | 9.238E+01 | 5.859E-05 | 1.960E-01 | 4.32E+00 | 5.804E+01 | 6.186E+01 | 1.307E-04 | 9.656E-03 | 4.375E+00 |
| 135 | -7.071E-01 | -1.114E+02 | 2.23E+01 | 1.066E+01 | 7.636E+01 | 8.575E-05 | 2.867E-01 | 3.84E+00 | 6.027E+01 | 6.425E+01 | 1.211E-04 | 8.958E-03 | 4.038E+00 |
| 140 | -7.660E-01 | -1.152E+02 | 2.52E+01 | 8.608E+00 | 6.168E+01 | 1.314E-04 | 4.393E-01 | 3.38E+00 | 6.232E+01 | 6.643E+01 | 1.133E-04 | 8.383E-03 | 3.671E+00 |
| 145 | -8.192E-01 | -1.187E+02 | 2.90E+01 | 6.762E+00 | 4.846E+01 | 2.130E-04 | 7.115E-01 | 2.93E+00 | 6.417E+01 | 6.840E+01 | 1.069E-04 | 7.911E-03 | 3.276E+00 |
| 150 | -8.660E-01 | -1.217E+02 | 3.38E+01 | 5.132E+00 | 3.678E+01 | 3.696E-04 | 1.234E+00 | 2.49E+00 | 6.580E+01 | 7.013E+01 | 1.017E-04 | 7.526E-03 | 2.856E+00 |
| 155 | -9.063E-01 | -1.244E+02 | 4.03E+01 | 3.731E+00 | 2.675E+01 | 6.990E-04 | 2.332E+00 | 2.06E+00 | 6.720E+01 | 7.163E+01 | 9.746E-05 | 7.218E-03 | 2.414E+00 |
| 160 | -9.397E-01 | -1.265E+02 | 4.95E+01 | 2.569E+00 | 1.843E+01 | 1.472E-03 | 4.910E+00 | 1.64E+00 | 6.836E+01 | 7.286E+01 | 9.418E-05 | 6.977E-03 | 1.953E+00 |
| 165 | -9.659E-01 | -1.282E+02 | 6.33E+01 | 1.655E+00 | 1.190E+01 | 3.537E-03 | 1.180E+01 | 1.22E+00 | 6.927E+01 | 7.384E+01 | 9.172E-05 | 6.796E-03 | 1.478E+00 |
| 170 | -9.848E-01 | -1.295E+02 | 8.54E+01 | 9.949E-01 | 7.198E+00 | 9.697E-03 | 3.259E+01 | 8.13E-01 | 6.993E+01 | 7.454E+01 | 9.000E-05 | 6.669E-03 | 9.917E-01 |
| 175 | -9.962E-01 | -1.302E+02 | 1.23E+02 | 5.926E-01 | 4.362E+00 | 2.663E-02 | 9.215E+01 | 4.06E-01 | 7.032E+01 | 7.496E+01 | 8.899E-05 | 6.595E-03 | 4.977E-01 |
| 180 | -1.000E+00 | -1.305E+02 | 1.80E+02 | 4.556E-01 | 3.414E+00 | 4.385E-02 | 1.571E+02 | 0. | 7.046E+01 | 7.510E+01 | 8.866E-05 | 6.570E-03 | 0. |

PION (1) + PROTON (2) => PION (3) + PROTON (4) AT 80 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 1.39569E-01 M4 = 9.38259E-01
P2CM= 6.10792E+00 P3CM= 6.10792E+00
E1CM= 6.10952E+00 E2CM= 6.17957E+00 E3CM= 6.10952E+00 E4CM= 6.17957E+00

1-V1LAB = 1.522E-06 1-VCM = 1.159E-02 GCM = 6.58620E+00 ETCM= 1.22891E+01 S = 1.51022E+02 -U=( 1.49222E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 8.000E+01 | 5.732E+02 | 1.522E-06 | 5.829E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -1.136E-02 | 7.64E-02 | 7.999E+01 | 5.732E+02 | 1.522E-06 | 5.830E-03 | 8.67E+01 | 1.068E-01 | 1.006E+00 | 8.869E-01 | 1.878E+02 | 1.066E-01 |
| 2 | 9.994E-01 | -4.545E-02 | 1.53E-01 | 7.998E+01 | 5.730E+02 | 1.523E-06 | 5.833E-03 | 8.34E+01 | 2.146E-01 | 1.026E+00 | 7.771E-01 | 9.255E+01 | 2.132E-01 |
| 3 | 9.986E-01 | -1.023E-01 | 2.29E-01 | 7.995E+01 | 5.728E+02 | 1.524E-06 | 5.837E-03 | 8.02E+01 | 3.244E-01 | 1.058E+00 | 6.732E-01 | 6.026E+01 | 3.197E-01 |
| 4 | 9.976E-01 | -1.818E-01 | 3.06E-01 | 7.990E+01 | 5.725E+02 | 1.526E-06 | 5.843E-03 | 7.70E+01 | 4.372E-01 | 1.103E+00 | 5.776E-01 | 4.375E+01 | 4.261E-01 |
| 5 | 9.962E-01 | -2.839E-01 | 3.82E-01 | 7.985E+01 | 5.721E+02 | 1.528E-06 | 5.851E-03 | 7.40E+01 | 5.539E-01 | 1.161E+00 | 4.916E-01 | 3.360E+01 | 5.323E-01 |
| 6 | 9.945E-01 | -4.087E-01 | 4.59E-01 | 7.978E+01 | 5.716E+02 | 1.530E-06 | 5.861E-03 | 7.10E+01 | 6.754E-01 | 1.232E+00 | 4.158E-01 | 2.668E+01 | 6.385E-01 |
| 7 | 9.925E-01 | -5.562E-01 | 5.35E-01 | 7.970E+01 | 5.711E+02 | 1.533E-06 | 5.873E-03 | 6.81E+01 | 8.025E-01 | 1.316E+00 | 3.500E-01 | 2.165E+01 | 7.444E-01 |
| 8 | 9.903E-01 | -7.261E-01 | 6.12E-01 | 7.961E+01 | 5.704E+02 | 1.537E-06 | 5.886E-03 | 6.53E+01 | 9.359E-01 | 1.412E+00 | 2.938E-01 | 1.782E+01 | 8.501E-01 |
| 9 | 9.877E-01 | -9.186E-01 | 6.89E-01 | 7.951E+01 | 5.697E+02 | 1.541E-06 | 5.901E-03 | 6.26E+01 | 1.076E+00 | 1.522E+00 | 2.462E-01 | 1.482E+01 | 9.555E-01 |
| 10 | 9.848E-01 | -1.134E+00 | 7.65E-01 | 7.940E+01 | 5.689E+02 | 1.545E-06 | 5.918E-03 | 6.00E+01 | 1.224E+00 | 1.644E+00 | 2.063E-01 | 1.243E+01 | 1.061E+00 |
| 15 | 9.659E-01 | -2.542E+00 | 1.15E+00 | 7.865E+01 | 5.635E+02 | 1.575E-06 | 6.032E-03 | 4.91E+01 | 2.092E+00 | 2.444E+00 | 8.754E-02 | 5.582E+00 | 1.581E+00 |
| 20 | 9.397E-01 | -4.500E+00 | 1.54E+00 | 7.760E+01 | 5.560E+02 | 1.617E-06 | 6.195E-03 | 4.07E+01 | 3.202E+00 | 3.556E+00 | 4.036E-02 | 2.758E+00 | 2.089E+00 |
| 25 | 9.063E-01 | -6.991E+00 | 1.94E+00 | 7.627E+01 | 5.465E+02 | 1.674E-06 | 6.412E-03 | 3.44E+01 | 4.568E+00 | 4.970E+00 | 2.045E-02 | 1.475E+00 | 2.581E+00 |
| 30 | 8.660E-01 | -9.996E+00 | 2.34E+00 | 7.467E+01 | 5.350E+02 | 1.747E-06 | 6.690E-03 | 2.95E+01 | 6.195E+00 | 6.678E+00 | 1.128E-02 | 8.458E-01 | 3.054E+00 |
| 35 | 8.192E-01 | -1.349E+01 | 2.76E+00 | 7.281E+01 | 5.217E+02 | 1.837E-06 | 7.037E-03 | 2.57E+01 | 8.075E+00 | 8.664E+00 | 6.683E-03 | 5.155E-01 | 3.503E+00 |
| 40 | 7.660E-01 | -1.746E+01 | 3.18E+00 | 7.070E+01 | 5.065E+02 | 1.949E-06 | 7.464E-03 | 2.26E+01 | 1.020E+01 | 1.091E+01 | 4.206E-03 | 3.311E-01 | 3.926E+00 |
| 45 | 7.071E-01 | -2.185E+01 | 3.62E+00 | 6.835E+01 | 4.898E+02 | 2.085E-06 | 7.984E-03 | 2.01E+01 | 1.255E+01 | 1.341E+01 | 2.783E-03 | 2.224E-01 | 4.319E+00 |
| 50 | 6.428E-01 | -2.665E+01 | 4.08E+00 | 6.580E+01 | 4.714E+02 | 2.250E-06 | 8.617E-03 | 1.80E+01 | 1.511E+01 | 1.614E+01 | 1.922E-03 | 1.553E-01 | 4.679E+00 |
| 55 | 5.736E-01 | -3.182E+01 | 4.55E+00 | 6.304E+01 | 4.517E+02 | 2.450E-06 | 9.386E-03 | 1.63E+01 | 1.787E+01 | 1.907E+01 | 1.376E-03 | 1.122E-01 | 5.003E+00 |
| 60 | 5.000E-01 | -3.731E+01 | 5.05E+00 | 6.012E+01 | 4.308E+02 | 2.695E-06 | 1.032E-02 | 1.47E+01 | 2.080E+01 | 2.219E+01 | 1.016E-03 | 8.341E-02 | 5.290E+00 |
| 65 | 4.226E-01 | -4.308E+01 | 5.57E+00 | 5.704E+01 | 4.087E+02 | 2.993E-06 | 1.146E-02 | 1.34E+01 | 2.388E+01 | 2.547E+01 | 7.711E-04 | 6.365E-02 | 5.536E+00 |
| 70 | 3.420E-01 | -4.909E+01 | 6.12E+00 | 5.384E+01 | 3.857E+02 | 3.360E-06 | 1.287E-02 | 1.22E+01 | 2.708E+01 | 2.888E+01 | 5.995E-04 | 4.970E-02 | 5.740E+00 |
| 75 | 2.588E-01 | -5.530E+01 | 6.71E+00 | 5.053E+01 | 3.620E+02 | 3.815E-06 | 1.461E-02 | 1.12E+01 | 3.039E+01 | 3.241E+01 | 4.761E-04 | 3.962E-02 | 5.900E+00 |
| 80 | 1.736E-01 | -6.166E+01 | 7.33E+00 | 4.714E+01 | 3.378E+02 | 4.382E-06 | 1.678E-02 | 1.03E+01 | 3.378E+01 | 3.602E+01 | 3.855E-04 | 3.217E-02 | 6.015E+00 |
| 85 | 8.716E-02 | -6.811E+01 | 8.00E+00 | 4.370E+01 | 3.131E+02 | 5.099E-06 | 1.953E-02 | 9.41E+00 | 3.722E+01 | 3.968E+01 | 3.175E-04 | 2.656E-02 | 6.085E+00 |
| 90 | 0. | -7.461E+01 | 8.73E+00 | 4.024E+01 | 2.883E+02 | 6.015E-06 | 2.304E-02 | 8.63E+00 | 4.069E+01 | 4.338E+01 | 2.658E-04 | 2.228E-02 | 6.108E+00 |
| 95 | -8.716E-02 | -8.112E+01 | 9.52E+00 | 3.677E+01 | 2.635E+02 | 7.203E-06 | 2.758E-02 | 7.92E+00 | 4.416E+01 | 4.707E+01 | 2.257E-04 | 1.895E-02 | 6.085E+00 |
| 100 | -1.736E-01 | -8.757E+01 | 1.04E+01 | 3.333E+01 | 2.388E+02 | 8.765E-06 | 3.356E-02 | 7.26E+00 | 4.760E+01 | 5.074E+01 | 1.943E-04 | 1.634E-02 | 6.015E+00 |
| 105 | -2.588E-01 | -9.392E+01 | 1.14E+01 | 2.995E+01 | 2.146E+02 | 1.086E-05 | 4.158E-02 | 6.65E+00 | 5.098E+01 | 5.435E+01 | 1.693E-04 | 1.426E-02 | 5.900E+00 |
| 110 | -3.420E-01 | -1.001E+02 | 1.24E+01 | 2.664E+01 | 1.909E+02 | 1.372E-05 | 5.255E-02 | 6.07E+00 | 5.429E+01 | 5.787E+01 | 1.493E-04 | 1.259E-02 | 5.740E+00 |
| 115 | -4.226E-01 | -1.061E+02 | 1.37E+01 | 2.343E+01 | 1.679E+02 | 1.774E-05 | 6.789E-02 | 5.52E+00 | 5.750E+01 | 6.129E+01 | 1.331E-04 | 1.123E-02 | 5.536E+00 |
| 120 | -5.000E-01 | -1.119E+02 | 1.51E+01 | 2.036E+01 | 1.459E+02 | 2.350E-05 | 8.995E-02 | 5.01E+00 | 6.057E+01 | 6.457E+01 | 1.199E-04 | 1.013E-02 | 5.290E+00 |
| 125 | -5.736E-01 | -1.174E+02 | 1.67E+01 | 1.743E+01 | 1.249E+02 | 3.205E-05 | 1.227E-01 | 4.52E+00 | 6.350E+01 | 6.769E+01 | 1.091E-04 | 9.224E-03 | 5.003E+00 |
| 130 | -6.428E-01 | -1.226E+02 | 1.86E+01 | 1.468E+01 | 1.052E+02 | 4.520E-05 | 1.729E-01 | 4.05E+00 | 6.625E+01 | 7.062E+01 | 1.003E-04 | 8.478E-03 | 4.679E+00 |
| 135 | -7.071E-01 | -1.274E+02 | 2.09E+01 | 1.212E+01 | 8.686E+01 | 6.628E-05 | 2.535E-01 | 3.60E+00 | 6.881E+01 | 7.334E+01 | 9.295E-05 | 7.864E-03 | 4.319E+00 |
| 140 | -7.660E-01 | -1.318E+02 | 2.37E+01 | 9.778E+00 | 7.007E+01 | 1.018E-04 | 3.895E-01 | 3.16E+00 | 7.115E+01 | 7.584E+01 | 8.693E-05 | 7.358E-03 | 3.926E+00 |
| 145 | -8.192E-01 | -1.357E+02 | 2.72E+01 | 7.666E+00 | 5.494E+01 | 1.657E-04 | 6.333E-01 | 2.74E+00 | 7.326E+01 | 7.809E+01 | 8.199E-05 | 6.942E-03 | 3.503E+00 |
| 150 | -8.660E-01 | -1.392E+02 | 3.18E+01 | 5.802E+00 | 4.158E+01 | 2.892E-04 | 1.105E+00 | 2.33E+00 | 7.513E+01 | 8.008E+01 | 7.797E-05 | 6.604E-03 | 3.054E+00 |
| 155 | -9.063E-01 | -1.422E+02 | 3.79E+01 | 4.200E+00 | 3.011E+01 | 5.517E-04 | 2.106E+00 | 1.93E+00 | 7.673E+01 | 8.179E+01 | 7.475E-05 | 6.333E-03 | 2.581E+00 |
| 160 | -9.397E-01 | -1.447E+02 | 4.67E+01 | 2.871E+00 | 2.060E+01 | 1.179E-03 | 4.498E+00 | 1.53E+00 | 7.806E+01 | 8.320E+01 | 7.223E-05 | 6.121E-03 | 2.089E+00 |
| 165 | -9.659E-01 | -1.467E+02 | 5.99E+01 | 1.826E+00 | 1.312E+01 | 2.907E-03 | 1.109E+01 | 1.15E+00 | 7.910E+01 | 8.431E+01 | 7.034E-05 | 5.961E-03 | 1.581E+00 |
| 170 | -9.848E-01 | -1.481E+02 | 8.17E+01 | 1.072E+00 | 7.745E+00 | 8.370E-03 | 3.212E+01 | 7.61E-01 | 7.985E+01 | 8.511E+01 | 6.902E-05 | 5.850E-03 | 1.061E+00 |
| 175 | -9.962E-01 | -1.489E+02 | 1.20E+02 | 6.125E-01 | 4.501E+00 | 2.499E-02 | 9.861E+01 | 3.80E-01 | 8.030E+01 | 8.559E+01 | 6.825E-05 | 5.785E-03 | 5.323E-01 |
| 180 | -1.000E+00 | -1.492E+02 | 1.80E+02 | 4.560E-01 | 3.417E+00 | 4.378E-02 | 1.794E+02 | 0. | 8.046E+01 | 8.576E+01 | 6.799E-05 | 5.763E-03 | 0. |

PION (1) + PROTON (2) => PION (3) + PROTON (4) AT 90 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 1.39569E-01 M4 = 9.38259E-01
P2CM= 6.48058E+00 P3CM= 6.48058E+00
E1CM= 6.48208E+00 E2CM= 6.54814E+00 E3CM= 6.48208E+00 E4CM= 6.54814E+00

1-V1LAB = 1.202E-06 1-VCM = 1.032E-02 GCM = 6.97903E+00 ETCM= 1.30302E+01 S = 1.69787E+02 -U=( 1.67987E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 9.000E+01 | 6.448E+02 | 1.202E-06 | 5.185E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -1.279E-02 | 7.20E-02 | 8.999E+01 | 6.448E+02 | 1.203E-06 | 5.186E-03 | 8.65E+01 | 1.133E-01 | 1.007E+00 | 8.801E-01 | 1.989E+02 | 1.131E-01 |
| 2 | 9.994E-01 | -5.117E-02 | 1.44E-01 | 8.997E+01 | 6.446E+02 | 1.203E-06 | 5.188E-03 | 8.31E+01 | 2.278E-01 | 1.029E+00 | 7.640E-01 | 9.783E+01 | 2.262E-01 |
| 3 | 9.986E-01 | -1.151E-01 | 2.16E-01 | 8.994E+01 | 6.444E+02 | 1.204E-06 | 5.192E-03 | 7.96E+01 | 3.448E-01 | 1.065E+00 | 6.551E-01 | 6.351E+01 | 3.392E-01 |
| 4 | 9.976E-01 | -2.046E-01 | 2.88E-01 | 8.989E+01 | 6.441E+02 | 1.205E-06 | 5.198E-03 | 7.63E+01 | 4.653E-01 | 1.116E+00 | 5.557E-01 | 4.593E+01 | 4.521E-01 |
| 5 | 9.962E-01 | -3.196E-01 | 3.60E-01 | 8.983E+01 | 6.436E+02 | 1.207E-06 | 5.205E-03 | 7.31E+01 | 5.905E-01 | 1.182E+00 | 4.674E-01 | 3.511E+01 | 5.648E-01 |
| 6 | 9.945E-01 | -4.601E-01 | 4.32E-01 | 8.975E+01 | 6.431E+02 | 1.209E-06 | 5.213E-03 | 6.99E+01 | 7.213E-01 | 1.261E+00 | 3.905E-01 | 2.773E+01 | 6.774E-01 |
| 7 | 9.925E-01 | -6.261E-01 | 5.05E-01 | 8.967E+01 | 6.425E+02 | 1.211E-06 | 5.224E-03 | 6.69E+01 | 8.587E-01 | 1.356E+00 | 3.249E-01 | 2.236E+01 | 7.898E-01 |
| 8 | 9.903E-01 | -8.174E-01 | 5.77E-01 | 8.956E+01 | 6.417E+02 | 1.214E-06 | 5.235E-03 | 6.40E+01 | 1.004E+00 | 1.464E+00 | 2.695E-01 | 1.829E+01 | 9.019E-01 |
| 9 | 9.877E-01 | -1.034E+00 | 6.49E-01 | 8.945E+01 | 6.409E+02 | 1.217E-06 | 5.249E-03 | 6.12E+01 | 1.157E+00 | 1.587E+00 | 2.234E-01 | 1.511E+01 | 1.014E+00 |
| 10 | 9.848E-01 | -1.276E+00 | 7.22E-01 | 8.932E+01 | 6.400E+02 | 1.221E-06 | 5.264E-03 | 5.86E+01 | 1.319E+00 | 1.725E+00 | 1.852E-01 | 1.259E+01 | 1.125E+00 |
| 15 | 9.659E-01 | -2.862E+00 | 1.09E+00 | 8.847E+01 | 6.339E+02 | 1.244E-06 | 5.365E-03 | 4.74E+01 | 2.278E+00 | 2.626E+00 | 7.537E-02 | 5.477E+00 | 1.677E+00 |
| 20 | 9.397E-01 | -5.066E+00 | 1.45E+00 | 8.730E+01 | 6.255E+02 | 1.278E-06 | 5.510E-03 | 3.91E+01 | 3.515E+00 | 3.877E+00 | 3.384E-02 | 2.639E+00 | 2.216E+00 |
| 25 | 9.063E-01 | -7.870E+00 | 1.83E+00 | 8.581E+01 | 6.148E+02 | 1.323E-06 | 5.704E-03 | 3.29E+01 | 5.046E+00 | 5.470E+00 | 1.685E-02 | 1.386E+00 | 2.739E+00 |
| 30 | 8.660E-01 | -1.125E+01 | 2.21E+00 | 8.400E+01 | 6.019E+02 | 1.380E-06 | 5.952E-03 | 2.81E+01 | 6.871E+00 | 7.392E+00 | 9.194E-03 | 7.844E-01 | 3.240E+00 |
| 35 | 8.192E-01 | -1.519E+01 | 2.60E+00 | 8.190E+01 | 5.868E+02 | 1.452E-06 | 6.260E-03 | 2.44E+01 | 8.984E+00 | 9.628E+00 | 5.409E-03 | 4.737E-01 | 3.717E+00 |
| 40 | 7.660E-01 | -1.965E+01 | 3.00E+00 | 7.953E+01 | 5.698E+02 | 1.540E-06 | 6.640E-03 | 2.15E+01 | 1.137E+01 | 1.216E+01 | 3.386E-03 | 3.022E-01 | 4.166E+00 |
| 45 | 7.071E-01 | -2.460E+01 | 3.42E+00 | 7.689E+01 | 5.509E+02 | 1.647E-06 | 7.104E-03 | 1.91E+01 | 1.497E+01 | 1.602E+01 | 2.233E-03 | 2.020E-01 | 4.582E+00 |
| 50 | 6.428E-01 | -3.000E+01 | 3.85E+00 | 7.401E+01 | 5.303E+02 | 1.778E-06 | 7.667E-03 | 1.71E+01 | 1.690E+01 | 1.804E+01 | 1.537E-03 | 1.405E-01 | 4.964E+00 |
| 55 | 5.736E-01 | -3.582E+01 | 4.29E+00 | 7.091E+01 | 5.081E+02 | 1.937E-06 | 8.351E-03 | 1.54E+01 | 2.000E+01 | 2.134E+01 | 1.098E-03 | 1.012E-01 | 5.309E+00 |
| 60 | 5.000E-01 | -4.200E+01 | 4.76E+00 | 6.762E+01 | 4.845E+02 | 2.130E-06 | 9.184E-03 | 1.39E+01 | 2.330E+01 | 2.485E+01 | 8.098E-04 | 7.508E-02 | 5.612E+00 |
| 65 | 4.226E-01 | -4.850E+01 | 5.25E+00 | 6.416E+01 | 4.597E+02 | 2.366E-06 | 1.020E-02 | 1.27E+01 | 2.677E+01 | 2.855E+01 | 6.138E-04 | 5.719E-02 | 5.873E+00 |
| 70 | 3.420E-01 | -5.527E+01 | 5.77E+00 | 6.055E+01 | 4.338E+02 | 2.657E-06 | 1.145E-02 | 1.16E+01 | 3.038E+01 | 3.239E+01 | 4.767E-04 | 4.459E-02 | 6.090E+00 |
| 75 | 2.588E-01 | -6.226E+01 | 6.32E+00 | 5.682E+01 | 4.071E+02 | 3.016E-06 | 1.301E-02 | 1.06E+01 | 3.410E+01 | 3.636E+01 | 3.783E-04 | 3.550E-02 | 6.260E+00 |
| 80 | 1.736E-01 | -6.941E+01 | 6.91E+00 | 5.301E+01 | 3.798E+02 | 3.466E-06 | 1.494E-02 | 9.69E+00 | 3.792E+01 | 4.042E+01 | 3.060E-04 | 2.880E-02 | 6.382E+00 |
| 85 | 8.716E-02 | -7.667E+01 | 7.55E+00 | 4.914E+01 | 3.521E+02 | 4.033E-06 | 1.739E-02 | 8.89E+00 | 4.179E+01 | 4.455E+01 | 2.520E-04 | 2.376E-02 | 6.456E+00 |
| 90 | 0. | -8.400E+01 | 8.24E+00 | 4.524E+01 | 3.241E+02 | 4.759E-06 | 2.052E-02 | 8.15E+00 | 4.569E+01 | 4.871E+01 | 2.108E-04 | 1.991E-02 | 6.481E+00 |
| 95 | -8.716E-02 | -9.132E+01 | 8.99E+00 | 4.134E+01 | 2.962E+02 | 5.700E-06 | 2.457E-02 | 7.48E+00 | 4.959E+01 | 5.286E+01 | 1.789E-04 | 1.693E-02 | 6.456E+00 |
| 100 | -1.736E-01 | -9.858E+01 | 9.81E+00 | 3.747E+01 | 2.684E+02 | 6.939E-06 | 2.991E-02 | 6.86E+00 | 5.346E+01 | 5.699E+01 | 1.540E-04 | 1.459E-02 | 6.382E+00 |
| 105 | -2.588E-01 | -1.057E+02 | 1.07E+01 | 3.365E+01 | 2.411E+02 | 8.600E-06 | 3.707E-02 | 6.27E+00 | 5.728E+01 | 6.105E+01 | 1.341E-04 | 1.272E-02 | 6.260E+00 |
| 110 | -3.420E-01 | -1.127E+02 | 1.17E+01 | 2.993E+01 | 2.144E+02 | 1.087E-05 | 4.686E-02 | 5.73E+00 | 6.100E+01 | 6.502E+01 | 1.183E-04 | 1.123E-02 | 6.090E+00 |
| 115 | -4.226E-01 | -1.195E+02 | 1.29E+01 | 2.632E+01 | 1.886E+02 | 1.406E-05 | 6.059E-02 | 5.22E+00 | 6.461E+01 | 6.887E+01 | 1.054E-04 | 1.002E-02 | 5.873E+00 |
| 120 | -5.000E-01 | -1.260E+02 | 1.42E+01 | 2.286E+01 | 1.638E+02 | 1.864E-05 | 8.033E-02 | 4.73E+00 | 6.807E+01 | 7.256E+01 | 9.497E-05 | 9.032E-03 | 5.612E+00 |
| 125 | -5.736E-01 | -1.322E+02 | 1.57E+01 | 1.956E+01 | 1.402E+02 | 2.545E-05 | 1.096E-01 | 4.27E+00 | 7.137E+01 | 7.607E+01 | 8.641E-05 | 8.223E-03 | 5.309E+00 |
| 130 | -6.428E-01 | -1.380E+02 | 1.75E+01 | 1.647E+01 | 1.180E+02 | 3.592E-05 | 1.547E-01 | 3.82E+00 | 7.447E+01 | 7.937E+01 | 7.937E-05 | 7.557E-03 | 4.964E+00 |
| 135 | -7.071E-01 | -1.434E+02 | 1.97E+01 | 1.359E+01 | 9.735E+01 | 5.276E-05 | 2.272E-01 | 3.40E+00 | 7.735E+01 | 8.244E+01 | 7.357E-05 | 7.006E-03 | 4.582E+00 |
| 140 | -7.660E-01 | -1.483E+02 | 2.24E+01 | 1.095E+01 | 7.845E+01 | 8.124E-05 | 3.498E-01 | 2.99E+00 | 7.998E+01 | 8.525E+01 | 6.880E-05 | 6.556E-03 | 4.166E+00 |
| 145 | -8.192E-01 | -1.528E+02 | 2.57E+01 | 8.571E+00 | 6.142E+01 | 1.326E-04 | 5.705E-01 | 2.59E+00 | 8.236E+01 | 8.779E+01 | 6.488E-05 | 6.185E-03 | 3.717E+00 |
| 150 | -8.660E-01 | -1.567E+02 | 3.00E+01 | 6.473E+00 | 4.639E+01 | 2.324E-04 | 9.997E-01 | 2.20E+00 | 8.446E+01 | 9.002E+01 | 6.170E-05 | 5.883E-03 | 3.240E+00 |
| 155 | -9.063E-01 | -1.601E+02 | 3.59E+01 | 4.669E+00 | 3.347E+01 | 4.465E-04 | 1.919E+00 | 1.82E+00 | 8.626E+01 | 9.194E+01 | 5.915E-05 | 5.641E-03 | 2.739E+00 |
| 160 | -9.397E-01 | -1.629E+02 | 4.43E+01 | 3.174E+00 | 2.276E+01 | 9.657E-04 | 4.147E+00 | 1.45E+00 | 8.776E+01 | 9.354E+01 | 5.715E-05 | 5.452E-03 | 2.216E+00 |
| 165 | -9.659E-01 | -1.651E+02 | 5.71E+01 | 1.998E+00 | 1.435E+01 | 2.432E-03 | 1.044E+01 | 1.08E+00 | 8.893E+01 | 9.479E+01 | 5.565E-05 | 5.309E-03 | 1.677E+00 |
| 170 | -9.848E-01 | -1.667E+02 | 7.84E+01 | 1.149E+00 | 8.291E+00 | 7.300E-03 | 3.149E+01 | 7.18E-01 | 8.978E+01 | 9.569E+01 | 5.461E-05 | 5.210E-03 | 1.125E+00 |
| 175 | -9.962E-01 | -1.677E+02 | 1.17E+02 | 6.323E-01 | 4.639E+00 | 2.351E-02 | 1.041E+02 | 3.58E-01 | 9.029E+01 | 9.623E+01 | 5.399E-05 | 5.152E-03 | 5.648E-01 |
| 180 | -1.000E+00 | -1.680E+02 | 1.80E+02 | 4.563E-01 | 3.419E+00 | 4.373E-02 | 2.017E+02 | 0. | 9.046E+01 | 9.641E+01 | 5.379E-05 | 5.133E-03 | 0. |

PION (1) + PROTON (2) => PION (3) + PROTON (4) AT 100 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 1.39569E-01 M4 = 9.38259E-01
P2CM= 6.83294E+00 P3CM= 6.83294E+00
E1CM= 6.83436E+00 E2CM= 6.89705E+00 E3CM= 6.83436E+00 E4CM= 6.89705E+00

1-V1LAB = 9.740E-07 1-VCM = 9.296E-03 GCM = 7.35091E+00 ETCM= 1.37314E+01 S = 1.88552E+02 -U=( 1.86752E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 1.000E+02 | 7.165E+02 | 9.740E-07 | 4.669E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -1.422E-02 | 6.83E-02 | 9.999E+01 | 7.164E+02 | 9.741E-07 | 4.670E-03 | 8.63E+01 | 1.195E-01 | 1.008E+00 | 8.737E-01 | 2.093E+02 | 1.193E-01 |
| 2 | 9.994E-01 | -5.688E-02 | 1.37E-01 | 9.997E+01 | 7.163E+02 | 9.746E-07 | 4.672E-03 | 8.27E+01 | 2.404E-01 | 1.032E+00 | 7.518E-01 | 1.028E+02 | 2.385E-01 |
| 3 | 9.986E-01 | -1.280E-01 | 2.05E-01 | 9.993E+01 | 7.160E+02 | 9.753E-07 | 4.675E-03 | 7.91E+01 | 3.642E-01 | 1.073E+00 | 6.382E-01 | 6.654E+01 | 3.576E-01 |
| 4 | 9.976E-01 | -2.275E-01 | 2.73E-01 | 9.988E+01 | 7.156E+02 | 9.763E-07 | 4.680E-03 | 7.56E+01 | 4.921E-01 | 1.129E+00 | 5.355E-01 | 4.794E+01 | 4.766E-01 |
| 5 | 9.962E-01 | -3.553E-01 | 3.42E-01 | 9.981E+01 | 7.151E+02 | 9.777E-07 | 4.687E-03 | 7.22E+01 | 6.255E-01 | 1.202E+00 | 4.453E-01 | 3.647E+01 | 5.955E-01 |
| 6 | 9.945E-01 | -5.115E-01 | 4.10E-01 | 9.973E+01 | 7.145E+02 | 9.793E-07 | 4.694E-03 | 6.89E+01 | 7.654E-01 | 1.291E+00 | 3.679E-01 | 2.865E+01 | 7.142E-01 |
| 7 | 9.925E-01 | -6.960E-01 | 4.79E-01 | 9.963E+01 | 7.138E+02 | 9.812E-07 | 4.704E-03 | 6.58E+01 | 9.130E-01 | 1.395E+00 | 3.026E-01 | 2.297E+01 | 8.327E-01 |
| 8 | 9.903E-01 | -9.087E-01 | 5.48E-01 | 9.952E+01 | 7.130E+02 | 9.835E-07 | 4.714E-03 | 6.28E+01 | 1.069E+00 | 1.516E+00 | 2.484E-01 | 1.867E+01 | 9.510E-01 |
| 9 | 9.877E-01 | -1.150E+00 | 6.16E-01 | 9.939E+01 | 7.121E+02 | 9.860E-07 | 4.727E-03 | 5.99E+01 | 1.235E+00 | 1.653E+00 | 2.038E-01 | 1.533E+01 | 1.069E+00 |
| 10 | 9.848E-01 | -1.419E+00 | 6.85E-01 | 9.924E+01 | 7.111E+02 | 9.889E-07 | 4.740E-03 | 5.73E+01 | 1.411E+00 | 1.806E+00 | 1.673E-01 | 1.269E+01 | 1.187E+00 |
| 15 | 9.659E-01 | -3.182E+00 | 1.03E+00 | 9.830E+01 | 7.043E+02 | 1.008E-06 | 4.831E-03 | 4.59E+01 | 2.461E+00 | 2.807E+00 | 6.560E-02 | 5.361E+00 | 1.768E+00 |
| 20 | 9.397E-01 | -5.631E+00 | 1.38E+00 | 9.700E+01 | 6.950E+02 | 1.035E-06 | 4.962E-03 | 3.77E+01 | 3.826E+00 | 4.198E+00 | 2.878E-02 | 2.525E+00 | 2.337E+00 |
| 25 | 9.063E-01 | -8.749E+00 | 1.74E+00 | 9.534E+01 | 6.831E+02 | 1.072E-06 | 5.137E-03 | 3.15E+01 | 5.521E+00 | 5.969E+00 | 1.413E-02 | 1.305E+00 | 2.888E+00 |
| 30 | 8.660E-01 | -1.251E+01 | 2.10E+00 | 9.333E+01 | 6.687E+02 | 1.118E-06 | 5.360E-03 | 2.69E+01 | 7.547E+00 | 8.105E+00 | 7.640E-03 | 7.309E-01 | 3.416E+00 |
| 35 | 8.192E-01 | -1.689E+01 | 2.47E+00 | 9.100E+01 | 6.520E+02 | 1.176E-06 | 5.638E-03 | 2.33E+01 | 9.893E+00 | 1.059E+01 | 4.467E-03 | 4.380E-01 | 3.919E+00 |
| 40 | 7.660E-01 | -2.185E+01 | 2.85E+00 | 8.836E+01 | 6.331E+02 | 1.248E-06 | 5.980E-03 | 2.05E+01 | 1.255E+01 | 1.341E+01 | 2.785E-03 | 2.779E-01 | 4.392E+00 |
| 45 | 7.071E-01 | -2.735E+01 | 3.24E+00 | 8.543E+01 | 6.121E+02 | 1.335E-06 | 6.398E-03 | 1.82E+01 | 1.548E+01 | 1.653E+01 | 1.831E-03 | 1.850E-01 | 4.832E+00 |
| 50 | 6.428E-01 | -3.336E+01 | 3.65E+00 | 8.222E+01 | 5.891E+02 | 1.441E-06 | 6.905E-03 | 1.63E+01 | 1.869E+01 | 1.995E+01 | 1.258E-03 | 1.283E-01 | 5.234E+00 |
| 55 | 5.736E-01 | -3.982E+01 | 4.07E+00 | 7.878E+01 | 5.645E+02 | 1.569E-06 | 7.522E-03 | 1.46E+01 | 2.214E+01 | 2.362E+01 | 8.969E-04 | 9.217E-02 | 5.597E+00 |
| 60 | 5.000E-01 | -4.669E+01 | 4.52E+00 | 7.512E+01 | 5.382E+02 | 1.726E-06 | 8.273E-03 | 1.33E+01 | 2.580E+01 | 2.752E+01 | 6.605E-04 | 6.826E-02 | 5.917E+00 |
| 65 | 4.226E-01 | -5.391E+01 | 4.98E+00 | 7.127E+01 | 5.106E+02 | 1.918E-06 | 9.191E-03 | 1.21E+01 | 2.965E+01 | 3.162E+01 | 5.002E-04 | 5.192E-02 | 6.193E+00 |
| 70 | 3.420E-01 | -6.144E+01 | 5.48E+00 | 6.726E+01 | 4.819E+02 | 2.153E-06 | 1.032E-02 | 1.10E+01 | 3.367E+01 | 3.590E+01 | 3.881E-04 | 4.043E-02 | 6.421E+00 |
| 75 | 2.588E-01 | -6.921E+01 | 6.00E+00 | 6.312E+01 | 4.522E+02 | 2.445E-06 | 1.172E-02 | 1.01E+01 | 3.781E+01 | 4.031E+01 | 3.078E-04 | 3.216E-02 | 6.600E+00 |
| 80 | 1.736E-01 | -7.716E+01 | 6.56E+00 | 5.888E+01 | 4.219E+02 | 2.809E-06 | 1.347E-02 | 9.21E+00 | 4.205E+01 | 4.483E+01 | 2.489E-04 | 2.607E-02 | 6.729E+00 |
| 85 | 8.716E-02 | -8.524E+01 | 7.16E+00 | 5.458E+01 | 3.910E+02 | 3.270E-06 | 1.567E-02 | 8.44E+00 | 4.635E+01 | 4.941E+01 | 2.048E-04 | 2.149E-02 | 6.807E+00 |
| 90 | 0. | -9.338E+01 | 7.82E+00 | 5.024E+01 | 3.600E+02 | 3.859E-06 | 1.849E-02 | 7.75E+00 | 5.069E+01 | 5.404E+01 | 1.713E-04 | 1.800E-02 | 6.833E+00 |
| 95 | -8.716E-02 | -1.015E+02 | 8.53E+00 | 4.590E+01 | 3.289E+02 | 4.623E-06 | 2.215E-02 | 7.11E+00 | 5.503E+01 | 5.866E+01 | 1.453E-04 | 1.530E-02 | 6.807E+00 |
| 100 | -1.736E-01 | -1.096E+02 | 9.31E+00 | 4.160E+01 | 2.980E+02 | 5.629E-06 | 2.697E-02 | 6.51E+00 | 5.933E+01 | 6.325E+01 | 1.250E-04 | 1.318E-02 | 6.729E+00 |
| 105 | -2.588E-01 | -1.175E+02 | 1.02E+01 | 3.736E+01 | 2.677E+02 | 6.978E-06 | 3.344E-02 | 5.96E+00 | 6.357E+01 | 6.776E+01 | 1.089E-04 | 1.149E-02 | 6.600E+00 |
| 110 | -3.420E-01 | -1.253E+02 | 1.11E+01 | 3.322E+01 | 2.380E+02 | 8.826E-06 | 4.229E-02 | 5.44E+00 | 6.771E+01 | 7.218E+01 | 9.599E-05 | 1.014E-02 | 6.421E+00 |
| 115 | -4.226E-01 | -1.328E+02 | 1.22E+01 | 2.921E+01 | 2.093E+02 | 1.142E-05 | 5.470E-02 | 4.95E+00 | 7.172E+01 | 7.645E+01 | 8.555E-05 | 9.042E-03 | 6.193E+00 |
| 120 | -5.000E-01 | -1.401E+02 | 1.35E+01 | 2.536E+01 | 1.817E+02 | 1.515E-05 | 7.257E-02 | 4.49E+00 | 7.557E+01 | 8.055E+01 | 7.706E-05 | 8.149E-03 | 5.917E+00 |
| 125 | -5.736E-01 | -1.469E+02 | 1.50E+01 | 2.170E+01 | 1.555E+02 | 2.069E-05 | 9.911E-02 | 4.05E+00 | 7.924E+01 | 8.446E+01 | 7.010E-05 | 7.418E-03 | 5.597E+00 |
| 130 | -6.428E-01 | -1.534E+02 | 1.67E+01 | 1.825E+01 | 1.308E+02 | 2.923E-05 | 1.400E-01 | 3.63E+00 | 8.268E+01 | 8.813E+01 | 6.438E-05 | 6.816E-03 | 5.234E+00 |
| 135 | -7.071E-01 | -1.594E+02 | 1.87E+01 | 1.505E+01 | 1.078E+02 | 4.299E-05 | 2.059E-01 | 3.23E+00 | 8.588E+01 | 9.154E+01 | 5.967E-05 | 6.320E-03 | 4.832E+00 |
| 140 | -7.660E-01 | -1.649E+02 | 2.12E+01 | 1.212E+01 | 8.683E+01 | 6.631E-05 | 3.175E-01 | 2.83E+00 | 8.881E+01 | 9.466E+01 | 5.580E-05 | 5.912E-03 | 4.392E+00 |
| 145 | -8.192E-01 | -1.699E+02 | 2.44E+01 | 9.476E+00 | 6.790E+01 | 1.085E-04 | 5.190E-01 | 2.46E+00 | 9.146E+01 | 9.748E+01 | 5.262E-05 | 5.577E-03 | 3.919E+00 |
| 150 | -8.660E-01 | -1.742E+02 | 2.86E+01 | 7.143E+00 | 5.119E+01 | 1.908E-04 | 9.128E-01 | 2.09E+00 | 9.379E+01 | 9.997E+01 | 5.004E-05 | 5.304E-03 | 3.416E+00 |
| 155 | -9.063E-01 | -1.780E+02 | 3.42E+01 | 5.138E+00 | 3.683E+01 | 3.688E-04 | 1.763E+00 | 1.73E+00 | 9.579E+01 | 1.021E+02 | 4.796E-05 | 5.086E-03 | 2.888E+00 |
| 160 | -9.397E-01 | -1.811E+02 | 4.23E+01 | 3.476E+00 | 2.492E+01 | 8.053E-04 | 3.846E+00 | 1.37E+00 | 9.746E+01 | 1.039E+02 | 4.634E-05 | 4.914E-03 | 2.337E+00 |
| 165 | -9.659E-01 | -1.836E+02 | 5.46E+01 | 2.169E+00 | 1.557E+01 | 2.065E-03 | 9.855E+00 | 1.03E+00 | 9.876E+01 | 1.053E+02 | 4.512E-05 | 4.786E-03 | 1.768E+00 |
| 170 | -9.848E-01 | -1.853E+02 | 7.55E+01 | 1.225E+00 | 8.837E+00 | 6.423E-03 | 3.076E+01 | 6.82E-01 | 9.970E+01 | 1.063E+02 | 4.428E-05 | 4.697E-03 | 1.187E+00 |
| 175 | -9.962E-01 | -1.864E+02 | 1.14E+02 | 6.520E-01 | 4.777E+00 | 2.215E-02 | 1.088E+02 | 3.40E-01 | 1.003E+02 | 1.069E+02 | 4.378E-05 | 4.644E-03 | 5.955E-01 |
| 180 | -1.000E+00 | -1.868E+02 | 1.80E+02 | 4.566E-01 | 3.421E+00 | 4.369E-02 | 2.240E+02 | 0. | 1.005E+02 | 1.071E+02 | 4.361E-05 | 4.627E-03 | 0. |

PION (1) + PROTON (2) => PION (3) + PROTON (4) AT 125 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 1.39569E-01 M4 = 9.38259E-01
P2CM= 7.64311E+00 P3CM= 7.64311E+00
E1CM= 7.64438E+00 E2CM= 7.70048E+00 E3CM= 7.64438E+00 E4CM= 7.70048E+00

1-V1LAB = 6.233E-07 1-VCM = 7.451E-03 GCM = 8.20720E+00 ETCM= 1.53449E+01 S = 2.35465E+02 -U=( 2.33665E+02) +T

| 03 CM | COS(03) CM | 4-MOM TSFR SQUARE, T | 03 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | 04 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 1.250E+02 | 8.956E+02 | 6.233E-07 | 3.739E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -1.779E-02 | 6.11E-02 | 1.250E+02 | 8.955E+02 | 6.234E-07 | 3.739E-03 | 8.59E+01 | 1.337E-01 | 1.010E+00 | 8.589E-01 | 2.334E+02 | 1.334E-01 |
| 2 | 9.994E-01 | -7.117E-02 | 1.22E-01 | 1.250E+02 | 8.953E+02 | 6.237E-07 | 3.741E-03 | 8.18E+01 | 2.695E-01 | 1.040E+00 | 7.240E-01 | 1.141E+02 | 2.667E-01 |
| 3 | 9.986E-01 | -1.601E-01 | 1.83E-01 | 1.249E+02 | 8.950E+02 | 6.242E-07 | 3.744E-03 | 7.79E+01 | 4.091E-01 | 1.091E+00 | 6.003E-01 | 7.332E+01 | 4.000E-01 |
| 4 | 9.976E-01 | -2.846E-01 | 2.45E-01 | 1.248E+02 | 8.945E+02 | 6.249E-07 | 3.748E-03 | 7.40E+01 | 5.566E-01 | 1.162E+00 | 4.911E-01 | 5.232E+01 | 5.332E-01 |
| 5 | 9.962E-01 | -4.446E-01 | 3.06E-01 | 1.248E+02 | 8.939E+02 | 6.257E-07 | 3.753E-03 | 7.03E+01 | 7.076E-01 | 1.253E+00 | 3.979E-01 | 3.935E+01 | 6.661E-01 |
| 6 | 9.945E-01 | -6.400E-01 | 3.67E-01 | 1.247E+02 | 8.932E+02 | 6.268E-07 | 3.759E-03 | 6.67E+01 | 8.697E-01 | 1.364E+00 | 3.202E-01 | 3.052E+01 | 7.989E-01 |
| 7 | 9.925E-01 | -8.709E-01 | 4.29E-01 | 1.245E+02 | 8.923E+02 | 6.280E-07 | 3.767E-03 | 6.33E+01 | 1.042E+00 | 1.495E+00 | 2.568E-01 | 2.413E+01 | 9.315E-01 |
| 8 | 9.903E-01 | -1.137E+00 | 4.90E-01 | 1.244E+02 | 8.913E+02 | 6.294E-07 | 3.775E-03 | 6.01E+01 | 1.226E+00 | 1.646E+00 | 2.058E-01 | 1.933E+01 | 1.064E+00 |
| 9 | 9.877E-01 | -1.438E+00 | 5.51E-01 | 1.242E+02 | 8.901E+02 | 6.311E-07 | 3.785E-03 | 5.71E+01 | 1.423E+00 | 1.817E+00 | 1.651E-01 | 1.564E+01 | 1.196E+00 |
| 10 | 9.848E-01 | -1.775E+00 | 6.13E-01 | 1.241E+02 | 8.886E+02 | 6.329E-07 | 3.796E-03 | 5.43E+01 | 1.634E+00 | 2.008E+00 | 1.328E-01 | 1.276E+01 | 1.327E+00 |
| 15 | 9.659E-01 | -3.981E+00 | 9.22E-01 | 1.229E+02 | 8.804E+02 | 6.451E-07 | 3.869E-03 | 4.28E+01 | 2.912E+00 | 3.261E+00 | 4.818E-02 | 5.055E+00 | 1.978E+00 |
| 20 | 9.397E-01 | -7.046E+00 | 1.24E+00 | 1.212E+02 | 8.687E+02 | 6.625E-07 | 3.974E-03 | 3.46E+01 | 4.598E+00 | 5.002E+00 | 2.019E-02 | 2.273E+00 | 2.614E+00 |
| 25 | 9.063E-01 | -1.095E+01 | 1.55E+00 | 1.192E+02 | 8.538E+02 | 6.859E-07 | 4.114E-03 | 2.88E+01 | 6.706E+00 | 7.217E+00 | 9.646E-03 | 1.138E+00 | 3.230E+00 |
| 30 | 8.660E-01 | -1.565E+01 | 1.88E+00 | 1.167E+02 | 8.359E+02 | 7.157E-07 | 4.292E-03 | 2.45E+01 | 9.232E+00 | 9.890E+00 | 5.125E-03 | 6.239E-01 | 3.822E+00 |
| 35 | 8.192E-01 | -2.113E+01 | 2.21E+00 | 1.137E+02 | 8.149E+02 | 7.529E-07 | 4.515E-03 | 2.11E+01 | 1.216E+01 | 1.300E+01 | 2.963E-03 | 3.684E-01 | 4.384E+00 |
| 40 | 7.660E-01 | -2.733E+01 | 2.55E+00 | 1.104E+02 | 7.912E+02 | 7.986E-07 | 4.790E-03 | 1.85E+01 | 1.548E+01 | 1.652E+01 | 1.833E-03 | 2.313E-01 | 4.913E+00 |
| 45 | 7.071E-01 | -3.422E+01 | 2.90E+00 | 1.068E+02 | 7.650E+02 | 8.545E-07 | 5.125E-03 | 1.64E+01 | 1.915E+01 | 2.044E+01 | 1.198E-03 | 1.528E-01 | 5.404E+00 |
| 50 | 6.428E-01 | -4.173E+01 | 3.27E+00 | 1.028E+02 | 7.363E+02 | 9.224E-07 | 5.532E-03 | 1.46E+01 | 2.316E+01 | 2.470E+01 | 8.196E-04 | 1.054E-01 | 5.855E+00 |
| 55 | 5.736E-01 | -4.982E+01 | 3.65E+00 | 9.845E+01 | 7.054E+02 | 1.005E-06 | 6.027E-03 | 1.32E+01 | 2.747E+01 | 2.930E+01 | 5.827E-04 | 7.537E-02 | 6.261E+00 |
| 60 | 5.000E-01 | -5.842E+01 | 4.04E+00 | 9.387E+01 | 6.726E+02 | 1.105E-06 | 6.629E-03 | 1.19E+01 | 3.206E+01 | 3.418E+01 | 4.281E-04 | 5.563E-02 | 6.619E+00 |
| 65 | 4.226E-01 | -6.746E+01 | 4.46E+00 | 8.905E+01 | 6.380E+02 | 1.228E-06 | 7.366E-03 | 1.08E+01 | 3.687E+01 | 3.931E+01 | 3.236E-04 | 4.220E-02 | 6.927E+00 |
| 70 | 3.420E-01 | -7.687E+01 | 4.90E+00 | 8.403E+01 | 6.021E+02 | 1.379E-06 | 8.272E-03 | 9.87E+00 | 4.189E+01 | 4.466E+01 | 2.507E-04 | 3.279E-02 | 7.182E+00 |
| 75 | 2.588E-01 | -8.660E+01 | 5.37E+00 | 7.885E+01 | 5.650E+02 | 1.566E-06 | 9.394E-03 | 9.02E+00 | 4.708E+01 | 5.018E+01 | 1.986E-04 | 2.603E-02 | 7.383E+00 |
| 80 | 1.736E-01 | -9.655E+01 | 5.87E+00 | 7.355E+01 | 5.270E+02 | 1.800E-06 | 1.080E-02 | 8.26E+00 | 5.238E+01 | 5.584E+01 | 1.604E-04 | 2.107E-02 | 7.527E+00 |
| 85 | 8.716E-02 | -1.067E+02 | 6.41E+00 | 6.817E+01 | 4.884E+02 | 2.096E-06 | 1.257E-02 | 7.57E+00 | 5.777E+01 | 6.157E+01 | 1.319E-04 | 1.735E-02 | 7.614E+00 |
| 90 | 0. | -1.168E+02 | 7.00E+00 | 6.274E+01 | 4.495E+02 | 2.474E-06 | 1.484E-02 | 6.95E+00 | 6.319E+01 | 6.736E+01 | 1.102E-04 | 1.452E-02 | 7.643E+00 |
| 95 | -8.716E-02 | -1.270E+02 | 7.63E+00 | 5.731E+01 | 4.106E+02 | 2.965E-06 | 1.778E-02 | 6.37E+00 | 6.862E+01 | 7.314E+01 | 9.347E-05 | 1.233E-02 | 7.614E+00 |
| 100 | -1.736E-01 | -1.371E+02 | 8.33E+00 | 5.193E+01 | 3.721E+02 | 3.612E-06 | 2.166E-02 | 5.84E+00 | 7.400E+01 | 7.888E+01 | 8.036E-05 | 1.061E-02 | 7.527E+00 |
| 105 | -2.588E-01 | -1.471E+02 | 9.11E+00 | 4.662E+01 | 3.341E+02 | 4.480E-06 | 2.687E-02 | 5.34E+00 | 7.931E+01 | 8.453E+01 | 6.997E-05 | 9.247E-03 | 7.383E+00 |
| 110 | -3.420E-01 | -1.568E+02 | 9.98E+00 | 4.144E+01 | 2.969E+02 | 5.670E-06 | 3.400E-02 | 4.88E+00 | 8.449E+01 | 9.005E+01 | 6.166E-05 | 8.154E-03 | 7.182E+00 |
| 115 | -4.226E-01 | -1.662E+02 | 1.10E+01 | 3.643E+01 | 2.610E+02 | 7.340E-06 | 4.401E-02 | 4.44E+00 | 8.951E+01 | 9.540E+01 | 5.494E-05 | 7.270E-03 | 6.927E+00 |
| 120 | -5.000E-01 | -1.753E+02 | 1.21E+01 | 3.161E+01 | 2.265E+02 | 9.749E-06 | 5.844E-02 | 4.02E+00 | 9.433E+01 | 1.005E+02 | 4.947E-05 | 6.550E-03 | 6.619E+00 |
| 125 | -5.736E-01 | -1.838E+02 | 1.34E+01 | 2.703E+01 | 1.936E+02 | 1.333E-05 | 7.993E-02 | 3.63E+00 | 9.891E+01 | 1.054E+02 | 4.499E-05 | 5.960E-03 | 6.261E+00 |
| 130 | -6.428E-01 | -1.919E+02 | 1.49E+01 | 2.272E+01 | 1.628E+02 | 1.887E-05 | 1.131E-01 | 3.25E+00 | 1.032E+02 | 1.100E+02 | 4.131E-05 | 5.475E-03 | 5.855E+00 |
| 135 | -7.071E-01 | -1.994E+02 | 1.68E+01 | 1.871E+01 | 1.341E+02 | 2.781E-05 | 1.667E-01 | 2.89E+00 | 1.072E+02 | 1.143E+02 | 3.829E-05 | 5.075E-03 | 5.404E+00 |
| 140 | -7.660E-01 | -2.063E+02 | 1.91E+01 | 1.504E+01 | 1.078E+02 | 4.303E-05 | 2.578E-01 | 2.54E+00 | 1.109E+02 | 1.182E+02 | 3.579E-05 | 4.746E-03 | 4.913E+00 |
| 145 | -8.192E-01 | -2.125E+02 | 2.19E+01 | 1.174E+01 | 8.410E+01 | 7.070E-05 | 4.234E-01 | 2.20E+00 | 1.142E+02 | 1.217E+02 | 3.375E-05 | 4.476E-03 | 4.384E+00 |
| 150 | -8.660E-01 | -2.180E+02 | 2.57E+01 | 8.818E+00 | 6.319E+01 | 1.252E-04 | 7.497E-01 | 1.87E+00 | 1.171E+02 | 1.248E+02 | 3.209E-05 | 4.257E-03 | 3.822E+00 |
| 155 | -9.063E-01 | -2.227E+02 | 3.08E+01 | 6.310E+00 | 4.522E+01 | 2.446E-04 | 1.463E+00 | 1.55E+00 | 1.196E+02 | 1.275E+02 | 3.076E-05 | 4.081E-03 | 3.230E+00 |
| 160 | -9.397E-01 | -2.266E+02 | 3.82E+01 | 4.230E+00 | 3.033E+01 | 5.438E-04 | 3.250E+00 | 1.23E+00 | 1.217E+02 | 1.297E+02 | 2.972E-05 | 3.943E-03 | 2.614E+00 |
| 165 | -9.659E-01 | -2.297E+02 | 4.97E+01 | 2.596E+00 | 1.862E+01 | 1.443E-03 | 8.615E+00 | 9.19E-01 | 1.233E+02 | 1.315E+02 | 2.893E-05 | 3.840E-03 | 1.978E+00 |
| 170 | -9.848E-01 | -2.319E+02 | 6.95E+01 | 1.417E+00 | 1.020E+01 | 4.817E-03 | 2.882E+01 | 6.11E-01 | 1.245E+02 | 1.327E+02 | 2.839E-05 | 3.768E-03 | 1.327E+00 |
| 175 | -9.962E-01 | -2.332E+02 | 1.08E+02 | 7.010E-01 | 5.121E+00 | 1.925E-02 | 1.177E+02 | 3.05E-01 | 1.252E+02 | 1.335E+02 | 2.807E-05 | 3.726E-03 | 6.661E-01 |
| 180 | -1.000E+00 | -2.337E+02 | 1.80E+02 | 4.570E-01 | 3.424E+00 | 4.361E-02 | 2.797E+02 | 0. | 1.255E+02 | 1.337E+02 | 2.796E-05 | 3.712E-03 | 0. |

PION (1) + PROTON (2) => PION (3) + PROTON (4) AT 150 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 1.39569E-01 M4 = 9.38259E-01
P2CM= 8.37527E+00 P3CM= 8.37527E+00
E1CM= 8.37643E+00 E2CM= 8.42766E+00 E3CM= 8.37643E+00 E4CM= 8.42766E+00

1-V1LAB = 4.329E-07 1-VCM = 6.217E-03 GCM = 8.98223E+00 ETCM= 1.68041E+01 S = 2.82378E+02 -U=( 2.80578E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 1.500E+02 | 1.075E+03 | 4.329E-07 | 3.118E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -2.137E-02 | 5.58E-02 | 1.500E+02 | 1.075E+03 | 4.329E-07 | 3.118E-03 | 8.55E+01 | 1.466E-01 | 1.012E+00 | 8.456E-01 | 2.550E+02 | 1.462E-01 |
| 2 | 9.994E-01 | -8.546E-02 | 1.12E-01 | 1.500E+02 | 1.074E+03 | 4.331E-07 | 3.119E-03 | 8.11E+01 | 2.959E-01 | 1.049E+00 | 6.993E-01 | 1.241E+02 | 2.923E-01 |
| 3 | 9.986E-01 | -1.923E-01 | 1.68E-01 | 1.499E+02 | 1.074E+03 | 4.335E-07 | 3.122E-03 | 7.68E+01 | 4.503E-01 | 1.109E+00 | 5.673E-01 | 7.921E+01 | 4.383E-01 |
| 4 | 9.976E-01 | -3.417E-01 | 2.23E-01 | 1.498E+02 | 1.073E+03 | 4.339E-07 | 3.125E-03 | 7.26E+01 | 6.123E-01 | 1.194E+00 | 4.535E-01 | 5.600E+01 | 5.842E-01 |
| 5 | 9.962E-01 | -5.338E-01 | 2.79E-01 | 1.497E+02 | 1.073E+03 | 4.345E-07 | 3.129E-03 | 6.86E+01 | 7.841E-01 | 1.303E+00 | 3.588E-01 | 4.166E+01 | 7.300E-01 |
| 6 | 9.945E-01 | -7.685E-01 | 3.35E-01 | 1.496E+02 | 1.072E+03 | 4.352E-07 | 3.135E-03 | 6.48E+01 | 9.676E-01 | 1.436E+00 | 2.821E-01 | 3.191E+01 | 8.755E-01 |
| 7 | 9.925E-01 | -1.046E+00 | 3.91E-01 | 1.494E+02 | 1.071E+03 | 4.361E-07 | 3.141E-03 | 6.12E+01 | 1.165E+00 | 1.594E+00 | 2.213E-01 | 2.490E+01 | 1.021E+00 |
| 8 | 9.903E-01 | -1.365E+00 | 4.47E-01 | 1.493E+02 | 1.070E+03 | 4.371E-07 | 3.148E-03 | 5.79E+01 | 1.376E+00 | 1.775E+00 | 1.737E-01 | 1.969E+01 | 1.166E+00 |
| 9 | 9.877E-01 | -1.727E+00 | 5.04E-01 | 1.491E+02 | 1.068E+03 | 4.382E-07 | 3.156E-03 | 5.47E+01 | 1.604E+00 | 1.981E+00 | 1.368E-01 | 1.573E+01 | 1.310E+00 |
| 10 | 9.848E-01 | -2.131E+00 | 5.60E-01 | 1.489E+02 | 1.067E+03 | 4.395E-07 | 3.165E-03 | 5.18E+01 | 1.850E+00 | 2.211E+00 | 1.082E-01 | 1.267E+01 | 1.454E+00 |
| 15 | 9.659E-01 | -4.780E+00 | 8.42E-01 | 1.475E+02 | 1.056E+03 | 4.480E-07 | 3.226E-03 | 4.02E+01 | 3.357E+00 | 3.715E+00 | 3.691E-02 | 4.753E+00 | 2.168E+00 |
| 20 | 9.397E-01 | -8.461E+00 | 1.13E+00 | 1.455E+02 | 1.042E+03 | 4.601E-07 | 3.314E-03 | 3.23E+01 | 5.365E+00 | 5.805E+00 | 1.495E-02 | 2.060E+00 | 2.865E+00 |
| 25 | 9.063E-01 | -1.314E+01 | 1.42E+00 | 1.430E+02 | 1.025E+03 | 4.763E-07 | 3.430E-03 | 2.67E+01 | 7.887E+00 | 8.465E+00 | 7.002E-03 | 1.008E+00 | 3.540E+00 |
| 30 | 8.660E-01 | -1.880E+01 | 1.71E+00 | 1.400E+02 | 1.003E+03 | 4.970E-07 | 3.580E-03 | 2.26E+01 | 1.091E+01 | 1.168E+01 | 3.675E-03 | 5.438E-01 | 4.188E+00 |
| 35 | 8.192E-01 | -2.537E+01 | 2.02E+00 | 1.365E+02 | 9.779E+02 | 5.229E-07 | 3.766E-03 | 1.94E+01 | 1.543E+01 | 1.541E+01 | 2.108E-03 | 3.177E-01 | 4.804E+00 |
| 40 | 7.660E-01 | -3.282E+01 | 2.33E+00 | 1.325E+02 | 9.494E+02 | 5.547E-07 | 3.995E-03 | 1.70E+01 | 1.841E+01 | 1.964E+01 | 1.297E-03 | 1.980E-01 | 5.384E+00 |
| 45 | 7.071E-01 | -4.109E+01 | 2.65E+00 | 1.281E+02 | 9.178E+02 | 5.935E-07 | 4.274E-03 | 1.50E+01 | 2.282E+01 | 2.434E+01 | 8.445E-04 | 1.301E-01 | 5.922E+00 |
| 50 | 6.428E-01 | -5.011E+01 | 2.98E+00 | 1.233E+02 | 8.834E+02 | 6.407E-07 | 4.614E-03 | 1.34E+01 | 2.763E+01 | 2.946E+01 | 5.762E-04 | 8.939E-02 | 6.416E+00 |
| 55 | 5.736E-01 | -5.982E+01 | 3.33E+00 | 1.181E+02 | 8.463E+02 | 6.981E-07 | 5.027E-03 | 1.21E+01 | 3.280E+01 | 3.498E+01 | 4.088E-04 | 6.374E-02 | 6.861E+00 |
| 60 | 5.000E-01 | -7.015E+01 | 3.69E+00 | 1.126E+02 | 8.069E+02 | 7.679E-07 | 5.530E-03 | 1.09E+01 | 3.831E+01 | 4.084E+01 | 2.998E-04 | 4.694E-02 | 7.253E+00 |
| 65 | 4.226E-01 | -8.100E+01 | 4.07E+00 | 1.068E+02 | 7.655E+02 | 8.533E-07 | 6.145E-03 | 9.91E+00 | 4.409E+01 | 4.701E+01 | 2.263E-04 | 3.554E-02 | 7.591E+00 |
| 70 | 3.420E-01 | -9.231E+01 | 4.48E+00 | 1.008E+02 | 7.223E+02 | 9.584E-07 | 6.902E-03 | 9.03E+00 | 5.012E+01 | 5.343E+01 | 1.752E-04 | 2.758E-02 | 7.870E+00 |
| 75 | 2.588E-01 | -1.040E+02 | 4.91E+00 | 9.459E+01 | 6.777E+02 | 1.089E-06 | 7.839E-03 | 8.26E+00 | 5.634E+01 | 6.006E+01 | 1.386E-04 | 2.187E-02 | 8.090E+00 |
| 80 | 1.736E-01 | -1.159E+02 | 5.36E+00 | 8.822E+01 | 6.321E+02 | 1.251E-06 | 9.012E-03 | 7.56E+00 | 6.271E+01 | 6.684E+01 | 1.119E-04 | 1.768E-02 | 8.248E+00 |
| 85 | 8.716E-02 | -1.281E+02 | 5.86E+00 | 8.175E+01 | 5.858E+02 | 1.457E-06 | 1.049E-02 | 6.93E+00 | 6.918E+01 | 7.374E+01 | 9.197E-05 | 1.455E-02 | 8.343E+00 |
| 90 | 0. | -1.403E+02 | 6.39E+00 | 7.524E+01 | 5.391E+02 | 1.721E-06 | 1.239E-02 | 6.35E+00 | 7.569E+01 | 8.068E+01 | 7.682E-05 | 1.217E-02 | 8.375E+00 |
| 95 | -8.716E-02 | -1.525E+02 | 6.97E+00 | 6.872E+01 | 4.924E+02 | 2.062E-06 | 1.485E-02 | 5.82E+00 | 8.221E+01 | 8.763E+01 | 6.512E-05 | 1.033E-02 | 8.343E+00 |
| 100 | -1.736E-01 | -1.647E+02 | 7.61E+00 | 6.226E+01 | 4.461E+02 | 2.513E-06 | 1.809E-02 | 5.34E+00 | 8.868E+01 | 9.452E+01 | 5.597E-05 | 8.882E-03 | 8.248E+00 |
| 105 | -2.588E-01 | -1.766E+02 | 8.32E+00 | 5.589E+01 | 4.004E+02 | 3.118E-06 | 2.245E-02 | 4.88E+00 | 9.504E+01 | 1.013E+02 | 4.872E-05 | 7.737E-03 | 8.090E+00 |
| 110 | -3.420E-01 | -1.883E+02 | 9.12E+00 | 4.967E+01 | 3.559E+02 | 3.948E-06 | 2.843E-02 | 4.46E+00 | 1.013E+02 | 1.079E+02 | 4.292E-05 | 6.820E-03 | 7.870E+00 |
| 115 | -4.226E-01 | -1.996E+02 | 1.00E+01 | 4.364E+01 | 3.127E+02 | 5.113E-06 | 3.681E-02 | 4.06E+00 | 1.073E+02 | 1.144E+02 | 3.824E-05 | 6.078E-03 | 7.591E+00 |
| 120 | -5.000E-01 | -2.104E+02 | 1.10E+01 | 3.786E+01 | 2.713E+02 | 6.795E-06 | 4.892E-02 | 3.68E+00 | 1.131E+02 | 1.205E+02 | 3.442E-05 | 5.475E-03 | 7.253E+00 |
| 125 | -5.736E-01 | -2.208E+02 | 1.22E+01 | 3.236E+01 | 2.318E+02 | 9.302E-06 | 6.696E-02 | 3.32E+00 | 1.186E+02 | 1.264E+02 | 3.130E-05 | 4.980E-03 | 6.861E+00 |
| 130 | -6.428E-01 | -2.305E+02 | 1.37E+01 | 2.718E+01 | 1.948E+02 | 1.318E-05 | 9.487E-02 | 2.97E+00 | 1.238E+02 | 1.319E+02 | 2.874E-05 | 4.574E-03 | 6.416E+00 |
| 135 | -7.071E-01 | -2.395E+02 | 1.53E+01 | 2.237E+01 | 1.603E+02 | 1.945E-05 | 1.400E-01 | 2.64E+00 | 1.286E+02 | 1.370E+02 | 2.663E-05 | 4.240E-03 | 5.922E+00 |
| 140 | -7.660E-01 | -2.478E+02 | 1.74E+01 | 1.797E+01 | 1.287E+02 | 3.017E-05 | 2.170E-01 | 2.32E+00 | 1.330E+02 | 1.417E+02 | 2.490E-05 | 3.964E-03 | 5.384E+00 |
| 145 | -8.192E-01 | -2.552E+02 | 2.01E+01 | 1.400E+01 | 1.003E+02 | 4.970E-05 | 3.575E-01 | 2.01E+00 | 1.369E+02 | 1.460E+02 | 2.347E-05 | 3.738E-03 | 4.804E+00 |
| 150 | -8.660E-01 | -2.618E+02 | 2.35E+01 | 1.049E+01 | 7.519E+01 | 8.844E-05 | 6.359E-01 | 1.71E+00 | 1.404E+02 | 1.497E+02 | 2.232E-05 | 3.555E-03 | 4.188E+00 |
| 155 | -9.063E-01 | -2.674E+02 | 2.82E+01 | 7.481E+00 | 5.361E+01 | 1.740E-04 | 1.250E+00 | 1.41E+00 | 1.435E+02 | 1.529E+02 | 2.139E-05 | 3.408E-03 | 3.540E+00 |
| 160 | -9.397E-01 | -2.721E+02 | 3.51E+01 | 4.985E+00 | 3.573E+01 | 3.917E-04 | 2.813E+00 | 1.12E+00 | 1.459E+02 | 1.556E+02 | 2.066E-05 | 3.292E-03 | 2.865E+00 |
| 165 | -9.659E-01 | -2.758E+02 | 4.58E+01 | 3.022E+00 | 2.168E+01 | 1.065E-03 | 7.635E+00 | 8.40E-01 | 1.479E+02 | 1.576E+02 | 2.012E-05 | 3.206E-03 | 2.168E+00 |
| 170 | -9.848E-01 | -2.784E+02 | 6.48E+01 | 1.608E+00 | 1.156E+01 | 3.746E-03 | 2.689E+01 | 5.58E-01 | 1.493E+02 | 1.592E+02 | 1.974E-05 | 3.146E-03 | 1.454E+00 |
| 175 | -9.962E-01 | -2.800E+02 | 1.03E+02 | 7.497E-01 | 5.464E+00 | 1.689E-02 | 1.235E+02 | 2.79E-01 | 1.502E+02 | 1.601E+02 | 1.952E-05 | 3.110E-03 | 7.300E-01 |
| 180 | -1.000E+00 | -2.806E+02 | 1.80E+02 | 4.573E-01 | 3.426E+00 | 4.356E-02 | 3.354E+02 | 0. | 1.505E+02 | 1.604E+02 | 1.944E-05 | 3.099E-03 | 0. |

PION (1) + PROTON (2) => PION (3) + PROTON (4) AT 175 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 1.39569E-01 M4 = 9.38259E-01
P2CM= 9.04839E+00 P3CM= 9.04839E+00
E1CM= 9.04946E+00 E2CM= 9.09690E+00 E3CM= 9.04946E+00 E4CM= 9.09690E+00

1-V1LAB = 3.180E-07 1-VCM = 5.333E-03 GCM = 9.69551E+00 ETCM= 1.81464E+01 S = 3.29291E+02 -U=( 3.27491E+02) +T

| Θ3 CM | COS(Θ3) CM | 4-MOM TSFR SQUARE, T | Θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | Θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 1.750E+02 | 1.254E+03 | 3.180E-07 | 2.673E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -2.494E-02 | 5.17E-02 | 1.750E+02 | 1.254E+03 | 3.181E-07 | 2.674E-03 | 8.52E+01 | 1.585E-01 | 1.014E+00 | 8.335E-01 | 2.748E+02 | 1.579E-01 |
| 2 | 9.994E-01 | -9.975E-02 | 1.03E-01 | 1.749E+02 | 1.253E+03 | 3.182E-07 | 2.675E-03 | 8.04E+01 | 3.203E-01 | 1.057E+00 | 6.770E-01 | 1.332E+02 | 3.158E-01 |
| 3 | 9.986E-01 | -2.244E-01 | 1.55E-01 | 1.749E+02 | 1.253E+03 | 3.185E-07 | 2.677E-03 | 7.58E+01 | 4.886E-01 | 1.127E+00 | 5.381E-01 | 8.440E+01 | 4.736E-01 |
| 4 | 9.976E-01 | -3.989E-01 | 2.07E-01 | 1.748E+02 | 1.252E+03 | 3.188E-07 | 2.680E-03 | 7.13E+01 | 6.664E-01 | 1.227E+00 | 4.210E-01 | 5.913E+01 | 6.312E-01 |
| 5 | 9.962E-01 | -6.231E-01 | 2.59E-01 | 1.747E+02 | 1.251E+03 | 3.192E-07 | 2.684E-03 | 6.71E+01 | 8.564E-01 | 1.354E+00 | 3.259E-01 | 4.352E+01 | 7.886E-01 |
| 6 | 9.945E-01 | -8.970E-01 | 3.11E-01 | 1.745E+02 | 1.250E+03 | 3.198E-07 | 2.688E-03 | 6.31E+01 | 1.061E+00 | 1.509E+00 | 2.509E-01 | 3.295E+01 | 9.458E-01 |
| 7 | 9.925E-01 | -1.221E+00 | 3.62E-01 | 1.743E+02 | 1.249E+03 | 3.204E-07 | 2.693E-03 | 5.93E+01 | 1.282E+00 | 1.693E+00 | 1.930E-01 | 2.541E+01 | 1.103E+00 |
| 8 | 9.903E-01 | -1.594E+00 | 4.14E-01 | 1.742E+02 | 1.248E+03 | 3.211E-07 | 2.700E-03 | 5.59E+01 | 1.521E+00 | 1.905E+00 | 1.488E-01 | 1.985E+01 | 1.259E+00 |
| 9 | 9.877E-01 | -2.016E+00 | 4.66E-01 | 1.739E+02 | 1.246E+03 | 3.220E-07 | 2.707E-03 | 5.27E+01 | 1.780E+00 | 2.145E+00 | 1.153E-01 | 1.567E+01 | 1.415E+00 |
| 10 | 9.848E-01 | -2.488E+00 | 5.18E-01 | 1.737E+02 | 1.244E+03 | 3.229E-07 | 2.714E-03 | 4.97E+01 | 2.060E+00 | 2.413E+00 | 8.992E-02 | 1.248E+01 | 1.571E+00 |
| 15 | 9.659E-01 | -5.580E+00 | 7.80E-01 | 1.720E+02 | 1.233E+03 | 3.291E-07 | 2.767E-03 | 3.81E+01 | 3.797E+00 | 4.169E+00 | 2.919E-02 | 4.469E+00 | 2.342E+00 |
| 20 | 9.397E-01 | -9.875E+00 | 1.04E+00 | 1.697E+02 | 1.216E+03 | 3.381E-07 | 2.842E-03 | 3.03E+01 | 6.129E+00 | 6.609E+00 | 1.151E-02 | 1.881E+00 | 3.095E+00 |
| 25 | 9.063E-01 | -1.534E+01 | 1.31E+00 | 1.668E+02 | 1.195E+03 | 3.500E-07 | 2.942E-03 | 2.49E+01 | 9.065E+00 | 9.714E+00 | 5.313E-03 | 9.033E-01 | 3.824E+00 |
| 30 | 8.660E-01 | -2.194E+01 | 1.59E+00 | 1.633E+02 | 1.170E+03 | 3.652E-07 | 3.070E-03 | 2.11E+01 | 1.259E+01 | 1.346E+01 | 2.764E-03 | 4.817E-01 | 4.524E+00 |
| 35 | 8.192E-01 | -2.961E+01 | 1.87E+00 | 1.592E+02 | 1.141E+03 | 3.842E-07 | 3.230E-03 | 1.81E+01 | 1.669E+01 | 1.782E+01 | 1.576E-03 | 2.793E-01 | 5.190E+00 |
| 40 | 7.660E-01 | -3.831E+01 | 2.16E+00 | 1.546E+02 | 1.108E+03 | 4.076E-07 | 3.426E-03 | 1.58E+01 | 2.133E+01 | 2.276E+01 | 9.658E-04 | 1.731E-01 | 5.816E+00 |
| 45 | 7.071E-01 | -4.796E+01 | 2.45E+00 | 1.494E+02 | 1.071E+03 | 4.361E-07 | 3.666E-03 | 1.40E+01 | 2.648E+01 | 2.824E+01 | 6.272E-04 | 1.133E-01 | 6.398E+00 |
| 50 | 6.428E-01 | -5.849E+01 | 2.76E+00 | 1.438E+02 | 1.031E+03 | 4.708E-07 | 3.958E-03 | 1.25E+01 | 3.210E+01 | 3.422E+01 | 4.270E-04 | 7.761E-02 | 6.931E+00 |
| 55 | 5.736E-01 | -6.983E+01 | 3.08E+00 | 1.378E+02 | 9.873E+02 | 5.130E-07 | 4.312E-03 | 1.12E+01 | 3.814E+01 | 4.066E+01 | 3.025E-04 | 5.522E-02 | 7.412E+00 |
| 60 | 5.000E-01 | -8.187E+01 | 3.42E+00 | 1.314E+02 | 9.413E+02 | 5.644E-07 | 4.744E-03 | 1.01E+01 | 4.456E+01 | 4.750E+01 | 2.216E-04 | 4.059E-02 | 7.836E+00 |
| 65 | 4.226E-01 | -9.454E+01 | 3.77E+00 | 1.246E+02 | 8.929E+02 | 6.272E-07 | 5.272E-03 | 9.20E+00 | 5.131E+01 | 5.470E+01 | 1.671E-04 | 3.070E-02 | 8.201E+00 |
| 70 | 3.420E-01 | -1.077E+02 | 4.15E+00 | 1.176E+02 | 8.425E+02 | 7.044E-07 | 5.921E-03 | 8.38E+00 | 5.835E+01 | 6.219E+01 | 1.293E-04 | 2.379E-02 | 8.503E+00 |
| 75 | 2.588E-01 | -1.214E+02 | 4.54E+00 | 1.103E+02 | 7.905E+02 | 8.002E-07 | 6.726E-03 | 7.66E+00 | 6.561E+01 | 6.993E+01 | 1.022E-04 | 1.885E-02 | 8.740E+00 |
| 80 | 1.736E-01 | -1.353E+02 | 4.97E+00 | 1.029E+02 | 7.372E+02 | 9.200E-07 | 7.733E-03 | 7.01E+00 | 7.304E+01 | 7.785E+01 | 8.250E-05 | 1.523E-02 | 8.911E+00 |
| 85 | 8.716E-02 | -1.495E+02 | 5.42E+00 | 9.534E+01 | 6.831E+02 | 1.071E-06 | 9.006E-03 | 6.42E+00 | 8.059E+01 | 8.590E+01 | 6.777E-05 | 1.253E-02 | 9.014E+00 |
| 90 | 0. | -1.637E+02 | 5.92E+00 | 8.774E+01 | 6.286E+02 | 1.265E-06 | 1.063E-02 | 5.89E+00 | 8.819E+01 | 9.400E+01 | 5.658E-05 | 1.047E-02 | 9.048E+00 |
| 95 | -8.716E-02 | -1.780E+02 | 6.46E+00 | 8.013E+01 | 5.742E+02 | 1.517E-06 | 1.275E-02 | 5.40E+00 | 9.580E+01 | 1.021E+02 | 4.796E-05 | 8.881E-03 | 9.014E+00 |
| 100 | -1.736E-01 | -1.922E+02 | 7.05E+00 | 7.259E+01 | 5.201E+02 | 1.849E-06 | 1.554E-02 | 4.95E+00 | 1.033E+02 | 1.102E+02 | 4.121E-05 | 7.637E-03 | 8.911E+00 |
| 105 | -2.588E-01 | -2.061E+02 | 7.71E+00 | 6.515E+01 | 4.668E+02 | 2.294E-06 | 1.928E-02 | 4.53E+00 | 1.108E+02 | 1.181E+02 | 3.586E-05 | 6.651E-03 | 8.740E+00 |
| 110 | -3.420E-01 | -2.198E+02 | 8.45E+00 | 5.789E+01 | 4.148E+02 | 2.906E-06 | 2.442E-02 | 4.13E+00 | 1.180E+02 | 1.258E+02 | 3.159E-05 | 5.861E-03 | 8.503E+00 |
| 115 | -4.226E-01 | -2.329E+02 | 9.28E+00 | 5.086E+01 | 3.644E+02 | 3.765E-06 | 3.164E-02 | 3.76E+00 | 1.251E+02 | 1.333E+02 | 2.814E-05 | 5.222E-03 | 8.201E+00 |
| 120 | -5.000E-01 | -2.456E+02 | 1.02E+01 | 4.411E+01 | 3.160E+02 | 5.006E-06 | 4.207E-02 | 3.41E+00 | 1.318E+02 | 1.405E+02 | 2.533E-05 | 4.703E-03 | 7.836E+00 |
| 125 | -5.736E-01 | -2.577E+02 | 1.13E+01 | 3.769E+01 | 2.700E+02 | 6.857E-06 | 5.762E-02 | 3.07E+00 | 1.382E+02 | 1.473E+02 | 2.303E-05 | 4.278E-03 | 7.412E+00 |
| 130 | -6.428E-01 | -2.690E+02 | 1.27E+01 | 3.165E+01 | 2.268E+02 | 9.724E-06 | 8.170E-02 | 2.75E+00 | 1.443E+02 | 1.538E+02 | 2.114E-05 | 3.928E-03 | 6.931E+00 |
| 135 | -7.071E-01 | -2.795E+02 | 1.42E+01 | 2.604E+01 | 1.865E+02 | 1.437E-05 | 1.207E-01 | 2.45E+00 | 1.499E+02 | 1.598E+02 | 1.959E-05 | 3.640E-03 | 6.398E+00 |
| 140 | -7.660E-01 | -2.892E+02 | 1.62E+01 | 2.089E+01 | 1.497E+02 | 2.231E-05 | 1.874E-01 | 2.15E+00 | 1.550E+02 | 1.652E+02 | 1.831E-05 | 3.404E-03 | 5.816E+00 |
| 145 | -8.192E-01 | -2.979E+02 | 1.86E+01 | 1.626E+01 | 1.165E+02 | 3.684E-05 | 3.094E-01 | 1.86E+00 | 1.597E+02 | 1.702E+02 | 1.726E-05 | 3.209E-03 | 5.190E+00 |
| 150 | -8.660E-01 | -3.056E+02 | 2.18E+01 | 1.217E+01 | 8.719E+01 | 6.577E-05 | 5.521E-01 | 1.58E+00 | 1.638E+02 | 1.745E+02 | 1.641E-05 | 3.052E-03 | 4.524E+00 |
| 155 | -9.063E-01 | -3.122E+02 | 2.62E+01 | 8.653E+00 | 6.201E+01 | 1.301E-04 | 1.091E+00 | 1.31E+00 | 1.673E+02 | 1.783E+02 | 1.573E-05 | 2.925E-03 | 3.824E+00 |
| 160 | -9.397E-01 | -3.176E+02 | 3.26E+01 | 5.739E+00 | 4.113E+01 | 2.956E-04 | 2.478E+00 | 1.04E+00 | 1.702E+02 | 1.814E+02 | 1.520E-05 | 2.826E-03 | 3.095E+00 |
| 165 | -9.659E-01 | -3.219E+02 | 4.28E+01 | 3.449E+00 | 2.473E+01 | 8.178E-04 | 6.848E+00 | 7.78E-01 | 1.725E+02 | 1.838E+02 | 1.479E-05 | 2.752E-03 | 2.342E+00 |
| 170 | -9.848E-01 | -3.250E+02 | 6.09E+01 | 1.799E+00 | 1.293E+01 | 2.997E-03 | 2.509E+01 | 5.17E-01 | 1.741E+02 | 1.856E+02 | 1.452E-05 | 2.700E-03 | 1.571E+00 |
| 175 | -9.962E-01 | -3.269E+02 | 9.89E+01 | 7.983E-01 | 5.806E+00 | 1.494E-02 | 1.271E+02 | 2.58E-01 | 1.751E+02 | 1.867E+02 | 1.435E-05 | 2.670E-03 | 7.886E-01 |
| 180 | -1.000E+00 | -3.275E+02 | 1.80E+02 | 4.575E-01 | 3.427E+00 | 4.352E-02 | 3.912E+02 | 0. | 1.755E+02 | 1.870E+02 | 1.430E-05 | 2.659E-03 | 0. |

PION (1) + PROTON (2) => PION (3) + PROTON (4) AT 200 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 1.39569E-01 M4 = 9.38259E-01
P2CM= 9.67479E+00 P3CM= 9.67479E+00
E1CM= 9.67579E+00 E2CM= 9.72018E+00 E3CM= 9.67579E+00 E4CM= 9.72018E+00

1-V1LAB = 2.435E-07 1-VCM = 4.670E-03 GCM = 1.03598E+01 ETCM= 1.93960E+01 S = 3.76204E+02 -U=( 3.74404E+02) +T

| Θ3 CM | COS(Θ3) CM | 4-MOM TSFR SQUARE, T | Θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | Θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 2.000E+02 | 1.433E+03 | 2.435E-07 | 2.340E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -2.851E-02 | 4.84E-02 | 2.000E+02 | 1.433E+03 | 2.435E-07 | 2.340E-03 | 8.48E+01 | 1.695E-01 | 1.016E+00 | 8.222E-01 | 2.932E+02 | 1.688E-01 |
| 2 | 9.994E-01 | -1.140E-01 | 9.68E-02 | 1.999E+02 | 1.433E+03 | 2.436E-07 | 2.341E-03 | 7.97E+01 | 3.431E-01 | 1.065E+00 | 6.565E-01 | 1.415E+02 | 3.376E-01 |
| 3 | 9.986E-01 | -2.566E-01 | 1.45E-01 | 1.999E+02 | 1.432E+03 | 2.438E-07 | 2.343E-03 | 7.48E+01 | 5.246E-01 | 1.146E+00 | 5.120E-01 | 8.903E+01 | 5.063E-01 |
| 4 | 9.976E-01 | -4.560E-01 | 1.94E-01 | 1.998E+02 | 1.431E+03 | 2.441E-07 | 2.346E-03 | 7.01E+01 | 7.177E-01 | 1.259E+00 | 3.924E-01 | 6.182E+01 | 6.749E-01 |
| 5 | 9.962E-01 | -7.124E-01 | 2.42E-01 | 1.996E+02 | 1.430E+03 | 2.444E-07 | 2.349E-03 | 6.57E+01 | 9.255E-01 | 1.405E+00 | 2.978E-01 | 4.504E+01 | 8.432E-01 |
| 6 | 9.945E-01 | -1.026E+00 | 2.91E-01 | 1.995E+02 | 1.429E+03 | 2.448E-07 | 2.353E-03 | 6.15E+01 | 1.151E+00 | 1.582E+00 | 2.250E-01 | 3.373E+01 | 1.011E+00 |
| 7 | 9.925E-01 | -1.395E+00 | 3.39E-01 | 1.993E+02 | 1.428E+03 | 2.453E-07 | 2.358E-03 | 5.76E+01 | 1.396E+00 | 1.793E+00 | 1.701E-01 | 2.571E+01 | 1.179E+00 |
| 8 | 9.903E-01 | -1.822E+00 | 3.88E-01 | 1.990E+02 | 1.426E+03 | 2.459E-07 | 2.363E-03 | 5.41E+01 | 1.663E+00 | 2.035E+00 | 1.291E-01 | 1.986E+01 | 1.346E+00 |
| 9 | 9.877E-01 | -2.305E+00 | 4.36E-01 | 1.988E+02 | 1.424E+03 | 2.465E-07 | 2.369E-03 | 5.08E+01 | 1.953E+00 | 2.309E+00 | 9.864E-02 | 1.551E+01 | 1.513E+00 |
| 10 | 9.848E-01 | -2.844E+00 | 4.85E-01 | 1.985E+02 | 1.422E+03 | 2.472E-07 | 2.376E-03 | 4.78E+01 | 2.267E+00 | 2.615E+00 | 7.599E-02 | 1.223E+01 | 1.680E+00 |
| 15 | 9.659E-01 | -6.379E+00 | 7.30E-01 | 1.966E+02 | 1.409E+03 | 2.520E-07 | 2.422E-03 | 3.62E+01 | 4.235E+00 | 4.623E+00 | 2.368E-02 | 4.209E+00 | 2.504E+00 |
| 20 | 9.397E-01 | -1.129E+01 | 9.77E-01 | 1.940E+02 | 1.390E+03 | 2.588E-07 | 2.487E-03 | 2.87E+01 | 6.891E+00 | 7.412E+00 | 9.142E-03 | 1.729E+00 | 3.309E+00 |
| 25 | 9.063E-01 | -1.754E+01 | 1.23E+00 | 1.907E+02 | 1.366E+03 | 2.680E-07 | 2.575E-03 | 2.35E+01 | 1.024E+01 | 1.096E+01 | 4.170E-03 | 8.181E-01 | 4.089E+00 |
| 30 | 8.660E-01 | -2.508E+01 | 1.49E+00 | 1.866E+02 | 1.337E+03 | 2.796E-07 | 2.687E-03 | 1.98E+01 | 1.427E+01 | 1.524E+01 | 2.154E-03 | 4.323E-01 | 4.837E+00 |
| 35 | 8.192E-01 | -3.386E+01 | 1.75E+00 | 1.820E+02 | 1.304E+03 | 2.942E-07 | 2.827E-03 | 1.70E+01 | 1.896E+01 | 2.023E+01 | 1.223E-03 | 2.491E-01 | 5.549E+00 |
| 40 | 7.660E-01 | -4.380E+01 | 2.02E+00 | 1.767E+02 | 1.266E+03 | 3.121E-07 | 2.999E-03 | 1.49E+01 | 2.426E+01 | 2.588E+01 | 7.471E-04 | 1.537E-01 | 6.219E+00 |
| 45 | 7.071E-01 | -5.483E+01 | 2.30E+00 | 1.708E+02 | 1.224E+03 | 3.339E-07 | 3.209E-03 | 1.31E+01 | 3.014E+01 | 3.214E+01 | 4.841E-04 | 1.003E-01 | 6.841E+00 |
| 50 | 6.428E-01 | -6.687E+01 | 2.58E+00 | 1.644E+02 | 1.178E+03 | 3.605E-07 | 3.465E-03 | 1.17E+01 | 3.656E+01 | 3.898E+01 | 3.291E-04 | 6.857E-02 | 7.411E+00 |
| 55 | 5.736E-01 | -7.983E+01 | 2.88E+00 | 1.575E+02 | 1.128E+03 | 3.928E-07 | 3.775E-03 | 1.05E+01 | 4.347E+01 | 4.634E+01 | 2.329E-04 | 4.871E-02 | 7.925E+00 |
| 60 | 5.000E-01 | -9.360E+01 | 3.20E+00 | 1.501E+02 | 1.076E+03 | 4.322E-07 | 4.153E-03 | 9.49E+00 | 5.081E+01 | 5.416E+01 | 1.705E-04 | 3.576E-02 | 8.379E+00 |
| 65 | 4.226E-01 | -1.081E+02 | 3.53E+00 | 1.424E+02 | 1.020E+03 | 4.803E-07 | 4.616E-03 | 8.62E+00 | 5.853E+01 | 6.239E+01 | 1.285E-04 | 2.701E-02 | 8.768E+00 |
| 70 | 3.420E-01 | -1.232E+02 | 3.88E+00 | 1.344E+02 | 9.627E+02 | 5.395E-07 | 5.185E-03 | 7.85E+00 | 6.657E+01 | 7.096E+01 | 9.930E-05 | 2.092E-02 | 9.091E+00 |
| 75 | 2.588E-01 | -1.368E+02 | 4.25E+00 | 1.261E+02 | 9.032E+02 | 6.129E-07 | 5.890E-03 | 7.17E+00 | 7.487E+01 | 7.981E+01 | 7.851E-05 | 1.657E-02 | 9.345E+00 |
| 80 | 1.736E-01 | -1.547E+02 | 4.65E+00 | 1.176E+02 | 8.423E+02 | 7.047E-07 | 6.772E-03 | 6.56E+00 | 8.337E+01 | 8.886E+01 | 6.332E-05 | 1.338E-02 | 9.528E+00 |
| 85 | 8.716E-02 | -1.709E+02 | 5.08E+00 | 1.089E+02 | 7.805E+02 | 8.208E-07 | 7.887E-03 | 6.01E+00 | 9.200E+01 | 9.806E+01 | 5.200E-05 | 1.100E-02 | 9.638E+00 |
| 90 | 0. | -1.872E+02 | 5.54E+00 | 1.002E+02 | 7.182E+02 | 9.693E-07 | 9.315E-03 | 5.51E+00 | 1.007E+02 | 1.073E+02 | 4.341E-05 | 9.189E-03 | 9.675E+00 |
| 95 | -8.716E-02 | -2.035E+02 | 6.04E+00 | 9.154E+01 | 6.559E+02 | 1.162E-06 | 1.117E-02 | 5.05E+00 | 1.094E+02 | 1.166E+02 | 3.678E-05 | 7.792E-03 | 9.638E+00 |
| 100 | -1.736E-01 | -2.197E+02 | 6.60E+00 | 8.292E+01 | 5.941E+02 | 1.417E-06 | 1.361E-02 | 4.63E+00 | 1.180E+02 | 1.258E+02 | 3.160E-05 | 6.698E-03 | 9.528E+00 |
| 105 | -2.588E-01 | -2.357E+02 | 7.21E+00 | 7.442E+01 | 5.332E+02 | 1.759E-06 | 1.690E-02 | 4.24E+00 | 1.265E+02 | 1.348E+02 | 2.750E-05 | 5.832E-03 | 9.345E+00 |
| 110 | -3.420E-01 | -2.512E+02 | 7.90E+00 | 6.612E+01 | 4.737E+02 | 2.228E-06 | 2.141E-02 | 3.87E+00 | 1.348E+02 | 1.437E+02 | 2.422E-05 | 5.138E-03 | 9.091E+00 |
| 115 | -4.226E-01 | -2.663E+02 | 8.68E+00 | 5.808E+01 | 4.161E+02 | 2.887E-06 | 2.774E-02 | 3.52E+00 | 1.429E+02 | 1.523E+02 | 2.157E-05 | 4.578E-03 | 8.768E+00 |
| 120 | -5.000E-01 | -2.808E+02 | 9.58E+00 | 5.036E+01 | 3.608E+02 | 3.841E-06 | 3.690E-02 | 3.19E+00 | 1.506E+02 | 1.605E+02 | 1.941E-05 | 4.122E-03 | 8.379E+00 |
| 125 | -5.736E-01 | -2.946E+02 | 1.06E+01 | 4.302E+01 | 3.082E+02 | 5.263E-06 | 5.056E-02 | 2.88E+00 | 1.579E+02 | 1.683E+02 | 1.765E-05 | 3.749E-03 | 7.925E+00 |
| 130 | -6.428E-01 | -3.075E+02 | 1.18E+01 | 3.611E+01 | 2.588E+02 | 7.468E-06 | 7.173E-02 | 2.58E+00 | 1.648E+02 | 1.757E+02 | 1.620E-05 | 3.442E-03 | 7.411E+00 |
| 135 | -7.071E-01 | -3.196E+02 | 1.33E+01 | 2.970E+01 | 2.128E+02 | 1.104E-05 | 1.061E-01 | 2.29E+00 | 1.712E+02 | 1.825E+02 | 1.501E-05 | 3.190E-03 | 6.841E+00 |
| 140 | -7.660E-01 | -3.306E+02 | 1.51E+01 | 2.362E+01 | 1.707E+02 | 1.717E-05 | 1.649E-01 | 2.01E+00 | 1.771E+02 | 1.888E+02 | 1.403E-05 | 2.982E-03 | 6.219E+00 |
| 145 | -8.192E-01 | -3.406E+02 | 1.74E+01 | 1.852E+01 | 1.327E+02 | 2.840E-05 | 2.726E-01 | 1.74E+00 | 1.824E+02 | 1.944E+02 | 1.323E-05 | 2.812E-03 | 5.549E+00 |
| 150 | -8.660E-01 | -3.493E+02 | 2.05E+01 | 1.384E+01 | 9.919E+01 | 5.082E-05 | 4.878E-01 | 1.48E+00 | 1.871E+02 | 1.994E+02 | 1.257E-05 | 2.673E-03 | 4.837E+00 |
| 155 | -9.063E-01 | -3.569E+02 | 2.46E+01 | 9.824E+00 | 7.040E+01 | 1.009E-04 | 9.679E-01 | 1.23E+00 | 1.911E+02 | 2.037E+02 | 1.205E-05 | 2.562E-03 | 4.089E+00 |
| 160 | -9.397E-01 | -3.631E+02 | 3.06E+01 | 6.493E+00 | 4.653E+01 | 2.309E-04 | 2.214E+00 | 9.75E-01 | 1.944E+02 | 2.072E+02 | 1.164E-05 | 2.475E-03 | 3.309E+00 |
| 165 | -9.659E-01 | -3.680E+02 | 4.03E+01 | 3.875E+00 | 2.778E+01 | 6.479E-04 | 6.204E+00 | 7.28E-01 | 1.971E+02 | 2.100E+02 | 1.133E-05 | 2.410E-03 | 2.504E+00 |
| 170 | -9.848E-01 | -3.716E+02 | 5.76E+01 | 1.989E+00 | 1.429E+01 | 2.452E-03 | 2.347E+01 | 4.84E-01 | 1.989E+02 | 2.120E+02 | 1.112E-05 | 2.365E-03 | 1.680E+00 |
| 175 | -9.962E-01 | -3.737E+02 | 9.52E+01 | 8.467E-01 | 6.148E+00 | 1.332E-02 | 1.291E+02 | 2.41E-01 | 2.001E+02 | 2.132E+02 | 1.100E-05 | 2.338E-03 | 8.432E-01 |
| 180 | -1.000E+00 | -3.744E+02 | 1.80E+02 | 4.577E-01 | 3.428E+00 | 4.349E-02 | 4.469E+02 | 0. | 2.005E+02 | 2.137E+02 | 1.095E-05 | 2.329E-03 | 0. |

PION (1) + PROTON (2) => PION (3) + PROTON (4) AT 225 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 1.39569E-01 M4 = 9.38259E-01
P2CM= 1.02630E+01 P3CM= 1.02630E+01
E1CM= 1.02640E+01 E2CM= 1.03058E+01 E3CM= 1.02640E+01 E4CM= 1.03058E+01

1-V1LAB = 1.924E-07 1-VCM = 4.153E-03 GCM = 1.09840E+01 ETCM= 2.05698E+01 S = 4.23117E+02 -U=( 4.21317E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 2.250E+02 | 1.612E+03 | 1.924E-07 | 2.081E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -3.208E-02 | 4.56E-02 | 2.250E+02 | 1.612E+03 | 1.924E-07 | 2.081E-03 | 8.45E+01 | 1.799E-01 | 1.018E+00 | 8.117E-01 | 3.104E+02 | 1.791E-01 |
| 2 | 9.994E-01 | -1.283E-01 | 9.12E-02 | 2.249E+02 | 1.612E+03 | 1.925E-07 | 2.082E-03 | 7.91E+01 | 3.647E-01 | 1.073E+00 | 6.377E-01 | 1.491E+02 | 3.582E-01 |
| 3 | 9.986E-01 | -2.887E-01 | 1.37E-01 | 2.248E+02 | 1.611E+03 | 1.927E-07 | 2.083E-03 | 7.40E+01 | 5.589E-01 | 1.164E+00 | 4.882E-01 | 9.321E+01 | 5.371E-01 |
| 4 | 9.976E-01 | -5.132E-01 | 1.83E-01 | 2.247E+02 | 1.610E+03 | 1.929E-07 | 2.086E-03 | 6.90E+01 | 7.668E-01 | 1.291E+00 | 3.672E-01 | 6.416E+01 | 7.159E-01 |
| 5 | 9.962E-01 | -8.016E-01 | 2.28E-01 | 2.246E+02 | 1.609E+03 | 1.931E-07 | 2.089E-03 | 6.44E+01 | 9.920E-01 | 1.455E+00 | 2.735E-01 | 4.628E+01 | 8.945E-01 |
| 6 | 9.945E-01 | -1.154E+00 | 2.74E-01 | 2.244E+02 | 1.608E+03 | 1.934E-07 | 2.092E-03 | 6.01E+01 | 1.238E+00 | 1.655E+00 | 2.031E-01 | 3.430E+01 | 1.073E+00 |
| 7 | 9.925E-01 | -1.570E+00 | 3.20E-01 | 2.242E+02 | 1.606E+03 | 1.938E-07 | 2.096E-03 | 5.61E+01 | 1.507E+00 | 1.892E+00 | 1.511E-01 | 2.587E+01 | 1.251E+00 |
| 8 | 9.903E-01 | -2.090E+00 | 3.66E-01 | 2.239E+02 | 1.604E+03 | 1.943E-07 | 2.101E-03 | 5.25E+01 | 1.801E+00 | 2.164E+00 | 1.131E-01 | 1.978E+01 | 1.428E+00 |
| 9 | 9.877E-01 | -2.594E+00 | 4.11E-01 | 2.236E+02 | 1.602E+03 | 1.948E-07 | 2.106E-03 | 4.92E+01 | 2.122E+00 | 2.473E+00 | 8.540E-02 | 1.529E+01 | 1.605E+00 |
| 10 | 9.848E-01 | -3.200E+00 | 4.57E-01 | 2.233E+02 | 1.600E+03 | 1.953E-07 | 2.112E-03 | 4.61E+01 | 2.472E+00 | 2.818E+00 | 6.509E-02 | 1.195E+01 | 1.782E+00 |
| 15 | 9.659E-01 | -7.178E+00 | 6.88E-01 | 2.212E+02 | 1.585E+03 | 1.991E-07 | 2.153E-03 | 3.47E+01 | 4.670E+00 | 5.077E+00 | 1.959E-02 | 3.972E+00 | 2.656E+00 |
| 20 | 9.397E-01 | -1.270E+01 | 9.22E-01 | 2.182E+02 | 1.564E+03 | 2.045E-07 | 2.212E-03 | 2.73E+01 | 7.651E+00 | 8.216E+00 | 7.435E-03 | 1.599E+00 | 3.510E+00 |
| 25 | 9.063E-01 | -1.974E+01 | 1.16E+00 | 2.145E+02 | 1.537E+03 | 2.117E-07 | 2.290E-03 | 2.23E+01 | 1.142E+01 | 1.221E+01 | 3.359E-03 | 7.474E-01 | 4.337E+00 |
| 30 | 8.660E-01 | -2.822E+01 | 1.40E+00 | 2.100E+02 | 1.504E+03 | 2.209E-07 | 2.389E-03 | 1.88E+01 | 1.595E+01 | 1.703E+01 | 1.726E-03 | 3.920E-01 | 5.132E+00 |
| 35 | 8.192E-01 | -3.810E+01 | 1.65E+00 | 2.047E+02 | 1.467E+03 | 2.324E-07 | 2.514E-03 | 1.61E+01 | 2.122E+01 | 2.264E+01 | 9.761E-04 | 2.247E-01 | 5.887E+00 |
| 40 | 7.660E-01 | -4.928E+01 | 1.90E+00 | 1.987E+02 | 1.424E+03 | 2.466E-07 | 2.667E-03 | 1.40E+01 | 2.719E+01 | 2.899E+01 | 5.950E-04 | 1.383E-01 | 6.597E+00 |
| 45 | 7.071E-01 | -6.170E+01 | 2.16E+00 | 1.921E+02 | 1.377E+03 | 2.639E-07 | 2.854E-03 | 1.24E+01 | 3.381E+01 | 3.604E+01 | 3.849E-04 | 9.002E-02 | 7.257E+00 |
| 50 | 6.428E-01 | -7.525E+01 | 2.44E+00 | 1.849E+02 | 1.325E+03 | 2.849E-07 | 3.081E-03 | 1.10E+01 | 4.103E+01 | 4.374E+01 | 2.614E-04 | 6.141E-02 | 7.862E+00 |
| 55 | 5.736E-01 | -8.983E+01 | 2.72E+00 | 1.771E+02 | 1.269E+03 | 3.104E-07 | 3.357E-03 | 9.92E+00 | 4.880E+01 | 5.202E+01 | 1.848E-04 | 4.357E-02 | 8.407E+00 |
| 60 | 5.000E-01 | -1.053E+02 | 3.02E+00 | 1.689E+02 | 1.210E+03 | 3.415E-07 | 3.693E-03 | 8.96E+00 | 5.706E+01 | 6.082E+01 | 1.352E-04 | 3.196E-02 | 8.888E+00 |
| 65 | 4.226E-01 | -1.216E+02 | 3.33E+00 | 1.602E+02 | 1.148E+03 | 3.796E-07 | 4.105E-03 | 8.13E+00 | 6.575E+01 | 7.008E+01 | 1.018E-04 | 2.412E-02 | 9.301E+00 |
| 70 | 3.420E-01 | -1.386E+02 | 3.66E+00 | 1.511E+02 | 1.083E+03 | 4.264E-07 | 4.611E-03 | 7.41E+00 | 7.480E+01 | 7.973E+01 | 7.867E-05 | 1.867E-02 | 9.644E+00 |
| 75 | 2.588E-01 | -1.561E+02 | 4.01E+00 | 1.418E+02 | 1.016E+03 | 4.844E-07 | 5.239E-03 | 6.77E+00 | 8.414E+01 | 8.968E+01 | 6.217E-05 | 1.477E-02 | 9.913E+00 |
| 80 | 1.736E-01 | -1.741E+02 | 4.38E+00 | 1.322E+02 | 9.474E+02 | 5.570E-07 | 6.023E-03 | 6.19E+00 | 9.370E+01 | 9.987E+01 | 5.013E-05 | 1.193E-02 | 1.011E+01 |
| 85 | 8.716E-02 | -1.923E+02 | 4.79E+00 | 1.225E+02 | 8.779E+02 | 6.488E-07 | 7.016E-03 | 5.67E+00 | 1.034E+02 | 1.102E+02 | 4.116E-05 | 9.801E-03 | 1.022E+01 |
| 90 | 0. | -2.107E+02 | 5.22E+00 | 1.127E+02 | 8.078E+02 | 7.663E-07 | 8.286E-03 | 5.20E+00 | 1.132E+02 | 1.206E+02 | 3.435E-05 | 8.187E-03 | 1.026E+01 |
| 95 | -8.716E-02 | -2.290E+02 | 5.70E+00 | 1.030E+02 | 7.377E+02 | 9.189E-07 | 9.936E-03 | 4.77E+00 | 1.230E+02 | 1.311E+02 | 2.910E-05 | 6.940E-03 | 1.022E+01 |
| 100 | -1.736E-01 | -2.472E+02 | 6.22E+00 | 9.325E+01 | 6.681E+02 | 1.120E-06 | 1.211E-02 | 4.37E+00 | 1.327E+02 | 1.414E+02 | 2.500E-05 | 5.965E-03 | 1.011E+01 |
| 105 | -2.588E-01 | -2.652E+02 | 6.80E+00 | 8.368E+01 | 5.996E+02 | 1.391E-06 | 1.504E-02 | 4.00E+00 | 1.423E+02 | 1.516E+02 | 2.175E-05 | 5.193E-03 | 9.913E+00 |
| 110 | -3.420E-01 | -2.827E+02 | 7.45E+00 | 7.434E+01 | 5.327E+02 | 1.762E-06 | 1.905E-02 | 3.65E+00 | 1.516E+02 | 1.616E+02 | 1.915E-05 | 4.574E-03 | 9.644E+00 |
| 115 | -4.226E-01 | -2.997E+02 | 8.19E+00 | 6.530E+01 | 4.678E+02 | 2.284E-06 | 2.470E-02 | 3.32E+00 | 1.606E+02 | 1.712E+02 | 1.706E-05 | 4.075E-03 | 9.301E+00 |
| 120 | -5.000E-01 | -3.160E+02 | 9.03E+00 | 5.661E+01 | 4.056E+02 | 3.039E-06 | 3.286E-02 | 3.01E+00 | 1.693E+02 | 1.805E+02 | 1.535E-05 | 3.669E-03 | 8.888E+00 |
| 125 | -5.736E-01 | -3.315E+02 | 1.00E+01 | 4.835E+01 | 3.464E+02 | 4.166E-06 | 4.504E-02 | 2.71E+00 | 1.776E+02 | 1.893E+02 | 1.396E-05 | 3.336E-03 | 8.407E+00 |
| 130 | -6.428E-01 | -3.461E+02 | 1.12E+01 | 4.058E+01 | 2.907E+02 | 5.915E-06 | 6.394E-02 | 2.43E+00 | 1.854E+02 | 1.976E+02 | 1.281E-05 | 3.063E-03 | 7.862E+00 |
| 135 | -7.071E-01 | -3.596E+02 | 1.26E+01 | 3.336E+01 | 2.390E+02 | 8.752E-06 | 9.460E-02 | 2.16E+00 | 1.926E+02 | 2.053E+02 | 1.187E-05 | 2.838E-03 | 7.257E+00 |
| 140 | -7.660E-01 | -3.720E+02 | 1.43E+01 | 2.674E+01 | 1.916E+02 | 1.362E-05 | 1.472E-01 | 1.90E+00 | 1.992E+02 | 2.123E+02 | 1.109E-05 | 2.653E-03 | 6.597E+00 |
| 145 | -8.192E-01 | -3.832E+02 | 1.65E+01 | 2.078E+01 | 1.489E+02 | 2.255E-05 | 2.437E-01 | 1.64E+00 | 2.052E+02 | 2.187E+02 | 1.046E-05 | 2.502E-03 | 5.887E+00 |
| 150 | -8.660E-01 | -3.931E+02 | 1.93E+01 | 1.552E+01 | 1.112E+02 | 4.044E-05 | 4.369E-01 | 1.40E+00 | 2.104E+02 | 2.243E+02 | 9.941E-06 | 2.378E-03 | 5.132E+00 |
| 155 | -9.063E-01 | -4.016E+02 | 2.32E+01 | 1.100E+01 | 7.879E+01 | 8.055E-05 | 8.697E-01 | 1.16E+00 | 2.149E+02 | 2.291E+02 | 9.527E-06 | 2.279E-03 | 4.337E+00 |
| 160 | -9.397E-01 | -4.086E+02 | 2.90E+01 | 7.247E+00 | 5.194E+01 | 1.854E-04 | 2.000E+00 | 9.20E-01 | 2.187E+02 | 2.331E+02 | 9.204E-06 | 2.202E-03 | 3.510E+00 |
| 165 | -9.659E-01 | -4.141E+02 | 3.81E+01 | 4.302E+00 | 3.084E+01 | 5.260E-04 | 5.669E+00 | 6.87E-01 | 2.216E+02 | 2.362E+02 | 8.961E-06 | 2.144E-03 | 2.656E+00 |
| 170 | -9.848E-01 | -4.181E+02 | 5.49E+01 | 2.180E+00 | 1.565E+01 | 2.044E-03 | 2.201E+01 | 4.56E-01 | 2.238E+02 | 2.385E+02 | 8.792E-06 | 2.104E-03 | 1.782E+00 |
| 175 | -9.962E-01 | -4.205E+02 | 9.18E+01 | 8.949E-01 | 6.490E+00 | 1.194E-02 | 1.300E+02 | 2.28E-01 | 2.250E+02 | 2.398E+02 | 8.692E-06 | 2.080E-03 | 8.945E-01 |
| 180 | -1.000E+00 | -4.213E+02 | 1.80E+02 | 4.578E-01 | 3.429E+00 | 4.347E-02 | 5.026E+02 | 0. | 2.255E+02 | 2.403E+02 | 8.659E-06 | 2.072E-03 | 0. |

PION (1) + PROTON (2) => PION (3) + PROTON (4) AT 250 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 1.39569E-01 M4 = 9.38259E-01
P2CM= 1.08193E+01 P3CM= 1.08193E+01
E1CM= 1.08202E+01 E2CM= 1.08599E+01 E3CM= 1.08202E+01 E4CM= 1.08599E+01

1-V1LAB = 1.558E-07 1-VCM = 3.739E-03 GCM = 1.15746E+01 ETCM= 2.16802E+01 S = 4.70029E+02 -U=( 4.68230E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 2.500E+02 | 1.791E+03 | 1.558E-07 | 1.873E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -3.566E-02 | 4.33E-02 | 2.500E+02 | 1.791E+03 | 1.559E-07 | 1.873E-03 | 8.42E+01 | 1.898E-01 | 1.020E+00 | 8.017E-01 | 3.266E+02 | 1.888E-01 |
| 2 | 9.994E-01 | -1.426E-01 | 8.66E-02 | 2.499E+02 | 1.791E+03 | 1.559E-07 | 1.874E-03 | 7.86E+01 | 3.852E-01 | 1.081E+00 | 6.202E-01 | 1.562E+02 | 3.776E-01 |
| 3 | 9.986E-01 | -3.208E-01 | 1.30E-01 | 2.498E+02 | 1.790E+03 | 1.560E-07 | 1.875E-03 | 7.31E+01 | 5.917E-01 | 1.182E+00 | 4.666E-01 | 9.699E+01 | 5.662E-01 |
| 4 | 9.976E-01 | -5.703E-01 | 1.73E-01 | 2.497E+02 | 1.789E+03 | 1.562E-07 | 1.877E-03 | 6.80E+01 | 8.140E-01 | 1.324E+00 | 3.447E-01 | 6.620E+01 | 7.547E-01 |
| 5 | 9.962E-01 | -8.909E-01 | 2.17E-01 | 2.495E+02 | 1.788E+03 | 1.564E-07 | 1.880E-03 | 6.32E+01 | 1.057E+00 | 1.506E+00 | 2.523E-01 | 4.730E+01 | 9.430E-01 |
| 6 | 9.945E-01 | -1.283E+00 | 2.60E-01 | 2.493E+02 | 1.786E+03 | 1.567E-07 | 1.883E-03 | 5.88E+01 | 1.323E+00 | 1.728E+00 | 1.844E-01 | 3.470E+01 | 1.131E+00 |
| 7 | 9.925E-01 | -1.745E+00 | 3.03E-01 | 2.491E+02 | 1.785E+03 | 1.570E-07 | 1.887E-03 | 5.47E+01 | 1.616E+00 | 1.991E+00 | 1.353E-01 | 2.592E+01 | 1.319E+00 |
| 8 | 9.903E-01 | -2.278E+00 | 3.47E-01 | 2.488E+02 | 1.783E+03 | 1.574E-07 | 1.891E-03 | 5.10E+01 | 1.937E+00 | 2.294E+00 | 1.000E-01 | 1.962E+01 | 1.506E+00 |
| 9 | 9.877E-01 | -2.882E+00 | 3.90E-01 | 2.485E+02 | 1.780E+03 | 1.578E-07 | 1.896E-03 | 4.77E+01 | 2.289E+00 | 2.637E+00 | 7.469E-02 | 1.504E+01 | 1.693E+00 |
| 10 | 9.848E-01 | -3.557E+00 | 4.34E-01 | 2.481E+02 | 1.778E+03 | 1.582E-07 | 1.902E-03 | 4.46E+01 | 2.674E+00 | 3.020E+00 | 5.641E-02 | 1.165E+01 | 1.879E+00 |
| 15 | 9.659E-01 | -7.977E+00 | 6.53E-01 | 2.457E+02 | 1.761E+03 | 1.613E-07 | 1.938E-03 | 3.33E+01 | 5.104E+00 | 5.531E+00 | 1.648E-02 | 3.757E+00 | 2.800E+00 |
| 20 | 9.397E-01 | -1.412E+01 | 8.74E-01 | 2.425E+02 | 1.737E+03 | 1.657E-07 | 1.991E-03 | 2.61E+01 | 8.410E+00 | 9.019E+00 | 6.166E-03 | 1.486E+00 | 3.700E+00 |
| 25 | 9.063E-01 | -2.193E+01 | 1.10E+00 | 2.383E+02 | 1.707E+03 | 1.715E-07 | 2.061E-03 | 2.13E+01 | 1.259E+01 | 1.346E+01 | 2.764E-03 | 6.878E-01 | 4.572E+00 |
| 30 | 8.660E-01 | -3.137E+01 | 1.33E+00 | 2.333E+02 | 1.671E+03 | 1.790E-07 | 2.151E-03 | 1.79E+01 | 1.763E+01 | 1.881E+01 | 1.413E-03 | 3.585E-01 | 5.410E+00 |
| 35 | 8.192E-01 | -4.234E+01 | 1.56E+00 | 2.274E+02 | 1.630E+03 | 1.883E-07 | 2.263E-03 | 1.53E+01 | 2.348E+01 | 2.505E+01 | 7.973E-04 | 2.047E-01 | 6.206E+00 |
| 40 | 7.660E-01 | -5.477E+01 | 1.80E+00 | 2.208E+02 | 1.582E+03 | 1.998E-07 | 2.401E-03 | 1.34E+01 | 3.011E+01 | 3.211E+01 | 4.851E-04 | 1.256E-01 | 6.955E+00 |
| 45 | 7.071E-01 | -6.857E+01 | 2.05E+00 | 2.135E+02 | 1.529E+03 | 2.138E-07 | 2.569E-03 | 1.18E+01 | 3.747E+01 | 3.995E+01 | 3.134E-04 | 8.163E-02 | 7.650E+00 |
| 50 | 6.428E-01 | -8.363E+01 | 2.31E+00 | 2.054E+02 | 1.472E+03 | 2.308E-07 | 2.774E-03 | 1.05E+01 | 4.549E+01 | 4.850E+01 | 2.126E-04 | 5.561E-02 | 8.288E+00 |
| 55 | 5.736E-01 | -9.983E+01 | 2.58E+00 | 1.968E+02 | 1.410E+03 | 2.515E-07 | 3.022E-03 | 9.42E+00 | 5.413E+01 | 5.770E+01 | 1.502E-04 | 3.941E-02 | 8.863E+00 |
| 60 | 5.000E-01 | -1.171E+02 | 2.86E+00 | 1.876E+02 | 1.344E+03 | 2.767E-07 | 3.325E-03 | 8.51E+00 | 6.331E+01 | 6.749E+01 | 1.098E-04 | 2.888E-02 | 9.370E+00 |
| 65 | 4.226E-01 | -1.352E+02 | 3.16E+00 | 1.780E+02 | 1.275E+03 | 3.075E-07 | 3.696E-03 | 7.72E+00 | 7.297E+01 | 7.777E+01 | 8.266E-05 | 2.179E-02 | 9.806E+00 |
| 70 | 3.420E-01 | -1.540E+02 | 3.47E+00 | 1.679E+02 | 1.203E+03 | 3.455E-07 | 4.152E-03 | 7.03E+00 | 8.302E+01 | 8.849E+01 | 6.385E-05 | 1.685E-02 | 1.017E+01 |
| 75 | 2.588E-01 | -1.735E+02 | 3.80E+00 | 1.575E+02 | 1.129E+03 | 3.925E-07 | 4.717E-03 | 6.42E+00 | 9.340E+01 | 9.956E+01 | 5.045E-05 | 1.333E-02 | 1.045E+01 |
| 80 | 1.736E-01 | -1.935E+02 | 4.16E+00 | 1.469E+02 | 1.053E+03 | 4.513E-07 | 5.424E-03 | 5.88E+00 | 1.040E+02 | 1.109E+02 | 4.067E-05 | 1.076E-02 | 1.065E+01 |
| 85 | 8.716E-02 | -2.137E+02 | 4.54E+00 | 1.361E+02 | 9.752E+02 | 5.257E-07 | 6.318E-03 | 5.39E+00 | 1.148E+02 | 1.224E+02 | 3.338E-05 | 8.840E-03 | 1.078E+01 |
| 90 | 0. | -2.341E+02 | 4.96E+00 | 1.252E+02 | 8.973E+02 | 6.210E-07 | 7.462E-03 | 4.94E+00 | 1.257E+02 | 1.340E+02 | 2.786E-05 | 7.382E-03 | 1.082E+01 |
| 95 | -8.716E-02 | -2.545E+02 | 5.41E+00 | 1.144E+02 | 8.194E+02 | 7.447E-07 | 8.949E-03 | 4.53E+00 | 1.366E+02 | 1.456E+02 | 2.360E-05 | 6.257E-03 | 1.078E+01 |
| 100 | -1.736E-01 | -2.748E+02 | 5.90E+00 | 1.036E+02 | 7.421E+02 | 9.079E-07 | 1.091E-02 | 4.15E+00 | 1.474E+02 | 1.571E+02 | 2.027E-05 | 5.377E-03 | 1.065E+01 |
| 105 | -2.588E-01 | -2.947E+02 | 6.46E+00 | 9.295E+01 | 6.660E+02 | 1.127E-06 | 1.355E-02 | 3.79E+00 | 1.580E+02 | 1.684E+02 | 1.763E-05 | 4.680E-03 | 1.045E+01 |
| 110 | -3.420E-01 | -3.142E+02 | 7.07E+00 | 8.257E+01 | 5.916E+02 | 1.429E-06 | 1.717E-02 | 3.46E+00 | 1.684E+02 | 1.794E+02 | 1.553E-05 | 4.122E-03 | 1.017E+01 |
| 115 | -4.226E-01 | -3.331E+02 | 7.77E+00 | 7.251E+01 | 5.196E+02 | 1.852E-06 | 2.226E-02 | 3.15E+00 | 1.784E+02 | 1.902E+02 | 1.383E-05 | 3.672E-03 | 9.806E+00 |
| 120 | -5.000E-01 | -3.512E+02 | 8.57E+00 | 6.286E+01 | 4.504E+02 | 2.465E-06 | 2.962E-02 | 2.86E+00 | 1.881E+02 | 2.005E+02 | 1.244E-05 | 3.305E-03 | 9.370E+00 |
| 125 | -5.736E-01 | -3.684E+02 | 9.50E+00 | 5.368E+01 | 3.846E+02 | 3.380E-06 | 4.061E-02 | 2.58E+00 | 1.973E+02 | 2.102E+02 | 1.131E-05 | 3.005E-03 | 8.863E+00 |
| 130 | -6.428E-01 | -3.846E+02 | 1.06E+01 | 4.504E+01 | 3.227E+02 | 4.800E-06 | 5.767E-02 | 2.31E+00 | 2.059E+02 | 2.194E+02 | 1.038E-05 | 2.759E-03 | 8.288E+00 |
| 135 | -7.071E-01 | -3.997E+02 | 1.19E+01 | 3.702E+01 | 2.652E+02 | 7.107E-06 | 8.537E-02 | 2.05E+00 | 2.139E+02 | 2.280E+02 | 9.619E-06 | 2.556E-03 | 7.650E+00 |
| 140 | -7.660E-01 | -4.135E+02 | 1.36E+01 | 2.967E+01 | 2.126E+02 | 1.107E-05 | 1.329E-01 | 1.80E+00 | 2.213E+02 | 2.358E+02 | 8.990E-06 | 2.390E-03 | 6.955E+00 |
| 145 | -8.192E-01 | -4.259E+02 | 1.56E+01 | 2.304E+01 | 1.651E+02 | 1.835E-05 | 2.203E-01 | 1.56E+00 | 2.279E+02 | 2.429E+02 | 8.475E-06 | 2.253E-03 | 6.206E+00 |
| 150 | -8.660E-01 | -4.369E+02 | 1.83E+01 | 1.719E+01 | 1.232E+02 | 3.295E-05 | 3.956E-01 | 1.33E+00 | 2.337E+02 | 2.491E+02 | 8.056E-06 | 2.142E-03 | 5.410E+00 |
| 155 | -9.063E-01 | -4.463E+02 | 2.21E+01 | 1.217E+01 | 8.718E+01 | 6.579E-05 | 7.895E-01 | 1.10E+00 | 2.388E+02 | 2.545E+02 | 7.721E-06 | 2.053E-03 | 4.572E+00 |
| 160 | -9.397E-01 | -4.541E+02 | 2.75E+01 | 8.001E+00 | 5.734E+01 | 1.521E-04 | 1.824E+00 | 8.73E-01 | 2.429E+02 | 2.589E+02 | 7.458E-06 | 1.983E-03 | 3.700E+00 |
| 165 | -9.659E-01 | -4.603E+02 | 3.63E+01 | 4.728E+00 | 3.389E+01 | 4.355E-04 | 5.217E+00 | 6.52E-01 | 2.462E+02 | 2.624E+02 | 7.261E-06 | 1.931E-03 | 2.800E+00 |
| 170 | -9.848E-01 | -4.647E+02 | 5.24E+01 | 2.370E+00 | 1.701E+01 | 1.730E-03 | 2.070E+01 | 4.33E-01 | 2.486E+02 | 2.649E+02 | 7.124E-06 | 1.895E-03 | 1.879E+00 |
| 175 | -9.962E-01 | -4.673E+02 | 8.89E+01 | 9.432E-01 | 6.831E+00 | 1.077E-02 | 1.301E+02 | 2.16E-01 | 2.500E+02 | 2.664E+02 | 7.044E-06 | 1.873E-03 | 9.430E-01 |
| 180 | -1.000E+00 | -4.682E+02 | 1.80E+02 | 4.579E-01 | 3.431E+00 | 4.345E-02 | 5.584E+02 | 0. | 2.505E+02 | 2.669E+02 | 7.017E-06 | 1.866E-03 | 0. |

PION (1) + PROTON (2) => PION (3) + PROTON (4) AT 275 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 1.39569E-01 M4 = 9.38259E-01
P2CM= 1.13484E+01 P3CM= 1.13484E+01
E1CM= 1.13493E+01 E2CM= 1.13871E+01 E3CM= 1.13493E+01 E4CM= 1.13871E+01

1-V1LAB = 1.288E-07 1-VCM = 3.400E-03 GCM = 1.21364E+01 ETCM= 2.27364E+01 S = 5.16942E+02 -U=( 5.15143E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 2.750E+02 | 1.970E+03 | 1.288E-07 | 1.703E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -3.923E-02 | 4.13E-02 | 2.750E+02 | 1.970E+03 | 1.288E-07 | 1.703E-03 | 8.40E+01 | 1.992E-01 | 1.022E+00 | 7.924E-01 | 3.420E+02 | 1.981E-01 |
| 2 | 9.994E-01 | -1.569E-01 | 8.25E-02 | 2.749E+02 | 1.970E+03 | 1.289E-07 | 1.704E-03 | 7.80E+01 | 4.048E-01 | 1.089E+00 | 6.038E-01 | 1.628E+02 | 3.961E-01 |
| 3 | 9.986E-01 | -3.530E-01 | 1.24E-01 | 2.748E+02 | 1.969E+03 | 1.290E-07 | 1.705E-03 | 7.24E+01 | 6.232E-01 | 1.200E+00 | 4.467E-01 | 1.004E+02 | 5.939E-01 |
| 4 | 9.976E-01 | -6.274E-01 | 1.65E-01 | 2.747E+02 | 1.968E+03 | 1.291E-07 | 1.707E-03 | 6.70E+01 | 8.598E-01 | 1.356E+00 | 3.244E-01 | 6.798E+01 | 7.916E-01 |
| 5 | 9.962E-01 | -9.801E-01 | 2.06E-01 | 2.745E+02 | 1.967E+03 | 1.293E-07 | 1.709E-03 | 6.21E+01 | 1.119E+00 | 1.557E+00 | 2.336E-01 | 4.813E+01 | 9.891E-01 |
| 6 | 9.945E-01 | -1.411E+00 | 2.48E-01 | 2.742E+02 | 1.965E+03 | 1.295E-07 | 1.712E-03 | 5.75E+01 | 1.406E+00 | 1.801E+00 | 1.682E-01 | 3.497E+01 | 1.186E+00 |
| 7 | 9.925E-01 | -1.920E+00 | 2.89E-01 | 2.740E+02 | 1.963E+03 | 1.298E-07 | 1.716E-03 | 5.34E+01 | 1.722E+00 | 2.090E+00 | 1.218E-01 | 2.587E+01 | 1.383E+00 |
| 8 | 9.903E-01 | -2.507E+00 | 3.31E-01 | 2.737E+02 | 1.961E+03 | 1.301E-07 | 1.720E-03 | 4.97E+01 | 2.071E+00 | 2.424E+00 | 8.908E-02 | 1.942E+01 | 1.579E+00 |
| 9 | 9.877E-01 | -3.171E+00 | 3.72E-01 | 2.733E+02 | 1.958E+03 | 1.304E-07 | 1.724E-03 | 4.63E+01 | 2.455E+00 | 2.801E+00 | 6.590E-02 | 1.476E+01 | 1.775E+00 |
| 10 | 9.848E-01 | -3.913E+00 | 4.14E-01 | 2.729E+02 | 1.955E+03 | 1.308E-07 | 1.729E-03 | 4.33E+01 | 2.874E+00 | 3.223E+00 | 4.937E-02 | 1.135E+01 | 1.971E+00 |
| 15 | 9.659E-01 | -8.777E+00 | 6.23E-01 | 2.703E+02 | 1.937E+03 | 1.333E-07 | 1.762E-03 | 3.20E+01 | 5.536E+00 | 5.985E+00 | 1.406E-02 | 3.562E+00 | 2.937E+00 |
| 20 | 9.397E-01 | -1.553E+01 | 8.34E-01 | 2.667E+02 | 1.911E+03 | 1.369E-07 | 1.810E-03 | 2.50E+01 | 9.168E+00 | 9.823E+00 | 5.196E-03 | 1.388E+00 | 3.881E+00 |
| 25 | 9.063E-01 | -2.413E+01 | 1.05E+00 | 2.621E+02 | 1.878E+03 | 1.417E-07 | 1.874E-03 | 2.04E+01 | 1.377E+01 | 1.471E+01 | 2.314E-03 | 6.370E-01 | 4.796E+00 |
| 30 | 8.660E-01 | -3.451E+01 | 1.27E+00 | 2.566E+02 | 1.839E+03 | 1.479E-07 | 1.956E-03 | 1.71E+01 | 1.930E+01 | 2.060E+01 | 1.179E-03 | 3.303E-01 | 5.674E+00 |
| 35 | 8.192E-01 | -4.658E+01 | 1.49E+00 | 2.502E+02 | 1.792E+03 | 1.556E-07 | 2.058E-03 | 1.46E+01 | 2.574E+01 | 2.746E+01 | 6.635E-04 | 1.880E-01 | 6.509E+00 |
| 40 | 7.660E-01 | -6.026E+01 | 1.72E+00 | 2.429E+02 | 1.740E+03 | 1.651E-07 | 2.183E-03 | 1.28E+01 | 3.304E+01 | 3.523E+01 | 4.030E-04 | 1.151E-01 | 7.295E+00 |
| 45 | 7.071E-01 | -7.544E+01 | 1.96E+00 | 2.348E+02 | 1.682E+03 | 1.767E-07 | 2.336E-03 | 1.13E+01 | 4.113E+01 | 4.385E+01 | 2.601E-04 | 7.467E-02 | 8.025E+00 |
| 50 | 6.428E-01 | -9.201E+01 | 2.20E+00 | 2.260E+02 | 1.619E+03 | 1.907E-07 | 2.522E-03 | 1.00E+01 | 4.996E+01 | 5.326E+01 | 1.763E-04 | 5.081E-02 | 8.693E+00 |
| 55 | 5.736E-01 | -1.098E+02 | 2.46E+00 | 2.165E+02 | 1.551E+03 | 2.079E-07 | 2.748E-03 | 8.99E+00 | 5.946E+01 | 6.338E+01 | 1.245E-04 | 3.598E-02 | 9.296E+00 |
| 60 | 5.000E-01 | -1.288E+02 | 2.73E+00 | 2.064E+02 | 1.479E+03 | 2.287E-07 | 3.024E-03 | 8.12E+00 | 6.956E+01 | 7.415E+01 | 9.095E-05 | 2.635E-02 | 9.828E+00 |
| 65 | 4.226E-01 | -1.487E+02 | 3.01E+00 | 1.957E+02 | 1.403E+03 | 2.542E-07 | 3.361E-03 | 7.37E+00 | 8.018E+01 | 8.547E+01 | 6.845E-05 | 1.986E-02 | 1.029E+01 |
| 70 | 3.420E-01 | -1.695E+02 | 3.31E+00 | 1.847E+02 | 1.323E+03 | 2.855E-07 | 3.776E-03 | 6.71E+00 | 9.125E+01 | 9.726E+01 | 5.286E-05 | 1.536E-02 | 1.066E+01 |
| 75 | 2.588E-01 | -1.909E+02 | 3.63E+00 | 1.733E+02 | 1.241E+03 | 3.244E-07 | 4.290E-03 | 6.13E+00 | 1.027E+02 | 1.094E+02 | 4.176E-05 | 1.215E-02 | 1.096E+01 |
| 80 | 1.736E-01 | -2.128E+02 | 3.97E+00 | 1.616E+02 | 1.158E+03 | 3.731E-07 | 4.933E-03 | 5.61E+00 | 1.144E+02 | 1.219E+02 | 3.365E-05 | 9.800E-03 | 1.118E+01 |
| 85 | 8.716E-02 | -2.351E+02 | 4.33E+00 | 1.497E+02 | 1.073E+03 | 4.346E-07 | 5.746E-03 | 5.14E+00 | 1.262E+02 | 1.345E+02 | 2.762E-05 | 8.050E-03 | 1.131E+01 |
| 90 | 0. | -2.576E+02 | 4.73E+00 | 1.377E+02 | 9.869E+02 | 5.134E-07 | 6.788E-03 | 4.71E+00 | 1.382E+02 | 1.473E+02 | 2.305E-05 | 6.721E-03 | 1.135E+01 |
| 95 | -8.716E-02 | -2.800E+02 | 5.16E+00 | 1.258E+02 | 9.012E+02 | 6.157E-07 | 8.140E-03 | 4.32E+00 | 1.502E+02 | 1.600E+02 | 1.952E-05 | 5.695E-03 | 1.131E+01 |
| 100 | -1.736E-01 | -3.023E+02 | 5.63E+00 | 1.139E+02 | 8.161E+02 | 7.507E-07 | 9.925E-03 | 3.96E+00 | 1.620E+02 | 1.727E+02 | 1.677E-05 | 4.894E-03 | 1.118E+01 |
| 105 | -2.588E-01 | -3.242E+02 | 6.16E+00 | 1.022E+02 | 7.324E+02 | 9.322E-07 | 1.233E-02 | 3.62E+00 | 1.737E+02 | 1.852E+02 | 1.458E-05 | 4.259E-03 | 1.096E+01 |
| 110 | -3.420E-01 | -3.457E+02 | 6.75E+00 | 9.079E+01 | 6.505E+02 | 1.182E-06 | 1.562E-02 | 3.30E+00 | 1.851E+02 | 1.973E+02 | 1.284E-05 | 3.751E-03 | 1.066E+01 |
| 115 | -4.226E-01 | -3.664E+02 | 7.41E+00 | 7.973E+01 | 5.713E+02 | 1.532E-06 | 2.026E-02 | 3.00E+00 | 1.962E+02 | 2.091E+02 | 1.143E-05 | 3.341E-03 | 1.029E+01 |
| 120 | -5.000E-01 | -3.864E+02 | 8.18E+00 | 6.911E+01 | 4.952E+02 | 2.039E-06 | 2.696E-02 | 2.72E+00 | 2.068E+02 | 2.204E+02 | 1.029E-05 | 3.007E-03 | 9.828E+00 |
| 125 | -5.736E-01 | -4.053E+02 | 9.06E+00 | 5.901E+01 | 4.228E+02 | 2.797E-06 | 3.697E-02 | 2.46E+00 | 2.169E+02 | 2.312E+02 | 9.354E-06 | 2.734E-03 | 9.296E+00 |
| 130 | -6.428E-01 | -4.231E+02 | 1.01E+01 | 4.951E+01 | 3.547E+02 | 3.973E-06 | 5.252E-02 | 2.20E+00 | 2.264E+02 | 2.413E+02 | 8.585E-06 | 2.510E-03 | 8.693E+00 |
| 135 | -7.071E-01 | -4.397E+02 | 1.14E+01 | 4.068E+01 | 2.915E+02 | 5.885E-06 | 7.778E-02 | 1.95E+00 | 2.353E+02 | 2.507E+02 | 7.953E-06 | 2.326E-03 | 8.025E+00 |
| 140 | -7.660E-01 | -4.549E+02 | 1.29E+01 | 3.259E+01 | 2.335E+02 | 9.169E-06 | 1.212E-01 | 1.72E+00 | 2.433E+02 | 2.594E+02 | 7.433E-06 | 2.174E-03 | 7.295E+00 |
| 145 | -8.192E-01 | -4.686E+02 | 1.49E+01 | 2.530E+01 | 1.813E+02 | 1.521E-05 | 2.010E-01 | 1.49E+00 | 2.506E+02 | 2.671E+02 | 7.007E-06 | 2.049E-03 | 6.509E+00 |
| 150 | -8.660E-01 | -4.806E+02 | 1.75E+01 | 1.887E+01 | 1.352E+02 | 2.736E-05 | 3.614E-01 | 1.26E+00 | 2.571E+02 | 2.740E+02 | 6.661E-06 | 1.948E-03 | 5.674E+00 |
| 155 | -9.063E-01 | -4.910E+02 | 2.11E+01 | 1.334E+01 | 9.557E+01 | 5.474E-05 | 7.228E-01 | 1.05E+00 | 2.626E+02 | 2.799E+02 | 6.383E-06 | 1.867E-03 | 4.796E+00 |
| 160 | -9.397E-01 | -4.996E+02 | 2.63E+01 | 8.755E+00 | 6.274E+01 | 1.270E-04 | 1.676E+00 | 8.32E-01 | 2.672E+02 | 2.848E+02 | 6.166E-06 | 1.804E-03 | 3.881E+00 |
| 165 | -9.659E-01 | -5.064E+02 | 3.47E+01 | 5.154E+00 | 3.694E+01 | 3.665E-04 | 4.831E+00 | 6.22E-01 | 2.708E+02 | 2.886E+02 | 6.003E-06 | 1.756E-03 | 2.937E+00 |
| 170 | -9.848E-01 | -5.112E+02 | 5.03E+01 | 2.560E+00 | 1.837E+01 | 1.483E-03 | 1.952E+01 | 4.13E-01 | 2.734E+02 | 2.914E+02 | 5.890E-06 | 1.723E-03 | 1.971E+00 |
| 175 | -9.962E-01 | -5.142E+02 | 8.62E+01 | 9.913E-01 | 7.173E+00 | 9.767E-03 | 1.296E+02 | 2.06E-01 | 2.749E+02 | 2.930E+02 | 5.823E-06 | 1.704E-03 | 9.891E-01 |
| 180 | -1.000E+00 | -5.151E+02 | 1.80E+02 | 4.580E-01 | 3.430E+00 | 4.344E-02 | 6.141E+02 | 0. | 2.755E+02 | 2.936E+02 | 5.801E-06 | 1.697E-03 | 0. |

PION (1) + PROTON (2) => PION (3) + PROTON (4) AT 300 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 1.39569E-01 M4 = 9.38259E-01
P2CM= 1.18539E+01 P3CM= 1.18539E+01
E1CM= 1.18547E+01 E2CM= 1.18909E+01 E3CM= 1.18547E+01 E4CM= 1.18909E+01

1-V1LAB = 1.082E-07 1-VCM = 3.118E-03 GCM = 1.26734E+01 ETCM= 2.37456E+01 S = 5.63855E+02 -U=( 5.62056E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 3.000E+02 | 2.149E+03 | 1.082E-07 | 1.561E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -4.280E-02 | 3.95E-02 | 3.000E+02 | 2.149E+03 | 1.082E-07 | 1.562E-03 | 8.37E+01 | 2.081E-01 | 1.024E+00 | 7.834E-01 | 3.566E+02 | 2.069E-01 |
| 2 | 9.994E-01 | -1.712E-01 | 7.90E-02 | 2.999E+02 | 2.149E+03 | 1.083E-07 | 1.562E-03 | 7.75E+01 | 4.237E-01 | 1.097E+00 | 5.884E-01 | 1.691E+02 | 4.137E-01 |
| 3 | 9.986E-01 | -3.851E-01 | 1.19E-01 | 2.998E+02 | 2.148E+03 | 1.084E-07 | 1.563E-03 | 7.16E+01 | 6.537E-01 | 1.219E+00 | 4.284E-01 | 1.036E+02 | 6.204E-01 |
| 4 | 9.976E-01 | -6.846E-01 | 1.58E-01 | 2.996E+02 | 2.147E+03 | 1.085E-07 | 1.565E-03 | 6.61E+01 | 9.042E-01 | 1.389E+00 | 3.061E-01 | 6.955E+01 | 8.269E-01 |
| 5 | 9.962E-01 | -1.069E+00 | 1.98E-01 | 2.994E+02 | 2.145E+03 | 1.086E-07 | 1.567E-03 | 6.10E+01 | 1.181E+00 | 1.607E+00 | 2.171E-01 | 4.880E+01 | 1.033E+00 |
| 6 | 9.945E-01 | -1.540E+00 | 2.37E-01 | 2.992E+02 | 2.144E+03 | 1.088E-07 | 1.570E-03 | 5.64E+01 | 1.487E+00 | 1.874E+00 | 1.542E-01 | 3.514E+01 | 1.239E+00 |
| 7 | 9.925E-01 | -2.095E+00 | 2.77E-01 | 2.989E+02 | 2.141E+03 | 1.090E-07 | 1.573E-03 | 5.22E+01 | 1.828E+00 | 2.190E+00 | 1.104E-01 | 2.577E+01 | 1.445E+00 |
| 8 | 9.903E-01 | -2.735E+00 | 3.17E-01 | 2.985E+02 | 2.139E+03 | 1.093E-07 | 1.577E-03 | 4.85E+01 | 2.204E+00 | 2.553E+00 | 7.988E-02 | 1.918E+01 | 1.650E+00 |
| 9 | 9.877E-01 | -3.460E+00 | 3.56E-01 | 2.982E+02 | 2.136E+03 | 1.096E-07 | 1.581E-03 | 4.51E+01 | 2.619E+00 | 2.965E+00 | 5.859E-02 | 1.447E+01 | 1.854E+00 |
| 10 | 9.848E-01 | -4.269E+00 | 3.96E-01 | 2.977E+02 | 2.133E+03 | 1.099E-07 | 1.585E-03 | 4.20E+01 | 3.073E+00 | 3.425E+00 | 4.357E-02 | 1.105E+01 | 2.058E+00 |
| 15 | 9.659E-01 | -9.576E+00 | 5.96E-01 | 2.949E+02 | 2.113E+03 | 1.120E-07 | 1.616E-03 | 3.09E+01 | 5.968E+00 | 6.439E+00 | 1.213E-02 | 3.384E+00 | 3.068E+00 |
| 20 | 9.397E-01 | -1.695E+01 | 7.98E-01 | 2.910E+02 | 2.085E+03 | 1.150E-07 | 1.660E-03 | 2.41E+01 | 9.926E+00 | 1.063E+01 | 4.438E-03 | 1.302E+00 | 4.054E+00 |
| 25 | 9.063E-01 | -2.633E+01 | 1.00E+00 | 2.860E+02 | 2.049E+03 | 1.191E-07 | 1.718E-03 | 1.96E+01 | 1.494E+01 | 1.595E+01 | 1.966E-03 | 5.931E-01 | 5.010E+00 |
| 30 | 8.660E-01 | -3.765E+01 | 1.21E+00 | 2.799E+02 | 2.006E+03 | 1.243E-07 | 1.793E-03 | 1.64E+01 | 2.098E+01 | 2.238E+01 | 9.984E-04 | 3.062E-01 | 5.927E+00 |
| 35 | 8.192E-01 | -5.082E+01 | 1.43E+00 | 2.729E+02 | 1.955E+03 | 1.308E-07 | 1.887E-03 | 1.41E+01 | 2.801E+01 | 2.987E+01 | 5.607E-04 | 1.738E-01 | 6.799E+00 |
| 40 | 7.660E-01 | -6.575E+01 | 1.65E+00 | 2.650E+02 | 1.898E+03 | 1.387E-07 | 2.001E-03 | 1.22E+01 | 3.596E+01 | 3.834E+01 | 3.402E-04 | 1.062E-01 | 7.620E+00 |
| 45 | 7.071E-01 | -8.231E+01 | 1.88E+00 | 2.561E+02 | 1.835E+03 | 1.485E-07 | 2.142E-03 | 1.08E+01 | 4.479E+01 | 4.775E+01 | 2.193E-04 | 6.880E-02 | 8.382E+00 |
| 50 | 6.428E-01 | -1.004E+02 | 2.11E+00 | 2.465E+02 | 1.766E+03 | 1.603E-07 | 2.312E-03 | 9.60E+00 | 5.443E+01 | 5.802E+01 | 1.486E-04 | 4.677E-02 | 9.081E+00 |
| 55 | 5.736E-01 | -1.198E+02 | 2.36E+00 | 2.361E+02 | 1.692E+03 | 1.747E-07 | 2.520E-03 | 8.62E+00 | 6.479E+01 | 6.906E+01 | 1.048E-04 | 3.309E-02 | 9.710E+00 |
| 60 | 5.000E-01 | -1.405E+02 | 2.61E+00 | 2.251E+02 | 1.613E+03 | 1.922E-07 | 2.773E-03 | 7.78E+00 | 7.581E+01 | 8.081E+01 | 7.657E-05 | 2.422E-02 | 1.027E+01 |
| 65 | 4.226E-01 | -1.623E+02 | 2.88E+00 | 2.135E+02 | 1.530E+03 | 2.136E-07 | 3.082E-03 | 7.06E+00 | 8.740E+01 | 9.316E+01 | 5.761E-05 | 1.825E-02 | 1.074E+01 |
| 70 | 3.420E-01 | -1.849E+02 | 3.17E+00 | 2.015E+02 | 1.443E+03 | 2.400E-07 | 3.462E-03 | 6.43E+00 | 9.947E+01 | 1.060E+02 | 4.448E-05 | 1.411E-02 | 1.114E+01 |
| 75 | 2.588E-01 | -2.083E+02 | 3.47E+00 | 1.890E+02 | 1.354E+03 | 2.727E-07 | 3.933E-03 | 5.87E+00 | 1.119E+02 | 1.193E+02 | 3.513E-05 | 1.116E-02 | 1.145E+01 |
| 80 | 1.736E-01 | -2.322E+02 | 3.80E+00 | 1.762E+02 | 1.263E+03 | 3.136E-07 | 4.523E-03 | 5.37E+00 | 1.247E+02 | 1.329E+02 | 2.831E-05 | 8.998E-03 | 1.167E+01 |
| 85 | 8.716E-02 | -2.565E+02 | 4.15E+00 | 1.633E+02 | 1.170E+03 | 3.653E-07 | 5.269E-03 | 4.92E+00 | 1.376E+02 | 1.467E+02 | 2.323E-05 | 7.389E-03 | 1.181E+01 |
| 90 | 0. | -2.810E+02 | 4.53E+00 | 1.502E+02 | 1.076E+03 | 4.315E-07 | 6.225E-03 | 4.51E+00 | 1.507E+02 | 1.606E+02 | 1.938E-05 | 6.168E-03 | 1.185E+01 |
| 95 | -8.716E-02 | -3.055E+02 | 4.94E+00 | 1.372E+02 | 9.829E+02 | 5.175E-07 | 7.466E-03 | 4.14E+00 | 1.637E+02 | 1.745E+02 | 1.642E-05 | 5.227E-03 | 1.181E+01 |
| 100 | -1.736E-01 | -3.298E+02 | 5.39E+00 | 1.242E+02 | 8.901E+02 | 6.311E-07 | 9.103E-03 | 3.79E+00 | 1.767E+02 | 1.883E+02 | 1.410E-05 | 4.490E-03 | 1.167E+01 |
| 105 | -2.588E-01 | -3.538E+02 | 5.90E+00 | 1.115E+02 | 7.987E+02 | 7.837E-07 | 1.131E-02 | 3.46E+00 | 1.895E+02 | 2.019E+02 | 1.226E-05 | 3.908E-03 | 1.145E+01 |
| 110 | -3.420E-01 | -3.771E+02 | 6.46E+00 | 9.902E+01 | 7.095E+02 | 9.934E-07 | 1.433E-02 | 3.16E+00 | 2.019E+02 | 2.152E+02 | 1.080E-05 | 3.441E-03 | 1.114E+01 |
| 115 | -4.226E-01 | -3.998E+02 | 7.10E+00 | 8.695E+01 | 6.230E+02 | 1.288E-06 | 1.858E-02 | 2.88E+00 | 2.140E+02 | 2.281E+02 | 9.612E-06 | 3.065E-03 | 1.074E+01 |
| 120 | -5.000E-01 | -4.215E+02 | 7.83E+00 | 7.536E+01 | 5.399E+02 | 1.715E-06 | 2.474E-02 | 2.61E+00 | 2.256E+02 | 2.404E+02 | 8.650E-06 | 2.759E-03 | 1.027E+01 |
| 125 | -5.736E-01 | -4.422E+02 | 8.68E+00 | 6.434E+01 | 4.610E+02 | 2.353E-06 | 3.393E-02 | 2.35E+00 | 2.366E+02 | 2.522E+02 | 7.863E-06 | 2.508E-03 | 9.710E+00 |
| 130 | -6.428E-01 | -4.617E+02 | 9.69E+00 | 5.397E+01 | 3.867E+02 | 3.343E-06 | 4.822E-02 | 2.11E+00 | 2.470E+02 | 2.632E+02 | 7.217E-06 | 2.302E-03 | 9.081E+00 |
| 135 | -7.071E-01 | -4.797E+02 | 1.09E+01 | 4.434E+01 | 3.177E+02 | 4.953E-06 | 7.143E-02 | 1.87E+00 | 2.566E+02 | 2.735E+02 | 6.685E-06 | 2.133E-03 | 8.382E+00 |
| 140 | -7.660E-01 | -4.963E+02 | 1.24E+01 | 3.552E+01 | 2.545E+02 | 7.721E-06 | 1.113E-01 | 1.65E+00 | 2.654E+02 | 2.829E+02 | 6.248E-06 | 1.994E-03 | 7.620E+00 |
| 145 | -8.192E-01 | -5.112E+02 | 1.43E+01 | 2.756E+01 | 1.975E+02 | 1.282E-05 | 1.848E-01 | 1.43E+00 | 2.734E+02 | 2.914E+02 | 5.890E-06 | 1.880E-03 | 6.799E+00 |
| 150 | -8.660E-01 | -5.244E+02 | 1.68E+01 | 2.054E+01 | 1.472E+02 | 2.308E-05 | 3.327E-01 | 1.21E+00 | 2.804E+02 | 2.988E+02 | 5.599E-06 | 1.787E-03 | 5.927E+00 |
| 155 | -9.063E-01 | -5.357E+02 | 2.02E+01 | 1.451E+01 | 1.040E+02 | 4.626E-05 | 6.666E-01 | 1.00E+00 | 2.864E+02 | 3.053E+02 | 5.365E-06 | 1.712E-03 | 5.010E+00 |
| 160 | -9.397E-01 | -5.451E+02 | 2.52E+01 | 9.509E+00 | 6.814E+01 | 1.077E-04 | 1.551E+00 | 7.97E-01 | 2.914E+02 | 3.106E+02 | 5.183E-06 | 1.654E-03 | 4.054E+00 |
| 165 | -9.659E-01 | -5.525E+02 | 3.34E+01 | 5.580E+00 | 3.999E+01 | 3.127E-04 | 4.498E+00 | 5.95E-01 | 2.954E+02 | 3.148E+02 | 5.046E-06 | 1.611E-03 | 3.068E+00 |
| 170 | -9.848E-01 | -5.578E+02 | 4.85E+01 | 2.750E+00 | 1.973E+01 | 1.285E-03 | 1.846E+01 | 3.96E-01 | 2.982E+02 | 3.178E+02 | 4.950E-06 | 1.580E-03 | 2.058E+00 |
| 175 | -9.962E-01 | -5.610E+02 | 8.37E+01 | 1.039E+00 | 7.514E+00 | 8.896E-03 | 1.286E+02 | 1.97E-01 | 2.999E+02 | 3.196E+02 | 4.894E-06 | 1.562E-03 | 1.033E+00 |
| 180 | -1.000E+00 | -5.621E+02 | 1.80E+02 | 4.580E-01 | 3.431E+00 | 4.343E-02 | 6.698E+02 | 0. | 3.005E+02 | 3.202E+02 | 4.876E-06 | 1.557E-03 | 0. |

PION (1) + PROTON (2) => PION (3) + PROTON (4) AT 350 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 1.39569E-01 M4 = 9.38259E-01
P2CM= 1.28051E+01 P3CM= 1.28051E+01
E1CM= 1.28059E+01 E2CM= 1.28394E+01 E3CM= 1.28059E+01 E4CM= 1.28394E+01

1-V1LAB = 7.951E-08 1-VCM = 2.674E-03 GCM = 1.36843E+01 ETCM= 2.56453E+01 S = 6.57681E+02 -U=( 6.55882E+02) +T

| 03 CM | COS(03) CM | 4-MOM TSFR SQUARE, T | 03 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | 04 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 3.500E+02 | 2.508E+03 | 7.951E-08 | 1.339E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -4.995E-02 | 3.66E-02 | 3.500E+02 | 2.508E+03 | 7.952E-08 | 1.339E-03 | 8.32E+01 | 2.251E-01 | 1.028E+00 | 7.667E-01 | 3.838E+02 | 2.235E-01 |
| 2 | 9.994E-01 | -1.998E-01 | 7.32E-02 | 3.499E+02 | 2.507E+03 | 7.956E-08 | 1.339E-03 | 7.66E+01 | 4.595E-01 | 1.113E+00 | 5.602E-01 | 1.805E+02 | 4.469E-01 |
| 3 | 9.986E-01 | -4.494E-01 | 1.10E-01 | 3.498E+02 | 2.506E+03 | 7.962E-08 | 1.340E-03 | 7.03E+01 | 7.119E-01 | 1.255E+00 | 3.956E-01 | 1.091E+02 | 6.702E-01 |
| 4 | 9.976E-01 | -7.988E-01 | 1.46E-01 | 3.496E+02 | 2.505E+03 | 7.970E-08 | 1.342E-03 | 6.45E+01 | 9.980E-01 | 1.454E+00 | 2.742E-01 | 7.214E+01 | 8.932E-01 |
| 5 | 9.962E-01 | -1.248E+00 | 1.83E-01 | 3.493E+02 | 2.503E+03 | 7.981E-08 | 1.344E-03 | 5.91E+01 | 1.300E+00 | 1.709E+00 | 1.891E-01 | 4.976E+01 | 1.116E+00 |
| 6 | 9.945E-01 | -1.796E+00 | 2.20E-01 | 3.490E+02 | 2.501E+03 | 7.994E-08 | 1.346E-03 | 5.44E+01 | 1.647E+00 | 2.020E+00 | 1.311E-01 | 3.522E+01 | 1.338E+00 |
| 7 | 9.925E-01 | -2.444E+00 | 2.56E-01 | 3.487E+02 | 2.498E+03 | 8.010E-08 | 1.349E-03 | 5.01E+01 | 2.035E+00 | 2.388E+00 | 9.187E-02 | 2.541E+01 | 1.561E+00 |
| 8 | 9.903E-01 | -3.192E+00 | 2.93E-01 | 3.483E+02 | 2.496E+03 | 8.029E-08 | 1.352E-03 | 4.63E+01 | 2.467E+00 | 2.813E+00 | 6.534E-02 | 1.863E+01 | 1.782E+00 |
| 9 | 9.877E-01 | -4.038E+00 | 3.30E-01 | 3.478E+02 | 2.492E+03 | 8.049E-08 | 1.355E-03 | 4.29E+01 | 2.944E+00 | 3.293E+00 | 4.722E-02 | 1.386E+01 | 2.003E+00 |
| 10 | 9.848E-01 | -4.982E+00 | 3.67E-01 | 3.473E+02 | 2.489E+03 | 8.073E-08 | 1.359E-03 | 3.99E+01 | 3.469E+00 | 3.830E+00 | 3.469E-02 | 1.046E+01 | 2.224E+00 |
| 15 | 9.659E-01 | -1.117E+01 | 5.52E-01 | 3.440E+02 | 2.465E+03 | 8.228E-08 | 1.385E-03 | 2.90E+01 | 6.829E+00 | 7.347E+00 | 9.307E-03 | 3.074E+00 | 3.314E+00 |
| 20 | 9.397E-01 | -1.978E+01 | 7.39E-01 | 3.395E+02 | 2.432E+03 | 8.452E-08 | 1.423E-03 | 2.25E+01 | 1.144E+01 | 1.223E+01 | 3.347E-03 | 1.158E+00 | 4.380E+00 |
| 25 | 9.063E-01 | -3.073E+01 | 9.29E-01 | 3.336E+02 | 2.390E+03 | 8.750E-08 | 1.473E-03 | 1.82E+01 | 1.729E+01 | 1.845E+01 | 1.470E-03 | 5.211E-01 | 5.412E+00 |
| 30 | 8.660E-01 | -4.394E+01 | 1.12E+00 | 3.266E+02 | 2.340E+03 | 9.132E-08 | 1.537E-03 | 1.53E+01 | 2.433E+01 | 2.595E+01 | 7.425E-04 | 2.672E-01 | 6.403E+00 |
| 35 | 8.192E-01 | -5.931E+01 | 1.32E+00 | 3.184E+02 | 2.281E+03 | 9.608E-08 | 1.617E-03 | 1.30E+01 | 3.253E+01 | 3.468E+01 | 4.157E-04 | 1.510E-01 | 7.345E+00 |
| 40 | 7.660E-01 | -7.672E+01 | 1.53E+00 | 3.091E+02 | 2.215E+03 | 1.019E-07 | 1.716E-03 | 1.14E+01 | 4.181E+01 | 4.458E+01 | 2.517E-04 | 9.195E-02 | 8.231E+00 |
| 45 | 7.071E-01 | -9.605E+01 | 1.74E+00 | 2.988E+02 | 2.141E+03 | 1.091E-07 | 1.836E-03 | 1.00E+01 | 5.212E+01 | 5.555E+01 | 1.620E-04 | 5.945E-02 | 9.055E+00 |
| 50 | 6.428E-01 | -1.171E+02 | 1.95E+00 | 2.876E+02 | 2.060E+03 | 1.178E-07 | 1.983E-03 | 8.91E+00 | 6.336E+01 | 6.753E+01 | 1.096E-04 | 4.035E-02 | 9.809E+00 |
| 55 | 5.736E-01 | -1.398E+02 | 2.18E+00 | 2.755E+02 | 1.974E+03 | 1.283E-07 | 2.161E-03 | 7.99E+00 | 7.545E+01 | 8.043E+01 | 7.730E-05 | 2.852E-02 | 1.049E+01 |
| 60 | 5.000E-01 | -1.640E+02 | 2.42E+00 | 2.626E+02 | 1.882E+03 | 1.412E-07 | 2.377E-03 | 7.21E+00 | 8.831E+01 | 9.413E+01 | 5.643E-05 | 2.086E-02 | 1.109E+01 |
| 65 | 4.226E-01 | -1.893E+02 | 2.67E+00 | 2.491E+02 | 1.785E+03 | 1.570E-07 | 2.643E-03 | 6.54E+00 | 1.018E+02 | 1.085E+02 | 4.244E-05 | 1.571E-02 | 1.161E+01 |
| 70 | 3.420E-01 | -2.158E+02 | 2.93E+00 | 2.350E+02 | 1.684E+03 | 1.763E-07 | 2.969E-03 | 5.96E+00 | 1.159E+02 | 1.236E+02 | 3.275E-05 | 1.214E-02 | 1.203E+01 |
| 75 | 2.588E-01 | -2.431E+02 | 3.22E+00 | 2.205E+02 | 1.580E+03 | 2.004E-07 | 3.373E-03 | 5.44E+00 | 1.305E+02 | 1.391E+02 | 2.586E-05 | 9.590E-03 | 1.237E+01 |
| 80 | 1.736E-01 | -2.710E+02 | 3.52E+00 | 2.056E+02 | 1.473E+03 | 2.304E-07 | 3.879E-03 | 4.98E+00 | 1.453E+02 | 1.549E+02 | 2.083E-05 | 7.732E-03 | 1.261E+01 |
| 85 | 8.716E-02 | -2.994E+02 | 3.84E+00 | 1.905E+02 | 1.365E+03 | 2.685E-07 | 4.519E-03 | 4.56E+00 | 1.605E+02 | 1.710E+02 | 1.709E-05 | 6.348E-03 | 1.276E+01 |
| 90 | 0. | -3.279E+02 | 4.19E+00 | 1.752E+02 | 1.256E+03 | 3.172E-07 | 5.339E-03 | 4.18E+00 | 1.757E+02 | 1.873E+02 | 1.426E-05 | 5.298E-03 | 1.281E+01 |
| 95 | -8.716E-02 | -3.565E+02 | 4.57E+00 | 1.600E+02 | 1.146E+03 | 3.804E-07 | 6.404E-03 | 3.83E+00 | 1.909E+02 | 2.035F+02 | 1.207E-05 | 4.488E-03 | 1.276E+01 |
| 100 | -1.736E-01 | -3.849E+02 | 4.99E+00 | 1.449E+02 | 1.038E+03 | 4.639E-07 | 7.810E-03 | 3.51E+00 | 2.060E+02 | 2.196E+02 | 1.037E-05 | 3.855E-03 | 1.261E+01 |
| 105 | -2.588E-01 | -4.128E+02 | 5.46E+00 | 1.300E+02 | 9.315E+02 | 5.762E-07 | 9.700E-03 | 3.21E+00 | 2.209E+02 | 2.355E+02 | 9.018E-06 | 3.354E-03 | 1.237E+01 |
| 110 | -3.420E-01 | -4.401E+02 | 5.98E+00 | 1.155E+02 | 8.273E+02 | 7.305E-07 | 1.230E-02 | 2.93E+00 | 2.355E+02 | 2.510E+02 | 7.939E-06 | 2.953E-03 | 1.203E+01 |
| 115 | -4.226E-01 | -4.665E+02 | 6.57E+00 | 1.014E+02 | 7.264E+02 | 9.476E-07 | 1.595E-02 | 2.67E+00 | 2.496E+02 | 2.660E+02 | 7.068E-06 | 2.630E-03 | 1.161E+01 |
| 120 | -5.000E-01 | -4.919E+02 | 7.25E+00 | 8.786E+01 | 6.295E+02 | 1.262E-06 | 2.124E-02 | 2.42E+00 | 2.631E+02 | 2.804E+02 | 6.360E-06 | 2.367E-03 | 1.109E+01 |
| 125 | -5.736E-01 | -5.160E+02 | 8.04E+00 | 7.500E+01 | 5.374E+02 | 1.731E-06 | 2.914E-02 | 2.18E+00 | 2.759E+02 | 2.941E+02 | 5.781E-06 | 2.152E-03 | 1.049E+01 |
| 130 | -6.428E-01 | -5.387E+02 | 8.97E+00 | 6.291E+01 | 4.507E+02 | 2.461E-06 | 4.143E-02 | 1.95E+00 | 2.880E+02 | 3.070E+02 | 5.306E-06 | 1.975E-03 | 9.809E+00 |
| 135 | -7.071E-01 | -5.598E+02 | 1.01E+01 | 5.166E+01 | 3.702E+02 | 3.649E-06 | 6.141E-02 | 1.73E+00 | 2.993E+02 | 3.190E+02 | 4.915E-06 | 1.830E-03 | 9.055E+00 |
| 140 | -7.660E-01 | -5.792E+02 | 1.15E+01 | 4.136E+01 | 2.964E+02 | 5.692E-06 | 9.579E-02 | 1.52E+00 | 3.096E+02 | 3.299E+02 | 4.593E-06 | 1.710E-03 | 8.231E+00 |
| 145 | -8.192E-01 | -5.966E+02 | 1.32E+01 | 3.208E+01 | 2.299E+02 | 9.462E-06 | 1.592E-01 | 1.32E+00 | 3.189E+02 | 3.398E+02 | 4.329E-06 | 1.612E-03 | 7.345E+00 |
| 150 | -8.660E-01 | -6.119E+02 | 1.55E+01 | 2.389E+01 | 1.712E+02 | 1.706E-05 | 2.870E-01 | 1.12E+00 | 3.270E+02 | 3.486E+02 | 4.115E-06 | 1.533E-03 | 6.403E+00 |
| 155 | -9.063E-01 | -6.252E+02 | 1.87E+01 | 1.685E+01 | 1.207E+02 | 3.429E-05 | 5.767E-01 | 9.28E-01 | 3.341E+02 | 3.561E+02 | 3.944E-06 | 1.469E-03 | 5.412E+00 |
| 160 | -9.397E-01 | -6.361E+02 | 2.34E+01 | 1.102E+01 | 7.895E+01 | 8.023E-05 | 1.348E+00 | 7.38E-01 | 3.399E+02 | 3.623E+02 | 3.809E-06 | 1.419E-03 | 4.380E+00 |
| 165 | -9.659E-01 | -6.447E+02 | 3.10E+01 | 6.432E+00 | 4.610E+01 | 2.353E-04 | 3.952E+00 | 5.51E-01 | 3.445E+02 | 3.672E+02 | 3.709E-06 | 1.382E-03 | 3.314E+00 |
| 170 | -9.848E-01 | -6.509E+02 | 4.53E+01 | 3.131E+00 | 2.245E+01 | 9.922E-04 | 1.663E+01 | 3.66E-01 | 3.478E+02 | 3.707E+02 | 3.639E-06 | 1.355E-03 | 2.224E+00 |
| 175 | -9.962E-01 | -6.546E+02 | 7.94E+01 | 1.135E+00 | 8.196E+00 | 7.471E-03 | 1.258E+02 | 1.83E-01 | 3.498E+02 | 3.728E+02 | 3.597E-06 | 1.340E-03 | 1.116E+00 |
| 180 | -1.000E+00 | -6.559E+02 | 1.80E+02 | 4.581E-01 | 3.431E+00 | 4.341E-02 | 7.813E+02 | 0. | 3.505E+02 | 3.735E+02 | 3.584E-06 | 1.335E-03 | 0. |

PION (1) + PROTON (2) => PION (3) + PROTON (4) AT 400 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 1.39569E-01 M4 = 9.38259E-01
P2CM= 1.36904E+01 P3CM= 1.36904E+01
E1CM= 1.36911E+01 E2CM= 1.37225E+01 E3CM= 1.36911E+01 E4CM= 1.37225E+01

1-V1LAB = 6.087E-08 1-VCM = 2.340E-03 GCM = 1.46255E+01 ETCM= 2.74136E+01 S = 7.51507E+02 -U=( 7.49708E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 4.000E+02 | 2.866E+03 | 6.087E-08 | 1.171E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -5.709E-02 | 3.42E-02 | 4.000E+02 | 2.866E+03 | 6.088E-08 | 1.172E-03 | 8.27E+01 | 2.409E-01 | 1.032E+00 | 7.513E-01 | 4.090E+02 | 2.389E-01 |
| 2 | 9.994E-01 | -2.284E-01 | 6.85E-02 | 3.999E+02 | 2.865E+03 | 6.091E-08 | 1.172E-03 | 7.57E+01 | 4.931E-01 | 1.130E+00 | 5.348E-01 | 1.907E+02 | 4.778E-01 |
| 3 | 9.986E-01 | -5.137E-01 | 1.03E-01 | 3.997E+02 | 2.864E+03 | 6.096E-08 | 1.173E-03 | 6.90E+01 | 7.672E-01 | 1.292E+00 | 3.670E-01 | 1.139E+02 | 7.165E-01 |
| 4 | 9.976E-01 | -9.131E-01 | 1.37E-01 | 3.995E+02 | 2.862E+03 | 6.102E-08 | 1.174E-03 | 6.29E+01 | 1.072E+00 | 1.519E+00 | 2.474E-01 | 7.414E+01 | 9.550E-01 |
| 5 | 9.962E-01 | -1.426E+00 | 1.71E-01 | 3.992E+02 | 2.861E+03 | 6.111E-08 | 1.176E-03 | 5.74E+01 | 1.416E+00 | 1.810E+00 | 1.664E-01 | 5.033E+01 | 1.193E+00 |
| 6 | 9.945E-01 | -2.053E+00 | 2.06E-01 | 3.989E+02 | 2.859E+03 | 6.121E-08 | 1.178E-03 | 5.25E+01 | 1.803E+00 | 2.166E+00 | 1.129E-01 | 3.507E+01 | 1.431E+00 |
| 7 | 9.925E-01 | -2.794E+00 | 2.40E-01 | 3.985E+02 | 2.855E+03 | 6.133E-08 | 1.180E-03 | 4.82E+01 | 2.239E+00 | 2.587E+00 | 7.773E-02 | 2.494E+01 | 1.668E+00 |
| 8 | 9.903E-01 | -3.648E+00 | 2.74E-01 | 3.981E+02 | 2.852E+03 | 6.147E-08 | 1.183E-03 | 4.44E+01 | 2.725E+00 | 3.072E+00 | 5.447E-02 | 1.804E+01 | 1.905E+00 |
| 9 | 9.877E-01 | -4.615E+00 | 3.09E-01 | 3.975E+02 | 2.848E+03 | 6.163E-08 | 1.186E-03 | 4.10E+01 | 3.266E+00 | 3.621E+00 | 3.869E-02 | 1.327E+01 | 2.142E+00 |
| 10 | 9.848E-01 | -5.695E+00 | 3.43E-01 | 3.970E+02 | 2.844E+03 | 6.181E-08 | 1.189E-03 | 3.80E+01 | 3.861E+00 | 4.235E+00 | 2.828E-02 | 9.908E+00 | 2.377E+00 |
| 15 | 9.659E-01 | -1.277E+01 | 5.16E-01 | 3.932E+02 | 2.817E+03 | 6.300E-08 | 1.212E-03 | 2.74E+01 | 7.688E+00 | 8.255E+00 | 7.365E-03 | 2.814E+00 | 3.543E+00 |
| 20 | 9.397E-01 | -2.261E+01 | 6.92E-01 | 3.880E+02 | 2.780E+03 | 6.471E-08 | 1.245E-03 | 2.12E+01 | 1.295E+01 | 1.384E+01 | 2.614E-03 | 1.042E+00 | 4.682E+00 |
| 25 | 9.063E-01 | -3.512E+01 | 8.69E-01 | 3.813E+02 | 2.732E+03 | 6.700E-08 | 1.289E-03 | 1.71E+01 | 1.963E+01 | 2.095E+01 | 1.140E-03 | 4.647E-01 | 5.786E+00 |
| 30 | 8.660E-01 | -5.022E+01 | 1.05E+00 | 3.732E+02 | 2.674E+03 | 6.992E-08 | 1.345E-03 | 1.43E+01 | 2.769E+01 | 2.952E+01 | 5.738E-04 | 2.369E-01 | 6.845E+00 |
| 35 | 8.192E-01 | -6.779E+01 | 1.24E+00 | 3.639E+02 | 2.607E+03 | 7.356E-08 | 1.416E-03 | 1.22E+01 | 3.705E+01 | 3.950E+01 | 3.205E-04 | 1.334E-01 | 7.852E+00 |
| 40 | 7.660E-01 | -8.770E+01 | 1.43E+00 | 3.533E+02 | 2.531E+03 | 7.805E-08 | 1.502E-03 | 1.06E+01 | 4.766E+01 | 5.081E+01 | 1.937E-04 | 8.108E-02 | 8.800E+00 |
| 45 | 7.071E-01 | -1.098E+02 | 1.62E+00 | 3.415E+02 | 2.447E+03 | 8.352E-08 | 1.607E-03 | 9.37E+00 | 5.944E+01 | 6.336E+01 | 1.246E-04 | 5.234E-02 | 9.681E+00 |
| 50 | 6.428E-01 | -1.339E+02 | 1.83E+00 | 3.286E+02 | 2.355E+03 | 9.018E-08 | 1.735E-03 | 8.34E+00 | 7.229E+01 | 7.705E+01 | 8.422E-05 | 3.549E-02 | 1.049E+01 |
| 55 | 5.736E-01 | -1.598E+02 | 2.04E+00 | 3.148E+02 | 2.256E+03 | 9.827E-08 | 1.891E-03 | 7.48E+00 | 8.612E+01 | 9.179E+01 | 5.935E-05 | 2.506E-02 | 1.121E+01 |
| 60 | 5.000E-01 | -1.874E+02 | 2.26E+00 | 3.001E+02 | 2.150E+03 | 1.081E-07 | 2.081E-03 | 6.75E+00 | 1.008E+02 | 1.075E+02 | 4.331E-05 | 1.831E-02 | 1.186E+01 |
| 65 | 4.226E-01 | -2.164E+02 | 2.50E+00 | 2.847E+02 | 2.040E+03 | 1.202E-07 | 2.313E-03 | 6.13E+00 | 1.163E+02 | 1.239E+02 | 3.256E-05 | 1.378E-02 | 1.241E+01 |
| 70 | 3.420E-01 | -2.466E+02 | 2.75E+00 | 2.686E+02 | 1.924E+03 | 1.350E-07 | 2.599E-03 | 5.58E+00 | 1.324E+02 | 1.411E+02 | 2.512E-05 | 1.065E-02 | 1.286E+01 |
| 75 | 2.588E-01 | -2.778E+02 | 3.01E+00 | 2.519E+02 | 1.805E+03 | 1.534E-07 | 2.953E-03 | 5.09E+00 | 1.490E+02 | 1.588E+02 | 1.983E-05 | 8.410E-03 | 1.322E+01 |
| 80 | 1.736E-01 | -3.098E+02 | 3.29E+00 | 2.349E+02 | 1.683E+03 | 1.765E-07 | 3.396E-03 | 4.66E+00 | 1.660E+02 | 1.769E+02 | 1.597E-05 | 6.779E-03 | 1.348E+01 |
| 85 | 8.716E-02 | -3.422E+02 | 3.59E+00 | 2.176E+02 | 1.559E+03 | 2.056E-07 | 3.956E-03 | 4.27E+00 | 1.833E+02 | 1.953E+02 | 1.310E-05 | 5.564E-03 | 1.364E+01 |
| 90 | 0. | -3.749E+02 | 3.92E+00 | 2.002E+02 | 1.435E+03 | 2.429E-07 | 4.674E-03 | 3.91E+00 | 2.007E+02 | 2.139E+02 | 1.093E-05 | 4.642E-03 | 1.369E+01 |
| 95 | -8.716E-02 | -4.075E+02 | 4.28E+00 | 1.828E+02 | 1.310E+03 | 2.914E-07 | 5.607E-03 | 3.59E+00 | 2.181E+02 | 2.325E+02 | 9.253E-06 | 3.932E-03 | 1.364E+01 |
| 100 | -1.736E-01 | -4.399E+02 | 4.67E+00 | 1.656E+02 | 1.186E+03 | 3.554E-07 | 6.838E-03 | 3.28E+00 | 2.354E+02 | 2.509E+02 | 7.944E-06 | 3.377E-03 | 1.348E+01 |
| 105 | -2.588E-01 | -4.719E+02 | 5.11E+00 | 1.485E+02 | 1.064E+03 | 4.414E-07 | 8.494E-03 | 3.00E+00 | 2.524E+02 | 2.690E+02 | 6.909E-06 | 2.938E-03 | 1.322E+01 |
| 110 | -3.420E-01 | -5.031E+02 | 5.60E+00 | 1.319E+02 | 9.452E+02 | 5.597E-07 | 1.077E-02 | 2.74E+00 | 2.690E+02 | 2.867E+02 | 6.082E-06 | 2.587E-03 | 1.286E+01 |
| 115 | -4.226E-01 | -5.333E+02 | 6.15E+00 | 1.158E+02 | 8.298E+02 | 7.261E-07 | 1.397E-02 | 2.49E+00 | 2.851E+02 | 3.039E+02 | 5.414E-06 | 2.303E-03 | 1.241E+01 |
| 120 | -5.000E-01 | -5.623E+02 | 6.78E+00 | 1.004E+02 | 7.191E+02 | 9.670E-07 | 1.861E-02 | 2.26E+00 | 3.006E+02 | 3.204E+02 | 4.872E-06 | 2.073E-03 | 1.186E+01 |
| 125 | -5.736E-01 | -5.899E+02 | 7.52E+00 | 8.566E+01 | 6.138E+02 | 1.327E-06 | 2.554E-02 | 2.04E+00 | 3.153E+02 | 3.360E+02 | 4.428E-06 | 1.884E-03 | 1.121E+01 |
| 130 | -6.428E-01 | -6.158E+02 | 8.39E+00 | 7.184E+01 | 5.147E+02 | 1.887E-06 | 3.631E-02 | 1.83E+00 | 3.291E+02 | 3.508E+02 | 4.064E-06 | 1.730E-03 | 1.049E+01 |
| 135 | -7.071E-01 | -6.399E+02 | 9.45E+00 | 5.899E+01 | 4.226E+02 | 2.799E-06 | 5.385E-02 | 1.62E+00 | 3.419E+02 | 3.645E+02 | 3.764E-06 | 1.602E-03 | 9.681E+00 |
| 140 | -7.660E-01 | -6.620E+02 | 1.07E+01 | 4.721E+01 | 3.383E+02 | 4.369E-06 | 8.405E-02 | 1.43E+00 | 3.537E+02 | 3.770E+02 | 3.518E-06 | 1.498E-03 | 8.800E+00 |
| 145 | -8.192E-01 | -6.819E+02 | 1.24E+01 | 3.661E+01 | 2.623E+02 | 7.269E-06 | 1.398E-01 | 1.23E+00 | 3.643E+02 | 3.883E+02 | 3.316E-06 | 1.412E-03 | 7.852E+00 |
| 150 | -8.660E-01 | -6.995E+02 | 1.46E+01 | 2.724E+01 | 1.952E+02 | 1.312E-05 | 2.524E-01 | 1.05E+00 | 3.737E+02 | 3.983E+02 | 3.152E-06 | 1.342E-03 | 6.845E+00 |
| 155 | -9.063E-01 | -7.146E+02 | 1.75E+01 | 1.919E+01 | 1.375E+02 | 2.643E-05 | 5.082E-01 | 8.68E-01 | 3.817E+02 | 4.069E+02 | 3.020E-06 | 1.286E-03 | 5.786E+00 |
| 160 | -9.397E-01 | -7.271E+02 | 2.20E+01 | 1.253E+01 | 8.975E+01 | 6.208E-05 | 1.193E+00 | 6.91E-01 | 3.884E+02 | 4.140E+02 | 2.918E-06 | 1.242E-03 | 4.682E+00 |
| 165 | -9.659E-01 | -7.369E+02 | 2.91E+01 | 7.284E+00 | 5.220E+01 | 1.835E-04 | 3.523E+00 | 5.16E-01 | 3.937E+02 | 4.196E+02 | 2.840E-06 | 1.209E-03 | 3.543E+00 |
| 170 | -9.848E-01 | -7.440E+02 | 4.26E+01 | 3.511E+00 | 2.518E+01 | 7.892E-04 | 1.513E+01 | 3.43E-01 | 3.974E+02 | 4.236E+02 | 2.787E-06 | 1.187E-03 | 2.377E+00 |
| 175 | -9.962E-01 | -7.483E+02 | 7.57E+01 | 1.231E+00 | 8.878E+00 | 6.363E-03 | 1.223E+02 | 1.71E-01 | 3.997E+02 | 4.260E+02 | 2.755E-06 | 1.173E-03 | 1.193E+00 |
| 180 | -1.000E+00 | -7.497E+02 | 1.80E+02 | 4.582E-01 | 3.432E+00 | 4.339E-02 | 8.927E+02 | 0. | 4.005E+02 | 4.268E+02 | 2.745E-06 | 1.169E-03 | 0. |

PION (1) + PROTON (2) => PION (3) + PROTON (4) AT 450 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 1.39569E-01 M4 = 9.38259E-01
P2CM= 1.45218E+01 P3CM= 1.45218E+01
E1CM= 1.45225E+01 E2CM= 1.45521E+01 E3CM= 1.45225E+01 E4CM= 1.45521E+01

1-V1LAB = 4.810E-08 1-VCM = 2.081E-03 GCM = 1.55097E+01 ETCM= 2.90746E+01 S = 8.45333E+02 -U=( 8.43534E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 4.500E+02 | 3.224E+03 | 4.810E-08 | 1.041E-03 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -6.424E-02 | 3.23E-02 | 4.500E+02 | 3.224E+03 | 4.810E-08 | 1.042E-03 | 8.23E+01 | 2.558E-01 | 1.036E+00 | 7.370E-01 | 4.324E+02 | 2.534E-01 |
| 2 | 9.994E-01 | -2.569E-01 | 6.45E-02 | 4.499E+02 | 3.223E+03 | 4.813E-08 | 1.042E-03 | 7.49E+01 | 5.250E-01 | 1.146E+00 | 5.117E-01 | 1.999E+02 | 5.068E-01 |
| 3 | 9.986E-01 | -5.780E-01 | 9.68E-02 | 4.497E+02 | 3.222E+03 | 4.816E-08 | 1.043E-03 | 6.79E+01 | 8.203E-01 | 1.328E+00 | 3.418E-01 | 1.179E+02 | 7.600E-01 |
| 4 | 9.976E-01 | -1.027E+00 | 1.29E-01 | 4.495E+02 | 3.220E+03 | 4.821E-08 | 1.044E-03 | 6.16E+01 | 1.152E+00 | 1.584E+00 | 2.246E-01 | 7.567E+01 | 1.013E+00 |
| 5 | 9.962E-01 | -1.605E+00 | 1.61E-01 | 4.491E+02 | 3.218E+03 | 4.828E-08 | 1.045E-03 | 5.59E+01 | 1.529E+00 | 1.912E+00 | 1.477E-01 | 5.061E+01 | 1.266E+00 |
| 6 | 9.945E-01 | -2.310E+00 | 1.94E-01 | 4.488E+02 | 3.215E+03 | 4.836E-08 | 1.047E-03 | 5.09E+01 | 1.956E+00 | 2.312E+00 | 9.835E-02 | 3.476E+01 | 1.518E+00 |
| 7 | 9.925E-01 | -3.144E+00 | 2.26E-01 | 4.483E+02 | 3.212E+03 | 4.846E-08 | 1.049E-03 | 4.65E+01 | 2.439E+00 | 2.786E+00 | 6.666E-02 | 2.439E+01 | 1.770E+00 |
| 8 | 9.903E-01 | -4.105E+00 | 2.59E-01 | 4.478E+02 | 3.209E+03 | 4.857E-08 | 1.052E-03 | 4.27E+01 | 2.981E+00 | 3.331E+00 | 4.612E-02 | 1.744E+01 | 2.021E+00 |
| 9 | 9.877E-01 | -5.193E+00 | 2.91E-01 | 4.472E+02 | 3.204E+03 | 4.869E-08 | 1.054E-03 | 3.93E+01 | 3.585E+00 | 3.949E+00 | 3.259E-02 | 1.270E+01 | 2.272E+00 |
| 10 | 9.848E-01 | -6.408E+00 | 3.24E-01 | 4.466E+02 | 3.200E+03 | 4.884E-08 | 1.057E-03 | 3.64E+01 | 4.251E+00 | 4.639E+00 | 2.351E-02 | 9.396E+00 | 2.522E+00 |
| 15 | 9.659E-01 | -1.437E+01 | 4.87E-01 | 4.423E+02 | 3.169E+03 | 4.978E-08 | 1.078E-03 | 2.61E+01 | 8.545E+00 | 9.162E+00 | 5.974E-03 | 2.594E+00 | 3.759E+00 |
| 20 | 9.397E-01 | -2.544E+01 | 6.52E-01 | 4.364E+02 | 3.127E+03 | 5.113E-08 | 1.107E-03 | 2.01E+01 | 1.446E+01 | 1.545E+01 | 2.098E-03 | 9.469E-01 | 4.967E+00 |
| 25 | 9.063E-01 | -3.952E+01 | 8.20E-01 | 4.289E+02 | 3.073E+03 | 5.294E-08 | 1.146E-03 | 1.62E+01 | 2.198E+01 | 2.344E+01 | 9.101E-04 | 4.193E-01 | 6.137E+00 |
| 30 | 8.660E-01 | -5.651E+01 | 9.91E-01 | 4.199E+02 | 3.008E+03 | 5.524E-08 | 1.196E-03 | 1.35E+01 | 3.104E+01 | 3.309E+01 | 4.566E-04 | 2.129E-01 | 7.261E+00 |
| 35 | 8.192E-01 | -7.628E+01 | 1.17E+00 | 4.094E+02 | 2.933E+03 | 5.812E-08 | 1.258E-03 | 1.16E+01 | 4.158E+01 | 4.432E+01 | 2.546E-04 | 1.195E-01 | 8.329E+00 |
| 40 | 7.660E-01 | -9.867E+01 | 1.35E+00 | 3.974E+02 | 2.847E+03 | 6.167E-08 | 1.335E-03 | 1.00E+01 | 5.351E+01 | 5.704E+01 | 1.537E-04 | 7.251E-02 | 9.334E+00 |
| 45 | 7.071E-01 | -1.235E+02 | 1.53E+00 | 3.842E+02 | 2.753E+03 | 6.599E-08 | 1.429E-03 | 8.85E+00 | 6.676E+01 | 7.116E+01 | 9.874E-05 | 4.675E-02 | 1.027E+01 |
| 50 | 6.428E-01 | -1.507E+02 | 1.72E+00 | 3.697E+02 | 2.649E+03 | 7.126E-08 | 1.543E-03 | 7.87E+00 | 8.122E+01 | 8.657E+01 | 6.672E-05 | 3.167E-02 | 1.112E+01 |
| 55 | 5.736E-01 | -1.799E+02 | 1.92E+00 | 3.542E+02 | 2.538E+03 | 7.765E-08 | 1.681E-03 | 7.06E+00 | 9.678E+01 | 1.031E+02 | 4.699E-05 | 2.235E-02 | 1.190E+01 |
| 60 | 5.000E-01 | -2.109E+02 | 2.13E+00 | 3.376E+02 | 2.419E+03 | 8.545E-08 | 1.850E-03 | 6.37E+00 | 1.133E+02 | 1.208E+02 | 3.428E-05 | 1.632E-02 | 1.258E+01 |
| 65 | 4.226E-01 | -2.435E+02 | 2.36E+00 | 3.202E+02 | 2.294E+03 | 9.498E-08 | 2.056E-03 | 5.78E+00 | 1.307E+02 | 1.393E+02 | 2.576E-05 | 1.228E-02 | 1.316E+01 |
| 70 | 3.420E-01 | -2.775E+02 | 2.59E+00 | 3.021E+02 | 2.165E+03 | 1.067E-07 | 2.310E-03 | 5.26E+00 | 1.488E+02 | 1.586E+02 | 1.987E-05 | 9.481E-03 | 1.365E+01 |
| 75 | 2.588E-01 | -3.126E+02 | 2.84E+00 | 2.834E+02 | 2.031E+03 | 1.213E-07 | 2.625E-03 | 4.80E+00 | 1.675E+02 | 1.786E+02 | 1.568E-05 | 7.488E-03 | 1.403E+01 |
| 80 | 1.736E-01 | -3.485E+02 | 3.10E+00 | 2.643E+02 | 1.893E+03 | 1.395E-07 | 3.020E-03 | 4.39E+00 | 1.867E+02 | 1.990E+02 | 1.263E-05 | 6.034E-03 | 1.430E+01 |
| 85 | 8.716E-02 | -3.850E+02 | 3.39E+00 | 2.448E+02 | 1.754E+03 | 1.625E-07 | 3.518E-03 | 4.02E+00 | 2.061E+02 | 2.197E+02 | 1.036E-05 | 4.952E-03 | 1.447E+01 |
| 90 | 0. | -4.218E+02 | 3.70E+00 | 2.252E+02 | 1.614E+03 | 1.920E-07 | 4.157E-03 | 3.69E+00 | 2.257E+02 | 2.406E+02 | 8.641E-06 | 4.131E-03 | 1.452E+01 |
| 95 | -8.716E-02 | -4.585E+02 | 4.03E+00 | 2.057E+02 | 1.473E+03 | 2.303E-07 | 4.986E-03 | 3.38E+00 | 2.453E+02 | 2.614E+02 | 7.316E-06 | 3.499E-03 | 1.447E+01 |
| 100 | -1.736E-01 | -4.950E+02 | 4.40E+00 | 1.862E+02 | 1.334E+03 | 2.809E-07 | 6.081E-03 | 3.10E+00 | 2.647E+02 | 2.821E+02 | 6.281E-06 | 3.005E-03 | 1.430E+01 |
| 105 | -2.588E-01 | -5.309E+02 | 4.82E+00 | 1.671E+02 | 1.197E+03 | 3.490E-07 | 7.555E-03 | 2.83E+00 | 2.839E+02 | 3.026E+02 | 5.462E-06 | 2.614E-03 | 1.403E+01 |
| 110 | -3.420E-01 | -5.660E+02 | 5.28E+00 | 1.484E+02 | 1.063E+03 | 4.425E-07 | 9.579E-03 | 2.58E+00 | 3.026E+02 | 3.225E+02 | 4.808E-06 | 2.301E-03 | 1.365E+01 |
| 115 | -4.226E-01 | -6.000E+02 | 5.80E+00 | 1.303E+02 | 9.332E+02 | 5.741E-07 | 1.243E-02 | 2.35E+00 | 3.207E+02 | 3.418E+02 | 4.280E-06 | 2.049E-03 | 1.316E+01 |
| 120 | -5.000E-01 | -6.327E+02 | 6.40E+00 | 1.129E+02 | 8.086E+02 | 7.647E-07 | 1.655E-02 | 2.13E+00 | 3.381E+02 | 3.603E+02 | 3.851E-06 | 1.844E-03 | 1.258E+01 |
| 125 | -5.736E-01 | -6.637E+02 | 7.09E+00 | 9.632E+01 | 6.901E+02 | 1.050E-06 | 2.273E-02 | 1.92E+00 | 3.546E+02 | 3.780E+02 | 3.500E-06 | 1.676E-03 | 1.190E+01 |
| 130 | -6.428E-01 | -6.929E+02 | 7.92E+00 | 8.077E+01 | 5.787E+02 | 1.493E-06 | 3.232E-02 | 1.72E+00 | 3.702E+02 | 3.945E+02 | 3.212E-06 | 1.538E-03 | 1.112E+01 |
| 135 | -7.071E-01 | -7.200E+02 | 8.91E+00 | 6.631E+01 | 4.751E+02 | 2.215E-06 | 4.795E-02 | 1.53E+00 | 3.846E+02 | 4.099E+02 | 2.975E-06 | 1.425E-03 | 1.027E+01 |
| 140 | -7.660E-01 | -7.449E+02 | 1.01E+01 | 5.306E+01 | 3.802E+02 | 3.459E-06 | 7.487E-02 | 1.34E+00 | 3.979E+02 | 4.241E+02 | 2.780E-06 | 1.332E-03 | 9.334E+00 |
| 145 | -8.192E-01 | -7.673E+02 | 1.17E+01 | 4.113E+01 | 2.947E+02 | 5.758E-06 | 1.246E-01 | 1.16E+00 | 4.098E+02 | 4.368E+02 | 2.621E-06 | 1.255E-03 | 8.329E+00 |
| 150 | -8.660E-01 | -7.870E+02 | 1.37E+01 | 3.059E+01 | 2.192E+02 | 1.041E-05 | 2.252E-01 | 9.90E-01 | 4.203E+02 | 4.480E+02 | 2.491E-06 | 1.193E-03 | 7.261E+00 |
| 155 | -9.063E-01 | -8.040E+02 | 1.66E+01 | 2.154E+01 | 1.543E+02 | 2.100E-05 | 4.542E-01 | 8.19E-01 | 4.294E+02 | 4.577E+02 | 2.387E-06 | 1.144E-03 | 6.137E+00 |
| 160 | -9.397E-01 | -8.181E+02 | 2.07E+01 | 1.403E+01 | 1.006E+02 | 4.945E-05 | 1.069E+00 | 6.51E-01 | 4.369E+02 | 4.657E+02 | 2.306E-06 | 1.105E-03 | 4.967E+00 |
| 165 | -9.659E-01 | -8.292E+02 | 2.75E+01 | 8.136E+00 | 5.831E+01 | 1.471E-04 | 3.178E+00 | 4.86E-01 | 4.428E+02 | 4.719E+02 | 2.245E-06 | 1.076E-03 | 3.759E+00 |
| 170 | -9.848E-01 | -8.371E+02 | 4.04E+01 | 3.891E+00 | 2.790E+01 | 6.426E-04 | 1.386E+01 | 3.23E-01 | 4.470E+02 | 4.765E+02 | 2.202E-06 | 1.055E-03 | 2.522E+00 |
| 175 | -9.962E-01 | -8.419E+02 | 7.25E+01 | 1.327E+00 | 9.560E+00 | 5.486E-03 | 1.185E+02 | 1.61E-01 | 4.496E+02 | 4.792E+02 | 2.177E-06 | 1.043E-03 | 1.266E+00 |
| 180 | -1.000E+00 | -8.435E+02 | 1.80E+02 | 4.583E-01 | 3.432E+00 | 4.338E-02 | 1.004E+03 | 0. | 4.505E+02 | 4.801E+02 | 2.169E-06 | 1.039E-03 | 0. |

PION (1) + PROTON (2) => PION (3) + PROTON (4) AT 500 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 1.39569E-01 M4 = 9.38259E-01
P2CM= 1.53082E+01 P3CM= 1.53082E+01
E1CM= 1.53088E+01 E2CM= 1.53369E+01 E3CM= 1.53088E+01 E4CM= 1.53369E+01

1-V1LAB = 3.896E-08 1-VCM = 1.873E-03 GCM = 1.63461E+01 ETCM= 3.06457E+01 S = 9.39159E+02 -U=( 9.37359E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 5.000E+02 | 3.582E+03 | 3.896E-08 | 9.374E-04 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -7.138E-02 | 3.06E-02 | 5.000E+02 | 3.582E+03 | 3.896E-08 | 9.375E-04 | 8.19E+01 | 2.699E-01 | 1.041E+00 | 7.236E-01 | 4.544E+02 | 2.672E-01 |
| 2 | 9.994E-01 | -2.855E-01 | 6.12E-02 | 4.998E+02 | 3.581E+03 | 3.894E-08 | 9.379E-04 | 7.41E+01 | 5.556E-01 | 1.162E+00 | 4.905E-01 | 2.083E+02 | 5.342E-01 |
| 3 | 9.986E-01 | -6.423E-01 | 9.19E-02 | 4.997E+02 | 3.580E+03 | 3.901E-08 | 9.386E-04 | 6.68E+01 | 8.715E-01 | 1.365E+00 | 3.195E-01 | 1.214E+02 | 8.012E-01 |
| 4 | 9.976E-01 | -1.142E+00 | 1.23E-01 | 4.994E+02 | 3.578E+03 | 3.905E-08 | 9.396E-04 | 6.03E+01 | 1.230E+00 | 1.648E+00 | 2.050E-01 | 7.684E+01 | 1.068E+00 |
| 5 | 9.962E-01 | -1.783E+00 | 1.53E-01 | 4.990E+02 | 3.576E+03 | 3.911E-08 | 9.409E-04 | 5.45E+01 | 1.639E+00 | 2.013E+00 | 1.321E-01 | 5.067E+01 | 1.334E+00 |
| 6 | 9.945E-01 | -2.567E+00 | 1.84E-01 | 4.986E+02 | 3.573E+03 | 3.917E-08 | 9.425E-04 | 4.94E+01 | 2.107E+00 | 2.458E+00 | 8.648E-02 | 3.434E+01 | 1.600E+00 |
| 7 | 9.925E-01 | -3.493E+00 | 2.15E-01 | 4.981E+02 | 3.569E+03 | 3.925E-08 | 9.444E-04 | 4.50E+01 | 2.638E+00 | 2.984E+00 | 5.782E-02 | 2.381E+01 | 1.866E+00 |
| 8 | 9.903E-01 | -4.561E+00 | 2.45E-01 | 4.976E+02 | 3.565E+03 | 3.934E-08 | 9.465E-04 | 4.12E+01 | 3.236E+00 | 3.591E+00 | 3.957E-02 | 1.685E+01 | 2.130E+00 |
| 9 | 9.877E-01 | -5.770E+00 | 2.76E-01 | 4.969E+02 | 3.560E+03 | 3.944E-08 | 9.490E-04 | 3.79E+01 | 3.902E+00 | 4.277E+00 | 2.771E-02 | 1.215E+01 | 2.395E+00 |
| 10 | 9.848E-01 | -7.120E+00 | 3.07E-01 | 4.962E+02 | 3.555E+03 | 3.956E-08 | 9.518E-04 | 3.50E+01 | 4.639E+00 | 5.044E+00 | 1.985E-02 | 8.925E+00 | 2.658E+00 |
| 15 | 9.659E-01 | -1.597E+01 | 4.62E-01 | 4.915E+02 | 3.521E+03 | 4.032E-08 | 9.701E-04 | 2.49E+01 | 9.402E+00 | 1.007E+01 | 4.943E-03 | 2.404E+00 | 3.962E+00 |
| 20 | 9.397E-01 | -2.826E+01 | 6.19E-01 | 4.849E+02 | 3.475E+03 | 4.142E-08 | 9.965E-04 | 1.91E+01 | 1.597E+01 | 1.705E+01 | 1.721E-03 | 8.677E-01 | 5.236E+00 |
| 25 | 9.063E-01 | -4.391E+01 | 7.78E-01 | 4.766E+02 | 3.415E+03 | 4.288E-08 | 1.032E-03 | 1.54E+01 | 2.432E+01 | 2.594E+01 | 7.433E-04 | 3.819E-01 | 6.470E+00 |
| 30 | 8.660E-01 | -6.279E+01 | 9.40E-01 | 4.665E+02 | 3.343E+03 | 4.475E-08 | 1.077E-03 | 1.29E+01 | 3.439E+01 | 3.666E+01 | 3.720E-04 | 1.932E-01 | 7.654E+00 |
| 35 | 8.192E-01 | -8.476E+01 | 1.11E+00 | 4.548E+02 | 3.259E+03 | 4.708E-08 | 1.133E-03 | 1.10E+01 | 4.610E+01 | 4.914E+01 | 2.071E-04 | 1.083E-01 | 8.780E+00 |
| 40 | 7.660E-01 | -1.097E+02 | 1.28E+00 | 4.416E+02 | 3.164E+03 | 4.995E-08 | 1.202E-03 | 9.54E+00 | 5.936E+01 | 6.328E+01 | 1.249E-04 | 6.558E-02 | 9.840E+00 |
| 45 | 7.071E-01 | -1.373E+02 | 1.45E+00 | 4.268E+02 | 3.058E+03 | 5.346E-08 | 1.286E-03 | 8.40E+00 | 7.409E+01 | 7.897E+01 | 8.019E-05 | 4.224E-02 | 1.082E+01 |
| 50 | 6.428E-01 | -1.674E+02 | 1.64E+00 | 4.108E+02 | 2.943E+03 | 5.772E-08 | 1.389E-03 | 7.47E+00 | 9.015E+01 | 9.609E+01 | 5.416E-05 | 2.859E-02 | 1.173E+01 |
| 55 | 5.736E-01 | -1.999E+02 | 1.83E+00 | 3.935E+02 | 2.819E+03 | 6.290E-08 | 1.513E-03 | 6.70E+00 | 1.074E+02 | 1.145E+02 | 3.813E-05 | 2.016E-02 | 1.254E+01 |
| 60 | 5.000E-01 | -2.343E+02 | 2.03E+00 | 3.751E+02 | 2.688E+03 | 6.922E-08 | 1.665E-03 | 6.05E+00 | 1.258E+02 | 1.341E+02 | 2.781E-05 | 1.472E-02 | 1.326E+01 |
| 65 | 4.226E-01 | -2.706E+02 | 2.23E+00 | 3.558E+02 | 2.549E+03 | 7.694E-08 | 1.851E-03 | 5.49E+00 | 1.451E+02 | 1.547E+02 | 2.089E-05 | 1.107E-02 | 1.387E+01 |
| 70 | 3.420E-01 | -3.084E+02 | 2.46E+00 | 3.357E+02 | 2.405E+03 | 8.645E-08 | 2.080E-03 | 4.99E+00 | 1.653E+02 | 1.762E+02 | 1.611E-05 | 8.547E-03 | 1.438E+01 |
| 75 | 2.588E-01 | -3.474E+02 | 2.69E+00 | 3.149E+02 | 2.256E+03 | 9.823E-08 | 2.363E-03 | 4.56E+00 | 1.861E+02 | 1.983E+02 | 1.272E-05 | 6.748E-03 | 1.479E+01 |
| 80 | 1.736E-01 | -3.873E+02 | 2.94E+00 | 2.936E+02 | 2.104E+03 | 1.130E-07 | 2.718E-03 | 4.17E+00 | 2.073E+02 | 2.210E+02 | 1.024E-05 | 5.437E-03 | 1.508E+01 |
| 85 | 8.716E-02 | -4.278E+02 | 3.21E+00 | 2.720E+02 | 1.949E+03 | 1.316E-07 | 3.167E-03 | 3.82E+00 | 2.289E+02 | 2.440E+02 | 8.399E-06 | 4.461E-03 | 1.525E+01 |
| 90 | 0. | -4.687E+02 | 3.51E+00 | 2.502E+02 | 1.793E+03 | 1.555E-07 | 3.742E-03 | 3.50E+00 | 2.507E+02 | 2.672E+02 | 7.003E-06 | 3.722E-03 | 1.531E+01 |
| 95 | -8.716E-02 | -5.095E+02 | 3.83E+00 | 2.285E+02 | 1.637E+03 | 1.866E-07 | 4.489E-03 | 3.21E+00 | 2.725E+02 | 2.904E+02 | 5.929E-06 | 3.152E-03 | 1.525E+01 |
| 100 | -1.736E-01 | -5.501E+02 | 4.18E+00 | 2.069E+02 | 1.482E+03 | 2.276E-07 | 5.476E-03 | 2.94E+00 | 2.941E+02 | 3.134E+02 | 5.090E-06 | 2.706E-03 | 1.508E+01 |
| 105 | -2.588E-01 | -5.900E+02 | 4.57E+00 | 1.856E+02 | 1.330E+03 | 2.828E-07 | 6.803E-03 | 2.69E+00 | 3.153E+02 | 3.361E+02 | 4.426E-06 | 2.354E-03 | 1.479E+01 |
| 110 | -3.420E-01 | -6.290E+02 | 5.01E+00 | 1.648E+02 | 1.181E+03 | 3.585E-07 | 8.626E-03 | 2.45E+00 | 3.361E+02 | 3.582E+02 | 3.896E-06 | 2.072E-03 | 1.438E+01 |
| 115 | -4.226E-01 | -6.668E+02 | 5.50E+00 | 1.447E+02 | 1.037E+03 | 4.653E-07 | 1.119E-02 | 2.23E+00 | 3.563E+02 | 3.797E+02 | 3.468E-06 | 1.845E-03 | 1.387E+01 |
| 120 | -5.000E-01 | -7.030E+02 | 6.07E+00 | 1.254E+02 | 8.982E+02 | 6.198E-07 | 1.491E-02 | 2.02E+00 | 3.756E+02 | 4.003E+02 | 3.120E-06 | 1.660E-03 | 1.326E+01 |
| 125 | -5.736E-01 | -7.375E+02 | 6.73E+00 | 1.070E+02 | 7.665E+02 | 8.510E-07 | 2.047E-02 | 1.82E+00 | 3.940E+02 | 4.199E+02 | 2.836E-06 | 1.509E-03 | 1.254E+01 |
| 130 | -6.428E-01 | -7.699E+02 | 7.51E+00 | 8.970E+01 | 6.427E+02 | 1.211E-06 | 2.912E-02 | 1.63E+00 | 4.112E+02 | 4.383E+02 | 2.603E-06 | 1.385E-03 | 1.173E+01 |
| 135 | -7.071E-01 | -8.001E+02 | 8.45E+00 | 7.363E+01 | 5.276E+02 | 1.796E-06 | 4.321E-02 | 1.45E+00 | 4.273E+02 | 4.554E+02 | 2.411E-06 | 1.283E-03 | 1.082E+01 |
| 140 | -7.660E-01 | -8.277E+02 | 9.62E+00 | 5.891E+01 | 4.221E+02 | 2.806E-06 | 6.750E-02 | 1.28E+00 | 4.420E+02 | 4.711E+02 | 2.253E-06 | 1.199E-03 | 9.840E+00 |
| 145 | -8.192E-01 | -8.526E+02 | 1.11E+01 | 4.565E+01 | 3.271E+02 | 4.674E-06 | 1.124E-01 | 1.11E+00 | 4.553E+02 | 4.853E+02 | 2.123E-06 | 1.130E-03 | 8.780E+00 |
| 150 | -8.660E-01 | -8.746E+02 | 1.30E+01 | 3.394E+01 | 2.432E+02 | 8.455E-06 | 2.033E-01 | 9.39E-01 | 4.670E+02 | 4.977E+02 | 2.018E-06 | 1.074E-03 | 7.654E+00 |
| 155 | -9.063E-01 | -8.934E+02 | 1.57E+01 | 2.388E+01 | 1.711E+02 | 1.708E-05 | 4.106E-01 | 7.77E-01 | 4.771E+02 | 5.085E+02 | 1.934E-06 | 1.030E-03 | 6.470E+00 |
| 160 | -9.397E-01 | -9.091E+02 | 1.97E+01 | 1.554E+01 | 1.114E+02 | 4.032E-05 | 9.691E-01 | 6.18E-01 | 4.854E+02 | 5.173E+02 | 1.868E-06 | 9.946E-04 | 5.236E+00 |
| 165 | -9.659E-01 | -9.214E+02 | 2.62E+01 | 8.988E+00 | 6.441E+01 | 1.205E-04 | 2.894E+00 | 4.61E-01 | 4.919E+02 | 5.243E+02 | 1.819E-06 | 9.683E-04 | 3.962E+00 |
| 170 | -9.848E-01 | -9.302E+02 | 3.85E+01 | 4.271E+00 | 3.062E+01 | 5.334E-04 | 1.279E+01 | 3.07E-01 | 4.967E+02 | 5.293E+02 | 1.784E-06 | 9.500E-04 | 2.658E+00 |
| 175 | -9.962E-01 | -9.356E+02 | 6.97E+01 | 1.423E+00 | 1.024E+01 | 4.778E-03 | 1.146E+02 | 1.53E-01 | 4.995E+02 | 5.324E+02 | 1.764E-06 | 9.392E-04 | 1.334E+00 |
| 180 | -1.000E+00 | -9.374E+02 | 1.80E+02 | 4.583E-01 | 3.433E+00 | 4.337E-02 | 1.116E+03 | 0. | 5.005E+02 | 5.334E+02 | 1.757E-06 | 9.356E-04 | 0. |

PION (1) + PROTON (2) => PION (3) + PROTON (4) AT 750 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 1.39569E-01 M4 = 9.38259E-01
P2CM= 1.87516E+01 P3CM= 1.87516E+01
E1CM= 1.87521E+01 E2CM= 1.87751E+01 E3CM= 1.87521E+01 E4CM= 1.87751E+01

1-V1LAB = 1.732E-08 1-VCM = 1.249E-03 GCM = 2.00105E+01 ETCM= 3.75272E+01 S = 1.40829E+03 -U=( 1.40649E+03) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 7.500E+02 | 5.374E+03 | 1.732E-08 | 6.251E-04 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -1.071E-01 | 2.50E-02 | 7.499E+02 | 5.373E+03 | 1.732E-08 | 6.252E-04 | 8.01E+01 | 3.322E-01 | 1.061E+00 | 6.662E-01 | 5.481E+02 | 3.273E-01 |
| 2 | 9.994E-01 | -4.284E-01 | 5.00E-02 | 7.498E+02 | 5.372E+03 | 1.733E-08 | 6.255E-04 | 7.07E+01 | 6.932E-01 | 1.243E+00 | 4.058E-01 | 2.413E+02 | 6.544E-01 |
| 3 | 9.986E-01 | -9.638E-01 | 7.50E-02 | 7.495E+02 | 5.370E+03 | 1.734E-08 | 6.260E-04 | 6.23E+01 | 1.108E+00 | 1.547E+00 | 2.369E-01 | 1.329E+02 | 9.814E-01 |
| 4 | 9.976E-01 | -1.713E+00 | 1.00E-01 | 7.491E+02 | 5.367E+03 | 1.736E-08 | 6.266E-04 | 5.51E+01 | 1.596E+00 | 1.973E+00 | 1.380E-01 | 7.909E+01 | 1.308E+00 |
| 5 | 9.962E-01 | -2.676E+00 | 1.25E-01 | 7.486E+02 | 5.363E+03 | 1.738E-08 | 6.275E-04 | 4.89E+01 | 2.170E+00 | 2.520E+00 | 8.211E-02 | 4.912E+01 | 1.634E+00 |
| 6 | 9.945E-01 | -3.852E+00 | 1.50E-01 | 7.479E+02 | 5.359E+03 | 1.741E-08 | 6.285E-04 | 4.36E+01 | 2.840E+00 | 3.188E+00 | 5.047E-02 | 3.154E+01 | 1.960E+00 |
| 7 | 9.925E-01 | -5.242E+00 | 1.75E-01 | 7.472E+02 | 5.354E+03 | 1.744E-08 | 6.298E-04 | 3.93E+01 | 3.612E+00 | 3.977E+00 | 3.212E-02 | 2.087E+01 | 2.285E+00 |
| 8 | 9.903E-01 | -6.844E+00 | 2.00E-01 | 7.464E+02 | 5.348E+03 | 1.748E-08 | 6.312E-04 | 3.56E+01 | 4.488E+00 | 4.887E+00 | 2.116E-02 | 1.420E+01 | 2.610E+00 |
| 9 | 9.877E-01 | -8.658E+00 | 2.25E-01 | 7.454E+02 | 5.341E+03 | 1.753E-08 | 6.329E-04 | 3.24E+01 | 5.472E+00 | 5.918E+00 | 1.438E-02 | 9.912E+00 | 2.933E+00 |
| 10 | 9.848E-01 | -1.068E+01 | 2.51E-01 | 7.443E+02 | 5.333E+03 | 1.758E-08 | 6.347E-04 | 2.97E+01 | 6.565E+00 | 7.068E+00 | 1.006E-02 | 7.084E+00 | 3.256E+00 |
| 15 | 9.659E-01 | -2.396E+01 | 3.77E-01 | 7.372E+02 | 5.282E+03 | 1.792E-08 | 6.469E-04 | 2.08E+01 | 1.368E+01 | 1.461E+01 | 2.345E-03 | 1.758E+00 | 4.853E+00 |
| 20 | 9.397E-01 | -4.241E+01 | 5.05E-01 | 7.274E+02 | 5.212E+03 | 1.841E-08 | 6.646E-04 | 1.58E+01 | 2.352E+01 | 2.509E+01 | 7.947E-04 | 6.115E-01 | 6.413E+00 |
| 25 | 9.063E-01 | -6.589E+01 | 6.35E-01 | 7.149E+02 | 5.122E+03 | 1.906E-08 | 6.880E-04 | 1.27E+01 | 3.604E+01 | 3.842E+01 | 3.387E-04 | 2.641E-01 | 7.925E+00 |
| 30 | 8.660E-01 | -9.422E+01 | 7.68E-01 | 6.998E+02 | 5.014E+03 | 1.989E-08 | 7.180E-04 | 1.06E+01 | 5.114E+01 | 5.451E+01 | 1.683E-04 | 1.322E-01 | 9.376E+00 |
| 35 | 8.192E-01 | -1.272E+02 | 9.03E-01 | 6.822E+02 | 4.888E+03 | 2.093E-08 | 7.555E-04 | 9.01E+00 | 6.871E+01 | 7.323E+01 | 9.323E-05 | 7.357E-02 | 1.076E+01 |
| 40 | 7.660E-01 | -1.645E+02 | 1.04E+00 | 6.623E+02 | 4.745E+03 | 2.220E-08 | 8.016E-04 | 7.82E+00 | 8.861E+01 | 9.445E+01 | 5.605E-05 | 4.437E-02 | 1.205E+01 |
| 45 | 7.071E-01 | -2.060E+02 | 1.19E+00 | 6.402E+02 | 4.587E+03 | 2.376E-08 | 8.578E-04 | 6.88E+00 | 1.107E+02 | 1.180E+02 | 3.592E-05 | 2.849E-02 | 1.326E+01 |
| 50 | 6.428E-01 | -2.512E+02 | 1.34E+00 | 6.161E+02 | 4.415E+03 | 2.566E-08 | 9.262E-04 | 6.12E+00 | 1.348E+02 | 1.437E+02 | 2.422E-05 | 1.924E-02 | 1.436E+01 |
| 55 | 5.736E-01 | -2.999E+02 | 1.49E+00 | 5.902E+02 | 4.229E+03 | 2.796E-08 | 1.009E-03 | 5.48E+00 | 1.607E+02 | 1.713E+02 | 1.704E-05 | 1.355E-02 | 1.536E+01 |
| 60 | 5.000E-01 | -3.516E+02 | 1.65E+00 | 5.626E+02 | 4.031E+03 | 3.077E-08 | 1.111E-03 | 4.95E+00 | 1.883E+02 | 2.007E+02 | 1.241E-05 | 9.878E-03 | 1.624E+01 |
| 65 | 4.226E-01 | -4.060E+02 | 1.83E+00 | 5.336E+02 | 3.823E+03 | 3.420E-08 | 1.235E-03 | 4.49E+00 | 2.173E+02 | 2.316E+02 | 9.320E-06 | 7.423E-03 | 1.699E+01 |
| 70 | 3.420E-01 | -4.627E+02 | 2.01E+00 | 5.034E+02 | 3.607E+03 | 3.843E-08 | 1.387E-03 | 4.08E+00 | 2.475E+02 | 2.638E+02 | 7.184E-06 | 5.725E-03 | 1.762E+01 |
| 75 | 2.588E-01 | -5.212E+02 | 2.20E+00 | 4.722E+02 | 3.384E+03 | 4.367E-08 | 1.577E-03 | 3.73E+00 | 2.787E+02 | 2.970E+02 | 5.667E-06 | 4.517E-03 | 1.811E+01 |
| 80 | 1.736E-01 | -5.811E+02 | 2.40E+00 | 4.403E+02 | 3.155E+03 | 5.024E-08 | 1.814E-03 | 3.41E+00 | 3.106E+02 | 3.311E+02 | 4.562E-06 | 3.638E-03 | 1.847E+01 |
| 85 | 8.716E-02 | -6.420E+02 | 2.62E+00 | 4.079E+02 | 2.923E+03 | 5.854E-08 | 2.113E-03 | 3.12E+00 | 3.430E+02 | 3.656E+02 | 3.741E-06 | 2.984E-03 | 1.868E+01 |
| 90 | 0. | -7.032E+02 | 2.86E+00 | 3.752E+02 | 2.689E+03 | 6.917E-08 | 2.497E-03 | 2.86E+00 | 3.757E+02 | 4.004E+02 | 3.118E-06 | 2.488E-03 | 1.875E+01 |
| 95 | -8.716E-02 | -7.645E+02 | 3.13E+00 | 3.426E+02 | 2.455E+03 | 8.299E-08 | 2.996E-03 | 2.62E+00 | 4.084E+02 | 4.352E+02 | 2.640E-06 | 2.106E-03 | 1.868E+01 |
| 100 | -1.736E-01 | -8.254E+02 | 3.41E+00 | 3.102E+02 | 2.222E+03 | 1.012E-07 | 3.655E-03 | 2.40E+00 | 4.408E+02 | 4.698E+02 | 2.266E-06 | 1.808E-03 | 1.847E+01 |
| 105 | -2.588E-01 | -8.853E+02 | 3.73E+00 | 2.782E+02 | 1.994E+03 | 1.258E-07 | 4.542E-03 | 2.20E+00 | 4.727E+02 | 5.038E+02 | 1.970E-06 | 1.573E-03 | 1.811E+01 |
| 110 | -3.420E-01 | -9.438E+02 | 4.09E+00 | 2.471E+02 | 1.770E+03 | 1.596E-07 | 5.760E-03 | 2.00E+00 | 5.039E+02 | 5.370E+02 | 1.734E-06 | 1.384E-03 | 1.762E+01 |
| 115 | -4.226E-01 | -1.000E+03 | 4.49E+00 | 2.169E+02 | 1.554E+03 | 2.071E-07 | 7.476E-03 | 1.82E+00 | 5.341E+02 | 5.692E+02 | 1.543E-06 | 1.232E-03 | 1.699E+01 |
| 120 | -5.000E-01 | -1.055E+03 | 4.96E+00 | 1.879E+02 | 1.346E+03 | 2.760E-07 | 9.963E-03 | 1.65E+00 | 5.631E+02 | 6.001E+02 | 1.388E-06 | 1.109E-03 | 1.624E+01 |
| 125 | -5.736E-01 | -1.107E+03 | 5.50E+00 | 1.603E+02 | 1.148E+03 | 3.791E-07 | 1.368E-02 | 1.49E+00 | 5.907E+02 | 6.295E+02 | 1.262E-06 | 1.008E-03 | 1.536E+01 |
| 130 | -6.428E-01 | -1.155E+03 | 6.14E+00 | 1.343E+02 | 9.626E+02 | 5.396E-07 | 1.948E-02 | 1.33E+00 | 6.166E+02 | 6.572E+02 | 1.158E-06 | 9.246E-04 | 1.436E+01 |
| 135 | -7.071E-01 | -1.201E+03 | 6.91E+00 | 1.102E+02 | 7.899E+02 | 8.014E-07 | 2.893E-02 | 1.19E+00 | 6.407E+02 | 6.829E+02 | 1.072E-06 | 8.564E-04 | 1.326E+01 |
| 140 | -7.660E-01 | -1.242E+03 | 7.86E+00 | 8.816E+01 | 6.316E+02 | 1.253E-06 | 4.524E-02 | 1.04E+00 | 6.628E+02 | 7.064E+02 | 1.002E-06 | 8.003E-04 | 1.205E+01 |
| 145 | -8.192E-01 | -1.279E+03 | 9.07E+00 | 6.825E+01 | 4.890E+02 | 2.091E-06 | 7.546E-02 | 9.03E-01 | 6.827E+02 | 7.276E+02 | 9.444E-07 | 7.544E-04 | 1.076E+01 |
| 150 | -8.660E-01 | -1.312E+03 | 1.07E+01 | 5.069E+01 | 3.632E+02 | 3.791E-06 | 1.368E-01 | 7.67E-01 | 7.003E+02 | 7.463E+02 | 8.977E-07 | 7.170E-04 | 9.376E+00 |
| 155 | -9.063E-01 | -1.341E+03 | 1.29E+01 | 3.559E+01 | 2.550E+02 | 7.689E-06 | 2.774E-01 | 6.35E-01 | 7.153E+02 | 7.624E+02 | 8.602E-07 | 6.871E-04 | 7.925E+00 |
| 160 | -9.397E-01 | -1.364E+03 | 1.61E+01 | 2.308E+01 | 1.654E+02 | 1.828E-05 | 6.595E-01 | 5.05E-01 | 7.279E+02 | 7.758E+02 | 8.308E-07 | 6.637E-04 | 6.413E+00 |
| 165 | -9.659E-01 | -1.383E+03 | 2.15E+01 | 1.325E+01 | 9.493E+01 | 5.549E-05 | 2.000E+00 | 3.77E-01 | 7.377E+02 | 7.862E+02 | 8.089E-07 | 6.461E-04 | 4.853E+00 |
| 170 | -9.848E-01 | -1.396E+03 | 3.18E+01 | 6.171E+00 | 4.423E+01 | 2.557E-04 | 9.205E+00 | 2.51E-01 | 7.448E+02 | 7.938E+02 | 7.936E-07 | 6.339E-04 | 3.256E+00 |
| 175 | -9.962E-01 | -1.404E+03 | 5.93E+01 | 1.900E+00 | 1.365E+01 | 2.687E-03 | 9.658E+01 | 1.25E-01 | 7.490E+02 | 7.983E+02 | 7.845E-07 | 6.267E-04 | 1.634E+00 |
| 180 | -1.000E+00 | -1.406E+03 | 1.80E+02 | 4.585E-01 | 3.434E+00 | 4.335E-02 | 1.673E+03 | 0. | 7.505E+02 | 7.998E+02 | 7.816E-07 | 6.243E-04 | 0. |

PION (1) + PROTON (2) => PION (3) + PROTON (4) AT 1000 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 1.39569E-01 M4 = 9.38259E-01
P2CM= 2.16542E+01 P3CM= 2.16542E+01
E1CM= 2.16547E+01 E2CM= 2.16745E+01 E3CM= 2.16547E+01 E4CM= 2.16745E+01

1-V1LAB = 9.740E-09 1-VCM = 9.374E-04 GCM = 2.31008E+01 ETCM= 4.33292E+01 S = 1.87742E+03 -U=( 1.87562E+03) +T

| Θ3 CM | COS(Θ3) CM | 4-MOM TSFR SQUARE, T | Θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | Θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | 0. | 0. | 1.000E+03 | 7.165E+03 | 9.740E-09 | 4.689E-04 | 9.00E+01 | 0. | 1.000E+00 | 1.000E+00 | INF | 0. |
| 1 | 9.998E-01 | -1.428E-01 | 2.17E-02 | 9.999E+02 | 7.164E+03 | 9.741E-09 | 4.690E-04 | 7.86E+01 | 3.855E-01 | 1.081E+00 | 6.199E-01 | 6.235E+02 | 3.779E-01 |
| 2 | 9.994E-01 | -5.713E-01 | 4.33E-02 | 9.997E+02 | 7.163E+03 | 9.746E-09 | 4.692E-04 | 6.80E+01 | 8.148E-01 | 1.324E+00 | 3.443E-01 | 2.641E+02 | 7.557E-01 |
| 3 | 9.986E-01 | -1.285E+00 | 6.50E-02 | 9.993E+02 | 7.160E+03 | 9.753E-09 | 4.695E-04 | 5.88E+01 | 1.325E+00 | 1.730E+00 | 1.840E-01 | 1.383E+02 | 1.133E+00 |
| 4 | 9.976E-01 | -2.284E+00 | 8.67E-02 | 9.988E+02 | 7.156E+03 | 9.763E-09 | 4.700E-04 | 5.11E+01 | 1.941E+00 | 2.297E+00 | 9.969E-02 | 7.817E+01 | 1.511E+00 |
| 5 | 9.962E-01 | -3.569E+00 | 1.08E-01 | 9.981E+02 | 7.151E+03 | 9.777E-09 | 4.707E-04 | 4.48E+01 | 2.681E+00 | 3.027E+00 | 5.615E-02 | 4.634E+01 | 1.887E+00 |
| 6 | 9.945E-01 | -5.137E+00 | 1.30E-01 | 9.973E+02 | 7.145E+03 | 9.793E-09 | 4.715E-04 | 3.96E+01 | 3.554E+00 | 3.918E+00 | 3.312E-02 | 2.862E+01 | 2.263E+00 |
| 7 | 9.925E-01 | -6.990E+00 | 1.52E-01 | 9.963E+02 | 7.138E+03 | 9.813E-09 | 4.724E-04 | 3.53E+01 | 4.568E+00 | 4.970E+00 | 2.045E-02 | 1.834E+01 | 2.639E+00 |
| 8 | 9.903E-01 | -9.127E+00 | 1.74E-01 | 9.951E+02 | 7.130E+03 | 9.835E-09 | 4.735E-04 | 3.18E+01 | 5.726E+00 | 6.184E+00 | 1.316E-02 | 1.216E+01 | 3.014E+00 |
| 9 | 9.877E-01 | -1.155E+01 | 1.95E-01 | 9.938E+02 | 7.121E+03 | 9.861E-09 | 4.747E-04 | 2.88E+01 | 7.029E+00 | 7.558E+00 | 8.792E-03 | 8.316E+00 | 3.387E+00 |
| 10 | 9.848E-01 | -1.425E+01 | 2.17E-01 | 9.924E+02 | 7.111E+03 | 9.889E-09 | 4.761E-04 | 2.63E+01 | 8.479E+00 | 9.092E+00 | 6.067E-03 | 5.646E+00 | 3.760E+00 |
| 15 | 9.659E-01 | -3.196E+01 | 3.27E-01 | 9.830E+02 | 7.043E+03 | 1.008E-08 | 4.853E-04 | 1.82E+01 | 1.794E+01 | 1.915E+01 | 1.364E-03 | 1.384E+00 | 5.605E+00 |
| 20 | 9.397E-01 | -5.656E+01 | 4.38E-01 | 9.699E+02 | 6.949E+03 | 1.035E-08 | 4.985E-04 | 1.38E+01 | 3.106E+01 | 3.312E+01 | 4.559E-04 | 4.719E-01 | 7.406E+00 |
| 25 | 9.063E-01 | -8.787E+01 | 5.50E-01 | 9.532E+02 | 6.829E+03 | 1.072E-08 | 5.161E-04 | 1.10E+01 | 4.775E+01 | 5.090E+01 | 1.930E-04 | 2.018E-01 | 9.151E+00 |
| 30 | 8.660E-01 | -1.256E+02 | 6.65E-01 | 9.330E+02 | 6.685E+03 | 1.119E-08 | 5.386E-04 | 9.18E+00 | 6.789E+01 | 7.236E+01 | 9.550E-05 | 1.004E-01 | 1.083E+01 |
| 35 | 8.192E-01 | -1.696E+02 | 7.82E-01 | 9.096E+02 | 6.517E+03 | 1.177E-08 | 5.667E-04 | 7.82E+00 | 9.131E+01 | 9.733E+01 | 5.278E-05 | 5.571E-02 | 1.242E+01 |
| 40 | 7.660E-01 | -2.194E+02 | 9.03E-01 | 8.831E+02 | 6.327E+03 | 1.249E-08 | 6.013E-04 | 6.78E+00 | 1.179E+02 | 1.256E+02 | 3.169E-05 | 3.352E-02 | 1.392E+01 |
| 45 | 7.071E-01 | -2.747E+02 | 1.03E+00 | 8.536E+02 | 6.116E+03 | 1.337E-08 | 6.435E-04 | 5.97E+00 | 1.473E+02 | 1.570E+02 | 2.028E-05 | 2.149E-02 | 1.531E+01 |
| 50 | 6.428E-01 | -3.350E+02 | 1.16E+00 | 8.215E+02 | 5.886E+03 | 1.443E-08 | 6.948E-04 | 5.30E+00 | 1.795E+02 | 1.913E+02 | 1.367E-05 | 1.450E-02 | 1.659E+01 |
| 55 | 5.736E-01 | -3.999E+02 | 1.29E+00 | 7.869E+02 | 5.638E+03 | 1.573E-08 | 7.573E-04 | 4.75E+00 | 2.140E+02 | 2.281E+02 | 9.607E-06 | 1.020E-02 | 1.774E+01 |
| 60 | 5.000E-01 | -4.689E+02 | 1.43E+00 | 7.501E+02 | 5.375E+03 | 1.731E-08 | 8.333E-04 | 4.29E+00 | 2.508E+02 | 2.673E+02 | 6.997E-06 | 7.433E-03 | 1.875E+01 |
| 65 | 4.226E-01 | -5.415E+02 | 1.58E+00 | 7.114E+02 | 5.097E+03 | 1.924E-08 | 9.264E-04 | 3.89E+00 | 2.895E+02 | 3.085E+02 | 5.252E-06 | 5.582E-03 | 1.963E+01 |
| 70 | 3.420E-01 | -6.171E+02 | 1.74E+00 | 6.712E+02 | 4.809E+03 | 2.162E-08 | 1.041E-03 | 3.54E+00 | 3.298E+02 | 3.515E+02 | 4.048E-06 | 4.304E-03 | 2.035E+01 |
| 75 | 2.588E-01 | -6.951E+02 | 1.90E+00 | 6.296E+02 | 4.511E+03 | 2.457E-08 | 1.183E-03 | 3.23E+00 | 3.713E+02 | 3.958E+02 | 3.192E-06 | 3.395E-03 | 2.092E+01 |
| 80 | 1.736E-01 | -7.750E+02 | 2.08E+00 | 5.870E+02 | 4.206E+03 | 2.826E-08 | 1.361E-03 | 2.95E+00 | 4.139E+02 | 4.412E+02 | 2.569E-06 | 2.733E-03 | 2.133E+01 |
| 85 | 8.716E-02 | -8.561E+02 | 2.27E+00 | 5.438E+02 | 3.896E+03 | 3.294E-08 | 1.586E-03 | 2.70E+00 | 4.571E+02 | 4.872E+02 | 2.106E-06 | 2.241E-03 | 2.157E+01 |
| 90 | 0. | -9.378E+02 | 2.48E+00 | 5.002E+02 | 3.584E+03 | 3.892E-08 | 1.874E-03 | 2.48E+00 | 5.007E+02 | 5.336E+02 | 1.756E-06 | 1.869E-03 | 2.165E+01 |
| 95 | -8.716E-02 | -1.020E+03 | 2.71E+00 | 4.567E+02 | 3.272E+03 | 4.670E-08 | 2.248E-03 | 2.27E+00 | 5.443E+02 | 5.801E+02 | 1.486E-06 | 1.582E-03 | 2.157E+01 |
| 100 | -1.736E-01 | -1.101E+03 | 2.96E+00 | 4.135E+02 | 2.962E+03 | 5.698E-08 | 2.743E-03 | 2.08E+00 | 5.875E+02 | 6.261E+02 | 1.275E-06 | 1.358E-03 | 2.133E+01 |
| 105 | -2.588E-01 | -1.181E+03 | 3.23E+00 | 3.709E+02 | 2.657E+03 | 7.080E-08 | 3.409E-03 | 1.90E+00 | 6.300E+02 | 6.715E+02 | 1.109E-06 | 1.181E-03 | 2.092E+01 |
| 110 | -3.420E-01 | -1.259E+03 | 3.54E+00 | 3.293E+02 | 2.359E+03 | 8.981E-08 | 4.324E-03 | 1.74E+00 | 6.716E+02 | 7.158E+02 | 9.758E-07 | 1.039E-03 | 2.035E+01 |
| 115 | -4.226E-01 | -1.334E+03 | 3.89E+00 | 2.890E+02 | 2.071E+03 | 1.166E-07 | 5.613E-03 | 1.58E+00 | 7.119E+02 | 7.588E+02 | 8.685E-07 | 9.249E-04 | 1.963E+01 |
| 120 | -5.000E-01 | -1.407E+03 | 4.30E+00 | 2.504E+02 | 1.794E+03 | 1.554E-07 | 7.480E-03 | 1.43E+00 | 7.506E+02 | 8.000E+02 | 7.813E-07 | 8.321E-04 | 1.875E+01 |
| 125 | -5.736E-01 | -1.476E+03 | 4.76E+00 | 2.136E+02 | 1.530E+03 | 2.135E-07 | 1.028E-02 | 1.29E+00 | 7.873E+02 | 8.392E+02 | 7.100E-07 | 7.562E-04 | 1.774E+01 |
| 130 | -6.428E-01 | -1.541E+03 | 5.32E+00 | 1.790E+02 | 1.283E+03 | 3.040E-07 | 1.463E-02 | 1.16E+00 | 8.219E+02 | 8.760E+02 | 6.515E-07 | 6.939E-04 | 1.659E+01 |
| 135 | -7.071E-01 | -1.601E+03 | 5.98E+00 | 1.469E+02 | 1.052E+03 | 4.516E-07 | 2.174E-02 | 1.03E+00 | 8.541E+02 | 9.103E+02 | 6.034E-07 | 6.427E-04 | 1.531E+01 |
| 140 | -7.660E-01 | -1.656E+03 | 6.81E+00 | 1.174E+02 | 8.412E+02 | 7.066E-07 | 3.402E-02 | 9.03E-01 | 8.835E+02 | 9.417E+02 | 5.639E-07 | 6.006E-04 | 1.392E+01 |
| 145 | -8.192E-01 | -1.706E+03 | 7.86E+00 | 9.086E+01 | 6.510E+02 | 1.180E-06 | 5.679E-02 | 7.82E-01 | 9.101E+02 | 9.700E+02 | 5.314E-07 | 5.661E-04 | 1.242E+01 |
| 150 | -8.660E-01 | -1.750E+03 | 9.24E+00 | 6.743E+01 | 4.832E+02 | 2.142E-06 | 1.031E-01 | 6.65E-01 | 9.335E+02 | 9.949E+02 | 5.051E-07 | 5.381E-04 | 1.083E+01 |
| 155 | -9.063E-01 | -1.788E+03 | 1.12E+01 | 4.730E+01 | 3.389E+02 | 4.353E-06 | 2.095E-01 | 5.50E-01 | 9.536E+02 | 1.016E+03 | 4.840E-07 | 5.156E-04 | 9.151E+00 |
| 160 | -9.397E-01 | -1.819E+03 | 1.40E+01 | 3.062E+01 | 2.194E+02 | 1.039E-05 | 4.999E-01 | 4.37E-01 | 9.703E+02 | 1.034E+03 | 4.675E-07 | 4.980E-04 | 7.406E+00 |
| 165 | -9.659E-01 | -1.844E+03 | 1.87E+01 | 1.751E+01 | 1.254E+02 | 3.177E-05 | 1.528E+00 | 3.27E-01 | 9.834E+02 | 1.048E+03 | 4.551E-07 | 4.848E-04 | 5.605E+00 |
| 170 | -9.848E-01 | -1.861E+03 | 2.78E+01 | 8.071E+00 | 5.783E+01 | 1.495E-04 | 7.182E+00 | 2.17E-01 | 9.929E+02 | 1.058E+03 | 4.465E-07 | 4.757E-04 | 3.760E+00 |
| 175 | -9.962E-01 | -1.872E+03 | 5.26E+01 | 2.377E+00 | 1.706E+01 | 1.719E-03 | 8.241E+01 | 1.08E-01 | 9.986E+02 | 1.064E+03 | 4.414E-07 | 4.703E-04 | 1.887E+00 |
| 180 | -1.000E+00 | -1.876E+03 | 1.80E+02 | 4.585E-01 | 3.434E+00 | 4.334E-02 | 2.230E+03 | 0. | 1.000E+03 | 1.066E+03 | 4.398E-07 | 4.685E-04 | 0. |

PION (1) + PROTON (2) => KAON (3) + LAMBDA (4) AT 10 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 4.97710E-01 M4 = 1.11559E+00
P2CM= 2.11571E+00 P3CM= 2.04529E+00
E1CM= 2.12031E+00 E2CM= 2.31442E+00 E3CM= 2.10498E+00 E4CM= 2.32975E+00

1-V1LAB = 9.738E-05 1-VCM = 8.586E-02 GCM = 2.46672E+00 ETCM= 4.43473E+00 S = 1.96668E+01 -U=( 1.72748E+01) +T

| 03 CM | COS(03) CM | 4-MOM TSFR SQUARE, T | 03 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | 04 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -4.724E-03 | 0. | 9.792E+00 | 1.970E+01 | 1.289E-03 | 4.363E-02 | 0. | 2.083E-01 | 1.017E+00 | 8.165E-01 | -9.644E+01 | 0. |
| 1 | 9.998E-01 | -6.042E-03 | 2.09E-01 | 9.791E+00 | 1.970E+01 | 1.290E-03 | 4.364E-02 | 9.69E+00 | 2.121E-01 | 1.018E+00 | 8.133E-01 | -9.100E+01 | 3.570E-02 |
| 2 | 9.994E-01 | -9.996E-03 | 4.18E-01 | 9.789E+00 | 1.969E+01 | 1.290E-03 | 4.366E-02 | 1.87E+01 | 2.231E-01 | 1.020E+00 | 8.039E-01 | -7.728E+01 | 7.138E-02 |
| 3 | 9.986E-01 | -1.658E-02 | 6.27E-01 | 9.785E+00 | 1.969E+01 | 1.291E-03 | 4.369E-02 | 2.64E+01 | 2.403E-01 | 1.023E+00 | 7.894E-01 | -6.059E+01 | 1.070E-01 |
| 4 | 9.976E-01 | -2.581E-02 | 8.36E-01 | 9.780E+00 | 1.968E+01 | 1.292E-03 | 4.373E-02 | 3.29E+01 | 2.627E-01 | 1.027E+00 | 7.708E-01 | -4.511E+01 | 1.427E-01 |
| 5 | 9.962E-01 | -3.766E-02 | 1.05E+00 | 9.774E+00 | 1.966E+01 | 1.294E-03 | 4.379E-02 | 3.81E+01 | 2.890E-01 | 1.033E+00 | 7.492E-01 | -3.263E+01 | 1.783E-01 |
| 6 | 9.945E-01 | -5.213E-02 | 1.25E+00 | 9.766E+00 | 1.965E+01 | 1.296E-03 | 4.385E-02 | 4.22E+01 | 3.184E-01 | 1.040E+00 | 7.256E-01 | -2.327E+01 | 2.138E-01 |
| 7 | 9.925E-01 | -6.923E-02 | 1.46E+00 | 9.757E+00 | 1.963E+01 | 1.298E-03 | 4.393E-02 | 4.54E+01 | 3.501E-01 | 1.048E+00 | 7.006E-01 | -1.648E+01 | 2.493E-01 |
| 8 | 9.903E-01 | -8.895E-02 | 1.67E+00 | 9.747E+00 | 1.961E+01 | 1.301E-03 | 4.403E-02 | 4.79E+01 | 3.838E-01 | 1.058E+00 | 6.747E-01 | -1.163E+01 | 2.846E-01 |
| 9 | 9.877E-01 | -1.113E-01 | 1.88E+00 | 9.735E+00 | 1.958E+01 | 1.304E-03 | 4.413E-02 | 4.98E+01 | 4.189E-01 | 1.068E+00 | 6.485E-01 | -8.172E+00 | 3.200E-01 |
| 10 | 9.848E-01 | -1.362E-01 | 2.09E+00 | 9.722E+00 | 1.956E+01 | 1.308E-03 | 4.425E-02 | 5.13E+01 | 4.553E-01 | 1.080E+00 | 6.221E-01 | -5.693E+00 | 3.552E-01 |
| 15 | 9.659E-01 | -2.996E-01 | 3.15E+00 | 9.634E+00 | 1.938E+01 | 1.332E-03 | 4.505E-02 | 5.43E+01 | 6.517E-01 | 1.158E+00 | 4.956E-01 | -4.422E-01 | 5.294E-01 |
| 20 | 9.397E-01 | -5.267E-01 | 4.22E+00 | 9.513E+00 | 1.914E+01 | 1.366E-03 | 4.616E-02 | 5.38E+01 | 8.672E-01 | 1.267E+00 | 3.863E-01 | 6.963E-01 | 6.995E-01 |
| 25 | 9.063E-01 | -8.156E-01 | 5.30E+00 | 9.359E+00 | 1.883E+01 | 1.411E-03 | 4.770E-02 | 5.18E+01 | 1.100E+00 | 1.405E+00 | 2.978E-01 | 8.914E-01 | 8.644E-01 |
| 30 | 8.660E-01 | -1.164E+00 | 6.40E+00 | 9.173E+00 | 1.846E+01 | 1.469E-03 | 4.962E-02 | 4.92E+01 | 1.352E+00 | 1.571E+00 | 2.287E-01 | 8.390E-01 | 1.023E+00 |
| 35 | 8.192E-01 | -1.570E+00 | 7.53E+00 | 8.956E+00 | 1.802E+01 | 1.540E-03 | 5.201E-02 | 4.63E+01 | 1.622E+00 | 1.765E+00 | 1.760E-01 | 7.267E-01 | 1.173E+00 |
| 40 | 7.660E-01 | -2.029E+00 | 8.68E+00 | 8.711E+00 | 1.753E+01 | 1.628E-03 | 5.494E-02 | 4.34E+01 | 1.912E+00 | 1.984E+00 | 1.362E-01 | 6.107E-01 | 1.315E+00 |
| 45 | 7.071E-01 | -2.540E+00 | 9.87E+00 | 8.439E+00 | 1.698E+01 | 1.735E-03 | 5.848E-02 | 4.06E+01 | 2.221E+00 | 2.228E+00 | 1.064E-01 | 5.078E-01 | 1.446E+00 |
| 50 | 6.428E-01 | -3.096E+00 | 1.11E+01 | 8.142E+00 | 1.639E+01 | 1.863E-03 | 6.275E-02 | 3.79E+01 | 2.549E+00 | 2.494E+00 | 8.390E-02 | 4.214E-01 | 1.567E+00 |
| 55 | 5.736E-01 | -3.695E+00 | 1.24E+01 | 7.822E+00 | 1.575E+01 | 2.018E-03 | 6.790E-02 | 3.54E+01 | 2.894E+00 | 2.780E+00 | 6.693E-02 | 3.507E-01 | 1.675E+00 |
| 60 | 5.000E-01 | -4.332E+00 | 1.37E+01 | 7.482E+00 | 1.507E+01 | 2.205E-03 | 7.410E-02 | 3.30E+01 | 3.255E+00 | 3.084E+00 | 5.402E-02 | 2.934E-01 | 1.771E+00 |
| 65 | 4.226E-01 | -5.002E+00 | 1.51E+01 | 7.124E+00 | 1.435E+01 | 2.431E-03 | 8.158E-02 | 3.07E+01 | 3.630E+00 | 3.404E+00 | 4.412E-02 | 2.470E-01 | 1.854E+00 |
| 70 | 3.420E-01 | -5.699E+00 | 1.65E+01 | 6.751E+00 | 1.360E+01 | 2.706E-03 | 9.065E-02 | 2.86E+01 | 4.017E+00 | 3.737E+00 | 3.646E-02 | 2.096E-01 | 1.922E+00 |
| 75 | 2.588E-01 | -6.419E+00 | 1.81E+01 | 6.367E+00 | 1.283E+01 | 3.042E-03 | 1.017E-01 | 2.66E+01 | 4.414E+00 | 4.081E+00 | 3.048E-02 | 1.792E-01 | 1.976E+00 |
| 80 | 1.736E-01 | -7.156E+00 | 1.97E+01 | 5.973E+00 | 1.204E+01 | 3.454E-03 | 1.152E-01 | 2.47E+01 | 4.819E+00 | 4.434E+00 | 2.577E-02 | 1.545E-01 | 2.014E+00 |
| 85 | 8.716E-02 | -7.905E+00 | 2.14E+01 | 5.572E+00 | 1.124E+01 | 3.965E-03 | 1.320E-01 | 2.29E+01 | 5.227E+00 | 4.791E+00 | 2.202E-02 | 1.344E-01 | 2.038E+00 |
| 90 | 0. | -8.659E+00 | 2.33E+01 | 5.168E+00 | 1.043E+01 | 4.605E-03 | 1.529E-01 | 2.13E+01 | 5.638E+00 | 5.151E+00 | 1.902E-02 | 1.178E-01 | 2.045E+00 |
| 95 | -8.716E-02 | -9.413E+00 | 2.53E+01 | 4.764E+00 | 9.625E+00 | 5.412E-03 | 1.791E-01 | 1.97E+01 | 6.047E+00 | 5.512E+00 | 1.660E-02 | 1.041E-01 | 2.038E+00 |
| 100 | -1.736E-01 | -1.016E+01 | 2.75E+01 | 4.363E+00 | 8.823E+00 | 6.443E-03 | 2.126E-01 | 1.82E+01 | 6.452E+00 | 5.869E+00 | 1.462E-02 | 9.279E-02 | 2.014E+00 |
| 105 | -2.588E-01 | -1.090E+01 | 2.99E+01 | 3.968E+00 | 8.034E+00 | 7.776E-03 | 2.556E-01 | 1.68E+01 | 6.850E+00 | 6.221E+00 | 1.300E-02 | 8.335E-02 | 1.976E+00 |
| 110 | -3.420E-01 | -1.162E+01 | 3.25E+01 | 3.581E+00 | 7.263E+00 | 9.523E-03 | 3.118E-01 | 1.54E+01 | 7.239E+00 | 6.565E+00 | 1.167E-02 | 7.546E-02 | 1.922E+00 |
| 115 | -4.226E-01 | -1.232E+01 | 3.53E+01 | 3.205E+00 | 6.516E+00 | 1.184E-02 | 3.862E-01 | 1.41E+01 | 7.615E+00 | 6.899E+00 | 1.056E-02 | 6.884E-02 | 1.854E+00 |
| 120 | -5.000E-01 | -1.299E+01 | 3.85E+01 | 2.843E+00 | 5.799E+00 | 1.498E-02 | 4.863E-01 | 1.28E+01 | 7.975E+00 | 7.218E+00 | 9.642E-03 | 6.327E-02 | 1.771E+00 |
| 125 | -5.736E-01 | -1.362E+01 | 4.21E+01 | 2.498E+00 | 5.118E+00 | 1.928E-02 | 6.234E-01 | 1.16E+01 | 8.318E+00 | 7.523E+00 | 8.875E-03 | 5.858E-02 | 1.675E+00 |
| 130 | -6.428E-01 | -1.422E+01 | 4.62E+01 | 2.172E+00 | 4.476E+00 | 2.527E-02 | 8.146E-01 | 1.04E+01 | 8.640E+00 | 7.809E+00 | 8.234E-03 | 5.463E-02 | 1.567E+00 |
| 135 | -7.071E-01 | -1.478E+01 | 5.08E+01 | 1.866E+00 | 3.880E+00 | 3.378E-02 | 1.067E+00 | 9.31E+00 | 8.939E+00 | 8.075E+00 | 7.698E-03 | 5.131E-02 | 1.446E+00 |
| 140 | -7.660E-01 | -1.529E+01 | 5.62E+01 | 1.583E+00 | 3.334E+00 | 4.604E-02 | 1.486E+00 | 8.20E+00 | 9.213E+00 | 8.318E+00 | 7.252E-03 | 4.852E-02 | 1.315E+00 |
| 145 | -8.192E-01 | -1.575E+01 | 6.24E+01 | 1.324E+00 | 2.842E+00 | 6.395E-02 | 2.085E+00 | 7.12E+00 | 9.459E+00 | 8.538E+00 | 6.883E-03 | 4.620E-02 | 1.173E+00 |
| 150 | -8.660E-01 | -1.615E+01 | 6.97E+01 | 1.090E+00 | 2.408E+00 | 9.034E-02 | 3.018E+00 | 6.07E+00 | 9.677E+00 | 8.732E+00 | 6.580E-03 | 4.429E-02 | 1.023E+00 |
| 155 | -9.063E-01 | -1.650E+01 | 7.86E+01 | 8.817E-01 | 2.034E+00 | 1.292E-01 | 4.536E+00 | 5.03E+00 | 9.864E+00 | 8.898E+00 | 6.335E-03 | 4.274E-02 | 8.644E-01 |
| 160 | -9.397E-01 | -1.679E+01 | 8.95E+01 | 6.996E-01 | 1.725E+00 | 1.852E-01 | 7.146E+00 | 4.00E+00 | 1.002E+01 | 9.036E+00 | 6.142E-03 | 4.152E-02 | 6.995E-01 |
| 165 | -9.659E-01 | -1.702E+01 | 1.03E+02 | 5.443E-01 | 1.482E+00 | 2.620E-01 | 1.194E+01 | 2.99E+00 | 1.014E+01 | 9.145E+00 | 5.997E-03 | 4.060E-02 | 5.294E-01 |
| 170 | -9.848E-01 | -1.718E+01 | 1.22E+02 | 4.188E-01 | 1.307E+00 | 3.562E-01 | 2.111E+01 | 1.99E+00 | 1.023E+01 | 9.223E+00 | 5.896E-03 | 3.995E-02 | 3.552E-01 |
| 175 | -9.962E-01 | -1.728E+01 | 1.47E+02 | 3.314E-01 | 1.201E+00 | 4.458E-01 | 3.639E+01 | 9.93E-01 | 1.028E+01 | 9.270E+00 | 5.836E-03 | 3.957E-02 | 1.783E-01 |
| 180 | -1.000E+00 | -1.731E+01 | 1.80E+02 | 2.986E-01 | 1.166E+00 | 4.856E-01 | 4.692E+01 | 0. | 1.030E+01 | 9.286E+00 | 5.816E-03 | 3.944E-02 | 0. |

PION (1) + PROTON (2) => KAON (3) + LAMBDA (4) AT 20 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 4.97710E-01 M4 = 1.11559E+00
P2CM= 3.02699E+00 P3CM= 2.97794E+00
E1CM= 3.03021E+00 E2CM= 3.16907E+00 E3CM= 3.01924E+00 E4CM= 3.18004E+00

1-V1LAB = 2.435E-05 1-VCM = 4.483E-02 GCM = 3.37761E+00 ETCM= 6.19928E+00 S = 3.84311E+01 -U=( 3.60390E+01) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -2.286E-03 | 0. | 1.980E+01 | 3.979E+01 | 3.158E-04 | 2.262E-02 | 0. | 2.011E-01 | 1.016E+00 | 8.226E-01 | -2.193E+02 | 0. |
| 1 | 9.998E-01 | -5.032E-03 | 1.50E-01 | 1.980E+01 | 3.979E+01 | 3.159E-04 | 2.263E-02 | 1.44E+01 | 2.092E-01 | 1.017E+00 | 8.157E-01 | -1.933E+02 | 5.197E-02 |
| 2 | 9.994E-01 | -1.327E-02 | 3.01E-01 | 1.979E+01 | 3.978E+01 | 3.160E-04 | 2.264E-02 | 2.66E+01 | 2.318E-01 | 1.021E+00 | 7.966E-01 | -1.387E+02 | 1.039E-01 |
| 3 | 9.986E-01 | -2.699E-02 | 4.51E-01 | 1.979E+01 | 3.977E+01 | 3.162E-04 | 2.265E-02 | 3.60E+01 | 2.654E-01 | 1.028E+00 | 7.685E-01 | -8.868E+01 | 1.559E-01 |
| 4 | 9.976E-01 | -4.620E-02 | 6.02E-01 | 1.978E+01 | 3.975E+01 | 3.166E-04 | 2.268E-02 | 4.26E+01 | 3.067E-01 | 1.037E+00 | 7.350E-01 | -5.415E+01 | 2.077E-01 |
| 5 | 9.962E-01 | -7.089E-02 | 7.53E-01 | 1.976E+01 | 3.972E+01 | 3.170E-04 | 2.271E-02 | 4.73E+01 | 3.531E-01 | 1.049E+00 | 6.983E-01 | -3.265E+01 | 2.595E-01 |
| 6 | 9.945E-01 | -1.010E-01 | 9.03E-01 | 1.975E+01 | 3.969E+01 | 3.175E-04 | 2.274E-02 | 5.05E+01 | 4.031E-01 | 1.063E+00 | 6.601E-01 | -1.961E+01 | 3.113E-01 |
| 7 | 9.925E-01 | -1.367E-01 | 1.05E+00 | 1.973E+01 | 3.965E+01 | 3.181E-04 | 2.279E-02 | 5.27E+01 | 4.560E-01 | 1.080E+00 | 6.217E-01 | -1.166E+01 | 3.629E-01 |
| 8 | 9.903E-01 | -1.777E-01 | 1.21E+00 | 1.971E+01 | 3.960E+01 | 3.188E-04 | 2.284E-02 | 5.42E+01 | 5.110E-01 | 1.100E+00 | 5.835E-01 | -6.727E+00 | 4.144E-01 |
| 9 | 9.877E-01 | -2.242E-01 | 1.36E+00 | 1.968E+01 | 3.955E+01 | 3.196E-04 | 2.289E-02 | 5.51E+01 | 5.680E-01 | 1.122E+00 | 5.463E-01 | -3.619E+00 | 4.659E-01 |
| 10 | 9.848E-01 | -2.762E-01 | 1.51E+00 | 1.965E+01 | 3.950E+01 | 3.205E-04 | 2.296E-02 | 5.56E+01 | 6.266E-01 | 1.147E+00 | 5.103E-01 | -1.630E+00 | 5.171E-01 |
| 15 | 9.659E-01 | -6.166E-01 | 2.27E+00 | 1.947E+01 | 3.913E+01 | 3.265E-04 | 2.338E-02 | 5.48E+01 | 9.433E-01 | 1.310E+00 | 3.543E-01 | 1.569E+00 | 7.707E-01 |
| 20 | 9.397E-01 | -1.090E+00 | 3.04E+00 | 1.922E+01 | 3.863E+01 | 3.351E-04 | 2.400E-02 | 5.16E+01 | 1.300E+00 | 1.535E+00 | 2.411E-01 | 1.686E+00 | 1.019E+00 |
| 25 | 9.063E-01 | -1.691E+00 | 3.82E+00 | 1.890E+01 | 3.798E+01 | 3.466E-04 | 2.481E-02 | 4.77E+01 | 1.700E+00 | 1.823E+00 | 1.639E-01 | 1.371E+00 | 1.259E+00 |
| 30 | 8.660E-01 | -2.418E+00 | 4.61E+00 | 1.851E+01 | 3.721E+01 | 3.613E-04 | 2.586E-02 | 4.39E+01 | 2.148E+00 | 2.170E+00 | 1.125E-01 | 1.050E+00 | 1.489E+00 |
| 35 | 8.192E-01 | -3.263E+00 | 5.43E+00 | 1.806E+01 | 3.639E+01 | 3.795E-04 | 2.715E-02 | 4.02E+01 | 2.645E+00 | 2.574E+00 | 7.858E-02 | 7.924E-01 | 1.708E+00 |
| 40 | 7.660E-01 | -4.220E+00 | 6.26E+00 | 1.755E+01 | 3.528E+01 | 4.019E-04 | 2.874E-02 | 3.68E+01 | 3.192E+00 | 3.031E+00 | 5.600E-02 | 5.997E-01 | 1.914E+00 |
| 45 | 7.071E-01 | -5.283E+00 | 7.12E+00 | 1.698E+01 | 3.414E+01 | 4.291E-04 | 3.067E-02 | 3.38E+01 | 3.787E+00 | 3.538E+00 | 4.076E-02 | 4.580E-01 | 2.106E+00 |
| 50 | 6.428E-01 | -6.442E+00 | 8.01E+00 | 1.637E+01 | 3.290E+01 | 4.621E-04 | 3.302E-02 | 3.10E+01 | 4.427E+00 | 4.092E+00 | 3.031E-02 | 3.540E-01 | 2.281E+00 |
| 55 | 5.736E-01 | -7.690E+00 | 8.94E+00 | 1.570E+01 | 3.156E+01 | 5.021E-04 | 3.585E-02 | 2.85E+01 | 5.110E+00 | 4.688E+00 | 2.301E-02 | 2.774E-01 | 2.439E+00 |
| 60 | 5.000E-01 | -9.016E+00 | 9.90E+00 | 1.499E+01 | 3.014E+01 | 5.505E-04 | 3.928E-02 | 2.62E+01 | 5.831E+00 | 5.322E+00 | 1.781E-02 | 2.204E-01 | 2.579E+00 |
| 65 | 4.226E-01 | -1.041E+01 | 1.09E+01 | 1.425E+01 | 2.865E+01 | 6.094E-04 | 4.345E-02 | 2.42E+01 | 6.587E+00 | 5.988E+00 | 1.404E-02 | 1.776E-01 | 2.699E+00 |
| 70 | 3.420E-01 | -1.186E+01 | 1.20E+01 | 1.347E+01 | 2.709E+01 | 6.815E-04 | 4.854E-02 | 2.23E+01 | 7.371E+00 | 6.683E+00 | 1.126E-02 | 1.450E-01 | 2.798E+00 |
| 75 | 2.588E-01 | -1.336E+01 | 1.31E+01 | 1.267E+01 | 2.549E+01 | 7.701E-04 | 5.479E-02 | 2.06E+01 | 8.179E+00 | 7.399E+00 | 9.175E-03 | 1.200E-01 | 2.876E+00 |
| 80 | 1.736E-01 | -1.490E+01 | 1.43E+01 | 1.186E+01 | 2.384E+01 | 8.800E-04 | 6.253E-02 | 1.90E+01 | 9.004E+00 | 8.133E+00 | 7.589E-03 | 1.006E-01 | 2.933E+00 |
| 85 | 8.716E-02 | -1.646E+01 | 1.56E+01 | 1.102E+01 | 2.217E+01 | 1.018E-03 | 7.220E-02 | 1.75E+01 | 9.841E+00 | 8.877E+00 | 6.365E-03 | 8.528E-02 | 2.967E+00 |
| 90 | 0. | -1.803E+01 | 1.70E+01 | 1.019E+01 | 2.049E+01 | 1.192E-03 | 8.441E-02 | 1.62E+01 | 1.068E+01 | 9.628E+00 | 5.408E-03 | 7.316E-02 | 2.978E+00 |
| 95 | -8.716E-02 | -1.960E+01 | 1.85E+01 | 9.347E+00 | 1.881E+01 | 1.415E-03 | 1.000E-01 | 1.49E+01 | 1.152E+01 | 1.038E+01 | 4.653E-03 | 6.346E-02 | 2.967E+00 |
| 100 | -1.736E-01 | -2.116E+01 | 2.01E+01 | 8.515E+00 | 1.714E+01 | 1.704E-03 | 1.202E-01 | 1.37E+01 | 1.236E+01 | 1.112E+01 | 4.049E-03 | 5.562E-02 | 2.933E+00 |
| 105 | -2.588E-01 | -2.270E+01 | 2.20E+01 | 7.695E+00 | 1.549E+01 | 2.085E-03 | 1.467E-01 | 1.26E+01 | 1.318E+01 | 1.186E+01 | 3.563E-03 | 4.924E-02 | 2.876E+00 |
| 110 | -3.420E-01 | -2.420E+01 | 2.39E+01 | 6.894E+00 | 1.389E+01 | 2.596E-03 | 1.821E-01 | 1.15E+01 | 1.398E+01 | 1.257E+01 | 3.168E-03 | 4.401E-02 | 2.798E+00 |
| 115 | -4.226E-01 | -2.565E+01 | 2.62E+01 | 6.117E+00 | 1.233E+01 | 3.293E-03 | 2.302E-01 | 1.05E+01 | 1.476E+01 | 1.327E+01 | 2.844E-03 | 3.970E-02 | 2.699E+00 |
| 120 | -5.000E-01 | -2.704E+01 | 2.87E+01 | 5.371E+00 | 1.084E+01 | 4.266E-03 | 2.969E-01 | 9.57E+00 | 1.550E+01 | 1.393E+01 | 2.579E-03 | 3.614E-02 | 2.579E+00 |
| 125 | -5.736E-01 | -2.837E+01 | 3.16E+01 | 4.661E+00 | 9.418E+00 | 5.653E-03 | 3.916E-01 | 8.65E+00 | 1.621E+01 | 1.457E+01 | 2.359E-03 | 3.317E-02 | 2.439E+00 |
| 130 | -6.428E-01 | -2.962E+01 | 3.49E+01 | 3.991E+00 | 8.082E+00 | 7.685E-03 | 5.296E-01 | 7.77E+00 | 1.688E+01 | 1.516E+01 | 2.177E-03 | 3.071E-02 | 2.281E+00 |
| 135 | -7.071E-01 | -3.078E+01 | 3.87E+01 | 3.368E+00 | 6.840E+00 | 1.074E-02 | 7.361E-01 | 6.91E+00 | 1.750E+01 | 1.572E+01 | 2.026E-03 | 2.865E-02 | 2.106E+00 |
| 140 | -7.660E-01 | -3.184E+01 | 4.32E+01 | 2.794E+00 | 5.702E+00 | 1.550E-02 | 1.056E+00 | 6.08E+00 | 1.807E+01 | 1.623E+01 | 1.901E-03 | 2.695E-02 | 1.914E+00 |
| 145 | -8.192E-01 | -3.280E+01 | 4.87E+01 | 2.274E+00 | 4.677E+00 | 2.312E-02 | 1.568E+00 | 5.28E+00 | 1.858E+01 | 1.668E+01 | 1.798E-03 | 2.554E-02 | 1.708E+00 |
| 150 | -8.660E-01 | -3.364E+01 | 5.53E+01 | 1.810E+00 | 3.772E+00 | 3.577E-02 | 2.425E+00 | 4.49E+00 | 1.903E+01 | 1.709E+01 | 1.714E-03 | 2.438E-02 | 1.489E+00 |
| 155 | -9.063E-01 | -3.437E+01 | 6.36E+01 | 1.405E+00 | 2.995E+00 | 5.739E-02 | 3.933E+00 | 3.72E+00 | 1.942E+01 | 1.743E+01 | 1.647E-03 | 2.345E-02 | 1.259E+00 |
| 160 | -9.397E-01 | -3.497E+01 | 7.42E+01 | 1.059E+00 | 2.350E+00 | 9.502E-02 | 6.764E+00 | 2.96E+00 | 1.974E+01 | 1.772E+01 | 1.594E-03 | 2.272E-02 | 1.019E+00 |
| 165 | -9.659E-01 | -3.544E+01 | 8.81E+01 | 7.712E-01 | 1.844E+00 | 1.598E-01 | 1.256E+01 | 2.21E+00 | 1.999E+01 | 1.795E+01 | 1.554E-03 | 2.217E-02 | 7.707E-01 |
| 170 | -9.848E-01 | -3.579E+01 | 1.08E+02 | 5.428E-01 | 1.480E+00 | 2.630E-01 | 2.583E+01 | 1.47E+00 | 2.017E+01 | 1.811E+01 | 1.526E-03 | 2.178E-02 | 5.171E-01 |
| 175 | -9.962E-01 | -3.599E+01 | 1.37E+02 | 3.814E-01 | 1.260E+00 | 3.918E-01 | 5.672E+01 | 7.33E-01 | 2.028E+01 | 1.821E+01 | 1.509E-03 | 2.156E-02 | 2.595E-01 |
| 180 | -1.000E+00 | -3.606E+01 | 1.80E+02 | 3.177E-01 | 1.186E+00 | 4.620E-01 | 8.787E+01 | 0. | 2.032E+01 | 1.824E+01 | 1.504E-03 | 2.148E-02 | 0. |

PION + PROTON => KAON + LAMBDA AT 30 GEV/C
(1) (2) (3) (4) P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 4.97710E-01 M4 = 1.11559E+00
P2CM= 3.72187E+00 P3CM= 3.68201E+00
E1CM= 3.72449E+00 E2CM= 3.83831E+00 E3CM= 3.71550E+00 E4CM= 3.84730E+00

1-V1LAB = 1.082E-05 1-VCM = 3.034E-02 GCM = 4.09089E+00 ETCM= 7.56280E+00 S = 5.71960E+01 -U=( 5.48039E+01) +T

| 03 CM | COS(03) CM | 4-MOM TSFR SQUARE, T | 03 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | 04 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -1.508E-03 | 0. | 2.980E+01 | 5.989E+01 | 1.394E-04 | 1.527E-02 | 0. | 1.987E-01 | 1.016E+00 | 8.246E-01 | -3.433E+02 | 0. |
| 1 | 9.998E-01 | -5.682E-03 | 1.24E-01 | 2.980E+01 | 5.988E+01 | 1.395E-04 | 1.527E-02 | 1.77E+01 | 2.110E-01 | 1.018E+00 | 8.141E-01 | -2.833E+02 | 6.426E-02 |
| 2 | 9.994E-01 | -1.820E-02 | 2.47E-01 | 2.979E+01 | 5.987E+01 | 1.395E-04 | 1.527E-02 | 3.17E+01 | 2.444E-01 | 1.024E+00 | 7.860E-01 | -1.759E+02 | 1.285E-01 |
| 3 | 9.986E-01 | -3.907E-02 | 3.71E-01 | 2.978E+01 | 5.984E+01 | 1.396E-04 | 1.529E-02 | 4.13E+01 | 2.920E-01 | 1.034E+00 | 7.468E-01 | -9.684E+01 | 1.927E-01 |
| 4 | 9.976E-01 | -6.827E-02 | 4.94E-01 | 2.977E+01 | 5.981E+01 | 1.398E-04 | 1.530E-02 | 4.75E+01 | 3.484E-01 | 1.048E+00 | 7.019E-01 | -5.178E+01 | 2.568E-01 |
| 5 | 9.962E-01 | -1.058E-01 | 6.18E-01 | 2.975E+01 | 5.977E+01 | 1.400E-04 | 1.532E-02 | 5.14E+01 | 4.105E-01 | 1.066E+00 | 6.546E-01 | -2.756E+01 | 3.209E-01 |
| 6 | 9.945E-01 | -1.517E-01 | 7.42E-01 | 2.972E+01 | 5.972E+01 | 1.402E-04 | 1.535E-02 | 5.38E+01 | 4.767E-01 | 1.087E+00 | 6.071E-01 | -1.441E+01 | 3.849E-01 |
| 7 | 9.925E-01 | -2.058E-01 | 8.66E-01 | 2.969E+01 | 5.967E+01 | 1.405E-04 | 1.538E-02 | 5.53E+01 | 5.460E-01 | 1.113E+00 | 5.604E-01 | -7.078E+00 | 4.487E-01 |
| 8 | 9.903E-01 | -2.682E-01 | 9.90E-01 | 2.966E+01 | 5.960E+01 | 1.408E-04 | 1.541E-02 | 5.60E+01 | 6.179E-01 | 1.143E+00 | 5.155E-01 | -2.884E+00 | 5.124E-01 |
| 9 | 9.877E-01 | -3.389E-01 | 1.11E+00 | 2.962E+01 | 5.952E+01 | 1.411E-04 | 1.545E-02 | 5.63E+01 | 6.924E-01 | 1.177E+00 | 4.727E-01 | -4.424E-01 | 5.760F-01 |
| 10 | 9.848E-01 | -4.179E-01 | 1.24E+00 | 2.958E+01 | 5.944E+01 | 1.415E-04 | 1.549E-02 | 5.62E+01 | 7.692E-01 | 1.215E+00 | 4.324E-01 | 9.871E-01 | 6.394E-01 |
| 15 | 9.659E-01 | -9.354E-01 | 1.86E+00 | 2.930E+01 | 5.889E+01 | 1.442E-04 | 1.579E-02 | 5.32E+01 | 1.190E+00 | 1.462E+00 | 2.706E-01 | 2.588E+00 | 9.530E-01 |
| 20 | 9.397E-01 | -1.654E+00 | 2.50E+00 | 2.892E+01 | 5.812E+01 | 1.481E-04 | 1.620E-02 | 4.87E+01 | 1.677E+00 | 1.805E+00 | 1.674E-01 | 2.075E+00 | 1.259E+00 |
| 25 | 9.063E-01 | -2.569E+00 | 3.14E+00 | 2.843E+01 | 5.714E+01 | 1.532E-04 | 1.676E-02 | 4.40E+01 | 2.239E+00 | 2.242E+00 | 1.049E-01 | 1.487E+00 | 1.556E+00 |
| 30 | 8.660E-01 | -3.673E+00 | 3.79E+00 | 2.784E+01 | 5.595E+01 | 1.597E-04 | 1.748E-02 | 3.97E+01 | 2.882E+00 | 2.770E+00 | 6.745E-02 | 1.046E+00 | 1.841E+00 |
| 35 | 8.192E-01 | -4.958E+00 | 4.46E+00 | 2.716E+01 | 5.458E+01 | 1.679E-04 | 1.836E-02 | 3.59E+01 | 3.606E+00 | 3.383E+00 | 4.467E-02 | 7.406E-01 | 2.112E+00 |
| 40 | 7.660E-01 | -6.414E+00 | 5.15E+00 | 2.638E+01 | 5.302E+01 | 1.779E-04 | 1.945E-02 | 3.24E+01 | 4.411E+00 | 4.079E+00 | 3.052E-02 | 5.325E-01 | 2.367E+00 |
| 45 | 7.071E-01 | -8.029E+00 | 5.85E+00 | 2.552E+01 | 5.129E+01 | 1.901E-04 | 2.078E-02 | 2.95E+01 | 5.295E+00 | 4.850E+00 | 2.148E-02 | 3.901E-01 | 2.604E+00 |
| 50 | 6.428E-01 | -9.792E+00 | 6.59E+00 | 2.458E+01 | 4.940E+01 | 2.049E-04 | 2.239E-02 | 2.68E+01 | 6.252E+00 | 5.693E+00 | 1.555E-02 | 2.914E-01 | 2.821E+00 |
| 55 | 5.736E-01 | -1.169E+01 | 7.35E+00 | 2.357E+01 | 4.737E+01 | 2.228E-04 | 2.434E-02 | 2.45E+01 | 7.276E+00 | 6.599E+00 | 1.155E-02 | 2.220E-01 | 3.016E+00 |
| 60 | 5.000E-01 | -1.371E+01 | 8.15E+00 | 2.250E+01 | 4.521E+01 | 2.446E-04 | 2.671E-02 | 2.24E+01 | 8.362E+00 | 7.562E+00 | 8.782E-03 | 1.723E-01 | 3.189E+00 |
| 65 | 4.226E-01 | -1.583E+01 | 8.99E+00 | 2.137E+01 | 4.294E+01 | 2.712E-04 | 2.959E-02 | 2.06E+01 | 9.501E+00 | 8.575E+00 | 6.823E-03 | 1.362E-01 | 3.337E+00 |
| 70 | 3.420E-01 | -1.804E+01 | 9.87E+00 | 2.019E+01 | 4.058E+01 | 3.037E-04 | 3.312E-02 | 1.89E+01 | 1.069E+01 | 9.630E+00 | 5.406E-03 | 1.094E-01 | 3.460E+00 |
| 75 | 2.588E-01 | -2.032E+01 | 1.08E+01 | 1.897E+01 | 3.813E+01 | 3.439E-04 | 3.747E-02 | 1.74E+01 | 1.191E+01 | 1.072E+01 | 4.361E-03 | 8.926E-02 | 3.557E+00 |
| 80 | 1.736E-01 | -2.265E+01 | 1.18E+01 | 1.773E+01 | 3.564E+01 | 3.938E-04 | 4.287E-02 | 1.60E+01 | 1.316E+01 | 1.183E+01 | 3.576E-03 | 7.391E-02 | 3.626E+00 |
| 85 | 8.716E-02 | -2.502E+01 | 1.29E+01 | 1.647E+01 | 3.310E+01 | 4.566E-04 | 4.965E-02 | 1.47E+01 | 1.442E+01 | 1.297E+01 | 2.978E-03 | 6.205E-02 | 3.668E+00 |
| 90 | 0. | -2.741E+01 | 1.40E+01 | 1.519E+01 | 3.054E+01 | 5.363E-04 | 5.825E-02 | 1.36E+01 | 1.570E+01 | 1.411E+01 | 2.515E-03 | 5.278E-02 | 3.682E+00 |
| 95 | -8.716E-02 | -2.980E+01 | 1.53E+01 | 1.392E+01 | 2.798E+01 | 6.388E-04 | 6.929E-02 | 1.25E+01 | 1.698E+01 | 1.525E+01 | 2.152E-03 | 4.543E-02 | 3.668E+00 |
| 100 | -1.736E-01 | -3.217E+01 | 1.67E+01 | 1.265E+01 | 2.544E+01 | 7.727E-04 | 8.367E-02 | 1.15E+01 | 1.824E+01 | 1.638E+01 | 1.865E-03 | 3.956E-02 | 3.626E+00 |
| 105 | -2.588E-01 | -3.450E+01 | 1.82E+01 | 1.141E+01 | 2.294E+01 | 9.503E-04 | 1.027E-01 | 1.05E+01 | 1.949E+01 | 1.750E+01 | 1.635E-03 | 3.483E-02 | 3.557E+00 |
| 110 | -3.420E-01 | -3.678E+01 | 1.98E+01 | 1.019E+01 | 2.050E+01 | 1.190E-03 | 1.283E-01 | 9.62E+00 | 2.070E+01 | 1.859E+01 | 1.448E-03 | 3.098E-02 | 3.460E+00 |
| 115 | -4.226E-01 | -3.899E+01 | 2.17E+01 | 9.013E+00 | 1.814E+01 | 1.521E-03 | 1.636E-01 | 8.77E+00 | 2.188E+01 | 1.964E+01 | 1.297E-03 | 2.783E-02 | 3.337E+00 |
| 120 | -5.000E-01 | -4.111E+01 | 2.39E+01 | 7.881E+00 | 1.587E+01 | 1.988E-03 | 2.131E-01 | 7.96E+00 | 2.301E+01 | 2.065E+01 | 1.173E-03 | 2.524E-02 | 3.189E+00 |
| 125 | -5.736E-01 | -4.313E+01 | 2.63E+01 | 6.804E+00 | 1.371E+01 | 2.665E-03 | 2.845E-01 | 7.19E+00 | 2.409E+01 | 2.162E+01 | 1.070E-03 | 2.309E-02 | 3.016E+00 |
| 130 | -6.428E-01 | -4.503E+01 | 2.92E+01 | 5.790E+00 | 1.168E+01 | 3.674E-03 | 3.904E-01 | 6.45E+00 | 2.510E+01 | 2.252E+01 | 9.861E-04 | 2.132E-02 | 2.821E+00 |
| 135 | -7.071E-01 | -4.679E+01 | 3.25E+01 | 4.846E+00 | 9.789E+00 | 5.232E-03 | 5.527E-01 | 5.74E+00 | 2.604E+01 | 2.337E+01 | 9.162E-04 | 1.984E-02 | 2.604E+00 |
| 140 | -7.660E-01 | -4.841E+01 | 3.65E+01 | 3.980E+00 | 8.059E+00 | 7.728E-03 | 8.112E-01 | 5.05E+00 | 2.690E+01 | 2.414E+01 | 8.586E-04 | 1.862E-02 | 2.367E+00 |
| 145 | -8.192E-01 | -4.986E+01 | 4.13E+01 | 3.197E+00 | 6.501E+00 | 1.190E-02 | 1.241E+00 | 4.38E+00 | 2.768E+01 | 2.483E+01 | 8.111E-04 | 1.762E-02 | 2.112E+00 |
| 150 | -8.660E-01 | -5.115E+01 | 4.74E+01 | 2.502E+00 | 5.125E+00 | 1.922E-02 | 1.990E+00 | 3.72E+00 | 2.837E+01 | 2.545E+01 | 7.725E-04 | 1.680E-02 | 1.841E+00 |
| 155 | -9.063E-01 | -5.225E+01 | 5.51E+01 | 1.898E+00 | 3.943E+00 | 3.270E-02 | 3.380E+00 | 3.08E+00 | 2.895E+01 | 2.597E+01 | 7.414E-04 | 1.614E-02 | 1.556E+00 |
| 160 | -9.397E-01 | -5.316E+01 | 6.51E+01 | 1.388E+00 | 2.963E+00 | 5.867E-02 | 6.146E+00 | 2.45E+00 | 2.944E+01 | 2.641E+01 | 7.171E-04 | 1.562E-02 | 1.259E+00 |
| 165 | -9.659E-01 | -5.388E+01 | 7.88E+01 | 9.716E-01 | 2.193E+00 | 1.100E-01 | 1.222E+01 | 1.83E+00 | 2.983E+01 | 2.675E+01 | 6.988E-04 | 1.523E-02 | 9.530E-01 |
| 170 | -9.848E-01 | -5.440E+01 | 9.85E+01 | 6.464E-01 | 1.639E+00 | 2.076E-01 | 2.750E+01 | 1.22E+00 | 3.010E+01 | 2.700E+01 | 6.860E-04 | 1.496E-02 | 6.394E-01 |
| 175 | -9.962E-01 | -5.471E+01 | 1.30E+02 | 4.173E-01 | 1.305E+00 | 3.575E-01 | 7.092E+01 | 6.07E-01 | 3.027E+01 | 2.715E+01 | 6.785E-04 | 1.480E-02 | 3.209E-01 |
| 180 | -1.000E+00 | -5.482E+01 | 1.80E+02 | 3.241E-01 | 1.193E+00 | 4.543E-01 | 1.290E+02 | 0. | 3.032E+01 | 2.720E+01 | 6.760E-04 | 1.474E-02 | 0. |

PION + PROTON => KAON + LAMBDA AT 40 GEV/C
(1) (2) (3) (4) P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 4.97710E-01 M4 = 1.11559E+00
P2CM= 4.30613E+00 P3CM= 4.27170E+00
E1CM= 4.30839E+00 E2CM= 4.40717E+00 E3CM= 4.30059E+00 E4CM= 4.41497E+00

1-V1LAB = 6.087E-06 1-VCM = 2.292E-02 GCM = 4.69717E+00 ETCM= 8.71556E+00 S = 7.59610E+01 -U=( 7.35689E+01) +T

| 03 CM | COS(03) CM | 4-MOM TSFR SQUARE, T | 03 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | 04 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -1.125E-03 | 0. | 3.980E+01 | 7.998E+01 | 7.817E-05 | 1.152E-02 | 0. | 1.976E-01 | 1.016E+00 | 8.256E-01 | -4.675E+02 | 0. |
| 1 | 9.998E-01 | -6.728E-03 | 1.07E-01 | 3.980E+01 | 7.997E+01 | 7.818E-05 | 1.152E-02 | 2.04E+01 | 2.140E-01 | 1.018E+00 | 8.116E-01 | -3.620E+02 | 7.455E-02 |
| 2 | 9.994E-01 | -2.354E-02 | 2.15E-01 | 3.979E+01 | 7.995E+01 | 7.822E-05 | 1.153E-02 | 3.54E+01 | 2.574E-01 | 1.026E+00 | 7.752E-01 | -1.983E+02 | 1.491E-01 |
| 3 | 9.986E-01 | -5.154E-02 | 3.22E-01 | 3.978E+01 | 7.992E+01 | 7.828E-05 | 1.153E-02 | 4.48E+01 | 3.172E-01 | 1.040E+00 | 7.265E-01 | -9.705E+01 | 2.236E-01 |
| 4 | 9.976E-01 | -9.074E-02 | 4.29E-01 | 3.975E+01 | 7.988E+01 | 7.836E-05 | 1.155E-02 | 5.04E+01 | 3.467E-01 | 1.058E+00 | 6.725E-01 | -4.677E+01 | 2.980E-01 |
| 5 | 9.962E-01 | -1.411E-01 | 5.37E-01 | 3.973E+01 | 7.983E+01 | 7.847E-05 | 1.156E-02 | 5.37E+01 | 4.622E-01 | 1.082E+00 | 6.172E-01 | -2.226E+01 | 3.723E-01 |
| 6 | 9.945E-01 | -2.027E-01 | 6.45E-01 | 3.970E+01 | 7.976E+01 | 7.860E-05 | 1.158E-02 | 5.54E+01 | 5.421E-01 | 1.112E+00 | 5.629E-01 | -9.912E+00 | 4.465E-01 |
| 7 | 9.925E-01 | -2.753E-01 | 7.52E-01 | 3.966E+01 | 7.968E+01 | 7.875E-05 | 1.160E-02 | 5.63E+01 | 6.257E-01 | 1.147E+00 | 5.108E-01 | -3.465E+00 | 5.206E-01 |
| 8 | 9.903E-01 | -3.592E-01 | 8.60E-01 | 3.961E+01 | 7.959E+01 | 7.893E-05 | 1.163E-02 | 5.65E+01 | 7.126E-01 | 1.187E+00 | 4.617E-01 | -1.833E+00 | 5.945E-01 |
| 9 | 9.877E-01 | -4.541E-01 | 9.68E-01 | 3.956E+01 | 7.949E+01 | 7.913E-05 | 1.166E-02 | 5.64E+01 | 8.026E-01 | 1.232E+00 | 4.160E-01 | 1.832E+00 | 6.682E-01 |
| 10 | 9.848E-01 | -5.600E-01 | 1.08E+00 | 3.950E+01 | 7.938E+01 | 7.936E-05 | 1.169E-02 | 5.59E+01 | 8.959E-01 | 1.283E+00 | 3.738E-01 | 2.798E+00 | 7.418E-01 |
| 15 | 9.659E-01 | -1.255E+00 | 1.62E+00 | 3.913E+01 | 7.864E+01 | 8.086E-05 | 1.191E-02 | 5.14E+01 | 1.414E+00 | 1.614E+00 | 2.150E-01 | 3.182E+00 | 1.106E+00 |
| 20 | 9.397E-01 | -2.220E+00 | 2.17E+00 | 3.862E+01 | 7.760E+01 | 8.303E-05 | 1.223E-02 | 4.61E+01 | 2.029E+00 | 2.075E+00 | 1.237E-01 | 2.239E+00 | 1.461E+00 |
| 25 | 9.063E-01 | -3.448E+00 | 2.73E+00 | 3.797E+01 | 7.629E+01 | 8.592E-05 | 1.266E-02 | 4.10E+01 | 2.752E+00 | 2.662E+00 | 7.324E-02 | 1.489E+00 | 1.805E+00 |
| 30 | 8.660E-01 | -4.930E+00 | 3.29E+00 | 3.718E+01 | 7.470E+01 | 8.961E-05 | 1.320E-02 | 3.65E+01 | 3.590E+00 | 3.370E+00 | 4.504E-02 | 9.926E-01 | 2.136E+00 |
| 35 | 8.192E-01 | -6.654E+00 | 3.87E+00 | 3.626E+01 | 7.285E+01 | 9.421E-05 | 1.397E-02 | 3.26E+01 | 4.544E+00 | 4.194E+00 | 2.885E-02 | 6.745E-01 | 2.450E+00 |
| 40 | 7.660E-01 | -8.608E+00 | 4.47E+00 | 3.522E+01 | 7.076E+01 | 9.986E-05 | 1.470E-02 | 2.93E+01 | 5.610E+00 | 5.127E+00 | 1.921E-02 | 4.696E-01 | 2.746E+00 |
| 45 | 7.071E-01 | -1.078E+01 | 5.09E+00 | 3.406E+01 | 6.844E+01 | 1.068E-04 | 1.571E-02 | 2.64E+01 | 6.784E+00 | 6.163E+00 | 1.325E-02 | 3.353E-01 | 3.021E+00 |
| 50 | 6.428E-01 | -1.314E+01 | 5.73E+00 | 3.280E+01 | 6.591E+01 | 1.151E-04 | 1.694E-02 | 2.40E+01 | 8.059E+00 | 7.293E+00 | 9.445E-03 | 2.454E-01 | 3.272E+00 |
| 55 | 5.736E-01 | -1.569E+01 | 6.39E+00 | 3.144E+01 | 6.318E+01 | 1.253E-04 | 1.843E-02 | 2.18E+01 | 9.427E+00 | 8.509E+00 | 6.929E-03 | 1.839E-01 | 3.499E+00 |
| 60 | 5.000E-01 | -1.840E+01 | 7.08E+00 | 3.003E+01 | 6.038E+01 | 1.376E-04 | 2.023E-02 | 1.99E+01 | 1.088E+01 | 9.802E+00 | 5.217E-03 | 1.408E-01 | 3.699E+00 |
| 65 | 4.226E-01 | -2.124E+01 | 7.81E+00 | 2.848E+01 | 5.723E+01 | 1.526E-04 | 2.243E-02 | 1.82E+01 | 1.240E+01 | 1.116E+01 | 4.021E-03 | 1.100E-01 | 3.871E+00 |
| 70 | 3.420E-01 | -2.421E+01 | 8.58E+00 | 2.690E+01 | 5.406E+01 | 1.711E-04 | 2.513E-02 | 1.67E+01 | 1.399E+01 | 1.258E+01 | 3.165E-03 | 8.757E-02 | 4.014E+00 |
| 75 | 2.588E-01 | -2.727E+01 | 9.40E+00 | 2.527E+01 | 5.078E+01 | 1.939E-04 | 2.847E-02 | 1.53E+01 | 1.562E+01 | 1.404E+01 | 2.539E-03 | 7.091E-02 | 4.126E+00 |
| 80 | 1.736E-01 | -3.040E+01 | 1.03E+01 | 2.360E+01 | 4.743E+01 | 2.223E-04 | 3.261E-02 | 1.41E+01 | 1.730E+01 | 1.554E+01 | 2.073E-03 | 5.834E-02 | 4.207E+00 |
| 85 | 8.716E-02 | -3.358E+01 | 1.12E+01 | 2.190E+01 | 4.402E+01 | 2.581E-04 | 3.783E-02 | 1.29E+01 | 1.900E+01 | 1.706E+01 | 1.720E-03 | 4.871E-02 | 4.255E+00 |
| 90 | 0. | -3.679E+01 | 1.22E+01 | 2.019E+01 | 4.059E+01 | 3.036E-04 | 4.446E-02 | 1.19E+01 | 2.071E+01 | 1.859E+01 | 1.448E-03 | 4.123E-02 | 4.272E+00 |
| 95 | -8.716E-02 | -4.000E+01 | 1.33E+01 | 1.849E+01 | 3.715E+01 | 3.623E-04 | 5.299E-02 | 1.09E+01 | 2.242E+01 | 2.012E+01 | 1.236E-03 | 3.535E-02 | 4.255E+00 |
| 100 | -1.736E-01 | -4.318E+01 | 1.45E+01 | 1.679E+01 | 3.375E+01 | 4.391E-04 | 6.415E-02 | 1.00E+01 | 2.412E+01 | 2.164E+01 | 1.068E-03 | 3.068E-02 | 4.207E+00 |
| 105 | -2.588E-01 | -4.631E+01 | 1.58E+01 | 1.512E+01 | 3.039E+01 | 5.415E-04 | 7.898E-02 | 9.21E+00 | 2.579E+01 | 2.314E+01 | 9.344E-04 | 2.693E-02 | 4.126E+00 |
| 110 | -3.420E-01 | -4.937E+01 | 1.73E+01 | 1.349E+01 | 2.711E+01 | 6.803E-04 | 9.905E-02 | 8.42E+00 | 2.742E+01 | 2.460E+01 | 8.266E-04 | 2.389E-02 | 4.014E+00 |
| 115 | -4.226E-01 | -5.234E+01 | 1.90E+01 | 1.190E+01 | 2.394E+01 | 8.728E-04 | 1.268E-01 | 7.67E+00 | 2.900E+01 | 2.602E+01 | 7.390E-04 | 2.142E-02 | 3.871E+00 |
| 120 | -5.000E-01 | -5.518E+01 | 2.09E+01 | 1.039E+01 | 2.089E+01 | 1.146E-03 | 1.661E-01 | 6.96E+00 | 3.052E+01 | 2.738E+01 | 6.674E-04 | 1.934E-02 | 3.699E+00 |
| 125 | -5.736E-01 | -5.789E+01 | 2.30E+01 | 8.942E+00 | 1.799E+01 | 1.545E-03 | 2.232E-01 | 6.29E+00 | 3.196E+01 | 2.867E+01 | 6.085E-04 | 1.771E-02 | 3.499E+00 |
| 130 | -6.428E-01 | -6.044E+01 | 2.56E+01 | 7.583E+00 | 1.527E+01 | 2.147E-03 | 3.088E-01 | 5.64E+00 | 3.332E+01 | 2.989E+01 | 5.600E-04 | 1.632E-02 | 3.272E+00 |
| 135 | -7.071E-01 | -6.280E+01 | 2.86E+01 | 6.318E+00 | 1.273E+01 | 3.088E-03 | 4.419E-01 | 5.01E+00 | 3.458E+01 | 3.102E+01 | 5.199E-04 | 1.517E-02 | 3.021E+00 |
| 140 | -7.660E-01 | -6.497E+01 | 3.22E+01 | 5.158E+00 | 1.041E+01 | 4.622E-03 | 6.574E-01 | 4.41E+00 | 3.574E+01 | 3.205E+01 | 4.868E-04 | 1.423E-02 | 2.746E+00 |
| 145 | -8.192E-01 | -6.693E+01 | 3.66E+01 | 4.111E+00 | 8.321E+00 | 7.248E-03 | 1.023E+00 | 3.82E+00 | 3.678E+01 | 3.298E+01 | 4.597E-04 | 1.345E-02 | 2.450E+00 |
| 150 | -8.660E-01 | -6.865E+01 | 4.21E+01 | 3.184E+00 | 6.474E+00 | 1.200E-02 | 1.681E+00 | 3.25E+00 | 3.770E+01 | 3.381F+01 | 4.375E-04 | 1.281E-02 | 2.136E+00 |
| 155 | -9.063E-01 | -7.013E+01 | 4.93E+01 | 2.381E+00 | 4.887E+00 | 2.116E-02 | 2.942E+00 | 2.69E+00 | 3.849E+01 | 3.452E+01 | 4.198E-04 | 1.230E-02 | 1.805E+00 |
| 160 | -9.397E-01 | -7.136E+01 | 5.89E+01 | 1.707E+00 | 3.572E+00 | 3.998E-02 | 5.568E+00 | 2.14E+00 | 3.914E+01 | 3.510E+01 | 4.059E-04 | 1.190E-02 | 1.461E+00 |
| 165 | -9.659E-01 | -7.233E+01 | 7.21E+01 | 1.162E+00 | 2.539E+00 | 8.082E-02 | 1.164E+01 | 1.60E+00 | 3.966E+01 | 3.556E+01 | 3.954E-04 | 1.160E-02 | 1.106E+00 |
| 170 | -9.848E-01 | -7.302E+01 | 9.17E+01 | 7.421E-01 | 1.795E+00 | 1.695E-01 | 2.800E+01 | 1.06E+00 | 4.003E+01 | 3.590E+01 | 3.881E-04 | 1.139E-02 | 7.418E-01 |
| 175 | -9.962E-01 | -7.344E+01 | 1.24E+02 | 4.490E-01 | 1.347E+00 | 3.332E-01 | 8.112E+01 | 5.30E-01 | 4.025E+01 | 3.610E+01 | 3.838E-04 | 1.126E-02 | 3.723E-01 |
| 180 | -1.000E+00 | -7.358E+01 | 1.80E+02 | 3.274E-01 | 1.197E+00 | 4.505E-01 | 1.703E+02 | 0. | 4.033E+01 | 3.616E+01 | 3.824E-04 | 1.122E-02 | 0. |

PION (1) + PROTON (2) => KAON (3) + LAMBDA (4) AT 50 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 4.97710E-01 M4 = 1.11559E+00
P2CM= 4.82012E+00 P3CM= 4.78937E+00
E1CM= 4.82214E+00 E2CM= 4.91059E+00 E3CM= 4.81516E+00 E4CM= 4.91758E+00

1-V1LAB = 3.896E-06 1-VCM = 1.842E-02 GCM = 5.23373E+00 ETCM= 9.73273E+00 S = 9.47261E+01 -U=( 9.23340E+01) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -8.972E-04 | 0. | 4.980E+01 | 1.001E+02 | 4.993E-05 | 9.248E-03 | 0. | 1.969E-01 | 1.015E+00 | 8.262E-01 | -5.919E+02 | 0. |
| 1 | 9.998E-01 | -7.929E-03 | 9.62E-02 | 4.980E+01 | 1.001E+02 | 4.994E-05 | 9.249E-03 | 2.26E+01 | 2.174E-01 | 1.019E+00 | 8.087E-01 | -4.310E+02 | 8.359E-02 |
| 2 | 9.994E-01 | -2.902E-02 | 1.92E-01 | 4.979E+01 | 1.000E+02 | 4.996E-05 | 9.253E-03 | 3.82E+01 | 2.701E-01 | 1.029E+00 | 7.647E-01 | -2.113E+02 | 1.671E-01 |
| 3 | 9.986E-01 | -6.417E-02 | 2.89E-01 | 4.977E+01 | 1.000E+02 | 5.000E-05 | 9.260E-03 | 4.73E+01 | 3.410E-01 | 1.046E+00 | 7.077E-01 | -9.384E+01 | 2.507E-01 |
| 4 | 9.976E-01 | -1.134E-01 | 3.85E-01 | 4.974E+01 | 9.995E+01 | 5.005E-05 | 9.270E-03 | 5.23E+01 | 4.221E-01 | 1.069E+00 | 6.461E-01 | -4.128E+01 | 3.341E-01 |
| 5 | 9.962E-01 | -1.766E-01 | 4.81E-01 | 4.971E+01 | 9.988E+01 | 5.012E-05 | 9.283E-03 | 5.50E+01 | 5.096E-01 | 1.099E+00 | 5.845E-01 | -1.746E+01 | 4.174E-01 |
| 6 | 9.945E-01 | -2.538E-01 | 5.78E-01 | 4.967E+01 | 9.980E+01 | 5.020E-05 | 9.298E-03 | 5.63E+01 | 6.019E-01 | 1.136E+00 | 5.252E-01 | -6.150E+00 | 5.006E-01 |
| 7 | 9.925E-01 | -3.450E-01 | 6.74E-01 | 4.962E+01 | 9.970E+01 | 5.030E-05 | 9.316E-03 | 5.67E+01 | 6.985E-01 | 1.180E+00 | 4.693E-01 | -5.756E-01 | 5.837E-01 |
| 8 | 9.903E-01 | -4.502E-01 | 7.71E-01 | 4.956E+01 | 9.959E+01 | 5.042E-05 | 9.337E-03 | 5.65E+01 | 7.991E-01 | 1.230E+00 | 4.177E-01 | 2.202E+00 | 6.666E-01 |
| 9 | 9.877E-01 | -5.693E-01 | 8.67E-01 | 4.950E+01 | 9.946E+01 | 5.054E-05 | 9.361E-03 | 5.60E+01 | 9.038E-01 | 1.287E+00 | 3.705E-01 | 3.547E+00 | 7.492E-01 |
| 10 | 9.848E-01 | -7.023E-01 | 9.64E-01 | 4.943E+01 | 9.932E+01 | 5.069E-05 | 9.388E-03 | 5.52E+01 | 1.013E+00 | 1.351E+00 | 3.279E-01 | 4.130E+00 | 8.317E-01 |
| 15 | 9.659E-01 | -1.574E+00 | 1.45E+00 | 4.896E+01 | 9.839E+01 | 5.166E-05 | 9.566E-03 | 4.97E+01 | 1.625E+00 | 1.767E+00 | 1.756E-01 | 3.548E+00 | 1.240E+00 |
| 20 | 9.397E-01 | -2.785E+00 | 1.94E+00 | 4.832E+01 | 9.709E+01 | 5.305E-05 | 9.823E-03 | 4.38E+01 | 2.367E+00 | 2.346E+00 | 9.544E-02 | 2.295E+00 | 1.638E+00 |
| 25 | 9.063E-01 | -4.327E+00 | 2.44E+00 | 4.750E+01 | 9.544E+01 | 5.490E-05 | 1.016E-02 | 3.85E+01 | 3.252E+00 | 3.082E+00 | 5.411E-02 | 1.447E+00 | 2.024E+00 |
| 30 | 8.660E-01 | -6.187E+00 | 2.95E+00 | 4.651E+01 | 9.345E+01 | 5.726E-05 | 1.060E-02 | 3.40E+01 | 4.286E+00 | 3.970E+00 | 3.224E-02 | 9.285E-01 | 2.395E+00 |
| 35 | 8.192E-01 | -8.351E+00 | 3.47E+00 | 4.535E+01 | 9.113E+01 | 6.021E-05 | 1.115E-02 | 3.01E+01 | 5.470E+00 | 5.004E+00 | 2.017E-02 | 6.128E-01 | 2.747E+00 |
| 40 | 7.660E-01 | -1.080E+01 | 4.01E+00 | 4.405E+01 | 8.850E+01 | 6.383E-05 | 1.181E-02 | 2.69E+01 | 6.798E+00 | 6.175E+00 | 1.320E-02 | 4.171E-01 | 3.079E+00 |
| 45 | 7.071E-01 | -1.352E+01 | 4.56E+00 | 4.260E+01 | 8.559E+01 | 6.826E-05 | 1.263E-02 | 2.42E+01 | 8.264E+00 | 7.475E+00 | 8.988E-03 | 2.927E-01 | 3.387E+00 |
| 50 | 6.428E-01 | -1.649E+01 | 5.13E+00 | 4.101E+01 | 8.241E+01 | 7.362E-05 | 1.362E-02 | 2.18E+01 | 9.859E+00 | 8.894E+00 | 6.341E-03 | 2.113E-01 | 3.669E+00 |
| 55 | 5.736E-01 | -1.969E+01 | 5.73E+00 | 3.931E+01 | 7.899E+01 | 8.014E-05 | 1.482E-02 | 1.98E+01 | 1.157E+01 | 1.042E+01 | 4.615E-03 | 1.566E-01 | 3.923E+00 |
| 60 | 5.000E-01 | -2.309E+01 | 6.35E+00 | 3.750E+01 | 7.535E+01 | 8.806E-05 | 1.628E-02 | 1.80E+01 | 1.339E+01 | 1.204E+01 | 3.453E-03 | 1.188E-01 | 4.148E+00 |
| 65 | 4.226E-01 | -2.666E+01 | 7.00E+00 | 3.560E+01 | 7.153E+01 | 9.774E-05 | 1.806E-02 | 1.65E+01 | 1.530E+01 | 1.375E+01 | 2.648E-03 | 9.219E-02 | 4.341E+00 |
| 70 | 3.420E-01 | -3.038E+01 | 7.69E+00 | 3.361E+01 | 6.754E+01 | 1.096E-04 | 2.025E-02 | 1.51E+01 | 1.729E+01 | 1.553E+01 | 2.076E-03 | 7.294E-02 | 4.501E+00 |
| 75 | 2.588E-01 | -3.422E+01 | 8.43E+00 | 3.157E+01 | 6.343E+01 | 1.243E-04 | 2.295E-02 | 1.38E+01 | 1.934E+01 | 1.736E+01 | 1.660E-03 | 5.878E-02 | 4.626E+00 |
| 80 | 1.736E-01 | -3.815E+01 | 9.21E+00 | 2.947E+01 | 5.922E+01 | 1.426E-04 | 2.632E-02 | 1.27E+01 | 2.144E+01 | 1.924E+01 | 1.352E-03 | 4.816E-02 | 4.717E+00 |
| 85 | 8.716E-02 | -4.215E+01 | 1.00E+01 | 2.734E+01 | 5.494E+01 | 1.656E-04 | 3.055E-02 | 1.17E+01 | 2.357E+01 | 2.115E+01 | 1.119E-03 | 4.007E-02 | 4.771E+00 |
| 90 | 0. | -4.617E+01 | 1.10E+01 | 2.520E+01 | 5.063E+01 | 1.950E-04 | 3.594E-02 | 1.07E+01 | 2.571E+01 | 2.307E+01 | 9.399E-04 | 3.382E-02 | 4.789E+00 |
| 95 | -8.716E-02 | -5.020E+01 | 1.19E+01 | 2.305E+01 | 4.633E+01 | 2.330E-04 | 4.290E-02 | 9.86E+00 | 2.786E+01 | 2.499E+01 | 8.008E-04 | 2.893E-02 | 4.771E+00 |
| 100 | -1.736E-01 | -5.419E+01 | 1.30E+01 | 2.092E+01 | 4.205E+01 | 2.828E-04 | 5.202E-02 | 9.05E+00 | 2.999E+01 | 2.690E+01 | 6.912E-04 | 2.505E-02 | 4.717E+00 |
| 105 | -2.588E-01 | -5.812E+01 | 1.42E+01 | 1.883E+01 | 3.784E+01 | 3.493E-04 | 6.416E-02 | 8.29E+00 | 3.209E+01 | 2.878E+01 | 6.039E-04 | 2.195E-02 | 4.626E+00 |
| 110 | -3.420E-01 | -6.196E+01 | 1.56E+01 | 1.678E+01 | 3.373E+01 | 4.397E-04 | 8.064E-02 | 7.58E+00 | 3.413E+01 | 3.061E+01 | 5.336E-04 | 1.944E-02 | 4.501E+00 |
| 115 | -4.226E-01 | -6.568E+01 | 1.71E+01 | 1.479E+01 | 2.974E+01 | 5.654E-04 | 1.035E-01 | 6.90E+00 | 3.612E+01 | 3.239E+01 | 4.767E-04 | 1.740E-02 | 4.341E+00 |
| 120 | -5.000E-01 | -6.926E+01 | 1.88E+01 | 1.289E+01 | 2.592E+01 | 7.447E-04 | 1.360E-01 | 6.26E+00 | 3.802E+01 | 3.410E+01 | 4.301E-04 | 1.573E-02 | 4.148E+00 |
| 125 | -5.736E-01 | -7.265E+01 | 2.07E+01 | 1.108E+01 | 2.228E+01 | 1.008E-03 | 1.836E-01 | 5.65E+00 | 3.983E+01 | 3.572E+01 | 3.919E-04 | 1.436E-02 | 3.923E+00 |
| 130 | -6.428E-01 | -7.585E+01 | 2.30E+01 | 9.373E+00 | 1.886E+01 | 1.407E-03 | 2.554E-01 | 5.07E+00 | 4.154E+01 | 3.725E+01 | 3.605E-04 | 1.322E-02 | 3.669E+00 |
| 135 | -7.071E-01 | -7.882E+01 | 2.58E+01 | 7.787E+00 | 1.568E+01 | 2.036E-03 | 3.679E-01 | 4.50E+00 | 4.312E+01 | 3.867E+01 | 3.345E-04 | 1.228E-02 | 3.387E+00 |
| 140 | -7.660E-01 | -8.154E+01 | 2.91E+01 | 6.334E+00 | 1.276E+01 | 3.073E-03 | 5.522E-01 | 3.96E+00 | 4.457E+01 | 3.997E+01 | 3.131E-04 | 1.151E-02 | 3.079E+00 |
| 145 | -8.192E-01 | -8.399E+01 | 3.32E+01 | 5.022E+00 | 1.014E+01 | 4.875E-03 | 8.699E-01 | 3.43E+00 | 4.588E+01 | 4.114E+01 | 2.955E-04 | 1.087E-02 | 2.747E+00 |
| 150 | -8.660E-01 | -8.616E+01 | 3.83E+01 | 3.861E+00 | 7.822E+00 | 8.205E-03 | 1.452E+00 | 2.92E+00 | 4.703E+01 | 4.217E+01 | 2.812E-04 | 1.035E-02 | 2.395E+00 |
| 155 | -9.063E-01 | -8.802E+01 | 4.51E+01 | 2.859E+00 | 5.831E+00 | 1.482E-02 | 2.598E+00 | 2.42E+00 | 4.802E+01 | 4.306E+01 | 2.697E-04 | 9.933E-03 | 2.024E+00 |
| 160 | -9.397E-01 | -8.956E+01 | 5.42E+01 | 2.020E+00 | 4.180E+00 | 2.903E-02 | 5.066E+00 | 1.92E+00 | 4.885E+01 | 4.380E+01 | 2.607E-04 | 9.606E-03 | 1.638E+00 |
| 165 | -9.659E-01 | -9.077E+01 | 6.71E+01 | 1.346E+00 | 2.884E+00 | 6.206E-02 | 1.102E+01 | 1.44E+00 | 4.949E+01 | 4.437E+01 | 2.540E-04 | 9.361E-03 | 1.240E+00 |
| 170 | -9.848E-01 | -9.164E+01 | 8.65E+01 | 8.333E-01 | 1.950E+00 | 1.415E-01 | 2.796E+01 | 9.54E-01 | 4.996E+01 | 4.479E+01 | 2.493E-04 | 9.190E-03 | 8.317E-01 |
| 175 | -9.962E-01 | -9.217E+01 | 1.19E+02 | 4.785E-01 | 1.387E+00 | 3.069E-01 | 8.866E+01 | 4.76E-01 | 5.024E+01 | 4.504E+01 | 2.465E-04 | 9.089E-03 | 4.174E-01 |
| 180 | -1.000E+00 | -9.234E+01 | 1.80E+02 | 3.293E-01 | 1.199E+00 | 4.482E-01 | 2.115E+02 | 0. | 5.033E+01 | 4.513E+01 | 2.456E-04 | 9.056E-03 | 0. |

PION (1) + PROTON (2) => KAON (3) + LAMBDA (4) AT 60 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 4.97710E-01 M4 = 1.11559E+00
P2CM= 5.28437E+00 P3CM= 5.25632E+00
E1CM= 5.28621E+00 E2CM= 5.36702E+00 E3CM= 5.27983E+00 E4CM= 5.37340E+00

1-V1LAB = 2.705E-06 1-VCM = 1.540E-02 GCM = 5.72018E+00 ETCM= 1.06532E+01 S = 1.13491E+02 -U=( 1.11099E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -7.461E-04 | 0. | 5.980E+01 | 1.202E+02 | 3.463E-05 | 7.725E-03 | 0. | 1.964E-01 | 1.015E+00 | 8.266E-01 | -7.163E+02 | 0. |
| 1 | 9.998E-01 | -9.207E-03 | 8.79E-02 | 5.980E+01 | 1.202E+02 | 3.463E-05 | 7.726E-03 | 2.45E+01 | 2.209E-01 | 1.019E+00 | 8.057E-01 | -4.914E+02 | 9.174E-02 |
| 2 | 9.994E-01 | -3.459E-02 | 1.76E-01 | 5.979E+01 | 1.201E+02 | 3.465E-05 | 7.730E-03 | 4.05E+01 | 2.824E-01 | 1.032E+00 | 7.546E-01 | -2.183E+02 | 1.834E-01 |
| 3 | 9.986E-01 | -7.688E-02 | 2.64E-01 | 5.976E+01 | 1.201E+02 | 3.468E-05 | 7.736E-03 | 4.92E+01 | 3.635E-01 | 1.052E+00 | 6.902E-01 | -8.912E+01 | 2.751E-01 |
| 4 | 9.976E-01 | -1.361E-01 | 3.52E-01 | 5.973E+01 | 1.200E+02 | 3.471E-05 | 7.744E-03 | 5.37E+01 | 4.551E-01 | 1.080E+00 | 6.223E-01 | -3.595E+01 | 3.667E-01 |
| 5 | 9.962E-01 | -2.121E-01 | 4.40E-01 | 5.969E+01 | 1.199E+02 | 3.476E-05 | 7.754E-03 | 5.58E+01 | 5.536E-01 | 1.116E+00 | 5.555E-01 | -1.323E+01 | 4.581E-01 |
| 6 | 9.945E-01 | -3.051E-01 | 5.28E-01 | 5.964E+01 | 1.198E+02 | 3.482E-05 | 7.767E-03 | 5.67E+01 | 6.575E-01 | 1.161E+00 | 4.923E-01 | -2.975E+00 | 5.494E-01 |
| 7 | 9.925E-01 | -4.148E-01 | 6.16E-01 | 5.958E+01 | 1.197E+02 | 3.489E-05 | 7.782E-03 | 5.67E+01 | 7.663E-01 | 1.213E+00 | 4.338E-01 | 1.792E+00 | 6.406E-01 |
| 8 | 9.903E-01 | -5.414E-01 | 7.04E-01 | 5.952E+01 | 1.196E+02 | 3.497E-05 | 7.800E-03 | 5.62E+01 | 8.799E-01 | 1.274E+00 | 3.807E-01 | 3.979E+00 | 7.315E-01 |
| 9 | 9.877E-01 | -6.847E-01 | 7.93E-01 | 5.944E+01 | 1.194E+02 | 3.506E-05 | 7.820E-03 | 5.54E+01 | 9.986E-01 | 1.342E+00 | 3.331E-01 | 4.889E+00 | 8.223E-01 |
| 10 | 9.848E-01 | -8.447E-01 | 8.81E-01 | 5.935E+01 | 1.193E+02 | 3.516E-05 | 7.842E-03 | 5.44E+01 | 1.122E+00 | 1.419E+00 | 2.907E-01 | 5.146E+00 | 9.127E-01 |
| 15 | 9.659E-01 | -1.894E+00 | 1.33E+00 | 5.879E+01 | 1.181E+02 | 3.583E-05 | 7.992E-03 | 4.81E+01 | 1.828E+00 | 1.920E+00 | 1.464E-01 | 3.776E+00 | 1.360E+00 |
| 20 | 9.397E-01 | -3.351E+00 | 1.78E+00 | 5.802E+01 | 1.166E+02 | 3.679E-05 | 8.207E-03 | 4.18E+01 | 2.696E+00 | 2.616E+00 | 7.596E-02 | 2.295E+00 | 1.798E+00 |
| 25 | 9.063E-01 | -5.206E+00 | 2.23E+00 | 5.703E+01 | 1.146E+02 | 3.808E-05 | 8.493E-03 | 3.64E+01 | 3.502E+00 | 3.744E+00 | 4.164E-02 | 1.390E+00 | 2.221E+00 |
| 30 | 8.660E-01 | -7.443E+00 | 2.70E+00 | 5.584E+01 | 1.122E+02 | 3.972E-05 | 8.859E-03 | 3.19E+01 | 4.975E+00 | 4.571E+00 | 2.423E-02 | 8.655E-01 | 2.628E+00 |
| 35 | 8.192E-01 | -1.005E+01 | 3.17E+00 | 5.445E+01 | 1.094E+02 | 4.177E-05 | 9.315E-03 | 2.82E+01 | 6.390E+00 | 5.814E+00 | 1.490E-02 | 5.588E-01 | 3.015E+00 |
| 40 | 7.660E-01 | -1.300E+01 | 3.66E+00 | 5.288E+01 | 1.062E+02 | 4.430E-05 | 9.876E-03 | 2.50E+01 | 7.981E+00 | 7.224E+00 | 9.628E-03 | 3.741E-01 | 3.379E+00 |
| 45 | 7.071E-01 | -1.627E+01 | 4.17E+00 | 5.113E+01 | 1.027E+02 | 4.737E-05 | 1.056E-02 | 2.24E+01 | 9.740E+00 | 8.788E+00 | 6.496E-03 | 2.592E-01 | 3.717E+00 |
| 50 | 6.428E-01 | -1.984E+01 | 4.69E+00 | 4.923E+01 | 9.891E+01 | 5.110E-05 | 1.139E-02 | 2.02E+01 | 1.165E+01 | 1.049E+01 | 4.550E-03 | 1.853E-01 | 4.027E+00 |
| 55 | 5.736E-01 | -2.369E+01 | 5.24E+00 | 4.718E+01 | 9.480E+01 | 5.564E-05 | 1.240E-02 | 1.83E+01 | 1.371E+01 | 1.233E+01 | 3.294E-03 | 1.362E-01 | 4.306E+00 |
| 60 | 5.000E-01 | -2.778E+01 | 5.81E+00 | 4.500E+01 | 9.042E+01 | 6.116E-05 | 1.362E-02 | 1.66E+01 | 1.590E+01 | 1.428E+01 | 2.454E-03 | 1.027E-01 | 4.552E+00 |
| 65 | 4.226E-01 | -3.208E+01 | 6.40E+00 | 4.271E+01 | 8.582E+01 | 6.789E-05 | 1.512E-02 | 1.52E+01 | 1.819E+01 | 1.634E+01 | 1.875E-03 | 7.929E-02 | 4.764E+00 |
| 70 | 3.420E-01 | -3.655E+01 | 7.04E+00 | 4.032E+01 | 8.102E+01 | 7.616E-05 | 1.696E-02 | 1.39E+01 | 2.058E+01 | 1.848E+01 | 1.466E-03 | 6.248E-02 | 4.939E+00 |
| 75 | 2.588E-01 | -4.118E+01 | 7.71E+00 | 3.786E+01 | 7.608E+01 | 8.640E-05 | 1.923E-02 | 1.27E+01 | 2.305E+01 | 2.068E+01 | 1.169E-03 | 5.018E-02 | 5.077E+00 |
| 80 | 1.736E-01 | -4.591E+01 | 8.42E+00 | 3.534E+01 | 7.101E+01 | 9.916E-05 | 2.206E-02 | 1.17E+01 | 2.557E+01 | 2.294E+01 | 9.502E-04 | 4.100E-02 | 5.176E+00 |
| 85 | 8.716E-02 | -5.071E+01 | 9.19E+00 | 3.278E+01 | 6.587E+01 | 1.153E-04 | 2.562E-02 | 1.07E+01 | 2.813E+01 | 2.524E+01 | 7.852E-04 | 3.403E-02 | 5.236E+00 |
| 90 | 0. | -5.555E+01 | 1.00E+01 | 3.020E+01 | 6.068E+01 | 1.358E-04 | 3.017E-02 | 9.85E+00 | 3.072E+01 | 2.755E+01 | 6.589E-04 | 2.866E-02 | 5.256E+00 |
| 95 | -8.716E-02 | -6.040E+01 | 1.09E+01 | 2.762E+01 | 5.550E+01 | 1.624E-04 | 3.604E-02 | 9.05E+00 | 3.330E+01 | 2.986E+01 | 5.608E-04 | 2.447E-02 | 5.236E+00 |
| 100 | -1.736E-01 | -6.520E+01 | 1.19E+01 | 2.506E+01 | 5.035E+01 | 1.972E-04 | 4.374E-02 | 8.30E+00 | 3.586E+01 | 3.216E+01 | 4.835E-04 | 2.116E-02 | 5.176E+00 |
| 105 | -2.588E-01 | -6.993E+01 | 1.30E+01 | 2.253E+01 | 4.529E+01 | 2.438E-04 | 5.402E-02 | 7.60E+00 | 3.838E+01 | 3.442E+01 | 4.221E-04 | 1.852E-02 | 5.077E+00 |
| 110 | -3.420E-01 | -7.455E+01 | 1.42E+01 | 2.007E+01 | 4.034E+01 | 3.073E-04 | 6.800E-02 | 6.95E+00 | 4.085E+01 | 3.663E+01 | 3.728E-04 | 1.639E-02 | 4.939E+00 |
| 115 | -4.226E-01 | -7.903E+01 | 1.56E+01 | 1.768E+01 | 3.554E+01 | 3.959E-04 | 8.744E-02 | 6.33E+00 | 4.323E+01 | 3.877E+01 | 3.328E-04 | 1.465E-02 | 4.764E+00 |
| 120 | -5.000E-01 | -8.333E+01 | 1.72E+01 | 1.539E+01 | 3.094E+01 | 5.224E-04 | 1.152E-01 | 5.74E+00 | 4.553E+01 | 4.082E+01 | 3.001E-04 | 1.324E-02 | 4.552E+00 |
| 125 | -5.736E-01 | -8.742E+01 | 1.90E+01 | 1.321E+01 | 2.656E+01 | 7.088E-04 | 1.559E-01 | 5.18E+00 | 4.770E+01 | 4.277E+01 | 2.733E-04 | 1.207E-02 | 4.306E+00 |
| 130 | -6.428E-01 | -9.126E+01 | 2.11E+01 | 1.116E+01 | 2.245E+01 | 9.928E-04 | 2.176E-01 | 4.64E+00 | 4.975E+01 | 4.461E+01 | 2.513E-04 | 1.111E-02 | 4.027E+00 |
| 135 | -7.071E-01 | -9.483E+01 | 2.37E+01 | 9.255E+00 | 1.862E+01 | 1.443E-03 | 3.151E-01 | 4.13E+00 | 5.166E+01 | 4.632E+01 | 2.331E-04 | 1.032E-02 | 3.717E+00 |
| 140 | -7.660E-01 | -9.811E+01 | 2.67E+01 | 7.507E+00 | 1.512E+01 | 2.191E-03 | 4.759E-01 | 3.63E+00 | 5.340E+01 | 4.788E+01 | 2.181E-04 | 9.660E-03 | 3.379E+00 |
| 145 | -8.192E-01 | -1.011E+02 | 3.06E+01 | 5.930E+00 | 1.196E+01 | 3.503E-03 | 7.561E-01 | 3.14E+00 | 5.498E+01 | 4.929E+01 | 2.058E-04 | 9.122E-03 | 3.015E+00 |
| 150 | -8.660E-01 | -1.037E+02 | 3.54E+01 | 4.536E+00 | 9.169E+00 | 5.965E-03 | 1.277E+00 | 2.67E+00 | 5.636E+01 | 5.053E+01 | 1.958E-04 | 8.683E-03 | 2.628E+00 |
| 155 | -9.063E-01 | -1.059E+02 | 4.18E+01 | 3.334E+00 | 6.773E+00 | 1.096E-02 | 2.323E+00 | 2.21E+00 | 5.756E+01 | 5.160E+01 | 1.878E-04 | 8.331E-03 | 2.221E+00 |
| 160 | -9.397E-01 | -1.078E+02 | 5.05E+01 | 2.330E+00 | 4.788E+00 | 2.206E-02 | 4.637E+00 | 1.76E+00 | 5.854E+01 | 5.249E+01 | 1.815E-04 | 8.055E-03 | 1.798E+00 |
| 165 | -9.659E-01 | -1.092E+02 | 6.30E+01 | 1.527E+00 | 3.227E+00 | 4.922E-02 | 1.042E+01 | 1.31E+00 | 5.932E+01 | 5.318E+01 | 1.768E-04 | 7.848E-03 | 1.360E+00 |
| 170 | -9.848E-01 | -1.103E+02 | 8.21E+01 | 9.214E-01 | 2.104E+00 | 1.201E-01 | 2.763E+01 | 8.73E-01 | 5.988E+01 | 5.369E+01 | 1.735E-04 | 7.704E-03 | 9.127E-01 |
| 175 | -9.962E-01 | -1.109E+02 | 1.15E+02 | 5.066E-01 | 1.427E+00 | 2.867E-01 | 9.432E+01 | 4.36E-01 | 6.022E+01 | 5.399E+01 | 1.716E-04 | 7.619E-03 | 4.581E-01 |
| 180 | -1.000E+00 | -1.111E+02 | 1.80E+02 | 3.306E-01 | 1.201E+00 | 4.467E-01 | 2.528E+02 | 0. | 6.033E+01 | 5.409E+01 | 1.709E-04 | 7.591E-03 | 0. |

PION (1) + PROTON (2) => KAON (3) + LAMBDA (4) AT 70 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 4.97710E-01 M4 = 1.11559E+00
P2CM= 5.71101E+00 P3CM= 5.68505E+00
E1CM= 5.71271E+00 E2CM= 5.78757E+00 E3CM= 5.70680E+00 E4CM= 5.79348E+00

1-V1LAB = 1.988E-06 1-VCM = 1.323E-02 GCM = 6.16841E+00 ETCM= 1.15003E+01 S = 1.32256E+02 -U=( 1.29864E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -6.385E-04 | 0. | 6.980E+01 | 1.403E+02 | 2.542E-05 | 6.633E-03 | 0. | 1.961E-01 | 1.015E+00 | 8.269E-01 | -8.408E+02 | 0. |
| 1 | 9.998E-01 | -1.053E-02 | 8.14E-02 | 6.980E+01 | 1.402E+02 | 2.542E-05 | 6.634E-03 | 2.62E+01 | 2.245E-01 | 1.020E+00 | 8.027E-01 | -5.446E+02 | 9.922E-02 |
| 2 | 9.994E-01 | -4.020E-02 | 1.63E-01 | 6.978E+01 | 1.402E+02 | 2.543E-05 | 6.637E-03 | 4.24E+01 | 2.943E-01 | 1.034E+00 | 7.449E-01 | -2.213E+02 | 1.984E-01 |
| 3 | 9.986E-01 | -8.963E-02 | 2.44E-01 | 6.976E+01 | 1.402E+02 | 2.545E-05 | 6.642E-03 | 5.06E+01 | 3.849E-01 | 1.058E+00 | 6.739E-01 | -8.376E+01 | 2.975E-01 |
| 4 | 9.976E-01 | -1.588E-01 | 3.26E-01 | 6.972E+01 | 1.401E+02 | 2.548E-05 | 6.649E-03 | 5.46E+01 | 4.863E-01 | 1.091E+00 | 6.004E-01 | -3.096E+01 | 3.966E-01 |
| 5 | 9.962E-01 | -2.477E-01 | 4.07E-01 | 6.967E+01 | 1.400E+02 | 2.551E-05 | 6.658E-03 | 5.64E+01 | 5.950E-01 | 1.133E+00 | 5.294E-01 | -9.491E+00 | 4.955E-01 |
| 6 | 9.945E-01 | -3.564E-01 | 4.89E-01 | 6.961E+01 | 1.399E+02 | 2.556E-05 | 6.669E-03 | 5.68E+01 | 7.098E-01 | 1.185E+00 | 4.632E-01 | -2.608E-01 | 5.942E-01 |
| 7 | 9.925E-01 | -4.847E-01 | 5.71E-01 | 6.955E+01 | 1.397E+02 | 2.561E-05 | 6.682E-03 | 5.66E+01 | 8.302E-01 | 1.247E+00 | 4.030E-01 | 3.772E+00 | 6.928E-01 |
| 8 | 9.903E-01 | -6.326E-01 | 6.53E-01 | 6.947E+01 | 1.396E+02 | 2.567E-05 | 6.697E-03 | 5.58E+01 | 9.564E-01 | 1.317E+00 | 3.491E-01 | 5.435E+00 | 7.912E-01 |
| 9 | 9.877E-01 | -8.001E-01 | 7.34E-01 | 6.938E+01 | 1.394E+02 | 2.573E-05 | 6.715E-03 | 5.48E+01 | 1.089E+00 | 1.397E+00 | 3.016E-01 | 5.965E+00 | 8.893E-01 |
| 10 | 9.848E-01 | -9.871E-01 | 8.16E-01 | 6.928E+01 | 1.392E+02 | 2.581E-05 | 6.734E-03 | 5.36E+01 | 1.227E+00 | 1.487E+00 | 2.601E-01 | 5.942E+00 | 9.872E-01 |
| 15 | 9.659E-01 | -2.213E+00 | 1.23E+00 | 6.862E+01 | 1.379E+02 | 2.630E-05 | 6.862E-03 | 4.66E+01 | 2.025E+00 | 2.072E+00 | 1.241E-01 | 3.915E+00 | 1.471E+00 |
| 20 | 9.397E-01 | -3.917E+00 | 1.65E+00 | 6.772E+01 | 1.361E+02 | 2.701E-05 | 7.047E-03 | 4.01E+01 | 3.020E+00 | 2.886E+00 | 6.195E-02 | 2.265E+00 | 1.944E+00 |
| 25 | 9.063E-01 | -6.085E+00 | 2.07E+00 | 6.656E+01 | 1.337E+02 | 2.795E-05 | 7.294E-03 | 3.46E+01 | 4.230E+00 | 3.922E+00 | 3.306E-02 | 1.327E+00 | 2.403E+00 |
| 30 | 8.660E-01 | -8.700E+00 | 2.50E+00 | 6.517E+01 | 1.309E+02 | 2.916E-05 | 7.608E-03 | 3.01E+01 | 5.660E+00 | 5.171E+00 | 1.888E-02 | 8.072E-01 | 2.843E+00 |
| 35 | 8.192E-01 | -1.174E+01 | 2.94E+00 | 6.355E+01 | 1.277E+02 | 3.067E-05 | 8.001E-03 | 2.65E+01 | 7.306E+00 | 6.625E+00 | 1.146E-02 | 5.123E-01 | 3.261E+00 |
| 40 | 7.660E-01 | -1.519E+01 | 3.39E+00 | 6.171E+01 | 1.240E+02 | 3.253E-05 | 8.483E-03 | 2.35E+01 | 9.161E+00 | 8.272E+00 | 7.334E-03 | 3.386E-01 | 3.654E+00 |
| 45 | 7.071E-01 | -1.902E+01 | 3.86E+00 | 5.967E+01 | 1.199E+02 | 3.479E-05 | 9.072E-03 | 2.10E+01 | 1.121E+01 | 1.010E+01 | 4.913E-03 | 2.323E-01 | 4.020E+00 |
| 50 | 6.428E-01 | -2.320E+01 | 4.35E+00 | 5.744E+01 | 1.154E+02 | 3.753E-05 | 9.787E-03 | 1.89E+01 | 1.345E+01 | 1.210E+01 | 3.423E-03 | 1.648E-01 | 4.355E+00 |
| 55 | 5.736E-01 | -2.769E+01 | 4.85E+00 | 5.505E+01 | 1.106E+02 | 4.087E-05 | 1.065E-02 | 1.71E+01 | 1.585E+01 | 1.424E+01 | 2.468E-03 | 1.205E-01 | 4.657E+00 |
| 60 | 5.000E-01 | -3.247E+01 | 5.38E+00 | 5.250E+01 | 1.055E+02 | 4.493E-05 | 1.171E-02 | 1.55E+01 | 1.840E+01 | 1.652E+01 | 1.833E-03 | 9.045E-02 | 4.923E+00 |
| 65 | 4.226E-01 | -3.749E+01 | 5.94E+00 | 4.982E+01 | 1.001E+02 | 4.989E-05 | 1.300E-02 | 1.41E+01 | 2.108E+01 | 1.892E+01 | 1.397E-03 | 6.955E-02 | 5.152E+00 |
| 70 | 3.420E-01 | -4.273E+01 | 6.52E+00 | 4.703E+01 | 9.451E+01 | 5.598E-05 | 1.458E-02 | 1.29E+01 | 2.388E+01 | 2.142E+01 | 1.090E-03 | 5.464E-02 | 5.342E+00 |
| 75 | 2.588E-01 | -4.813E+01 | 7.14E+00 | 4.416E+01 | 8.872E+01 | 6.352E-05 | 1.654E-02 | 1.18E+01 | 2.676E+01 | 2.401E+01 | 8.680E-04 | 4.377E-02 | 5.491E+00 |
| 80 | 1.736E-01 | -5.366E+01 | 7.81E+00 | 4.121E+01 | 8.280E+01 | 7.293E-05 | 1.898E-02 | 1.09E+01 | 2.971E+01 | 2.665E+01 | 7.044E-04 | 3.568E-02 | 5.599E+00 |
| 85 | 8.716E-02 | -5.928E+01 | 8.52E+00 | 3.821E+01 | 7.679E+01 | 8.480E-05 | 2.206E-02 | 9.97E+00 | 3.270E+01 | 2.933E+01 | 5.814E-04 | 2.957E-02 | 5.663E+00 |
| 90 | 0. | -6.494E+01 | 9.29E+00 | 3.520E+01 | 7.073E+01 | 9.996E-05 | 2.599E-02 | 9.16E+00 | 3.572E+01 | 3.203E+01 | 4.874E-04 | 2.487E-02 | 5.685E+00 |
| 95 | -8.716E-02 | -7.059E+01 | 1.01E+01 | 3.218E+01 | 6.467E+01 | 1.196E-04 | 3.107E-02 | 8.41E+00 | 3.874E+01 | 3.474E+01 | 4.144E-04 | 2.121E-02 | 5.663E+00 |
| 100 | -1.736E-01 | -7.621E+01 | 1.11E+01 | 2.919E+01 | 5.865E+01 | 1.453E-04 | 3.774E-02 | 7.71E+00 | 4.173E+01 | 3.742E+01 | 3.571E-04 | 1.832E-02 | 5.599E+00 |
| 105 | -2.588E-01 | -8.174E+01 | 1.21E+01 | 2.624E+01 | 5.273E+01 | 1.798E-04 | 4.664E-02 | 7.06E+00 | 4.468E+01 | 4.006F+01 | 3.116E-04 | 1.602E-02 | 5.491E+00 |
| 110 | -3.420E-01 | -8.714E+01 | 1.32E+01 | 2.336E+01 | 4.695E+01 | 2.269E-04 | 5.878E-02 | 6.45E+00 | 4.756E+01 | 4.264E+01 | 2.750E-04 | 1.416E-02 | 5.342E+00 |
| 115 | -4.226E-01 | -9.238E+01 | 1.45E+01 | 2.057E+01 | 4.134E+01 | 2.925E-04 | 7.569E-02 | 5.87E+00 | 5.035E+01 | 4.514E+01 | 2.454E-04 | 1.265E-02 | 5.152E+00 |
| 120 | -5.000E-01 | -9.740E+01 | 1.60E+01 | 1.789E+01 | 3.596E+01 | 3.866E-04 | 9.986E-02 | 5.33E+00 | 5.303E+01 | 4.754F+01 | 2.212E-04 | 1.142E-02 | 4.923E+00 |
| 125 | -5.736E-01 | -1.022E+02 | 1.77E+01 | 1.535E+01 | 3.085E+01 | 5.255E-04 | 1.354E-01 | 4.81E+00 | 5.557E+01 | 4.983E+01 | 2.014E-04 | 1.041E-02 | 4.657E+00 |
| 130 | -6.428E-01 | -1.067E+02 | 1.97E+01 | 1.295E+01 | 2.604E+01 | 7.378E-04 | 1.896E-01 | 4.31E+00 | 5.797E+01 | 5.197E+01 | 1.851E-04 | 9.579E-03 | 4.355E+00 |
| 135 | -7.071E-01 | -1.109E+02 | 2.20E+01 | 1.072E+01 | 2.157E+01 | 1.076E-03 | 2.755E-01 | 3.83E+00 | 6.019E+01 | 5.397E+01 | 1.717E-04 | 8.891E-03 | 4.020E+00 |
| 140 | -7.660E-01 | -1.147E+02 | 2.49E+01 | 8.680E+00 | 1.747E+01 | 1.640E-03 | 4.181E-01 | 3.37E+00 | 6.223E+01 | 5.580E+01 | 1.606E-04 | 8.324E-03 | 3.654E+00 |
| 145 | -8.192E-01 | -1.181E+02 | 2.85E+01 | 6.838E+00 | 1.378E+01 | 2.638E-03 | 6.685E-01 | 2.92E+00 | 6.407E+01 | 5.744E+01 | 1.515E-04 | 7.858E-03 | 3.261E+00 |
| 150 | -8.660E-01 | -1.212E+02 | 3.31E+01 | 5.210E+00 | 1.052E+01 | 4.531E-03 | 1.139E+00 | 2.48E+00 | 6.569E+01 | 5.890E+01 | 1.442E-04 | 7.479E-03 | 2.843E+00 |
| 155 | -9.063E-01 | -1.238E+02 | 3.91E+01 | 3.808E+00 | 7.716E+00 | 8.435E-03 | 2.099E+00 | 2.05E+00 | 6.709E+01 | 6.015E+01 | 1.382E-04 | 7.174E-03 | 2.403E+00 |
| 160 | -9.397E-01 | -1.260E+02 | 4.75E+01 | 2.638E+00 | 5.394E+00 | 1.733E-02 | 4.270E+00 | 1.63E+00 | 6.824E+01 | 6.118E+01 | 1.336E-04 | 6.936E-03 | 1.944E+00 |
| 165 | -9.659E-01 | -1.277E+02 | 5.96E+01 | 1.706E+00 | 3.571E+00 | 4.002E-02 | 9.862E+00 | 1.22E+00 | 6.915E+01 | 6.200E+01 | 1.301E-04 | 6.756E-03 | 1.471E+00 |
| 170 | -9.848E-01 | -1.289E+02 | 7.85E+01 | 1.007E+00 | 2.258E+00 | 1.034E-01 | 2.716E+01 | 8.10E-01 | 6.981E+01 | 6.258E+01 | 1.277E-04 | 6.632E-03 | 9.872E-01 |
| 175 | -9.962E-01 | -1.296E+02 | 1.12E+02 | 5.336E-01 | 1.466E+00 | 2.687E-01 | 9.864E+01 | 4.04E-01 | 7.020E+01 | 6.293E+01 | 1.262E-04 | 6.558E-03 | 4.955E-01 |
| 180 | -1.000E+00 | -1.299E+02 | 1.80E+02 | 3.315E-01 | 1.202E+00 | 4.456E-01 | 2.940E+02 | 0. | 7.033E+01 | 6.305E+01 | 1.258E-04 | 6.534E-03 | 0. |

PION (1) + PROTON (2) => KAON (3) + LAMBDA (4) AT 80 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 4.97710E-01 M4 = 1.11559E+00
P2CM= 6.10792E+00 P3CM= 6.08366E+00
E1CM= 6.10952E+00 E2CM= 6.17957E+00 E3CM= 6.10398E+00 E4CM= 6.18510E+00

1-V1LAB = 1.522E-06 1-VCM = 1.159E-02 GCM = 6.58620E+00 ETCM= 1.22891E+01 S = 1.51022E+02 -U=( 1.48629E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -5.581E-04 | 0. | 7.980E+01 | 1.603E+02 | 1.945E-05 | 5.811E-03 | 0. | 1.958E-01 | 1.015E+00 | 8.271E-01 | -9.652E+02 | 0. |
| 1 | 9.998E-01 | -1.188E-02 | 7.62E-02 | 7.980E+01 | 1.603E+02 | 1.945E-05 | 5.812E-03 | 2.77E+01 | 2.281E-01 | 1.021E+00 | 7.997E-01 | -5.913E+02 | 1.062E-01 |
| 2 | 9.994E-01 | -4.563E-02 | 1.52E-01 | 7.978E+01 | 1.603E+02 | 1.946E-05 | 5.815E-03 | 4.40E+01 | 3.059E-01 | 1.037E+00 | 7.356E-01 | -2.215E+02 | 2.123E-01 |
| 3 | 9.986E-01 | -1.024E-01 | 2.29E-01 | 7.975E+01 | 1.602E+02 | 1.947E-05 | 5.819E-03 | 5.18E+01 | 4.053E-01 | 1.064E+00 | 6.586E-01 | -7.820E+01 | 3.184E-01 |
| 4 | 9.976E-01 | -1.816E-01 | 3.05E-01 | 7.971E+01 | 1.602E+02 | 1.949E-05 | 5.825E-03 | 5.53E+01 | 5.159E-01 | 1.102E+00 | 5.802E-01 | -2.634E+01 | 4.244E-01 |
| 5 | 9.962E-01 | -2.834E-01 | 3.81E-01 | 7.965E+01 | 1.600E+02 | 1.952E-05 | 5.833E-03 | 5.67E+01 | 6.344E-01 | 1.150E+00 | 5.057E-01 | -6.176E+00 | 5.302E-01 |
| 6 | 9.945E-01 | -4.077E-01 | 4.58E-01 | 7.959E+01 | 1.599E+02 | 1.955E-05 | 5.843E-03 | 5.69E+01 | 7.595E-01 | 1.210E+00 | 4.372E-01 | 2.091E+00 | 6.359E-01 |
| 7 | 9.925E-01 | -5.545E-01 | 5.34E-01 | 7.951E+01 | 1.598E+02 | 1.959E-05 | 5.855E-03 | 5.63E+01 | 8.912E-01 | 1.280E+00 | 3.759E-01 | 5.454E+00 | 7.414E-01 |
| 8 | 9.903E-01 | -7.238E-01 | 6.11E-01 | 7.942E+01 | 1.596E+02 | 1.964E-05 | 5.868E-03 | 5.53E+01 | 1.030E+00 | 1.361E+00 | 3.218E-01 | 6.648E+00 | 8.467E-01 |
| 9 | 9.877E-01 | -9.155E-01 | 6.87E-01 | 7.932E+01 | 1.594E+02 | 1.969E-05 | 5.883E-03 | 5.41E+01 | 1.175E+00 | 1.452E+00 | 2.748E-01 | 6.842E+00 | 9.517E-01 |
| 10 | 9.848E-01 | -1.130E+00 | 7.64E-01 | 7.920E+01 | 1.591E+02 | 1.974E-05 | 5.900E-03 | 5.27E+01 | 1.328E+00 | 1.555E+00 | 2.343E-01 | 6.574E+00 | 1.056E+00 |
| 15 | 9.659E-01 | -2.533E+00 | 1.15E+00 | 7.845E+01 | 1.576E+02 | 2.012E-05 | 6.013E-03 | 4.52E+01 | 2.217E+00 | 2.225E+00 | 1.067E-01 | 3.993E+00 | 1.575E+00 |
| 20 | 9.397E-01 | -4.482E+00 | 1.54E+00 | 7.742E+01 | 1.555E+02 | 2.067E-05 | 6.175E-03 | 3.85E+01 | 3.340E+00 | 3.156E+00 | 5.152E-02 | 2.218E+00 | 2.081E+00 |
| 25 | 9.063E-01 | -6.963E+00 | 1.94E+00 | 7.609E+01 | 1.529E+02 | 2.139E-05 | 6.391E-03 | 3.31E+01 | 4.713E+00 | 4.341E+00 | 2.689E-02 | 1.264E+00 | 2.571E+00 |
| 30 | 8.660E-01 | -9.957E+00 | 2.34E+00 | 7.450E+01 | 1.497E+02 | 2.232E-05 | 6.667E-03 | 2.87E+01 | 6.341E+00 | 5.771E+00 | 1.513E-02 | 7.546E-01 | 3.042E+00 |
| 35 | 8.192E-01 | -1.344E+01 | 2.75E+00 | 7.264E+01 | 1.460E+02 | 2.347E-05 | 7.012E-03 | 2.51E+01 | 8.220E+00 | 7.435E+00 | 9.085E-03 | 4.723E-01 | 3.489E+00 |
| 40 | 7.660E-01 | -1.739E+01 | 3.18E+00 | 7.054E+01 | 1.417E+02 | 2.489E-05 | 7.435E-03 | 2.22E+01 | 1.034E+01 | 9.321E+00 | 5.772E-03 | 3.090E-01 | 3.910E+00 |
| 45 | 7.071E-01 | -2.177E+01 | 3.62E+00 | 6.820E+01 | 1.370E+02 | 2.662E-05 | 7.952E-03 | 1.98E+01 | 1.268E+01 | 1.141E+01 | 3.846E-03 | 2.104E-01 | 4.302E+00 |
| 50 | 6.428E-01 | -2.655E+01 | 4.07E+00 | 6.566E+01 | 1.319E+02 | 2.873E-05 | 8.579E-03 | 1.78E+01 | 1.524E+01 | 1.370E+01 | 2.669E-03 | 1.484E-01 | 4.660E+00 |
| 55 | 5.736E-01 | -3.169E+01 | 4.54E+00 | 6.292E+01 | 1.264E+02 | 3.129E-05 | 9.342E-03 | 1.61E+01 | 1.799E+01 | 1.615E+01 | 1.918E-03 | 1.080E-01 | 4.983E+00 |
| 60 | 5.000E-01 | -3.716E+01 | 5.04E+00 | 6.000E+01 | 1.206E+02 | 3.440E-05 | 1.027E-02 | 1.46E+01 | 2.090E+01 | 1.877E+01 | 1.421E-03 | 8.077E-02 | 5.269E+00 |
| 65 | 4.226E-01 | -4.291E+01 | 5.56E+00 | 5.694E+01 | 1.144E+02 | 3.820E-05 | 1.140E-02 | 1.33E+01 | 2.397E+01 | 2.151E+01 | 1.081E-03 | 6.192E-02 | 5.514E+00 |
| 70 | 3.420E-01 | -4.890E+01 | 6.11E+00 | 5.375E+01 | 1.080E+02 | 4.288E-05 | 1.279E-02 | 1.21E+01 | 2.717E+01 | 2.437E+01 | 8.420E-04 | 4.854E-02 | 5.717E+00 |
| 75 | 2.588E-01 | -5.508E+01 | 6.69E+00 | 5.045E+01 | 1.014E+02 | 4.866E-05 | 1.451E-02 | 1.11E+01 | 3.047E+01 | 2.733E+01 | 6.698E-04 | 3.880E-02 | 5.876E+00 |
| 80 | 1.736E-01 | -6.141E+01 | 7.31E+00 | 4.708E+01 | 9.459E+01 | 5.588E-05 | 1.666E-02 | 1.02E+01 | 3.384E+01 | 3.035E+01 | 5.429E-04 | 3.159E-02 | 5.991E+00 |
| 85 | 8.716E-02 | -6.784E+01 | 7.98E+00 | 4.365E+01 | 8.771E+01 | 6.500E-05 | 1.937E-02 | 9.36E+00 | 3.727E+01 | 3.342E+01 | 4.477E-04 | 2.614E-02 | 6.061E+00 |
| 90 | 0. | -7.432E+01 | 8.70E+00 | 4.020E+01 | 8.077E+01 | 7.664E-05 | 2.283E-02 | 8.59E+00 | 4.072E+01 | 3.652E+01 | 3.751E-04 | 2.196E-02 | 6.084E+00 |
| 95 | -8.716E-02 | -8.079E+01 | 9.49E+00 | 3.675E+01 | 7.384E+01 | 9.171E-05 | 2.730E-02 | 7.89E+00 | 4.417E+01 | 3.961E+01 | 3.187E-04 | 1.871E-02 | 6.061E+00 |
| 100 | -1.736E-01 | -8.722E+01 | 1.04E+01 | 3.332E+01 | 6.696E+01 | 1.115E-04 | 3.318E-02 | 7.23E+00 | 4.760E+01 | 4.268E+01 | 2.745E-04 | 1.615E-02 | 5.991E+00 |
| 105 | -2.588E-01 | -9.355E+01 | 1.13E+01 | 2.995E+01 | 6.018E+01 | 1.381E-04 | 4.104E-02 | 6.62E+00 | 5.097E+01 | 4.570E+01 | 2.394E-04 | 1.411E-02 | 5.876E+00 |
| 110 | -3.420E-01 | -9.974E+01 | 1.24E+01 | 2.665E+01 | 5.356E+01 | 1.743E-04 | 5.176E-02 | 6.05E+00 | 5.427E+01 | 4.866E+01 | 2.112E-04 | 1.247E-02 | 5.717E+00 |
| 115 | -4.226E-01 | -1.057E+02 | 1.36E+01 | 2.346E+01 | 4.715E+01 | 2.250E-04 | 6.672E-02 | 5.51E+00 | 5.746E+01 | 5.152E+01 | 1.884E-04 | 1.113E-02 | 5.514E+00 |
| 120 | -5.000E-01 | -1.115E+02 | 1.50E+01 | 2.039E+01 | 4.099E+01 | 2.977E-04 | 8.814E-02 | 4.99E+00 | 6.053E+01 | 5.427E+01 | 1.698E-04 | 1.005E-02 | 5.269E+00 |
| 125 | -5.736E-01 | -1.169E+02 | 1.66E+01 | 1.748E+01 | 3.513E+01 | 4.051E-04 | 1.197E-01 | 4.51E+00 | 6.344E+01 | 5.688E+01 | 1.546E-04 | 9.155E-03 | 4.983E+00 |
| 130 | -6.428E-01 | -1.221E+02 | 1.84E+01 | 1.474E+01 | 2.963E+01 | 5.698E-04 | 1.680E-01 | 4.04E+00 | 6.618E+01 | 5.933E+01 | 1.420E-04 | 8.420E-03 | 4.660E+00 |
| 135 | -7.071E-01 | -1.269E+02 | 2.07E+01 | 1.219E+01 | 2.451E+01 | 8.328E-04 | 2.447E-01 | 3.59E+00 | 6.873E+01 | 6.162E+01 | 1.317E-04 | 7.813E-03 | 4.302E+00 |
| 140 | -7.660E-01 | -1.312E+02 | 2.34E+01 | 9.851E+00 | 1.982E+01 | 1.274E-03 | 3.727E-01 | 3.15E+00 | 7.107E+01 | 6.371E+01 | 1.232E-04 | 7.313E-03 | 3.910E+00 |
| 145 | -8.192E-01 | -1.352E+02 | 2.68E+01 | 7.745E+00 | 1.559E+01 | 2.059E-03 | 5.990E-01 | 2.73E+00 | 7.317E+01 | 6.560E+01 | 1.162E-04 | 6.902E-03 | 3.489E+00 |
| 150 | -8.660E-01 | -1.387E+02 | 3.11E+01 | 5.883E+00 | 1.186E+01 | 3.559E-03 | 1.028E+00 | 2.32E+00 | 7.503E+01 | 6.726E+01 | 1.105E-04 | 6.567E-03 | 3.042E+00 |
| 155 | -9.063E-01 | -1.417E+02 | 3.69E+01 | 4.280E+00 | 8.658E+00 | 6.693E-03 | 1.914E+00 | 1.92E+00 | 7.662E+01 | 6.869E+01 | 1.060E-04 | 6.299E-03 | 2.571E+00 |
| 160 | -9.397E-01 | -1.442E+02 | 4.50E+01 | 2.945E+00 | 6.001E+00 | 1.398E-02 | 3.954E+00 | 1.53E+00 | 7.794E+01 | 6.987E+01 | 1.024E-04 | 6.089E-03 | 2.081E+00 |
| 165 | -9.659E-01 | -1.461E+02 | 5.67E+01 | 1.883E+00 | 3.914E+00 | 3.319E-02 | 9.344E+00 | 1.14E+00 | 7.898E+01 | 7.081E+01 | 9.974E-05 | 5.931E-03 | 1.575E+00 |
| 170 | -9.848E-01 | -1.475E+02 | 7.53E+01 | 1.092E+00 | 2.411E+00 | 9.006E-02 | 2.660E+01 | 7.59E-01 | 7.973E+01 | 7.148E+01 | 9.787E-05 | 5.821E-03 | 1.056E+00 |
| 175 | -9.962E-01 | -1.484E+02 | 1.09E+02 | 5.599E-01 | 1.505E+00 | 2.526E-01 | 1.020E+02 | 3.79E-01 | 8.018E+01 | 7.188E+01 | 9.678E-05 | 5.757E-03 | 5.302E-01 |
| 180 | -1.000E+00 | -1.486E+02 | 1.80E+02 | 3.322E-01 | 1.202E+00 | 4.448E-01 | 3.353E+02 | 0. | 8.033E+01 | 7.202E+01 | 9.641E-05 | 5.735E-03 | 0. |

PION (1) + PROTON (2) => KAON (3) + LAMBDA (4) AT 90 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 4.97710E-01 M4 = 1.11559E+00
P2CM= 6.48058E+00 P3CM= 6.45771E+00
E1CM= 6.48208E+00 E2CM= 6.54814E+00 E3CM= 6.47686E+00 E4CM= 6.55336E+00

1-V1LAB = 1.202E-06 1-VCM = 1.032E-02 GCM = 6.97903E+00 ETCM= 1.30302E+01 S = 1.69787E+02 -U=( 1.67395E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -4.956E-04 | 0. | 8.980E+01 | 1.804E+02 | 1.536E-05 | 5.171E-03 | 0. | 1.956E-01 | 1.015E+00 | 8.273E-01 | -1.090E+03 | 0. |
| 1 | 9.998E-01 | -1.324E-02 | 7.19E-02 | 8.980E+01 | 1.804E+02 | 1.536E-05 | 5.172E-03 | 2.91E+01 | 2.317E-01 | 1.021E+00 | 7.966E-01 | -6.324E+02 | 1.127E-01 |
| 2 | 9.994E-01 | -5.148E-02 | 1.44E-01 | 8.978E+01 | 1.804E+02 | 1.537E-05 | 5.174E-03 | 4.53E+01 | 3.171E-01 | 1.040E+00 | 7.266E-01 | -2.198E+02 | 2.254E-01 |
| 3 | 9.986E-01 | -1.152E-01 | 2.16E-01 | 8.974E+01 | 1.803E+02 | 1.538E-05 | 5.178E-03 | 5.27E+01 | 4.248E-01 | 1.070E+00 | 6.441E-01 | -7.266E+01 | 3.380E-01 |
| 4 | 9.976E-01 | -2.044E-01 | 2.88E-01 | 8.970E+01 | 1.802E+02 | 1.539E-05 | 5.183E-03 | 5.59E+01 | 5.442E-01 | 1.113E+00 | 5.615E-01 | -2.208E+01 | 4.505E-01 |
| 5 | 9.962E-01 | -3.190E-01 | 3.60E-01 | 8.963E+01 | 1.801E+02 | 1.542E-05 | 5.190E-03 | 5.69E+01 | 6.720E-01 | 1.167E+00 | 4.840E-01 | -3.213E+00 | 5.628E-01 |
| 6 | 9.945E-01 | -4.590E-01 | 4.32E-01 | 8.956E+01 | 1.799E+02 | 1.544E-05 | 5.199E-03 | 5.68E+01 | 8.071E-01 | 1.234E+00 | 4.138E-01 | 4.151E+00 | 6.750E-01 |
| 7 | 9.925E-01 | -6.244E-01 | 5.04E-01 | 8.947E+01 | 1.798E+02 | 1.547E-05 | 5.209E-03 | 5.60E+01 | 9.497E-01 | 1.313E+00 | 3.518E-01 | 6.902E+00 | 7.870E-01 |
| 8 | 9.903E-01 | -8.151E-01 | 5.76E-01 | 8.937E+01 | 1.796E+02 | 1.551E-05 | 5.221E-03 | 5.48E+01 | 1.100E+00 | 1.404E+00 | 2.979E-01 | 7.673E+00 | 8.987E-01 |
| 9 | 9.877E-01 | -1.031E+00 | 6.48E-01 | 8.926E+01 | 1.793E+02 | 1.555E-05 | 5.235E-03 | 5.34E+01 | 1.258E+00 | 1.508E+00 | 2.517E-01 | 7.567E+00 | 1.010E+00 |
| 10 | 9.848E-01 | -1.272E+00 | 7.21E-01 | 8.913E+01 | 1.791E+02 | 1.559E-05 | 5.250E-03 | 5.19E+01 | 1.426E+00 | 1.623E+00 | 2.125E-01 | 7.082E+00 | 1.121E+00 |
| 15 | 9.659E-01 | -2.852E+00 | 1.08E+00 | 8.828E+01 | 1.774E+02 | 1.589E-05 | 5.350E-03 | 4.40E+01 | 2.406E+00 | 2.378E+00 | 9.275E-02 | 4.030E+00 | 1.671E+00 |
| 20 | 9.397E-01 | -5.048E+00 | 1.45E+00 | 8.711E+01 | 1.750E+02 | 1.632E-05 | 5.495E-03 | 3.72E+01 | 3.656E+00 | 3.426E+00 | 4.353E-02 | 2.162E+00 | 2.209E+00 |
| 25 | 9.063E-01 | -7.842E+00 | 1.83E+00 | 8.563E+01 | 1.720E+02 | 1.689E-05 | 5.687E-03 | 3.17E+01 | 5.193E+00 | 4.761E+00 | 2.230E-02 | 1.205E+00 | 2.729E+00 |
| 30 | 8.660E-01 | -1.121E+01 | 2.21E+00 | 8.383E+01 | 1.684E+02 | 1.762E-05 | 5.933E-03 | 2.74E+01 | 7.020E+00 | 6.372E+00 | 1.239E-02 | 7.073E-01 | 3.229E+00 |
| 35 | 8.192E-01 | -1.514E+01 | 2.60E+00 | 8.174E+01 | 1.642E+02 | 1.854E-05 | 6.240E-03 | 2.39E+01 | 9.131E+00 | 8.246E+00 | 7.381E-03 | 4.377E-01 | 3.704E+00 |
| 40 | 7.660E-01 | -1.958E+01 | 3.00E+00 | 7.937E+01 | 1.595E+02 | 1.966E-05 | 6.617E-03 | 2.11E+01 | 1.151E+01 | 1.037E+01 | 4.661E-03 | 2.840E-11 | 4.151E+00 |
| 45 | 7.071E-01 | -2.452E+01 | 3.41E+00 | 7.674E+01 | 1.542E+02 | 2.103E-05 | 7.078E-03 | 1.88E+01 | 1.415E+01 | 1.273E+01 | 3.092E-03 | 1.921E-01 | 4.566E+00 |
| 50 | 6.428E-01 | -2.990E+01 | 3.84E+00 | 7.387E+01 | 1.484E+02 | 2.270E-05 | 7.637E-03 | 1.69E+01 | 1.703E+01 | 1.530E+01 | 2.139E-03 | 1.349E-01 | 4.947E+00 |
| 55 | 5.736E-01 | -3.569E+01 | 4.29E+00 | 7.078E+01 | 1.422E+02 | 2.472E-05 | 8.317E-03 | 1.52E+01 | 2.012E+01 | 1.806E+01 | 1.533E-03 | 9.780E-02 | 5.290E+00 |
| 60 | 5.000E-01 | -4.185E+01 | 4.75E+00 | 6.750E+01 | 1.356E+02 | 2.718E-05 | 9.143E-03 | 1.38E+01 | 2.341E+01 | 2.101E+01 | 1.134E-03 | 7.295E-02 | 5.593E+00 |
| 65 | 4.226E-01 | -4.833E+01 | 5.24E+00 | 6.405E+01 | 1.287E+02 | 3.019E-05 | 1.015E-02 | 1.26E+01 | 2.686E+01 | 2.410E+01 | 8.612E-04 | 5.580E-02 | 5.853E+00 |
| 70 | 3.420E-01 | -5.507E+01 | 5.76E+00 | 6.046E+01 | 1.215E+02 | 3.389E-05 | 1.139E-02 | 1.15E+01 | 3.046E+01 | 2.732E+01 | 6.700E-04 | 4.366E-02 | 6.068E+00 |
| 75 | 2.588E-01 | -6.204E+01 | 6.31E+00 | 5.674E+01 | 1.140E+02 | 3.846E-05 | 1.293E-02 | 1.05E+01 | 3.417E+01 | 3.065E+01 | 5.324E-04 | 3.485E-02 | 6.238E+00 |
| 80 | 1.736E-01 | -6.917E+01 | 6.90E+00 | 5.295E+01 | 1.064E+02 | 4.418E-05 | 1.485E-02 | 9.64E+00 | 3.797E+01 | 3.405E+01 | 4.312E-04 | 2.834E-02 | 6.360E+00 |
| 85 | 8.716E-02 | -7.640E+01 | 7.53E+00 | 4.909E+01 | 9.863E+01 | 5.140E-05 | 1.726E-02 | 8.85E+00 | 4.183E+01 | 3.751E+01 | 3.554E-04 | 2.342E-02 | 6.433E+00 |
| 90 | 0. | -8.370E+01 | 8.21E+00 | 4.520E+01 | 9.082E+01 | 6.062E-05 | 2.035E-02 | 8.12E+00 | 4.572E+01 | 4.100E+01 | 2.975E-04 | 1.966E-02 | 6.458E+00 |
| 95 | -8.716E-02 | -9.099E+01 | 8.96E+00 | 4.131E+01 | 8.301E+01 | 7.257E-05 | 2.435E-02 | 7.45E+00 | 4.961E+01 | 4.448E+01 | 2.527E-04 | 1.674E-02 | 6.433E+00 |
| 100 | -1.736E-01 | -9.823E+01 | 9.78E+00 | 3.745E+01 | 7.526E+01 | 8.828E-05 | 2.961E-02 | 6.83E+00 | 5.347E+01 | 4.794E+01 | 2.176E-04 | 1.444E-02 | 6.360E+00 |
| 105 | -2.588E-01 | -1.054E+02 | 1.07E+01 | 3.365E+01 | 6.763E+01 | 1.093E-04 | 3.664E-02 | 6.25E+00 | 5.727E+01 | 5.135E+01 | 1.897E-04 | 1.261E-02 | 6.238E+00 |
| 110 | -3.420E-01 | -1.123E+02 | 1.17E+01 | 2.994E+01 | 6.017E+01 | 1.381E-04 | 4.624E-02 | 5.71E+00 | 6.098E+01 | 5.467E+01 | 1.673E-04 | 1.113E-02 | 6.068E+00 |
| 115 | -4.226E-01 | -1.191E+02 | 1.28E+01 | 2.635E+01 | 5.295E+01 | 1.784E-04 | 5.965E-02 | 5.20E+00 | 6.458E+01 | 5.789E+01 | 1.492E-04 | 9.941E-03 | 5.853E+00 |
| 120 | -5.000E-01 | -1.255E+02 | 1.41E+01 | 2.290E+01 | 4.601E+01 | 2.362E-04 | 7.888E-02 | 4.72E+00 | 6.803E+01 | 6.099E+01 | 1.344E-04 | 8.968E-03 | 5.593E+00 |
| 125 | -5.736E-01 | -1.317E+02 | 1.56E+01 | 1.961E+01 | 3.942E+01 | 3.218E-04 | 1.073E-01 | 4.25E+00 | 7.131E+01 | 6.393E+01 | 1.223E-04 | 8.168E-03 | 5.290E+00 |
| 130 | -6.428E-01 | -1.375E+02 | 1.74E+01 | 1.652E+01 | 3.322E+01 | 4.533E-04 | 1.508E-01 | 3.81E+00 | 7.440E+01 | 6.670E+01 | 1.124E-04 | 7.510E-03 | 4.947E+00 |
| 135 | -7.071E-01 | -1.429E+02 | 1.95E+01 | 1.365E+01 | 2.745E+01 | 6.637E-04 | 2.201E-01 | 3.39E+00 | 7.727E+01 | 6.927E+01 | 1.042E-04 | 6.968E-03 | 4.566E+00 |
| 140 | -7.660E-01 | -1.478E+02 | 2.21E+01 | 1.102E+01 | 2.217E+01 | 1.018E-03 | 3.363E-01 | 2.98E+00 | 7.990E+01 | 7.163E+01 | 9.747E-05 | 6.520E-03 | 4.151E+00 |
| 145 | -8.192E-01 | -1.523E+02 | 2.54E+01 | 8.651E+00 | 1.741E+01 | 1.651E-03 | 5.426E-01 | 2.58E+00 | 8.227E+01 | 7.375E+01 | 9.194E-05 | 6.153E-03 | 3.704E+00 |
| 150 | -8.660E-01 | -1.562E+02 | 2.95E+01 | 6.556E+00 | 1.321E+01 | 2.870E-03 | 9.364E-01 | 2.19E+00 | 8.436E+01 | 7.562E+01 | 8.743E-05 | 5.854E-03 | 3.229E+00 |
| 155 | -9.063E-01 | -1.596E+02 | 3.51E+01 | 4.752E+00 | 9.599E+00 | 5.441E-03 | 1.759E+00 | 1.82E+00 | 8.615E+01 | 7.723E+01 | 8.383E-05 | 5.614E-03 | 2.729E+00 |
| 160 | -9.397E-01 | -1.624E+02 | 4.28E+01 | 3.251E+00 | 6.608E+00 | 1.152E-02 | 3.679E+00 | 1.44E+00 | 8.764E+01 | 7.857E+01 | 8.100E-05 | 5.427E-03 | 2.209E+00 |
| 165 | -9.659E-01 | -1.645E+02 | 5.43E+01 | 2.059E+00 | 4.257E+00 | 2.799E-02 | 8.869E+00 | 1.08E+00 | 8.881E+01 | 7.962E+01 | 7.888E-05 | 5.286E-03 | 1.671E+00 |
| 170 | -9.848E-01 | -1.661E+02 | 7.26E+01 | 1.175E+00 | 2.564E+00 | 7.916E-02 | 2.601E+01 | 7.17E-01 | 8.966E+01 | 8.037E+01 | 7.741E-05 | 5.188E-03 | 1.121E+00 |
| 175 | -9.962E-01 | -1.671E+02 | 1.06E+02 | 5.855E-01 | 1.544E+00 | 2.381E-01 | 1.045E+02 | 3.58E-01 | 9.016E+01 | 8.083E+01 | 7.654E-05 | 5.130E-03 | 5.628E-01 |
| 180 | -1.000E+00 | -1.674E+02 | 1.80E+02 | 3.328E-01 | 1.203E+00 | 4.442E-01 | 3.766E+02 | 0. | 9.033E+01 | 8.098E+01 | 7.625E-05 | 5.111E-03 | 0. |

PION (1) + PROTON (2) => KAON (3) + LAMBDA (4) AT 100 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 4.97710E-01 M4 = 1.11559E+00
P2CM= 6.83294E+00 P3CM= 6.91125E+00
E1CM= 6.83436E+00 E2CM= 6.89705E+00 E3CM= 6.82941E+00 E4CM= 6.90201E+00

1-V1LAB = 9.740E-07 1-VCM = 9.296E-03 GCM = 7.35091E+00 ETCM= 1.37314E+01 S = 1.88552E+02 -U=( 1.86160E+02) +T

| 03 CM | COS(03) CM | 4-MOM TSFR SQUARE, T | 03 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | 04 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -4.458E-04 | 0. | 9.980E+01 | 2.005E+02 | 1.243E-05 | 4.658E-03 | 0. | 1.955E-01 | 1.015E+00 | 8.274E-01 | -1.214E+03 | 0. |
| 1 | 9.998E-01 | -1.462E-02 | 6.82E-02 | 9.980E+01 | 2.005E+02 | 1.244E-05 | 4.658E-03 | 3.03E+01 | 2.353E-01 | 1.022E+00 | 7.936E-01 | -6.686E+02 | 1.189E-01 |
| 2 | 9.994E-01 | -5.715E-02 | 1.37E-01 | 9.977E+01 | 2.005E+02 | 1.244E-05 | 4.660E-03 | 4.65E+01 | 3.280E-01 | 1.042E+00 | 7.179E-01 | -2.168E+02 | 2.377E-01 |
| 3 | 9.986E-01 | -1.280E-01 | 2.05E-01 | 9.974E+01 | 2.004E+02 | 1.245E-05 | 4.664E-03 | 5.35E+01 | 4.436E-01 | 1.076E+00 | 6.305E-01 | -6.726E+01 | 3.565E-01 |
| 4 | 9.976E-01 | -2.272E-01 | 2.73E-01 | 9.968E+01 | 2.003E+02 | 1.246E-05 | 4.669E-03 | 5.63E+01 | 5.714E-01 | 1.124E+00 | 5.441E-01 | -1.816E+01 | 4.751E-01 |
| 5 | 9.962E-01 | -3.546E-01 | 3.41E-01 | 9.962E+01 | 2.002E+02 | 1.248E-05 | 4.675E-03 | 5.70E+01 | 7.081E-01 | 1.184E+00 | 4.641E-01 | -5.486E-01 | 5.936E-01 |
| 6 | 9.945E-01 | -5.104E-01 | 4.10E-01 | 9.953E+01 | 2.000E+02 | 1.250E-05 | 4.683E-03 | 5.66E+01 | 8.530E-01 | 1.259E+00 | 3.926E-01 | 5.972E+00 | 7.120E-01 |
| 7 | 9.925E-01 | -6.943E-01 | 4.78E-01 | 9.943E+01 | 1.998E+02 | 1.253E-05 | 4.692E-03 | 5.56E+01 | 1.006E+00 | 1.347E+00 | 3.302E-01 | 8.161E+00 | 8.301E-01 |
| 8 | 9.903E-01 | -9.063E-01 | 5.47E-01 | 9.932E+01 | 1.996E+02 | 1.256E-05 | 4.703E-03 | 5.42E+01 | 1.168E+00 | 1.448E+00 | 2.768E-01 | 8.547E+00 | 9.479E-01 |
| 9 | 9.877E-01 | -1.146E+00 | 6.15E-01 | 9.919E+01 | 1.993E+02 | 1.259E-05 | 4.715E-03 | 5.27E+01 | 1.340E+00 | 1.563E+00 | 2.316E-01 | 8.171E+00 | 1.066E+00 |
| 10 | 9.848E-01 | -1.415E+00 | 6.84E-01 | 9.905E+01 | 1.990E+02 | 1.262E-05 | 4.729E-03 | 5.10E+01 | 1.521E+00 | 1.691E+00 | 1.937E-01 | 7.493E+00 | 1.183E+00 |
| 15 | 9.659E-01 | -3.172E+00 | 1.03E+00 | 9.811E+01 | 1.971E+02 | 1.287E-05 | 4.819E-03 | 4.28E+01 | 2.593E+00 | 2.530E+00 | 8.141E-02 | 4.037E+00 | 1.763E+00 |
| 20 | 9.397E-01 | -5.614E+00 | 1.38E+00 | 9.681E+01 | 1.945E+02 | 1.321E-05 | 4.949E-03 | 3.59E+01 | 3.970E+00 | 3.697E+00 | 3.72AE-02 | 2.102E+00 | 2.330E+00 |
| 25 | 9.063E-01 | -8.721E+00 | 1.73E+00 | 9.516E+01 | 1.912E+02 | 1.368E-05 | 5.123E-03 | 3.05E+01 | 5.671E+00 | 5.181E+00 | 1.880E-02 | 1.148E+00 | 2.879E+00 |
| 30 | 8.660E-01 | -1.247E+01 | 2.10E+00 | 9.316E+01 | 1.872E+02 | 1.427E-05 | 5.345E-03 | 2.63E+01 | 7.698E+00 | 6.972E+00 | 1.034E-02 | 6.650E-01 | 3.406E+00 |
| 35 | 8.192E-01 | -1.683E+01 | 2.47E+00 | 9.083E+01 | 1.825E+02 | 1.501E-05 | 5.621E-03 | 2.29E+01 | 1.004E+01 | 9.056F+00 | 6.115E-03 | 4.076E-01 | 3.907E+00 |
| 40 | 7.660E-01 | -2.178E+01 | 2.85E+00 | 8.820E+01 | 1.772E+02 | 1.592E-05 | 5.962E-03 | 2.02E+01 | 1.269E+01 | 1.142E+01 | 3.843E-03 | 2.626E-01 | 4.378E+00 |
| 45 | 7.071E-01 | -2.726E+01 | 3.24E+00 | 8.528E+01 | 1.713E+02 | 1.703E-05 | 6.377E-03 | 1.80E+01 | 1.562E+01 | 1.404E+01 | 2.540E-03 | 1.768E-01 | 4.816E+00 |
| 50 | 6.428E-01 | -3.325E+01 | 3.64E+00 | 8.209E+01 | 1.649E+02 | 1.838E-05 | 6.881E-03 | 1.61E+01 | 1.882E+01 | 1.690E+01 | 1.753E-03 | 1.236E-01 | 5.218E+00 |
| 55 | 5.736E-01 | -3.969E+01 | 4.07E+00 | 7.865E+01 | 1.580E+02 | 2.002E-05 | 7.494E-03 | 1.45E+01 | 2.226E+01 | 1.998E+01 | 1.254E-03 | 8.937E-02 | 5.579E+00 |
| 60 | 5.000E-01 | -4.654E+01 | 4.51E+00 | 7.500E+01 | 1.507E+02 | 2.202E-05 | 8.240E-03 | 1.32E+01 | 2.591E+01 | 2.325E+01 | 9.256E-04 | 6.651E-02 | 5.899E+00 |
| 65 | 4.226E-01 | -5.374E+01 | 4.98E+00 | 7.116E+01 | 1.430E+02 | 2.446E-05 | 9.151E-03 | 1.20E+01 | 2.975E+01 | 2.669E+01 | 7.023E-04 | 5.078E-02 | 6.173E+00 |
| 70 | 3.420E-01 | -6.125E+01 | 5.47E+00 | 6.717E+01 | 1.350E+02 | 2.745E-05 | 1.027E-02 | 1.09E+01 | 3.375E+01 | 3.027E+01 | 5.458E-04 | 3.967E-02 | 6.401E+00 |
| 75 | 2.588E-01 | -6.899E+01 | 5.99E+00 | 6.304E+01 | 1.267E+02 | 3.117E-05 | 1.166E-02 | 1.00E+01 | 3.788E+01 | 3.397E+01 | 4.334E-04 | 3.163E-02 | 6.579E+00 |
| 80 | 1.736E-01 | -7.692E+01 | 6.55E+00 | 5.881E+01 | 1.182E+02 | 3.580E-05 | 1.339E-02 | 9.17E+00 | 4.211E+01 | 3.776E+01 | 3.508E-04 | 2.569E-02 | 6.708E+00 |
| 85 | 8.716E-02 | -8.497E+01 | 7.15E+00 | 5.452E+01 | 1.096E+02 | 4.166E-05 | 1.557E-02 | 8.41E+00 | 4.640E+01 | 4.160E+01 | 2.889E-04 | 2.122E-02 | 6.785E+00 |
| 90 | 0. | -9.308E+01 | 7.80E+00 | 5.020E+01 | 1.009E+02 | 4.915E-05 | 1.836E-02 | 7.72E+00 | 5.072E+01 | 4.548E+01 | 2.418E-04 | 1.780E-02 | 6.811E+00 |
| 95 | -8.716E-02 | -1.012E+02 | 8.51E+00 | 4.588E+01 | 9.218E+01 | 5.884E-05 | 2.197E-02 | 7.08E+00 | 5.505E+01 | 4.935E+01 | 2.053E-04 | 1.514E-02 | 6.785E+00 |
| 100 | -1.736E-01 | -1.092E+02 | 9.28E+00 | 4.159E+01 | 8.356E+01 | 7.161E-05 | 2.673E-02 | 6.49E+00 | 5.934E+01 | 5.320E+01 | 1.767E-04 | 1.306E-02 | 6.708E+00 |
| 105 | -2.588E-01 | -1.172E+02 | 1.01E+01 | 3.736E+01 | 7.507E+01 | 8.872E-05 | 3.309E-02 | 5.94E+00 | 6.356E+01 | 5.699E+01 | 1.540E-04 | 1.139E-02 | 6.579E+00 |
| 110 | -3.420E-01 | -1.249E+02 | 1.11E+01 | 3.323E+01 | 6.678E+01 | 1.121E-04 | 4.178E-02 | 5.43E+00 | 6.769E+01 | 6.069E+01 | 1.358E-04 | 1.006E-02 | 6.400E+00 |
| 115 | -4.226E-01 | -1.324E+02 | 1.22E+01 | 2.923E+01 | 5.875E+01 | 1.449E-04 | 5.394E-02 | 4.94E+00 | 7.169E+01 | 6.427E+01 | 1.211E-04 | 8.979E-03 | 6.173E+00 |
| 120 | -5.000E-01 | -1.396E+02 | 1.34E+01 | 2.540E+01 | 5.104E+01 | 1.920E-04 | 7.138E-02 | 4.48E+00 | 7.553E+01 | 6.771E+01 | 1.091E-04 | 8.097E-03 | 5.899E+00 |
| 125 | -5.736E-01 | -1.465E+02 | 1.49E+01 | 2.175E+01 | 4.370E+01 | 2.618E-04 | 9.719E-02 | 4.04E+00 | 7.918E+01 | 7.098E+01 | 9.924E-05 | 7.374E-03 | 5.579E+00 |
| 130 | -6.428E-01 | -1.529E+02 | 1.66E+01 | 1.831E+01 | 3.680E+01 | 3.692E-04 | 1.368E-01 | 3.62E+00 | 8.261E+01 | 7.406E+01 | 9.116E-05 | 6.778E-03 | 5.218E+00 |
| 135 | -7.071E-01 | -1.589E+02 | 1.86E+01 | 1.512E+01 | 3.039E+01 | 5.414E-04 | 2.000E-01 | 3.22E+00 | 8.580E+01 | 7.692E+01 | 8.451E-05 | 6.287E-03 | 4.816E+00 |
| 140 | -7.660E-01 | -1.644E+02 | 2.10E+01 | 1.219E+01 | 2.452E+01 | 8.320E-04 | 3.063E-01 | 2.83E+00 | 8.873E+01 | 7.954E+01 | 7.903E-05 | 5.883E-03 | 4.378E+00 |
| 145 | -8.192E-01 | -1.693E+02 | 2.41E+01 | 9.557E+00 | 1.923E+01 | 1.353E-03 | 4.958E-01 | 2.45E+00 | 9.136E+01 | 8.190E+01 | 7.454E-05 | 5.551E-03 | 3.907E+00 |
| 150 | -8.660E-01 | -1.737E+02 | 2.81E+01 | 7.227E+00 | 1.456E+01 | 2.363E-03 | 8.598E-01 | 2.08E+00 | 9.369E+01 | 8.399E+01 | 7.189E-05 | 5.281E-03 | 3.406E+00 |
| 155 | -9.063E-01 | -1.774E+02 | 3.34E+01 | 5.223E+00 | 1.054E+01 | 4.510E-03 | 1.626E+00 | 1.72E+00 | 9.569E+01 | 8.578E+01 | 6.796E-05 | 5.064E-03 | 2.879E+00 |
| 160 | -9.397E-01 | -1.806E+02 | 4.09E+01 | 3.556E+00 | 7.214E+00 | 9.655E-03 | 3.439E+00 | 1.37E+00 | 9.734E+01 | 8.726E+01 | 6.567E-05 | 4.894E-03 | 2.330E+00 |
| 165 | -9.659E-01 | -1.830E+02 | 5.21E+01 | 2.234E+00 | 4.599E+00 | 2.392E-02 | 8.434E+00 | 1.02E+00 | 9.864E+01 | 8.843E+01 | 6.394E-05 | 4.767E-03 | 1.763E+00 |
| 170 | -9.848E-01 | -1.847E+02 | 7.01E+01 | 1.258E+00 | 2.718E+00 | 7.017E-02 | 2.539E+01 | 6.81E-01 | 9.958E+01 | 8.927E+01 | 6.275E-05 | 4.678E-03 | 1.183E+00 |
| 175 | -9.962E-01 | -1.858E+02 | 1.04E+02 | 6.105E-01 | 1.583E+00 | 2.249E-01 | 1.065E+02 | 3.40E-01 | 1.001E+02 | 8.977E+01 | 6.204E-05 | 4.626E-03 | 5.936E-01 |
| 180 | -1.000E+00 | -1.862E+02 | 1.80E+02 | 3.332E-01 | 1.203E+00 | 4.437E-01 | 4.179E+02 | 0. | 1.003E+02 | 8.994E+01 | 6.181E-05 | 4.609E-03 | 0. |

PION (1) + PROTON (2) => KAON (3) + LAMBDA (4) AT 125 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 4.97710E-01 M4 = 1.11559E+00
P2CM= 7.64311E+00 P3CM= 7.62372E+00
E1CM= 7.64438E+00 E2CM= 7.70048E+00 E3CM= 7.63995E+00 E4CM= 7.70491E+00

1-V1LAB = 6.233E-07 1-VCM = 7.451E-03 GCM = 8.20720E+00 ETCM= 1.53449E+01 S = 2.35465E+02 -U=( 2.33073E+02) +T

| Θ3 CM | COS(Θ3) CM | 4-MOM TSFR SQUARE, T | Θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | Θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -3.562E-04 | 0. | 1.248E+02 | 2.508E+02 | 7.952E-06 | 3.731E-03 | 0. | 1.952E-01 | 1.015E+00 | 8.277E-01 | -1.525E+03 | 0. |
| 1 | 9.998E-01 | -1.811E-02 | 6.11E-02 | 1.248E+02 | 2.507E+02 | 7.953E-06 | 3.732E-03 | 3.30E+01 | 2.442E-01 | 1.024E+00 | 7.862E-01 | -7.413E+02 | 1.331E-01 |
| 2 | 9.994E-01 | -7.135E-02 | 1.22E-01 | 1.248E+02 | 2.507E+02 | 7.956E-06 | 3.734E-03 | 4.88E+01 | 3.539E-01 | 1.049E+00 | 6.976E-01 | -2.059E+02 | 2.661E-01 |
| 3 | 9.986E-01 | -1.601E-01 | 1.83E-01 | 1.247E+02 | 2.506E+02 | 7.962E-06 | 3.736E-03 | 5.48E+01 | 4.880E-01 | 1.091E+00 | 5.992E-01 | -5.461E+01 | 3.990E-01 |
| 4 | 9.976E-01 | -2.842E-01 | 2.44E-01 | 1.247E+02 | 2.505E+02 | 7.971E-06 | 3.740E-03 | 5.68E+01 | 6.353E-01 | 1.151E+00 | 5.051E-01 | -9.587E+00 | 5.318E-01 |
| 5 | 9.962E-01 | -4.438E-01 | 3.06E-01 | 1.246E+02 | 2.503E+02 | 7.982E-06 | 3.746E-03 | 5.69E+01 | 7.932E-01 | 1.227E+00 | 4.205E-01 | 5.082E+00 | 6.645E-01 |
| 6 | 9.945E-01 | -6.388E-01 | 3.67E-01 | 1.245E+02 | 2.501E+02 | 7.995E-06 | 3.752E-03 | 5.60E+01 | 9.615E-01 | 1.320E+00 | 3.472E-01 | 9.720E+00 | 7.969E-01 |
| 7 | 9.925E-01 | -8.690E-01 | 4.28E-01 | 1.243E+02 | 2.498E+02 | 8.011E-06 | 3.759E-03 | 5.45E+01 | 1.141E+00 | 1.430E+00 | 2.851E-01 | 1.068E+01 | 9.291E-01 |
| 8 | 9.903E-01 | -1.134E+00 | 4.89E-01 | 1.242E+02 | 2.495E+02 | 8.029E-06 | 3.768E-03 | 5.28E+01 | 1.331E+00 | 1.557E+00 | 2.335E-01 | 1.024E+01 | 1.061E+00 |
| 9 | 9.877E-01 | -1.435E+00 | 5.51E-01 | 1.240E+02 | 2.492E+02 | 8.050E-06 | 3.777E-03 | 5.10E+01 | 1.534E+00 | 1.701E+00 | 1.912E-01 | 9.291E+00 | 1.193E+00 |
| 10 | 9.848E-01 | -1.771E+00 | 6.12E-01 | 1.239E+02 | 2.489E+02 | 8.073E-06 | 3.788E-03 | 4.91E+01 | 1.751E+00 | 1.861E+00 | 1.567E-01 | 8.213E+00 | 1.324E+00 |
| 15 | 9.659E-01 | -3.971E+00 | 9.22E-01 | 1.227E+02 | 2.465E+02 | 8.228E-06 | 3.861E-03 | 4.03E+01 | 3.051E+00 | 2.912E+00 | 6.081E-02 | 3.977E+00 | 1.973E+00 |
| 20 | 9.397E-01 | -7.028E+00 | 1.23E+00 | 1.211E+02 | 2.432E+02 | 8.451E-06 | 3.966E-03 | 3.33E+01 | 4.749E+00 | 4.372E+00 | 2.650E-02 | 1.949E+00 | 2.607E+00 |
| 25 | 9.063E-01 | -1.092E+01 | 1.55E+00 | 1.190E+02 | 2.391E+02 | 8.748E-06 | 4.105E-03 | 2.80E+01 | 6.861E+00 | 6.231E+00 | 1.296E-02 | 1.023E+00 | 3.222E+00 |
| 30 | 8.660E-01 | -1.561E+01 | 1.88E+00 | 1.165E+02 | 2.340E+02 | 9.128E-06 | 4.283E-03 | 2.40E+01 | 9.387E+00 | 8.473E+00 | 6.988E-03 | 5.772E-01 | 3.812E+00 |
| 35 | 8.192E-01 | -2.108E+01 | 2.21E+00 | 1.136E+02 | 2.282E+02 | 9.602E-06 | 4.505E-03 | 2.08E+01 | 1.231E+01 | 1.108E+01 | 4.079E-03 | 3.473E-01 | 4.373E+00 |
| 40 | 7.660E-01 | -2.727E+01 | 2.55E+00 | 1.103E+02 | 2.216E+02 | 1.018E-05 | 4.778E-03 | 1.83E+01 | 1.562E+01 | 1.404E+01 | 2.540E-03 | 2.209E-01 | 4.900E+00 |
| 45 | 7.071E-01 | -3.413E+01 | 2.90E+00 | 1.066E+02 | 2.142E+02 | 1.090E-05 | 5.111E-03 | 1.62E+01 | 1.929E+01 | 1.732E+01 | 1.668E-03 | 1.473E-01 | 5.391E+00 |
| 50 | 6.428E-01 | -4.163E+01 | 3.26E+00 | 1.026E+02 | 2.062E+02 | 1.176E-05 | 5.517E-03 | 1.45E+01 | 2.329E+01 | 2.090E+01 | 1.145E-03 | 1.023E-01 | 5.840E+00 |
| 55 | 5.736E-01 | -4.969E+01 | 3.64E+00 | 9.832E+01 | 1.976E+02 | 1.281E-05 | 6.009E-03 | 1.31E+01 | 2.759E+01 | 2.475E+01 | 8.163E-04 | 7.351E-02 | 6.245E+00 |
| 60 | 5.000E-01 | -5.827E+01 | 4.04E+00 | 9.375E+01 | 1.884E+02 | 1.409E-05 | 6.608E-03 | 1.18E+01 | 3.216E+01 | 2.885E+01 | 6.009E-04 | 5.447E-02 | 6.602E+00 |
| 65 | 4.226E-01 | -6.729E+01 | 4.46E+00 | 8.895E+01 | 1.787E+02 | 1.565E-05 | 7.340E-03 | 1.08E+01 | 3.697E+01 | 3.316E+01 | 4.549E-04 | 4.145E-02 | 6.909E+00 |
| 70 | 3.420E-01 | -7.668E+01 | 4.90E+00 | 8.394E+01 | 1.687E+02 | 1.758E-05 | 8.240E-03 | 9.83E+00 | 4.198E+01 | 3.764E+01 | 3.529E-04 | 3.229E-02 | 7.164E+00 |
| 75 | 2.588E-01 | -8.638E+01 | 5.36E+00 | 7.877E+01 | 1.583E+02 | 1.996E-05 | 9.355E-03 | 8.99E+00 | 4.715E+01 | 4.228E+01 | 2.798E-04 | 2.569E-02 | 7.364E+00 |
| 80 | 1.736E-01 | -9.630E+01 | 5.86E+00 | 7.349E+01 | 1.476E+02 | 2.294E-05 | 1.075E-02 | 8.23E+00 | 5.244E+01 | 4.702E+01 | 2.262E-04 | 2.083E-02 | 7.508E+00 |
| 85 | 8.716E-02 | -1.064E+02 | 6.40E+00 | 6.811E+01 | 1.369E+02 | 2.670E-05 | 1.251E-02 | 7.55E+00 | 5.781E+01 | 5.183E+01 | 1.861E-04 | 1.716E-02 | 7.595E+00 |
| 90 | 0. | -1.165E+02 | 6.98E+00 | 6.270E+01 | 1.260E+02 | 3.150E-05 | 1.475E-02 | 6.93E+00 | 6.323E+01 | 5.668E+01 | 1.556E-04 | 1.439E-02 | 7.624E+00 |
| 95 | -8.716E-02 | -1.267E+02 | 7.62E+00 | 5.729E+01 | 1.151E+02 | 3.774E-05 | 1.767E-02 | 6.35E+00 | 6.864E+01 | 6.154E+01 | 1.321E-04 | 1.223E-02 | 7.595E+00 |
| 100 | -1.736E-01 | -1.368E+02 | 8.32E+00 | 5.192E+01 | 1.043E+02 | 4.595E-05 | 2.150E-02 | 5.82E+00 | 7.401E+01 | 6.635E+01 | 1.136E-04 | 1.053E-02 | 7.508E+00 |
| 105 | -2.588E-01 | -1.467E+02 | 9.09E+00 | 4.663E+01 | 9.369E+01 | 5.697E-05 | 2.664E-02 | 5.33E+00 | 7.930E+01 | 7.109E+01 | 9.894E-05 | 9.185E-03 | 7.364E+00 |
| 110 | -3.420E-01 | -1.564E+02 | 9.95E+00 | 4.146E+01 | 8.331E+01 | 7.205E-05 | 3.367E-02 | 4.87E+00 | 8.447E+01 | 7.572E+01 | 8.720E-05 | 8.104E-03 | 7.164E+00 |
| 115 | -4.226E-01 | -1.658E+02 | 1.09E+01 | 3.645E+01 | 7.325E+01 | 9.319E-05 | 4.352E-02 | 4.43E+00 | 8.947E+01 | 8.021E+01 | 7.772E-05 | 7.229E-03 | 6.909E+00 |
| 120 | -5.000E-01 | -1.748E+02 | 1.20E+01 | 3.165E+01 | 6.359E+01 | 1.236E-04 | 5.767E-02 | 4.02E+00 | 9.428E+01 | 8.452E+01 | 7.000E-05 | 6.516E-03 | 6.602E+00 |
| 125 | -5.736E-01 | -1.834E+02 | 1.33E+01 | 2.708E+01 | 5.441E+01 | 1.689E-04 | 7.868E-02 | 3.62E+00 | 9.885E+01 | 8.861E+01 | 6.368E-05 | 5.931E-03 | 6.245E+00 |
| 130 | -6.428E-01 | -1.914E+02 | 1.49E+01 | 2.278E+01 | 4.578E+01 | 2.386E-04 | 1.110E-01 | 3.25E+00 | 1.031E+02 | 9.247E+01 | 5.848E-05 | 5.450E-03 | 5.840E+00 |
| 135 | -7.071E-01 | -1.989E+02 | 1.67E+01 | 1.878E+01 | 3.775E+01 | 3.509E-04 | 1.628E-01 | 2.88E+00 | 1.071E+02 | 9.605E+01 | 5.420E-05 | 5.054E-03 | 5.391E+00 |
| 140 | -7.660E-01 | -2.058E+02 | 1.89E+01 | 1.512E+01 | 3.040E+01 | 5.413E-04 | 2.504E-01 | 2.53E+00 | 1.108E+02 | 9.933E+01 | 5.068E-05 | 4.727E-03 | 4.900E+00 |
| 145 | -8.192E-01 | -2.120E+02 | 2.17E+01 | 1.182E+01 | 2.377E+01 | 8.853E-04 | 4.079E-01 | 2.20E+00 | 1.141E+02 | 1.023E+02 | 4.779E-05 | 4.460E-03 | 4.373E+00 |
| 150 | -8.660E-01 | -2.175E+02 | 2.53E+01 | 8.906E+00 | 1.792E+01 | 1.558E-03 | 7.136E-01 | 1.87E+00 | 1.170E+02 | 1.049E+02 | 4.544E-05 | 4.242E-03 | 3.812E+00 |
| 155 | -9.063E-01 | -2.222E+02 | 3.02E+01 | 6.399E+00 | 1.290E+01 | 3.011E-03 | 1.368E+00 | 1.54E+00 | 1.195E+02 | 1.071E+02 | 4.356E-05 | 4.067E-03 | 3.222E+00 |
| 160 | -9.397E-01 | -2.260E+02 | 3.72E+01 | 4.316E+00 | 8.729E+00 | 6.583E-03 | 2.955E+00 | 1.23E+00 | 1.216E+02 | 1.090E+02 | 4.209E-05 | 3.930E-03 | 2.607E+00 |
| 165 | -9.659E-01 | -2.291E+02 | 4.77E+01 | 2.669E+00 | 5.456E+00 | 1.694E-02 | 7.499E+00 | 9.18E-01 | 1.232E+02 | 1.105E+02 | 4.098E-05 | 3.827E-03 | 1.973E+00 |
| 170 | -9.848E-01 | -2.313E+02 | 6.50E+01 | 1.460E+00 | 3.100E+00 | 5.346E-02 | 2.388E+01 | 6.10E-01 | 1.244E+02 | 1.115E+02 | 4.021E-05 | 3.756E-03 | 1.324E+00 |
| 175 | -9.962E-01 | -2.326E+02 | 9.82E+01 | 6.713E-01 | 1.679E+00 | 1.967E-01 | 1.097E+02 | 3.04E-01 | 1.251E+02 | 1.121E+02 | 3.976E-05 | 3.714E-03 | 6.645E-01 |
| 180 | -1.000E+00 | -2.331E+02 | 1.80E+02 | 3.340E-01 | 1.204E+00 | 4.428E-01 | 5.210E+02 | 0. | 1.253E+02 | 1.124E+02 | 3.961E-05 | 3.700E-03 | 0. |

PION (1) + PROTON (2) => KAON (3) + LAMBDA (4) AT 150 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 4.97710E-01 M4 = 1.11559E+00
P2CM= 8.37527E+00 P3CM= 8.35758E+00
E1CM= 8.37643E+00 E2CM= 8.42766E+00 E3CM= 8.37239E+00 E4CM= 8.43171E+00

1-V1LAB = 4.329E-07 1-VCM = 6.217E-03 GCM = 8.98223E+00 ETCM= 1.68041E+01 S = 2.82378E+02 -U=( 2.79986E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -2.966E-04 | 0. | 1.498E+02 | 3.010E+02 | 5.519E-06 | 3.112E-03 | 0. | 1.950E-01 | 1.015E+00 | 8.278E-01 | -1.837E+03 | 0. |
| 1 | 9.998E-01 | -2.162E-02 | 5.58E-02 | 1.498E+02 | 3.010E+02 | 5.520E-06 | 3.113E-03 | 3.52E+01 | 2.528E-01 | 1.025E+00 | 7.790E-01 | -7.938E+02 | 1.459E-01 |
| 2 | 9.994E-01 | -8.558E-02 | 1.12E-01 | 1.498E+02 | 3.009E+02 | 5.522E-06 | 3.114E-03 | 5.05E+01 | 3.782E-01 | 1.056E+00 | 6.789E-01 | -1.926E+02 | 2.917E-01 |
| 3 | 9.986E-01 | -1.922E-01 | 1.67E-01 | 1.497E+02 | 3.008E+02 | 5.527E-06 | 3.117E-03 | 5.57E+01 | 5.292E-01 | 1.107E+00 | 5.714E-01 | -4.329E+01 | 4.374E-01 |
| 4 | 9.976E-01 | -3.413E-01 | 2.23E-01 | 1.496E+02 | 3.006E+02 | 5.532E-06 | 3.120E-03 | 5.71E+01 | 6.947E-01 | 1.178E+00 | 4.714E-01 | -2.430E+00 | 5.830E-01 |
| 5 | 9.962E-01 | -5.330E-01 | 2.79E-01 | 1.495E+02 | 3.004E+02 | 5.540E-06 | 3.124E-03 | 5.66E+01 | 8.727E-01 | 1.270E+00 | 3.838E-01 | 9.605E+00 | 7.284E-01 |
| 6 | 9.945E-01 | -7.672E-01 | 3.35E-01 | 1.494E+02 | 3.002E+02 | 5.549E-06 | 3.130E-03 | 5.52E+01 | 1.063E+00 | 1.382E+00 | 3.100E-01 | 1.262E+01 | 8.736E-01 |
| 7 | 9.925E-01 | -1.044E+00 | 3.91E-01 | 1.492E+02 | 2.999E+02 | 5.560E-06 | 3.136E-03 | 5.35E+01 | 1.268E+00 | 1.514E+00 | 2.493E-01 | 1.255E+01 | 1.019E+00 |
| 8 | 9.903E-01 | -1.363E+00 | 4.47E-01 | 1.491E+02 | 2.995E+02 | 5.573E-06 | 3.143E-03 | 5.15E+01 | 1.486E+00 | 1.666E+00 | 2.002E-01 | 1.143E+01 | 1.163E+00 |
| 9 | 9.877E-01 | -1.724E+00 | 5.03E-01 | 1.489E+02 | 2.991E+02 | 5.587E-06 | 3.151E-03 | 4.94E+01 | 1.721E+00 | 1.838E+00 | 1.609E-01 | 1.002E+01 | 1.307E+00 |
| 10 | 9.848E-01 | -2.127E+00 | 5.59E-01 | 1.487E+02 | 2.987E+02 | 5.604E-06 | 3.160E-03 | 4.74E+01 | 1.972E+00 | 2.031E+00 | 1.296E-01 | 8.636E+00 | 1.451E+00 |
| 15 | 9.659E-01 | -4.770E+00 | 8.42E-01 | 1.473E+02 | 2.959E+02 | 5.711E-06 | 3.221E-03 | 3.82E+01 | 3.501E+00 | 3.294E+00 | 4.720E-02 | 3.857E+00 | 2.163E+00 |
| 20 | 9.397E-01 | -8.443E+00 | 1.13E+00 | 1.453E+02 | 2.920E+02 | 5.866E-06 | 3.308E-03 | 3.12E+01 | 5.520E+00 | 5.048E+00 | 1.982E-02 | 1.804E+00 | 2.858E+00 |
| 25 | 9.063E-01 | -1.312E+01 | 1.42E+00 | 1.428E+02 | 2.869E+02 | 6.073E-06 | 3.424E-03 | 2.60E+01 | 8.045E+00 | 7.281E+00 | 9.477E-03 | 9.197E-01 | 3.532E+00 |
| 30 | 8.660E-01 | -1.876E+01 | 1.71E+00 | 1.398E+02 | 2.809E+02 | 6.336E-06 | 3.573E-03 | 2.22E+01 | 1.107E+01 | 9.974E+00 | 5.038E-03 | 5.090E-01 | 4.179E+00 |
| 35 | 8.192E-01 | -2.532E+01 | 2.02E+00 | 1.363E+02 | 2.739E+02 | 6.666E-06 | 3.758E-03 | 1.92E+01 | 1.458E+01 | 1.311E+01 | 2.914E-03 | 3.023E-01 | 4.794E+00 |
| 40 | 7.660E-01 | -3.275E+01 | 2.33E+00 | 1.324E+02 | 2.659E+02 | 7.071E-06 | 3.987E-03 | 1.68E+01 | 1.855E+01 | 1.666E+01 | 1.803E-03 | 1.905E-01 | 5.372E+00 |
| 45 | 7.071E-01 | -4.100E+01 | 2.65E+00 | 1.280E+02 | 2.571E+02 | 7.565E-06 | 4.265E-03 | 1.49E+01 | 2.296E+01 | 2.060E+01 | 1.179E-03 | 1.262E-01 | 5.910E+00 |
| 50 | 6.428E-01 | -5.001E+01 | 2.98E+00 | 1.232E+02 | 2.474E+02 | 8.166E-06 | 4.603E-03 | 1.33E+01 | 2.776E+01 | 2.490E+01 | 8.066E-04 | 8.716E-02 | 6.402E+00 |
| 55 | 5.736E-01 | -5.970E+01 | 3.33E+00 | 1.180E+02 | 2.371E+02 | 8.896E-06 | 5.015E-03 | 1.20E+01 | 3.293E+01 | 2.953E+01 | 5.735E-04 | 6.242E-02 | 6.846E+00 |
| 60 | 5.000E-01 | -7.000E+01 | 3.69E+00 | 1.125E+02 | 2.260E+02 | 9.786E-06 | 5.515E-03 | 1.09E+01 | 3.842E+01 | 3.445E+01 | 4.213E-04 | 4.612E-02 | 7.238E+00 |
| 65 | 4.226E-01 | -8.063E+01 | 4.07E+00 | 1.067E+02 | 2.144E+02 | 1.087E-05 | 6.127E-03 | 9.87E+00 | 4.419E+01 | 3.963E+01 | 3.185E-04 | 3.501E-02 | 7.575E+00 |
| 70 | 3.420E-01 | -9.211E+01 | 4.47E+00 | 1.007E+02 | 2.024E+02 | 1.221E-05 | 6.880E-03 | 9.00E+00 | 5.021E+01 | 4.502E+01 | 2.468E-04 | 2.722E-02 | 7.854E+00 |
| 75 | 2.588E-01 | -1.038E+02 | 4.90E+00 | 9.451E+01 | 1.899E+02 | 1.387E-05 | 7.812E-03 | 8.23E+00 | 5.642E+01 | 5.058E+01 | 1.955E-04 | 2.162E-02 | 8.073E+00 |
| 80 | 1.736E-01 | -1.157E+02 | 5.36E+00 | 8.816E+01 | 1.771E+02 | 1.594E-05 | 8.977E-03 | 7.53E+00 | 6.277E+01 | 5.628E+01 | 1.579E-04 | 1.751E-02 | 8.231E+00 |
| 85 | 8.716E-02 | -1.278E+02 | 5.85E+00 | 8.170E+01 | 1.642E+02 | 1.855E-05 | 1.045E-02 | 6.91E+00 | 6.922E+01 | 6.206E+01 | 1.298E-04 | 1.443E-02 | 8.326E+00 |
| 90 | 0. | -1.400E+02 | 6.38E+00 | 7.520E+01 | 1.511E+02 | 2.190E-05 | 1.233E-02 | 6.34E+00 | 7.573E+01 | 6.789E+01 | 1.065E-04 | 1.207E-02 | 8.358E+00 |
| 95 | -8.716E-02 | -1.522E+02 | 6.96E+00 | 6.870E+01 | 1.380E+02 | 2.624E-05 | 1.477E-02 | 5.81E+00 | 8.223E+01 | 7.372E+01 | 9.201E-05 | 1.025E-02 | 8.326E+00 |
| 100 | -1.736E-01 | -1.643E+02 | 7.60E+00 | 6.225E+01 | 1.251E+02 | 3.197E-05 | 1.798E-02 | 5.33E+00 | 8.868E+01 | 7.950E+01 | 7.911E-05 | 8.827E-03 | 8.231E+00 |
| 105 | -2.588E-01 | -1.762E+02 | 8.30E+00 | 5.589E+01 | 1.123E+02 | 3.965E-05 | 2.229E-02 | 4.87E+00 | 9.504E+01 | 8.520E+01 | 6.889E-05 | 7.694E-03 | 8.073E+00 |
| 110 | -3.420E-01 | -1.879E+02 | 9.09E+00 | 4.968E+01 | 9.983E+01 | 5.017E-05 | 2.820E-02 | 4.45E+00 | 1.012E+02 | 9.076E+01 | 6.070E-05 | 6.785E-03 | 7.854E+00 |
| 115 | -4.226E-01 | -1.992E+02 | 9.99E+00 | 4.367E+01 | 8.775E+01 | 6.494E-05 | 3.647E-02 | 4.05E+00 | 1.073E+02 | 9.615E+01 | 5.409E-05 | 6.050E-03 | 7.575E+00 |
| 120 | -5.000E-01 | -2.100E+02 | 1.10E+01 | 3.790E+01 | 7.615E+01 | 8.623E-05 | 4.838E-02 | 3.67E+00 | 1.130E+02 | 1.013E+02 | 4.870E-05 | 5.451E-03 | 7.238E+00 |
| 125 | -5.736E-01 | -2.203E+02 | 1.22E+01 | 3.241E+01 | 6.512E+01 | 1.179E-04 | 6.608E-02 | 3.31E+00 | 1.185E+02 | 1.062E+02 | 4.430E-05 | 4.961E-03 | 6.846E+00 |
| 130 | -6.428E-01 | -2.300E+02 | 1.36E+01 | 2.724E+01 | 5.475E+01 | 1.668E-04 | 9.337E-02 | 2.97E+00 | 1.237E+02 | 1.109E+02 | 4.067E-05 | 4.557E-03 | 6.402E+00 |
| 135 | -7.071E-01 | -2.390E+02 | 1.53E+01 | 2.244E+01 | 4.511E+01 | 2.458E-04 | 1.373E-01 | 2.64E+00 | 1.285E+02 | 1.152E+02 | 3.769E-05 | 4.225E-03 | 5.910E+00 |
| 140 | -7.660E-01 | -2.472E+02 | 1.73E+01 | 1.805E+01 | 3.627E+01 | 3.801E-04 | 2.118E-01 | 2.32E+00 | 1.329E+02 | 1.191E+02 | 3.524E-05 | 3.951E-03 | 5.372E+00 |
| 145 | -8.192E-01 | -2.547E+02 | 1.99E+01 | 1.408E+01 | 2.831E+01 | 6.239E-04 | 3.464E-01 | 2.01E+00 | 1.368E+02 | 1.227E+02 | 3.323E-05 | 3.727E-03 | 4.794E+00 |
| 150 | -8.660E-01 | -2.612E+02 | 2.33E+01 | 1.058E+01 | 2.129E+01 | 1.104E-03 | 6.098E-01 | 1.71E+00 | 1.403E+02 | 1.258E+02 | 3.159E-05 | 3.544E-03 | 4.179E+00 |
| 155 | -9.063E-01 | -2.669E+02 | 2.78E+01 | 7.573E+00 | 1.525E+01 | 2.153E-03 | 1.180E+00 | 1.41E+00 | 1.433E+02 | 1.285E+02 | 3.028E-05 | 3.398E-03 | 3.532E+00 |
| 160 | -9.397E-01 | -2.715E+02 | 3.43E+01 | 5.074E+00 | 1.024E+01 | 4.776E-03 | 2.588E+00 | 1.12E+00 | 1.458E+02 | 1.307E+02 | 2.926E-05 | 3.283E-03 | 2.858E+00 |
| 165 | -9.659E-01 | -2.752E+02 | 4.42E+01 | 3.102E+00 | 6.312E+00 | 1.263E-02 | 6.742E+00 | 8.39E-01 | 1.478E+02 | 1.325E+02 | 2.849E-05 | 3.197E-03 | 2.163E+00 |
| 170 | -9.848E-01 | -2.779E+02 | 6.10E+01 | 1.660E+00 | 3.482E+00 | 4.212E-02 | 2.244E+01 | 5.57E-01 | 1.492E+02 | 1.337E+02 | 2.795E-05 | 3.138E-03 | 1.451E+00 |
| 175 | -9.962E-01 | -2.795E+02 | 9.38E+01 | 7.300E-01 | 1.775E+00 | 1.737E-01 | 1.111E+02 | 2.78E-01 | 1.501E+02 | 1.345E+02 | 2.764E-05 | 3.102E-03 | 7.284E-01 |
| 180 | -1.000E+00 | -2.808E+02 | 1.80E+02 | 3.345E-01 | 1.205E+00 | 4.422E-01 | 6.242E+02 | 0. | 1.503E+02 | 1.348E+02 | 2.753E-05 | 3.091E-03 | 0. |

PION (1) + PROTON (2) => KAON (3) + LAMBDA (4) AT 175 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 4.97710E-01 M4 = 1.11559E+00
P2CM= 9.04839E+00 P3CM= 9.03201E+00
E1CM= 9.04946E+00 E2CM= 9.09690E+00 E3CM= 9.04572E+00 E4CM= 9.10065E+00

1-V1LAB = 3.180E-07 1-VCM = 5.333E-03 GCM = 9.69551E+00 ETCM= 1.81464E+01 S = 3.29291E+02 -U=( 3.26899E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -2.540E-04 | 0. | 1.748E+02 | 3.512E+02 | 4.053E-06 | 2.670E-03 | 0. | 1.949E-01 | 1.015E+00 | 8.279E-01 | -2.148E+03 | 0. |
| 1 | 9.998E-01 | -2.515E-02 | 5.17E-02 | 1.748E+02 | 3.512E+02 | 4.054E-06 | 2.670E-03 | 3.71E+01 | 2.612E-01 | 1.027E+00 | 7.721E-01 | -8.314E+02 | 1.576E-01 |
| 2 | 9.994E-01 | -9.982E-02 | 1.03E-01 | 1.748E+02 | 3.511E+02 | 4.056E-06 | 2.671E-03 | 5.18E+01 | 4.012E-01 | 1.063E+00 | 6.616E-01 | -1.786E+02 | 3.152E-01 |
| 3 | 9.986E-01 | -2.243E-01 | 1.55E-01 | 1.747E+02 | 3.510E+02 | 4.059E-06 | 2.673E-03 | 5.63E+01 | 5.680E-01 | 1.122E+00 | 5.463E-01 | -3.321E+01 | 4.727E-01 |
| 4 | 9.976E-01 | -3.984E-01 | 2.07E-01 | 1.746E+02 | 3.508E+02 | 4.063E-06 | 2.676E-03 | 5.71E+01 | 7.507E-01 | 1.205E+00 | 4.417E-01 | 3.647E+00 | 6.300E-01 |
| 5 | 9.962E-01 | -6.222E-01 | 2.59E-01 | 1.745E+02 | 3.506E+02 | 4.069E-06 | 2.680E-03 | 5.61E+01 | 9.479E-01 | 1.312E+00 | 3.525E-01 | 1.332E+01 | 7.872E-01 |
| 6 | 9.945E-01 | -8.957E-01 | 3.10E-01 | 1.743E+02 | 3.503E+02 | 4.076E-06 | 2.684E-03 | 5.45E+01 | 1.160E+00 | 1.443E+00 | 2.791E-01 | 1.493E+01 | 9.441E-01 |
| 7 | 9.925E-01 | -1.219E+00 | 3.62E-01 | 1.742E+02 | 3.499E+02 | 4.084E-06 | 2.690E-03 | 5.24E+01 | 1.389E+00 | 1.597E+00 | 2.203E-01 | 1.397E+01 | 1.101E+00 |
| 8 | 9.903E-01 | -1.591E+00 | 4.14E-01 | 1.740E+02 | 3.495E+02 | 4.093E-06 | 2.696E-03 | 5.02E+01 | 1.636E+00 | 1.775E+00 | 1.738E-01 | 1.228E+01 | 1.257E+00 |
| 9 | 9.877E-01 | -2.013E+00 | 4.66E-01 | 1.737E+02 | 3.491E+02 | 4.104E-06 | 2.703E-03 | 4.80E+01 | 1.902E+00 | 1.976E+00 | 1.374E-01 | 1.050E+01 | 1.413E+00 |
| 10 | 9.848E-01 | -2.483E+00 | 5.18E-01 | 1.735E+02 | 3.486E+02 | 4.115E-06 | 2.711E-03 | 4.58E+01 | 2.188E+00 | 2.201E+00 | 1.091E-01 | 8.869E+00 | 1.568E+00 |
| 15 | 9.659E-01 | -5.570E+00 | 7.79E-01 | 1.718E+02 | 3.453E+02 | 4.195E-06 | 2.763E-03 | 3.63E+01 | 3.946E+00 | 3.676E+00 | 3.772E-02 | 3.712E+00 | 2.338E+00 |
| 20 | 9.397E-01 | -9.858E+00 | 1.04E+00 | 1.696E+02 | 3.407E+02 | 4.308E-06 | 2.838E-03 | 2.94E+01 | 6.287E+00 | 5.724E+00 | 1.538E-02 | 1.673E+00 | 3.089E+00 |
| 25 | 9.063E-01 | -1.531E+01 | 1.31E+00 | 1.666E+02 | 3.348E+02 | 4.460E-06 | 2.937E-03 | 2.44E+01 | 9.226E+00 | 8.330E+00 | 7.231E-03 | 8.339E-01 | 3.817E+00 |
| 30 | 8.660E-01 | -2.190E+01 | 1.59E+00 | 1.631E+02 | 3.278E+02 | 4.654E-06 | 3.065E-03 | 2.07E+01 | 1.275E+01 | 1.148E+01 | 3.804E-03 | 4.548E-01 | 4.516E+00 |
| 35 | 8.192E-01 | -2.956E+01 | 1.87E+00 | 1.591E+02 | 3.196E+02 | 4.896E-06 | 3.224E-03 | 1.79E+01 | 1.685E+01 | 1.514E+01 | 2.185E-03 | 2.674E-01 | 5.181E+00 |
| 40 | 7.660E-01 | -3.824E+01 | 2.15E+00 | 1.544E+02 | 3.103E+02 | 5.194E-06 | 3.420E-03 | 1.57E+01 | 2.148E+01 | 1.928E+01 | 1.346E-03 | 1.674E-01 | 5.806E+00 |
| 45 | 7.071E-01 | -4.787E+01 | 2.45E+00 | 1.493E+02 | 3.000E+02 | 5.557E-06 | 3.659E-03 | 1.39E+01 | 2.662E+01 | 2.388E+01 | 8.769E-04 | 1.103E-01 | 6.387E+00 |
| 50 | 6.428E-01 | -5.839E+01 | 2.76E+00 | 1.437E+02 | 2.887E+02 | 5.999E-06 | 3.950E-03 | 1.24E+01 | 3.223E+01 | 2.891E+01 | 5.986E-04 | 7.593E-02 | 6.919E+00 |
| 55 | 5.736E-01 | -6.970E+01 | 3.08E+00 | 1.377E+02 | 2.766E+02 | 6.536E-06 | 4.303E-03 | 1.12E+01 | 3.826E+01 | 3.431E+01 | 4.248E-04 | 5.423E-02 | 7.399E+00 |
| 60 | 5.000E-01 | -8.173E+01 | 3.42E+00 | 1.313E+02 | 2.637E+02 | 7.189E-06 | 4.733E-03 | 1.01E+01 | 4.467E+01 | 4.005E+01 | 3.117E-04 | 3.998E-02 | 7.822E+00 |
| 65 | 4.226E-01 | -9.437E+01 | 3.77E+00 | 1.245E+02 | 2.502E+02 | 7.989E-06 | 5.259E-03 | 9.16E+00 | 5.141E+01 | 4.610E+01 | 2.353E-04 | 3.030E-02 | 8.186E+00 |
| 70 | 3.420E-01 | -1.075E+02 | 4.14E+00 | 1.175E+02 | 2.361E+02 | 8.972E-06 | 5.905E-03 | 8.35E+00 | 5.843E+01 | 5.239E+01 | 1.822E-04 | 2.353E-02 | 8.487E+00 |
| 75 | 2.588E-01 | -1.211E+02 | 4.54E+00 | 1.102E+02 | 2.215E+02 | 1.019E-05 | 6.706E-03 | 7.63E+00 | 6.568E+01 | 5.889E+01 | 1.442E-04 | 1.867E-02 | 8.724E+00 |
| 80 | 1.736E-01 | -1.351E+02 | 4.96E+00 | 1.028E+02 | 2.066E+02 | 1.171E-05 | 7.707E-03 | 6.99E+00 | 7.310E+01 | 6.553E+01 | 1.164E-04 | 1.510E-02 | 8.895E+00 |
| 85 | 8.716E-02 | -1.492E+02 | 5.42E+00 | 9.529E+01 | 1.915E+02 | 1.364E-05 | 8.972E-03 | 6.41E+00 | 8.064E+01 | 7.229E+01 | 9.569E-05 | 1.243E-02 | 8.998E+00 |
| 90 | 0. | -1.635E+02 | 5.91E+00 | 8.770E+01 | 1.762E+02 | 1.610E-05 | 1.059E-02 | 5.88E+00 | 8.823E+01 | 7.909E+01 | 7.993E-05 | 1.040E-02 | 9.032E+00 |
| 95 | -8.716E-02 | -1.777E+02 | 6.45E+00 | 8.011E+01 | 1.610E+02 | 1.930E-05 | 1.269E-02 | 5.39E+00 | 9.582E+01 | 8.590E+01 | 6.777E-05 | 8.829E-03 | 8.998E+00 |
| 100 | -1.736E-01 | -1.918E+02 | 7.04E+00 | 7.258E+01 | 1.458E+02 | 2.351E-05 | 1.545E-02 | 4.94E+00 | 1.034E+02 | 9.265E+01 | 5.825E-05 | 7.597E-03 | 8.895E+00 |
| 105 | -2.588E-01 | -2.058E+02 | 7.69E+00 | 6.516E+01 | 1.309E+02 | 2.917E-05 | 1.917E-02 | 4.52E+00 | 1.108E+02 | 9.930E+01 | 5.071E-05 | 6.619E-03 | 8.724E+00 |
| 110 | -3.420E-01 | -2.194E+02 | 8.43E+00 | 5.791E+01 | 1.164E+02 | 3.693E-05 | 2.425E-02 | 4.12E+00 | 1.180E+02 | 1.058E+02 | 4.467E-05 | 5.835E-03 | 8.487E+00 |
| 115 | -4.226E-01 | -2.325E+02 | 9.26E+00 | 5.089E+01 | 1.023E+02 | 4.782E-05 | 3.139E-02 | 3.75E+00 | 1.250E+02 | 1.121E+02 | 3.980E-05 | 5.202E-03 | 8.186E+00 |
| 120 | -5.000E-01 | -2.452E+02 | 1.02E+01 | 4.415E+01 | 8.871E+01 | 6.354E-05 | 4.167E-02 | 3.40E+00 | 1.318E+02 | 1.181E+02 | 3.583E-05 | 4.686E-03 | 7.822E+00 |
| 125 | -5.736E-01 | -2.572E+02 | 1.13E+01 | 3.774E+01 | 7.583E+01 | 8.695E-05 | 5.697E-02 | 3.07E+00 | 1.382E+02 | 1.239E+02 | 3.258E-05 | 4.263E-03 | 7.399E+00 |
| 130 | -6.428E-01 | -2.685E+02 | 1.26E+01 | 3.171E+01 | 6.372E+01 | 1.232E-04 | 8.058E-02 | 2.75E+00 | 1.442E+02 | 1.293E+02 | 2.992E-05 | 3.916E-03 | 6.919E+00 |
| 135 | -7.071E-01 | -2.790E+02 | 1.42E+01 | 2.611E+01 | 5.246E+01 | 1.817E-04 | 1.187E-01 | 2.44E+00 | 1.498E+02 | 1.343E+02 | 2.772E-05 | 3.630E-03 | 6.387E+00 |
| 140 | -7.660E-01 | -2.887E+02 | 1.61E+01 | 2.097E+01 | 4.215E+01 | 2.815E-04 | 1.835E-01 | 2.15E+00 | 1.550E+02 | 1.389E+02 | 2.591E-05 | 3.394E-03 | 5.806E+00 |
| 145 | -8.192E-01 | -2.973E+02 | 1.85E+01 | 1.634E+01 | 3.286E+01 | 4.633E-04 | 3.010E-01 | 1.86E+00 | 1.596E+02 | 1.431E+02 | 2.443E-05 | 3.201E-03 | 5.181E+00 |
| 150 | -8.660E-01 | -3.050E+02 | 2.16E+01 | 1.226E+01 | 2.465E+01 | 8.231E-04 | 5.323E-01 | 1.58E+00 | 1.637E+02 | 1.467E+02 | 2.323E-05 | 3.044E-03 | 4.516E+00 |
| 155 | -9.063E-01 | -3.116E+02 | 2.59E+01 | 8.747E+00 | 1.760E+01 | 1.615E-03 | 1.037E+00 | 1.31E+00 | 1.672E+02 | 1.499E+02 | 2.227E-05 | 2.918E-03 | 3.817E+00 |
| 160 | -9.397E-01 | -3.170E+02 | 3.20E+01 | 5.832E+00 | 1.176E+01 | 3.622E-03 | 2.302E+00 | 1.04E+00 | 1.701E+02 | 1.525E+02 | 2.151E-05 | 2.819E-03 | 3.089E+00 |
| 165 | -9.659E-01 | -3.213E+02 | 4.14E+01 | 3.533E+00 | 7.169E+00 | 9.778E-03 | 6.118E+00 | 7.77E-01 | 1.724E+02 | 1.545E+02 | 2.094E-05 | 2.745E-03 | 2.338E+00 |
| 170 | -9.848E-01 | -3.244E+02 | 5.76E+01 | 1.858E+00 | 3.864E+00 | 3.407E-02 | 2.113E+01 | 5.16E-01 | 1.740E+02 | 1.560E+02 | 2.055E-05 | 2.694E-03 | 1.568E+00 |
| 175 | -9.962E-01 | -3.263E+02 | 9.01E+01 | 7.872E-31 | 1.871E+00 | 1.548E-01 | 1.115E+02 | 2.58E-01 | 1.750E+02 | 1.569E+02 | 2.032E-05 | 2.664E-03 | 7.872E-01 |
| 180 | -1.000E+00 | -3.269E+02 | 1.80E+02 | 3.349E-01 | 1.205E+00 | 4.418E-01 | 7.274E+02 | 0. | 1.753E+02 | 1.572E+02 | 2.024E-05 | 2.654E-03 | 0. |

PION (1) + PROTON (2) => KAON (3) + LAMBDA (4) AT 200 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 4.97710E-01 M4 = 1.11559E+00

P2CM= 9.67479E+00 P3CM= 9.65947E+00

E1CM= 9.67579E+00 E2CM= 9.72018E+00 E3CM= 9.67229E+00 E4CM= 9.72368E+00

1-V1LAB = 2.435E-07 1-VCM = 4.670E-03 GCM = 1.03598E+01 ETCM= 1.93960E+01 S = 3.76204E+02 -U=( 3.73812E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -2.222E-04 | 0. | 1.998E+02 | 4.015E+02 | 3.102E-06 | 2.337E-03 | 0. | 1.948E-01 | 1.015E+00 | 8.280E-01 | -2.459E+03 | 0. |
| 1 | 9.998E-01 | -2.869E-02 | 4.83E-02 | 1.998E+02 | 4.014E+02 | 3.103E-06 | 2.338E-03 | 3.88E+01 | 2.693E-01 | 1.029E+00 | 7.653E-01 | -8.575E+02 | 1.686E-01 |
| 2 | 9.994E-01 | -1.141E-01 | 9.67E-02 | 1.997E+02 | 4.013E+02 | 3.104E-06 | 2.339E-03 | 5.28E+01 | 4.231E-01 | 1.070E+00 | 6.454E-01 | -1.647E+02 | 3.371E-01 |
| 3 | 9.986E-01 | -2.564E-01 | 1.45E-01 | 1.997E+02 | 4.012E+02 | 3.107E-06 | 2.340E-03 | 5.67E+01 | 6.048E-01 | 1.137E+00 | 5.234E-01 | -2.420E+01 | 5.055E-01 |
| 4 | 9.976E-01 | -4.555E-01 | 1.93E-01 | 1.996E+02 | 4.010E+02 | 3.110E-06 | 2.343E-03 | 5.69E+01 | 8.040E-01 | 1.233E+00 | 4.153E-01 | 8.882E+00 | 6.738E-01 |
| 5 | 9.962E-01 | -7.115E-01 | 2.42E-01 | 1.994E+02 | 4.007E+02 | 3.114E-06 | 2.346E-03 | 5.56E+01 | 1.020E+00 | 1.355E+00 | 3.253E-01 | 1.643E+01 | 8.419E-01 |
| 6 | 9.945E-01 | -1.024E+00 | 2.90E-01 | 1.993E+02 | 4.004E+02 | 3.119E-06 | 2.350E-03 | 5.37E+01 | 1.254E+00 | 1.504E+00 | 2.530E-01 | 1.679E+01 | 1.010E+00 |
| 7 | 9.925E-01 | -1.393E+00 | 3.39E-01 | 1.991E+02 | 4.000E+02 | 3.126E-06 | 2.355E-03 | 5.14E+01 | 1.507E+00 | 1.681E+00 | 1.963E-01 | 1.507E+01 | 1.177E+00 |
| 8 | 9.903E-01 | -1.819E+00 | 3.87E-01 | 1.988E+02 | 3.995E+02 | 3.133E-06 | 2.360E-03 | 4.90E+01 | 1.781E+00 | 1.884E+00 | 1.525E-01 | 1.289E+01 | 1.344E+00 |
| 9 | 9.877E-01 | -2.301E+00 | 4.36E-01 | 1.986E+02 | 3.990E+02 | 3.141E-06 | 2.366E-03 | 4.66E+01 | 2.078E+00 | 2.114E+00 | 1.189E-01 | 1.081E+01 | 1.511E+00 |
| 10 | 9.848E-01 | -2.840E+00 | 4.85E-01 | 1.983E+02 | 3.984E+02 | 3.150E-06 | 2.373E-03 | 4.44E+01 | 2.399E+00 | 2.372E+00 | 9.325E-02 | 8.978E+00 | 1.677E+00 |
| 15 | 9.659E-01 | -6.369E+00 | 7.29E-01 | 1.964E+02 | 3.946E+02 | 3.211E-06 | 2.419E-03 | 3.47E+01 | 4.387E+00 | 4.057E+00 | 3.085E-02 | 3.561E+00 | 2.500E+00 |
| 20 | 9.397E-01 | -1.127E+01 | 9.77E-01 | 1.938E+02 | 3.894E+02 | 3.298E-06 | 2.484E-03 | 2.79E+01 | 7.052E+00 | 6.400E+00 | 1.228E-02 | 1.557E+00 | 3.304E+00 |
| 25 | 9.063E-01 | -1.751E+01 | 1.23E+00 | 1.905E+02 | 3.827E+02 | 3.414E-06 | 2.572E-03 | 2.31E+01 | 1.040E+01 | 9.380E+00 | 5.699E-03 | 7.620E-01 | 4.082E+00 |
| 30 | 8.660E-01 | -2.504E+01 | 1.48E+00 | 1.865E+02 | 3.746E+02 | 3.562E-06 | 2.683E-03 | 1.95E+01 | 1.443E+01 | 1.298E+01 | 2.974E-03 | 4.108E-01 | 4.830E+00 |
| 35 | 8.192E-01 | -3.380E+01 | 1.75E+00 | 1.818E+02 | 3.653E+02 | 3.748E-06 | 2.823E-03 | 1.69E+01 | 1.911E+01 | 1.716E+01 | 1.699E-03 | 2.397E-01 | 5.540E+00 |
| 40 | 7.660E-01 | -4.373E+01 | 2.02E+00 | 1.765E+02 | 3.546E+02 | 3.976E-06 | 2.995E-03 | 1.47E+01 | 2.441E+01 | 2.190E+01 | 1.043E-03 | 1.492E-01 | 6.209E+00 |
| 45 | 7.071E-01 | -5.474E+01 | 2.29E+00 | 1.706E+02 | 3.428E+02 | 4.254E-06 | 3.204E-03 | 1.30E+01 | 3.028E+01 | 2.717E+01 | 6.778E-04 | 9.799E-02 | 6.830E+00 |
| 50 | 6.428E-01 | -6.677E+01 | 2.58E+00 | 1.642E+02 | 3.300E+02 | 4.592E-06 | 3.459E-03 | 1.16E+01 | 3.669E+01 | 3.291E+01 | 4.618E-04 | 6.727E-02 | 7.400E+00 |
| 55 | 5.736E-01 | -7.970E+01 | 2.88E+00 | 1.573E+02 | 3.161E+02 | 5.004E-06 | 3.768E-03 | 1.05E+01 | 4.359E+01 | 3.909E+01 | 3.273E-04 | 4.794E-02 | 7.913E+00 |
| 60 | 5.000E-01 | -9.345E+01 | 3.20E+00 | 1.500E+02 | 3.014E+02 | 5.504E-06 | 4.145E-03 | 9.46E+00 | 5.092E+01 | 4.566E+01 | 2.399E-04 | 3.529E-02 | 8.365E+00 |
| 65 | 4.226E-01 | -1.079E+02 | 3.53E+00 | 1.423E+02 | 2.859E+02 | 6.117E-06 | 4.606E-03 | 8.59E+00 | 5.863E+01 | 5.257E+01 | 1.810E-04 | 2.671E-02 | 8.754E+00 |
| 70 | 3.420E-01 | -1.230E+02 | 3.88E+00 | 1.343E+02 | 2.698E+02 | 6.870E-06 | 5.172E-03 | 7.83E+00 | 6.666E+01 | 5.976E+01 | 1.400E-04 | 2.072E-02 | 9.077E+00 |
| 75 | 2.588E-01 | -1.385E+02 | 4.25E+00 | 1.260E+02 | 2.531E+02 | 7.804E-06 | 5.874E-03 | 7.15E+00 | 7.495E+01 | 6.719E+01 | 1.108E-04 | 1.643E-02 | 9.330E+00 |
| 80 | 1.736E-01 | -1.545E+02 | 4.64E+00 | 1.175E+02 | 2.361E+02 | 8.971E-06 | 6.752E-03 | 6.55E+00 | 8.343E+01 | 7.479E+01 | 8.938E-05 | 1.328E-02 | 9.513E+00 |
| 85 | 8.716E-02 | -1.706E+02 | 5.07E+00 | 1.089E+02 | 2.188E+02 | 1.045E-05 | 7.862E-03 | 6.00E+00 | 9.205E+01 | 8.252E+01 | 7.344E-05 | 1.093E-02 | 9.623E+00 |
| 90 | 0. | -1.869E+02 | 5.53E+00 | 1.002E+02 | 2.013E+02 | 1.234E-05 | 9.281E-03 | 5.50E+00 | 1.007E+02 | 9.030E+01 | 6.132E-05 | 9.136E-03 | 9.659E+00 |
| 95 | -8.716E-02 | -2.032E+02 | 6.04E+00 | 9.152E+01 | 1.839E+02 | 1.479E-05 | 1.112E-02 | 5.05E+00 | 1.094E+02 | 9.808E+01 | 5.198E-05 | 7.752E-03 | 9.623E+00 |
| 100 | -1.736E-01 | -2.194E+02 | 6.59E+00 | 8.291E+01 | 1.666E+02 | 1.802E-05 | 1.355E-02 | 4.62E+00 | 1.180E+02 | 1.058E+02 | 4.467E-05 | 6.667E-03 | 9.513E+00 |
| 105 | -2.588E-01 | -2.353E+02 | 7.20E+00 | 7.442E+01 | 1.495E+02 | 2.236E-05 | 1.681E-02 | 4.23E+00 | 1.265E+02 | 1.134E+02 | 3.888E-05 | 5.807E-03 | 9.330E+00 |
| 110 | -3.420E-01 | -2.508E+02 | 7.89E+00 | 6.613E+01 | 1.329E+02 | 2.832E-05 | 2.128E-02 | 3.86E+00 | 1.348E+02 | 1.208E+02 | 3.424E-05 | 5.119E-03 | 9.077E+00 |
| 115 | -4.226E-01 | -2.659E+02 | 8.67E+00 | 5.811E+01 | 1.168E+02 | 3.668E-05 | 2.755E-02 | 3.51E+00 | 1.428E+02 | 1.280E+02 | 3.050E-05 | 4.562E-03 | 8.754E+00 |
| 120 | -5.000E-01 | -2.804E+02 | 9.55E+00 | 5.040E+01 | 1.013E+02 | 4.876E-05 | 3.659E-02 | 3.19E+00 | 1.505E+02 | 1.349E+02 | 2.746E-05 | 4.109E-03 | 8.365E+00 |
| 125 | -5.736E-01 | -2.941E+02 | 1.06E+01 | 4.307E+01 | 8.654E+01 | 6.676E-05 | 5.006E-02 | 2.87E+00 | 1.579E+02 | 1.415E+02 | 2.497E-05 | 3.737E-03 | 7.913E+00 |
| 130 | -6.428E-01 | -3.070E+02 | 1.18E+01 | 3.618E+01 | 7.269E+01 | 9.463E-05 | 7.087E-02 | 2.57E+00 | 1.648E+02 | 1.477E+02 | 2.292E-05 | 3.432E-03 | 7.400E+00 |
| 135 | -7.071E-01 | -3.191E+02 | 1.33E+01 | 2.977E+01 | 5.982E+01 | 1.397E-04 | 1.045E-01 | 2.29E+00 | 1.712E+02 | 1.534E+02 | 2.124E-05 | 3.181E-03 | 6.830E+00 |
| 140 | -7.660E-01 | -3.301E+02 | 1.51E+01 | 2.390E+01 | 4.803E+01 | 2.168E-04 | 1.618E-01 | 2.01E+00 | 1.770E+02 | 1.587E+02 | 1.985E-05 | 2.975E-03 | 6.209E+00 |
| 145 | -8.192E-01 | -3.400E+02 | 1.73E+01 | 1.861E+01 | 3.740E+01 | 3.576E-04 | 2.661E-01 | 1.74E+00 | 1.823E+02 | 1.634E+02 | 1.872E-05 | 2.805E-03 | 5.540E+00 |
| 150 | -8.660E-01 | -3.488E+02 | 2.03E+01 | 1.394E+01 | 2.802E+01 | 6.372E-04 | 4.723E-01 | 1.48E+00 | 1.870E+02 | 1.676E+02 | 1.780E-05 | 2.667E-03 | 4.830E+00 |
| 155 | -9.063E-01 | -3.563E+02 | 2.43E+01 | 9.920E+00 | 1.996E+01 | 1.256E-03 | 9.253E-01 | 1.22E+00 | 1.910E+02 | 1.712E+02 | 1.706E-05 | 2.557E-03 | 4.082E+00 |
| 160 | -9.397E-01 | -3.625E+02 | 3.01E+01 | 6.588E+00 | 1.327E+01 | 2.842E-03 | 2.072E+00 | 9.74E-01 | 1.943E+02 | 1.742E+02 | 1.648E-05 | 2.470E-03 | 3.304E+00 |
| 165 | -9.659E-01 | -3.674E+02 | 3.91E+01 | 3.963E+00 | 8.025E+00 | 7.795E-03 | 5.598E+00 | 7.27E-01 | 1.969E+02 | 1.765E+02 | 1.604E-05 | 2.405E-03 | 2.500E+00 |
| 170 | -9.848E-01 | -3.710E+02 | 5.48E+01 | 2.054E+00 | 4.246E+00 | 2.813E-02 | 1.993E+01 | 4.83E-01 | 1.988E+02 | 1.782E+02 | 1.574E-05 | 2.360E-03 | 1.677E+00 |
| 175 | -9.962E-01 | -3.731E+02 | 8.69E+01 | 8.431E-01 | 1.967E+00 | 1.389E-01 | 1.113E+02 | 2.41E-01 | 2.000E+02 | 1.792E+02 | 1.556E-05 | 2.334E-03 | 8.419E-01 |
| 180 | -1.000E+00 | -3.738E+02 | 1.80E+02 | 3.352E-01 | 1.206E+00 | 4.414E-01 | 8.306E+02 | 0. | 2.003E+02 | 1.796E+02 | 1.550E-05 | 2.325E-03 | 0. |

PION (1) + PROTON (2) => KAON (3) + LAMBDA (4) AT 225 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 4.97710E-01 M4 = 1.11559E+00
P2CM= 1.02630E+01 P3CM= 1.02486E+01
E1CM= 1.02640E+01 E2CM= 1.03058E+01 E3CM= 1.02607E+01 E4CM= 1.03091E+01

1-V1LAB = 1.924E-07 1-VCM = 4.153E-03 GCM = 1.09840E+01 ETCM= 2.05698E+01 S = 4.23117E+02 -U=( 4.20724E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -1.974E-04 | 0. | 2.248E+02 | 4.517E+02 | 2.451E-06 | 2.078E-03 | 0. | 1.947E-01 | 1.015E+00 | 8.281E-01 | -2.771E+03 | 0. |
| 1 | 9.998E-01 | -3.224E-02 | 4.56E-02 | 2.248E+02 | 4.516E+02 | 2.451E-06 | 2.079E-03 | 4.02E+01 | 2.773E-01 | 1.030E+00 | 7.588E-01 | -8.749E+02 | 1.789E-01 |
| 2 | 9.994E-01 | -1.283E-01 | 9.12E-02 | 2.247E+02 | 4.515E+02 | 2.452E-06 | 2.080E-03 | 5.36E+01 | 4.441E-01 | 1.076E+00 | 6.301E-01 | -1.511E+02 | 3.577E-01 |
| 3 | 9.986E-01 | -2.885E-01 | 1.37E-01 | 2.247E+02 | 4.514E+02 | 2.454E-06 | 2.081E-03 | 5.70E+01 | 6.399E-01 | 1.153E+00 | 5.024E-01 | -1.610E+01 | 5.364E-01 |
| 4 | 9.976E-01 | -5.126E-01 | 1.82E-01 | 2.245E+02 | 4.511E+02 | 2.457E-06 | 2.083E-03 | 5.67E+01 | 8.550E-01 | 1.260E+00 | 3.917E-01 | 1.344E+01 | 7.149E-01 |
| 5 | 9.962E-01 | -8.007E-01 | 2.28E-01 | 2.244E+02 | 4.508E+02 | 2.460E-06 | 2.086E-03 | 5.51E+01 | 1.089E+00 | 1.398E+00 | 3.015E-01 | 1.906E+01 | 8.932E-01 |
| 6 | 9.945E-01 | -1.153E+00 | 2.74E-01 | 2.242E+02 | 4.504E+02 | 2.464E-06 | 2.090E-03 | 5.29E+01 | 1.344E+00 | 1.566E+00 | 2.306E-01 | 1.831E+01 | 1.071E+00 |
| 7 | 9.925E-01 | -1.568E+00 | 3.20E-01 | 2.240E+02 | 4.500E+02 | 2.469E-06 | 2.094E-03 | 5.04E+01 | 1.621E+00 | 1.764E+00 | 1.762E-01 | 1.592E+01 | 1.249E+00 |
| 8 | 9.903E-01 | -2.047E+00 | 3.65E-01 | 2.237E+02 | 4.495E+02 | 2.475E-06 | 2.099E-03 | 4.79E+01 | 1.923E+00 | 1.993E+00 | 1.350E-01 | 1.333E+01 | 1.426E+00 |
| 9 | 9.877E-01 | -2.590E+00 | 4.11E-01 | 2.234E+02 | 4.489E+02 | 2.481E-06 | 2.104E-03 | 4.54E+01 | 2.251E+00 | 2.252E+00 | 1.040E-01 | 1.099E+01 | 1.603E+00 |
| 10 | 9.848E-01 | -3.196E+00 | 4.57E-01 | 2.231E+02 | 4.483E+02 | 2.488E-06 | 2.110E-03 | 4.31E+01 | 2.607E+00 | 2.542E+00 | 8.065E-02 | 9.003E+00 | 1.780E+00 |
| 15 | 9.659E-01 | -7.168E+00 | 6.88E-01 | 2.210E+02 | 4.440E+02 | 2.536E-06 | 2.151E-03 | 3.33E+01 | 4.825E+00 | 4.439E+00 | 2.570E-02 | 3.411E+00 | 2.653E+00 |
| 20 | 9.397E-01 | -1.269E+01 | 9.21E-01 | 2.180E+02 | 4.381E+02 | 2.605E-06 | 2.209E-03 | 2.67E+01 | 7.814E+00 | 7.075E+00 | 1.004E-02 | 1.454E+00 | 3.505E+00 |
| 25 | 9.063E-01 | -1.971E+01 | 1.16E+00 | 2.143E+02 | 4.306E+02 | 2.697E-06 | 2.287E-03 | 2.20E+01 | 1.158E+01 | 1.043E+01 | 4.607E-03 | 7.011E-01 | 4.331E+00 |
| 30 | 8.660E-01 | -2.818E+01 | 1.40E+00 | 2.098E+02 | 4.215E+02 | 2.814E-06 | 2.386E-03 | 1.85E+01 | 1.611E+01 | 1.448E+01 | 2.388E-03 | 3.744E-01 | 5.124E+00 |
| 35 | 8.192E-01 | -3.804E+01 | 1.65E+00 | 2.045E+02 | 4.109E+02 | 2.961E-06 | 2.510E-03 | 1.60E+01 | 2.138E+01 | 1.919E+01 | 1.359E-03 | 2.172E-01 | 5.878E+00 |
| 40 | 7.660E-01 | -4.922E+01 | 1.90E+00 | 1.986E+02 | 3.990E+02 | 3.141E-06 | 2.663E-03 | 1.39E+01 | 2.734E+01 | 2.452E+01 | 8.317E-04 | 1.346E-01 | 6.588E+00 |
| 45 | 7.071E-01 | -6.161E+01 | 2.16E+00 | 1.920E+02 | 3.857E+02 | 3.361E-06 | 2.850E-03 | 1.23E+01 | 3.395E+01 | 3.045E+01 | 5.395E-04 | 8.814E-02 | 7.247E+00 |
| 50 | 6.428E-01 | -7.514E+01 | 2.44E+00 | 1.848E+02 | 3.712E+02 | 3.628E-06 | 3.076E-03 | 1.10E+01 | 4.116E+01 | 3.691E+01 | 3.671E-04 | 6.037E-02 | 7.851E+00 |
| 55 | 5.736E-01 | -8.970E+01 | 2.72E+00 | 1.770E+02 | 3.556E+02 | 3.953E-06 | 3.351E-03 | 9.88E+00 | 4.892E+01 | 4.387E+01 | 2.599E-04 | 4.296E-02 | 8.395E+00 |
| 60 | 5.000E-01 | -1.052E+02 | 3.01E+00 | 1.688E+02 | 3.391E+02 | 4.349E-06 | 3.687E-03 | 8.93E+00 | 5.717E+01 | 5.126E+01 | 1.903E-04 | 3.158E-02 | 8.876E+00 |
| 65 | 4.226E-01 | -1.215E+02 | 3.33E+00 | 1.601E+02 | 3.216E+02 | 4.833E-06 | 4.097E-03 | 8.11E+00 | 6.585E+01 | 5.903E+01 | 1.435E-04 | 2.388E-02 | 9.288E+00 |
| 70 | 3.420E-01 | -1.384E+02 | 3.66E+00 | 1.510E+02 | 3.035E+02 | 5.429E-06 | 4.601E-03 | 7.39E+00 | 7.489E+01 | 6.713E+01 | 1.109E-04 | 1.851E-02 | 9.631E+00 |
| 75 | 2.588E-01 | -1.559E+02 | 4.01E+00 | 1.417E+02 | 2.847E+02 | 6.167E-06 | 5.226E-03 | 6.75E+00 | 8.421E+01 | 7.549E+01 | 8.773E-05 | 1.466E-02 | 9.899E+00 |
| 80 | 1.736E-01 | -1.738E+02 | 4.38E+00 | 1.322E+02 | 2.656E+02 | 7.090E-06 | 6.008E-03 | 6.18E+00 | 9.376E+01 | 8.405E+01 | 7.077E-05 | 1.185E-02 | 1.009E+01 |
| 85 | 8.716E-02 | -1.920E+02 | 4.78E+00 | 1.225E+02 | 2.461E+02 | 8.257E-06 | 6.996E-03 | 5.66E+00 | 1.035E+02 | 9.274E+01 | 5.813E-05 | 9.745E-03 | 1.021E+01 |
| 90 | 0. | -2.104E+02 | 5.22E+00 | 1.127E+02 | 2.264E+02 | 9.751E-06 | 8.260E-03 | 5.19E+00 | 1.132E+02 | 1.015E+02 | 4.853E-05 | 8.145E-03 | 1.025E+01 |
| 95 | -8.716E-02 | -2.287E+02 | 5.69E+00 | 1.029E+02 | 2.068E+02 | 1.169E-05 | 9.900E-03 | 4.76E+00 | 1.230E+02 | 1.103E+02 | 4.113E-05 | 6.908E-03 | 1.021E+01 |
| 100 | -1.736E-01 | -2.469E+02 | 6.21E+00 | 9.324E+01 | 1.873E+02 | 1.425E-05 | 1.206E-02 | 4.36E+00 | 1.327E+02 | 1.190E+02 | 3.534E-05 | 5.940E-03 | 1.009E+01 |
| 105 | -2.588E-01 | -2.648E+02 | 6.79E+00 | 8.369E+01 | 1.681E+02 | 1.768E-05 | 1.497E-02 | 3.99E+00 | 1.422E+02 | 1.275E+02 | 3.075E-05 | 5.173E-03 | 9.899E+00 |
| 110 | -3.420E-01 | -2.823E+02 | 7.44E+00 | 7.436E+01 | 1.494E+02 | 2.240E-05 | 1.895E-02 | 3.64E+00 | 1.516E+02 | 1.359E+02 | 2.708E-05 | 4.559E-03 | 9.631E+00 |
| 115 | -4.226E-01 | -2.993E+02 | 8.17E+00 | 6.532E+01 | 1.313E+02 | 2.902E-05 | 2.454E-02 | 3.32E+00 | 1.606E+02 | 1.440E+02 | 2.412E-05 | 4.062E-03 | 9.288E+00 |
| 120 | -5.000E-01 | -3.155E+02 | 9.01E+00 | 5.665E+01 | 1.138E+02 | 3.859E-05 | 3.262E-02 | 3.01E+00 | 1.693E+02 | 1.517E+02 | 2.171E-05 | 3.658E-03 | 8.876E+00 |
| 125 | -5.736E-01 | -3.310E+02 | 9.99E+00 | 4.840E+01 | 9.725E+01 | 5.287E-05 | 4.464E-02 | 2.71E+00 | 1.775E+02 | 1.591E+02 | 1.974E-05 | 3.327E-03 | 8.395E+00 |
| 130 | -6.428E-01 | -3.456E+02 | 1.11E+01 | 4.064E+01 | 8.166E+01 | 7.498E-05 | 6.325E-02 | 2.43E+00 | 1.853E+02 | 1.661E+02 | 1.812E-05 | 3.055E-03 | 7.851E+00 |
| 135 | -7.071E-01 | -3.591E+02 | 1.25E+01 | 3.343E+01 | 6.718E+01 | 1.108E-04 | 9.336E-02 | 2.16E+00 | 1.925E+02 | 1.726E+02 | 1.679E-05 | 2.832E-03 | 7.247E+00 |
| 140 | -7.660E-01 | -3.715E+02 | 1.42E+01 | 2.682E+01 | 5.390E+01 | 1.721E-04 | 1.447E-01 | 1.90E+00 | 1.991E+02 | 1.785E+02 | 1.570E-05 | 2.647E-03 | 6.588E+00 |
| 145 | -8.192E-01 | -3.827E+02 | 1.64E+01 | 2.087E+01 | 4.194E+01 | 2.843E-04 | 2.385E-01 | 1.64E+00 | 2.051E+02 | 1.838E+02 | 1.480E-05 | 2.496E-03 | 5.878E+00 |
| 150 | -8.660E-01 | -3.925E+02 | 1.92E+01 | 1.561E+01 | 3.138E+01 | 5.078E-04 | 4.244E-01 | 1.40E+00 | 2.103E+02 | 1.885E+02 | 1.407E-05 | 2.374E-03 | 5.124E+00 |
| 155 | -9.063E-01 | -4.010E+02 | 2.30E+01 | 1.109E+01 | 2.231E+01 | 1.005E-03 | 8.351E-01 | 1.16E+00 | 2.148E+02 | 1.926E+02 | 1.348E-05 | 2.275E-03 | 4.331E+00 |
| 160 | -9.397E-01 | -4.080E+02 | 2.85E+01 | 7.344E+00 | 1.479E+01 | 2.289E-03 | 1.884E+00 | 9.19E-01 | 2.186E+02 | 1.959E+02 | 1.302E-05 | 2.198E-03 | 3.505E+00 |
| 165 | -9.659E-01 | -4.136E+02 | 3.72E+01 | 4.392E+00 | 8.881E+00 | 6.360E-03 | 5.158E+00 | 6.86E-01 | 2.215E+02 | 1.986E+02 | 1.268E-05 | 2.140E-03 | 2.653E+00 |
| 170 | -9.848E-01 | -4.175E+02 | 5.23E+01 | 2.249E+00 | 4.628E+00 | 2.363E-02 | 1.884E+01 | 4.56E-01 | 2.236E+02 | 2.005E+02 | 1.244E-05 | 2.100E-03 | 1.780E+00 |
| 175 | -9.962E-01 | -4.199E+02 | 8.41E+01 | 8.981E-01 | 2.063E+00 | 1.253E-01 | 1.106E+02 | 2.28E-01 | 2.249E+02 | 2.016E+02 | 1.230E-05 | 2.076E-03 | 8.932E-01 |
| 180 | -1.000E+00 | -4.207E+02 | 1.80E+02 | 3.354E-01 | 1.206E+00 | 4.412E-01 | 9.338E+02 | 0. | 2.253E+02 | 2.020E+02 | 1.225E-05 | 2.069E-03 | 0. |

PION (1) + PROTON (2) => KAON (3) + LAMBDA (4) AT 250 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 4.97710E-01 M4 = 1.11559E+00
P2CM= 1.08193E+01 P3CM= 1.08056E+01
E1CM= 1.08202E+01 E2CM= 1.08599E+01 E3CM= 1.08171E+01 E4CM= 1.08631E+01

1-V1LAB = 1.558E-07 1-VCM = 3.739E-03 GCM = 1.15746E+01 ETCM= 2.16802E+01 S = 4.70029E+02 -U=( 4.67637E+02) +T

| Θ3 CM | COS(Θ3) CM | 4-MOM TSFR SQUARE, T | Θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | Θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -1.776E-04 | 0. | 2.498E+02 | 5.019E+02 | 1.985E-06 | 1.871E-03 | 0. | 1.946E-01 | 1.015E+00 | 8.281E-01 | -3.082E+03 | 0. |
| 1 | 9.998E-01 | -3.579E-02 | 4.33E-02 | 2.498E+02 | 5.019E+02 | 1.985E-06 | 1.871E-03 | 4.14E+01 | 2.850E-01 | 1.032E+00 | 7.525E-01 | -8.855E+02 | 1.886E-01 |
| 2 | 9.994E-01 | -1.426E-01 | 8.65E-02 | 2.497E+02 | 5.018E+02 | 1.986E-06 | 1.872E-03 | 5.43E+01 | 4.643E-01 | 1.083E+00 | 6.158E-01 | -1.381E+02 | 3.771E-01 |
| 3 | 9.986E-01 | -3.206E-01 | 1.30E-01 | 2.496E+02 | 5.016E+02 | 1.988E-06 | 1.874E-03 | 5.71E+01 | 6.737E-01 | 1.168E+00 | 4.931E-01 | -8.773E+00 | 5.655E-01 |
| 4 | 9.976E-01 | -5.698E-01 | 1.73E-01 | 2.495E+02 | 5.013E+02 | 1.990E-06 | 1.876E-03 | 5.65E+01 | 9.041E-01 | 1.287E+00 | 3.704E-01 | 1.746E+01 | 7.538E-01 |
| 5 | 9.962E-01 | -8.899E-01 | 2.16E-01 | 2.493E+02 | 5.010E+02 | 1.992E-06 | 1.878E-03 | 5.45E+01 | 1.156E+00 | 1.440E+00 | 2.804E-01 | 2.131E+01 | 9.418E-01 |
| 6 | 9.945E-01 | -1.281E+00 | 2.60E-01 | 2.491E+02 | 5.005E+02 | 1.996E-06 | 1.881E-03 | 5.21E+01 | 1.432E+00 | 1.627E+00 | 2.112E-01 | 1.956E+01 | 1.129E+00 |
| 7 | 9.925E-01 | -1.743E+00 | 3.03E-01 | 2.489E+02 | 5.000E+02 | 2.000E-06 | 1.885E-03 | 4.94E+01 | 1.733E+00 | 1.848E+00 | 1.591E-01 | 1.657E+01 | 1.317E+00 |
| 8 | 9.903E-01 | -2.276E+00 | 3.47E-01 | 2.486E+02 | 4.995E+02 | 2.004E-06 | 1.889E-03 | 4.68E+01 | 2.063E+00 | 2.102E+00 | 1.204E-01 | 1.363E+01 | 1.504E+00 |
| 9 | 9.877E-01 | -2.879E+00 | 3.90E-01 | 2.483E+02 | 4.988E+02 | 2.009E-06 | 1.894E-03 | 4.43E+01 | 2.422E+00 | 2.390E+00 | 9.172E-02 | 1.108E+01 | 1.690E+00 |
| 10 | 9.848E-01 | -3.552E+00 | 4.34E-01 | 2.479E+02 | 4.981E+02 | 2.015E-06 | 1.900E-03 | 4.19E+01 | 2.812E+00 | 2.712E+00 | 7.047E-02 | 8.969E+00 | 1.876E+00 |
| 15 | 9.659E-01 | -7.967E+00 | 6.53E-01 | 2.456E+02 | 4.934E+02 | 2.054E-06 | 1.936E-03 | 3.21E+01 | 5.261E+00 | 4.821E+00 | 2.175E-02 | 3.266E+00 | 2.797E+00 |
| 20 | 9.397E-01 | -1.410E+01 | 8.74E-01 | 2.423E+02 | 4.868E+02 | 2.110E-06 | 1.989E-03 | 2.55E+01 | 8.575E+00 | 7.751E+00 | 8.357E-03 | 1.363E+00 | 3.696E+00 |
| 25 | 9.063E-01 | -2.191E+01 | 1.10E+00 | 2.381E+02 | 4.785E+02 | 2.184E-06 | 2.059E-03 | 2.10E+01 | 1.276E+01 | 1.148E+01 | 3.801E-03 | 6.490E-01 | 4.567E+00 |
| 30 | 8.660E-01 | -3.133E+01 | 1.33E+00 | 2.331E+02 | 4.684E+02 | 2.279E-06 | 2.149E-03 | 1.77E+01 | 1.779E+01 | 1.598E+01 | 1.960E-03 | 3.439E-01 | 5.403E+00 |
| 35 | 8.192E-01 | -4.229E+01 | 1.56E+00 | 2.273E+02 | 4.566E+02 | 2.398E-06 | 2.260E-03 | 1.52E+01 | 2.364E+01 | 2.121E+01 | 1.112E-03 | 1.985E-01 | 6.198E+00 |
| 40 | 7.660E-01 | -5.470E+01 | 1.80E+00 | 2.207E+02 | 4.433E+02 | 2.544E-06 | 2.398E-03 | 1.33E+01 | 3.026E+01 | 2.715E+01 | 6.787E-04 | 1.226E-01 | 6.946E+00 |
| 45 | 7.071E-01 | -6.848E+01 | 2.05E+00 | 2.133E+02 | 4.286E+02 | 2.722E-06 | 2.566E-03 | 1.17E+01 | 3.761E+01 | 3.373E+01 | 4.396E-04 | 8.009E-02 | 7.641E+00 |
| 50 | 6.428E-01 | -8.352E+01 | 2.31E+00 | 2.053E+02 | 4.125E+02 | 2.939E-06 | 2.770E-03 | 1.05E+01 | 4.563E+01 | 4.091E+01 | 2.988E-04 | 5.476E-02 | 8.278E+00 |
| 55 | 5.736E-01 | -9.971E+01 | 2.58E+00 | 1.967E+02 | 3.952E+02 | 3.202E-06 | 3.018E-03 | 9.39E+00 | 5.425E+01 | 4.864E+01 | 2.113E-04 | 3.891E-02 | 8.851E+00 |
| 60 | 5.000E-01 | -1.169E+02 | 2.86E+00 | 1.875E+02 | 3.767E+02 | 3.523E-06 | 3.320E-03 | 8.48E+00 | 6.342E+01 | 5.686E+01 | 1.547E-04 | 2.858E-02 | 9.358E+00 |
| 65 | 4.226E-01 | -1.350E+02 | 3.16E+00 | 1.779E+02 | 3.574E+02 | 3.915E-06 | 3.689E-03 | 7.70E+00 | 7.307E+01 | 6.550E+01 | 1.165E-04 | 2.159E-02 | 9.793E+00 |
| 70 | 3.420E-01 | -1.538E+02 | 3.47E+00 | 1.678E+02 | 3.372E+02 | 4.398E-06 | 4.144E-03 | 7.02E+00 | 8.311E+01 | 7.451E+01 | 9.007E-05 | 1.672E-02 | 1.015E+01 |
| 75 | 2.588E-01 | -1.733E+02 | 3.80E+00 | 1.575E+02 | 3.164E+02 | 4.996E-06 | 4.707E-03 | 6.41E+00 | 9.348E+01 | 8.380E+01 | 7.120E-05 | 1.324E-02 | 1.044E+01 |
| 80 | 1.736E-01 | -1.932E+02 | 4.16E+00 | 1.468E+02 | 2.950E+02 | 5.744E-06 | 5.411E-03 | 5.87E+00 | 1.041E+02 | 9.331E+01 | 5.743E-05 | 1.070E-02 | 1.064E+01 |
| 85 | 8.716E-02 | -2.134E+02 | 4.54E+00 | 1.361E+02 | 2.734E+02 | 6.690E-06 | 6.301E-03 | 5.38E+00 | 1.149E+02 | 1.030E+02 | 4.716E-05 | 8.794E-03 | 1.076E+01 |
| 90 | 0. | -2.338E+02 | 4.95E+00 | 1.252E+02 | 2.516E+02 | 7.901E-06 | 7.441E-03 | 4.93E+00 | 1.257E+02 | 1.127E+02 | 3.936E-05 | 7.347E-03 | 1.081E+01 |
| 95 | -8.716E-02 | -2.542E+02 | 5.40E+00 | 1.143E+02 | 2.297E+02 | 9.473E-06 | 8.920E-03 | 4.52E+00 | 1.366E+02 | 1.224E+02 | 3.335E-05 | 6.231E-03 | 1.076E+01 |
| 100 | -1.736E-01 | -2.744E+02 | 5.90E+00 | 1.036E+02 | 2.081E+02 | 1.155E-05 | 1.087E-02 | 4.14E+00 | 1.474E+02 | 1.321E+02 | 2.865E-05 | 5.357E-03 | 1.064E+01 |
| 105 | -2.588E-01 | -2.943E+02 | 6.45E+00 | 9.295E+01 | 1.864E+02 | 1.433E-05 | 1.349E-02 | 3.79E+00 | 1.580E+02 | 1.416E+02 | 2.493E-05 | 4.664E-03 | 1.044E+01 |
| 110 | -3.420E-01 | -3.138E+02 | 7.06E+00 | 8.258E+01 | 1.659E+02 | 1.816E-05 | 1.708E-02 | 3.46E+00 | 1.683E+02 | 1.509E+02 | 2.196E-05 | 4.109E-03 | 1.015E+01 |
| 115 | -4.226E-01 | -3.326E+02 | 7.76E+00 | 7.254E+01 | 1.458E+02 | 2.354E-05 | 2.213E-02 | 3.15E+00 | 1.784E+02 | 1.599E+02 | 1.955E-05 | 3.661E-03 | 9.793E+00 |
| 120 | -5.000E-01 | -3.507E+02 | 8.56E+00 | 6.290E+01 | 1.264E+02 | 3.130E-05 | 2.942E-02 | 2.85E+00 | 1.880E+02 | 1.686E+02 | 1.760E-05 | 3.297E-03 | 9.358E+00 |
| 125 | -5.736E-01 | -3.679E+02 | 9.48E+00 | 5.373E+01 | 1.080E+02 | 4.290E-05 | 4.029E-02 | 2.57E+00 | 1.972E+02 | 1.768E+02 | 1.600E-05 | 2.998E-03 | 8.851E+00 |
| 130 | -6.428E-01 | -3.841E+02 | 1.06E+01 | 4.511E+01 | 9.063E+01 | 6.087E-05 | 5.711E-02 | 2.30E+00 | 2.058E+02 | 1.845E+02 | 1.469E-05 | 2.753E-03 | 8.278E+00 |
| 135 | -7.071E-01 | -3.992E+02 | 1.19E+01 | 3.709E+01 | 7.453E+01 | 9.001E-05 | 8.436E-02 | 2.05E+00 | 2.138E+02 | 1.917E+02 | 1.361E-05 | 2.551E-03 | 7.641E+00 |
| 140 | -7.660E-01 | -4.129E+02 | 1.35E+01 | 2.975E+01 | 5.978E+01 | 1.399E-04 | 1.309E-01 | 1.80E+00 | 2.212E+02 | 1.983E+02 | 1.272E-05 | 2.385E-03 | 6.946E+00 |
| 145 | -8.192E-01 | -4.254E+02 | 1.55E+01 | 2.313E+01 | 4.648E+01 | 2.314E-04 | 2.160E-01 | 1.56E+00 | 2.278E+02 | 2.042E+02 | 1.199E-05 | 2.249E-03 | 6.198E+00 |
| 150 | -8.660E-01 | -4.363E+02 | 1.82E+01 | 1.729E+01 | 3.475E+01 | 4.142E-04 | 3.853E-01 | 1.33E+00 | 2.336E+02 | 2.094E+02 | 1.140E-05 | 2.138E-03 | 5.403E+00 |
| 155 | -9.063E-01 | -4.457E+02 | 2.19E+01 | 1.226E+01 | 2.466E+01 | 8.224E-04 | 7.609E-01 | 1.10E+00 | 2.387E+02 | 2.139E+02 | 1.092E-05 | 2.049E-03 | 4.567E+00 |
| 160 | -9.397E-01 | -4.535E+02 | 2.71E+01 | 8.099E+00 | 1.630E+01 | 1.883E-03 | 1.727E+00 | 8.72E-01 | 2.428E+02 | 2.177E+02 | 1.055E-05 | 1.980E-03 | 3.696E+00 |
| 165 | -9.659E-01 | -4.597E+02 | 3.55E+01 | 4.820E+00 | 9.737E+00 | 5.288E-03 | 4.781E+00 | 6.51E-01 | 2.461E+02 | 2.206E+02 | 1.028E-05 | 1.928E-03 | 2.797E+00 |
| 170 | -9.848E-01 | -4.641E+02 | 5.02E+01 | 2.443E+00 | 5.009E+00 | 2.013E-02 | 1.786E+01 | 4.33E-01 | 2.484E+02 | 2.227E+02 | 1.008E-05 | 1.892E-03 | 1.876E+00 |
| 175 | -9.962E-01 | -4.667E+02 | 8.15E+01 | 9.522E-01 | 2.159E+00 | 1.138E-01 | 1.096E+02 | 2.16E-01 | 2.499E+02 | 2.240E+02 | 9.967E-06 | 1.870E-03 | 9.418E-01 |
| 180 | -1.000E+00 | -4.676E+02 | 1.80E+02 | 3.356E-01 | 1.206E+00 | 4.410E-01 | 1.037E+03 | 0. | 2.503E+02 | 2.244E+02 | 9.930E-06 | 1.863E-03 | 0. |

PION + PROTON => KAON + LAMBDA AT 275 GEV/C
(1) (2) (3) (4) P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 4.97710E-01 M4 = 1.11559E+00
P2CM= 1.13484E+01 P3CM= 1.13353E+01
E1CM= 1.13493E+01 E2CM= 1.13871E+01 E3CM= 1.13463E+01 E4CM= 1.13901E+01

1-V1LAB = 1.288E-07 1-VCM = 3.400E-03 GCM = 1.21364E+01 ETCM= 2.27364E+01 S = 5.16942E+02 -U=( 5.14550E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -1.615E-04 | 0. | 2.748E+02 | 5.521E+02 | 1.640E-06 | 1.701E-03 | 0. | 1.946E-01 | 1.015E+00 | 8.282E-01 | -3.393E+03 | 0. |
| 1 | 9.998E-01 | -3.935E-02 | 4.12E-02 | 2.748E+02 | 5.521E+02 | 1.640E-06 | 1.702E-03 | 4.25E+01 | 2.926E-01 | 1.034E+00 | 7.463E-01 | -8.908E+02 | 1.978E-01 |
| 2 | 9.994E-01 | -1.569E-01 | 8.25E-02 | 2.747E+02 | 5.520E+02 | 1.641E-06 | 1.702E-03 | 5.49E+01 | 4.837E-01 | 1.090E+00 | 6.022E-01 | -1.256E+02 | 3.956E-01 |
| 3 | 9.986E-01 | -3.527E-01 | 1.24E-01 | 2.746E+02 | 5.518E+02 | 1.642E-06 | 1.704E-03 | 5.71E+01 | 7.062E-01 | 1.184E+00 | 4.651E-01 | -2.111E+00 | 5.932E-01 |
| 4 | 9.976E-01 | -6.269E-01 | 1.65E-01 | 2.745E+02 | 5.515E+02 | 1.644E-06 | 1.706E-03 | 5.62E+01 | 9.517E-01 | 1.314E+00 | 3.518E-01 | 2.101E+01 | 7.907E-01 |
| 5 | 9.962E-01 | -9.792E-01 | 2.06E-01 | 2.743E+02 | 5.511E+02 | 1.646E-06 | 1.708E-03 | 5.40E+01 | 1.221E+00 | 1.483E+00 | 2.617E-01 | 2.325E+01 | 9.879E-01 |
| 6 | 9.945E-01 | -1.410E+00 | 2.48E-01 | 2.741E+02 | 5.506E+02 | 1.649E-06 | 1.711E-03 | 5.13E+01 | 1.518E+00 | 1.688E+00 | 1.943E-01 | 2.059E+01 | 1.185E+00 |
| 7 | 9.925E-01 | -1.918E+00 | 2.89E-01 | 2.738E+02 | 5.501E+02 | 1.652E-06 | 1.714E-03 | 4.86E+01 | 1.843E+00 | 1.931E+00 | 1.445E-01 | 1.708E+01 | 1.381E+00 |
| 8 | 9.903E-01 | -2.504E+00 | 3.31E-01 | 2.735E+02 | 5.495E+02 | 1.656E-06 | 1.718E-03 | 4.58E+01 | 2.200E+00 | 2.211E+00 | 1.081E-01 | 1.383E+01 | 1.578E+00 |
| 9 | 9.877E-01 | -3.168E+00 | 3.72E-01 | 2.731E+02 | 5.487E+02 | 1.660E-06 | 1.723E-03 | 4.32E+01 | 2.590E+00 | 2.528E+00 | 8.155E-02 | 1.110E+01 | 1.773E+00 |
| 10 | 9.848E-01 | -3.909E+00 | 4.14E-01 | 2.727E+02 | 5.480E+02 | 1.665E-06 | 1.728E-03 | 4.07E+01 | 3.016E+00 | 2.882E+00 | 6.212E-02 | 8.895E+00 | 1.968E+00 |
| 15 | 9.659E-01 | -8.767E+00 | 6.22E-01 | 2.701E+02 | 5.428E+02 | 1.697E-06 | 1.761E-03 | 3.10E+01 | 5.696E+00 | 5.203E+00 | 1.865E-02 | 3.129E+00 | 2.934E+00 |
| 20 | 9.397E-01 | -1.552E+01 | 8.33E-01 | 2.665E+02 | 5.355E+02 | 1.743E-06 | 1.809E-03 | 2.45E+01 | 9.334E+00 | 8.427E+00 | 7.066E-03 | 1.282E+00 | 3.877E+00 |
| 25 | 9.063E-01 | -2.410E+01 | 1.05E+00 | 2.620E+02 | 5.263E+02 | 1.805E-06 | 1.872E-03 | 2.01E+01 | 1.393E+01 | 1.253E+01 | 3.190E-03 | 6.039E-01 | 4.791E+00 |
| 30 | 8.660E-01 | -3.447E+01 | 1.27E+00 | 2.564E+02 | 5.152E+02 | 1.883E-06 | 1.954E-03 | 1.69E+01 | 1.947E+01 | 1.748E+01 | 1.638E-03 | 3.180E-01 | 5.668E+00 |
| 35 | 8.192E-01 | -4.653E+01 | 1.49E+00 | 2.500E+02 | 5.023E+02 | 1.982E-06 | 2.055E-03 | 1.45E+01 | 2.590E+01 | 2.324E+01 | 9.261E-04 | 1.828E-01 | 6.502E+00 |
| 40 | 7.660E-01 | -6.019E+01 | 1.72E+00 | 2.427E+02 | 4.877E+02 | 2.102E-06 | 2.181E-03 | 1.27E+01 | 3.319E+01 | 2.977E+01 | 5.644E-04 | 1.126E-01 | 7.286E+00 |
| 45 | 7.071E-01 | -7.535E+01 | 1.96E+00 | 2.346E+02 | 4.715E+02 | 2.249E-06 | 2.333E-03 | 1.12E+01 | 4.127E+01 | 3.701E+01 | 3.651E-04 | 7.338E-02 | 8.015E+00 |
| 50 | 6.428E-01 | -9.190E+01 | 2.20E+00 | 2.258E+02 | 4.537E+02 | 2.429E-06 | 2.519E-03 | 9.98E+00 | 5.009E+01 | 4.492E+01 | 2.479E-04 | 5.010E-02 | 8.683E+00 |
| 55 | 5.736E-01 | -1.097E+02 | 2.46E+00 | 2.163E+02 | 4.347E+02 | 2.646E-06 | 2.745E-03 | 8.97E+00 | 5.959E+01 | 5.342E+01 | 1.752E-04 | 3.556E-02 | 9.285E+00 |
| 60 | 5.000E-01 | -1.286E+02 | 2.73E+00 | 2.063E+02 | 4.144E+02 | 2.911E-06 | 3.019E-03 | 8.10E+00 | 6.967E+01 | 6.246E+01 | 1.282E-04 | 2.609E-02 | 9.817E+00 |
| 65 | 4.226E-01 | -1.485E+02 | 3.01E+00 | 1.956E+02 | 3.931E+02 | 3.236E-06 | 3.356E-03 | 7.35E+00 | 8.029E+01 | 7.197E+01 | 9.653E-05 | 1.970E-02 | 1.027E+01 |
| 70 | 3.420E-01 | -1.693E+02 | 3.31E+00 | 1.846E+02 | 3.709E+02 | 3.635E-06 | 3.769E-03 | 6.70E+00 | 9.134E+01 | 8.188E+01 | 7.458E-05 | 1.525E-02 | 1.065E+01 |
| 75 | 2.588E-01 | -1.907E+02 | 3.62E+00 | 1.732E+02 | 3.480E+02 | 4.129E-06 | 4.281E-03 | 6.12E+00 | 1.027E+02 | 9.210E+01 | 5.894E-05 | 1.207E-02 | 1.095E+01 |
| 80 | 1.736E-01 | -2.126E+02 | 3.96E+00 | 1.615E+02 | 3.245E+02 | 4.748E-06 | 4.922E-03 | 5.60E+00 | 1.144E+02 | 1.026E+02 | 4.753E-05 | 9.748E-03 | 1.116E+01 |
| 85 | 8.716E-02 | -2.349E+02 | 4.33E+00 | 1.497E+02 | 3.007E+02 | 5.530E-06 | 5.733E-03 | 5.13E+00 | 1.263E+02 | 1.132E+02 | 3.902E-05 | 8.012E-03 | 1.129E+01 |
| 90 | 0. | -2.573E+02 | 4.72E+00 | 1.377E+02 | 2.767E+02 | 6.532E-06 | 6.770E-03 | 4.70E+00 | 1.382E+02 | 1.239E+02 | 3.256E-05 | 6.692E-03 | 1.134E+01 |
| 95 | -8.716E-02 | -2.797E+02 | 5.15E+00 | 1.258E+02 | 2.527E+02 | 7.832E-06 | 8.116E-03 | 4.31E+00 | 1.502E+02 | 1.346E+02 | 2.759E-05 | 5.674E-03 | 1.129E+01 |
| 100 | -1.736E-01 | -3.020E+02 | 5.62E+00 | 1.139E+02 | 2.288E+02 | 9.548E-06 | 9.892E-03 | 3.95E+00 | 1.620E+02 | 1.453E+02 | 2.370E-05 | 4.877E-03 | 1.116E+01 |
| 105 | -2.588E-01 | -3.239E+02 | 6.15E+00 | 1.022E+02 | 2.054E+02 | 1.185E-05 | 1.228E-02 | 3.61E+00 | 1.737E+02 | 1.557E+02 | 2.062E-05 | 4.246E-03 | 1.095E+01 |
| 110 | -3.420E-01 | -3.453E+02 | 6.74E+00 | 9.081E+01 | 1.825E+02 | 1.502E-05 | 1.555E-02 | 3.30E+00 | 1.851E+02 | 1.659E+02 | 1.816E-05 | 3.740E-03 | 1.065E+01 |
| 115 | -4.226E-01 | -3.660E+02 | 7.40E+00 | 7.976E+01 | 1.603E+02 | 1.947E-05 | 2.015E-02 | 3.00E+00 | 1.962E+02 | 1.759E+02 | 1.617E-05 | 3.332E-03 | 1.027E+01 |
| 120 | -5.000E-01 | -3.859E+02 | 8.16E+00 | 6.915E+01 | 1.389E+02 | 2.590E-05 | 2.679E-02 | 2.72E+00 | 2.068E+02 | 1.854E+02 | 1.455E-05 | 3.000E-03 | 9.817E+00 |
| 125 | -5.736E-01 | -4.048E+02 | 9.05E+00 | 5.906E+01 | 1.187E+02 | 3.550E-05 | 3.671E-02 | 2.45E+00 | 2.169E+02 | 1.944E+02 | 1.323E-05 | 2.728E-03 | 9.285E+00 |
| 130 | -6.428E-01 | -4.226E+02 | 1.01E+01 | 4.957E+01 | 9.961E+01 | 5.040E-05 | 5.206E-02 | 2.20E+00 | 2.264E+02 | 2.029E+02 | 1.214E-05 | 2.505E-03 | 8.663E+00 |
| 135 | -7.071E-01 | -4.392E+02 | 1.13E+01 | 4.075E+01 | 8.189E+01 | 7.457E-05 | 7.694E-02 | 1.95E+00 | 2.352E+02 | 2.108E+02 | 1.125E-05 | 2.321E-03 | 8.015E+00 |
| 140 | -7.660E-01 | -4.544E+02 | 1.29E+01 | 3.267E+01 | 6.565E+01 | 1.160E-04 | 1.195E-01 | 1.72E+00 | 2.433E+02 | 2.181E+02 | 1.052E-05 | 2.170E-03 | 7.286E+00 |
| 145 | -8.192E-01 | -4.680E+02 | 1.48E+01 | 2.539E+01 | 5.102E+01 | 1.921E-04 | 1.975E-01 | 1.49E+00 | 2.505E+02 | 2.246E+02 | 9.913E-06 | 2.046E-03 | 6.502E+00 |
| 150 | -8.660E-01 | -4.801E+02 | 1.74E+01 | 1.896E+01 | 3.811E+01 | 3.443E-04 | 3.528E-01 | 1.26E+00 | 2.570E+02 | 2.303E+02 | 9.424E-06 | 1.945E-03 | 5.668E+00 |
| 155 | -9.063E-01 | -4.904E+02 | 2.09E+01 | 1.344E+01 | 2.702E+01 | 6.853E-04 | 6.988E-01 | 1.05E+00 | 2.625E+02 | 2.353E+02 | 9.031E-06 | 1.864E-03 | 4.791E+00 |
| 160 | -9.397E-01 | -4.990E+02 | 2.60E+01 | 8.855E+00 | 1.782E+01 | 1.576E-03 | 1.594E+00 | 8.32E-01 | 2.671E+02 | 2.394E+02 | 8.724E-06 | 1.801E-03 | 3.877E+00 |
| 165 | -9.659E-01 | -5.058E+02 | 3.40E+01 | 5.248E+00 | 1.059E+01 | 4.466E-03 | 4.454E+00 | 6.21E-01 | 2.707E+02 | 2.426E+02 | 8.494E-06 | 1.754E-03 | 2.934E+00 |
| 170 | -9.848E-01 | -5.106E+02 | 4.83E+01 | 2.637E+00 | 5.391E+00 | 1.735E-02 | 1.697E+01 | 4.13E-01 | 2.733E+02 | 2.449E+02 | 8.334E-06 | 1.721E-03 | 1.968E+00 |
| 175 | -9.962E-01 | -5.136E+02 | 7.92E+01 | 1.006E+00 | 2.254E+00 | 1.038E-01 | 1.084E+02 | 2.06E-01 | 2.748E+02 | 2.463E+02 | 8.239E-06 | 1.701E-03 | 9.879E-01 |
| 180 | -1.000E+00 | -5.146E+02 | 1.80E+02 | 3.357E-01 | 1.206E+00 | 4.408E-01 | 1.140E+03 | 0. | 2.753E+02 | 2.468E+02 | 8.208E-06 | 1.695E-03 | 0. |

PION (1) + PROTON (2) => KAON (3) + LAMBDA (4) AT 300 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 4.97710E-01 M4 = 1.11559E+00
P2CM= 1.18539E+01 P3CM= 1.18414E+01
E1CM= 1.18547E+01 E2CM= 1.18909E+01 E3CM= 1.18518E+01 E4CM= 1.18938E+01

1-V1LAB = 1.082E-07 1-VCM = 3.118E-03 GCM = 1.26734E+01 ETCM= 2.37456E+01 S = 5.63855E+02 -U=( 5.61463E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -1.480E-04 | 0. | 2.998E+02 | 6.024E+02 | 1.378E-06 | 1.560E-03 | 0. | 1.945E-01 | 1.015E+00 | 8.282E-01 | -3.705E+03 | 0. |
| 1 | 9.998E-01 | -4.290E-02 | 3.95E-02 | 2.998E+02 | 6.023E+02 | 1.378E-06 | 1.560E-03 | 4.35E+01 | 3.000E-01 | 1.036E+00 | 7.403E-01 | -8.919E+02 | 2.067E-01 |
| 2 | 9.994E-01 | -1.712E-01 | 7.90E-02 | 2.997E+02 | 6.022E+02 | 1.379E-06 | 1.561E-03 | 5.53E+01 | 5.026E-01 | 1.097E+00 | 5.893E-01 | -1.138E+02 | 4.133E-01 |
| 3 | 9.986E-01 | -3.849E-01 | 1.19E-01 | 2.996E+02 | 6.020E+02 | 1.380E-06 | 1.562E-03 | 5.71E+01 | 7.377E-01 | 1.199E+00 | 4.484E-01 | 3.976E+00 | 6.197E-01 |
| 4 | 9.976E-01 | -6.840E-01 | 1.58E-01 | 2.994E+02 | 6.016E+02 | 1.381E-06 | 1.564E-03 | 5.59E+01 | 9.980E-01 | 1.342E+00 | 3.333E-01 | 2.419E+01 | 8.260E-01 |
| 5 | 9.962E-01 | -1.068E+00 | 1.98E-01 | 2.992E+02 | 6.012E+02 | 1.383E-06 | 1.566E-03 | 5.34E+01 | 1.285E+00 | 1.525E+00 | 2.449E-01 | 2.493E+01 | 1.032E+00 |
| 6 | 9.945E-01 | -1.538E+00 | 2.37E-01 | 2.990E+02 | 6.007E+02 | 1.386E-06 | 1.569E-03 | 5.06E+01 | 1.602E+00 | 1.750E+00 | 1.794E-01 | 2.145E+01 | 1.238E+00 |
| 7 | 9.925E-01 | -2.093E+00 | 2.77E-01 | 2.987E+02 | 6.001E+02 | 1.388E-06 | 1.572E-03 | 4.77E+01 | 1.951E+00 | 2.015E+00 | 1.319E-01 | 1.747E+01 | 1.443E+00 |
| 8 | 9.903E-01 | -2.732E+00 | 3.16E-01 | 2.983E+02 | 5.994E+02 | 1.391E-06 | 1.575E-03 | 4.49E+01 | 2.336E+00 | 2.320E+00 | 9.765E-02 | 1.395E+01 | 1.648E+00 |
| 9 | 9.877E-01 | -3.456E+00 | 3.56E-01 | 2.980E+02 | 5.987E+02 | 1.395E-06 | 1.579E-03 | 4.22E+01 | 2.757E+00 | 2.666E+00 | 7.301E-02 | 1.108E+01 | 1.852E+00 |
| 10 | 9.848E-01 | -4.265E+00 | 3.96E-01 | 2.975E+02 | 5.978E+02 | 1.399E-06 | 1.584E-03 | 3.97E+01 | 3.217E+00 | 3.052E+00 | 5.519E-02 | 8.793E+00 | 2.056E+00 |
| 15 | 9.659E-01 | -9.566E+00 | 5.96E-01 | 2.947E+02 | 5.921E+02 | 1.426E-06 | 1.614E-03 | 3.00E+01 | 6.129E+00 | 5.585E+00 | 1.616E-02 | 2.999E+00 | 3.065E+00 |
| 20 | 9.397E-01 | -1.693E+01 | 7.98E-01 | 2.908E+02 | 5.842E+02 | 1.465E-06 | 1.658E-03 | 2.37E+01 | 1.009E+01 | 9.102E+00 | 6.053E-03 | 1.209E+00 | 4.050E+00 |
| 25 | 9.063E-01 | -2.630E+01 | 1.00E+00 | 2.858E+02 | 5.742E+02 | 1.516E-06 | 1.717E-03 | 1.93E+01 | 1.511E+01 | 1.358E+01 | 2.715E-03 | 5.646E-01 | 5.004E+00 |
| 30 | 8.660E-01 | -3.761E+01 | 1.21E+00 | 2.798E+02 | 5.621E+02 | 1.582E-06 | 1.791E-03 | 1.63E+01 | 2.115E+01 | 1.898E+01 | 1.389E-03 | 2.957E-01 | 5.921E+00 |
| 35 | 8.192E-01 | -5.077E+01 | 1.43E+00 | 2.728E+02 | 5.480E+02 | 1.665E-06 | 1.885E-03 | 1.40E+01 | 2.817E+01 | 2.527E+01 | 7.835E-04 | 1.693E-01 | 6.792E+00 |
| 40 | 7.660E-01 | -6.568E+01 | 1.65E+00 | 2.648E+02 | 5.320E+02 | 1.766E-06 | 1.999E-03 | 1.22E+01 | 3.612E+01 | 3.239E+01 | 4.767E-04 | 1.041E-01 | 7.611E+00 |
| 45 | 7.071E-01 | -8.222E+01 | 1.87E+00 | 2.560E+02 | 5.143E+02 | 1.890E-06 | 2.139E-03 | 1.07E+01 | 4.494E+01 | 4.029E+01 | 3.080E-04 | 6.771E-02 | 8.373E+00 |
| 50 | 6.428E-01 | -1.003E+02 | 2.11E+00 | 2.464E+02 | 4.950E+02 | 2.041E-06 | 2.310E-03 | 9.57E+00 | 5.456E+01 | 4.892E+01 | 2.090E-04 | 4.617E-02 | 9.071E+00 |
| 55 | 5.736E-01 | -1.197E+02 | 2.36E+00 | 2.360E+02 | 4.742E+02 | 2.224E-06 | 2.517E-03 | 8.59E+00 | 6.492E+01 | 5.820E+01 | 1.476E-04 | 3.274E-02 | 9.700E+00 |
| 60 | 5.000E-01 | -1.404E+02 | 2.61E+00 | 2.250E+02 | 4.521E+02 | 2.446E-06 | 2.769E-03 | 7.76E+00 | 7.593E+01 | 6.807E+01 | 1.079E-04 | 2.401E-02 | 1.025E+01 |
| 65 | 4.226E-01 | -1.621E+02 | 2.88E+00 | 2.134E+02 | 4.288E+02 | 2.719E-06 | 3.077E-03 | 7.04E+00 | 8.750E+01 | 7.844E+01 | 8.126E-05 | 1.812E-02 | 1.073E+01 |
| 70 | 3.420E-01 | -1.847E+02 | 3.17E+00 | 2.014E+02 | 4.046E+02 | 3.054E-06 | 3.456E-03 | 6.42E+00 | 9.956E+01 | 8.925E+01 | 6.277E-05 | 1.402E-02 | 1.113E+01 |
| 75 | 2.588E-01 | -2.081E+02 | 3.47E+00 | 1.889E+02 | 3.796E+02 | 3.470E-06 | 3.927E-03 | 5.86E+00 | 1.120E+02 | 1.004E+02 | 4.959E-05 | 1.109E-02 | 1.144E+01 |
| 80 | 1.736E-01 | -2.320E+02 | 3.80E+00 | 1.762E+02 | 3.540E+02 | 3.990E-06 | 4.515E-03 | 5.36E+00 | 1.248E+02 | 1.118E+02 | 3.998E-05 | 8.954E-03 | 1.166E+01 |
| 85 | 8.716E-02 | -2.563E+02 | 4.14E+00 | 1.632E+02 | 3.280E+02 | 4.648E-06 | 5.258E-03 | 4.91E+00 | 1.377E+02 | 1.234E+02 | 3.282E-05 | 7.357E-03 | 1.180E+01 |
| 90 | 0. | -2.807E+02 | 4.52E+00 | 1.502E+02 | 3.018E+02 | 5.490E-06 | 6.210E-03 | 4.51E+00 | 1.507E+02 | 1.351E+02 | 2.739E-05 | 6.145E-03 | 1.184E+01 |
| 95 | -8.716E-02 | -3.052E+02 | 4.93E+00 | 1.372E+02 | 2.756E+02 | 6.583E-06 | 7.445E-03 | 4.13E+00 | 1.638E+02 | 1.468E+02 | 2.320E-05 | 5.209E-03 | 1.180E+01 |
| 100 | -1.736E-01 | -3.295E+02 | 5.39E+00 | 1.242E+02 | 2.496E+02 | 8.026E-06 | 9.075E-03 | 3.78E+00 | 1.767E+02 | 1.584E+02 | 1.993E-05 | 4.477E-03 | 1.166E+01 |
| 105 | -2.588E-01 | -3.534E+02 | 5.89E+00 | 1.115E+02 | 2.240E+02 | 9.966E-06 | 1.127E-02 | 3.46E+00 | 1.895E+02 | 1.698E+02 | 1.734E-05 | 3.897E-03 | 1.144E+01 |
| 110 | -3.420E-01 | -3.767E+02 | 6.45E+00 | 9.903E+01 | 1.990E+02 | 1.263E-05 | 1.427E-02 | 3.16E+00 | 2.019E+02 | 1.810E+02 | 1.527E-05 | 3.432E-03 | 1.113E+01 |
| 115 | -4.226E-01 | -3.994E+02 | 7.09E+00 | 8.698E+01 | 1.748E+02 | 1.637E-05 | 1.850E-02 | 2.88E+00 | 2.140E+02 | 1.918E+02 | 1.359E-05 | 3.058E-03 | 1.073E+01 |
| 120 | -5.000E-01 | -4.211E+02 | 7.82E+00 | 7.540E+01 | 1.515E+02 | 2.179E-05 | 2.460E-02 | 2.61E+00 | 2.255E+02 | 2.022E+02 | 1.223E-05 | 2.753E-03 | 1.025E+01 |
| 125 | -5.736E-01 | -4.418E+02 | 8.66E+00 | 6.439E+01 | 1.294E+02 | 2.987E-05 | 3.371E-02 | 2.35E+00 | 2.365E+02 | 2.120E+02 | 1.112E-05 | 2.503E-03 | 9.700E+00 |
| 130 | -6.428E-01 | -4.612E+02 | 9.66E+00 | 5.404E+01 | 1.086E+02 | 4.241E-05 | 4.783E-02 | 2.11E+00 | 2.469E+02 | 2.213E+02 | 1.021E-05 | 2.298E-03 | 9.071E+00 |
| 135 | -7.071E-01 | -4.792E+02 | 1.09E+01 | 4.442E+01 | 8.924E+01 | 6.278E-05 | 7.072E-02 | 1.87E+00 | 2.565E+02 | 2.299E+02 | 9.457E-06 | 2.129E-03 | 8.373E+00 |
| 140 | -7.660E-01 | -4.958E+02 | 1.23E+01 | 3.560E+01 | 7.153E+01 | 9.773E-05 | 1.099E-01 | 1.64E+00 | 2.653E+02 | 2.378E+02 | 8.839E-06 | 1.990E-03 | 7.611E+00 |
| 145 | -8.192E-01 | -5.107E+02 | 1.42E+01 | 2.765E+01 | 5.557E+01 | 1.620E-04 | 1.818E-01 | 1.42E+00 | 2.733E+02 | 2.450E+02 | 8.332E-06 | 1.877E-03 | 6.792E+00 |
| 150 | -8.660E-01 | -5.239E+02 | 1.67E+01 | 2.064E+01 | 4.148E+01 | 2.907E-04 | 3.254E-01 | 1.21E+00 | 2.803E+02 | 2.513E+02 | 7.920E-06 | 1.784E-03 | 5.921E+00 |
| 155 | -9.063E-01 | -5.352E+02 | 2.00E+01 | 1.461E+01 | 2.937E+01 | 5.799E-04 | 6.461E-01 | 1.00E+00 | 2.863E+02 | 2.567E+02 | 7.591E-06 | 1.710E-03 | 5.004E+00 |
| 160 | -9.397E-01 | -5.445E+02 | 2.49E+01 | 9.610E+00 | 1.933E+01 | 1.339E-03 | 1.480E+00 | 7.97E-01 | 2.913E+02 | 2.611E+02 | 7.333E-06 | 1.652E-03 | 4.050E+00 |
| 165 | -9.659E-01 | -5.519E+02 | 3.27E+01 | 5.676E+00 | 1.145E+01 | 3.822E-03 | 4.169E+00 | 5.95E-01 | 2.952E+02 | 2.646E+02 | 7.139E-06 | 1.609E-03 | 3.065E+00 |
| 170 | -9.848E-01 | -5.572E+02 | 4.66E+01 | 2.830E+00 | 5.773E+00 | 1.512E-02 | 1.615E+01 | 3.95E-01 | 2.981E+02 | 2.672E+02 | 7.004E-06 | 1.578E-03 | 2.056E+00 |
| 175 | -9.962E-01 | -5.604E+02 | 7.72E+01 | 1.059E+00 | 2.350E+00 | 9.504E-02 | 1.071E+02 | 1.97E-01 | 2.998E+02 | 2.687E+02 | 6.925E-06 | 1.560E-03 | 1.032E+00 |
| 180 | -1.000E+00 | -5.615E+02 | 1.80E+02 | 3.358E-01 | 1.206E+00 | 4.407E-01 | 1.243E+03 | 0. | 3.003E+02 | 2.692E+02 | 6.899E-06 | 1.554E-03 | 0. |

PION (1) + PROTON (2) => KAON (3) + LAMBDA (4) AT 350 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 4.97710E-01 M4 = 1.11559E+00
P2CM= 1.28051E+01 P3CM= 1.27935E+01
E1CM= 1.28059E+01 E2CM= 1.28394E+01 E3CM= 1.28032E+01 E4CM= 1.28421E+01

1-V1LAB = 7.951E-08 1-VCM = 2.674E-03 GCM = 1.36843E+01 ETCM= 2.56453E+01 S = 6.57681E+02 -U=( 6.55289E+02) +T

| Θ3 CM | COS(Θ3) CM | 4-MOM TSFR SQUARE, T | Θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | Θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -1.268E-04 | 0. | 3.498E+02 | 7.028E+02 | 1.012E-06 | 1.338E-03 | 0. | 1.945E-01 | 1.015E+00 | 8.283E-01 | -4.327E+03 | 0. |
| 1 | 9.998E-01 | -5.003E-02 | 3.66E-02 | 3.498E+02 | 7.028E+02 | 1.012E-06 | 1.338E-03 | 4.53E+01 | 3.143E-01 | 1.039E+00 | 7.289E-01 | -8.849E+02 | 2.233E-01 |
| 2 | 9.994E-01 | -1.997E-01 | 7.32E-02 | 3.497E+02 | 7.026E+02 | 1.013E-06 | 1.338E-03 | 5.60E+01 | 5.385E-01 | 1.110E+00 | 5.653E-01 | -9.192E+01 | 4.465E-01 |
| 3 | 9.986E-01 | -4.492E-01 | 1.10E-01 | 3.496E+02 | 7.023E+02 | 1.014E-06 | 1.339E-03 | 5.70E+01 | 7.981E-01 | 1.230E+00 | 4.181E-01 | 1.472E+01 | 6.696E-01 |
| 4 | 9.976E-01 | -7.983E-01 | 1.46E-01 | 3.494E+02 | 7.020E+02 | 1.015E-06 | 1.341E-03 | 5.52E+01 | 1.087E+00 | 1.396E+00 | 3.021E-01 | 2.961E+01 | 8.924E-01 |
| 5 | 9.962E-01 | -1.247E+00 | 1.83E-01 | 3.491E+02 | 7.015E+02 | 1.016E-06 | 1.343E-03 | 5.23E+01 | 1.409E+00 | 1.611E+00 | 2.161E-01 | 2.767E+01 | 1.115E+00 |
| 6 | 9.945E-01 | -1.795E+00 | 2.20E-01 | 3.488E+02 | 7.009E+02 | 1.018E-06 | 1.345E-03 | 4.92E+01 | 1.766E+00 | 1.872E+00 | 1.545E-01 | 2.275E+01 | 1.337E+00 |
| 7 | 9.925E-01 | -2.442E+00 | 2.56E-01 | 3.485E+02 | 7.002E+02 | 1.020E-06 | 1.348E-03 | 4.61E+01 | 2.163E+00 | 2.182E+00 | 1.112E-01 | 1.798E+01 | 1.559E+00 |
| 8 | 9.903E-01 | -3.189E+00 | 2.93E-01 | 3.481E+02 | 6.994E+02 | 1.022E-06 | 1.351E-03 | 4.32E+01 | 2.603E+00 | 2.538E+00 | 8.088E-02 | 1.403E+01 | 1.781E+00 |
| 9 | 9.877E-01 | -4.034E+00 | 3.30E-01 | 3.477E+02 | 6.985E+02 | 1.025E-06 | 1.354E-03 | 4.04E+01 | 3.087E+00 | 2.942E+00 | 5.954E-02 | 1.093E+01 | 2.001E+00 |
| 10 | 9.848E-01 | -4.978E+00 | 3.67E-01 | 3.472E+02 | 6.975E+02 | 1.028E-06 | 1.358E-03 | 3.79E+01 | 3.617E+00 | 3.393E+00 | 4.442E-02 | 8.538E+00 | 2.222E+00 |
| 15 | 9.659E-01 | -1.116E+01 | 5.52E-01 | 3.439E+02 | 6.909E+02 | 1.048E-06 | 1.384E-03 | 2.83E+01 | 6.993E+00 | 6.348E+00 | 1.249E-02 | 2.765E+00 | 3.311E+00 |
| 20 | 9.397E-01 | -1.976E+01 | 7.39E-01 | 3.393E+02 | 6.817E+02 | 1.076E-06 | 1.422E-03 | 2.21E+01 | 1.161E+01 | 1.045E+01 | 4.586E-03 | 1.085E+00 | 4.376E+00 |
| 25 | 9.063E-01 | -3.070E+01 | 9.29E-01 | 3.334E+02 | 6.700E+02 | 1.114E-06 | 1.472E-03 | 1.80E+01 | 1.746E+01 | 1.568E+01 | 2.036E-03 | 4.993E-01 | 5.407E+00 |
| 30 | 8.660E-01 | -4.390E+01 | 1.12E+00 | 3.264E+02 | 6.558E+02 | 1.162E-06 | 1.536E-03 | 1.51E+01 | 2.450E+01 | 2.198E+01 | 1.035E-03 | 2.592E-01 | 6.397E+00 |
| 35 | 8.192E-01 | -5.925E+01 | 1.32E+00 | 3.182E+02 | 6.394E+02 | 1.223E-06 | 1.616E-03 | 1.30E+01 | 3.269E+01 | 2.932E+01 | 5.818E-04 | 1.476E-01 | 7.338E+00 |
| 40 | 7.660E-01 | -7.665E+01 | 1.53E+00 | 3.090E+02 | 6.208E+02 | 1.298E-06 | 1.715E-03 | 1.13E+01 | 4.197E+01 | 3.763E+01 | 3.531E-04 | 9.037E-02 | 8.224E+00 |
| 45 | 7.071E-01 | -9.597E+01 | 1.74E+00 | 2.987E+02 | 6.001E+02 | 1.389E-06 | 1.835E-03 | 9.97E+00 | 5.226E+01 | 4.686E+01 | 2.278E-04 | 5.864E-02 | 9.046E+00 |
| 50 | 6.428E-01 | -1.170E+02 | 1.95E+00 | 2.874E+02 | 5.775E+02 | 1.499E-06 | 1.981E-03 | 8.88E+00 | 6.349E+01 | 5.692E+01 | 1.543E-04 | 3.991E-02 | 9.800E+00 |
| 55 | 5.736E-01 | -1.397E+02 | 2.18E+00 | 2.754E+02 | 5.532E+02 | 1.634E-06 | 2.158E-03 | 7.97E+00 | 7.558E+01 | 6.776E+01 | 1.089E-04 | 2.826E-02 | 1.048E+01 |
| 60 | 5.000E-01 | -1.638E+02 | 2.42E+00 | 2.625E+02 | 5.274E+02 | 1.797E-06 | 2.375E-03 | 7.20E+00 | 8.843E+01 | 7.927E+01 | 7.957E-05 | 2.070E-02 | 1.108E+01 |
| 65 | 4.226E-01 | -1.892E+02 | 2.67E+00 | 2.490E+02 | 5.003E+02 | 1.998E-06 | 2.639E-03 | 6.53E+00 | 1.019E+02 | 9.138E+01 | 5.988E-05 | 1.561E-02 | 1.159E+01 |
| 70 | 3.420E-01 | -2.156E+02 | 2.93E+00 | 2.349E+02 | 4.720E+02 | 2.244E-06 | 2.965E-03 | 5.95E+00 | 1.160E+02 | 1.040E+02 | 4.623E-05 | 1.207E-02 | 1.202E+01 |
| 75 | 2.588E-01 | -2.428E+02 | 3.21E+00 | 2.204E+02 | 4.428E+02 | 2.550E-06 | 3.368E-03 | 5.43E+00 | 1.305E+02 | 1.170E+02 | 3.651E-05 | 9.544E-03 | 1.236E+01 |
| 80 | 1.736E-01 | -2.708E+02 | 3.51E+00 | 2.055E+02 | 4.129E+02 | 2.932E-06 | 3.873E-03 | 4.97E+00 | 1.454E+02 | 1.303E+02 | 2.943E-05 | 7.700E-03 | 1.260E+01 |
| 85 | 8.716E-02 | -2.991E+02 | 3.84E+00 | 1.904E+02 | 3.826E+02 | 3.416E-06 | 4.511E-03 | 4.55E+00 | 1.605E+02 | 1.439E+02 | 2.415E-05 | 6.324E-03 | 1.274E+01 |
| 90 | 0. | -3.276E+02 | 4.19E+00 | 1.752E+02 | 3.520E+02 | 4.035E-06 | 5.328E-03 | 4.17E+00 | 1.757E+02 | 1.575E+02 | 2.015E-05 | 5.280E-03 | 1.279E+01 |
| 95 | -8.716E-02 | -3.562E+02 | 4.57E+00 | 1.600E+02 | 3.214E+02 | 4.839E-06 | 6.389E-03 | 3.83E+00 | 1.909E+02 | 1.712E+02 | 1.707E-05 | 4.475E-03 | 1.274E+01 |
| 100 | -1.736E-01 | -3.845E+02 | 4.99E+00 | 1.449E+02 | 2.911E+02 | 5.901E-06 | 7.789E-03 | 3.51E+00 | 2.061E+02 | 1.847E+02 | 1.466E-05 | 3.845E-03 | 1.260E+01 |
| 105 | -2.588E-01 | -4.124E+02 | 5.45E+00 | 1.300E+02 | 2.612E+02 | 7.327E-06 | 9.671E-03 | 3.21E+00 | 2.209E+02 | 1.980E+02 | 1.275E-05 | 3.346E-03 | 1.236E+01 |
| 110 | -3.420E-01 | -4.397E+02 | 5.98E+00 | 1.155E+02 | 2.320E+02 | 9.287E-06 | 1.225E-02 | 2.93E+00 | 2.355E+02 | 2.111E+02 | 1.122E-05 | 2.947E-03 | 1.202E+01 |
| 115 | -4.226E-01 | -4.661E+02 | 6.57E+00 | 1.014E+02 | 2.038E+02 | 1.204E-05 | 1.589E-02 | 2.66E+00 | 2.495E+02 | 2.237E+02 | 9.994E-06 | 2.625E-03 | 1.159E+01 |
| 120 | -5.000E-01 | -4.915E+02 | 7.24E+00 | 8.790E+01 | 1.766E+02 | 1.603E-05 | 2.114E-02 | 2.41E+00 | 2.630E+02 | 2.358E+02 | 8.994E-06 | 2.363E-03 | 1.108E+01 |
| 125 | -5.736E-01 | -5.156E+02 | 8.03E+00 | 7.505E+01 | 1.508E+02 | 2.199E-05 | 2.898E-02 | 2.18E+00 | 2.759E+02 | 2.473E+02 | 8.176E-06 | 2.148E-03 | 1.048E+01 |
| 130 | -6.428E-01 | -5.383E+02 | 8.95E+00 | 6.297E+01 | 1.265E+02 | 3.124E-05 | 4.114E-02 | 1.95E+00 | 2.880E+02 | 2.581E+02 | 7.504E-06 | 1.972E-03 | 9.800E+00 |
| 135 | -7.071E-01 | -5.593E+02 | 1.01E+01 | 5.174E+01 | 1.040E+02 | 4.627E-05 | 6.088E-02 | 1.73E+00 | 2.992E+02 | 2.682E+02 | 6.951E-06 | 1.827E-03 | 9.046E+00 |
| 140 | -7.660E-01 | -5.786E+02 | 1.14E+01 | 4.145E+01 | 8.328E+01 | 7.209E-05 | 9.475E-02 | 1.52E+00 | 3.095E+02 | 2.774E+02 | 6.497E-06 | 1.708E-03 | 8.224E+00 |
| 145 | -8.192E-01 | -5.960E+02 | 1.32E+01 | 3.217E+01 | 6.465E+01 | 1.196E-04 | 1.570E-01 | 1.32E+00 | 3.188E+02 | 2.857E+02 | 6.124E-06 | 1.610E-03 | 7.338E+00 |
| 150 | -8.660E-01 | -6.114E+02 | 1.55E+01 | 2.399E+01 | 4.821E+01 | 2.152E-04 | 2.816E-01 | 1.12E+00 | 3.269E+02 | 2.931E+02 | 5.821E-06 | 1.531E-03 | 6.397E+00 |
| 155 | -9.063E-01 | -6.246E+02 | 1.86E+01 | 1.695E+01 | 3.407E+01 | 4.307E-04 | 5.613E-01 | 9.28E-01 | 3.340E+02 | 2.994E+02 | 5.579E-06 | 1.467E-03 | 5.407E+00 |
| 160 | -9.397E-01 | -6.355E+02 | 2.32E+01 | 1.112E+01 | 2.236E+01 | 1.000E-03 | 1.295E+00 | 7.38E-01 | 3.398E+02 | 3.046E+02 | 5.389E-06 | 1.417E-03 | 4.376E+00 |
| 165 | -9.659E-01 | -6.441E+02 | 3.05E+01 | 6.531E+00 | 1.316E+01 | 2.891E-03 | 3.696E+00 | 5.51E-01 | 3.444E+02 | 3.087E+02 | 5.247E-06 | 1.380E-03 | 3.311E+00 |
| 170 | -9.848E-01 | -6.503E+02 | 4.37E+01 | 3.215E+00 | 6.536E+00 | 1.177E-02 | 1.473E+01 | 3.66E-01 | 3.477E+02 | 3.117E+02 | 5.148E-06 | 1.354E-03 | 2.222E+00 |
| 175 | -9.962E-01 | -6.540E+02 | 7.35E+01 | 1.163E+00 | 2.541E+00 | 8.066E-02 | 1.042E+02 | 1.83E-01 | 3.497E+02 | 3.134E+02 | 5.089E-06 | 1.339E-03 | 1.115E+00 |
| 180 | -1.000E+00 | -6.553E+02 | 1.80E+02 | 3.360E-01 | 1.207E+00 | 4.405E-01 | 1.451E+03 | 0. | 3.503E+02 | 3.140E+02 | 5.070E-06 | 1.334E-03 | 0. |

PION (1) + PROTON (2) => KAON (3) + LAMBDA (4) AT 400 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 4.97710E-01 M4 = 1.11559E+00
P2CM= 1.36904E+01 P3CM= 1.36796E+01
E1CM= 1.36911E+01 E2CM= 1.37225E+01 E3CM= 1.36886E+01 E4CM= 1.37250E+01

1-V1LAB = 6.087E-08 1-VCM = 2.340E-03 GCM = 1.46255E+01 ETCM= 2.74136E+01 S = 7.51507E+02 -U=( 7.49115E+02) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -1.109E-04 | 0. | 3.998E+02 | 8.033E+02 | 7.749E-07 | 1.171E-03 | 0. | 1.944E-01 | 1.015E+00 | 8.283E-01 | -4.950E+03 | 0. |
| 1 | 9.998E-01 | -5.716E-02 | 3.42E-02 | 3.998E+02 | 8.032E+02 | 7.750E-07 | 1.171E-03 | 4.67E+01 | 3.280E-01 | 1.042E+00 | 7.179E-01 | -8.694E+02 | 2.387E-01 |
| 2 | 9.994E-01 | -2.283E-01 | 6.84E-02 | 3.997E+02 | 8.030E+02 | 7.753E-07 | 1.171E-03 | 5.65E+01 | 5.727E-01 | 1.124E+00 | 5.433E-01 | -7.217E+01 | 4.774E-01 |
| 3 | 9.986E-01 | -5.134E-01 | 1.03E-01 | 3.995E+02 | 8.027E+02 | 7.759E-07 | 1.172E-03 | 5.68E+01 | 8.557E-01 | 1.260E+00 | 3.914E-01 | 2.390E+01 | 7.159E-01 |
| 4 | 9.976E-01 | -9.125E-01 | 1.37E-01 | 3.993E+02 | 8.023E+02 | 7.768E-07 | 1.174E-03 | 5.45E+01 | 1.173E+00 | 1.451E+00 | 2.754E-01 | 3.404E+01 | 9.542E-01 |
| 5 | 9.962E-01 | -1.425E+00 | 1.71E-01 | 3.990E+02 | 8.018E+02 | 7.778E-07 | 1.175E-03 | 5.13E+01 | 1.528E+00 | 1.696E+00 | 1.923E-01 | 2.977E+01 | 1.192E+00 |
| 6 | 9.945E-01 | -2.052E+00 | 2.05E-01 | 3.987E+02 | 8.011E+02 | 7.791E-07 | 1.177E-03 | 4.79E+01 | 1.926E+00 | 1.995E+00 | 1.347E-01 | 2.364E+01 | 1.430E+00 |
| 7 | 9.925E-01 | -2.792E+00 | 2.40E-01 | 3.983E+02 | 8.003E+02 | 7.807E-07 | 1.179E-03 | 4.47E+01 | 2.371E+00 | 2.349E+00 | 9.517E-02 | 1.823E+01 | 1.667E+00 |
| 8 | 9.903E-01 | -3.645E+00 | 2.74E-01 | 3.979E+02 | 7.994E+02 | 7.824E-07 | 1.182E-03 | 4.16E+01 | 2.865E+00 | 2.756E+00 | 6.813E-02 | 1.396E+01 | 1.904E+00 |
| 9 | 9.877E-01 | -4.612E+00 | 3.09E-01 | 3.973E+02 | 7.984E+02 | 7.845E-07 | 1.185E-03 | 3.88E+01 | 3.412E+00 | 3.218E+00 | 4.951E-02 | 1.070E+01 | 2.140E+00 |
| 10 | 9.848E-01 | -5.690E+00 | 3.43E-01 | 3.968E+02 | 7.972E+02 | 7.868E-07 | 1.189E-03 | 3.63E+01 | 4.013E+00 | 3.733E+00 | 3.654E-02 | 8.249E+00 | 2.375E+00 |
| 15 | 9.659E-01 | -1.276E+01 | 5.16E-01 | 3.930E+02 | 7.896E+02 | 8.019E-07 | 1.212E-03 | 2.68E+01 | 7.855E+00 | 7.112E+00 | 9.936E-03 | 2.560E+00 | 3.541E+00 |
| 20 | 9.397E-01 | -2.259E+01 | 6.91E-01 | 3.878E+02 | 7.791E+02 | 8.237E-07 | 1.244E-03 | 2.09E+01 | 1.312E+01 | 1.181E+01 | 3.594E-03 | 9.840E-01 | 4.679E+00 |
| 25 | 9.063E-01 | -3.509E+01 | 8.69E-01 | 3.811E+02 | 7.657E+02 | 8.528E-07 | 1.288E-03 | 1.70E+01 | 1.980E+01 | 1.778E+01 | 1.583E-03 | 4.475E-01 | 5.781E+00 |
| 30 | 8.660E-01 | -5.018E+01 | 1.05E+00 | 3.731E+02 | 7.496E+02 | 8.899E-07 | 1.344E-03 | 1.42E+01 | 2.785E+01 | 2.499E+01 | 8.012E-04 | 2.307E-01 | 6.840E+00 |
| 35 | 8.192E-01 | -6.774E+01 | 1.24E+00 | 3.637E+02 | 7.308E+02 | 9.363E-07 | 1.415E-03 | 1.22E+01 | 3.721E+01 | 3.337E+01 | 4.490E-04 | 1.308E-01 | 7.846E+00 |
| 40 | 7.660E-01 | -8.763E+01 | 1.43E+00 | 3.531E+02 | 7.095E+02 | 9.934E-07 | 1.501E-03 | 1.06E+01 | 4.782E+01 | 4.287E+01 | 2.720E-04 | 7.986E-02 | 8.793E+00 |
| 45 | 7.071E-01 | -1.097E+02 | 1.62E+00 | 3.413E+02 | 6.858E+02 | 1.063E-06 | 1.606E-03 | 9.34E+00 | 5.958E+01 | 5.342E+01 | 1.752E-04 | 5.172E-02 | 9.673E+00 |
| 50 | 6.428E-01 | -1.338E+02 | 1.83E+00 | 3.285E+02 | 6.600E+02 | 1.148E-06 | 1.734E-03 | 8.32E+00 | 7.242E+01 | 6.493E+01 | 1.186E-04 | 3.514E-02 | 1.048E+01 |
| 55 | 5.736E-01 | -1.597E+02 | 2.04E+00 | 3.147E+02 | 6.323E+02 | 1.251E-06 | 1.889E-03 | 7.47E+00 | 8.624E+01 | 7.731E+01 | 8.366E-05 | 2.486E-02 | 1.121E+01 |
| 60 | 5.000E-01 | -1.873E+02 | 2.26E+00 | 3.000E+02 | 6.028E+02 | 1.376E-06 | 2.079E-03 | 6.74E+00 | 1.009E+02 | 9.048E+01 | 6.108E-05 | 1.819E-02 | 1.185E+01 |
| 65 | 4.226E-01 | -2.163E+02 | 2.50E+00 | 2.846E+02 | 5.717E+02 | 1.530E-06 | 2.310E-03 | 6.12E+00 | 1.164E+02 | 1.043E+02 | 4.594E-05 | 1.371E-02 | 1.240E+01 |
| 70 | 3.420E-01 | -2.465E+02 | 2.74E+00 | 2.685E+02 | 5.394E+02 | 1.718E-06 | 2.595E-03 | 5.57E+00 | 1.325E+02 | 1.187E+02 | 3.546E-05 | 1.059E-02 | 1.285E+01 |
| 75 | 2.588E-01 | -2.776E+02 | 3.01E+00 | 2.519E+02 | 5.060E+02 | 1.952E-06 | 2.949E-03 | 5.09E+00 | 1.491E+02 | 1.336E+02 | 2.800E-05 | 8.374E-03 | 1.321E+01 |
| 80 | 1.736E-01 | -3.095E+02 | 3.29E+00 | 2.349E+02 | 4.719E+02 | 2.245E-06 | 3.391E-03 | 4.65E+00 | 1.661E+02 | 1.489E+02 | 2.256E-05 | 6.753E-03 | 1.347E+01 |
| 85 | 8.716E-02 | -3.419E+02 | 3.59E+00 | 2.176E+02 | 4.372E+02 | 2.616E-06 | 3.950E-03 | 4.26E+00 | 1.833E+02 | 1.643E+02 | 1.851E-05 | 5.546E-03 | 1.363E+01 |
| 90 | 0. | -3.746E+02 | 3.92E+00 | 2.002E+02 | 4.022E+02 | 3.090E-06 | 4.666E-03 | 3.91E+00 | 2.007E+02 | 1.799E+02 | 1.544E-05 | 4.629E-03 | 1.368E+01 |
| 95 | -8.716E-02 | -4.072E+02 | 4.28E+00 | 1.828E+02 | 3.673E+02 | 3.706E-06 | 5.595E-03 | 3.58E+00 | 2.181E+02 | 1.955E+02 | 1.308E-05 | 3.922E-03 | 1.363E+01 |
| 100 | -1.736E-01 | -4.396E+02 | 4.67E+00 | 1.655E+02 | 3.326E+02 | 4.520E-06 | 6.822E-03 | 3.28E+00 | 2.354E+02 | 2.110E+02 | 1.123E-05 | 3.369E-03 | 1.347E+01 |
| 105 | -2.588E-01 | -4.715E+02 | 5.10E+00 | 1.485E+02 | 2.985E+02 | 5.613E-06 | 8.472E-03 | 3.00E+00 | 2.524E+02 | 2.262E+02 | 9.768E-06 | 2.932E-03 | 1.321E+01 |
| 110 | -3.420E-01 | -5.027E+02 | 5.59E+00 | 1.319E+02 | 2.651E+02 | 7.115E-06 | 1.074E-02 | 2.74E+00 | 2.690E+02 | 2.411E+02 | 8.599E-06 | 2.582E-03 | 1.285E+01 |
| 115 | -4.226E-01 | -5.329E+02 | 6.14E+00 | 1.158E+02 | 2.328E+02 | 9.229E-06 | 1.392E-02 | 2.49E+00 | 2.851E+02 | 2.556E+02 | 7.656E-06 | 2.299E-03 | 1.240E+01 |
| 120 | -5.000E-01 | -5.618E+02 | 6.78E+00 | 1.004E+02 | 2.017E+02 | 1.229E-05 | 1.853E-02 | 2.26E+00 | 3.005E+02 | 2.694E+02 | 6.889E-06 | 2.070E-03 | 1.185E+01 |
| 125 | -5.736E-01 | -5.894E+02 | 7.51E+00 | 8.571E+01 | 1.722E+02 | 1.686E-05 | 2.541E-02 | 2.04E+00 | 3.152E+02 | 2.826E+02 | 6.262E-06 | 1.882E-03 | 1.121E+01 |
| 130 | -6.428E-01 | -6.153E+02 | 8.38E+00 | 7.190E+01 | 1.445E+02 | 2.396E-05 | 3.609E-02 | 1.83E+00 | 3.290E+02 | 2.949E+02 | 5.748E-06 | 1.727E-03 | 1.048E+01 |
| 135 | -7.071E-01 | -6.394E+02 | 9.43E+00 | 5.906E+01 | 1.187E+02 | 3.551E-05 | 5.344E-02 | 1.62E+00 | 3.419E+02 | 3.065E+02 | 5.324E-06 | 1.600E-03 | 9.673E+00 |
| 140 | -7.660E-01 | -6.615E+02 | 1.07E+01 | 4.730E+01 | 9.503E+01 | 5.537E-05 | 8.325E-02 | 1.42E+00 | 3.536E+02 | 3.170E+02 | 4.976E-06 | 1.496E-03 | 8.793E+00 |
| 145 | -8.192E-01 | -6.814E+02 | 1.23E+01 | 3.669E+01 | 7.373E+01 | 9.197E-05 | 1.381E-01 | 1.23E+00 | 3.642E+02 | 3.265E+02 | 4.690E-06 | 1.410E-03 | 7.846E+00 |
| 150 | -8.660E-01 | -6.989E+02 | 1.45E+01 | 2.734E+01 | 5.494E+01 | 1.657E-04 | 2.482E-01 | 1.05E+00 | 3.736E+02 | 3.349E+02 | 4.458E-06 | 1.340E-03 | 6.840E+00 |
| 155 | -9.063E-01 | -7.140E+02 | 1.74E+01 | 1.930E+01 | 3.878E+01 | 3.325E-04 | 4.962E-01 | 8.68E-01 | 3.816E+02 | 3.421E+02 | 4.272E-06 | 1.285E-03 | 5.781E+00 |
| 160 | -9.397E-01 | -7.265E+02 | 2.17E+01 | 1.263E+01 | 2.539E+01 | 7.758E-04 | 1.151E+00 | 6.90E-01 | 3.883E+02 | 3.481E+02 | 4.127E-06 | 1.241E-03 | 4.679E+00 |
| 165 | -9.659E-01 | -7.364E+02 | 2.86E+01 | 7.385E+00 | 1.487E+01 | 2.263E-03 | 3.318E+00 | 5.15E-01 | 3.935E+02 | 3.528E+02 | 4.018E-06 | 1.208E-03 | 3.541E+00 |
| 170 | -9.848E-01 | -7.434E+02 | 4.13E+01 | 3.599E+00 | 7.299E+00 | 9.429E-03 | 1.353E+01 | 3.43E-01 | 3.973E+02 | 3.561E+02 | 3.942E-06 | 1.185E-03 | 2.375E+00 |
| 175 | -9.962E-01 | -7.477E+02 | 7.04E+01 | 1.266E+00 | 2.733E+00 | 6.936E-02 | 1.011E+02 | 1.71E-01 | 3.996E+02 | 3.582E+02 | 3.897E-06 | 1.172E-03 | 1.192E+00 |
| 180 | -1.000E+00 | -7.491E+02 | 1.80E+02 | 3.361E-01 | 1.207E+00 | 4.403E-01 | 1.656E+03 | 0. | 4.003E+02 | 3.589E+02 | 3.883E-06 | 1.168E-03 | 0. |

PION (1) + PROTON (2) => KAON (3) + LAMBDA (4) AT 450 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 4.97710E-01 M4 = 1.11559E+00
P2CM= 1.45218E+01 P3CM= 1.45116E+01
E1CM= 1.45225E+01 E2CM= 1.45521E+01 E3CM= 1.45202E+01 E4CM= 1.45544E+01

1-V1LAB = 4.810E-08 1-VCM = 2.081E-03 GCM = 1.55097E+01 ETCM= 2.90746E+01 S = 8.45333E+02 -U=( 8.42941E+02) +T

| Θ3 CM | COS(Θ3) CM | 4-MOM TSFR SQUARE, T | Θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | Θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -9.858E-05 | 0. | 4.498E+02 | 9.038E+02 | 6.122E-07 | 1.041E-03 | 0. | 1.944E-01 | 1.015E+00 | 8.283E-01 | -5.573E+03 | 0. |
| 1 | 9.998E-01 | -6.429E-02 | 3.23E-02 | 4.498E+02 | 9.037E+02 | 6.123E-07 | 1.041E-03 | 4.79E+01 | 3.412E-01 | 1.046E+00 | 7.075E-01 | -8.485E+02 | 2.533E-01 |
| 2 | 9.994E-01 | -2.568E-01 | 6.45E-02 | 4.497E+02 | 9.035E+02 | 6.125E-07 | 1.041E-03 | 5.68E+01 | 6.053E-01 | 1.138E+00 | 5.231E-01 | -5.429E+01 | 5.064E-01 |
| 3 | 9.986E-01 | -5.777E-01 | 9.68E-02 | 4.495E+02 | 9.031E+02 | 6.130E-07 | 1.042E-03 | 5.65E+01 | 9.109E-01 | 1.291E+00 | 3.676E-01 | 3.186E+01 | 7.595E-01 |
| 4 | 9.976E-01 | -1.027E+00 | 1.29E-01 | 4.493E+02 | 9.027E+02 | 6.137E-07 | 1.043E-03 | 5.37E+01 | 1.255E+00 | 1.506E+00 | 2.525E-01 | 3.771E+01 | 1.012E+00 |
| 5 | 9.962E-01 | -1.604E+00 | 1.61E-01 | 4.490E+02 | 9.020E+02 | 6.145E-07 | 1.045E-03 | 5.03E+01 | 1.644E+00 | 1.781E+00 | 1.725E-01 | 3.139E+01 | 1.265E+00 |
| 6 | 9.945E-01 | -2.309E+00 | 1.94E-01 | 4.486E+02 | 9.013E+02 | 6.155E-07 | 1.047E-03 | 4.67E+01 | 2.083E+00 | 2.118E+00 | 1.185E-01 | 2.423E+01 | 1.517E+00 |
| 7 | 9.925E-01 | -3.142E+00 | 2.26E-01 | 4.481E+02 | 9.004E+02 | 6.168E-07 | 1.049E-03 | 4.34E+01 | 2.575E+00 | 2.516E+00 | 8.240E-02 | 1.831E+01 | 1.769E+00 |
| 8 | 9.903E-01 | -4.102E+00 | 2.59E-01 | 4.476E+02 | 8.994E+02 | 6.182E-07 | 1.051E-03 | 4.03E+01 | 3.125E+00 | 2.974E+00 | 5.821E-02 | 1.379E+01 | 2.020E+00 |
| 9 | 9.877E-01 | -5.189E+00 | 2.91E-01 | 4.470E+02 | 8.982E+02 | 6.198E-07 | 1.054E-03 | 3.74E+01 | 3.735E+00 | 3.494E+00 | 4.184E-02 | 1.043E+01 | 2.270E+00 |
| 10 | 9.848E-01 | -6.403E+00 | 3.23E-01 | 4.464E+02 | 8.969E+02 | 6.216E-07 | 1.057E-03 | 3.49E+01 | 4.406E+00 | 4.074E+00 | 3.060E-02 | 7.950E+00 | 2.520E+00 |
| 15 | 9.659E-01 | -1.436E+01 | 4.87E-01 | 4.422E+02 | 8.884E+02 | 6.335E-07 | 1.077E-03 | 2.55E+01 | 8.714E+00 | 7.875E+00 | 8.095E-03 | 2.381E+00 | 3.756E+00 |
| 20 | 9.397E-01 | -2.542E+01 | 6.52E-01 | 4.363E+02 | 8.765E+02 | 6.508E-07 | 1.106E-03 | 1.98E+01 | 1.464E+01 | 1.316E+01 | 2.893E-03 | 8.996E-01 | 4.963E+00 |
| 25 | 9.063E-01 | -3.949E+01 | 8.20E-01 | 4.288E+02 | 8.615E+02 | 6.737E-07 | 1.145E-03 | 1.61E+01 | 2.215E+01 | 1.988E+01 | 1.266E-03 | 4.053E-01 | 6.133E+00 |
| 30 | 8.660E-01 | -5.647E+01 | 9.91E-01 | 4.197E+02 | 8.433E+02 | 7.031E-07 | 1.195E-03 | 1.34E+01 | 3.120E+01 | 2.799E+01 | 6.385E-04 | 2.078E-01 | 7.256E+00 |
| 35 | 8.192E-01 | -7.622E+01 | 1.17E+00 | 4.092E+02 | 8.221E+02 | 7.397E-07 | 1.258E-03 | 1.15E+01 | 4.174E+01 | 3.743E+01 | 3.570E-04 | 1.174E-01 | 8.324E+00 |
| 40 | 7.660E-01 | -9.861E+01 | 1.35E+00 | 3.973E+02 | 7.982E+02 | 7.848E-07 | 1.334E-03 | 1.00E+01 | 5.367E+01 | 4.812E+01 | 2.160E-04 | 7.153E-02 | 9.328E+00 |
| 45 | 7.071E-01 | -1.234E+02 | 1.53E+00 | 3.840E+02 | 7.716E+02 | 8.399E-07 | 1.428E-03 | 8.82E+00 | 6.691E+01 | 5.998E+01 | 1.390E-04 | 4.625E-02 | 1.026E+01 |
| 50 | 6.428E-01 | -1.506E+02 | 1.72E+00 | 3.696E+02 | 7.426E+02 | 9.068E-07 | 1.542E-03 | 7.85E+00 | 8.136E+01 | 7.293E+01 | 9.400E-05 | 3.139E-02 | 1.112E+01 |
| 55 | 5.736E-01 | -1.797E+02 | 1.92E+00 | 3.540E+02 | 7.113E+02 | 9.882E-07 | 1.680E-03 | 7.05E+00 | 9.690E+01 | 8.687E+01 | 6.626E-05 | 2.219E-02 | 1.189E+01 |
| 60 | 5.000E-01 | -2.107E+02 | 2.13E+00 | 3.375E+02 | 6.781E+02 | 1.087E-06 | 1.848E-03 | 6.36E+00 | 1.134E+02 | 1.017E+02 | 4.836E-05 | 1.622E-02 | 1.257E+01 |
| 65 | 4.226E-01 | -2.433E+02 | 2.35E+00 | 3.201E+02 | 6.432E+02 | 1.209E-06 | 2.054E-03 | 5.77E+00 | 1.308E+02 | 1.173E+02 | 3.636E-05 | 1.222E-02 | 1.315E+01 |
| 70 | 3.420E-01 | -2.773E+02 | 2.59E+00 | 3.020E+02 | 6.068E+02 | 1.358E-06 | 2.308E-03 | 5.25E+00 | 1.489E+02 | 1.335E+02 | 2.806E-05 | 9.440E-03 | 1.364E+01 |
| 75 | 2.588E-01 | -3.124E+02 | 2.84E+00 | 2.833E+02 | 5.693E+02 | 1.543E-06 | 2.622E-03 | 4.80E+00 | 1.676E+02 | 1.502E+02 | 2.215E-05 | 7.460E-03 | 1.402E+01 |
| 80 | 1.736E-01 | -3.483E+02 | 3.10E+00 | 2.642E+02 | 5.308E+02 | 1.774E-06 | 3.016E-03 | 4.39E+00 | 1.867E+02 | 1.674E+02 | 1.785E-05 | 6.014E-03 | 1.429E+01 |
| 85 | 8.716E-02 | -3.847E+02 | 3.39E+00 | 2.448E+02 | 4.918E+02 | 2.067E-06 | 3.513E-03 | 4.02E+00 | 2.062E+02 | 1.848E+02 | 1.464E-05 | 4.938E-03 | 1.446E+01 |
| 90 | 0. | -4.215E+02 | 3.69E+00 | 2.252E+02 | 4.525E+02 | 2.442E-06 | 4.150E-03 | 3.69E+00 | 2.257E+02 | 2.023E+02 | 1.221E-05 | 4.121E-03 | 1.451E+01 |
| 95 | -8.716E-02 | -4.582E+02 | 4.03E+00 | 2.056E+02 | 4.131E+02 | 2.929E-06 | 4.977E-03 | 3.38E+00 | 2.453E+02 | 2.199E+02 | 1.034E-05 | 3.491E-03 | 1.446E+01 |
| 100 | -1.736E-01 | -4.947E+02 | 4.40E+00 | 1.862E+02 | 3.741E+02 | 3.572E-06 | 6.069E-03 | 3.09E+00 | 2.647E+02 | 2.373E+02 | 8.879E-06 | 2.999E-03 | 1.429E+01 |
| 105 | -2.588E-01 | -5.306E+02 | 4.81E+00 | 1.671E+02 | 3.357E+02 | 4.437E-06 | 7.537E-03 | 2.83E+00 | 2.839E+02 | 2.545E+02 | 7.722E-06 | 2.609E-03 | 1.402E+01 |
| 110 | -3.420E-01 | -5.656E+02 | 5.27E+00 | 1.484E+02 | 2.981E+02 | 5.625E-06 | 9.553E-03 | 2.58E+00 | 3.026E+02 | 2.712E+02 | 6.798E-06 | 2.297E-03 | 1.364E+01 |
| 115 | -4.226E-01 | -5.996E+02 | 5.79E+00 | 1.303E+02 | 2.618E+02 | 7.297E-06 | 1.239E-02 | 2.35E+00 | 3.207E+02 | 2.874E+02 | 6.052E-06 | 2.046E-03 | 1.315E+01 |
| 120 | -5.000E-01 | -6.322E+02 | 6.39E+00 | 1.129E+02 | 2.268E+02 | 9.717E-06 | 1.649E-02 | 2.13E+00 | 3.380E+02 | 3.030E+02 | 5.446E-06 | 1.841E-03 | 1.257E+01 |
| 125 | -5.736E-01 | -6.632E+02 | 7.09E+00 | 9.638E+01 | 1.936E+02 | 1.333E-05 | 2.262E-02 | 1.92E+00 | 3.546E+02 | 3.178E+02 | 4.950E-06 | 1.674E-03 | 1.189E+01 |
| 130 | -6.428E-01 | -6.924E+02 | 7.90E+00 | 8.083E+01 | 1.624E+02 | 1.896E-05 | 3.215E-02 | 1.72E+00 | 3.701E+02 | 3.318E+02 | 4.543E-06 | 1.536E-03 | 1.112E+01 |
| 135 | -7.071E-01 | -7.195E+02 | 8.89E+00 | 6.638E+01 | 1.334E+02 | 2.811E-05 | 4.763E-02 | 1.53E+00 | 3.846E+02 | 3.447E+02 | 4.208E-06 | 1.423E-03 | 1.026E+01 |
| 140 | -7.660E-01 | -7.443E+02 | 1.01E+01 | 5.315E+01 | 1.068E+02 | 4.385E-05 | 7.424E-02 | 1.34E+00 | 3.978E+02 | 3.566E+02 | 3.933E-06 | 1.330E-03 | 9.328E+00 |
| 145 | -8.192E-01 | -7.667E+02 | 1.17E+01 | 4.122E+01 | 8.282E+01 | 7.290E-05 | 1.232E-01 | 1.16E+00 | 4.097E+02 | 3.673E+02 | 3.707E-06 | 1.254E-03 | 8.324E+00 |
| 150 | -8.660E-01 | -7.865E+02 | 1.37E+01 | 3.069E+01 | 6.167E+01 | 1.315E-04 | 2.218E-01 | 9.89E-01 | 4.202E+02 | 3.767E+02 | 3.523E-06 | 1.192E-03 | 7.256E+00 |
| 155 | -9.063E-01 | -8.035E+02 | 1.65E+01 | 2.164E+01 | 4.349E+01 | 2.644E-04 | 4.446E-01 | 8.19E-01 | 4.293E+02 | 3.848E+02 | 3.377E-06 | 1.143E-03 | 6.133E+00 |
| 160 | -9.397E-01 | -8.175E+02 | 2.06E+01 | 1.414E+01 | 2.842E+01 | 6.192E-04 | 1.035E+00 | 6.51E-01 | 4.368E+02 | 3.915E+02 | 3.262E-06 | 1.104E-03 | 4.963E+00 |
| 165 | -9.659E-01 | -8.286E+02 | 2.71E+01 | 8.239E+00 | 1.658E+01 | 1.820E-03 | 3.010E+00 | 4.86E-01 | 4.427E+02 | 3.968E+02 | 3.175E-06 | 1.075E-03 | 3.756E+00 |
| 170 | -9.848E-01 | -8.365E+02 | 3.93E+01 | 3.982E+00 | 8.063E+00 | 7.721E-03 | 1.251E+01 | 3.23E-01 | 4.469E+02 | 4.006E+02 | 3.115E-06 | 1.054E-03 | 2.520E+00 |
| 175 | -9.962E-01 | -8.413E+02 | 6.76E+01 | 1.368E+00 | 2.924E+00 | 6.030E-02 | 9.809E+01 | 1.61E-01 | 4.495E+02 | 4.029E+02 | 3.080E-06 | 1.042E-03 | 1.265E+00 |
| 180 | -1.000E+00 | -8.429E+02 | 1.80E+02 | 3.362E-01 | 1.207E+00 | 4.402E-01 | 1.863E+03 | 0. | 4.503E+02 | 4.037E+02 | 3.068E-06 | 1.038E-03 | 0. |

PION (1) + PROTON (2) => KAON (3) + LAMBDA (4) AT 500 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 4.97710E-01 M4 = 1.11559E+00
P2CM= 1.53082E+01 P3CM= 1.52985E+01
E1CM= 1.53088E+01 E2CM= 1.53369E+01 E3CM= 1.53066E+01 E4CM= 1.53391E+01

1-V1LAB = 3.896E-08 1-VCM = 1.873E-03 GCM = 1.63461E+01 ETCM= 3.06457E+01 S = 9.39159E+02 -U=( 9.36767E+02) +T

| Θ3 CM | COS(Θ3) CM | 4-MOM TSFR SQUARE, T | Θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | Θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -8.871E-05 | 0. | 4.998E+02 | 1.004E+03 | 4.958E-07 | 9.369E-04 | 0. | 1.944E-01 | 1.015E+00 | 8.284E-01 | -6.195E+03 | 0. |
| 1 | 9.998E-01 | -7.143E-02 | 3.06E-02 | 4.998E+02 | 1.004E+03 | 4.959E-07 | 9.370E-04 | 4.90E+01 | 3.540E-01 | 1.049E+00 | 6.975E-01 | -8.243E+02 | 2.670E-01 |
| 2 | 9.994E-01 | -2.854E-01 | 6.12E-02 | 4.997E+02 | 1.004E+03 | 4.961E-07 | 9.375E-04 | 5.70E+01 | 6.366E-01 | 1.151E+00 | 5.044E-01 | -3.802E+01 | 5.339E-01 |
| 3 | 9.986E-01 | -6.420E-01 | 9.18E-02 | 4.995E+02 | 1.004E+03 | 4.965E-07 | 9.382E-04 | 5.61E+01 | 9.641E-01 | 1.322E+00 | 3.461E-01 | 3.881E+01 | 8.007E-01 |
| 4 | 9.976E-01 | -1.141E+00 | 1.22E-01 | 4.992E+02 | 1.003E+03 | 4.970E-07 | 9.392E-04 | 5.30E+01 | 1.336E+00 | 1.560E+00 | 2.325E-01 | 4.077E+01 | 1.067E+00 |
| 5 | 9.962E-01 | -1.782E+00 | 1.53E-01 | 4.989E+02 | 1.002E+03 | 4.977E-07 | 9.405E-04 | 4.93E+01 | 1.758E+00 | 1.866E+00 | 1.556E-01 | 3.264E+01 | 1.333E+00 |
| 6 | 9.945E-01 | -2.566E+00 | 1.84E-01 | 4.984E+02 | 1.001E+03 | 4.985E-07 | 9.420E-04 | 4.56E+01 | 2.237E+00 | 2.241E+00 | 1.051E-01 | 2.460E+01 | 1.599E+00 |
| 7 | 9.925E-01 | -3.491E+00 | 2.15E-01 | 4.979E+02 | 1.000E+03 | 4.995E-07 | 9.439E-04 | 4.22E+01 | 2.777E+00 | 2.683E+00 | 7.207E-02 | 1.826E+01 | 1.864E+00 |
| 8 | 9.903E-01 | -4.558E+00 | 2.45E-01 | 4.974E+02 | 9.993E+02 | 5.007E-07 | 9.461E-04 | 3.90E+01 | 3.382E+00 | 3.192E+00 | 5.032E-02 | 1.356E+01 | 2.129E+00 |
| 9 | 9.877E-01 | -5.767E+00 | 2.76E-01 | 4.967E+02 | 9.980E+02 | 5.020E-07 | 9.485E-04 | 3.62E+01 | 4.055E+00 | 3.770E+00 | 3.583E-02 | 1.014E+01 | 2.393E+00 |
| 10 | 9.848E-01 | -7.116E+00 | 3.07E-01 | 4.960E+02 | 9.966E+02 | 5.034E-07 | 9.513E-04 | 3.36E+01 | 4.796E+00 | 4.414E+00 | 2.600E-02 | 7.652E+00 | 2.657E+00 |
| 15 | 9.659E-01 | -1.596E+01 | 4.62E-01 | 4.913E+02 | 9.871E+02 | 5.131E-07 | 9.696E-04 | 2.44E+01 | 9.573E+00 | 8.639E+00 | 6.722E-03 | 2.223E+00 | 3.960E+00 |
| 20 | 9.397E-01 | -2.825E+01 | 6.18E-01 | 4.848E+02 | 9.740E+02 | 5.271E-07 | 9.960E-04 | 1.89E+01 | 1.615E+01 | 1.451E+01 | 2.378E-03 | 8.283E-01 | 5.232E+00 |
| 25 | 9.063E-01 | -4.388E+01 | 7.78E-01 | 4.764E+02 | 9.572E+02 | 5.457E-07 | 1.031E-03 | 1.53E+01 | 2.449E+01 | 2.198E+01 | 1.036E-03 | 3.704E-01 | 6.465E+00 |
| 30 | 8.660E-01 | -6.275E+01 | 9.40E-01 | 4.664E+02 | 9.370E+02 | 5.695E-07 | 1.076E-03 | 1.28E+01 | 3.455E+01 | 3.099E+01 | 5.207E-04 | 1.891E-01 | 7.649E+00 |
| 35 | 8.192E-01 | -8.471E+01 | 1.11E+00 | 4.547E+02 | 9.135E+02 | 5.992E-07 | 1.132E-03 | 1.09E+01 | 4.626E+01 | 4.148E+01 | 2.907E-04 | 1.065E-01 | 8.775E+00 |
| 40 | 7.660E-01 | -1.096E+02 | 1.28E+00 | 4.414E+02 | 8.869E+02 | 6.357E-07 | 1.201E-03 | 9.51E+00 | 5.952E+01 | 5.336E+01 | 1.756E-04 | 6.478E-02 | 9.834E+00 |
| 45 | 7.071E-01 | -1.372E+02 | 1.45E+00 | 4.267E+02 | 8.573E+02 | 6.803E-07 | 1.285E-03 | 8.38E+00 | 7.423E+01 | 6.655E+01 | 1.129E-04 | 4.183E-02 | 1.082E+01 |
| 50 | 6.428E-01 | -1.673E+02 | 1.64E+00 | 4.106E+02 | 8.251E+02 | 7.345E-07 | 1.388E-03 | 7.46E+00 | 9.029E+01 | 8.094E+01 | 7.633E-05 | 2.837E-02 | 1.172E+01 |
| 55 | 5.736E-01 | -1.997E+02 | 1.83E+00 | 3.934E+02 | 7.904E+02 | 8.004E-07 | 1.512E-03 | 6.69E+00 | 1.076E+02 | 9.642E+01 | 5.378E-05 | 2.003E-02 | 1.253E+01 |
| 60 | 5.000E-01 | -2.342E+02 | 2.02E+00 | 3.750E+02 | 7.535E+02 | 8.807E-07 | 1.664E-03 | 6.04E+00 | 1.259E+02 | 1.129E+02 | 3.924E-05 | 1.464E-02 | 1.325E+01 |
| 65 | 4.226E-01 | -2.704E+02 | 2.23E+00 | 3.557E+02 | 7.147E+02 | 9.790E-07 | 1.850E-03 | 5.48E+00 | 1.452E+02 | 1.302E+02 | 2.950E-05 | 1.102E-02 | 1.387E+01 |
| 70 | 3.420E-01 | -3.082E+02 | 2.46E+00 | 3.356E+02 | 6.742E+02 | 1.100E-06 | 2.078E-03 | 4.99E+00 | 1.654E+02 | 1.482E+02 | 2.276E-05 | 8.513E-03 | 1.438E+01 |
| 75 | 2.588E-01 | -3.472E+02 | 2.69E+00 | 3.148E+02 | 6.325E+02 | 1.250E-06 | 2.361E-03 | 4.55E+00 | 1.861E+02 | 1.668E+02 | 1.796E-05 | 6.725E-03 | 1.478E+01 |
| 80 | 1.736E-01 | -3.870E+02 | 2.94E+00 | 2.935E+02 | 5.898E+02 | 1.437E-06 | 2.715E-03 | 4.17E+00 | 2.074E+02 | 1.859E+02 | 1.447E-05 | 5.421E-03 | 1.507E+01 |
| 85 | 8.716E-02 | -4.276E+02 | 3.21E+00 | 2.720E+02 | 5.464E+02 | 1.675E-06 | 3.163E-03 | 3.82E+00 | 2.290E+02 | 2.053E+02 | 1.187E-05 | 4.450E-03 | 1.524E+01 |
| 90 | 0. | -4.684E+02 | 3.51E+00 | 2.502E+02 | 5.027E+02 | 1.979E-06 | 3.737E-03 | 3.50E+00 | 2.507E+02 | 2.248E+02 | 9.698E-06 | 3.713E-03 | 1.530E+01 |
| 95 | -8.716E-02 | -5.092E+02 | 3.83E+00 | 2.284E+02 | 4.590E+02 | 2.373E-06 | 4.482E-03 | 3.21E+00 | 2.725E+02 | 2.443E+02 | 8.381E-06 | 3.145E-03 | 1.524E+01 |
| 100 | -1.736E-01 | -5.497E+02 | 4.18E+00 | 2.069E+02 | 4.156E+02 | 2.894E-06 | 5.465E-03 | 2.94E+00 | 2.941E+02 | 2.636E+02 | 7.195E-06 | 2.701E-03 | 1.507E+01 |
| 105 | -2.588E-01 | -5.896E+02 | 4.57E+00 | 1.856E+02 | 3.729E+02 | 3.596E-06 | 6.788E-03 | 2.69E+00 | 3.153E+02 | 2.827E+02 | 6.258E-06 | 2.350E-03 | 1.478E+01 |
| 110 | -3.420E-01 | -6.286E+02 | 5.00E+00 | 1.648E+02 | 3.312E+02 | 4.559E-06 | 8.605E-03 | 2.45E+00 | 3.361E+02 | 3.013E+02 | 5.508E-06 | 2.069E-03 | 1.438E+01 |
| 115 | -4.226E-01 | -6.663E+02 | 5.50E+00 | 1.447E+02 | 2.908E+02 | 5.914E-06 | 1.116E-02 | 2.23E+00 | 3.562E+02 | 3.193E+02 | 4.904E-06 | 1.842E-03 | 1.387E+01 |
| 120 | -5.000E-01 | -7.026E+02 | 6.06E+00 | 1.254E+02 | 2.520E+02 | 7.876E-06 | 1.486E-02 | 2.02E+00 | 3.755E+02 | 3.366E+02 | 4.412E-06 | 1.654E-03 | 1.325E+01 |
| 125 | -5.736E-01 | -7.370E+02 | 6.72E+00 | 1.070E+02 | 2.151E+02 | 1.061E-05 | 2.039E-02 | 1.82E+00 | 3.939E+02 | 3.531E+02 | 4.011E-06 | 1.507E-03 | 1.253E+01 |
| 130 | -6.428E-01 | -7.695E+02 | 7.50E+00 | 8.976E+01 | 1.803E+02 | 1.537E-05 | 2.898E-02 | 1.63E+00 | 4.112E+02 | 3.686E+02 | 3.681E-06 | 1.384E-03 | 1.172E+01 |
| 135 | -7.071E-01 | -7.996E+02 | 8.44E+00 | 7.371E+01 | 1.481E+02 | 2.280E-05 | 4.295E-02 | 1.45E+00 | 4.272E+02 | 3.830E+02 | 3.409E-06 | 1.282E-03 | 1.082E+01 |
| 140 | -7.660E-01 | -8.272E+02 | 9.60E+00 | 5.899E+01 | 1.185E+02 | 3.559E-05 | 6.698E-02 | 1.28E+00 | 4.419E+02 | 3.962E+02 | 3.186E-06 | 1.198E-03 | 9.834E+00 |
| 145 | -8.192E-01 | -8.521E+02 | 1.11E+01 | 4.574E+01 | 9.190E+01 | 5.920E-05 | 1.113E-01 | 1.10E+00 | 4.552E+02 | 4.080E+02 | 3.003E-06 | 1.129E-03 | 8.775E+00 |
| 150 | -8.660E-01 | -8.740E+02 | 1.30E+01 | 3.404E+01 | 6.840E+01 | 1.069E-04 | 2.006E-01 | 9.39E-01 | 4.669E+02 | 4.185E+02 | 2.855E-06 | 1.073E-03 | 7.649E+00 |
| 155 | -9.063E-01 | -8.929E+02 | 1.56E+01 | 2.398E+01 | 4.819E+01 | 2.153E-04 | 4.028E-01 | 7.77E-01 | 4.770E+02 | 4.275E+02 | 2.735E-06 | 1.029E-03 | 6.465E+00 |
| 160 | -9.397E-01 | -9.085E+02 | 1.95E+01 | 1.565E+01 | 3.145E+01 | 5.056E-04 | 9.409E-01 | 6.18E-01 | 4.853E+02 | 4.350E+02 | 2.642E-06 | 9.937E-04 | 5.232E+00 |
| 165 | -9.659E-01 | -9.208E+02 | 2.58E+01 | 9.092E+00 | 1.830E+01 | 1.495E-03 | 2.755E+00 | 4.61E-01 | 4.918E+02 | 4.409E+02 | 2.572E-06 | 9.675E-04 | 3.960E+00 |
| 170 | -9.848E-01 | -9.297E+02 | 3.75E+01 | 4.364E+00 | 8.826E+00 | 6.440E-03 | 1.163E+01 | 3.07E-01 | 4.965E+02 | 4.451E+02 | 2.524E-06 | 9.492E-04 | 2.657E+00 |
| 175 | -9.962E-01 | -9.350E+02 | 6.52E+01 | 1.468E+00 | 3.115E+00 | 5.292E-02 | 9.510E+01 | 1.53E-01 | 4.994E+02 | 4.476E+02 | 2.495E-06 | 9.385E-04 | 1.333E+00 |
| 180 | -1.000E+00 | -9.368E+02 | 1.80E+02 | 3.363E-01 | 1.207E+00 | 4.401E-01 | 2.069E+03 | 0. | 5.003E+02 | 4.485E+02 | 2.486E-06 | 9.349E-04 | 0. |

PION (1) + PROTON (2) => KAON (3) + LAMBDA (4) AT 750 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 4.97710E-01 M4 = 1.11559E+00
P2CM= 1.87516E+01 P3CM= 1.87437E+01
E1CM= 1.87521E+01 E2CM= 1.87751E+01 E3CM= 1.87503E+01 E4CM= 1.87769E+01

1-V1LAB = 1.732E-08 1-VCM = 1.249E-03 GCM = 2.00105E+01 ETCM= 3.75272E+01 S = 1.40829E+03 -U=( 1.40590E+03) +T

| θ3 CM | COS(θ3) CM | 4-MOM TSFR SQUARE, T | θ3 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | θ4 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -5.911E-05 | 0. | 7.498E+02 | 1.507E+03 | 2.203E-07 | 6.249E-04 | 0. | 1.943E-01 | 1.015E+00 | 8.284E-01 | -9.309E+03 | 0. |
| 1 | 9.998E-01 | -1.071E-01 | 2.50E-02 | 7.497E+02 | 1.506E+03 | 2.203E-07 | 6.250E-04 | 5.25E+01 | 4.126E-01 | 1.066E+00 | 6.531E-01 | -6.860E+02 | 3.271E-01 |
| 2 | 9.994E-01 | -4.283E-01 | 5.00E-02 | 7.496E+02 | 1.506E+03 | 2.204E-07 | 6.253E-04 | 5.71E+01 | 7.789E-01 | 1.220E+00 | 4.275E-01 | 2.553E+01 | 6.541E-01 |
| 3 | 9.986E-01 | -9.634E-01 | 7.50E-02 | 7.493E+02 | 1.505E+03 | 2.206E-07 | 6.258E-04 | 5.42E+01 | 1.210E+00 | 1.475E+00 | 2.648E-01 | 6.347E+01 | 9.810E-01 |
| 4 | 9.976E-01 | -1.712E+00 | 1.00E-01 | 7.489E+02 | 1.505E+03 | 2.208E-07 | 6.264E-04 | 4.97E+01 | 1.714E+00 | 1.833E+00 | 1.619E-01 | 5.024E+01 | 1.307E+00 |
| 5 | 9.962E-01 | -2.675E+00 | 1.25E-01 | 7.484E+02 | 1.504E+03 | 2.211E-07 | 6.273E-04 | 4.52E+01 | 2.302E+00 | 2.293E+00 | 1.001E-01 | 3.554E+01 | 1.634E+00 |
| 6 | 9.945E-01 | -3.851E+00 | 1.50E-01 | 7.478E+02 | 1.502E+03 | 2.215E-07 | 6.283E-04 | 4.11E+01 | 2.983E+00 | 2.855E+00 | 6.337E-02 | 2.465E+01 | 1.959E+00 |
| 7 | 9.925E-01 | -5.240E+00 | 1.75E-01 | 7.470E+02 | 1.501E+03 | 2.220E-07 | 6.296E-04 | 3.74E+01 | 3.763E+00 | 3.518E+00 | 4.125E-02 | 1.717E+01 | 2.284E+00 |
| 8 | 9.903E-01 | -6.841E+00 | 2.00E-01 | 7.462E+02 | 1.499E+03 | 2.225E-07 | 6.310E-04 | 3.42E+01 | 4.646E+00 | 4.283E+00 | 2.764E-02 | 1.211E+01 | 2.609E+00 |
| 9 | 9.877E-01 | -8.655E+00 | 2.25E-01 | 7.452E+02 | 1.497E+03 | 2.230E-07 | 6.327E-04 | 3.14E+01 | 5.635E+00 | 5.149E+00 | 1.904E-02 | 8.690E+00 | 2.932E+00 |
| 10 | 9.848E-01 | -1.068E+01 | 2.51E-01 | 7.441E+02 | 1.495E+03 | 2.237E-07 | 6.345E-04 | 2.89E+01 | 6.732E+00 | 6.116E+00 | 1.346E-02 | 6.342E+00 | 3.255E+00 |
| 15 | 9.659E-01 | -2.395E+01 | 3.77E-01 | 7.370E+02 | 1.481E+03 | 2.280E-07 | 6.467E-04 | 2.05E+01 | 1.385E+01 | 1.246E+01 | 3.227E-03 | 1.665E+00 | 4.851E+00 |
| 20 | 9.397E-01 | -4.239E+01 | 5.05E-01 | 7.272E+02 | 1.461E+03 | 2.342E-07 | 6.643E-04 | 1.57E+01 | 2.370E+01 | 2.127E+01 | 1.106E-03 | 5.923E-01 | 6.411E+00 |
| 25 | 9.063E-01 | -6.586E+01 | 6.35E-01 | 7.147E+02 | 1.436E+03 | 2.425E-07 | 6.878E-04 | 1.26E+01 | 3.621E+01 | 3.248E+01 | 4.742E-04 | 2.587E-01 | 7.921E+00 |
| 30 | 8.660E-01 | -9.418E+01 | 7.68E-01 | 6.996E+02 | 1.406E+03 | 2.530E-07 | 7.178E-04 | 1.05E+01 | 5.131E+01 | 4.600E+01 | 2.363E-04 | 1.303E-01 | 9.372E+00 |
| 35 | 8.192E-01 | -1.271E+02 | 9.03E-01 | 6.821E+02 | 1.370E+03 | 2.662E-07 | 7.552E-04 | 8.98E+00 | 6.887E+01 | 6.174E+01 | 1.312E-04 | 7.278E-02 | 1.075E+01 |
| 40 | 7.660E-01 | -1.645E+02 | 1.04E+00 | 6.622E+02 | 1.330E+03 | 2.825E-07 | 8.012E-04 | 7.80E+00 | 8.877E+01 | 7.957E+01 | 7.897E-05 | 4.400E-02 | 1.205E+01 |
| 45 | 7.071E-01 | -2.059E+02 | 1.19E+00 | 6.401E+02 | 1.286E+03 | 3.023E-07 | 8.574E-04 | 6.87E+00 | 1.108E+02 | 9.937E+01 | 5.064E-05 | 2.830E-02 | 1.325E+01 |
| 50 | 6.428E-01 | -2.511E+02 | 1.34E+00 | 6.160E+02 | 1.238E+03 | 3.264E-07 | 9.258E-04 | 6.11E+00 | 1.349E+02 | 1.210E+02 | 3.417E-05 | 1.914E-02 | 1.436E+01 |
| 55 | 5.736E-01 | -2.998E+02 | 1.49E+00 | 5.901E+02 | 1.186E+03 | 3.557E-07 | 1.009E-03 | 5.48E+00 | 1.609E+02 | 1.442E+02 | 2.405E-05 | 1.349E-02 | 1.535E+01 |
| 60 | 5.000E-01 | -3.515E+02 | 1.65E+00 | 5.625E+02 | 1.130E+03 | 3.914E-07 | 1.110E-03 | 4.94E+00 | 1.884E+02 | 1.689E+02 | 1.753E-05 | 9.843E-03 | 1.623E+01 |
| 65 | 4.226E-01 | -4.059E+02 | 1.82E+00 | 5.335E+02 | 1.072E+03 | 4.351E-07 | 1.234E-03 | 4.48E+00 | 2.174E+02 | 1.949E+02 | 1.316E-05 | 7.400E-03 | 1.699E+01 |
| 70 | 3.420E-01 | -4.625E+02 | 2.01E+00 | 5.033E+02 | 1.011E+03 | 4.889E-07 | 1.387E-03 | 4.08E+00 | 2.476E+02 | 2.220E+02 | 1.015E-05 | 5.710E-03 | 1.761E+01 |
| 75 | 2.588E-01 | -5.210E+02 | 2.20E+00 | 4.722E+02 | 9.487E+02 | 5.556E-07 | 1.576E-03 | 3.72E+00 | 2.788E+02 | 2.499E+02 | 8.007E-06 | 4.507E-03 | 1.811E+01 |
| 80 | 1.736E-01 | -5.809E+02 | 2.40E+00 | 4.403E+02 | 8.846E+02 | 6.390E-07 | 1.812E-03 | 3.41E+00 | 3.197E+02 | 2.785E+02 | 6.447E-06 | 3.631E-03 | 1.846E+01 |
| 85 | 8.716E-02 | -6.417E+02 | 2.62E+00 | 4.079E+02 | 8.195E+02 | 7.446E-07 | 2.111E-03 | 3.12E+00 | 3.431E+02 | 3.075E+02 | 5.287E-06 | 2.978E-03 | 1.867E+01 |
| 90 | 0. | -7.029E+02 | 2.86E+00 | 3.752E+02 | 7.539E+02 | 8.798E-07 | 2.495E-03 | 2.86E+00 | 3.757E+02 | 3.368E+02 | 4.408E-06 | 2.484E-03 | 1.874E+01 |
| 95 | -8.716E-02 | -7.642E+02 | 3.12E+00 | 3.426E+02 | 6.883E+02 | 1.056E-06 | 2.993E-03 | 2.62E+00 | 4.084E+02 | 3.661E+02 | 3.731E-06 | 2.103E-03 | 1.867E+01 |
| 100 | -1.736E-01 | -8.250E+02 | 3.41E+00 | 3.102E+02 | 6.232E+02 | 1.288E-06 | 3.650E-03 | 2.40E+00 | 4.408E+02 | 3.951E+02 | 3.203E-06 | 1.806E-03 | 1.846E+01 |
| 105 | -2.588E-01 | -8.849E+02 | 3.73E+00 | 2.782E+02 | 5.591E+02 | 1.600E-06 | 4.535E-03 | 2.20E+00 | 4.727E+02 | 4.237E+02 | 2.785E-06 | 1.571E-03 | 1.811E+01 |
| 110 | -3.420E-01 | -9.434E+02 | 4.09E+00 | 2.471E+02 | 4.964E+02 | 2.029E-06 | 5.751E-03 | 2.00E+00 | 5.039E+02 | 4.517E+02 | 2.451E-06 | 1.383E-03 | 1.761E+01 |
| 115 | -4.226E-01 | -1.000E+03 | 4.49E+00 | 2.169E+02 | 4.358E+02 | 2.633E-06 | 7.462E-03 | 1.82E+00 | 5.340E+02 | 4.787E+02 | 2.182E-06 | 1.231E-03 | 1.699E+01 |
| 120 | -5.000E-01 | -1.054E+03 | 4.96E+00 | 1.879E+02 | 3.775E+02 | 3.508E-06 | 9.940E-03 | 1.65E+00 | 5.630E+02 | 5.047E+02 | 1.963E-06 | 1.108E-03 | 1.623E+01 |
| 125 | -5.736E-01 | -1.106E+03 | 5.50E+00 | 1.603E+02 | 3.222E+02 | 4.818E-06 | 1.365E-02 | 1.49E+00 | 5.906E+02 | 5.294E+02 | 1.784E-06 | 1.007E-03 | 1.535E+01 |
| 130 | -6.428E-01 | -1.155E+03 | 6.13E+00 | 1.344E+02 | 2.701E+02 | 6.855E-06 | 1.941E-02 | 1.33E+00 | 6.165E+02 | 5.526E+02 | 1.637E-06 | 9.239E-04 | 1.436E+01 |
| 135 | -7.071E-01 | -1.200E+03 | 6.90E+00 | 1.103E+02 | 2.217E+02 | 1.018E-05 | 2.881E-02 | 1.19E+00 | 6.406E+02 | 5.742E+02 | 1.516E-06 | 8.558E-04 | 1.325E+01 |
| 140 | -7.660E-01 | -1.241E+03 | 7.85E+00 | 8.824E+01 | 1.773E+02 | 1.591E-05 | 4.500E-02 | 1.04E+00 | 6.627E+02 | 5.940E+02 | 1.417E-06 | 7.998E-04 | 1.205E+01 |
| 145 | -8.192E-01 | -1.279E+03 | 9.05E+00 | 6.835E+01 | 1.373E+02 | 2.651E-05 | 7.495E-02 | 9.02E-01 | 6.826E+02 | 6.119E+02 | 1.336E-06 | 7.539E-04 | 1.075E+01 |
| 150 | -8.660E-01 | -1.312E+03 | 1.06E+01 | 5.079E+01 | 1.020E+02 | 4.802E-05 | 1.356E-01 | 7.67E-01 | 7.001E+02 | 6.276E+02 | 1.269E-06 | 7.166E-04 | 9.372E+00 |
| 155 | -9.063E-01 | -1.340E+03 | 1.28E+01 | 3.569E+01 | 7.172E+01 | 9.720E-05 | 2.738E-01 | 6.35E-01 | 7.152E+02 | 6.411E+02 | 1.216E-06 | 6.867E-04 | 7.921E+00 |
| 160 | -9.397E-01 | -1.364E+03 | 1.61E+01 | 2.319E+01 | 4.660E+01 | 2.303E-04 | 6.464E-01 | 5.05E-01 | 7.277E+02 | 6.523E+02 | 1.175E-06 | 6.633E-04 | 6.411E+00 |
| 165 | -9.659E-01 | -1.382E+03 | 2.13E+01 | 1.336E+01 | 2.685E+01 | 6.936E-04 | 1.933E+00 | 3.77E-01 | 7.376E+02 | 6.612E+02 | 1.144E-06 | 6.458E-04 | 4.851E+00 |
| 170 | -9.848E-01 | -1.395E+03 | 3.13E+01 | 6.272E+00 | 1.264E+01 | 3.134E-03 | 8.585E+00 | 2.50E-01 | 7.446E+02 | 6.675E+02 | 1.122E-06 | 6.336E-04 | 3.255E+00 |
| 175 | -9.962E-01 | -1.403E+03 | 5.63E+01 | 1.964E+00 | 4.071E+00 | 3.063E-02 | 8.171E+01 | 1.25E-01 | 7.489E+02 | 6.713E+02 | 1.109E-06 | 6.264E-04 | 1.634E+00 |
| 180 | -1.000E+00 | -1.406E+03 | 1.80E+02 | 3.366E-01 | 1.207E+00 | 4.398E-01 | 3.101E+03 | 0. | 7.503E+02 | 6.726E+02 | 1.105E-06 | 6.240E-04 | 0. |

PION (1) + PROTON (2) => KAON (3) + LAMBDA (4) AT 1000 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 9.38259E-01 M3 = 4.97710E-01 M4 = 1.11559E+00
P2CM= 2.16542E+01 P3CM= 2.16474E+01
E1CM= 2.16547E+01 E2CM= 2.16745E+01 E3CM= 2.16531E+01 E4CM= 2.16761E+01

1-V1LAB = 9.740E-09 1-VCM = 9.374E-04 GCM = 2.31008E+01 ETCM= 4.33292E+01 S = 1.87742E+03 -U=( 1.87503E+03) +T

| 03 CM | COS(03) CM | 4-MOM TSFR SQUARE, T | 03 LAB | P3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | 04 LAB | P4 LAB | GAMMA4 LAB | 1-V4 LAB | JACOBIAN 4 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000E+00 | -4.433E-05 | 0. | 9.998E+02 | 2.009E+03 | 1.239E-07 | 4.688E-04 | 0. | 1.942E-01 | 1.015E+00 | 8.265E-01 | -1.242E+04 | 0. |
| 1 | 9.998E-01 | -1.428E-01 | 2.17E-02 | 9.997E+02 | 2.009E+03 | 1.239E-07 | 4.689E-04 | 5.44E+01 | 4.646E-01 | 1.083E+00 | 6.156E-01 | -5.516E+02 | 3.778E-01 |
| 2 | 9.994E-01 | -5.712E-01 | 4.33E-02 | 9.995E+02 | 2.008E+03 | 1.240E-07 | 4.691E-04 | 5.66E+01 | 9.053E-01 | 1.288E+00 | 3.699E-01 | 6.980E+01 | 7.555E-01 |
| 3 | 9.986E-01 | -1.285E+00 | 6.50E-02 | 9.991E+02 | 2.007E+03 | 1.241E-07 | 4.694E-04 | 5.22E+01 | 1.434E+00 | 1.629E+00 | 2.107E-01 | 7.804E+01 | 1.133E+00 |
| 4 | 9.976E-01 | -2.284E+00 | 8.66E-02 | 9.986E+02 | 2.006E+03 | 1.242E-07 | 4.699E-04 | 4.69E+01 | 2.068E+00 | 2.106E+00 | 1.199E-01 | 5.431E+01 | 1.510E+00 |
| 5 | 9.962E-01 | -3.568E+00 | 1.08E-01 | 9.979E+02 | 2.005E+03 | 1.244E-07 | 4.706E-04 | 4.20E+01 | 2.821E+00 | 2.719E+00 | 7.008E-02 | 3.569E+01 | 1.887E+00 |
| 6 | 9.945E-01 | -5.136E+00 | 1.30E-01 | 9.971E+02 | 2.003E+03 | 1.246E-07 | 4.714E-04 | 3.76E+01 | 3.705E+00 | 3.468E+00 | 4.247E-02 | 2.346E+01 | 2.263E+00 |
| 7 | 9.925E-01 | -6.988E+00 | 1.52E-01 | 9.961E+02 | 2.001E+03 | 1.248E-07 | 4.723E-04 | 3.39E+01 | 4.726E+00 | 4.353E+00 | 2.674E-02 | 1.569E+01 | 2.638E+00 |
| 8 | 9.903E-01 | -9.124E+00 | 1.73E-01 | 9.949E+02 | 1.999E+03 | 1.251E-07 | 4.734E-04 | 3.08E+01 | 5.890E+00 | 5.373E+00 | 1.747E-02 | 1.072E+01 | 3.013E+00 |
| 9 | 9.877E-01 | -1.154E+01 | 1.95E-01 | 9.937E+02 | 1.996E+03 | 1.254E-07 | 4.746E-04 | 2.81E+01 | 7.197E+00 | 6.529E+00 | 1.180E-02 | 7.497E+00 | 3.386E+00 |
| 10 | 9.848E-01 | -1.424E+01 | 2.17E-01 | 9.922E+02 | 1.994E+03 | 1.258E-07 | 4.760E-04 | 2.58E+01 | 8.651E+00 | 7.819E+00 | 8.213E-03 | 5.361E+00 | 3.759E+00 |
| 15 | 9.659E-01 | -3.195E+01 | 3.27E-01 | 9.828E+02 | 1.975E+03 | 1.282E-07 | 4.852E-04 | 1.80E+01 | 1.812E+01 | 1.627E+01 | 1.890E-03 | 1.327E+00 | 5.603E+00 |
| 20 | 9.397E-01 | -5.654E+01 | 4.37E-01 | 9.697E+02 | 1.948E+03 | 1.317E-07 | 4.984E-04 | 1.37E+01 | 3.124E+01 | 2.802E+01 | 6.369E-04 | 4.606E-01 | 7.404E+00 |
| 25 | 9.063E-01 | -8.784E+01 | 5.50E-01 | 9.530E+02 | 1.915E+03 | 1.364E-07 | 5.160E-04 | 1.10E+01 | 4.793E+01 | 4.297E+01 | 2.708E-04 | 1.987E-01 | 9.149E+00 |
| 30 | 8.660E-01 | -1.256E+02 | 6.65E-01 | 9.329E+02 | 1.874E+03 | 1.423E-07 | 5.385E-04 | 9.15E+00 | 6.806E+01 | 6.101E+01 | 1.343E-04 | 9.935E-02 | 1.082E+01 |
| 35 | 8.192E-01 | -1.695E+02 | 7.82E-01 | 9.095E+02 | 1.827E+03 | 1.497E-07 | 5.665E-04 | 7.80E+00 | 9.148E+01 | 8.201E+01 | 7.435E-05 | 5.526E-02 | 1.242E+01 |
| 40 | 7.660E-01 | -2.193E+02 | 9.03E-01 | 8.829E+02 | 1.774E+03 | 1.589E-07 | 6.011E-04 | 6.77E+00 | 1.180E+02 | 1.058E+02 | 4.468E-05 | 3.332E-02 | 1.391E+01 |
| 45 | 7.071E-01 | -2.746E+02 | 1.03E+00 | 8.535E+02 | 1.715E+03 | 1.700E-07 | 6.433E-04 | 5.96E+00 | 1.475E+02 | 1.322E+02 | 2.862E-05 | 2.139E-02 | 1.531E+01 |
| 50 | 6.428E-01 | -3.349E+02 | 1.16E+00 | 8.213E+02 | 1.650E+03 | 1.836E-07 | 6.946E-04 | 5.30E+00 | 1.796E+02 | 1.610E+02 | 1.929E-05 | 1.444E-02 | 1.658E+01 |
| 55 | 5.736E-01 | -3.998E+02 | 1.29E+00 | 7.868E+02 | 1.581E+03 | 2.001E-07 | 7.570E-04 | 4.75E+00 | 2.142E+02 | 1.920E+02 | 1.357E-05 | 1.017E-02 | 1.773E+01 |
| 60 | 5.000E-01 | -4.688E+02 | 1.43E+00 | 7.500E+02 | 1.507E+03 | 2.202E-07 | 8.330E-04 | 4.28E+00 | 2.509E+02 | 2.249E+02 | 9.882E-06 | 7.413E-03 | 1.875E+01 |
| 65 | 4.226E-01 | -5.413E+02 | 1.58E+00 | 7.113E+02 | 1.429E+03 | 2.448E-07 | 9.260E-04 | 3.88E+00 | 2.896E+02 | 2.596E+02 | 7.420E-06 | 5.570E-03 | 1.962E+01 |
| 70 | 3.420E-01 | -6.169E+02 | 1.74E+00 | 6.711E+02 | 1.348E+03 | 2.750E-07 | 1.040E-03 | 3.54E+00 | 3.299E+02 | 2.957E+02 | 5.719E-06 | 4.295E-03 | 2.034E+01 |
| 75 | 2.588E-01 | -6.949E+02 | 1.90E+00 | 6.295E+02 | 1.265E+03 | 3.125E-07 | 1.182E-03 | 3.23E+00 | 3.714E+02 | 3.329E+02 | 4.511E-06 | 3.389E-03 | 2.091E+01 |
| 80 | 1.736E-01 | -7.747E+02 | 2.08E+00 | 5.870E+02 | 1.179E+03 | 3.595E-07 | 1.360E-03 | 2.95E+00 | 4.140E+02 | 3.711E+02 | 3.631E-06 | 2.729E-03 | 2.132E+01 |
| 85 | 8.716E-02 | -8.558E+02 | 2.27E+00 | 5.437E+02 | 1.092E+03 | 4.189E-07 | 1.585E-03 | 2.70E+00 | 4.572E+02 | 4.098E+02 | 2.977E-06 | 2.238E-03 | 2.156E+01 |
| 90 | 0. | -9.375E+02 | 2.48E+00 | 5.002E+02 | 1.005E+03 | 4.950E-07 | 1.872E-03 | 2.48E+00 | 5.007E+02 | 4.489E+02 | 2.482E-06 | 1.866E-03 | 2.165E+01 |
| 95 | -8.716E-02 | -1.019E+03 | 2.71E+00 | 4.567E+02 | 9.175E+02 | 5.939E-07 | 2.246E-03 | 2.27E+00 | 5.443E+02 | 4.879E+02 | 2.101E-06 | 1.580E-03 | 2.156E+01 |
| 100 | -1.736E-01 | -1.100E+03 | 2.96E+00 | 4.134E+02 | 8.307E+02 | 7.246E-07 | 2.740E-03 | 2.08E+00 | 5.875E+02 | 5.266E+02 | 1.803E-06 | 1.356E-03 | 2.132E+01 |
| 105 | -2.588E-01 | -1.180E+03 | 3.23E+00 | 3.709E+02 | 7.452E+02 | 9.004E-07 | 3.405E-03 | 1.90E+00 | 6.300E+02 | 5.648E+02 | 1.568E-06 | 1.180E-03 | 2.091E+01 |
| 110 | -3.420E-01 | -1.258E+03 | 3.54E+00 | 3.293E+02 | 6.617E+02 | 1.142E-06 | 4.318E-03 | 1.74E+00 | 6.716E+02 | 6.020E+02 | 1.380E-06 | 1.038E-03 | 2.034E+01 |
| 115 | -4.226E-01 | -1.334E+03 | 3.89E+00 | 2.891E+02 | 5.808E+02 | 1.482E-06 | 5.605E-03 | 1.58E+00 | 7.119E+02 | 6.381E+02 | 1.228E-06 | 9.242E-04 | 1.962E+01 |
| 120 | -5.000E-01 | -1.406E+03 | 4.29E+00 | 2.504E+02 | 5.031E+02 | 1.975E-06 | 7.468E-03 | 1.43E+00 | 7.505E+02 | 6.728E+02 | 1.105E-06 | 8.315E-04 | 1.875E+01 |
| 125 | -5.736E-01 | -1.475E+03 | 4.76E+00 | 2.136E+02 | 4.293E+02 | 2.714E-06 | 1.026E-02 | 1.29E+00 | 7.873E+02 | 7.057E+02 | 1.004E-06 | 7.558E-04 | 1.773E+01 |
| 130 | -6.428E-01 | -1.540E+03 | 5.31E+00 | 1.791E+02 | 3.598E+02 | 3.863E-06 | 1.460E-02 | 1.16E+00 | 8.219E+02 | 7.367E+02 | 9.212E-07 | 6.935E-04 | 1.658E+01 |
| 135 | -7.071E-01 | -1.600E+03 | 5.98E+00 | 1.469E+02 | 2.952E+02 | 5.737E-06 | 2.167E-02 | 1.03E+00 | 8.540E+02 | 7.655E+02 | 8.532E-07 | 6.424E-04 | 1.531E+01 |
| 140 | -7.660E-01 | -1.656E+03 | 6.80E+00 | 1.175E+02 | 2.361E+02 | 8.973E-06 | 3.388E-02 | 9.02E-01 | 8.835E+02 | 7.919E+02 | 7.973E-07 | 6.003E-04 | 1.391E+01 |
| 145 | -8.192E-01 | -1.705E+03 | 7.85E+00 | 9.095E+01 | 1.827E+02 | 1.497E-05 | 5.650E-02 | 7.82E-01 | 9.100E+02 | 8.157E+02 | 7.515E-07 | 5.658E-04 | 1.242E+01 |
| 150 | -8.660E-01 | -1.749E+03 | 9.22E+00 | 6.753E+01 | 1.357E+02 | 2.716E-05 | 1.024E-01 | 6.64E-01 | 9.334E+02 | 8.367E+02 | 7.142E-07 | 5.378E-04 | 1.082E+01 |
| 155 | -9.063E-01 | -1.787E+03 | 1.11E+01 | 4.741E+01 | 9.526E+01 | 5.511E-05 | 2.074E-01 | 5.50E-01 | 9.535E+02 | 8.547E+02 | 6.844E-07 | 5.154E-04 | 9.149E+00 |
| 160 | -9.397E-01 | -1.818E+03 | 1.39E+01 | 3.073E+01 | 6.174E+01 | 1.312E-04 | 4.923E-01 | 4.37E-01 | 9.702E+02 | 8.697E+02 | 6.611E-07 | 4.978E-04 | 7.404E+00 |
| 165 | -9.659E-01 | -1.843E+03 | 1.85E+01 | 1.762E+01 | 3.541E+01 | 3.988E-04 | 1.488E+00 | 3.26E-01 | 9.833E+02 | 8.814E+02 | 6.436E-07 | 4.846E-04 | 5.603E+00 |
| 170 | -9.848E-01 | -1.861E+03 | 2.74E+01 | 8.176E+00 | 1.646E+01 | 1.848E-03 | 6.799E+00 | 2.17E-01 | 9.927E+02 | 8.899E+02 | 6.314E-07 | 4.755E-04 | 3.759E+00 |
| 175 | -9.962E-01 | -1.871E+03 | 5.03E+01 | 2.452E+00 | 5.027E+00 | 1.998E-02 | 7.115E+01 | 1.08E-01 | 9.984E+02 | 8.950E+02 | 6.242E-07 | 4.701E-04 | 1.887E+00 |
| 180 | -1.000E+00 | -1.875E+03 | 1.80E+02 | 3.367E-01 | 1.207E+00 | 4.396E-01 | 4.133E+03 | 0. | 1.000E+03 | 8.967E+02 | 6.219E-07 | 4.683E-04 | 0. |

# IV. DECAY REACTION TABLES

PI ZERO (1) => GAMMA (2) + GAMMA (3) AT 10 GEV/C P1 LAB

M1 = 1.34964E-01 M2 = 0. M3 = 0.
P2CM= 6.74822E-02
E2CM= 6.74822E-02 E3CM= 6.74822E-02

1-V1LAB= 9.106E-05 GCM = 7.41003E+01 S = 1.82154E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.000E+01 | 1.000E+01 | INF | 0. | 4.553E-05 | 1.80E+02 | 4.554E-04 | 4.554E-04 | INF | 0. | 2.196E+04 | 0. |
| 1 | 6.75E-03 | 1.000E+01 | 1.000E+01 | INF | 0. | 4.554E-05 | 7.54E+01 | 1.217E-03 | 1.217E-03 | INF | 0. | 3.075E+03 | 1.178E-03 |
| 2 | 1.35E-02 | 9.997E+00 | 9.997E+00 | INF | 0. | 4.556E-05 | 4.23E+01 | 3.501E-03 | 3.501E-03 | INF | 0. | 3.715E+02 | 2.355E-03 |
| 3 | 2.02E-02 | 9.994E+00 | 9.994E+00 | INF | 0. | 4.560E-05 | 2.89E+01 | 7.308E-03 | 7.308E-03 | INF | 0. | 8.527E+01 | 3.532E-03 |
| 4 | 2.70E-02 | 9.988E+00 | 9.988E+00 | INF | 0. | 4.565E-05 | 2.19E+01 | 1.264E-02 | 1.264E-02 | INF | 0. | 2.852E+01 | 4.707E-03 |
| 5 | 3.38E-02 | 9.981E+00 | 9.981E+00 | INF | 0. | 4.571E-05 | 1.76E+01 | 1.948E-02 | 1.948E-02 | INF | 0. | 1.200E+01 | 5.881E-03 |
| 6 | 4.05E-02 | 9.973E+00 | 9.973E+00 | INF | 0. | 4.578E-05 | 1.47E+01 | 2.785E-02 | 2.785E-02 | INF | 0. | 5.873E+00 | 7.054E-03 |
| 7 | 4.73E-02 | 9.963E+00 | 9.963E+00 | INF | 0. | 4.588E-05 | 1.26E+01 | 3.772E-02 | 3.772E-02 | INF | 0. | 3.200E+00 | 8.224E-03 |
| 8 | 5.41E-02 | 9.952E+00 | 9.952E+00 | INF | 0. | 4.598E-05 | 1.10E+01 | 4.912E-02 | 4.912E-02 | INF | 0. | 1.888E+00 | 9.392E-03 |
| 9 | 6.09E-02 | 9.939E+00 | 9.939E+00 | INF | 0. | 4.610E-05 | 9.80E+00 | 6.201E-02 | 6.201E-02 | INF | 0. | 1.184E+00 | 1.056E-02 |
| 10 | 6.77E-02 | 9.924E+00 | 9.924E+00 | INF | 0. | 4.623E-05 | 8.82E+00 | 7.642E-02 | 7.642E-02 | INF | 0. | 7.798E-01 | 1.172E-02 |
| 15 | 1.02E-01 | 9.830E+00 | 9.830E+00 | INF | 0. | 4.713E-05 | 5.87E+00 | 1.708E-01 | 1.708E-01 | INF | 0. | 1.561E-01 | 1.747E-02 |
| 20 | 1.36E-01 | 9.699E+00 | 9.699E+00 | INF | 0. | 4.841E-05 | 4.38E+00 | 3.020E-01 | 3.020E-01 | INF | 0. | 4.993E-02 | 2.308E-02 |
| 25 | 1.71E-01 | 9.532E+00 | 9.532E+00 | INF | 0. | 5.012E-05 | 3.49E+00 | 4.689E-01 | 4.689E-01 | INF | 0. | 2.071E-02 | 2.852E-02 |
| 30 | 2.07E-01 | 9.331E+00 | 9.331E+00 | INF | 0. | 5.231E-05 | 2.89E+00 | 6.703E-01 | 6.703E-01 | INF | 0. | 1.013E-02 | 3.374E-02 |
| 35 | 2.44E-01 | 9.096E+00 | 9.096E+00 | INF | 0. | 5.504E-05 | 2.45E+00 | 9.047E-01 | 9.047E-01 | INF | 0. | 5.564E-03 | 3.871E-02 |
| 40 | 2.81E-01 | 8.831E+00 | 8.831E+00 | INF | 0. | 5.840E-05 | 2.12E+00 | 1.170E+00 | 1.170E+00 | INF | 0. | 3.325E-03 | 4.338E-02 |
| 45 | 3.20E-01 | 8.536E+00 | 8.536E+00 | INF | 0. | 6.250E-05 | 1.87E+00 | 1.465E+00 | 1.465E+00 | INF | 0. | 2.122E-03 | 4.772E-02 |
| 50 | 3.61E-01 | 8.214E+00 | 8.214E+00 | INF | 0. | 6.749E-05 | 1.66E+00 | 1.787E+00 | 1.787E+00 | INF | 0. | 1.427E-03 | 5.169E-02 |
| 55 | 4.03E-01 | 7.868E+00 | 7.868E+00 | INF | 0. | 7.356E-05 | 1.49E+00 | 2.133E+00 | 2.133E+00 | INF | 0. | 1.001E-03 | 5.528E-02 |
| 60 | 4.46E-01 | 7.500E+00 | 7.500E+00 | INF | 0. | 8.095E-05 | 1.34E+00 | 2.500E+00 | 2.500E+00 | INF | 0. | 7.284E-04 | 5.844E-02 |
| 65 | 4.93E-01 | 7.114E+00 | 7.114E+00 | INF | 0. | 8.999E-05 | 1.21E+00 | 2.887E+00 | 2.887E+00 | INF | 0. | 5.462E-04 | 6.116E-02 |
| 70 | 5.41E-01 | 6.711E+00 | 6.711E+00 | INF | 0. | 1.011E-04 | 1.10E+00 | 3.290E+00 | 3.290E+00 | INF | 0. | 4.206E-04 | 6.341E-02 |
| 75 | 5.93E-01 | 6.295E+00 | 6.295E+00 | INF | 0. | 1.149E-04 | 1.01E+00 | 3.706E+00 | 3.706E+00 | INF | 0. | 3.315E-04 | 6.518E-02 |
| 80 | 6.49E-01 | 5.869E+00 | 5.869E+00 | INF | 0. | 1.322E-04 | 9.22E-01 | 4.132E+00 | 4.132E+00 | INF | 0. | 2.667E-04 | 6.646E-02 |
| 85 | 7.09E-01 | 5.436E+00 | 5.436E+00 | INF | 0. | 1.541E-04 | 8.44E-01 | 4.565E+00 | 4.565E+00 | INF | 0. | 2.186E-04 | 6.723E-02 |
| 90 | 7.73E-01 | 5.000E+00 | 5.000E+00 | INF | 0. | 1.821E-04 | 7.73E-01 | 5.000E+00 | 5.000E+00 | INF | 0. | 1.821E-04 | 6.748E-02 |
| 95 | 8.44E-01 | 4.565E+00 | 4.565E+00 | INF | 0. | 2.186E-04 | 7.09E-01 | 5.436E+00 | 5.436E+00 | INF | 0. | 1.541E-04 | 6.723E-02 |
| 100 | 9.22E-01 | 4.132E+00 | 4.132E+00 | INF | 0. | 2.667E-04 | 6.49E-01 | 5.869E+00 | 5.869E+00 | INF | 0. | 1.322E-04 | 6.646E-02 |
| 105 | 1.01E+00 | 3.706E+00 | 3.706E+00 | INF | 0. | 3.315E-04 | 5.93E-01 | 6.295E+00 | 6.295E+00 | INF | 0. | 1.149E-04 | 6.518E-02 |
| 110 | 1.10E+00 | 3.290E+00 | 3.290E+00 | INF | 0. | 4.206E-04 | 5.41E-01 | 6.711E+00 | 6.711E+00 | INF | 0. | 1.011E-04 | 6.341E-02 |
| 115 | 1.21E+00 | 2.887E+00 | 2.887E+00 | INF | 0. | 5.462E-04 | 4.93E-01 | 7.114E+00 | 7.114E+00 | INF | 0. | 8.999E-05 | 6.116E-02 |
| 120 | 1.34E+00 | 2.500E+00 | 2.500E+00 | INF | 0. | 7.284E-04 | 4.46E-01 | 7.500E+00 | 7.500E+00 | INF | 0. | 8.095E-05 | 5.844E-02 |
| 125 | 1.49E+00 | 2.133E+00 | 2.133E+00 | INF | 0. | 1.001E-03 | 4.03E-01 | 7.868E+00 | 7.868E+00 | INF | 0. | 7.356E-05 | 5.528E-02 |
| 130 | 1.66E+00 | 1.787E+00 | 1.787E+00 | INF | 0. | 1.427E-03 | 3.61E-01 | 8.214E+00 | 8.214E+00 | INF | 0. | 6.749E-05 | 5.169E-02 |
| 135 | 1.87E+00 | 1.465E+00 | 1.465E+00 | INF | 0. | 2.122E-03 | 3.20E-01 | 8.536E+00 | 8.536E+00 | INF | 0. | 6.250E-05 | 4.772E-02 |
| 140 | 2.12E+00 | 1.170E+00 | 1.170E+00 | INF | 0. | 3.325E-03 | 2.81E-01 | 8.831E+00 | 8.831E+00 | INF | 0. | 5.840E-05 | 4.338E-02 |
| 145 | 2.45E+00 | 9.047E-01 | 9.047E-01 | INF | 0. | 5.564E-03 | 2.44E-01 | 9.096E+00 | 9.096E+00 | INF | 0. | 5.504E-05 | 3.871E-02 |
| 150 | 2.89E+00 | 6.703E-01 | 6.703E-01 | INF | 0. | 1.013E-02 | 2.07E-01 | 9.331E+00 | 9.331E+00 | INF | 0. | 5.231E-05 | 3.374E-02 |
| 155 | 3.49E+00 | 4.689E-01 | 4.689E-01 | INF | 0. | 2.071E-02 | 1.71E-01 | 9.532E+00 | 9.532E+00 | INF | 0. | 5.012E-05 | 2.852E-02 |
| 160 | 4.38E+00 | 3.020E-01 | 3.020E-01 | INF | 0. | 4.993E-02 | 1.36E-01 | 9.699E+00 | 9.699E+00 | INF | 0. | 4.841E-05 | 2.308E-02 |
| 165 | 5.87E+00 | 1.708E-01 | 1.708E-01 | INF | 0. | 1.561E-01 | 1.02E-01 | 9.830E+00 | 9.830E+00 | INF | 0. | 4.713E-05 | 1.747E-02 |
| 170 | 8.82E+00 | 7.642E-02 | 7.642E-02 | INF | 0. | 7.798E-01 | 6.77E-02 | 9.924E+00 | 9.924E+00 | INF | 0. | 4.623E-05 | 1.172E-02 |
| 175 | 1.76E+01 | 1.948E-02 | 1.948E-02 | INF | 0. | 1.200E+01 | 3.38E-02 | 9.981E+00 | 9.981E+00 | INF | 0. | 4.571E-05 | 5.881E-03 |
| 180 | 1.80E+02 | 4.554E-04 | 4.554E-04 | INF | 0. | 2.196E+04 | 0. | 1.000E+01 | 1.000E+01 | INF | 0. | 4.553E-05 | 0. |

PI ZERO (1) => GAMMA (2) + GAMMA (3) AT 20 GEV/C P1 LAB

M1 = 1.34964E-01 M2 = 0. M3 = 0.
P2CM= 6.74822E-02
E2CM= 6.74822E-02 E3CM= 6.74822E-02

1-V1LAB= 2.277E-05 GCM = 1.48190E+02 S = 1.82154E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.000E+01 | 2.000E+01 | INF | 0. | 1.138E-05 | 1.80E+02 | 2.277E-04 | 2.277E-04 | INF | 0. | 8.784E+04 | 0. |
| 1 | 3.37E-03 | 2.000E+01 | 2.000E+01 | INF | 0. | 1.139E-05 | 4.23E+01 | 1.751E-03 | 1.751E-03 | INF | 0. | 1.486E+03 | 1.178E-03 |
| 2 | 6.75E-03 | 1.999E+01 | 1.999E+01 | INF | 0. | 1.139E-05 | 2.19E+01 | 6.319E-03 | 6.319E-03 | INF | 0. | 1.140E+02 | 2.355E-03 |
| 3 | 1.01E-02 | 1.999E+01 | 1.999E+01 | INF | 0. | 1.140E-05 | 1.47E+01 | 1.393E-02 | 1.393E-02 | INF | 0. | 2.346E+01 | 3.532E-03 |
| 4 | 1.35E-02 | 1.998E+01 | 1.998E+01 | INF | 0. | 1.141E-05 | 1.10E+01 | 2.459E-02 | 2.459E-02 | INF | 0. | 7.533E+00 | 4.707E-03 |
| 5 | 1.69E-02 | 1.996E+01 | 1.996E+01 | INF | 0. | 1.143E-05 | 8.84E+00 | 3.828E-02 | 3.828E-02 | INF | 0. | 3.108E+00 | 5.881E-03 |
| 6 | 2.03E-02 | 1.995E+01 | 1.995E+01 | INF | 0. | 1.145E-05 | 7.37E+00 | 5.501E-02 | 5.501E-02 | INF | 0. | 1.505E+00 | 7.054E-03 |
| 7 | 2.36E-02 | 1.993E+01 | 1.993E+01 | INF | 0. | 1.147E-05 | 6.32E+00 | 7.477E-02 | 7.477E-02 | INF | 0. | 8.146E-01 | 8.224E-03 |
| 8 | 2.70E-02 | 1.990E+01 | 1.990E+01 | INF | 0. | 1.150E-05 | 5.52E+00 | 9.755E-02 | 9.755E-02 | INF | 0. | 4.786E-01 | 9.392E-03 |
| 9 | 3.04E-02 | 1.988E+01 | 1.988E+01 | INF | 0. | 1.153E-05 | 4.91E+00 | 1.233E-01 | 1.233E-01 | INF | 0. | 2.993E-01 | 1.056E-02 |
| 10 | 3.38E-02 | 1.985E+01 | 1.985E+01 | INF | 0. | 1.156E-05 | 4.42E+00 | 1.522E-01 | 1.522E-01 | INF | 0. | 1.967E-01 | 1.172E-02 |
| 15 | 5.09E-02 | 1.966E+01 | 1.966E+01 | INF | 0. | 1.178E-05 | 2.94E+00 | 3.410E-01 | 3.410E-01 | INF | 0. | 3.917E-02 | 1.747E-02 |
| 20 | 6.82E-02 | 1.940E+01 | 1.940E+01 | INF | 0. | 1.210E-05 | 2.19E+00 | 6.033E-01 | 6.033E-01 | INF | 0. | 1.251E-02 | 2.308E-02 |
| 25 | 8.57E-02 | 1.906E+01 | 1.906E+01 | INF | 0. | 1.253E-05 | 1.74E+00 | 9.371E-01 | 9.371E-01 | INF | 0. | 5.185E-03 | 2.852E-02 |
| 30 | 1.04E-01 | 1.866E+01 | 1.866E+01 | INF | 0. | 1.308E-05 | 1.44E+00 | 1.340E+00 | 1.340E+00 | INF | 0. | 2.536E-03 | 3.374E-02 |
| 35 | 1.22E-01 | 1.819E+01 | 1.819E+01 | INF | 0. | 1.376E-05 | 1.23E+00 | 1.809E+00 | 1.809E+00 | INF | 0. | 1.392E-03 | 3.871E-02 |
| 40 | 1.41E-01 | 1.766E+01 | 1.766E+01 | INF | 0. | 1.460E-05 | 1.06E+00 | 2.340E+00 | 2.340E+00 | INF | 0. | 8.318E-04 | 4.338E-02 |
| 45 | 1.60E-01 | 1.707E+01 | 1.707E+01 | INF | 0. | 1.563E-05 | 9.33E-01 | 2.929E+00 | 2.929E+00 | INF | 0. | 5.308E-04 | 4.772E-02 |
| 50 | 1.80E-01 | 1.643E+01 | 1.643E+01 | INF | 0. | 1.687E-05 | 8.29E-01 | 3.572E+00 | 3.572E+00 | INF | 0. | 3.568E-04 | 5.169E-02 |
| 55 | 2.01E-01 | 1.574E+01 | 1.574E+01 | INF | 0. | 1.839E-05 | 7.43E-01 | 4.264E+00 | 4.264E+00 | INF | 0. | 2.504E-04 | 5.528E-02 |
| 60 | 2.23E-01 | 1.500E+01 | 1.500E+01 | INF | 0. | 2.024E-05 | 6.70E-01 | 5.000E+00 | 5.000E+00 | INF | 0. | 1.821E-04 | 5.844E-02 |
| 65 | 2.46E-01 | 1.423E+01 | 1.423E+01 | INF | 0. | 2.250E-05 | 6.07E-01 | 5.774E+00 | 5.774E+00 | INF | 0. | 1.366E-04 | 6.116E-02 |
| 70 | 2.71E-01 | 1.342E+01 | 1.342E+01 | INF | 0. | 2.528E-05 | 5.52E-01 | 6.580E+00 | 6.580E+00 | INF | 0. | 1.052E-04 | 6.341E-02 |
| 75 | 2.97E-01 | 1.259E+01 | 1.259E+01 | INF | 0. | 2.874E-05 | 5.04E-01 | 7.412E+00 | 7.412E+00 | INF | 0. | 8.289E-05 | 6.518E-02 |
| 80 | 3.24E-01 | 1.174E+01 | 1.174E+01 | INF | 0. | 3.306E-05 | 4.61E-01 | 8.264E+00 | 8.264E+00 | INF | 0. | 6.668E-05 | 6.646E-02 |
| 85 | 3.54E-01 | 1.087E+01 | 1.087E+01 | INF | 0. | 3.853E-05 | 4.22E-01 | 9.129E+00 | 9.129E+00 | INF | 0. | 5.465E-05 | 6.723E-02 |
| 90 | 3.87E-01 | 1.000E+01 | 1.000E+01 | INF | 0. | 4.554E-05 | 3.87E-01 | 1.000E+01 | 1.000E+01 | INF | 0. | 4.554E-05 | 6.748E-02 |
| 95 | 4.22E-01 | 9.129E+00 | 9.129E+00 | INF | 0. | 5.465E-05 | 3.54E-01 | 1.087E+01 | 1.087E+01 | INF | 0. | 3.853E-05 | 6.723E-02 |
| 100 | 4.61E-01 | 8.264E+00 | 8.264E+00 | INF | 0. | 6.668E-05 | 3.24E-01 | 1.174E+01 | 1.174E+01 | INF | 0. | 3.306E-05 | 6.646E-02 |
| 105 | 5.04E-01 | 7.412E+00 | 7.412E+00 | INF | 0. | 8.289E-05 | 2.97E-01 | 1.259E+01 | 1.259E+01 | INF | 0. | 2.874E-05 | 6.518E-02 |
| 110 | 5.52E-01 | 6.580E+00 | 6.580E+00 | INF | 0. | 1.052E-04 | 2.71E-01 | 1.342E+01 | 1.342E+01 | INF | 0. | 2.528E-05 | 6.341E-02 |
| 115 | 6.07E-01 | 5.774E+00 | 5.774E+00 | INF | 0. | 1.366E-04 | 2.46E-01 | 1.423E+01 | 1.423E+01 | INF | 0. | 2.250E-05 | 6.116E-02 |
| 120 | 6.70E-01 | 5.000E+00 | 5.000E+00 | INF | 0. | 1.821E-04 | 2.23E-01 | 1.500E+01 | 1.500E+01 | INF | 0. | 2.024E-05 | 5.844E-02 |
| 125 | 7.43E-01 | 4.264E+00 | 4.264E+00 | INF | 0. | 2.504E-04 | 2.01E-01 | 1.574E+01 | 1.574E+01 | INF | 0. | 1.839E-05 | 5.528E-02 |
| 130 | 8.29E-01 | 3.572E+00 | 3.572E+00 | INF | 0. | 3.568E-04 | 1.80E-01 | 1.643E+01 | 1.643E+01 | INF | 0. | 1.687E-05 | 5.169E-02 |
| 135 | 9.33E-01 | 2.929E+00 | 2.929E+00 | INF | 0. | 5.308E-04 | 1.60E-01 | 1.707E+01 | 1.707E+01 | INF | 0. | 1.563E-05 | 4.772E-02 |
| 140 | 1.06E+00 | 2.340E+00 | 2.340E+00 | INF | 0. | 8.318E-04 | 1.41E-01 | 1.766E+01 | 1.766E+01 | INF | 0. | 1.460E-05 | 4.338E-02 |
| 145 | 1.23E+00 | 1.809E+00 | 1.809E+00 | INF | 0. | 1.392E-03 | 1.22E-01 | 1.819E+01 | 1.819E+01 | INF | 0. | 1.376E-05 | 3.871E-02 |
| 150 | 1.44E+00 | 1.340E+00 | 1.340E+00 | INF | 0. | 2.536E-03 | 1.04E-01 | 1.866E+01 | 1.866E+01 | INF | 0. | 1.308E-05 | 3.374E-02 |
| 155 | 1.74E+00 | 9.371E-01 | 9.371E-01 | INF | 0. | 5.185E-03 | 8.57E-02 | 1.906E+01 | 1.906E+01 | INF | 0. | 1.253E-05 | 2.852E-02 |
| 160 | 2.19E+00 | 6.033E-01 | 6.033E-01 | INF | 0. | 1.251E-02 | 6.82E-02 | 1.940E+01 | 1.940E+01 | INF | 0. | 1.210E-05 | 2.308E-02 |
| 165 | 2.94E+00 | 3.410E-01 | 3.410E-01 | INF | 0. | 3.917E-02 | 5.09E-02 | 1.966E+01 | 1.966E+01 | INF | 0. | 1.178E-05 | 1.747E-02 |
| 170 | 4.42E+00 | 1.522E-01 | 1.522E-01 | INF | 0. | 1.967E-01 | 3.38E-02 | 1.985E+01 | 1.985E+01 | INF | 0. | 1.156E-05 | 1.172E-02 |
| 175 | 8.84E+00 | 3.828E-02 | 3.828E-02 | INF | 0. | 3.108E+00 | 1.69E-02 | 1.996E+01 | 1.996E+01 | INF | 0. | 1.143E-05 | 5.881E-03 |
| 180 | 1.80E+02 | 2.277E-04 | 2.277E-04 | INF | 0. | 8.784E+04 | 0. | 2.000E+01 | 2.000E+01 | INF | 0. | 1.138E-05 | 0. |

PI ZERO (1) => GAMMA (2) + GAMMA (3) AT 30 GEV/C P1 LAB

M1 = 1.34964E-01 M2 = 0. M3 = 0.
P2CM= 6.74822E-02
E2CM= 6.74822E-02 E3CM= 6.74822E-02

1-V1LAB= 1.012E-05 GCM = 2.22283E+02 S = 1.82154E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 3.000E+01 | 3.000E+01 | INF | 0. | 5.060E-06 | 1.80E+02 | 1.518E-04 | 1.518E-04 | INF | 0. | 1.976E+05 | 0. |
| 1 | 2.25E-03 | 3.000E+01 | 3.000E+01 | INF | 0. | 5.061E-06 | 2.89E+01 | 2.436E-03 | 2.436E-03 | INF | 0. | 7.672E+02 | 1.178E-03 |
| 2 | 4.50E-03 | 2.999E+01 | 2.999E+01 | INF | 0. | 5.063E-06 | 1.47E+01 | 9.289E-03 | 9.289E-03 | INF | 0. | 5.277E+01 | 2.355E-03 |
| 3 | 6.75E-03 | 2.998E+01 | 2.998E+01 | INF | 0. | 5.067E-06 | 9.82E+00 | 2.071E-02 | 2.071E-02 | INF | 0. | 1.062E+01 | 3.532E-03 |
| 4 | 9.00E-03 | 2.996E+01 | 2.996E+01 | INF | 0. | 5.072E-06 | 7.37E+00 | 3.669E-02 | 3.669E-02 | INF | 0. | 3.383E+00 | 4.707E-03 |
| 5 | 1.13E-02 | 2.994E+01 | 2.994E+01 | INF | 0. | 5.079E-06 | 5.90E+00 | 5.723E-02 | 5.723E-02 | INF | 0. | 1.390E+00 | 5.881E-03 |
| 6 | 1.35E-02 | 2.992E+01 | 2.992E+01 | INF | 0. | 5.088E-06 | 4.92E+00 | 8.232E-02 | 8.232E-02 | INF | 0. | 6.719E-01 | 7.054E-03 |
| 7 | 1.58E-02 | 2.989E+01 | 2.989E+01 | INF | 0. | 5.098E-06 | 4.21E+00 | 1.120E-01 | 1.120E-01 | INF | 0. | 3.633E-01 | 8.224E-03 |
| 8 | 1.80E-02 | 2.985E+01 | 2.985E+01 | INF | 0. | 5.109E-06 | 3.68E+00 | 1.461E-01 | 1.461E-01 | INF | 0. | 2.133E-01 | 9.392E-03 |
| 9 | 2.03E-02 | 2.982E+01 | 2.982E+01 | INF | 0. | 5.123E-06 | 3.27E+00 | 1.848E-01 | 1.848E-01 | INF | 0. | 1.333E-01 | 1.056E-02 |
| 10 | 2.26E-02 | 2.977E+01 | 2.977E+01 | INF | 0. | 5.138E-06 | 2.95E+00 | 2.280E-01 | 2.280E-01 | INF | 0. | 8.757E-02 | 1.172E-02 |
| 15 | 3.39E-02 | 2.949E+01 | 2.949E+01 | INF | 0. | 5.237E-06 | 1.96E+00 | 5.113E-01 | 5.113E-01 | INF | 0. | 1.742E-02 | 1.747E-02 |
| 20 | 4.55E-02 | 2.910E+01 | 2.910E+01 | INF | 0. | 5.379E-06 | 1.46E+00 | 9.048E-01 | 9.048E-01 | INF | 0. | 5.563E-03 | 2.308E-02 |
| 25 | 5.71E-02 | 2.859E+01 | 2.859E+01 | INF | 0. | 5.569E-06 | 1.16E+00 | 1.406E+00 | 1.406E+00 | INF | 0. | 2.305E-03 | 2.852E-02 |
| 30 | 6.91E-02 | 2.799E+01 | 2.799E+01 | INF | 0. | 5.812E-06 | 9.62E-01 | 2.010E+00 | 2.010E+00 | INF | 0. | 1.127E-03 | 3.374E-02 |
| 35 | 8.13E-02 | 2.729E+01 | 2.729E+01 | INF | 0. | 6.116E-06 | 8.18E-01 | 2.713E+00 | 2.713E+00 | INF | 0. | 6.188E-04 | 3.871E-02 |
| 40 | 9.38E-02 | 2.649E+01 | 2.649E+01 | INF | 0. | 6.489E-06 | 7.08E-01 | 3.509E+00 | 3.509E+00 | INF | 0. | 3.697E-04 | 4.338E-02 |
| 45 | 1.07E-01 | 2.561E+01 | 2.561E+01 | INF | 0. | 6.945E-06 | 6.22E-01 | 4.394E+00 | 4.394E+00 | INF | 0. | 2.359E-04 | 4.772E-02 |
| 50 | 1.20E-01 | 2.464E+01 | 2.464E+01 | INF | 0. | 7.499E-06 | 5.53E-01 | 5.358E+00 | 5.358E+00 | INF | 0. | 1.586E-04 | 5.169E-02 |
| 55 | 1.34E-01 | 2.360E+01 | 2.360E+01 | INF | 0. | 8.174E-06 | 4.95E-01 | 6.397E+00 | 6.397E+00 | INF | 0. | 1.113E-04 | 5.528E-02 |
| 60 | 1.49E-01 | 2.250E+01 | 2.250E+01 | INF | 0. | 8.995E-06 | 4.46E-01 | 7.500E+00 | 7.500E+00 | INF | 0. | 8.095E-05 | 5.844E-02 |
| 65 | 1.64E-01 | 2.134E+01 | 2.134E+01 | INF | 0. | 1.000E-05 | 4.05E-01 | 8.661E+00 | 8.661E+00 | INF | 0. | 6.071E-05 | 6.116E-02 |
| 70 | 1.80E-01 | 2.013E+01 | 2.013E+01 | INF | 0. | 1.124E-05 | 3.68E-01 | 9.870E+00 | 9.870E+00 | INF | 0. | 4.675E-05 | 6.341E-02 |
| 75 | 1.98E-01 | 1.888E+01 | 1.888E+01 | INF | 0. | 1.277E-05 | 3.36E-01 | 1.112E+01 | 1.112E+01 | INF | 0. | 3.684E-05 | 6.518E-02 |
| 80 | 2.16E-01 | 1.760E+01 | 1.760E+01 | INF | 0. | 1.469E-05 | 3.07E-01 | 1.240E+01 | 1.240E+01 | INF | 0. | 2.964E-05 | 6.646E-02 |
| 85 | 2.36E-01 | 1.631E+01 | 1.631E+01 | INF | 0. | 1.712E-05 | 2.81E-01 | 1.369E+01 | 1.369E+01 | INF | 0. | 2.429E-05 | 6.723E-02 |
| 90 | 2.58E-01 | 1.500E+01 | 1.500E+01 | INF | 0. | 2.024E-05 | 2.58E-01 | 1.500E+01 | 1.500E+01 | INF | 0. | 2.024E-05 | 6.748E-02 |
| 95 | 2.81E-01 | 1.369E+01 | 1.369E+01 | INF | 0. | 2.429E-05 | 2.36E-01 | 1.631E+01 | 1.631E+01 | INF | 0. | 1.712E-05 | 6.723E-02 |
| 100 | 3.07E-01 | 1.240E+01 | 1.240E+01 | INF | 0. | 2.964E-05 | 2.16E-01 | 1.760E+01 | 1.760E+01 | INF | 0. | 1.469E-05 | 6.646E-02 |
| 105 | 3.36E-01 | 1.112E+01 | 1.112E+01 | INF | 0. | 3.684E-05 | 1.98E-01 | 1.888E+01 | 1.888E+01 | INF | 0. | 1.277E-05 | 6.518E-02 |
| 110 | 3.68E-01 | 9.870E+00 | 9.870E+00 | INF | 0. | 4.675E-05 | 1.80E-01 | 2.013E+01 | 2.013E+01 | INF | 0. | 1.124E-05 | 6.341E-02 |
| 115 | 4.05E-01 | 8.661E+00 | 8.661E+00 | INF | 0. | 6.071E-05 | 1.64E-01 | 2.134E+01 | 2.134E+01 | INF | 0. | 1.000E-05 | 6.116E-02 |
| 120 | 4.46E-01 | 7.500E+00 | 7.500E+00 | INF | 0. | 8.095E-05 | 1.49E-01 | 2.250E+01 | 2.250E+01 | INF | 0. | 8.995E-06 | 5.844E-02 |
| 125 | 4.95E-01 | 6.397E+00 | 6.397E+00 | INF | 0. | 1.113E-04 | 1.34E-01 | 2.360E+01 | 2.360E+01 | INF | 0. | 8.174E-06 | 5.528E-02 |
| 130 | 5.53E-01 | 5.358E+00 | 5.358E+00 | INF | 0. | 1.586E-04 | 1.20E-01 | 2.464E+01 | 2.464E+01 | INF | 0. | 7.499E-06 | 5.169E-02 |
| 135 | 6.22E-01 | 4.394E+00 | 4.394E+00 | INF | 0. | 2.359E-04 | 1.07E-01 | 2.561E+01 | 2.561E+01 | INF | 0. | 6.945E-06 | 4.772E-02 |
| 140 | 7.08E-01 | 3.509E+00 | 3.509E+00 | INF | 0. | 3.697E-04 | 9.38E-02 | 2.649E+01 | 2.649E+01 | INF | 0. | 6.489E-06 | 4.338E-02 |
| 145 | 8.18E-01 | 2.713E+00 | 2.713E+00 | INF | 0. | 6.188E-04 | 8.13E-02 | 2.729E+01 | 2.729E+01 | INF | 0. | 6.116E-06 | 3.871E-02 |
| 150 | 9.62E-01 | 2.010E+00 | 2.010E+00 | INF | 0. | 1.127E-03 | 6.91E-02 | 2.799E+01 | 2.799E+01 | INF | 0. | 5.812E-06 | 3.374E-02 |
| 155 | 1.16E+00 | 1.406E+00 | 1.406E+00 | INF | 0. | 2.305E-03 | 5.71E-02 | 2.859E+01 | 2.859E+01 | INF | 0. | 5.569E-06 | 2.852E-02 |
| 160 | 1.46E+00 | 9.048E-01 | 9.048E-01 | INF | 0. | 5.563E-03 | 4.55E-02 | 2.910E+01 | 2.910E+01 | INF | 0. | 5.379E-06 | 2.308E-02 |
| 165 | 1.96E+00 | 5.113E-01 | 5.113E-01 | INF | 0. | 1.742E-02 | 3.39E-02 | 2.949E+01 | 2.949E+01 | INF | 0. | 5.237E-06 | 1.747E-02 |
| 170 | 2.95E+00 | 2.280E-01 | 2.280E-01 | INF | 0. | 8.757E-02 | 2.26E-02 | 2.977E+01 | 2.977E+01 | INF | 0. | 5.138E-06 | 1.172E-02 |
| 175 | 5.90E+00 | 5.723E-02 | 5.723E-02 | INF | 0. | 1.390E+00 | 1.13E-02 | 2.994E+01 | 2.994E+01 | INF | 0. | 5.079E-06 | 5.841E-03 |
| 180 | 1.80E+02 | 1.518E-04 | 1.518E-04 | INF | 0. | 1.976E+05 | 0. | 3.000E+01 | 3.000E+01 | INF | 0. | 5.060E-06 | 0. |

PI ZERO (1) => GAMMA (2) + GAMMA (3) AT 40 GEV/C P1 LAB

M1 = 1.34964E-01 M2 = 0. M3 = 0.
P2CM= 6.74822E-02
E2CM= 6.74822E-02 E3CM= 6.74822E-02

1-V1LAB= 5.692E-06 GCM = 2.96376E+02 S = 1.82154E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 4.000E+01 | 4.000E+01 | INF | 0. | 2.846E-06 | 1.80E+02 | 1.138E-04 | 1.138E-04 | INF | 0. | 3.514E+05 | 0. |
| 1 | 1.69E-03 | 4.000E+01 | 4.000E+01 | INF | 0. | 2.847E-06 | 2.19E+01 | 3.160E-03 | 3.160E-03 | INF | 0. | 4.561E+02 | 1.178E-03 |
| 2 | 3.37E-03 | 3.999E+01 | 3.999E+01 | INF | 0. | 2.848E-06 | 1.10E+01 | 1.230E-02 | 1.230E-02 | INF | 0. | 3.011E+01 | 2.355E-03 |
| 3 | 5.06E-03 | 3.997E+01 | 3.997E+01 | INF | 0. | 2.850E-06 | 7.37E+00 | 2.752E-02 | 2.752E-02 | INF | 0. | 6.011E+00 | 3.532E-03 |
| 4 | 6.75E-03 | 3.995E+01 | 3.995E+01 | INF | 0. | 2.853E-06 | 5.53E+00 | 4.883E-02 | 4.883E-02 | INF | 0. | 1.910E+00 | 4.707E-03 |
| 5 | 8.44E-03 | 3.992E+01 | 3.992E+01 | INF | 0. | 2.857E-06 | 4.43E+00 | 7.622E-02 | 7.622E-02 | INF | 0. | 7.839E-01 | 5.881E-03 |
| 6 | 1.01E-02 | 3.989E+01 | 3.989E+01 | INF | 0. | 2.862E-06 | 3.69E+00 | 1.097E-01 | 1.097E-01 | INF | 0. | 3.786E-01 | 7.054E-03 |
| 7 | 1.18E-02 | 3.985E+01 | 3.985E+01 | INF | 0. | 2.867E-06 | 3.16E+00 | 1.492E-01 | 1.492E-01 | INF | 0. | 2.046E-01 | 8.224E-03 |
| 8 | 1.35E-02 | 3.981E+01 | 3.981E+01 | INF | 0. | 2.874E-06 | 2.76E+00 | 1.948E-01 | 1.948E-01 | INF | 0. | 1.201E-01 | 9.392E-03 |
| 9 | 1.52E-02 | 3.975E+01 | 3.975E+01 | INF | 0. | 2.882E-06 | 2.46E+00 | 2.463E-01 | 2.463E-01 | INF | 0. | 7.504E-02 | 1.056E-02 |
| 10 | 1.69E-02 | 3.970E+01 | 3.970E+01 | INF | 0. | 2.890E-06 | 2.21E+00 | 3.040E-01 | 3.040E-01 | INF | 0. | 4.929E-02 | 1.172E-02 |
| 15 | 2.55E-02 | 3.932E+01 | 3.932E+01 | INF | 0. | 2.946E-06 | 1.47E+00 | 6.816E-01 | 6.816E-01 | INF | 0. | 9.802E-03 | 1.747E-02 |
| 20 | 3.41E-02 | 3.879E+01 | 3.879E+01 | INF | 0. | 3.026E-06 | 1.10E+00 | 1.206E+00 | 1.206E+00 | INF | 0. | 3.130E-03 | 2.308E-02 |
| 25 | 4.29E-02 | 3.813E+01 | 3.813E+01 | INF | 0. | 3.133E-06 | 8.72E-01 | 1.874E+00 | 1.874E+00 | INF | 0. | 1.297E-03 | 2.852E-02 |
| 30 | 5.18E-02 | 3.732E+01 | 3.732E+01 | INF | 0. | 3.270E-06 | 7.21E-01 | 2.680E+00 | 2.680E+00 | INF | 0. | 6.742E-04 | 3.374E-02 |
| 35 | 6.10E-02 | 3.638E+01 | 3.638E+01 | INF | 0. | 3.440E-06 | 6.13E-01 | 3.617E+00 | 3.617E+00 | INF | 0. | 3.481E-04 | 3.871E-02 |
| 40 | 7.04E-02 | 3.532E+01 | 3.532E+01 | INF | 0. | 3.650E-06 | 5.31E-01 | 4.679E+00 | 4.679E+00 | INF | 0. | 2.080E-04 | 4.338E-02 |
| 45 | 8.01E-02 | 3.414E+01 | 3.414E+01 | INF | 0. | 3.907E-06 | 4.67E-01 | 5.858E+00 | 5.858E+00 | INF | 0. | 1.327E-04 | 4.772E-02 |
| 50 | 9.01E-02 | 3.286E+01 | 3.286E+01 | INF | 0. | 4.218E-06 | 4.15E-01 | 7.144E+00 | 7.144E+00 | INF | 0. | 8.922E-05 | 5.169E-02 |
| 55 | 1.01E-01 | 3.147E+01 | 3.147E+01 | INF | 0. | 4.598E-06 | 3.71E-01 | 8.529E+00 | 8.529E+00 | INF | 0. | 6.261E-05 | 5.528E-02 |
| 60 | 1.12E-01 | 3.000E+01 | 3.000E+01 | INF | 0. | 5.060E-06 | 3.35E-01 | 1.000E+01 | 1.000E+01 | INF | 0. | 4.554E-05 | 5.844E-02 |
| 65 | 1.23E-01 | 2.845E+01 | 2.845E+01 | INF | 0. | 5.625E-06 | 3.03E-01 | 1.155E+01 | 1.155E+01 | INF | 0. | 3.415E-05 | 6.116E-02 |
| 70 | 1.35E-01 | 2.684E+01 | 2.684E+01 | INF | 0. | 6.321E-06 | 2.76E-01 | 1.316E+01 | 1.316E+01 | INF | 0. | 2.630E-05 | 6.341E-02 |
| 75 | 1.48E-01 | 2.518E+01 | 2.518E+01 | INF | 0. | 7.184E-06 | 2.52E-01 | 1.482E+01 | 1.482E+01 | INF | 0. | 2.072E-05 | 6.518E-02 |
| 80 | 1.62E-01 | 2.347E+01 | 2.347E+01 | INF | 0. | 8.265E-06 | 2.30E-01 | 1.653E+01 | 1.653E+01 | INF | 0. | 1.667E-05 | 6.646E-02 |
| 85 | 1.77E-01 | 2.174E+01 | 2.174E+01 | INF | 0. | 9.632E-06 | 2.11E-01 | 1.826E+01 | 1.826E+01 | INF | 0. | 1.366E-05 | 6.723E-02 |
| 90 | 1.93E-01 | 2.000E+01 | 2.000E+01 | INF | 0. | 1.138E-05 | 1.93E-01 | 2.000E+01 | 2.000E+01 | INF | 0. | 1.138E-05 | 6.748E-02 |
| 95 | 2.11E-01 | 1.826E+01 | 1.826E+01 | INF | 0. | 1.366E-05 | 1.77E-01 | 2.174E+01 | 2.174E+01 | INF | 0. | 9.632E-06 | 6.723E-02 |
| 100 | 2.30E-01 | 1.653E+01 | 1.653E+01 | INF | 0. | 1.667E-05 | 1.62E-01 | 2.347E+01 | 2.347E+01 | INF | 0. | 8.265E-06 | 6.646E-02 |
| 105 | 2.52E-01 | 1.482E+01 | 1.482E+01 | INF | 0. | 2.072E-05 | 1.48E-01 | 2.518E+01 | 2.518E+01 | INF | 0. | 7.184E-06 | 6.518E-02 |
| 110 | 2.76E-01 | 1.316E+01 | 1.316E+01 | INF | 0. | 2.630E-05 | 1.35E-01 | 2.684E+01 | 2.684E+01 | INF | 0. | 6.321E-06 | 6.341E-02 |
| 115 | 3.03E-01 | 1.155E+01 | 1.155E+01 | INF | 0. | 3.415E-05 | 1.23E-01 | 2.845E+01 | 2.845E+01 | INF | 0. | 5.625E-06 | 6.116E-02 |
| 120 | 3.35E-01 | 1.000E+01 | 1.000E+01 | INF | 0. | 4.554E-05 | 1.12E-01 | 3.000E+01 | 3.000E+01 | INF | 0. | 5.060E-06 | 5.844E-02 |
| 125 | 3.71E-01 | 8.529E+00 | 8.529E+00 | INF | 0. | 6.261E-05 | 1.01E-01 | 3.147E+01 | 3.147E+01 | INF | 0. | 4.598E-06 | 5.528E-02 |
| 130 | 4.15E-01 | 7.144E+00 | 7.144E+00 | INF | 0. | 8.922E-05 | 9.01E-02 | 3.286E+01 | 3.286E+01 | INF | 0. | 4.218E-06 | 5.169E-02 |
| 135 | 4.67E-01 | 5.858E+00 | 5.858E+00 | INF | 0. | 1.327E-04 | 8.01E-02 | 3.414E+01 | 3.414E+01 | INF | 0. | 3.907E-06 | 4.772E-02 |
| 140 | 5.31E-01 | 4.679E+00 | 4.679E+00 | INF | 0. | 2.080E-04 | 7.04E-02 | 3.532E+01 | 3.532E+01 | INF | 0. | 3.650E-06 | 4.338E-02 |
| 145 | 6.13E-01 | 3.617E+00 | 3.617E+00 | INF | 0. | 3.481E-04 | 6.10E-02 | 3.638E+01 | 3.638E+01 | INF | 0. | 3.440E-06 | 3.871E-02 |
| 150 | 7.21E-01 | 2.680E+00 | 2.680E+00 | INF | 0. | 6.342E-04 | 5.18E-02 | 3.732E+01 | 3.732E+01 | INF | 0. | 3.270E-06 | 3.374E-02 |
| 155 | 8.72E-01 | 1.874E+00 | 1.874E+00 | INF | 0. | 1.297E-03 | 4.29E-02 | 3.813E+01 | 3.813E+01 | INF | 0. | 3.133E-06 | 2.852E-02 |
| 160 | 1.10E+00 | 1.206E+00 | 1.206E+00 | INF | 0. | 3.130E-03 | 3.41E-02 | 3.879E+01 | 3.879E+01 | INF | 0. | 3.026E-06 | 2.308E-02 |
| 165 | 1.47E+00 | 6.816E-01 | 6.816E-01 | INF | 0. | 9.802E-03 | 2.55E-02 | 3.932E+01 | 3.932E+01 | INF | 0. | 2.946E-06 | 1.747E-02 |
| 170 | 2.21E+00 | 3.040E-01 | 3.040E-01 | INF | 0. | 4.929E-02 | 1.69E-02 | 3.970E+01 | 3.970E+01 | INF | 0. | 2.890E-06 | 1.172E-02 |
| 175 | 4.43E+00 | 7.622E-02 | 7.622E-02 | INF | 0. | 7.839E-01 | 8.44E-03 | 3.992E+01 | 3.992E+01 | INF | 0. | 2.857E-06 | 5.881E-03 |
| 180 | 1.80E+02 | 1.138E-04 | 1.138E-04 | INF | 0. | 3.514E+05 | 0. | 4.000E+01 | 4.000E+01 | INF | 0. | 2.846E-06 | 0. |

PI ZERO (1) => GAMMA (2) + GAMMA (3) AT 50 GEV/C P1 LAB

M1 = 1.34964E-01 M2 = 0. M3 = 0.
P2CM= 6.74822E-02
E2CM= 6.74822E-02 E3CM= 6.74822E-02

1-V1LAB= 3.643E-06 GCM = 3.70469E+02 S = 1.82154E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 5.000E+01 | 5.000E+01 | INF | 0. | 1.822E-06 | 1.80E+02 | 9.108E-05 | 9.108E-05 | INF | 0. | 5.490E+05 | 0. |
| 1 | 1.35E-03 | 5.000E+01 | 5.000E+01 | INF | 0. | 1.822E-06 | 1.76E+01 | 3.899E-03 | 3.899E-03 | INF | 0. | 2.996E+02 | 1.178E-03 |
| 2 | 2.70E-03 | 4.998E+01 | 4.998E+01 | INF | 0. | 1.823E-06 | 8.84E+00 | 1.532E-02 | 1.532E-02 | INF | 0. | 1.940E+01 | 2.355E-03 |
| 3 | 4.05E-03 | 4.997E+01 | 4.997E+01 | INF | 0. | 1.824E-06 | 5.90E+00 | 3.435E-02 | 3.435E-02 | INF | 0. | 3.859E+00 | 3.532E-03 |
| 4 | 5.40E-03 | 4.994E+01 | 4.994E+01 | INF | 0. | 1.826E-06 | 4.43E+00 | 6.099E-02 | 6.099E-02 | INF | 0. | 1.224E+00 | 4.707E-03 |
| 5 | 6.75E-03 | 4.990E+01 | 4.990E+01 | INF | 0. | 1.828E-06 | 3.54E+00 | 9.522E-02 | 9.522E-02 | INF | 0. | 5.022E-01 | 5.881E-03 |
| 6 | 8.11E-03 | 4.986E+01 | 4.986E+01 | INF | 0. | 1.832E-06 | 2.95E+00 | 1.370E-01 | 1.370E-01 | INF | 0. | 2.425E-01 | 7.054E-03 |
| 7 | 9.46E-03 | 4.981E+01 | 4.981E+01 | INF | 0. | 1.835E-06 | 2.53E+00 | 1.864E-01 | 1.864E-01 | INF | 0. | 1.310E-01 | 8.224E-03 |
| 8 | 1.08E-02 | 4.976E+01 | 4.976E+01 | INF | 0. | 1.839E-06 | 2.21E+00 | 2.434E-01 | 2.434E-01 | INF | 0. | 7.687E-02 | 9.392E-03 |
| 9 | 1.22E-02 | 4.969E+01 | 4.969E+01 | INF | 0. | 1.844E-06 | 1.96E+00 | 3.079E-01 | 3.079E-01 | INF | 0. | 4.804E-02 | 1.056E-02 |
| 10 | 1.35E-02 | 4.962E+01 | 4.962E+01 | INF | 0. | 1.850E-06 | 1.77E+00 | 3.799E-01 | 3.799E-01 | INF | 0. | 3.155E-02 | 1.172E-02 |
| 15 | 2.04E-02 | 4.915E+01 | 4.915E+01 | INF | 0. | 1.885E-06 | 1.17E+00 | 8.519E-01 | 8.519E-01 | INF | 0. | 6.274E-03 | 1.747E-02 |
| 20 | 2.73E-02 | 4.849E+01 | 4.849E+01 | INF | 0. | 1.937E-06 | 8.77E-01 | 1.508E+00 | 1.508E+00 | INF | 0. | 2.003E-03 | 2.308E-02 |
| 25 | 3.43E-02 | 4.766E+01 | 4.766E+01 | INF | 0. | 2.005E-06 | 6.98E-01 | 2.342E+00 | 2.342E+00 | INF | 0. | 8.300E-04 | 2.852E-02 |
| 30 | 4.14E-02 | 4.665E+01 | 4.665E+01 | INF | 0. | 2.092E-06 | 5.77E-01 | 3.349E+00 | 3.349E+00 | INF | 0. | 4.059E-04 | 3.374E-02 |
| 35 | 4.88E-02 | 4.548E+01 | 4.548E+01 | INF | 0. | 2.202E-06 | 4.91E-01 | 4.521E+00 | 4.521E+00 | INF | 0. | 2.228E-04 | 3.871E-02 |
| 40 | 5.63E-02 | 4.415E+01 | 4.415E+01 | INF | 0. | 2.336E-06 | 4.25E-01 | 5.849E+00 | 5.849E+00 | INF | 0. | 1.331E-04 | 4.338E-02 |
| 45 | 6.41E-02 | 4.268E+01 | 4.268E+01 | INF | 0. | 2.500E-06 | 3.73E-01 | 7.322E+00 | 7.322E+00 | INF | 0. | 8.493E-05 | 4.772E-02 |
| 50 | 7.21E-02 | 4.107E+01 | 4.107E+01 | INF | 0. | 2.700E-06 | 3.32E-01 | 8.930E+00 | 8.930E+00 | INF | 0. | 5.710E-05 | 5.169E-02 |
| 55 | 8.05E-02 | 3.934E+01 | 3.934E+01 | INF | 0. | 2.943E-06 | 2.97E-01 | 1.066E+01 | 1.066E+01 | INF | 0. | 4.007E-05 | 5.528E-02 |
| 60 | 8.93E-02 | 3.750E+01 | 3.750E+01 | INF | 0. | 3.238E-06 | 2.68E-01 | 1.250E+01 | 1.250E+01 | INF | 0. | 2.914E-05 | 5.844E-02 |
| 65 | 9.85E-02 | 3.557E+01 | 3.557E+01 | INF | 0. | 3.600E-06 | 2.43E-01 | 1.443E+01 | 1.443E+01 | INF | 0. | 2.186E-05 | 6.116E-02 |
| 70 | 1.08E-01 | 3.355E+01 | 3.355E+01 | INF | 0. | 4.046E-06 | 2.21E-01 | 1.645E+01 | 1.645E+01 | INF | 0. | 1.683E-05 | 6.341E-02 |
| 75 | 1.19E-01 | 3.147E+01 | 3.147E+01 | INF | 0. | 4.598E-06 | 2.02E-01 | 1.853E+01 | 1.853E+01 | INF | 0. | 1.326E-05 | 6.518E-02 |
| 80 | 1.30E-01 | 2.934E+01 | 2.934E+01 | INF | 0. | 5.290E-06 | 1.84E-01 | 2.066E+01 | 2.066E+01 | INF | 0. | 1.067E-05 | 6.646E-02 |
| 85 | 1.42E-01 | 2.718E+01 | 2.718E+01 | INF | 0. | 6.165E-06 | 1.69E-01 | 2.282E+01 | 2.282E+01 | INF | 0. | 8.744E-06 | 6.723E-02 |
| 90 | 1.55E-01 | 2.500E+01 | 2.500E+01 | INF | 0. | 7.286E-06 | 1.55E-01 | 2.500E+01 | 2.500E+01 | INF | 0. | 7.286E-06 | 6.748E-02 |
| 95 | 1.69E-01 | 2.282E+01 | 2.282E+01 | INF | 0. | 8.744E-06 | 1.42E-01 | 2.718E+01 | 2.718E+01 | INF | 0. | 6.165E-06 | 6.723E-02 |
| 100 | 1.84E-01 | 2.066E+01 | 2.066E+01 | INF | 0. | 1.067E-05 | 1.30E-01 | 2.934E+01 | 2.934E+01 | INF | 0. | 5.290E-06 | 6.646E-02 |
| 105 | 2.02E-01 | 1.853E+01 | 1.853E+01 | INF | 0. | 1.326E-05 | 1.19E-01 | 3.147E+01 | 3.147E+01 | INF | 0. | 4.598E-06 | 6.518E-02 |
| 110 | 2.21E-01 | 1.645E+01 | 1.645E+01 | INF | 0. | 1.683E-05 | 1.08E-01 | 3.355E+01 | 3.355E+01 | INF | 0. | 4.046E-06 | 6.341E-02 |
| 115 | 2.43E-01 | 1.443E+01 | 1.443E+01 | INF | 0. | 2.186E-05 | 9.85E-02 | 3.557E+01 | 3.557E+01 | INF | 0. | 3.600E-06 | 6.116E-02 |
| 120 | 2.68E-01 | 1.250E+01 | 1.250E+01 | INF | 0. | 2.914E-05 | 8.93E-02 | 3.750E+01 | 3.750E+01 | INF | 0. | 3.238E-06 | 5.844E-02 |
| 125 | 2.97E-01 | 1.066E+01 | 1.066E+01 | INF | 0. | 4.007E-05 | 8.05E-02 | 3.934E+01 | 3.934E+01 | INF | 0. | 2.943E-06 | 5.528E-02 |
| 130 | 3.32E-01 | 8.930E+00 | 8.930E+00 | INF | 0. | 5.710E-05 | 7.21E-02 | 4.107E+01 | 4.107E+01 | INF | 0. | 2.700E-06 | 5.169E-02 |
| 135 | 3.73E-01 | 7.322E+00 | 7.322E+00 | INF | 0. | 8.493E-05 | 6.41E-02 | 4.268E+01 | 4.268E+01 | INF | 0. | 2.500E-06 | 4.772E-02 |
| 140 | 4.25E-01 | 5.849E+00 | 5.849E+00 | INF | 0. | 1.331E-04 | 5.63E-02 | 4.415E+01 | 4.415E+01 | INF | 0. | 2.336E-06 | 4.338E-02 |
| 145 | 4.91E-01 | 4.521E+00 | 4.521E+00 | INF | 0. | 2.228E-04 | 4.88E-02 | 4.548E+01 | 4.548E+01 | INF | 0. | 2.202E-06 | 3.871E-02 |
| 150 | 5.77E-01 | 3.349E+00 | 3.349E+00 | INF | 0. | 4.059E-04 | 4.14E-02 | 4.665E+01 | 4.665E+01 | INF | 0. | 2.092E-06 | 3.374E-02 |
| 155 | 6.98E-01 | 2.342E+00 | 2.342E+00 | INF | 0. | 8.300E-04 | 3.43E-02 | 4.766E+01 | 4.766E+01 | INF | 0. | 2.005E-06 | 2.852E-02 |
| 160 | 8.77E-01 | 1.508E+00 | 1.508E+00 | INF | 0. | 2.003E-03 | 2.73E-02 | 4.849E+01 | 4.849E+01 | INF | 0. | 1.937E-06 | 2.308E-02 |
| 165 | 1.17E+00 | 8.519E-01 | 8.519E-01 | INF | 0. | 6.274E-03 | 2.04E-02 | 4.915E+01 | 4.915E+01 | INF | 0. | 1.885E-06 | 1.747E-02 |
| 170 | 1.77E+00 | 3.799E-01 | 3.799E-01 | INF | 0. | 3.155E-02 | 1.35E-02 | 4.962E+01 | 4.962E+01 | INF | 0. | 1.850E-06 | 1.172E-02 |
| 175 | 3.54E+00 | 9.522E-02 | 9.522E-02 | INF | 0. | 5.022E-01 | 6.75E-03 | 4.990E+01 | 4.990E+01 | INF | 0. | 1.828E-06 | 5.841E-03 |
| 180 | 1.80E+02 | 9.108E-05 | 9.108E-05 | INF | 0. | 5.490E+05 | 0. | 5.000E+01 | 5.000E+01 | INF | 0. | 1.822E-06 | 0. |

PI ZERO (1) => GAMMA (2) + GAMMA (3) AT 60 GEV/C P1 LAB

M1 = 1.34964E-01 M2 = 0. M3 = 0.
P2CM= 6.74822E-02
E2CM= 6.74822E-02 E3CM= 6.74822E-02

1-V1LAB= 2.53CE-06 GCM = 4.44562E+02 S = 1.82154E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 6.000E+01 | 6.000E+01 | INF | 0. | 1.265E-06 | 1.80E+02 | 7.590E-05 | 7.590E-05 | INF | 0. | 7.905E+05 | 0. |
| 1 | 1.12E-03 | 6.000E+01 | 6.000E+01 | INF | 0. | 1.265E-06 | 1.47E+01 | 4.645E-03 | 4.645E-03 | INF | 0. | 2.111E+02 | 1.178E-03 |
| 2 | 2.25E-03 | 5.998E+01 | 5.998E+01 | INF | 0. | 1.266E-06 | 7.37E+00 | 1.835E-02 | 1.835E-02 | INF | 0. | 1.352E+01 | 2.355E-03 |
| 3 | 3.37E-03 | 5.996E+01 | 5.996E+01 | INF | 0. | 1.267E-06 | 4.92E+00 | 4.119E-02 | 4.119E-02 | INF | 0. | 2.684E+00 | 3.532E-03 |
| 4 | 4.50E-03 | 5.993E+01 | 5.993E+01 | INF | 0. | 1.268E-06 | 3.69E+00 | 7.315E-02 | 7.315E-02 | INF | 0. | 8.509E-01 | 4.707E-03 |
| 5 | 5.63E-03 | 5.989E+01 | 5.989E+01 | INF | 0. | 1.270E-06 | 2.95E+00 | 1.142E-01 | 1.142E-01 | INF | 0. | 3.490E-01 | 5.881E-03 |
| 6 | 6.75E-03 | 5.984E+01 | 5.984E+01 | INF | 0. | 1.272E-06 | 2.46E+00 | 1.644E-01 | 1.644E-01 | INF | 0. | 1.685E-01 | 7.054E-03 |
| 7 | 7.88E-03 | 5.978E+01 | 5.978E+01 | INF | 0. | 1.274E-06 | 2.11E+00 | 2.237E-01 | 2.237E-01 | INF | 0. | 9.101E-02 | 8.224E-03 |
| 8 | 9.01E-03 | 5.971E+01 | 5.971E+01 | INF | 0. | 1.277E-06 | 1.84E+00 | 2.920E-01 | 2.920E-01 | INF | 0. | 5.340E-02 | 9.392E-03 |
| 9 | 1.01E-02 | 5.963E+01 | 5.963E+01 | INF | 0. | 1.281E-06 | 1.64E+00 | 3.694E-01 | 3.694E-01 | INF | 0. | 3.337E-02 | 1.056E-02 |
| 10 | 1.13E-02 | 5.954E+01 | 5.954E+01 | INF | 0. | 1.284E-06 | 1.47E+00 | 4.558E-01 | 4.558E-01 | INF | 0. | 2.192E-02 | 1.172E-02 |
| 15 | 1.70E-02 | 5.898E+01 | 5.898E+01 | INF | 0. | 1.309E-06 | 9.79E-01 | 1.022E+00 | 1.022E+00 | INF | 0. | 4.357E-03 | 1.747E-02 |
| 20 | 2.27E-02 | 5.819E+01 | 5.819E+01 | INF | 0. | 1.345E-06 | 7.31E-01 | 1.809E+00 | 1.809E+00 | INF | 0. | 1.391E-03 | 2.308E-02 |
| 25 | 2.86E-02 | 5.719E+01 | 5.719E+01 | INF | 0. | 1.392E-06 | 5.81E-01 | 2.811E+00 | 2.811E+00 | INF | 0. | 5.764E-04 | 2.852E-02 |
| 30 | 3.45E-02 | 5.598E+01 | 5.598E+01 | INF | 0. | 1.453E-06 | 4.81E-01 | 4.019E+00 | 4.019E+00 | INF | 0. | 2.819E-04 | 3.374E-02 |
| 35 | 4.06E-02 | 5.457E+01 | 5.457E+01 | INF | 0. | 1.529E-06 | 4.09E-01 | 5.426E+00 | 5.426E+00 | INF | 0. | 1.547E-04 | 3.871E-02 |
| 40 | 4.69E-02 | 5.298E+01 | 5.298E+01 | INF | 0. | 1.622E-06 | 3.54E-01 | 7.019E+00 | 7.019E+00 | INF | 0. | 9.244E-05 | 4.338E-02 |
| 45 | 5.34E-02 | 5.121E+01 | 5.121E+01 | INF | 0. | 1.736E-06 | 3.11E-01 | 8.787E+00 | 8.787E+00 | INF | 0. | 5.898E-05 | 4.772E-02 |
| 50 | 6.01E-02 | 4.928E+01 | 4.928E+01 | INF | 0. | 1.875E-06 | 2.76E-01 | 1.072E+01 | 1.072E+01 | INF | 0. | 3.965E-05 | 5.169E-02 |
| 55 | 6.71E-02 | 4.721E+01 | 4.721E+01 | INF | 0. | 2.043E-06 | 2.48E-01 | 1.279E+01 | 1.279E+01 | INF | 0. | 2.783E-05 | 5.528E-02 |
| 60 | 7.44E-02 | 4.500E+01 | 4.500E+01 | INF | 0. | 2.249E-06 | 2.23E-01 | 1.500E+01 | 1.500E+01 | INF | 0. | 2.024E-05 | 5.844E-02 |
| 65 | 8.21E-02 | 4.268E+01 | 4.268E+01 | INF | 0. | 2.500E-06 | 2.02E-01 | 1.732E+01 | 1.732E+01 | INF | 0. | 1.518E-05 | 6.116E-02 |
| 70 | 9.02E-02 | 4.026E+01 | 4.026E+01 | INF | 0. | 2.809E-06 | 1.84E-01 | 1.974E+01 | 1.974E+01 | INF | 0. | 1.169E-05 | 6.341E-02 |
| 75 | 9.89E-02 | 3.776E+01 | 3.776E+01 | INF | 0. | 3.193E-06 | 1.68E-01 | 2.224E+01 | 2.224E+01 | INF | 0. | 9.211E-06 | 6.518E-02 |
| 80 | 1.08E-01 | 3.521E+01 | 3.521E+01 | INF | 0. | 3.673E-06 | 1.54E-01 | 2.479E+01 | 2.479E+01 | INF | 0. | 7.410E-06 | 6.646E-02 |
| 85 | 1.18E-01 | 3.261E+01 | 3.261E+01 | INF | 0. | 4.281E-06 | 1.41E-01 | 2.739E+01 | 2.739E+01 | INF | 0. | 6.072E-06 | 6.723E-02 |
| 90 | 1.29E-01 | 3.000E+01 | 3.000E+01 | INF | 0. | 5.060E-06 | 1.29E-01 | 3.000E+01 | 3.000E+01 | INF | 0. | 5.060E-06 | 6.748E-02 |
| 95 | 1.41E-01 | 2.739E+01 | 2.739E+01 | INF | 0. | 6.072E-06 | 1.18E-01 | 3.261E+01 | 3.261E+01 | INF | 0. | 4.281E-06 | 6.723E-02 |
| 100 | 1.54E-01 | 2.479E+01 | 2.479E+01 | INF | 0. | 7.410E-06 | 1.08E-01 | 3.521E+01 | 3.521E+01 | INF | 0. | 3.673E-06 | 6.646E-02 |
| 105 | 1.68E-01 | 2.224E+01 | 2.224E+01 | INF | 0. | 9.211E-06 | 9.89E-02 | 3.776E+01 | 3.776E+01 | INF | 0. | 3.193E-06 | 6.518E-02 |
| 110 | 1.84E-01 | 1.974E+01 | 1.974E+01 | INF | 0. | 1.169E-05 | 9.02E-02 | 4.026E+01 | 4.026E+01 | INF | 0. | 2.809E-06 | 6.341E-02 |
| 115 | 2.02E-01 | 1.732E+01 | 1.732E+01 | INF | 0. | 1.518E-05 | 8.21E-02 | 4.268E+01 | 4.268E+01 | INF | 0. | 2.500E-06 | 6.116E-02 |
| 120 | 2.23E-01 | 1.500E+01 | 1.500E+01 | INF | 0. | 2.024E-05 | 7.44E-02 | 4.500E+01 | 4.500E+01 | INF | 0. | 2.249E-06 | 5.844E-02 |
| 125 | 2.48E-01 | 1.279E+01 | 1.279E+01 | INF | 0. | 2.783E-05 | 6.71E-02 | 4.721E+01 | 4.721E+01 | INF | 0. | 2.043E-06 | 5.528E-02 |
| 130 | 2.76E-01 | 1.072E+01 | 1.072E+01 | INF | 0. | 3.965E-05 | 6.01E-02 | 4.928E+01 | 4.928E+01 | INF | 0. | 1.875E-06 | 5.169E-02 |
| 135 | 3.11E-01 | 8.787E+00 | 8.787E+00 | INF | 0. | 5.898E-05 | 5.34E-02 | 5.121E+01 | 5.121E+01 | INF | 0. | 1.736E-06 | 4.772E-02 |
| 140 | 3.54E-01 | 7.019E+00 | 7.019E+00 | INF | 0. | 9.244E-05 | 4.69E-02 | 5.298E+01 | 5.298E+01 | INF | 0. | 1.622E-06 | 4.338E-02 |
| 145 | 4.09E-01 | 5.426E+00 | 5.426E+00 | INF | 0. | 1.547E-04 | 4.06E-02 | 5.457E+01 | 5.457E+01 | INF | 0. | 1.529E-06 | 3.871E-02 |
| 150 | 4.81E-01 | 4.019E+00 | 4.019E+00 | INF | 0. | 2.819E-04 | 3.45E-02 | 5.598E+01 | 5.598E+01 | INF | 0. | 1.453E-06 | 3.374E-02 |
| 155 | 5.81E-01 | 2.811E+00 | 2.811E+00 | INF | 0. | 5.764E-04 | 2.86E-02 | 5.719E+01 | 5.719E+01 | INF | 0. | 1.392E-06 | 2.852E-02 |
| 160 | 7.31E-01 | 1.809E+00 | 1.809E+00 | INF | 0. | 1.391E-03 | 2.27E-02 | 5.819E+01 | 5.819E+01 | INF | 0. | 1.345E-06 | 2.308E-02 |
| 165 | 9.79E-01 | 1.022E+00 | 1.022E+00 | INF | 0. | 4.357E-03 | 1.70E-02 | 5.898E+01 | 5.898E+01 | INF | 0. | 1.309E-06 | 1.747E-02 |
| 170 | 1.47E+00 | 4.558E-01 | 4.558E-01 | INF | 0. | 2.192E-02 | 1.13E-02 | 5.954E+01 | 5.954E+01 | INF | 0. | 1.284E-06 | 1.172E-02 |
| 175 | 2.95E+00 | 1.142E-01 | 1.142E-01 | INF | 0. | 3.490E-01 | 5.63E-03 | 5.989E+01 | 5.989E+01 | INF | 0. | 1.270E-06 | 5.881E-03 |
| 180 | 1.80E+02 | 7.590E-05 | 7.590E-05 | INF | 0. | 7.905E+05 | 0. | 6.000E+01 | 6.000E+01 | INF | 0. | 1.265E-06 | 0. |

PI ZERO (1) => GAMMA (2) + GAMMA (3) AT 70 GEV/C P1 LAB

M1 = 1.34964E-01 M2 = 0. M3 = 0.
P2CM= 6.74822E-02
E2CM= 6.74822E-02 E3CM= 6.74822E-02

1-V1LAB= 1.859E-06 GCM = 5.18656E+02 S = 1.82154E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 7.000E+01 | 7.000E+01 | INF | 0. | 9.294E-07 | 1.80E+02 | 6.505E-05 | 6.505E-05 | INF | 0. | 1.076E+06 | 0. |
| 1 | 9.64E-04 | 6.999E+01 | 6.999E+01 | INF | 0. | 9.295E-07 | 1.26E+01 | 5.396E-03 | 5.396E-03 | INF | 0. | 1.564E+02 | 1.178E-03 |
| 2 | 1.93E-03 | 6.998E+01 | 6.998E+01 | INF | 0. | 9.299E-07 | 6.32E+00 | 2.139E-02 | 2.139E-02 | INF | 0. | 9.957E+00 | 2.355E-03 |
| 3 | 2.89E-03 | 6.995E+01 | 6.995E+01 | INF | 0. | 9.306E-07 | 4.22E+00 | 4.803E-02 | 4.803E-02 | INF | 0. | 1.974E+00 | 3.532E-03 |
| 4 | 3.86E-03 | 6.991E+01 | 6.991E+01 | INF | 0. | 9.316E-07 | 3.16E+00 | 8.532E-02 | 8.532E-02 | INF | 0. | 6.255E-01 | 4.707E-03 |
| 5 | 4.82E-03 | 6.987E+01 | 6.987E+01 | INF | 0. | 9.329E-07 | 2.53E+00 | 1.333E-01 | 1.333E-01 | INF | 0. | 2.565E-01 | 5.881E-03 |
| 6 | 5.79E-03 | 6.981E+01 | 6.981E+01 | INF | 0. | 9.345E-07 | 2.11E+00 | 1.918E-01 | 1.918E-01 | INF | 0. | 1.238E-01 | 7.054E-03 |
| 7 | 6.76E-03 | 6.974E+01 | 6.974E+01 | INF | 0. | 9.363E-07 | 1.81E+00 | 2.609E-01 | 2.609E-01 | INF | 0. | 6.688E-02 | 8.224E-03 |
| 8 | 7.72E-03 | 6.966E+01 | 6.966E+01 | INF | 0. | 9.385E-07 | 1.58E+00 | 3.407E-01 | 3.407E-01 | INF | 0. | 3.924E-02 | 9.392E-03 |
| 9 | 8.69E-03 | 6.957E+01 | 6.957E+01 | INF | 0. | 9.409E-07 | 1.40E+00 | 4.310E-01 | 4.310E-01 | INF | 0. | 2.452E-02 | 1.056E-02 |
| 10 | 9.66E-03 | 6.947E+01 | 6.947E+01 | INF | 0. | 9.436E-07 | 1.26E+00 | 5.318E-01 | 5.318E-01 | INF | 0. | 1.610E-02 | 1.172E-02 |
| 15 | 1.45E-02 | 6.881E+01 | 6.881E+01 | INF | 0. | 9.619E-07 | 8.39E-01 | 1.193E+00 | 1.193E+00 | INF | 0. | 3.201E-03 | 1.747E-02 |
| 20 | 1.95E-02 | 6.789E+01 | 6.789E+01 | INF | 0. | 9.880E-07 | 6.26E-01 | 2.111E+00 | 2.111E+00 | INF | 0. | 1.022E-03 | 2.308E-02 |
| 25 | 2.45E-02 | 6.672E+01 | 6.672E+01 | INF | 0. | 1.023E-06 | 4.98E-01 | 3.279E+00 | 3.279E+00 | INF | 0. | 4.235E-04 | 2.852E-02 |
| 30 | 2.96E-02 | 6.531E+01 | 6.531E+01 | INF | 0. | 1.068E-06 | 4.12E-01 | 4.689E+00 | 4.689E+00 | INF | 0. | 2.071E-04 | 3.374E-02 |
| 35 | 3.48E-02 | 6.367E+01 | 6.367E+01 | INF | 0. | 1.123E-06 | 3.50E-01 | 6.330E+00 | 6.330E+00 | INF | 0. | 1.137E-04 | 3.871E-02 |
| 40 | 4.02E-02 | 6.181E+01 | 6.181E+01 | INF | 0. | 1.192E-06 | 3.04E-01 | 8.189E+00 | 8.189E+00 | INF | 0. | 6.792E-05 | 4.338E-02 |
| 45 | 4.58E-02 | 5.975E+01 | 5.975E+01 | INF | 0. | 1.276E-06 | 2.67E-01 | 1.025E+01 | 1.025E+01 | INF | 0. | 4.333E-05 | 4.772E-02 |
| 50 | 5.15E-02 | 5.750E+01 | 5.750E+01 | INF | 0. | 1.377E-06 | 2.37E-01 | 1.250E+01 | 1.250E+01 | INF | 0. | 2.913E-05 | 5.169E-02 |
| 55 | 5.75E-02 | 5.508E+01 | 5.508E+01 | INF | 0. | 1.501E-06 | 2.12E-01 | 1.492E+01 | 1.492E+01 | INF | 0. | 2.044E-05 | 5.528E-02 |
| 60 | 6.38E-02 | 5.250E+01 | 5.250E+01 | INF | 0. | 1.652E-06 | 1.91E-01 | 1.750E+01 | 1.750E+01 | INF | 0. | 1.487E-05 | 5.844E-02 |
| 65 | 7.04E-02 | 4.979E+01 | 4.979E+01 | INF | 0. | 1.837E-06 | 1.73E-01 | 2.021E+01 | 2.021E+01 | INF | 0. | 1.115E-05 | 6.116E-02 |
| 70 | 7.74E-02 | 4.697E+01 | 4.697E+01 | INF | 0. | 2.064E-06 | 1.58E-01 | 2.303E+01 | 2.303E+01 | INF | 0. | 8.586E-06 | 6.341E-02 |
| 75 | 8.48E-02 | 4.406E+01 | 4.406E+01 | INF | 0. | 2.346E-06 | 1.44E-01 | 2.594E+01 | 2.594E+01 | INF | 0. | 6.767E-06 | 6.518E-02 |
| 80 | 9.27E-02 | 4.108E+01 | 4.108E+01 | INF | 0. | 2.699E-06 | 1.32E-01 | 2.892E+01 | 2.892E+01 | INF | 0. | 5.444E-06 | 6.646E-02 |
| 85 | 1.01E-01 | 3.805E+01 | 3.805E+01 | INF | 0. | 3.145E-06 | 1.21E-01 | 3.195E+01 | 3.195E+01 | INF | 0. | 4.461E-06 | 6.723E-02 |
| 90 | 1.10E-01 | 3.500E+01 | 3.500E+01 | INF | 0. | 3.717E-06 | 1.10E-01 | 3.500E+01 | 3.500E+01 | INF | 0. | 3.717E-06 | 6.748E-02 |
| 95 | 1.21E-01 | 3.195E+01 | 3.195E+01 | INF | 0. | 4.461E-06 | 1.01E-01 | 3.805E+01 | 3.805E+01 | INF | 0. | 3.145E-06 | 6.723E-02 |
| 100 | 1.32E-01 | 2.892E+01 | 2.892E+01 | INF | 0. | 5.444E-06 | 9.27E-02 | 4.108E+01 | 4.108E+01 | INF | 0. | 2.699E-06 | 6.646E-02 |
| 105 | 1.44E-01 | 2.594E+01 | 2.594E+01 | INF | 0. | 6.767E-06 | 8.48E-02 | 4.406E+01 | 4.406E+01 | INF | 0. | 2.346E-06 | 6.518E-02 |
| 110 | 1.58E-01 | 2.303E+01 | 2.303E+01 | INF | 0. | 8.586E-06 | 7.74E-02 | 4.697E+01 | 4.697E+01 | INF | 0. | 2.064E-06 | 6.341E-02 |
| 115 | 1.73E-01 | 2.021E+01 | 2.021E+01 | INF | 0. | 1.115E-05 | 7.04E-02 | 4.979E+01 | 4.979E+01 | INF | 0. | 1.837E-06 | 6.116E-02 |
| 120 | 1.91E-01 | 1.750E+01 | 1.750E+01 | INF | 0. | 1.487E-05 | 6.38E-02 | 5.250E+01 | 5.250E+01 | INF | 0. | 1.652E-06 | 5.844E-02 |
| 125 | 2.12E-01 | 1.492E+01 | 1.492E+01 | INF | 0. | 2.044E-05 | 5.75E-02 | 5.508E+01 | 5.508E+01 | INF | 0. | 1.501E-06 | 5.528E-02 |
| 130 | 2.37E-01 | 1.250E+01 | 1.250E+01 | INF | 0. | 2.913E-05 | 5.15E-02 | 5.750E+01 | 5.750E+01 | INF | 0. | 1.377E-06 | 5.169E-02 |
| 135 | 2.67E-01 | 1.025E+01 | 1.025E+01 | INF | 0. | 4.333E-05 | 4.58E-02 | 5.975E+01 | 5.975E+01 | INF | 0. | 1.276E-06 | 4.772E-02 |
| 140 | 3.04E-01 | 8.189E+00 | 8.189E+00 | INF | 0. | 6.792E-05 | 4.02E-02 | 6.181E+01 | 6.181E+01 | INF | 0. | 1.192E-06 | 4.338E-02 |
| 145 | 3.50E-01 | 6.330E+00 | 6.330E+00 | INF | 0. | 1.137E-04 | 3.48E-02 | 6.367E+01 | 6.367E+01 | INF | 0. | 1.123E-06 | 3.871E-02 |
| 150 | 4.12E-01 | 4.689E+00 | 4.689E+00 | INF | 0. | 2.071E-04 | 2.96E-02 | 6.531E+01 | 6.531E+01 | INF | 0. | 1.068E-06 | 3.374E-02 |
| 155 | 4.98E-01 | 3.279E+00 | 3.279E+00 | INF | 0. | 4.235E-04 | 2.45E-02 | 6.672E+01 | 6.672E+01 | INF | 0. | 1.023E-06 | 2.852E-02 |
| 160 | 6.26E-01 | 2.111E+00 | 2.111E+00 | INF | 0. | 1.022E-03 | 1.95E-02 | 6.789E+01 | 6.789E+01 | INF | 0. | 9.880E-07 | 2.308E-02 |
| 165 | 8.39E-01 | 1.193E+00 | 1.193E+00 | INF | 0. | 3.201E-03 | 1.45E-02 | 6.881E+01 | 6.881E+01 | INF | 0. | 9.619E-07 | 1.747E-02 |
| 170 | 1.26E+00 | 5.318E-01 | 5.318E-01 | INF | 0. | 1.610E-02 | 9.66E-03 | 6.947E+01 | 6.947E+01 | INF | 0. | 9.436E-07 | 1.172E-02 |
| 175 | 2.53E+00 | 1.333E-01 | 1.333E-01 | INF | 0. | 2.565E-01 | 4.82E-03 | 6.987E+01 | 6.987E+01 | INF | 0. | 9.329E-07 | 5.881E-03 |
| 180 | 1.80E+02 | 6.505E-05 | 6.505E-05 | INF | 0. | 1.076E+06 | 0. | 7.000E+01 | 7.000E+01 | INF | 0. | 9.294E-07 | 0. |

PI ZERO (1) => GAMMA (2) + GAMMA (3) AT 80 GEV/C P1 LAB

M1 = 1.34964E-01 M2 = 0. M3 = 0.
P2CM= 6.74822E-02
E2CM= 6.74822E-02 P3CM= 6.74822E-02

1-V1LAB= 1.423E-06 GCM = 5.92749E+02 S = 1.82154E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 8.000E+01 | 8.000E+01 | INF | 0. | 7.115E-07 | 1.80E+02 | 5.692E-05 | 5.692E-05 | INF | 0. | 1.405E+06 | 0. |
| 1 | 8.44E-04 | 7.999E+01 | 7.999E+01 | INF | 0. | 7.116E-07 | 1.10E+01 | 6.149E-03 | 6.149E-03 | INF | 0. | 1.204E+02 | 1.178E-03 |
| 2 | 1.69E-03 | 7.998E+01 | 7.998E+01 | INF | 0. | 7.120E-07 | 5.53E+00 | 2.442E-02 | 2.442E-02 | INF | 0. | 7.634E+00 | 2.355E-03 |
| 3 | 2.53E-03 | 7.995E+01 | 7.995E+01 | INF | 0. | 7.125E-07 | 3.69E+00 | 5.488E-02 | 5.488E-02 | INF | 0. | 1.512E+00 | 3.532E-03 |
| 4 | 3.38E-03 | 7.990E+01 | 7.990E+01 | INF | 0. | 7.133E-07 | 2.77E+00 | 9.749E-02 | 9.749E-02 | INF | 0. | 4.791E-01 | 4.707E-03 |
| 5 | 4.22E-03 | 7.985E+01 | 7.985E+01 | INF | 0. | 7.143E-07 | 2.21E+00 | 1.523E-01 | 1.523E-01 | INF | 0. | 1.964E-01 | 5.881E-03 |
| 6 | 5.07E-03 | 7.978E+01 | 7.978E+01 | INF | 0. | 7.155E-07 | 1.84E+00 | 2.192E-01 | 2.192E-01 | INF | 0. | 9.479E-02 | 7.054E-03 |
| 7 | 5.91E-03 | 7.970E+01 | 7.970E+01 | INF | 0. | 7.169E-07 | 1.58E+00 | 2.982E-01 | 2.982E-01 | INF | 0. | 5.121E-02 | 8.224E-03 |
| 8 | 6.76E-03 | 7.961E+01 | 7.961E+01 | INF | 0. | 7.185E-07 | 1.38E+00 | 3.893E-01 | 3.893E-01 | INF | 0. | 3.004E-02 | 9.392E-03 |
| 9 | 7.61E-03 | 7.951E+01 | 7.951E+01 | INF | 0. | 7.204E-07 | 1.23E+00 | 4.925E-01 | 4.925E-01 | INF | 0. | 1.877E-02 | 1.056E-02 |
| 10 | 8.46E-03 | 7.939E+01 | 7.939E+01 | INF | 0. | 7.225E-07 | 1.10E+00 | 6.077E-01 | 6.077E-01 | INF | 0. | 1.233E-02 | 1.172E-02 |
| 15 | 1.27E-02 | 7.864E+01 | 7.864E+01 | INF | 0. | 7.364E-07 | 7.34E-01 | 1.363E+00 | 1.363E+00 | INF | 0. | 2.451E-03 | 1.747E-02 |
| 20 | 1.70E-02 | 7.759E+01 | 7.759E+01 | INF | 0. | 7.565E-07 | 5.48E-01 | 2.412E+00 | 2.412E+00 | INF | 0. | 7.825E-04 | 2.308E-02 |
| 25 | 2.14E-02 | 7.625E+01 | 7.625E+01 | INF | 0. | 7.832E-07 | 4.36E-01 | 3.748E+00 | 3.748E+00 | INF | 0. | 3.242E-04 | 2.852E-02 |
| 30 | 2.59E-02 | 7.464E+01 | 7.464E+01 | INF | 0. | 8.174E-07 | 3.61E-01 | 5.359E+00 | 5.359E+00 | INF | 0. | 1.586E-04 | 3.374E-02 |
| 35 | 3.05E-02 | 7.277E+01 | 7.277E+01 | INF | 0. | 8.600E-07 | 3.07E-01 | 7.234E+00 | 7.234E+00 | INF | 0. | 8.702E-05 | 3.871E-02 |
| 40 | 3.52E-02 | 7.064E+01 | 7.064E+01 | INF | 0. | 9.125E-07 | 2.66E-01 | 9.358E+00 | 9.358E+00 | INF | 0. | 5.200E-05 | 4.338E-02 |
| 45 | 4.00E-02 | 6.828E+01 | 6.828E+01 | INF | 0. | 9.766E-07 | 2.33E-01 | 1.172E+01 | 1.172E+01 | INF | 0. | 3.318E-05 | 4.772E-02 |
| 50 | 4.51E-02 | 6.571E+01 | 6.571E+01 | INF | 0. | 1.055E-06 | 2.07E-01 | 1.429E+01 | 1.429E+01 | INF | 0. | 2.231E-05 | 5.169E-02 |
| 55 | 5.03E-02 | 6.294E+01 | 6.294E+01 | INF | 0. | 1.149E-06 | 1.86E-01 | 1.706E+01 | 1.706E+01 | INF | 0. | 1.565E-05 | 5.528E-02 |
| 60 | 5.58E-02 | 6.000E+01 | 6.000E+01 | INF | 0. | 1.265E-06 | 1.67E-01 | 2.000E+01 | 2.000E+01 | INF | 0. | 1.138E-05 | 5.844E-02 |
| 65 | 6.16E-02 | 5.690E+01 | 5.690E+01 | INF | 0. | 1.406E-06 | 1.52E-01 | 2.310E+01 | 2.310E+01 | INF | 0. | 8.538E-06 | 6.116E-02 |
| 70 | 6.77E-02 | 5.368E+01 | 5.368E+01 | INF | 0. | 1.580E-06 | 1.38E-01 | 2.632E+01 | 2.632E+01 | INF | 0. | 6.574E-06 | 6.341E-02 |
| 75 | 7.42E-02 | 5.035E+01 | 5.035E+01 | INF | 0. | 1.796E-06 | 1.26E-01 | 2.965E+01 | 2.965E+01 | INF | 0. | 5.181E-06 | 6.518E-02 |
| 80 | 8.11E-02 | 4.695E+01 | 4.695E+01 | INF | 0. | 2.066E-06 | 1.15E-01 | 3.305E+01 | 3.305E+01 | INF | 0. | 4.168E-06 | 6.646E-02 |
| 85 | 8.86E-02 | 4.349E+01 | 4.349E+01 | INF | 0. | 2.408E-06 | 1.05E-01 | 3.651E+01 | 3.651E+01 | INF | 0. | 3.416E-06 | 6.723E-02 |
| 90 | 9.67E-02 | 4.000E+01 | 4.000E+01 | INF | 0. | 2.846E-06 | 9.67E-02 | 4.000E+01 | 4.000E+01 | INF | 0. | 2.846E-06 | 6.748E-02 |
| 95 | 1.05E-01 | 3.651E+01 | 3.651E+01 | INF | 0. | 3.416E-06 | 8.86E-02 | 4.349E+01 | 4.349E+01 | INF | 0. | 2.408E-06 | 6.723E-02 |
| 100 | 1.15E-01 | 3.305E+01 | 3.305E+01 | INF | 0. | 4.168E-06 | 8.11E-02 | 4.695E+01 | 4.695E+01 | INF | 0. | 2.066E-06 | 6.646E-02 |
| 105 | 1.26E-01 | 2.965E+01 | 2.965E+01 | INF | 0. | 5.181E-06 | 7.42E-02 | 5.035E+01 | 5.035E+01 | INF | 0. | 1.796E-06 | 6.518E-02 |
| 110 | 1.38E-01 | 2.632E+01 | 2.632E+01 | INF | 0. | 6.574E-06 | 6.77E-02 | 5.368E+01 | 5.368E+01 | INF | 0. | 1.580E-06 | 6.341E-02 |
| 115 | 1.52E-01 | 2.310E+01 | 2.310E+01 | INF | 0. | 8.538E-06 | 6.16E-02 | 5.690E+01 | 5.690E+01 | INF | 0. | 1.406E-06 | 6.116E-02 |
| 120 | 1.67E-01 | 2.000E+01 | 2.000E+01 | INF | 0. | 1.138E-05 | 5.58E-02 | 6.000E+01 | 6.000E+01 | INF | 0. | 1.265E-06 | 5.844E-02 |
| 125 | 1.86E-01 | 1.706E+01 | 1.706E+01 | INF | 0. | 1.565E-05 | 5.03E-02 | 6.294E+01 | 6.294E+01 | INF | 0. | 1.149E-06 | 5.528E-02 |
| 130 | 2.07E-01 | 1.429E+01 | 1.429E+01 | INF | 0. | 2.231E-05 | 4.51E-02 | 6.571E+01 | 6.571E+01 | INF | 0. | 1.055E-06 | 5.169E-02 |
| 135 | 2.33E-01 | 1.172E+01 | 1.172E+01 | INF | 0. | 3.318E-05 | 4.00E-02 | 6.828E+01 | 6.828E+01 | INF | 0. | 9.766E-07 | 4.772E-02 |
| 140 | 2.66E-01 | 9.358E+00 | 9.358E+00 | INF | 0. | 5.200E-05 | 3.52E-02 | 7.064E+01 | 7.064E+01 | INF | 0. | 9.125E-07 | 4.338E-02 |
| 145 | 3.07E-01 | 7.234E+00 | 7.234E+00 | INF | 0. | 8.702E-05 | 3.05E-02 | 7.277E+01 | 7.277E+01 | INF | 0. | 8.600E-07 | 3.871E-02 |
| 150 | 3.61E-01 | 5.359E+00 | 5.359E+00 | INF | 0. | 1.586E-04 | 2.59E-02 | 7.464E+01 | 7.464E+01 | INF | 0. | 8.174E-07 | 3.374E-02 |
| 155 | 4.36E-01 | 3.748E+00 | 3.748E+00 | INF | 0. | 3.242E-04 | 2.14E-02 | 7.625E+01 | 7.625E+01 | INF | 0. | 7.832E-07 | 2.852E-02 |
| 160 | 5.48E-01 | 2.412E+00 | 2.412E+00 | INF | 0. | 7.825E-04 | 1.70E-02 | 7.759E+01 | 7.759E+01 | INF | 0. | 7.565E-07 | 2.308E-02 |
| 165 | 7.34E-01 | 1.363E+00 | 1.363E+00 | INF | 0. | 2.451E-03 | 1.27E-02 | 7.864E+01 | 7.864E+01 | INF | 0. | 7.364E-07 | 1.747E-02 |
| 170 | 1.10E+00 | 6.077E-01 | 6.077E-01 | INF | 0. | 1.233E-02 | 8.46E-03 | 7.939E+01 | 7.939E+01 | INF | 0. | 7.225E-07 | 1.172E-02 |
| 175 | 2.21E+00 | 1.523E-01 | 1.523E-01 | INF | 0. | 1.964E-91 | 4.22E-03 | 7.985E+01 | 7.985E+01 | INF | 0. | 7.143E-07 | 5.881E-03 |
| 180 | 1.80E+02 | 5.692E-05 | 5.692E-05 | INF | 0. | 1.405E+06 | 0. | 8.000E+01 | 8.000E+01 | INF | 0. | 7.115E-07 | 0. |

PI ZERO (1) => GAMMA (2) + GAMMA (3) AT 90 GEV/C P1 LAB

M1 = 1.34964E-01 M2 = 0. M3 = 0.
P2CM= 6.74822E-02
E2CM= 6.74822E-02 E3CM= 6.74822E-02

1-V1LAB= 1.124E-06 GCM = 6.66843E+02 S = 1.82154E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 9.000E+01 | 9.000E+01 | INF | 0. | 5.622E-07 | 1.80E+02 | 5.060E-05 | 5.060E-05 | INF | 0. | 1.779E+06 | 0. |
| 1 | 7.50E-04 | 8.999E+01 | 8.999E+01 | INF | 0. | 5.623E-07 | 9.82E+00 | 6.904E-03 | 6.904E-03 | INF | 0. | 9.553E+01 | 1.178E-03 |
| 2 | 1.50E-03 | 8.997E+01 | 8.997E+01 | INF | 0. | 5.625E-07 | 4.92E+00 | 2.746E-02 | 2.746E-02 | INF | 0. | 6.038E+00 | 2.355E-03 |
| 3 | 2.25E-03 | 8.994E+01 | 8.994E+01 | INF | 0. | 5.630E-07 | 3.28E+00 | 6.172E-02 | 6.172E-02 | INF | 0. | 1.195E+00 | 3.532E-03 |
| 4 | 3.00E-03 | 8.989E+01 | 8.989E+01 | INF | 0. | 5.636E-07 | 2.46E+00 | 1.097E-01 | 1.097E-01 | INF | 0. | 3.786E-01 | 4.707E-03 |
| 5 | 3.75E-03 | 8.983E+01 | 8.983E+01 | INF | 0. | 5.643E-07 | 1.97E+00 | 1.713E-01 | 1.713E-01 | INF | 0. | 1.552E-01 | 5.881E-03 |
| 6 | 4.50E-03 | 8.975E+01 | 8.975E+01 | INF | 0. | 5.653E-07 | 1.64E+00 | 2.466E-01 | 2.466E-01 | INF | 0. | 7.491E-02 | 7.054E-03 |
| 7 | 5.26E-03 | 8.966E+01 | 8.966E+01 | INF | 0. | 5.664E-07 | 1.40E+00 | 3.355E-01 | 3.355E-01 | INF | 0. | 4.046E-02 | 8.224E-03 |
| 8 | 6.01E-03 | 8.956E+01 | 8.956E+01 | INF | 0. | 5.677E-07 | 1.23E+00 | 4.380E-01 | 4.380E-01 | INF | 0. | 2.374E-02 | 9.392E-03 |
| 9 | 6.76E-03 | 8.945E+01 | 8.945E+01 | INF | 0. | 5.692E-07 | 1.09E+00 | 5.541E-01 | 5.541E-01 | INF | 0. | 1.483E-02 | 1.056E-02 |
| 10 | 7.52E-03 | 8.932E+01 | 8.932E+01 | INF | 0. | 5.708E-07 | 9.82E-01 | 6.837E-01 | 6.837E-01 | INF | 0. | 9.742E-03 | 1.172E-02 |
| 15 | 1.13E-02 | 8.847E+01 | 8.847E+01 | INF | 0. | 5.819E-07 | 6.53E-01 | 1.533E+00 | 1.533E+00 | INF | 0. | 1.937E-03 | 1.747E-02 |
| 20 | 1.52E-02 | 8.729E+01 | 8.729E+01 | INF | 0. | 5.977E-07 | 4.87E-01 | 2.714E+00 | 2.714E+00 | INF | 0. | 6.183E-04 | 2.308E-02 |
| 25 | 1.90E-02 | 8.578E+01 | 8.578E+01 | INF | 0. | 6.188E-07 | 3.88E-01 | 4.216E+00 | 4.216E+00 | INF | 0. | 2.562E-04 | 2.852E-02 |
| 30 | 2.30E-02 | 8.397E+01 | 8.397E+01 | INF | 0. | 6.458E-07 | 3.21E-01 | 6.029E+00 | 6.029E+00 | INF | 0. | 1.253E-04 | 3.374E-02 |
| 35 | 2.71E-02 | 8.186E+01 | 8.186E+01 | INF | 0. | 6.795E-07 | 2.73E-01 | 8.138E+00 | 8.138E+00 | INF | 0. | 6.876E-05 | 3.871E-02 |
| 40 | 3.13E-02 | 7.947E+01 | 7.947E+01 | INF | 0. | 7.210E-07 | 2.36E-01 | 1.053E+01 | 1.053E+01 | INF | 0. | 4.108E-05 | 4.338E-02 |
| 45 | 3.56E-02 | 7.682E+01 | 7.682E+01 | INF | 0. | 7.717E-07 | 2.07E-01 | 1.318E+01 | 1.318E+01 | INF | 0. | 2.621E-05 | 4.772E-02 |
| 50 | 4.01E-02 | 7.393E+01 | 7.393E+01 | INF | 0. | 8.333E-07 | 1.84E-01 | 1.607E+01 | 1.607E+01 | INF | 0. | 1.762E-05 | 5.169E-02 |
| 55 | 4.47E-02 | 7.081E+01 | 7.081E+01 | INF | 0. | 9.082E-07 | 1.65E-01 | 1.919E+01 | 1.919E+01 | INF | 0. | 1.237E-05 | 5.528E-02 |
| 60 | 4.96E-02 | 6.750E+01 | 6.750E+01 | INF | 0. | 9.995E-07 | 1.49E-01 | 2.250E+01 | 2.250E+01 | INF | 0. | 8.995E-06 | 5.844E-02 |
| 65 | 5.47E-02 | 6.402E+01 | 6.402E+01 | INF | 0. | 1.111E-06 | 1.35E-01 | 2.598E+01 | 2.598E+01 | INF | 0. | 6.746E-06 | 6.116E-02 |
| 70 | 6.02E-02 | 6.039E+01 | 6.039E+01 | INF | 0. | 1.249E-06 | 1.23E-01 | 2.961E+01 | 2.961E+01 | INF | 0. | 5.194E-06 | 6.341E-02 |
| 75 | 6.59E-02 | 5.665E+01 | 5.665E+01 | INF | 0. | 1.419E-06 | 1.12E-01 | 3.335E+01 | 3.335E+01 | INF | 0. | 4.094E-06 | 6.518E-02 |
| 80 | 7.21E-02 | 5.281E+01 | 5.281E+01 | INF | 0. | 1.633E-06 | 1.02E-01 | 3.719E+01 | 3.719E+01 | INF | 0. | 3.293E-06 | 6.646E-02 |
| 85 | 7.87E-02 | 4.892E+01 | 4.892E+01 | INF | 0. | 1.903E-06 | 9.38E-02 | 4.108E+01 | 4.108E+01 | INF | 0. | 2.699E-06 | 6.723E-02 |
| 90 | 8.59E-02 | 4.500E+01 | 4.500E+01 | INF | 0. | 2.249E-06 | 8.59E-02 | 4.500E+01 | 4.500E+01 | INF | 0. | 2.249E-06 | 6.748E-02 |
| 95 | 9.38E-02 | 4.108E+01 | 4.108E+01 | INF | 0. | 2.699E-06 | 7.87E-02 | 4.892E+01 | 4.892E+01 | INF | 0. | 1.903E-06 | 6.723E-02 |
| 100 | 1.02E-01 | 3.719E+01 | 3.719E+01 | INF | 0. | 3.293E-06 | 7.21E-02 | 5.281E+01 | 5.281E+01 | INF | 0. | 1.633E-06 | 6.646E-02 |
| 105 | 1.12E-01 | 3.335E+01 | 3.335E+01 | INF | 0. | 4.094E-06 | 6.59E-02 | 5.665E+01 | 5.665E+01 | INF | 0. | 1.419E-06 | 6.518E-02 |
| 110 | 1.23E-01 | 2.961E+01 | 2.961E+01 | INF | 0. | 5.194E-06 | 6.02E-02 | 6.039E+01 | 6.039E+01 | INF | 0. | 1.249E-06 | 6.341E-02 |
| 115 | 1.35E-01 | 2.598E+01 | 2.598E+01 | INF | 0. | 6.746E-06 | 5.47E-02 | 6.402E+01 | 6.402E+01 | INF | 0. | 1.111E-06 | 6.116E-02 |
| 120 | 1.49E-01 | 2.250E+01 | 2.250E+01 | INF | 0. | 8.995E-06 | 4.96E-02 | 6.750E+01 | 6.750E+01 | INF | 0. | 9.995E-07 | 5.844E-02 |
| 125 | 1.65E-01 | 1.919E+01 | 1.919E+01 | INF | 0. | 1.237E-05 | 4.47E-02 | 7.081E+01 | 7.081E+01 | INF | 0. | 9.082E-07 | 5.528E-02 |
| 130 | 1.84E-01 | 1.607E+01 | 1.607E+01 | INF | 0. | 1.762E-05 | 4.01E-02 | 7.393E+01 | 7.393E+01 | INF | 0. | 8.333E-07 | 5.169E-02 |
| 135 | 2.07E-01 | 1.318E+01 | 1.318E+01 | INF | 0. | 2.621E-05 | 3.56E-02 | 7.682E+01 | 7.682E+01 | INF | 0. | 7.717E-07 | 4.772E-02 |
| 140 | 2.36E-01 | 1.053E+01 | 1.053E+01 | INF | 0. | 4.108E-05 | 3.13E-02 | 7.947E+01 | 7.947E+01 | INF | 0. | 7.210E-07 | 4.338E-02 |
| 145 | 2.73E-01 | 8.138E+00 | 8.138E+00 | INF | 0. | 6.876E-05 | 2.71E-02 | 8.186E+01 | 8.186E+01 | INF | 0. | 6.795E-07 | 3.871E-02 |
| 150 | 3.21E-01 | 6.029E+00 | 6.029E+00 | INF | 0. | 1.253E-04 | 2.30E-02 | 8.397E+01 | 8.397E+01 | INF | 0. | 6.458E-07 | 3.374E-02 |
| 155 | 3.88E-01 | 4.216E+00 | 4.216E+00 | INF | 0. | 2.562E-04 | 1.90E-02 | 8.578E+01 | 8.578E+01 | INF | 0. | 6.188E-07 | 2.852E-02 |
| 160 | 4.87E-01 | 2.714E+00 | 2.714E+00 | INF | 0. | 6.183E-04 | 1.52E-02 | 8.729E+01 | 8.729E+01 | INF | 0. | 5.977E-07 | 2.308E-02 |
| 165 | 6.53E-01 | 1.533E+00 | 1.533E+00 | INF | 0. | 1.937E-03 | 1.13E-02 | 8.847E+01 | 8.847E+01 | INF | 0. | 5.819E-07 | 1.747E-02 |
| 170 | 9.82E-01 | 6.837E-01 | 6.837E-01 | INF | 0. | 9.742E-03 | 7.52E-03 | 8.932E+01 | 8.932E+01 | INF | 0. | 5.708E-07 | 1.172E-02 |
| 175 | 1.97E+00 | 1.713E-01 | 1.713E-01 | INF | 0. | 1.552E-01 | 3.75E-03 | 8.983E+01 | 8.983E+01 | INF | 0. | 5.643E-07 | 5.881E-03 |
| 180 | 1.80E+02 | 5.060E-05 | 5.060E-05 | INF | 0. | 1.779E+06 | 0. | 9.000E+01 | 9.000E+01 | INF | 0. | 5.622E-07 | 0. |

PI ZERO (1) => GAMMA (2) + GAMMA (3) AT 100 GEV/C P1 LAB

M1 = 1.34964E-01 M2 = 0. M3 = 0.

P2CM= 6.74822E-02

E2CM= 6.74822E-02 E3CM= 6.74822E-02

1-V1LAB= 9.108E-07 GCM = 7.40936E+02 S = 1.82154E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.000E+02 | 1.000E+02 | INF | 0. | 4.554E-07 | 1.80E+02 | 4.554E-05 | 4.554E-05 | INF | 0. | 2.196E+06 | 0. |
| 1 | 6.75E-04 | 9.999E+01 | 9.999E+01 | INF | 0. | 4.555E-07 | 8.84E+00 | 7.661E-03 | 7.661E-03 | INF | 0. | 7.759E+01 | 1.178E-03 |
| 2 | 1.35E-03 | 9.997E+01 | 9.997E+01 | INF | 0. | 4.557E-07 | 4.43E+00 | 3.050E-02 | 3.050E-02 | INF | 0. | 4.894E+00 | 2.355E-03 |
| 3 | 2.02E-03 | 9.993E+01 | 9.993E+01 | INF | 0. | 4.560E-07 | 2.95E+00 | 6.857E-02 | 6.857E-02 | INF | 0. | 9.686E-01 | 3.532E-03 |
| 4 | 2.70E-03 | 9.988E+01 | 9.988E+01 | INF | 0. | 4.565E-07 | 2.21E+00 | 1.218E-01 | 1.218E-01 | INF | 0. | 3.067E-01 | 4.707E-03 |
| 5 | 3.38E-03 | 9.981E+01 | 9.981E+01 | INF | 0. | 4.571E-07 | 1.77E+00 | 1.903E-01 | 1.903E-01 | INF | 0. | 1.257E-01 | 5.881E-03 |
| 6 | 4.05E-03 | 9.973E+01 | 9.973E+01 | INF | 0. | 4.579E-07 | 1.48E+00 | 2.740E-01 | 2.740E-01 | INF | 0. | 6.068E-02 | 7.054E-03 |
| 7 | 4.73E-03 | 9.963E+01 | 9.963E+01 | INF | 0. | 4.588E-07 | 1.26E+00 | 3.727E-01 | 3.727E-01 | INF | 0. | 3.279E-02 | 8.224E-03 |
| 8 | 5.41E-03 | 9.951E+01 | 9.951E+01 | INF | 0. | 4.598E-07 | 1.11E+00 | 4.866E-01 | 4.866E-01 | INF | 0. | 1.923E-02 | 9.392E-03 |
| 9 | 6.09E-03 | 9.938E+01 | 9.938E+01 | INF | 0. | 4.610E-07 | 9.83E-01 | 6.156E-01 | 6.156E-01 | INF | 0. | 1.232E-02 | 1.056E-02 |
| 10 | 6.77E-03 | 9.924E+01 | 9.924E+01 | INF | 0. | 4.624E-07 | 8.84E-01 | 7.597E-01 | 7.597E-01 | INF | 0. | 7.991E-03 | 1.172E-02 |
| 15 | 1.02E-02 | 9.830E+01 | 9.830E+01 | INF | 0. | 4.713E-07 | 5.87E-01 | 1.704E+00 | 1.704E+00 | INF | 0. | 1.569E-03 | 1.747E-02 |
| 20 | 1.36E-02 | 9.698E+01 | 9.698E+01 | INF | 0. | 4.841E-07 | 4.39E-01 | 3.015E+00 | 3.015E+00 | INF | 0. | 5.008E-04 | 2.308E-02 |
| 25 | 1.71E-02 | 9.532E+01 | 9.532E+01 | INF | 0. | 5.012E-07 | 3.49E-01 | 4.685E+00 | 4.685E+00 | INF | 0. | 2.075E-04 | 2.852E-02 |
| 30 | 2.07E-02 | 9.330E+01 | 9.330E+01 | INF | 0. | 5.231E-07 | 2.89E-01 | 6.699E+00 | 6.699E+00 | INF | 0. | 1.015E-04 | 3.374E-02 |
| 35 | 2.44E-02 | 9.096E+01 | 9.096E+01 | INF | 0. | 5.504E-07 | 2.45E-01 | 9.042E+00 | 9.042E+00 | INF | 0. | 5,569E-05 | 3.871E-02 |
| 40 | 2.81E-02 | 8.830E+01 | 8.830E+01 | INF | 0. | 5.840E-07 | 2.12E-01 | 1.170E+01 | 1.170E+01 | INF | 0. | 3.328E-05 | 4.338E-02 |
| 45 | 3.20E-02 | 8.536E+01 | 8.536E+01 | INF | 0. | 6.251E-07 | 1.87E-01 | 1.464E+01 | 1.464E+01 | INF | 0. | 2.123E-05 | 4.772E-02 |
| 50 | 3.61E-02 | 8.214E+01 | 8.214E+01 | INF | 0. | 6.750E-07 | 1.66E-01 | 1.786E+01 | 1.786E+01 | INF | 0. | 1.428E-05 | 5.169E-02 |
| 55 | 4.03E-02 | 7.868E+01 | 7.868E+01 | INF | 0. | 7.356E-07 | 1.49E-01 | 2.132E+01 | 2.132E+01 | INF | 0. | 1.002E-05 | 5.528E-02 |
| 60 | 4.46E-02 | 7.500E+01 | 7.500E+01 | INF | 0. | 8.096E-07 | 1.34E-01 | 2.500E+01 | 2.500E+01 | INF | 0. | 7.286E-06 | 5.844E-02 |
| 65 | 4.93E-02 | 7.113E+01 | 7.113E+01 | INF | 0. | 9.000E-07 | 1.21E-01 | 2.887E+01 | 2.887E+01 | INF | 0. | 5.464E-06 | 6.116E-02 |
| 70 | 5.41E-02 | 6.710E+01 | 6.710E+01 | INF | 0. | 1.011E-06 | 1.10E-01 | 3.290E+01 | 3.290E+01 | INF | 0. | 4.207E-06 | 6.341E-02 |
| 75 | 5.93E-02 | 6.294E+01 | 6.294E+01 | INF | 0. | 1.150E-06 | 1.01E-01 | 3.706E+01 | 3.706E+01 | INF | 0. | 3.316E-06 | 6.518E-02 |
| 80 | 6.49E-02 | 5.868E+01 | 5.868E+01 | INF | 0. | 1.322E-06 | 9.22E-02 | 4.132E+01 | 4.132E+01 | INF | 0. | 2.668E-06 | 6.646E-02 |
| 85 | 7.09E-02 | 5.436E+01 | 5.436E+01 | INF | 0. | 1.541E-06 | 8.44E-02 | 4.564E+01 | 4.564E+01 | INF | 0. | 2.186E-06 | 6.723E-02 |
| 90 | 7.73E-02 | 5.000E+01 | 5.000E+01 | INF | 0. | 1.822E-06 | 7.73E-02 | 5.000E+01 | 5.000E+01 | INF | 0. | 1.822E-06 | 6.748E-02 |
| 95 | 8.44E-02 | 4.564E+01 | 4.564E+01 | INF | 0. | 2.186E-06 | 7.09E-02 | 5.436E+01 | 5.436E+01 | INF | 0. | 1.541E-06 | 6.723E-02 |
| 100 | 9.22E-02 | 4.132E+01 | 4.132E+01 | INF | 0. | 2.668E-06 | 6.49E-02 | 5.868E+01 | 5.868E+01 | INF | 0. | 1.322E-06 | 6.646E-02 |
| 105 | 1.01E-01 | 3.706E+01 | 3.706E+01 | INF | 0. | 3.316E-06 | 5.93E-02 | 6.294E+01 | 6.294E+01 | INF | 0. | 1.150E-06 | 6.518E-02 |
| 110 | 1.10E-01 | 3.290E+01 | 3.290E+01 | INF | 0. | 4.207E-06 | 5.41E-02 | 6.710E+01 | 6.710E+01 | INF | 0. | 1.011E-06 | 6.341E-02 |
| 115 | 1.21E-01 | 2.887E+01 | 2.887E+01 | INF | 0. | 5.464E-06 | 4.93E-02 | 7.113E+01 | 7.113E+01 | INF | 0. | 9.000E-07 | 6.116E-02 |
| 120 | 1.34E-01 | 2.500E+01 | 2.500E+01 | INF | 0. | 7.286E-06 | 4.46E-02 | 7.500E+01 | 7.500E+01 | INF | 0. | 8.096E-07 | 5.844E-02 |
| 125 | 1.49E-01 | 2.132E+01 | 2.132E+01 | INF | 0. | 1.002E-05 | 4.03E-02 | 7.868E+01 | 7.868E+01 | INF | 0. | 7.356E-07 | 5.528E-02 |
| 130 | 1.66E-01 | 1.786E+01 | 1.786E+01 | INF | 0. | 1.428E-05 | 3.61E-02 | 8.214E+01 | 8.214E+01 | INF | 0. | 6.750E-07 | 5.169E-02 |
| 135 | 1.87E-01 | 1.464E+01 | 1.464E+01 | INF | 0. | 2.123E-05 | 3.20E-02 | 8.536E+01 | 8.536E+01 | INF | 0. | 6.251E-07 | 4.772E-02 |
| 140 | 2.12E-01 | 1.170E+01 | 1.170E+01 | INF | 0. | 3.328E-05 | 2.81E-02 | 8.830E+01 | 8.830E+01 | INF | 0. | 5.840E-07 | 4.338E-02 |
| 145 | 2.45E-01 | 9.042E+00 | 9.042E+00 | INF | 0. | 5.569E-05 | 2.44E-02 | 9.096E+01 | 9.096E+01 | INF | 0. | 5.504E-07 | 3.871E-02 |
| 150 | 2.89E-01 | 6.699E+00 | 6.699E+00 | INF | 0. | 1.015E-04 | 2.07E-02 | 9.330E+01 | 9.330E+01 | INF | 0. | 5.231E-07 | 3.374E-02 |
| 155 | 3.49E-01 | 4.685E+00 | 4.685E+00 | INF | 0. | 2.075E-04 | 1.71E-02 | 9.532E+01 | 9.532E+01 | INF | 0. | 5.012E-07 | 2.852E-02 |
| 160 | 4.39E-01 | 3.015E+00 | 3.015E+00 | INF | 0. | 5.008E-04 | 1.36E-02 | 9.698E+01 | 9.698E+01 | INF | 0. | 4.841E-07 | 2.308E-02 |
| 165 | 5.87E-01 | 1.704E+00 | 1.704E+00 | INF | 0. | 1.569E-03 | 1.02E-02 | 9.830E+01 | 9.830E+01 | INF | 0. | 4.713E-07 | 1.747E-02 |
| 170 | 8.84E-01 | 7.597E-01 | 7.597E-01 | INF | 0. | 7.891E-03 | 6.77E-03 | 9.924E+01 | 9.924E+01 | INF | 0. | 4.624E-07 | 1.172E-02 |
| 175 | 1.77E+00 | 1.903E-01 | 1.903E-01 | INF | 0. | 1.257E-01 | 3.38E-03 | 9.981E+01 | 9.981E+01 | INF | 0. | 4.571E-07 | 5.881E-03 |
| 180 | 1.80E+02 | 4.554E-05 | 4.554E-05 | INF | 0. | 2.196E+06 | 0. | 1.000E+02 | 1.000E+02 | INF | 0. | 4.554E-07 | 0. |

PI ZERO (1) => GAMMA (2) + GAMMA (3) AT 125 GEV/C P1 LAB

M1 = 1.34964E-01 M2 = 0. M3 = 0.
P2CM= 6.74822E-02
E2CM= 6.74822E-02 E3CM= 6.74822E-02

1-V1LAB= 5.829E-07 GCM = 9.26170E+02 S = 1.82154E-02

| Θ2 CM | Θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | Θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.250E+02 | 1.250E+02 | INF | 0. | 2.914E-07 | 1.80E+02 | 3.643E-05 | 3.643E-05 | INF | 0. | 3.431E+06 | 0. |
| 1 | 5.40E-04 | 1.250E+02 | 1.250E+02 | INF | 0. | 2.915E-07 | 7.08E+00 | 9.555E-03 | 9.555E-03 | INF | 0. | 4.987E+01 | 1.178E-03 |
| 2 | 1.08E-03 | 1.250E+02 | 1.250E+02 | INF | 0. | 2.916E-07 | 3.54E+00 | 3.811E-02 | 3.811E-02 | INF | 0. | 3.136E+00 | 2.355E-03 |
| 3 | 1.62E-03 | 1.249E+02 | 1.249E+02 | INF | 0. | 2.918E-07 | 2.36E+00 | 8.569E-02 | 8.569E-02 | INF | 0. | 6.202E-01 | 3.532E-03 |
| 4 | 2.16E-03 | 1.248E+02 | 1.248E+02 | INF | 0. | 2.922E-07 | 1.77E+00 | 1.523E-01 | 1.523E-01 | INF | 0. | 1.964E-01 | 4.707E-03 |
| 5 | 2.70E-03 | 1.248E+02 | 1.248E+02 | INF | 0. | 2.926E-07 | 1.42E+00 | 2.379E-01 | 2.379E-01 | INF | 0. | 8.048E-02 | 5.881E-03 |
| 6 | 3.24E-03 | 1.247E+02 | 1.247E+02 | INF | 0. | 2.930E-07 | 1.18E+00 | 3.424E-01 | 3.424E-01 | INF | 0. | 3.884E-02 | 7.054E-03 |
| 7 | 3.78E-03 | 1.245E+02 | 1.245E+02 | INF | 0. | 2.936E-07 | 1.01E+00 | 4.659E-01 | 4.659E-01 | INF | 0. | 2.098E-02 | 8.224E-03 |
| 8 | 4.33E-03 | 1.244E+02 | 1.244E+02 | INF | 0. | 2.943E-07 | 8.85E-01 | 6.083E-01 | 6.083E-01 | INF | 0. | 1.231E-02 | 9.392E-03 |
| 9 | 4.87E-03 | 1.242E+02 | 1.242E+02 | INF | 0. | 2.951E-07 | 7.86E-01 | 7.695E-01 | 7.695E-01 | INF | 0. | 7.690E-03 | 1.056E-02 |
| 10 | 5.41E-03 | 1.241E+02 | 1.241E+02 | INF | 0. | 2.959E-07 | 7.07E-01 | 9.496E-01 | 9.496E-01 | INF | 0. | 5.051E-03 | 1.172E-02 |
| 15 | 8.14E-03 | 1.229E+02 | 1.229E+02 | INF | 0. | 3.016E-07 | 4.70E-01 | 2.130E+00 | 2.130E+00 | INF | 0. | 1.004E-03 | 1.747E-02 |
| 20 | 1.09E-02 | 1.212E+02 | 1.212E+02 | INF | 0. | 3.099E-07 | 3.51E-01 | 3.769E+00 | 3.769E+00 | INF | 0. | 3.205E-04 | 2.308E-02 |
| 25 | 1.37E-02 | 1.191E+02 | 1.191E+02 | INF | 0. | 3.208E-07 | 2.79E-01 | 5.856E+00 | 5.856E+00 | INF | 0. | 1.328E-04 | 2.852E-02 |
| 30 | 1.66E-02 | 1.166E+02 | 1.166E+02 | INF | 0. | 3.348E-07 | 2.31E-01 | 8.373E+00 | 8.373E+00 | INF | 0. | 6.495E-05 | 3.374E-02 |
| 35 | 1.95E-02 | 1.137E+02 | 1.137E+02 | INF | 0. | 3.523E-07 | 1.96E-01 | 1.130E+01 | 1.130E+01 | INF | 0. | 3.564E-05 | 3.871E-02 |
| 40 | 2.25E-02 | 1.104E+02 | 1.104E+02 | INF | 0. | 3.738E-07 | 1.70E-01 | 1.462E+01 | 1.462E+01 | INF | 0. | 2.130E-05 | 4.338E-02 |
| 45 | 2.56E-02 | 1.067E+02 | 1.067E+02 | INF | 0. | 4.000E-07 | 1.49E-01 | 1.831E+01 | 1.831E+01 | INF | 0. | 1.359E-05 | 4.772E-02 |
| 50 | 2.88E-02 | 1.027E+02 | 1.027E+02 | INF | 0. | 4.320E-07 | 1.33E-01 | 2.233E+01 | 2.233E+01 | INF | 0. | 9.136E-06 | 5.169E-02 |
| 55 | 3.22E-02 | 9.835E+01 | 9.835E+01 | INF | 0. | 4.708E-07 | 1.19E-01 | 2.665E+01 | 2.665E+01 | INF | 0. | 6.411E-06 | 5.528E-02 |
| 60 | 3.57E-02 | 9.375E+01 | 9.375E+01 | INF | 0. | 5.181E-07 | 1.07E-01 | 3.125E+01 | 3.125E+01 | INF | 0. | 4.663E-06 | 5.844E-02 |
| 65 | 3.94E-02 | 8.891E+01 | 8.891E+01 | INF | 0. | 5.760E-07 | 9.71E-02 | 3.609E+01 | 3.609E+01 | INF | 0. | 3.497E-06 | 6.116E-02 |
| 70 | 4.33E-02 | 8.388E+01 | 8.388E+01 | INF | 0. | 6.473E-07 | 8.83E-02 | 4.112E+01 | 4.112E+01 | INF | 0. | 2.693E-06 | 6.341E-02 |
| 75 | 4.75E-02 | 7.868E+01 | 7.868E+01 | INF | 0. | 7.357E-07 | 8.06E-02 | 4.632E+01 | 4.632E+01 | INF | 0. | 2.122E-06 | 6.518E-02 |
| 80 | 5.19E-02 | 7.335E+01 | 7.335E+01 | INF | 0. | 8.463E-07 | 7.37E-02 | 5.165E+01 | 5.165E+01 | INF | 0. | 1.707E-06 | 6.646E-02 |
| 85 | 5.67E-02 | 6.795E+01 | 6.795E+01 | INF | 0. | 9.864E-07 | 6.75E-02 | 5.705E+01 | 5.705E+01 | INF | 0. | 1.399E-06 | 6.723E-02 |
| 90 | 6.19E-02 | 6.250E+01 | 6.250E+01 | INF | 0. | 1.166E-06 | 6.19E-02 | 6.250E+01 | 6.250E+01 | INF | 0. | 1.166E-06 | 6.748E-02 |
| 95 | 6.75E-02 | 5.705E+01 | 5.705E+01 | INF | 0. | 1.399E-06 | 5.67E-02 | 6.795E+01 | 6.795E+01 | INF | 0. | 9.864E-07 | 6.723E-02 |
| 100 | 7.37E-02 | 5.165E+01 | 5.165E+01 | INF | 0. | 1.707E-06 | 5.19E-02 | 7.335E+01 | 7.335E+01 | INF | 0. | 8.463E-07 | 6.646E-02 |
| 105 | 8.06E-02 | 4.632E+01 | 4.632E+01 | INF | 0. | 2.122E-06 | 4.75E-02 | 7.868E+01 | 7.868E+01 | INF | 0. | 7.357E-07 | 6.518E-02 |
| 110 | 8.83E-02 | 4.112E+01 | 4.112E+01 | INF | 0. | 2.693E-06 | 4.33E-02 | 8.388E+01 | 8.388E+01 | INF | 0. | 6.473E-07 | 6.341E-02 |
| 115 | 9.71E-02 | 3.609E+01 | 3.609E+01 | INF | 0. | 3.497E-06 | 3.94E-02 | 8.891E+01 | 8.891E+01 | INF | 0. | 5.760E-07 | 6.116E-02 |
| 120 | 1.07E-01 | 3.125E+01 | 3.125E+01 | INF | 0. | 4.663E-06 | 3.57E-02 | 9.375E+01 | 9.375E+01 | INF | 0. | 5.181E-07 | 5.844E-02 |
| 125 | 1.19E-01 | 2.665E+01 | 2.665E+01 | INF | 0. | 6.411E-06 | 3.22E-02 | 9.835E+01 | 9.835E+01 | INF | 0. | 4.708E-07 | 5.528E-02 |
| 130 | 1.33E-01 | 2.233E+01 | 2.233E+01 | INF | 0. | 9.136E-06 | 2.88E-02 | 1.027E+02 | 1.027E+02 | INF | 0. | 4.320E-07 | 5.169E-02 |
| 135 | 1.49E-01 | 1.831E+01 | 1.831E+01 | INF | 0. | 1.359E-05 | 2.56E-02 | 1.067E+02 | 1.067E+02 | INF | 0. | 4.000E-07 | 4.772E-02 |
| 140 | 1.70E-01 | 1.462E+01 | 1.462E+01 | INF | 0. | 2.130E-05 | 2.25E-02 | 1.104E+02 | 1.104E+02 | INF | 0. | 3.738E-07 | 4.338E-02 |
| 145 | 1.96E-01 | 1.130E+01 | 1.130E+01 | INF | 0. | 3.564E-05 | 1.95E-02 | 1.137E+02 | 1.137E+02 | INF | 0. | 3.523E-07 | 3.871E-02 |
| 150 | 2.31E-01 | 8.373E+00 | 8.373E+00 | INF | 0. | 6.495E-05 | 1.66E-02 | 1.166E+02 | 1.166E+02 | INF | 0. | 3.348E-07 | 3.374E-02 |
| 155 | 2.79E-01 | 5.856E+00 | 5.856E+00 | INF | 0. | 1.328E-04 | 1.37E-02 | 1.191E+02 | 1.191E+02 | INF | 0. | 3.208E-07 | 2.852E-02 |
| 160 | 3.51E-01 | 3.769E+00 | 3.769E+00 | INF | 0. | 3.205E-04 | 1.09E-02 | 1.212E+02 | 1.212E+02 | INF | 0. | 3.099E-07 | 2.308E-02 |
| 165 | 4.70E-01 | 2.130E+00 | 2.130E+00 | INF | 0. | 1.004E-03 | 8.14E-03 | 1.229E+02 | 1.229E+02 | INF | 0. | 3.016E-07 | 1.747E-02 |
| 170 | 7.07E-01 | 9.496E-01 | 9.496E-01 | INF | 0. | 5.051E-03 | 5.41E-03 | 1.241E+02 | 1.241E+02 | INF | 0. | 2.959E-07 | 1.172E-02 |
| 175 | 1.42E+00 | 2.379E-01 | 2.379E-01 | INF | 0. | 8.048E-02 | 2.70E-03 | 1.248E+02 | 1.248E+02 | INF | 0. | 2.926E-07 | 5.881E-03 |
| 180 | 1.80E+02 | 3.643E-05 | 3.643E-05 | INF | 0. | 3.431E+06 | 0. | 1.250E+02 | 1.250E+02 | INF | 0. | 2.914E-07 | 0. |

PI ZERO (1) => GAMMA (2) + GAMMA (3) AT 150 GEV/C P1 LAB

M1 = 1.34964E-01 M2 = 0. M3 = 0.
P2CM= 6.74822E-02
E2CM= 6.74822E-02 E3CM= 6.74822E-02

1-V1LAB= 4.048E-07 GCM = 1.11140E+03 S = 1.82154E-02

| Θ2 CM | Θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | Θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.500E+02 | 1.500E+02 | INF | 0. | 2.024E-07 | 1.80E+02 | 3.036E-05 | 3.036E-05 | INF | 0. | 4.941E+06 | 0. |
| 1 | 4.50E-04 | 1.500E+02 | 1.500E+02 | INF | 0. | 2.024E-07 | 5.90E+00 | 1.145E-02 | 1.145E-02 | INF | 0. | 3.472E+01 | 1.178E-03 |
| 2 | 9.00E-04 | 1.500E+02 | 1.500E+02 | INF | 0. | 2.025E-07 | 2.95E+00 | 4.572E-02 | 4.572E-02 | INF | 0. | 2.179E+00 | 2.355E-03 |
| 3 | 1.35E-03 | 1.499E+02 | 1.499E+02 | INF | 0. | 2.027E-07 | 1.97E+00 | 1.028E-01 | 1.028E-01 | INF | 0. | 4.308E-01 | 3.532E-03 |
| 4 | 1.80E-03 | 1.498E+02 | 1.498E+02 | INF | 0. | 2.029E-07 | 1.48E+00 | 1.827E-01 | 1.827E-01 | INF | 0. | 1.364E-01 | 4.707E-03 |
| 5 | 2.25E-03 | 1.497E+02 | 1.497E+02 | INF | 0. | 2.032E-07 | 1.18E+00 | 2.854E-01 | 2.854E-01 | INF | 0. | 5.590E-02 | 5.881E-03 |
| 6 | 2.70E-03 | 1.496E+02 | 1.496E+02 | INF | 0. | 2.035E-07 | 9.84E-01 | 4.109E-01 | 4.109E-01 | INF | 0. | 2.697E-02 | 7.054E-03 |
| 7 | 3.15E-03 | 1.494E+02 | 1.494E+02 | INF | 0. | 2.039E-07 | 8.43E-01 | 5.591E-01 | 5.591E-01 | INF | 0. | 1.457E-02 | 8.224E-03 |
| 8 | 3.60E-03 | 1.493E+02 | 1.493E+02 | INF | 0. | 2.044E-07 | 7.37E-01 | 7.299E-01 | 7.299E-01 | INF | 0. | 8.547E-03 | 9.392E-03 |
| 9 | 4.06E-03 | 1.491E+02 | 1.491E+02 | INF | 0. | 2.049E-07 | 6.55E-01 | 9.234E-01 | 9.234E-01 | INF | 0. | 5.341E-03 | 1.056E-02 |
| 10 | 4.51E-03 | 1.489E+02 | 1.489E+02 | INF | 0. | 2.055E-07 | 5.89E-01 | 1.139E+00 | 1.139E+00 | INF | 0. | 3.507E-03 | 1.172E-02 |
| 15 | 6.79E-03 | 1.474E+02 | 1.474E+02 | INF | 0. | 2.095E-07 | 3.92E-01 | 2.556E+00 | 2.556E+00 | INF | 0. | 6.973E-04 | 1.747E-02 |
| 20 | 9.09E-03 | 1.455E+02 | 1.455E+02 | INF | 0. | 2.152E-07 | 2.92E-01 | 4.523E+00 | 4.523E+00 | INF | 0. | 2.226E-04 | 2.308E-02 |
| 25 | 1.14E-02 | 1.430E+02 | 1.430E+02 | INF | 0. | 2.228E-07 | 2.33E-01 | 7.027E+00 | 7.027E+00 | INF | 0. | 9.222E-05 | 2.852E-02 |
| 30 | 1.38E-02 | 1.400E+02 | 1.400E+02 | INF | 0. | 2.325E-07 | 1.92E-01 | 1.005E+01 | 1.005E+01 | INF | 0. | 4.510E-05 | 3.374E-02 |
| 35 | 1.63E-02 | 1.364E+02 | 1.364E+02 | INF | 0. | 2.446E-07 | 1.64E-01 | 1.356E+01 | 1.356E+01 | INF | 0. | 2.475E-05 | 3.871E-02 |
| 40 | 1.88E-02 | 1.325E+02 | 1.325E+02 | INF | 0. | 2.596E-07 | 1.42E-01 | 1.755E+01 | 1.755E+01 | INF | 0. | 1.479E-05 | 4.338E-02 |
| 45 | 2.14E-02 | 1.280E+02 | 1.280E+02 | INF | 0. | 2.778E-07 | 1.24E-01 | 2.197E+01 | 2.197E+01 | INF | 0. | 9.437E-06 | 4.772E-02 |
| 50 | 2.40E-02 | 1.232E+02 | 1.232E+02 | INF | 0. | 3.000E-07 | 1.11E-01 | 2.679E+01 | 2.679E+01 | INF | 0. | 6.345E-06 | 5.169E-02 |
| 55 | 2.68E-02 | 1.180E+02 | 1.180E+02 | INF | 0. | 3.269E-07 | 9.90E-02 | 3.198E+01 | 3.198E+01 | INF | 0. | 4.452E-06 | 5.528E-02 |
| 60 | 2.98E-02 | 1.125E+02 | 1.125E+02 | INF | 0. | 3.598E-07 | 8.93E-02 | 3.750E+01 | 3.750E+01 | INF | 0. | 3.238E-06 | 5.844E-02 |
| 65 | 3.28E-02 | 1.067E+02 | 1.067E+02 | INF | 0. | 4.000E-07 | 8.09E-02 | 4.330E+01 | 4.330E+01 | INF | 0. | 2.428E-06 | 6.116E-02 |
| 70 | 3.61E-02 | 1.007E+02 | 1.007E+02 | INF | 0. | 4.495E-07 | 7.36E-02 | 4.935E+01 | 4.935E+01 | INF | 0. | 1.870E-06 | 6.341E-02 |
| 75 | 3.96E-02 | 9.441E+01 | 9.441E+01 | INF | 0. | 5.109E-07 | 6.72E-02 | 5.559E+01 | 5.559E+01 | INF | 0. | 1.474E-06 | 6.518E-02 |
| 80 | 4.33E-02 | 8.802E+01 | 8.802E+01 | INF | 0. | 5.877E-07 | 6.14E-02 | 6.198E+01 | 6.198E+01 | INF | 0. | 1.186E-06 | 6.646E-02 |
| 85 | 4.72E-02 | 8.154E+01 | 8.154E+01 | INF | 0. | 6.850E-07 | 5.63E-02 | 6.846E+01 | 6.846E+01 | INF | 0. | 9.715E-07 | 6.723E-02 |
| 90 | 5.16E-02 | 7.500E+01 | 7.500E+01 | INF | 0. | 8.096E-07 | 5.16E-02 | 7.500E+01 | 7.500E+01 | INF | 0. | 8.096E-07 | 6.748E-02 |
| 95 | 5.63E-02 | 6.846E+01 | 6.846E+01 | INF | 0. | 9.715E-07 | 4.72E-02 | 8.154E+01 | 8.154E+01 | INF | 0. | 6.850E-07 | 6.723E-02 |
| 100 | 6.14E-02 | 6.198E+01 | 6.198E+01 | INF | 0. | 1.186E-06 | 4.33E-02 | 8.802E+01 | 8.802E+01 | INF | 0. | 5.877E-07 | 6.646E-02 |
| 105 | 6.72E-02 | 5.559E+01 | 5.559E+01 | INF | 0. | 1.474E-06 | 3.96E-02 | 9.441E+01 | 9.441E+01 | INF | 0. | 5.109E-07 | 6.518E-02 |
| 110 | 7.36E-02 | 4.935E+01 | 4.935E+01 | INF | 0. | 1.870E-06 | 3.61E-02 | 1.007E+02 | 1.007E+02 | INF | 0. | 4.495E-07 | 6.341E-02 |
| 115 | 8.09E-02 | 4.330E+01 | 4.330E+01 | INF | 0. | 2.428E-06 | 3.28E-02 | 1.067E+02 | 1.067E+02 | INF | 0. | 4.000E-07 | 6.116E-02 |
| 120 | 8.93E-02 | 3.750E+01 | 3.750E+01 | INF | 0. | 3.238E-06 | 2.98E-02 | 1.125E+02 | 1.125E+02 | INF | 0. | 3.598E-07 | 5.844E-02 |
| 125 | 9.90E-02 | 3.198E+01 | 3.198E+01 | INF | 0. | 4.452E-06 | 2.68E-02 | 1.180E+02 | 1.180E+02 | INF | 0. | 3.269E-07 | 5.528E-02 |
| 130 | 1.11E-01 | 2.679E+01 | 2.679E+01 | INF | 0. | 6.345E-06 | 2.40E-02 | 1.232E+02 | 1.232E+02 | INF | 0. | 3.000E-07 | 5.169E-02 |
| 135 | 1.24E-01 | 2.197E+01 | 2.197E+01 | INF | 0. | 9.437E-06 | 2.14E-02 | 1.280E+02 | 1.280E+02 | INF | 0. | 2.778E-07 | 4.772E-02 |
| 140 | 1.42E-01 | 1.755E+01 | 1.755E+01 | INF | 0. | 1.479E-05 | 1.88E-02 | 1.325E+02 | 1.325E+02 | INF | 0. | 2.596E-07 | 4.338E-02 |
| 145 | 1.64E-01 | 1.356E+01 | 1.356E+01 | INF | 0. | 2.475E-05 | 1.63E-02 | 1.364E+02 | 1.364E+02 | INF | 0. | 2.446E-07 | 3.871E-02 |
| 150 | 1.92E-01 | 1.005E+01 | 1.005E+01 | INF | 0. | 4.510E-05 | 1.38E-02 | 1.400E+02 | 1.400E+02 | INF | 0. | 2.325E-07 | 3.374E-02 |
| 155 | 2.33E-01 | 7.027E+00 | 7.027E+00 | INF | 0. | 9.222E-05 | 1.14E-02 | 1.430E+02 | 1.430E+02 | INF | 0. | 2.228E-07 | 2.852E-02 |
| 160 | 2.92E-01 | 4.523E+00 | 4.523E+00 | INF | 0. | 2.226E-04 | 9.09E-03 | 1.455E+02 | 1.455E+02 | INF | 0. | 2.152E-07 | 2.308E-02 |
| 165 | 3.92E-01 | 2.556E+00 | 2.556E+00 | INF | 0. | 6.973E-04 | 6.79E-03 | 1.474E+02 | 1.474E+02 | INF | 0. | 2.095E-07 | 1.747E-02 |
| 170 | 5.89E-01 | 1.139E+00 | 1.139E+00 | INF | 0. | 3.507E-03 | 4.51E-03 | 1.489E+02 | 1.489E+02 | INF | 0. | 2.055E-07 | 1.172E-02 |
| 175 | 1.18E+00 | 2.854E-01 | 2.854E-01 | INF | 0. | 5.590E-02 | 2.25E-03 | 1.497E+02 | 1.497E+02 | INF | 0. | 2.032E-07 | 5.881E-03 |
| 180 | 1.80E+02 | 3.036E-05 | 3.036E-05 | INF | 0. | 4.941E+06 | 0. | 1.500E+02 | 1.500E+02 | INF | 0. | 2.024E-07 | 0. |

PI ZERO (1) => GAMMA (2) + GAMMA (3) AT 175 GEV/C P1 LAB

M1 = 1.34964E-01 M2 = 0. M3 = 0.
P2CM= 6.74822E-02
E2CM= 6.74822E-02 E3CM= 6.74822E-02

1-V1LAB= 2.974E-07 GCM = 1.29664E+03 S = 1.82154E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.750E+02 | 1.750E+02 | INF | 0. | 1.487E-07 | 1.80E+02 | 2.602E-05 | 2.602E-05 | INF | 0. | 6.725E+06 | 0. |
| 1 | 3.86E-04 | 1.750E+02 | 1.750E+02 | INF | 0. | 1.487E-07 | 5.06E+00 | 1.335E-02 | 1.335E-02 | INF | 0. | 2.554E+01 | 1.178E-03 |
| 2 | 7.71E-04 | 1.749E+02 | 1.749E+02 | INF | 0. | 1.488E-07 | 2.53E+00 | 5.333E-02 | 5.333E-02 | INF | 0. | 1.601E+00 | 2.355E-03 |
| 3 | 1.16E-03 | 1.749E+02 | 1.749E+02 | INF | 0. | 1.489E-07 | 1.69E+00 | 1.199E-01 | 1.199E-01 | INF | 0. | 3.165E-01 | 3.532E-03 |
| 4 | 1.54E-03 | 1.748E+02 | 1.748E+02 | INF | 0. | 1.491E-07 | 1.27E+00 | 2.132E-01 | 2.132E-01 | INF | 0. | 1.002E-01 | 4.707E-03 |
| 5 | 1.93E-03 | 1.747E+02 | 1.747E+02 | INF | 0. | 1.493E-07 | 1.01E+00 | 3.330E-01 | 3.330E-01 | INF | 0. | 4.107E-02 | 5.881E-03 |
| 6 | 2.32E-03 | 1.745E+02 | 1.745E+02 | INF | 0. | 1.495E-07 | 8.43E-01 | 4.794E-01 | 4.794E-01 | INF | 0. | 1.982E-02 | 7.054E-03 |
| 7 | 2.70E-03 | 1.743E+02 | 1.743E+02 | INF | 0. | 1.498E-07 | 7.22E-01 | 6.522E-01 | 6.522E-01 | INF | 0. | 1.070E-02 | 8.224E-03 |
| 8 | 3.09E-03 | 1.741E+02 | 1.741E+02 | INF | 0. | 1.502E-07 | 6.32E-01 | 8.516E-01 | 8.516E-01 | INF | 0. | 6.280E-03 | 9.392E-03 |
| 9 | 3.48E-03 | 1.739E+02 | 1.739E+02 | INF | 0. | 1.505E-07 | 5.61E-01 | 1.077E+00 | 1.077E+00 | INF | 0. | 3.924E-03 | 1.056E-02 |
| 10 | 3.87E-03 | 1.737E+02 | 1.737E+02 | INF | 0. | 1.510E-07 | 5.05E-01 | 1.329E+00 | 1.329E+00 | INF | 0. | 2.577E-03 | 1.172E-02 |
| 15 | 5.82E-03 | 1.720E+02 | 1.720E+02 | INF | 0. | 1.539E-07 | 3.36E-31 | 2.982E+00 | 2.982E+00 | INF | 0. | 5.123E-04 | 1.747E-02 |
| 20 | 7.79E-03 | 1.697E+02 | 1.697E+02 | INF | 0. | 1.581E-07 | 2.51E-01 | 5.277E+00 | 5.277E+00 | INF | 0. | 1.635E-04 | 2.308E-02 |
| 25 | 9.80E-03 | 1.668E+02 | 1.668E+02 | INF | 0. | 1.637E-07 | 1.99E-01 | 8.198E+00 | 8.198E+00 | INF | 0. | 6.776E-05 | 2.852E-02 |
| 30 | 1.18E-02 | 1.633E+02 | 1.633E+02 | INF | 0. | 1.708E-07 | 1.65E-01 | 1.172E+01 | 1.172E+01 | INF | 0. | 3.314E-05 | 3.374E-02 |
| 35 | 1.39E-02 | 1.592E+02 | 1.592E+02 | INF | 0. | 1.797E-07 | 1.40E-01 | 1.582E+01 | 1.582E+01 | INF | 0. | 1.819E-05 | 3.871E-02 |
| 40 | 1.61E-02 | 1.545E+02 | 1.545E+02 | INF | 0. | 1.907E-07 | 1.21E-01 | 2.047E+01 | 2.047E+01 | INF | 0. | 1.087E-05 | 4.338E-02 |
| 45 | 1.83E-02 | 1.494E+02 | 1.494E+02 | INF | 0. | 2.041E-07 | 1.07E-01 | 2.563E+01 | 2.563E+01 | INF | 0. | 6.933E-06 | 4.772E-02 |
| 50 | 2.06E-02 | 1.437E+02 | 1.437E+02 | INF | 0. | 2.204E-07 | 9.48E-02 | 3.126E+01 | 3.126E+01 | INF | 0. | 4.661E-06 | 5.169E-02 |
| 55 | 2.30E-02 | 1.377E+02 | 1.377E+02 | INF | 0. | 2.402E-07 | 8.49E-02 | 3.731E+01 | 3.731E+01 | INF | 0. | 3.271E-06 | 5.528E-02 |
| 60 | 2.55E-02 | 1.313E+02 | 1.313E+02 | INF | 0. | 2.644E-07 | 7.65E-02 | 4.375E+01 | 4.375E+01 | INF | 0. | 2.379E-06 | 5.844E-02 |
| 65 | 2.82E-02 | 1.245E+02 | 1.245E+02 | INF | 0. | 2.939E-07 | 6.94E-02 | 5.052E+01 | 5.052E+01 | INF | 0. | 1.784E-06 | 6.116E-02 |
| 70 | 3.09E-02 | 1.174E+02 | 1.174E+02 | INF | 0. | 3.303E-07 | 6.31E-02 | 5.757E+01 | 5.757E+01 | INF | 0. | 1.374E-06 | 6.341E-02 |
| 75 | 3.39E-02 | 1.101E+02 | 1.101E+02 | INF | 0. | 3.753E-07 | 5.76E-02 | 6.485E+01 | 6.485E+01 | INF | 0. | 1.083E-06 | 6.518E-02 |
| 80 | 3.71E-02 | 1.027E+02 | 1.027E+02 | INF | 0. | 4.318E-07 | 5.27E-02 | 7.231E+01 | 7.231E+01 | INF | 0. | 8.710E-07 | 6.646E-02 |
| 85 | 4.05E-02 | 9.513E+01 | 9.513E+01 | INF | 0. | 5.032E-07 | 4.82E-02 | 7.987E+01 | 7.987E+01 | INF | 0. | 7.138E-07 | 6.723E-02 |
| 90 | 4.42E-02 | 8.750E+01 | 8.750E+01 | INF | 0. | 5.948E-07 | 4.42E-02 | 8.750E+01 | 8.750E+01 | INF | 0. | 5.948E-07 | 6.748E-02 |
| 95 | 4.82E-02 | 7.987E+01 | 7.987E+01 | INF | 0. | 7.138E-07 | 4.05E-02 | 9.513E+01 | 9.513E+01 | INF | 0. | 5.032E-07 | 6.723E-02 |
| 100 | 5.27E-02 | 7.231E+01 | 7.231E+01 | INF | 0. | 8.710E-07 | 3.71E-02 | 1.027E+02 | 1.027E+02 | INF | 0. | 4.318E-07 | 6.646E-02 |
| 105 | 5.76E-02 | 6.485E+01 | 6.485E+01 | INF | 0. | 1.083E-06 | 3.39E-02 | 1.101E+02 | 1.101E+02 | INF | 0. | 3.753E-07 | 6.518E-02 |
| 110 | 6.31E-02 | 5.757E+01 | 5.757E+01 | INF | 0. | 1.374E-06 | 3.09E-02 | 1.174E+02 | 1.174E+02 | INF | 0. | 3.303E-07 | 6.341E-02 |
| 115 | 6.94E-02 | 5.052E+01 | 5.052E+01 | INF | 0. | 1.784E-06 | 2.82E-02 | 1.245E+02 | 1.245E+02 | INF | 0. | 2.939E-07 | 6.116E-02 |
| 120 | 7.65E-02 | 4.375E+01 | 4.375E+01 | INF | 0. | 2.379E-06 | 2.55E-02 | 1.313E+02 | 1.313E+02 | INF | 0. | 2.644E-07 | 5.844E-02 |
| 125 | 8.49E-02 | 3.731E+01 | 3.731E+01 | INF | 0. | 3.271E-06 | 2.30E-02 | 1.377E+02 | 1.377E+02 | INF | 0. | 2.402E-07 | 5.528E-02 |
| 130 | 9.48E-02 | 3.126E+01 | 3.126E+01 | INF | 0. | 4.661E-06 | 2.06E-02 | 1.437E+02 | 1.437E+02 | INF | 0. | 2.204E-07 | 5.169E-02 |
| 135 | 1.07E-01 | 2.563E+01 | 2.563E+01 | INF | 0. | 6.933E-06 | 1.83E-02 | 1.494E+02 | 1.494E+02 | INF | 0. | 2.041E-07 | 4.772E-02 |
| 140 | 1.21E-01 | 2.047E+01 | 2.047E+01 | INF | 0. | 1.087E-05 | 1.61E-02 | 1.545E+02 | 1.545E+02 | INF | 0. | 1.907E-07 | 4.338E-02 |
| 145 | 1.40E-01 | 1.582E+01 | 1.582E+01 | INF | 0. | 1.819E-05 | 1.39E-02 | 1.592E+02 | 1.592E+02 | INF | 0. | 1.797E-07 | 3.871E-02 |
| 150 | 1.65E-01 | 1.172E+01 | 1.172E+01 | INF | 0. | 3.314E-05 | 1.18E-02 | 1.633E+02 | 1.633E+02 | INF | 0. | 1.708E-07 | 3.374E-02 |
| 155 | 1.99E-01 | 8.198E+00 | 8.198E+00 | INF | 0. | 6.776E-05 | 9.80E-03 | 1.668E+02 | 1.668E+02 | INF | 0. | 1.637E-07 | 2.852E-02 |
| 160 | 2.51E-01 | 5.277E+00 | 5.277E+00 | INF | 0. | 1.635E-04 | 7.79E-03 | 1.697E+02 | 1.697E+02 | INF | 0. | 1.581E-07 | 2.308E-02 |
| 165 | 3.36E-01 | 2.982E+00 | 2.982E+00 | INF | 0. | 5.123E-04 | 5.82E-03 | 1.720E+02 | 1.720E+02 | INF | 0. | 1.539E-07 | 1.747E-02 |
| 170 | 5.05E-01 | 1.329E+00 | 1.329E+00 | INF | 0. | 2.577E-03 | 3.87E-03 | 1.737E+02 | 1.737E+02 | INF | 0. | 1.510E-07 | 1.172E-02 |
| 175 | 1.01E+00 | 3.330E-01 | 3.330E-01 | INF | 0. | 4.107E-02 | 1.93E-03 | 1.747E+02 | 1.747E+02 | INF | 0. | 1.493E-07 | 5.881E-03 |
| 180 | 1.80E+02 | 2.602E-05 | 2.602E-05 | INF | 0. | 6.725E+06 | 0. | 1.750E+02 | 1.750E+02 | INF | 0. | 1.487E-07 | 0. |

PI ZERO (1) => GAMMA (2) + GAMMA (3) AT 200 GEV/C P1 LAB

M1 = 1.34964E-01 M2 = 0. M3 = 0.
P2CM= 6.74822E-02
E2CM= 6.74822E-02 E3CM= 6.74822E-02

1-V1LAB= 2.277E-07 GCM = 1.46187E+03 S = 1.82154E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.000E+02 | 2.000E+02 | INF | 0. | 1.138E-07 | 1.80E+02 | 2.277E-05 | 2.277E-05 | INF | 0. | 8.784E+06 | 0. |
| 1 | 3.37E-04 | 2.000E+02 | 2.000E+02 | INF | 0. | 1.139E-07 | 4.43E+00 | 1.525E-02 | 1.525E-02 | INF | 0. | 1.957E+01 | 1.178E-03 |
| 2 | 6.75E-04 | 1.999E+02 | 1.999E+02 | INF | 0. | 1.139E-07 | 2.21E+00 | 6.094E-02 | 6.094E-02 | INF | 0. | 1.226E+00 | 2.355E-03 |
| 3 | 1.01E-03 | 1.999E+02 | 1.999E+02 | INF | 0. | 1.140E-07 | 1.48E+00 | 1.371E-01 | 1.371E-01 | INF | 0. | 2.424E-01 | 3.532E-03 |
| 4 | 1.35E-03 | 1.998E+02 | 1.998E+02 | INF | 0. | 1.141E-07 | 1.11E+00 | 2.436E-01 | 2.436E-01 | INF | 0. | 7.673E-02 | 4.707E-03 |
| 5 | 1.69E-03 | 1.996E+02 | 1.996E+02 | INF | 0. | 1.143E-07 | 8.86E-01 | 3.806E-01 | 3.806E-01 | INF | 0. | 3.144E-02 | 5.881E-03 |
| 6 | 2.03E-03 | 1.995E+02 | 1.995E+02 | INF | 0. | 1.145E-07 | 7.38E-01 | 5.478E-01 | 5.478E-01 | INF | 0. | 1.517E-02 | 7.054E-03 |
| 7 | 2.36E-03 | 1.993E+02 | 1.993E+02 | INF | 0. | 1.147E-07 | 6.32E-01 | 7.454E-01 | 7.454E-01 | INF | 0. | 8.196E-03 | 8.224E-03 |
| 8 | 2.70E-03 | 1.990E+02 | 1.990E+02 | INF | 0. | 1.150E-07 | 5.53E-01 | 9.732E-01 | 9.732E-01 | INF | 0. | 4.808E-03 | 9.392E-03 |
| 9 | 3.04E-03 | 1.988E+02 | 1.988E+02 | INF | 0. | 1.153E-07 | 4.91E-01 | 1.231E+00 | 1.231E+00 | INF | 0. | 3.004E-03 | 1.056E-02 |
| 10 | 3.38E-03 | 1.985E+02 | 1.985E+02 | INF | 0. | 1.156E-07 | 4.42E-01 | 1.519E+00 | 1.519E+00 | INF | 0. | 1.973E-03 | 1.172E-02 |
| 15 | 5.09E-03 | 1.966E+02 | 1.966E+02 | INF | 0. | 1.178E-07 | 2.94E-01 | 3.407E+00 | 3.407E+00 | INF | 0. | 3.922E-04 | 1.747E-02 |
| 20 | 6.82E-03 | 1.940E+02 | 1.940E+02 | INF | 0. | 1.210E-07 | 2.19E-01 | 6.031E+00 | 6.031E+00 | INF | 0. | 1.252E-04 | 2.308E-02 |
| 25 | 8.57E-03 | 1.906E+02 | 1.906E+02 | INF | 0. | 1.253E-07 | 1.74E-01 | 9.369E+00 | 9.369E+00 | INF | 0. | 5.188E-05 | 2.852E-02 |
| 30 | 1.04E-02 | 1.866E+02 | 1.866E+02 | INF | 0. | 1.308E-07 | 1.44E-01 | 1.340E+01 | 1.340E+01 | INF | 0. | 2.537E-05 | 3.374E-02 |
| 35 | 1.22E-02 | 1.819E+02 | 1.819E+02 | INF | 0. | 1.376E-07 | 1.23E-01 | 1.808E+01 | 1.808E+01 | INF | 0. | 1.392E-05 | 3.871E-02 |
| 40 | 1.41E-02 | 1.766E+02 | 1.766E+02 | INF | 0. | 1.460E-07 | 1.06E-01 | 2.340E+01 | 2.340E+01 | INF | 0. | 8.320E-06 | 4.338E-02 |
| 45 | 1.60E-02 | 1.707E+02 | 1.707E+02 | INF | 0. | 1.563E-07 | 9.33E-02 | 2.929E+01 | 2.929E+01 | INF | 0. | 5.308E-06 | 4.772E-02 |
| 50 | 1.80E-02 | 1.643E+02 | 1.643E+02 | INF | 0. | 1.687E-07 | 8.29E-02 | 3.572E+01 | 3.572E+01 | INF | 0. | 3.569E-06 | 5.169E-02 |
| 55 | 2.01E-02 | 1.574E+02 | 1.574E+02 | INF | 0. | 1.839E-07 | 7.43E-02 | 4.264E+01 | 4.264E+01 | INF | 0. | 2.504E-06 | 5.528E-02 |
| 60 | 2.23E-02 | 1.500E+02 | 1.500E+02 | INF | 0. | 2.024E-07 | 6.70E-02 | 5.000E+01 | 5.000E+01 | INF | 0. | 1.822E-06 | 5.844E-02 |
| 65 | 2.46E-02 | 1.423E+02 | 1.423E+02 | INF | 0. | 2.250E-07 | 6.07E-02 | 5.774E+01 | 5.774E+01 | INF | 0. | 1.366E-06 | 6.116E-02 |
| 70 | 2.71E-02 | 1.342E+02 | 1.342E+02 | INF | 0. | 2.528E-07 | 5.52E-02 | 6.580E+01 | 6.580E+01 | INF | 0. | 1.052E-06 | 6.341E-02 |
| 75 | 2.97E-02 | 1.259E+02 | 1.259E+02 | INF | 0. | 2.874E-07 | 5.04E-02 | 7.412E+01 | 7.412E+01 | INF | 0. | 8.290E-07 | 6.518E-02 |
| 80 | 3.24E-02 | 1.174E+02 | 1.174E+02 | INF | 0. | 3.306E-07 | 4.61E-02 | 8.264E+01 | 8.264E+01 | INF | 0. | 6.669E-07 | 6.646E-02 |
| 85 | 3.54E-02 | 1.087E+02 | 1.087E+02 | INF | 0. | 3.853E-07 | 4.22E-02 | 9.128E+01 | 9.128E+01 | INF | 0. | 5.465E-07 | 6.723E-02 |
| 90 | 3.87E-02 | 1.000E+02 | 1.000E+02 | INF | 0. | 4.554E-07 | 3.87E-02 | 1.000E+02 | 1.000E+02 | INF | 0. | 4.554E-07 | 6.748E-02 |
| 95 | 4.22E-02 | 9.128E+01 | 9.128E+01 | INF | 0. | 5.465E-07 | 3.54E-02 | 1.087E+02 | 1.087E+02 | INF | 0. | 3.853E-07 | 6.723E-02 |
| 100 | 4.61E-02 | 8.264E+01 | 8.264E+01 | INF | 0. | 6.669E-07 | 3.24E-02 | 1.174E+02 | 1.174E+02 | INF | 0. | 3.306E-07 | 6.646E-02 |
| 105 | 5.04E-02 | 7.412E+01 | 7.412E+01 | INF | 0. | 8.290E-07 | 2.97E-02 | 1.259E+02 | 1.259E+02 | INF | 0. | 2.874E-07 | 6.518E-02 |
| 110 | 5.52E-02 | 6.580E+01 | 6.580E+01 | INF | 0. | 1.052E-06 | 2.71E-02 | 1.342E+02 | 1.342E+02 | INF | 0. | 2.528E-07 | 6.341E-02 |
| 115 | 6.07E-02 | 5.774E+01 | 5.774E+01 | INF | 0. | 1.366E-06 | 2.46E-02 | 1.423E+02 | 1.423E+02 | INF | 0. | 2.250E-07 | 6.116E-02 |
| 120 | 6.70E-02 | 5.000E+01 | 5.000E+01 | INF | 0. | 1.822E-06 | 2.23E-02 | 1.500E+02 | 1.500E+02 | INF | 0. | 2.024E-07 | 5.844E-02 |
| 125 | 7.43E-02 | 4.264E+01 | 4.264E+01 | INF | 0. | 2.504E-06 | 2.01E-02 | 1.574E+02 | 1.574E+02 | INF | 0. | 1.839E-07 | 5.528E-02 |
| 130 | 8.29E-02 | 3.572E+01 | 3.572E+01 | INF | 0. | 3.569E-06 | 1.80E-02 | 1.643E+02 | 1.643E+02 | INF | 0. | 1.687E-07 | 5.169E-02 |
| 135 | 9.33E-02 | 2.929E+01 | 2.929E+01 | INF | 0. | 5.308E-06 | 1.60E-02 | 1.707E+02 | 1.707E+02 | INF | 0. | 1.563E-07 | 4.772E-02 |
| 140 | 1.06E-01 | 2.340E+01 | 2.340E+01 | INF | 0. | 8.320E-06 | 1.41E-02 | 1.766E+02 | 1.766E+02 | INF | 0. | 1.460E-07 | 4.338E-02 |
| 145 | 1.23E-01 | 1.808E+01 | 1.808E+01 | INF | 0. | 1.392E-05 | 1.22E-02 | 1.819E+02 | 1.819E+02 | INF | 0. | 1.376E-07 | 3.871E-02 |
| 150 | 1.44E-01 | 1.340E+01 | 1.340E+01 | INF | 0. | 2.537E-05 | 1.04E-02 | 1.866E+02 | 1.866E+02 | INF | 0. | 1.308E-07 | 3.374E-02 |
| 155 | 1.74E-01 | 9.369E+00 | 9.369E+00 | INF | 0. | 5.188E-05 | 8.57E-03 | 1.906E+02 | 1.906E+02 | INF | 0. | 1.253E-07 | 2.852E-02 |
| 160 | 2.19E-01 | 6.031E+00 | 6.031E+00 | INF | 0. | 1.252E-04 | 6.82E-03 | 1.940E+02 | 1.940E+02 | INF | 0. | 1.210E-07 | 2.308E-02 |
| 165 | 2.94E-01 | 3.407E+00 | 3.407E+00 | INF | 0. | 3.922E-04 | 5.09E-03 | 1.966E+02 | 1.966E+02 | INF | 0. | 1.178E-07 | 1.747E-02 |
| 170 | 4.42E-01 | 1.519E+00 | 1.519E+00 | INF | 0. | 1.973E-03 | 3.38E-03 | 1.985E+02 | 1.985E+02 | INF | 0. | 1.156E-07 | 1.172E-02 |
| 175 | 8.86E-01 | 3.806E-01 | 3.806E-01 | INF | 0. | 3.144E-02 | 1.69E-03 | 1.996E+02 | 1.996E+02 | INF | 0. | 1.143E-07 | 5.881E-03 |
| 180 | 1.80E+02 | 2.277E-05 | 2.277E-05 | INF | 0. | 8.784E+06 | 0. | 2.000E+02 | 2.000E+02 | INF | 0. | 1.138E-07 | 0. |

PI ZERO (1) => GAMMA (2) + GAMMA (3) AT 225 GEV/C P1 LAB

M1 = 1.34964E-01 M2 = 0. M3 = 0.
P2CM= 6.74822E-02
E2CM= 6.74822E-02 E3CM= 6.74822E-02

1-V1LAB= 1.799E-07 GCM = 1.66711E+03 S = 1.82154E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.250E+02 | 2.250E+02 | INF | 0. | 8.995E-08 | 1.80E+02 | 2.024E-05 | 2.024E-05 | INF | 0. | 1.112E+07 | 0. |
| 1 | 3.00E-04 | 2.250E+02 | 2.250E+02 | INF | 0. | 8.997E-08 | 3.94E+00 | 1.715E-02 | 1.715E-02 | INF | 0. | 1.547E+01 | 1.178E-03 |
| 2 | 6.00E-04 | 2.249E+02 | 2.249E+02 | INF | 0. | 9.001E-08 | 1.97E+00 | 6.855E-02 | 6.855E-02 | INF | 0. | 9.690E-01 | 2.355E-03 |
| 3 | 9.00E-04 | 2.248E+02 | 2.248E+02 | INF | 0. | 9.008E-08 | 1.31E+00 | 1.542E-01 | 1.542E-01 | INF | 0. | 1.915E-01 | 3.532E-03 |
| 4 | 1.20E-03 | 2.247E+02 | 2.247E+02 | INF | 0. | 9.017E-08 | 9.84E-01 | 2.741E-01 | 2.741E-01 | INF | 0. | 6.063E-02 | 4.707E-03 |
| 5 | 1.50E-03 | 2.246E+02 | 2.246E+02 | INF | 0. | 9.030E-08 | 7.87E-01 | 4.281E-01 | 4.281E-01 | INF | 0. | 2.485E-02 | 5.881E-03 |
| 6 | 1.80E-03 | 2.244E+02 | 2.244E+02 | INF | 0. | 9.045E-08 | 6.56E-01 | 6.163E-01 | 6.163E-01 | INF | 0. | 1.199E-02 | 7.054E-03 |
| 7 | 2.10E-03 | 2.242E+02 | 2.242E+02 | INF | 0. | 9.063E-08 | 5.62E-01 | 8.386E-01 | 8.386E-01 | INF | 0. | 6.476E-03 | 8.224E-03 |
| 8 | 2.40E-03 | 2.239E+02 | 2.239E+02 | INF | 0. | 9.083E-08 | 4.91E-01 | 1.095E+00 | 1.095E+00 | INF | 0. | 3.799E-03 | 9.392E-03 |
| 9 | 2.70E-03 | 2.236E+02 | 2.236E+02 | INF | 0. | 9.107E-08 | 4.37E-01 | 1.385E+00 | 1.385E+00 | INF | 0. | 2.374E-03 | 1.056E-02 |
| 10 | 3.01E-03 | 2.233E+02 | 2.233E+02 | INF | 0. | 9.133E-08 | 3.93E-01 | 1.709E+00 | 1.709E+00 | INF | 0. | 1.559E-03 | 1.172E-02 |
| 15 | 4.52E-03 | 2.212E+02 | 2.212E+02 | INF | 0. | 9.310E-08 | 2.61E-01 | 3.833E+00 | 3.833E+00 | INF | 0. | 3.099E-04 | 1.747E-02 |
| 20 | 6.06E-03 | 2.182E+02 | 2.182E+02 | INF | 0. | 9.563E-08 | 1.95E-01 | 6.785E+00 | 6.785E+00 | INF | 0. | 9.893E-05 | 2.308E-02 |
| 25 | 7.62E-03 | 2.145E+02 | 2.145E+02 | INF | 0. | 9.901E-08 | 1.55E-01 | 1.054E+01 | 1.054E+01 | INF | 0. | 4.099E-05 | 2.852E-02 |
| 30 | 9.21E-03 | 2.099E+02 | 2.099E+02 | INF | 0. | 1.033E-07 | 1.28E-01 | 1.507E+01 | 1.507E+01 | INF | 0. | 2.005E-05 | 3.374E-02 |
| 35 | 1.08E-02 | 2.047E+02 | 2.047E+02 | INF | 0. | 1.087E-07 | 1.09E-01 | 2.035E+01 | 2.035E+01 | INF | 0. | 1.100E-05 | 3.871E-02 |
| 40 | 1.25E-02 | 1.987E+02 | 1.987E+02 | INF | 0. | 1.154E-07 | 9.44E-02 | 2.632E+01 | 2.632E+01 | INF | 0. | 6.574E-06 | 4.338E-02 |
| 45 | 1.42E-02 | 1.920E+02 | 1.920E+02 | INF | 0. | 1.235E-07 | 8.30E-02 | 3.295E+01 | 3.295E+01 | INF | 0. | 4.194E-06 | 4.772E-02 |
| 50 | 1.60E-02 | 1.848E+02 | 1.848E+02 | INF | 0. | 1.333E-07 | 7.37E-02 | 4.019E+01 | 4.019E+01 | INF | 0. | 2.820E-06 | 5.169E-02 |
| 55 | 1.79E-02 | 1.770E+02 | 1.770E+02 | INF | 0. | 1.453E-07 | 6.60E-02 | 4.797E+01 | 4.797E+01 | INF | 0. | 1.979E-06 | 5.528E-02 |
| 60 | 1.98E-02 | 1.688E+02 | 1.688E+02 | INF | 0. | 1.599E-07 | 5.95E-02 | 5.625E+01 | 5.625E+01 | INF | 0. | 1.439E-06 | 5.844E-02 |
| 65 | 2.19E-02 | 1.600E+02 | 1.600E+02 | INF | 0. | 1.778E-07 | 5.39E-02 | 6.496E+01 | 6.496E+01 | INF | 0. | 1.079E-06 | 6.116E-02 |
| 70 | 2.41E-02 | 1.510E+02 | 1.510E+02 | INF | 0. | 1.998E-07 | 4.91E-02 | 7.402E+01 | 7.402E+01 | INF | 0. | 8.311E-07 | 6.341E-02 |
| 75 | 2.64E-02 | 1.416E+02 | 1.416E+02 | INF | 0. | 2.271E-07 | 4.48E-02 | 8.338E+01 | 8.338E+01 | INF | 0. | 6.550E-07 | 6.518E-02 |
| 80 | 2.88E-02 | 1.320E+02 | 1.320E+02 | INF | 0. | 2.612E-07 | 4.10E-02 | 9.296E+01 | 9.296E+01 | INF | 0. | 5.269E-07 | 6.646E-02 |
| 85 | 3.15E-02 | 1.223E+02 | 1.223E+02 | INF | 0. | 3.044E-07 | 3.75E-02 | 1.027E+02 | 1.027E+02 | INF | 0. | 4.318E-07 | 6.723E-02 |
| 90 | 3.44E-02 | 1.125E+02 | 1.125E+02 | INF | 0. | 3.598E-07 | 3.44E-02 | 1.125E+02 | 1.125E+02 | INF | 0. | 3.598E-07 | 6.748E-02 |
| 95 | 3.75E-02 | 1.027E+02 | 1.027E+02 | INF | 0. | 4.318E-07 | 3.15E-02 | 1.223E+02 | 1.223E+02 | INF | 0. | 3.044E-07 | 6.723E-02 |
| 100 | 4.10E-02 | 9.296E+01 | 9.296E+01 | INF | 0. | 5.269E-07 | 2.88E-02 | 1.320E+02 | 1.320E+02 | INF | 0. | 2.612E-07 | 6.646E-02 |
| 105 | 4.48E-02 | 8.338E+01 | 8.338E+01 | INF | 0. | 6.550E-07 | 2.64E-02 | 1.416E+02 | 1.416E+02 | INF | 0. | 2.271E-07 | 6.518E-02 |
| 110 | 4.91E-02 | 7.402E+01 | 7.402E+01 | INF | 0. | 8.311E-07 | 2.41E-02 | 1.510E+02 | 1.510E+02 | INF | 0. | 1.998E-07 | 6.341E-02 |
| 115 | 5.39E-02 | 6.496E+01 | 6.496E+01 | INF | 0. | 1.079E-06 | 2.19E-02 | 1.600E+02 | 1.600E+02 | INF | 0. | 1.778E-07 | 6.116E-02 |
| 120 | 5.95E-02 | 5.625E+01 | 5.625E+01 | INF | 0. | 1.439E-06 | 1.98E-02 | 1.688E+02 | 1.688E+02 | INF | 0. | 1.599E-07 | 5.844E-02 |
| 125 | 6.60E-02 | 4.797E+01 | 4.797E+01 | INF | 0. | 1.979E-06 | 1.79E-02 | 1.770E+02 | 1.770E+02 | INF | 0. | 1.453E-07 | 5.528E-02 |
| 130 | 7.37E-02 | 4.019E+01 | 4.019E+01 | INF | 0. | 2.820E-06 | 1.60E-02 | 1.848E+02 | 1.848E+02 | INF | 0. | 1.333E-07 | 5.169E-02 |
| 135 | 8.30E-02 | 3.295E+01 | 3.295E+01 | INF | 0. | 4.194E-06 | 1.42E-02 | 1.920E+02 | 1.920E+02 | INF | 0. | 1.235E-07 | 4.772E-02 |
| 140 | 9.44E-02 | 2.632E+01 | 2.632E+01 | INF | 0. | 6.574E-06 | 1.25E-02 | 1.987E+02 | 1.987E+02 | INF | 0. | 1.154E-07 | 4.338E-02 |
| 145 | 1.09E-01 | 2.035E+01 | 2.035E+01 | INF | 0. | 1.100E-05 | 1.08E-02 | 2.047E+02 | 2.047E+02 | INF | 0. | 1.087E-07 | 3.871E-02 |
| 150 | 1.28E-01 | 1.507E+01 | 1.507E+01 | INF | 0. | 2.005E-05 | 9.21E-03 | 2.099E+02 | 2.099E+02 | INF | 0. | 1.033E-07 | 3.374E-02 |
| 155 | 1.55E-01 | 1.054E+01 | 1.054E+01 | INF | 0. | 4.099E-05 | 7.62E-03 | 2.145E+02 | 2.145E+02 | INF | 0. | 9.901E-08 | 2.852E-02 |
| 160 | 1.95E-01 | 6.785E+00 | 6.785E+00 | INF | 0. | 9.893E-05 | 6.06E-03 | 2.182E+02 | 2.182E+02 | INF | 0. | 9.563E-08 | 2.308E-02 |
| 165 | 2.61E-01 | 3.833E+00 | 3.833E+00 | INF | 0. | 3.099E-04 | 4.52E-03 | 2.212E+02 | 2.212E+02 | INF | 0. | 9.310E-08 | 1.747E-02 |
| 170 | 3.93E-01 | 1.709E+00 | 1.709E+00 | INF | 0. | 1.559E-03 | 3.01E-03 | 2.233E+02 | 2.233E+02 | INF | 0. | 9.133E-08 | 1.172E-02 |
| 175 | 7.87E-01 | 4.281E-01 | 4.281E-01 | INF | 0. | 2.485E-02 | 1.50E-03 | 2.246E+02 | 2.246E+02 | INF | 0. | 9.030E-08 | 5.881E-03 |
| 180 | 1.80E+02 | 2.024E-05 | 2.024E-05 | INF | 0. | 1.112E+07 | 0. | 2.250E+02 | 2.250E+02 | INF | 0. | 8.995E-08 | 0. |

PI ZERO (1) => GAMMA (2) + GAMMA (3) AT 250 GEV/C P1 LAB

M1 = 1.34964E-01 M2 = 0. M3 = 0.
P2CM= 6.74822E-02
E2CM= 6.74822E-02 E3CM= 6.74822E-02

1-V1LAB= 1.457E-07 GCM = 1.85234E+03 S = 1.82154E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.500E+02 | 2.500E+02 | INF | 0. | 7.286E-08 | 1.80E+02 | 1.822E-05 | 1.822E-05 | INF | 0. | 1.372E+07 | 0. |
| 1 | 2.70E-04 | 2.500E+02 | 2.500E+02 | INF | 0. | 7.287E-08 | 3.54E+00 | 1.906E-02 | 1.906E-02 | INF | 0. | 1.254E+01 | 1.178E-03 |
| 2 | 5.40E-04 | 2.499E+02 | 2.499E+02 | INF | 0. | 7.291E-08 | 1.77E+00 | 7.616E-02 | 7.616E-02 | INF | 0. | 7.850E-01 | 2.355E-03 |
| 3 | 8.10E-04 | 2.498E+02 | 2.498E+02 | INF | 0. | 7.296E-08 | 1.18E+00 | 1.713E-01 | 1.713E-01 | INF | 0. | 1.551E-01 | 3.532E-03 |
| 4 | 1.08E-03 | 2.497E+02 | 2.497E+02 | INF | 0. | 7.304E-08 | 8.86E-01 | 3.045E-01 | 3.045E-01 | INF | 0. | 4.911E-02 | 4.707E-03 |
| 5 | 1.35E-03 | 2.495E+02 | 2.495E+02 | INF | 0. | 7.314E-08 | 7.08E-01 | 4.757E-01 | 4.757E-01 | INF | 0. | 2.013E-02 | 5.881E-03 |
| 6 | 1.62E-03 | 2.493E+02 | 2.493E+02 | INF | 0. | 7.326E-08 | 5.90E-01 | 6.848E-01 | 6.848E-01 | INF | 0. | 9.711E-03 | 7.054E-03 |
| 7 | 1.89E-03 | 2.491E+02 | 2.491E+02 | INF | 0. | 7.341E-08 | 5.06E-01 | 9.317E-01 | 9.317E-01 | INF | 0. | 5.245E-03 | 8.224E-03 |
| 8 | 2.16E-03 | 2.488E+02 | 2.488E+02 | INF | 0. | 7.358E-08 | 4.42E-01 | 1.217E+00 | 1.217E+00 | INF | 0. | 3.077E-03 | 9.392E-03 |
| 9 | 2.43E-03 | 2.485E+02 | 2.485E+02 | INF | 0. | 7.377E-08 | 3.93E-01 | 1.539E+00 | 1.539E+00 | INF | 0. | 1.923E-03 | 1.056E-02 |
| 10 | 2.71E-03 | 2.481E+02 | 2.481E+02 | INF | 0. | 7.398E-08 | 3.54E-01 | 1.899E+00 | 1.899E+00 | INF | 0. | 1.263E-03 | 1.172E-02 |
| 15 | 4.07E-03 | 2.457E+02 | 2.457E+02 | INF | 0. | 7.541E-08 | 2.35E-01 | 4.259E+00 | 4.259E+00 | INF | 0. | 2.510E-04 | 1.747E-02 |
| 20 | 5.45E-03 | 2.425E+02 | 2.425E+02 | INF | 0. | 7.746E-08 | 1.75E-01 | 7.538E+00 | 7.538E+00 | INF | 0. | 8.013E-05 | 2.308E-02 |
| 25 | 6.86E-03 | 2.383E+02 | 2.383E+02 | INF | 0. | 8.020E-08 | 1.40E-01 | 1.171E+01 | 1.171E+01 | INF | 0. | 3.320E-05 | 2.852E-02 |
| 30 | 8.29E-03 | 2.333E+02 | 2.333E+02 | INF | 0. | 8.370E-08 | 1.15E-01 | 1.675E+01 | 1.675E+01 | INF | 0. | 1.624E-05 | 3.374E-02 |
| 35 | 9.75E-03 | 2.274E+02 | 2.274E+02 | INF | 0. | 8.807E-08 | 9.81E-02 | 2.261E+01 | 2.261E+01 | INF | 0. | 8.911E-06 | 3.871E-02 |
| 40 | 1.13E-02 | 2.208E+02 | 2.208E+02 | INF | 0. | 9.344E-08 | 8.50E-02 | 2.924E+01 | 2.924E+01 | INF | 0. | 5.325E-06 | 4.338E-02 |
| 45 | 1.28E-02 | 2.134E+02 | 2.134E+02 | INF | 0. | 1.000E-07 | 7.47E-02 | 3.661E+01 | 3.661E+01 | INF | 0. | 3.397E-06 | 4.772E-02 |
| 50 | 1.44E-02 | 2.053E+02 | 2.053E+02 | INF | 0. | 1.080E-07 | 6.63E-02 | 4.465E+01 | 4.465E+01 | INF | 0. | 2.284E-06 | 5.169E-02 |
| 55 | 1.61E-02 | 1.967E+02 | 1.967E+02 | INF | 0. | 1.177E-07 | 5.94E-02 | 5.330E+01 | 5.330E+01 | INF | 0. | 1.603E-06 | 5.528E-02 |
| 60 | 1.79E-02 | 1.875E+02 | 1.875E+02 | INF | 0. | 1.295E-07 | 5.36E-02 | 6.250E+01 | 6.250E+01 | INF | 0. | 1.166E-06 | 5.844E-02 |
| 65 | 1.97E-02 | 1.778E+02 | 1.778E+02 | INF | 0. | 1.440E-07 | 4.86E-02 | 7.217E+01 | 7.217E+01 | INF | 0. | 8.742E-07 | 6.116E-02 |
| 70 | 2.17E-02 | 1.678E+02 | 1.678E+02 | INF | 0. | 1.618E-07 | 4.42E-02 | 8.225E+01 | 8.225E+01 | INF | 0. | 6.732E-07 | 6.341E-02 |
| 75 | 2.37E-02 | 1.574E+02 | 1.574E+02 | INF | 0. | 1.839E-07 | 4.03E-02 | 9.265E+01 | 9.265E+01 | INF | 0. | 5.305E-07 | 6.518E-02 |
| 80 | 2.60E-02 | 1.467E+02 | 1.467E+02 | INF | 0. | 2.116E-07 | 3.69E-02 | 1.033E+02 | 1.033E+02 | INF | 0. | 4.268E-07 | 6.646E-02 |
| 85 | 2.83E-02 | 1.359E+02 | 1.359E+02 | INF | 0. | 2.466E-07 | 3.38E-02 | 1.141E+02 | 1.141E+02 | INF | 0. | 3.498E-07 | 6.723E-02 |
| 90 | 3.09E-02 | 1.250E+02 | 1.250E+02 | INF | 0. | 2.914E-07 | 3.09E-02 | 1.250E+02 | 1.250E+02 | INF | 0. | 2.914E-07 | 6.748E-02 |
| 95 | 3.38E-02 | 1.141E+02 | 1.141E+02 | INF | 0. | 3.498E-07 | 2.83E-02 | 1.359E+02 | 1.359E+02 | INF | 0. | 2.466E-07 | 6.723E-02 |
| 100 | 3.69E-02 | 1.033E+02 | 1.033E+02 | INF | 0. | 4.268E-07 | 2.60E-02 | 1.467E+02 | 1.467E+02 | INF | 0. | 2.116E-07 | 6.646E-02 |
| 105 | 4.03E-02 | 9.265E+01 | 9.265E+01 | INF | 0. | 5.305E-07 | 2.37E-02 | 1.574E+02 | 1.574E+02 | INF | 0. | 1.839E-07 | 6.518E-02 |
| 110 | 4.42E-02 | 8.225E+01 | 8.225E+01 | INF | 0. | 6.732E-07 | 2.17E-02 | 1.678E+02 | 1.678E+02 | INF | 0. | 1.618E-07 | 6.341E-02 |
| 115 | 4.86E-02 | 7.217E+01 | 7.217E+01 | INF | 0. | 8.742E-07 | 1.97E-02 | 1.778E+02 | 1.778E+02 | INF | 0. | 1.440E-07 | 6.116E-02 |
| 120 | 5.36E-02 | 6.250E+01 | 6.250E+01 | INF | 0. | 1.166E-06 | 1.79E-02 | 1.875E+02 | 1.875E+02 | INF | 0. | 1.295E-07 | 5.844E-02 |
| 125 | 5.94E-02 | 5.330E+01 | 5.330E+01 | INF | 0. | 1.603E-06 | 1.61E-02 | 1.967E+02 | 1.967E+02 | INF | 0. | 1.177E-07 | 5.528E-02 |
| 130 | 6.63E-02 | 4.465E+01 | 4.465E+01 | INF | 0. | 2.284E-06 | 1.44E-02 | 2.053E+02 | 2.053E+02 | INF | 0. | 1.080E-07 | 5.169E-02 |
| 135 | 7.47E-02 | 3.661E+01 | 3.661E+01 | INF | 0. | 3.397E-06 | 1.28E-02 | 2.134E+02 | 2.134E+02 | INF | 0. | 1.000E-07 | 4.772E-02 |
| 140 | 8.50E-02 | 2.924E+01 | 2.924E+01 | INF | 0. | 5.325E-06 | 1.13E-02 | 2.208E+02 | 2.208E+02 | INF | 0. | 9.344E-08 | 4.338E-02 |
| 145 | 9.81E-02 | 2.261E+01 | 2.261E+01 | INF | 0. | 8.911E-06 | 9.75E-03 | 2.274E+02 | 2.274E+02 | INF | 0. | 8.807E-08 | 3.871E-02 |
| 150 | 1.15E-01 | 1.675E+01 | 1.675E+01 | INF | 0. | 1.624E-05 | 8.29E-03 | 2.333E+02 | 2.333E+02 | INF | 0. | 8.370E-08 | 3.374E-02 |
| 155 | 1.40E-01 | 1.171E+01 | 1.171E+01 | INF | 0. | 3.320E-05 | 6.86E-03 | 2.383E+02 | 2.383E+02 | INF | 0. | 8.020E-08 | 2.852E-02 |
| 160 | 1.75E-01 | 7.538E+00 | 7.538E+00 | INF | 0. | 8.013E-05 | 5.45E-03 | 2.425E+02 | 2.425E+02 | INF | 0. | 7.746E-08 | 2.308E-02 |
| 165 | 2.35E-01 | 4.259E+00 | 4.259E+00 | INF | 0. | 2.510E-04 | 4.07E-03 | 2.457E+02 | 2.457E+02 | INF | 0. | 7.541E-08 | 1.747E-02 |
| 170 | 3.54E-01 | 1.899E+00 | 1.899E+00 | INF | 0. | 1.263E-03 | 2.71E-03 | 2.481E+02 | 2.481E+02 | INF | 0. | 7.398E-08 | 1.172E-02 |
| 175 | 7.08E-01 | 4.757E-01 | 4.757E-01 | INF | 0. | 2.013E-02 | 1.35E-03 | 2.495E+02 | 2.495E+02 | INF | 0. | 7.314E-08 | 5.881E-03 |
| 180 | 1.80E+02 | 1.822E-05 | 1.822E-05 | INF | 0. | 1.372E+07 | 0. | 2.500E+02 | 2.500E+02 | INF | 0. | 7.286E-08 | 0. |

PI ZERO (1) => GAMMA (2) + GAMMA (3) AT 275 GEV/C P1 LAB

M1 = 1.34964E-01 M2 = 0. M3 = 0.
P2CM= 6.74822E-02
E2CM= 6.74822E-02 E3CM= 6.74822E-02

1-V1LAB= 1.204E-07 GCM = 2.03757E+03 S = 1.82154E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.750E+02 | 2.750E+02 | INF | 0. | 6.022E-08 | 1.80E+02 | 1.656E-05 | 1.656E-05 | INF | 0. | 1.661E+07 | 0. |
| 1 | 2.45E-04 | 2.750E+02 | 2.750E+02 | INF | 0. | 6.023E-08 | 3.22E+00 | 2.096E-02 | 2.096E-02 | INF | 0. | 1.037E+01 | 1.178E-03 |
| 2 | 4.91E-04 | 2.749E+02 | 2.749E+02 | INF | 0. | 6.025E-08 | 1.61E+00 | 8.378E-02 | 8.378E-02 | INF | 0. | 6.488E-01 | 2.355E-03 |
| 3 | 7.36E-04 | 2.748E+02 | 2.748E+02 | INF | 0. | 6.030E-08 | 1.07E+00 | 1.885E-01 | 1.885E-01 | INF | 0. | 1.282E-01 | 3.532E-03 |
| 4 | 9.82E-04 | 2.747E+02 | 2.747E+02 | INF | 0. | 6.036E-08 | 8.05E-01 | 3.350E-01 | 3.350E-01 | INF | 0. | 4.059E-02 | 4.707E-03 |
| 5 | 1.23E-03 | 2.745E+02 | 2.745E+02 | INF | 0. | 6.045E-08 | 6.44E-01 | 5.232E-01 | 5.232E-01 | INF | 0. | 1.663E-02 | 5.881E-03 |
| 6 | 1.47E-03 | 2.742E+02 | 2.742E+02 | INF | 0. | 6.055E-08 | 5.37E-01 | 7.533E-01 | 7.533E-01 | INF | 0. | 8.026E-03 | 7.054E-03 |
| 7 | 1.72E-03 | 2.740E+02 | 2.740E+02 | INF | 0. | 6.067E-08 | 4.60E-01 | 1.025E+00 | 1.025E+00 | INF | 0. | 4.335E-03 | 8.224E-03 |
| 8 | 1.97E-03 | 2.737E+02 | 2.737E+02 | INF | 0. | 6.081E-08 | 4.02E-01 | 1.338E+00 | 1.338E+00 | INF | 0. | 2.543E-03 | 9.392E-03 |
| 9 | 2.21E-03 | 2.733E+02 | 2.733E+02 | INF | 0. | 6.096E-08 | 3.57E-01 | 1.693E+00 | 1.693E+00 | INF | 0. | 1.589E-03 | 1.056E-02 |
| 10 | 2.46E-03 | 2.729E+02 | 2.729E+02 | INF | 0. | 6.114E-08 | 3.21E-01 | 2.089E+00 | 2.089E+00 | INF | 0. | 1.044E-03 | 1.172E-02 |
| 15 | 3.70E-03 | 2.703E+02 | 2.703E+02 | INF | 0. | 6.232E-08 | 2.14E-01 | 4.685E+00 | 4.685E+00 | INF | 0. | 2.075E-04 | 1.747E-02 |
| 20 | 4.96E-03 | 2.667E+02 | 2.667E+02 | INF | 0. | 6.402E-08 | 1.59E-01 | 8.292E+00 | 8.292E+00 | INF | 0. | 6.623E-05 | 2.308E-02 |
| 25 | 6.23E-03 | 2.621E+02 | 2.621E+02 | INF | 0. | 6.628E-08 | 1.27E-01 | 1.288E+01 | 1.288E+01 | INF | 0. | 2.744E-05 | 2.852E-02 |
| 30 | 7.53E-03 | 2.566E+02 | 2.566E+02 | INF | 0. | 6.917E-08 | 1.05E-01 | 1.842E+01 | 1.842E+01 | INF | 0. | 1.342E-05 | 3.374E-02 |
| 35 | 8.87E-03 | 2.501E+02 | 2.501E+02 | INF | 0. | 7.278E-08 | 8.92E-02 | 2.487E+01 | 2.487E+01 | INF | 0. | 7.365E-06 | 3.871E-02 |
| 40 | 1.02E-02 | 2.428E+02 | 2.428E+02 | INF | 0. | 7.723E-08 | 7.73E-02 | 3.217E+01 | 3.217E+01 | INF | 0. | 4.401E-06 | 4.338E-02 |
| 45 | 1.16E-02 | 2.347E+02 | 2.347E+02 | INF | 0. | 8.265E-08 | 6.79E-02 | 4.027E+01 | 4.027E+01 | INF | 0. | 2.808E-06 | 4.772E-02 |
| 50 | 1.31E-02 | 2.259E+02 | 2.259E+02 | INF | 0. | 8.925E-08 | 6.03E-02 | 4.912E+01 | 4.912E+01 | INF | 0. | 1.888E-06 | 5.169E-02 |
| 55 | 1.46E-02 | 2.164E+02 | 2.164E+02 | INF | 0. | 9.727E-08 | 5.40E-02 | 5.863E+01 | 5.863E+01 | INF | 0. | 1.325E-06 | 5.528E-02 |
| 60 | 1.62E-02 | 2.063E+02 | 2.063E+02 | INF | 0. | 1.071E-07 | 4.87E-02 | 6.875E+01 | 6.875E+01 | INF | 0. | 9.635E-07 | 5.844E-02 |
| 65 | 1.79E-02 | 1.956E+02 | 1.956E+02 | INF | 0. | 1.190E-07 | 4.41E-02 | 7.939E+01 | 7.939E+01 | INF | 0. | 7.225E-07 | 6.116E-02 |
| 70 | 1.97E-02 | 1.845E+02 | 1.845E+02 | INF | 0. | 1.337E-07 | 4.02E-02 | 9.047E+01 | 9.047E+01 | INF | 0. | 5.564E-07 | 6.341E-02 |
| 75 | 2.16E-02 | 1.731E+02 | 1.731E+02 | INF | 0. | 1.520E-07 | 3.66E-02 | 1.019E+02 | 1.019E+02 | INF | 0. | 4.385E-07 | 6.518E-02 |
| 80 | 2.36E-02 | 1.614E+02 | 1.614E+02 | INF | 0. | 1.749E-07 | 3.35E-02 | 1.136E+02 | 1.136E+02 | INF | 0. | 3.527E-07 | 6.646E-02 |
| 85 | 2.58E-02 | 1.495E+02 | 1.495E+02 | INF | 0. | 2.038E-07 | 3.07E-02 | 1.255E+02 | 1.255E+02 | INF | 0. | 2.891E-07 | 6.723E-02 |
| 90 | 2.81E-02 | 1.375E+02 | 1.375E+02 | INF | 0. | 2.409E-07 | 2.81E-02 | 1.375E+02 | 1.375E+02 | INF | 0. | 2.409E-07 | 6.748E-02 |
| 95 | 3.07E-02 | 1.255E+02 | 1.255E+02 | INF | 0. | 2.891E-07 | 2.58E-02 | 1.495E+02 | 1.495E+02 | INF | 0. | 2.038E-07 | 6.723E-02 |
| 100 | 3.35E-02 | 1.136E+02 | 1.136E+02 | INF | 0. | 3.527E-07 | 2.36E-02 | 1.614E+02 | 1.614E+02 | INF | 0. | 1.749E-07 | 6.646E-02 |
| 105 | 3.66E-02 | 1.019E+02 | 1.019E+02 | INF | 0. | 4.385E-07 | 2.16E-02 | 1.731E+02 | 1.731E+02 | INF | 0. | 1.520E-07 | 6.518E-02 |
| 110 | 4.02E-02 | 9.047E+01 | 9.047E+01 | INF | 0. | 5.564E-07 | 1.97E-02 | 1.845E+02 | 1.845E+02 | INF | 0. | 1.337E-07 | 6.341E-02 |
| 115 | 4.41E-02 | 7.939E+01 | 7.939E+01 | INF | 0. | 7.205E-07 | 1.79E-02 | 1.956E+02 | 1.956E+02 | INF | 0. | 1.190E-07 | 6.116E-02 |
| 120 | 4.87E-02 | 6.875E+01 | 6.875E+01 | INF | 0. | 9.635E-07 | 1.62E-02 | 2.063E+02 | 2.063E+02 | INF | 0. | 1.071E-07 | 5.844E-02 |
| 125 | 5.40E-02 | 5.863E+01 | 5.863E+01 | INF | 0. | 1.325E-06 | 1.46E-02 | 2.164E+02 | 2.164E+02 | INF | 0. | 9.727E-08 | 5.528E-02 |
| 130 | 6.03E-02 | 4.912E+01 | 4.912E+01 | INF | 0. | 1.888E-06 | 1.31E-02 | 2.259E+02 | 2.259E+02 | INF | 0. | 8.925E-08 | 5.169E-02 |
| 135 | 6.79E-02 | 4.027E+01 | 4.027E+01 | INF | 0. | 2.808E-06 | 1.16E-02 | 2.347E+02 | 2.347E+02 | INF | 0. | 8.265E-08 | 4.772E-02 |
| 140 | 7.73E-02 | 3.217E+01 | 3.217E+01 | INF | 0. | 4.401E-06 | 1.02E-02 | 2.428E+02 | 2.428E+02 | INF | 0. | 7.723E-08 | 4.338E-02 |
| 145 | 8.92E-02 | 2.487E+01 | 2.487E+01 | INF | 0. | 7.365E-06 | 8.87E-03 | 2.501E+02 | 2.501E+02 | INF | 0. | 7.278E-08 | 3.871E-02 |
| 150 | 1.05E-01 | 1.842E+01 | 1.842E+01 | INF | 0. | 1.342E-05 | 7.53E-03 | 2.566E+02 | 2.566E+02 | INF | 0. | 6.917E-08 | 3.374E-02 |
| 155 | 1.27E-01 | 1.288E+01 | 1.288E+01 | INF | 0. | 2.744E-05 | 6.23E-03 | 2.621E+02 | 2.621E+02 | INF | 0. | 6.628E-08 | 2.852E-02 |
| 160 | 1.59E-01 | 8.292E+00 | 8.292E+00 | INF | 0. | 6.623E-05 | 4.96E-03 | 2.667E+02 | 2.667E+02 | INF | 0. | 6.402E-08 | 2.308E-02 |
| 165 | 2.14E-01 | 4.685E+00 | 4.685E+00 | INF | 0. | 2.075E-04 | 3.70E-03 | 2.703E+02 | 2.703E+02 | INF | 0. | 6.232E-08 | 1.747E-02 |
| 170 | 3.21E-01 | 2.089E+00 | 2.089E+00 | INF | 0. | 1.044E-03 | 2.46E-03 | 2.729E+02 | 2.729E+02 | INF | 0. | 6.114E-08 | 1.172E-02 |
| 175 | 6.44E-01 | 5.232E-01 | 5.232E-01 | INF | 0. | 1.663E-02 | 1.23E-03 | 2.745E+02 | 2.745E+02 | INF | 0. | 6.045E-08 | 5.881E-03 |
| 180 | 1.80E+02 | 1.656E-05 | 1.656E-05 | INF | 0. | 1.661E+07 | 0. | 2.750E+02 | 2.750E+02 | INF | 0. | 6.022E-08 | 0. |

PI ZERO (1) => GAMMA (2) + GAMMA (3) AT 300 GEV/C P1 LAB

M1 = 1.34964E-01 M2 = 0. M3 = 0.
P2CM= 6.74822E-02
E2CM= 6.74822E-02 E3CM= 6.74822E-02

1-V1LAB= 1.012E-07 GCM = 2.22281E+03 S = 1.82154E-02

| Θ2 CM | Θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | Θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 3.000E+02 | 3.000E+02 | INF | 0. | 5.060E-08 | 1.80E+02 | 1.518E-05 | 1.518E-05 | INF | 0. | 1.976E+07 | 0. |
| 1 | 2.25E-04 | 3.000E+02 | 3.000E+02 | INF | 0. | 5.061E-08 | 2.95E+00 | 2.286E-02 | 2.286E-02 | INF | 0. | 8.713E+00 | 1.178E-03 |
| 2 | 4.50E-04 | 2.999E+02 | 2.999E+02 | INF | 0. | 5.063E-08 | 1.48E+00 | 9.139E-02 | 9.139E-02 | INF | 0. | 5.452E-01 | 2.355E-03 |
| 3 | 6.75E-04 | 2.998E+02 | 2.998E+02 | INF | 0. | 5.067E-08 | 9.84E-01 | 2.056E-01 | 2.056E-01 | INF | 0. | 1.977E-01 | 3.532E-03 |
| 4 | 9.00E-04 | 2.996E+02 | 2.996E+02 | INF | 0. | 5.072E-08 | 7.38E-01 | 3.654E-01 | 3.654E-01 | INF | 0. | 3.411E-02 | 4.707E-03 |
| 5 | 1.13E-03 | 2.994E+02 | 2.994E+02 | INF | 0. | 5.079E-08 | 5.90E-01 | 5.708E-01 | 5.708E-01 | INF | 0. | 1.398E-02 | 5.881E-03 |
| 6 | 1.35E-03 | 2.992E+02 | 2.992E+02 | INF | 0. | 5.088E-08 | 4.92E-01 | 8.217E-01 | 8.217E-01 | INF | 0. | 6.744E-03 | 7.054E-03 |
| 7 | 1.58E-03 | 2.989E+02 | 2.989E+02 | INF | 0. | 5.098E-08 | 4.21E-01 | 1.118E+00 | 1.118E+00 | INF | 0. | 3.643E-03 | 8.224E-03 |
| 8 | 1.80E-03 | 2.985E+02 | 2.985E+02 | INF | 0. | 5.109E-08 | 3.69E-01 | 1.460E+00 | 1.460E+00 | INF | 0. | 2.137E-03 | 9.392E-03 |
| 9 | 2.03E-03 | 2.982E+02 | 2.982E+02 | INF | 0. | 5.123E-08 | 3.28E-01 | 1.847E+00 | 1.847E+00 | INF | 0. | 1.335E-03 | 1.056E-02 |
| 10 | 2.26E-03 | 2.977E+02 | 2.977E+02 | INF | 0. | 5.138E-08 | 2.95E-01 | 2.279E+00 | 2.279E+00 | INF | 0. | 8.769E-04 | 1.172E-02 |
| 15 | 3.39E-03 | 2.949E+02 | 2.949E+02 | INF | 0. | 5.237E-08 | 1.96E-01 | 5.111E+00 | 5.111E+00 | INF | 0. | 1.743E-04 | 1.747E-02 |
| 20 | 4.55E-03 | 2.910E+02 | 2.910E+02 | INF | 0. | 5.379E-08 | 1.46E-01 | 9.046E+00 | 9.046E+00 | INF | 0. | 5.565E-05 | 2.308E-02 |
| 25 | 5.71E-03 | 2.859E+02 | 2.859E+02 | INF | 0. | 5.569E-08 | 1.16E-01 | 1.405E+01 | 1.405E+01 | INF | 0. | 2.306E-05 | 2.852E-02 |
| 30 | 6.91E-03 | 2.799E+02 | 2.799E+02 | INF | 0. | 5.812E-08 | 9.62E-02 | 2.010E+01 | 2.010E+01 | INF | 0. | 1.128E-05 | 3.374E-02 |
| 35 | 8.13E-03 | 2.729E+02 | 2.729E+02 | INF | 0. | 6.116E-08 | 8.18E-02 | 2.713E+01 | 2.713E+01 | INF | 0. | 6.188E-06 | 3.871E-02 |
| 40 | 9.38E-03 | 2.649E+02 | 2.649E+02 | INF | 0. | 6.489E-08 | 7.08E-02 | 3.509E+01 | 3.509E+01 | INF | 0. | 3.698E-06 | 4.338E-02 |
| 45 | 1.07E-02 | 2.561E+02 | 2.561E+02 | INF | 0. | 6.945E-08 | 6.22E-02 | 4.393E+01 | 4.393E+01 | INF | 0. | 2.359E-06 | 4.772E-02 |
| 50 | 1.20E-02 | 2.464E+02 | 2.464E+02 | INF | 0. | 7.500E-08 | 5.53E-02 | 5.358E+01 | 5.358E+01 | INF | 0. | 1.586E-06 | 5.169E-02 |
| 55 | 1.34E-02 | 2.360E+02 | 2.360E+02 | INF | 0. | 8.174E-08 | 4.95E-02 | 6.396E+01 | 6.396E+01 | INF | 0. | 1.113E-06 | 5.528E-02 |
| 60 | 1.49E-02 | 2.250E+02 | 2.250E+02 | INF | 0. | 8.995E-08 | 4.46E-02 | 7.500E+01 | 7.500E+01 | INF | 0. | 8.096E-07 | 5.844E-02 |
| 65 | 1.64E-02 | 2.134E+02 | 2.134E+02 | INF | 0. | 1.000E-07 | 4.05E-02 | 8.661E+01 | 8.661E+01 | INF | 0. | 6.071E-07 | 6.116E-02 |
| 70 | 1.80E-02 | 2.013E+02 | 2.013E+02 | INF | 0. | 1.124E-07 | 3.68E-02 | 9.870E+01 | 9.870E+01 | INF | 0. | 4.675E-07 | 6.341E-02 |
| 75 | 1.98E-02 | 1.888E+02 | 1.888E+02 | INF | 0. | 1.277E-07 | 3.36E-02 | 1.112E+02 | 1.112E+02 | INF | 0. | 3.684E-07 | 6.518E-02 |
| 80 | 2.16E-02 | 1.760E+02 | 1.760E+02 | INF | 0. | 1.469E-07 | 3.07E-02 | 1.240E+02 | 1.240E+02 | INF | 0. | 2.964E-07 | 6.646E-02 |
| 85 | 2.36E-02 | 1.631E+02 | 1.631E+02 | INF | 0. | 1.712E-07 | 2.81E-02 | 1.369E+02 | 1.369E+02 | INF | 0. | 2.429E-07 | 6.723E-02 |
| 90 | 2.58E-02 | 1.500E+02 | 1.500E+02 | INF | 0. | 2.024E-07 | 2.58E-02 | 1.500E+02 | 1.500E+02 | INF | 0. | 2.024E-07 | 6.748E-02 |
| 95 | 2.81E-02 | 1.369E+02 | 1.369E+02 | INF | 0. | 2.429E-07 | 2.36E-02 | 1.631E+02 | 1.631E+02 | INF | 0. | 1.712E-07 | 6.723E-02 |
| 100 | 3.07E-02 | 1.240E+02 | 1.240E+02 | INF | 0. | 2.964E-07 | 2.16E-02 | 1.760E+02 | 1.760E+02 | INF | 0. | 1.469E-07 | 6.646E-02 |
| 105 | 3.36E-02 | 1.112E+02 | 1.112E+02 | INF | 0. | 3.684E-07 | 1.98E-02 | 1.888E+02 | 1.888E+02 | INF | 0. | 1.277E-07 | 6.518E-02 |
| 110 | 3.68E-02 | 9.870E+01 | 9.870E+01 | INF | 0. | 4.675E-07 | 1.80E-02 | 2.013E+02 | 2.013E+02 | INF | 0. | 1.124E-07 | 6.341E-02 |
| 115 | 4.05E-02 | 8.661E+01 | 8.661E+01 | INF | 0. | 6.071E-07 | 1.64E-02 | 2.134E+02 | 2.134E+02 | INF | 0. | 1.000E-07 | 6.116E-02 |
| 120 | 4.46E-02 | 7.500E+01 | 7.500E+01 | INF | 0. | 8.096E-07 | 1.49E-02 | 2.250E+02 | 2.250E+02 | INF | 0. | 8.995E-08 | 5.844E-02 |
| 125 | 4.95E-02 | 6.396E+01 | 6.396E+01 | INF | 0. | 1.113E-06 | 1.34E-02 | 2.360E+02 | 2.360E+02 | INF | 0. | 8.174E-08 | 5.528E-02 |
| 130 | 5.53E-02 | 5.358E+01 | 5.358E+01 | INF | 0. | 1.586E-06 | 1.20E-02 | 2.464E+02 | 2.464E+02 | INF | 0. | 7.500E-08 | 5.169E-02 |
| 135 | 6.22E-02 | 4.393E+01 | 4.393E+01 | INF | 0. | 2.359E-06 | 1.07E-02 | 2.561E+02 | 2.561E+02 | INF | 0. | 6.945E-08 | 4.772E-02 |
| 140 | 7.08E-02 | 3.509E+01 | 3.509E+01 | INF | 0. | 3.698E-06 | 9.38E-03 | 2.649E+02 | 2.649E+02 | INF | 0. | 6.489E-08 | 4.338E-02 |
| 145 | 8.18E-02 | 2.713E+01 | 2.713E+01 | INF | 0. | 6.188E-06 | 8.13E-03 | 2.729E+02 | 2.729E+02 | INF | 0. | 6.116E-08 | 3.871E-02 |
| 150 | 9.62E-02 | 2.010E+01 | 2.010E+01 | INF | 0. | 1.128E-05 | 6.91E-03 | 2.799E+02 | 2.799E+02 | INF | 0. | 5.812E-08 | 3.374E-02 |
| 155 | 1.16E-01 | 1.405E+01 | 1.405E+01 | INF | 0. | 2.306E-05 | 5.71E-03 | 2.859E+02 | 2.859E+02 | INF | 0. | 5.569E-08 | 2.852E-02 |
| 160 | 1.46E-01 | 9.046E+00 | 9.046E+00 | INF | 0. | 5.565E-05 | 4.55E-03 | 2.910E+02 | 2.910E+02 | INF | 0. | 5.379E-08 | 2.308E-02 |
| 165 | 1.96E-01 | 5.111E+00 | 5.111E+00 | INF | 0. | 1.743E-04 | 3.39E-03 | 2.949E+02 | 2.949E+02 | INF | 0. | 5.237E-08 | 1.747E-02 |
| 170 | 2.95E-01 | 2.279E+00 | 2.279E+00 | INF | 0. | 8.769E-04 | 2.26E-03 | 2.977E+02 | 2.977E+02 | INF | 0. | 5.138E-08 | 1.172E-02 |
| 175 | 5.90E-01 | 5.708E-01 | 5.708E-01 | INF | 0. | 1.398E-02 | 1.13E-03 | 2.994E+02 | 2.994E+02 | INF | 0. | 5.079E-08 | 5.881E-03 |
| 180 | 1.80E+02 | 1.518E-05 | 1.518E-05 | INF | 0. | 1.976E+07 | 0. | 3.000E+02 | 3.000E+02 | INF | 0. | 5.060E-08 | 0. |

PI ZERO (1) => GAMMA (2) + GAMMA (3) AT 350 GEV/C P1 LAB

M1 = 1.34964E-01 M2 = 0. M3 = 0.
P2CM= 6.74822E-02
E2CM= 6.74822E-02 E3CM= 6.74822E-02

1-V1LAB= 7.435E-08 GCM = 2.59327E+03 S = 1.82154E-02

| Θ2 CM | Θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | Θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 3.500E+02 | 3.500E+02 | INF | 0. | 3.717E-08 | 1.80E+02 | 1.301E-05 | 1.301E-05 | INF | 0. | 2.690E+07 | 0. |
| 1 | 1.93E-04 | 3.500E+02 | 3.500E+02 | INF | 0. | 3.718E-08 | 2.53E+00 | 2.667E-02 | 2.667E-02 | INF | 0. | 6.404E+00 | 1.178E-03 |
| 2 | 3.86E-04 | 3.499E+02 | 3.499E+02 | INF | 0. | 3.720E-08 | 1.27E+00 | 1.066E-01 | 1.066E-01 | INF | 0. | 4.006E-01 | 2.355E-03 |
| 3 | 5.79E-04 | 3.498E+02 | 3.498E+02 | INF | 0. | 3.723E-08 | 8.44E-01 | 2.398E-01 | 2.398E-01 | INF | 0. | 7.916E-02 | 3.532E-03 |
| 4 | 7.72E-04 | 3.496E+02 | 3.496E+02 | INF | 0. | 3.727E-08 | 6.33E-01 | 4.263E-01 | 4.263E-01 | INF | 0. | 2.506E-02 | 4.707E-03 |
| 5 | 9.65E-04 | 3.493E+02 | 3.493E+02 | INF | 0. | 3.732E-08 | 5.06E-01 | 6.659E-01 | 6.659E-01 | INF | 0. | 1.027E-02 | 5.881E-03 |
| 6 | 1.16E-03 | 3.490E+02 | 3.490E+02 | INF | 0. | 3.738E-08 | 4.22E-01 | 9.587E-01 | 9.587E-01 | INF | 0. | 4.955E-03 | 7.054E-03 |
| 7 | 1.35E-03 | 3.487E+02 | 3.487E+02 | INF | 0. | 3.745E-08 | 3.61E-01 | 1.304E+00 | 1.304E+00 | INF | 0. | 2.676E-03 | 8.224E-03 |
| 8 | 1.54E-03 | 3.483E+02 | 3.483E+02 | INF | 0. | 3.754E-08 | 3.16E-01 | 1.703E+00 | 1.703E+00 | INF | 0. | 1.570E-03 | 9.392E-03 |
| 9 | 1.74E-03 | 3.478E+02 | 3.478E+02 | INF | 0. | 3.764E-08 | 2.81E-01 | 2.155E+00 | 2.155E+00 | INF | 0. | 9.810E-04 | 1.056E-02 |
| 10 | 1.93E-03 | 3.473E+02 | 3.473E+02 | INF | 0. | 3.775E-08 | 2.53E-01 | 2.659E+00 | 2.659E+00 | INF | 0. | 6.443E-04 | 1.172E-02 |
| 15 | 2.91E-03 | 3.440E+02 | 3.440E+02 | INF | 0. | 3.847E-08 | 1.68E-01 | 5.963E+00 | 5.963E+00 | INF | 0. | 1.281E-04 | 1.747E-02 |
| 20 | 3.90E-03 | 3.394E+02 | 3.394E+02 | INF | 0. | 3.952E-08 | 1.25E-01 | 1.055E+01 | 1.055E+01 | INF | 0. | 4.088E-05 | 2.308E-02 |
| 25 | 4.90E-03 | 3.336E+02 | 3.336E+02 | INF | 0. | 4.092E-08 | 9.97E-02 | 1.640E+01 | 1.640E+01 | INF | 0. | 1.694E-05 | 2.852E-02 |
| 30 | 5.92E-03 | 3.266E+02 | 3.266E+02 | INF | 0. | 4.270E-08 | 8.25E-02 | 2.345E+01 | 2.345E+01 | INF | 0. | 8.284E-06 | 3.374E-02 |
| 35 | 6.97E-03 | 3.184E+02 | 3.184E+02 | INF | 0. | 4.493E-08 | 7.01E-02 | 3.165E+01 | 3.165E+01 | INF | 0. | 4.546E-06 | 3.871E-02 |
| 40 | 8.04E-03 | 3.091E+02 | 3.091E+02 | INF | 0. | 4.768E-08 | 6.07E-02 | 4.094E+01 | 4.094E+01 | INF | 0. | 2.717E-06 | 4.338E-02 |
| 45 | 9.15E-03 | 2.987E+02 | 2.987E+02 | INF | 0. | 5.102E-08 | 5.33E-02 | 5.126E+01 | 5.126E+01 | INF | 0. | 1.733E-06 | 4.772E-02 |
| 50 | 1.03E-02 | 2.875E+02 | 2.875E+02 | INF | 0. | 5.510E-08 | 4.74E-02 | 6.251E+01 | 6.251E+01 | INF | 0. | 1.165E-06 | 5.169E-02 |
| 55 | 1.15E-02 | 2.754E+02 | 2.754E+02 | INF | 0. | 6.005E-08 | 4.24E-02 | 7.462E+01 | 7.462E+01 | INF | 0. | 8.177E-07 | 5.528E-02 |
| 60 | 1.28E-02 | 2.625E+02 | 2.625E+02 | INF | 0. | 6.609E-08 | 3.83E-02 | 8.750E+01 | 8.750E+01 | INF | 0. | 5.948E-07 | 5.844E-02 |
| 65 | 1.41E-02 | 2.490E+02 | 2.490E+02 | INF | 0. | 7.347E-08 | 3.47E-02 | 1.010E+02 | 1.010E+02 | INF | 0. | 4.460E-07 | 6.116E-02 |
| 70 | 1.55E-02 | 2.349E+02 | 2.349E+02 | INF | 0. | 8.256E-08 | 3.16E-02 | 1.151E+02 | 1.151E+02 | INF | 0. | 3.435E-07 | 6.341E-02 |
| 75 | 1.70E-02 | 2.203E+02 | 2.203E+02 | INF | 0. | 9.384E-08 | 2.88E-02 | 1.297E+02 | 1.297E+02 | INF | 0. | 2.707E-07 | 6.518E-02 |
| 80 | 1.85E-02 | 2.054E+02 | 2.054E+02 | INF | 0. | 1.080E-07 | 2.63E-02 | 1.446E+02 | 1.446E+02 | INF | 0. | 2.178E-07 | 6.646E-02 |
| 85 | 2.02E-02 | 1.903E+02 | 1.903E+02 | INF | 0. | 1.258E-07 | 2.41E-02 | 1.597E+02 | 1.597E+02 | INF | 0. | 1.784E-07 | 6.723E-02 |
| 90 | 2.21E-02 | 1.750E+02 | 1.750E+02 | INF | 0. | 1.487E-07 | 2.21E-02 | 1.750E+02 | 1.750E+02 | INF | 0. | 1.487E-07 | 6.748E-02 |
| 95 | 2.41E-02 | 1.597E+02 | 1.597E+02 | INF | 0. | 1.784E-07 | 2.02E-02 | 1.903E+02 | 1.903E+02 | INF | 0. | 1.258E-07 | 6.723E-02 |
| 100 | 2.63E-02 | 1.446E+02 | 1.446E+02 | INF | 0. | 2.178E-07 | 1.85E-02 | 2.054E+02 | 2.054E+02 | INF | 0. | 1.080E-07 | 6.646E-02 |
| 105 | 2.88E-02 | 1.297E+02 | 1.297E+02 | INF | 0. | 2.707E-07 | 1.70E-02 | 2.203E+02 | 2.203E+02 | INF | 0. | 9.384E-08 | 6.518E-02 |
| 110 | 3.16E-02 | 1.151E+02 | 1.151E+02 | INF | 0. | 3.435E-07 | 1.55E-02 | 2.349E+02 | 2.349E+02 | INF | 0. | 8.256E-08 | 6.341E-02 |
| 115 | 3.47E-02 | 1.010E+02 | 1.010E+02 | INF | 0. | 4.460E-07 | 1.41E-02 | 2.490E+02 | 2.490E+02 | INF | 0. | 7.347E-08 | 6.116E-02 |
| 120 | 3.83E-02 | 8.750E+01 | 8.750E+01 | INF | 0. | 5.948E-07 | 1.28E-02 | 2.625E+02 | 2.625E+02 | INF | 0. | 6.609E-08 | 5.844E-02 |
| 125 | 4.24E-02 | 7.462E+01 | 7.462E+01 | INF | 0. | 8.177E-07 | 1.15E-02 | 2.754E+02 | 2.754E+02 | INF | 0. | 6.005E-08 | 5.528E-02 |
| 130 | 4.74E-02 | 6.251E+01 | 6.251E+01 | INF | 0. | 1.165E-06 | 1.03E-02 | 2.875E+02 | 2.875E+02 | INF | 0. | 5.510E-08 | 5.169E-02 |
| 135 | 5.33E-02 | 5.126E+01 | 5.126E+01 | INF | 0. | 1.733E-06 | 9.15E-03 | 2.987E+02 | 2.987E+02 | INF | 0. | 5.102E-08 | 4.772E-02 |
| 140 | 6.07E-02 | 4.094E+01 | 4.094E+01 | INF | 0. | 2.717E-06 | 8.04E-03 | 3.091E+02 | 3.091E+02 | INF | 0. | 4.768E-08 | 4.338E-02 |
| 145 | 7.01E-02 | 3.165E+01 | 3.165E+01 | INF | 0. | 4.546E-06 | 6.97E-03 | 3.184E+02 | 3.184E+02 | INF | 0. | 4.493E-08 | 3.871E-02 |
| 150 | 8.25E-02 | 2.345E+01 | 2.345E+01 | INF | 0. | 8.284E-06 | 5.92E-03 | 3.266E+02 | 3.266E+02 | INF | 0. | 4.270E-08 | 3.374E-02 |
| 155 | 9.97E-02 | 1.640E+01 | 1.640E+01 | INF | 0. | 1.694E-05 | 4.90E-03 | 3.336E+02 | 3.336E+02 | INF | 0. | 4.092E-08 | 2.852E-02 |
| 160 | 1.25E-01 | 1.055E+01 | 1.055E+01 | INF | 0. | 4.088E-05 | 3.90E-03 | 3.394E+02 | 3.394E+02 | INF | 0. | 3.952E-08 | 2.308E-02 |
| 165 | 1.68E-01 | 5.963E+00 | 5.963E+00 | INF | 0. | 1.281E-04 | 2.91E-03 | 3.440E+02 | 3.440E+02 | INF | 0. | 3.847E-08 | 1.747E-02 |
| 170 | 2.53E-01 | 2.659E+00 | 2.659E+00 | INF | 0. | 6.443E-04 | 1.93E-03 | 3.473E+02 | 3.473E+02 | INF | 0. | 3.775E-08 | 1.172E-02 |
| 175 | 5.06E-01 | 6.659E-01 | 6.659E-01 | INF | 0. | 1.027E-02 | 9.65E-04 | 3.493E+02 | 3.493E+02 | INF | 0. | 3.732E-08 | 5.881E-03 |
| 180 | 1.80E+02 | 1.301E-05 | 1.301E-05 | INF | 0. | 2.690E+07 | 0. | 3.500E+02 | 3.500E+02 | INF | 0. | 3.717E-08 | 0. |

PI ZERO (1) => GAMMA (2) + GAMMA (3) AT 400 GEV/C P1 LAB

M1 = 1.34964E-01 M2 = 0. M3 = 0.
P2CM= 6.74822E-02
E2CM= 6.74822E-02 E3CM= 6.74822E-02

1-V1LAB= 5.692E-08 GCM = 2.96374E+03 S = 1.82154E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 4.000E+02 | 4.000E+02 | INF | 0. | 2.846E-08 | 1.80E+02 | 1.138E-05 | 1.138E-05 | INF | 0. | 3.514E+07 | 0. |
| 1 | 1.69E-04 | 4.000E+02 | 4.000E+02 | INF | 0. | 2.847E-08 | 2.21E+00 | 3.047E-02 | 3.047E-02 | INF | 0. | 4.904E+00 | 1.178E-03 |
| 2 | 3.37E-04 | 3.999E+02 | 3.999E+02 | INF | 0. | 2.848E-08 | 1.11E+00 | 1.218E-01 | 1.218E-01 | INF | 0. | 3.067E-01 | 2.355E-03 |
| 3 | 5.06E-04 | 3.997E+02 | 3.997E+02 | INF | 0. | 2.850E-08 | 7.38E-01 | 2.741E-01 | 2.741E-01 | INF | 0. | 6.061E-02 | 3.532E-03 |
| 4 | 6.75E-04 | 3.995E+02 | 3.995E+02 | INF | 0. | 2.853E-08 | 5.54E-01 | 4.872E-01 | 4.872E-01 | INF | 0. | 1.919E-02 | 4.707E-03 |
| 5 | 8.44E-04 | 3.992E+02 | 3.992E+02 | INF | 0. | 2.857E-08 | 4.43E-01 | 7.611E-01 | 7.611E-01 | INF | 0. | 7.862E-03 | 5.881E-03 |
| 6 | 1.01E-03 | 3.989E+02 | 3.989E+02 | INF | 0. | 2.862E-08 | 3.69E-01 | 1.096E+00 | 1.096E+00 | INF | 0. | 3.794E-03 | 7.054E-03 |
| 7 | 1.18E-03 | 3.985E+02 | 3.985E+02 | INF | 0. | 2.867E-08 | 3.16E-01 | 1.491E+00 | 1.491E+00 | INF | 0. | 2.049E-03 | 8.224E-03 |
| 8 | 1.35E-03 | 3.981E+02 | 3.981E+02 | INF | 0. | 2.874E-08 | 2.76E-01 | 1.946E+00 | 1.946E+00 | INF | 0. | 1.202E-03 | 9.392E-03 |
| 9 | 1.52E-03 | 3.975E+02 | 3.975E+02 | INF | 0. | 2.882E-08 | 2.46E-01 | 2.462E+00 | 2.462E+00 | INF | 0. | 7.511E-04 | 1.056E-02 |
| 10 | 1.69E-03 | 3.970E+02 | 3.970E+02 | INF | 0. | 2.890E-08 | 2.21E-01 | 3.038E+00 | 3.038E+00 | INF | 0. | 4.933E-04 | 1.172E-02 |
| 15 | 2.55E-03 | 3.932E+02 | 3.932E+02 | INF | 0. | 2.946E-08 | 1.47E-01 | 6.815E+00 | 6.815E+00 | INF | 0. | 9.805E-05 | 1.747E-02 |
| 20 | 3.41E-03 | 3.879E+02 | 3.879E+02 | INF | 0. | 3.026E-08 | 1.10E-01 | 1.206E+01 | 1.206E+01 | INF | 0. | 3.170E-05 | 2.308E-02 |
| 25 | 4.29E-03 | 3.813E+02 | 3.813E+02 | INF | 0. | 3.133E-08 | 8.72E-02 | 1.874E+01 | 1.874E+01 | INF | 0. | 1.297E-05 | 2.852E-02 |
| 30 | 5.18E-03 | 3.732E+02 | 3.732E+02 | INF | 0. | 3.270E-08 | 7.21E-02 | 2.679E+01 | 2.679E+01 | INF | 0. | 6.343E-06 | 3.374E-02 |
| 35 | 6.10E-03 | 3.638E+02 | 3.638E+02 | INF | 0. | 3.440E-08 | 6.13E-02 | 3.617E+01 | 3.617E+01 | INF | 0. | 3.481E-06 | 3.871E-02 |
| 40 | 7.04E-03 | 3.532E+02 | 3.532E+02 | INF | 0. | 3.650E-08 | 5.31E-02 | 4.679E+01 | 4.679E+01 | INF | 0. | 2.080E-06 | 4.338E-02 |
| 45 | 8.01E-03 | 3.414E+02 | 3.414E+02 | INF | 0. | 3.907E-08 | 4.67E-02 | 5.858E+01 | 5.858E+01 | INF | 0. | 1.327E-06 | 4.772E-02 |
| 50 | 9.01E-03 | 3.286E+02 | 3.286E+02 | INF | 0. | 4.218E-08 | 4.15E-02 | 7.144E+01 | 7.144E+01 | INF | 0. | 8.922E-07 | 5.169E-02 |
| 55 | 1.01E-02 | 3.147E+02 | 3.147E+02 | INF | 0. | 4.598E-08 | 3.71E-02 | 8.528E+01 | 8.528E+01 | INF | 0. | 6.261E-07 | 5.528E-02 |
| 60 | 1.12E-02 | 3.000E+02 | 3.000E+02 | INF | 0. | 5.060E-08 | 3.35E-02 | 1.000E+02 | 1.000E+02 | INF | 0. | 4.554E-07 | 5.844E-02 |
| 65 | 1.23E-02 | 2.845E+02 | 2.845E+02 | INF | 0. | 5.625E-08 | 3.03E-02 | 1.155E+02 | 1.155E+02 | INF | 0. | 3.415E-07 | 6.116E-02 |
| 70 | 1.35E-02 | 2.684E+02 | 2.684E+02 | INF | 0. | 6.321E-08 | 2.76E-02 | 1.316E+02 | 1.316E+02 | INF | 0. | 2.630E-07 | 6.341E-02 |
| 75 | 1.48E-02 | 2.518E+02 | 2.518E+02 | INF | 0. | 7.184E-08 | 2.52E-02 | 1.482E+02 | 1.482E+02 | INF | 0. | 2.072E-07 | 6.518E-02 |
| 80 | 1.62E-02 | 2.347E+02 | 2.347E+02 | INF | 0. | 8.265E-08 | 2.30E-02 | 1.653E+02 | 1.653E+02 | INF | 0. | 1.667E-07 | 6.646E-02 |
| 85 | 1.77E-02 | 2.174E+02 | 2.174E+02 | INF | 0. | 9.632E-08 | 2.11E-02 | 1.826E+02 | 1.826E+02 | INF | 0. | 1.366E-07 | 6.723E-02 |
| 90 | 1.93E-02 | 2.000E+02 | 2.000E+02 | INF | 0. | 1.138E-07 | 1.93E-02 | 2.000E+02 | 2.000E+02 | INF | 0. | 1.138E-07 | 6.748E-02 |
| 95 | 2.11E-02 | 1.826E+02 | 1.826E+02 | INF | 0. | 1.366E-07 | 1.77E-02 | 2.174E+02 | 2.174E+02 | INF | 0. | 9.632E-08 | 6.723E-02 |
| 100 | 2.30E-02 | 1.653E+02 | 1.653E+02 | INF | 0. | 1.667E-07 | 1.62E-02 | 2.347E+02 | 2.347E+02 | INF | 0. | 8.265E-08 | 6.646E-02 |
| 105 | 2.52E-02 | 1.482E+02 | 1.482E+02 | INF | 0. | 2.072E-07 | 1.48E-02 | 2.518E+02 | 2.518E+02 | INF | 0. | 7.184E-08 | 6.518E-02 |
| 110 | 2.76E-02 | 1.316E+02 | 1.316E+02 | INF | 0. | 2.630E-07 | 1.35E-02 | 2.684E+02 | 2.684E+02 | INF | 0. | 6.321E-08 | 6.341E-02 |
| 115 | 3.03E-02 | 1.155E+02 | 1.155E+02 | INF | 0. | 3.415E-07 | 1.23E-02 | 2.845E+02 | 2.845E+02 | INF | 0. | 5.625E-08 | 6.116E-02 |
| 120 | 3.35E-02 | 1.000E+02 | 1.000E+02 | INF | 0. | 4.554E-07 | 1.12E-02 | 3.000E+02 | 3.000E+02 | INF | 0. | 5.060E-08 | 5.844E-02 |
| 125 | 3.71E-02 | 8.528E+01 | 8.528E+01 | INF | 0. | 6.261E-07 | 1.01E-02 | 3.147E+02 | 3.147E+02 | INF | 0. | 4.598E-08 | 5.528E-02 |
| 130 | 4.15E-02 | 7.144E+01 | 7.144E+01 | INF | 0. | 8.922E-07 | 9.01E-03 | 3.286E+02 | 3.286E+02 | INF | 0. | 4.218E-08 | 5.169E-02 |
| 135 | 4.67E-02 | 5.858E+01 | 5.858E+01 | INF | 0. | 1.327E-06 | 8.01E-03 | 3.414E+02 | 3.414E+02 | INF | 0. | 3.907E-08 | 4.772E-02 |
| 140 | 5.31E-02 | 4.679E+01 | 4.679E+01 | INF | 0. | 2.080E-06 | 7.04E-03 | 3.532E+02 | 3.532E+02 | INF | 0. | 3.650E-08 | 4.338E-02 |
| 145 | 6.13E-02 | 3.617E+01 | 3.617E+01 | INF | 0. | 3.481E-06 | 6.10E-03 | 3.638E+02 | 3.638E+02 | INF | 0. | 3.440E-08 | 3.871E-02 |
| 150 | 7.21E-02 | 2.679E+01 | 2.679E+01 | INF | 0. | 6.343E-06 | 5.18E-03 | 3.732E+02 | 3.732E+02 | INF | 0. | 3.270E-08 | 3.374E-02 |
| 155 | 8.72E-02 | 1.874E+01 | 1.874E+01 | INF | 0. | 1.297E-05 | 4.29E-03 | 3.813E+02 | 3.813E+02 | INF | 0. | 3.133E-08 | 2.852E-02 |
| 160 | 1.10E-01 | 1.206E+01 | 1.206E+01 | INF | 0. | 3.130E-05 | 3.41E-03 | 3.879E+02 | 3.879E+02 | INF | 0. | 3.026E-08 | 2.308E-02 |
| 165 | 1.47E-01 | 6.815E+00 | 6.815E+00 | INF | 0. | 9.805E-05 | 2.55E-03 | 3.932E+02 | 3.932E+02 | INF | 0. | 2.946E-08 | 1.747E-02 |
| 170 | 2.21E-01 | 3.038E+00 | 3.038E+00 | INF | 0. | 4.933E-04 | 1.69E-03 | 3.970E+02 | 3.970E+02 | INF | 0. | 2.890E-08 | 1.172E-02 |
| 175 | 4.43E-01 | 7.611E-01 | 7.611E-01 | INF | 0. | 7.862E-03 | 8.44E-04 | 3.992E+02 | 3.992E+02 | INF | 0. | 2.857E-08 | 5.881E-03 |
| 180 | 1.80E+02 | 1.138E-05 | 1.138E-05 | INF | 0. | 3.514E+07 | 0. | 4.000E+02 | 4.000E+02 | INF | 0. | 2.846E-08 | 0. |

PI ZERO (1) => GAMMA (2) + GAMMA (3) AT 450 GEV/C P1 LAB

M1 = 1.34964E-01 M2 = 0. M3 = 0.
P2CM= 6.74822E-02
E2CM= 6.74822E-02 E3CM= 6.74822E-02

1-V1LAB= 4.498E-08 GCM = 3.33421E+03 S = 1.82154E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 4.500E+02 | 4.500E+02 | INF | 0. | 2.249E-08 | 1.80E+02 | 1.012E-05 | 1.012E-05 | INF | 0. | 4.447E+07 | 0. |
| 1 | 1.50E-04 | 4.500E+02 | 4.500E+02 | INF | 0. | 2.249E-08 | 1.97E+00 | 3.428E-02 | 3.428E-02 | INF | 0. | 3.876E+00 | 1.178E-03 |
| 2 | 3.00E-04 | 4.499E+02 | 4.499E+02 | INF | 0. | 2.250E-08 | 9.84E-01 | 1.371E-01 | 1.371E-01 | INF | 0. | 2.424E-01 | 2.355E-03 |
| 3 | 4.50E-04 | 4.497E+02 | 4.497E+02 | INF | 0. | 2.252E-08 | 6.56E-01 | 3.084E-01 | 3.084E-01 | INF | 0. | 4.789E-02 | 3.532E-03 |
| 4 | 6.00E-04 | 4.495E+02 | 4.495E+02 | INF | 0. | 2.254E-08 | 4.92E-01 | 5.481E-01 | 5.481E-01 | INF | 0. | 1.516E-02 | 4.707E-03 |
| 5 | 7.50E-04 | 4.491E+02 | 4.491E+02 | INF | 0. | 2.257E-08 | 3.94E-01 | 8.562E-01 | 8.562E-01 | INF | 0. | 6.212E-03 | 5.881E-03 |
| 6 | 9.01E-04 | 4.488E+02 | 4.488E+02 | INF | 0. | 2.261E-08 | 3.28E-01 | 1.233E+00 | 1.233E+00 | INF | 0. | 2.997E-03 | 7.054E-03 |
| 7 | 1.05E-03 | 4.483E+02 | 4.483E+02 | INF | 0. | 2.266E-08 | 2.81E-01 | 1.677E+00 | 1.677E+00 | INF | 0. | 1.619E-03 | 8.224E-03 |
| 8 | 1.20E-03 | 4.478E+02 | 4.478E+02 | INF | 0. | 2.271E-08 | 2.46E-01 | 2.190E+00 | 2.190E+00 | INF | 0. | 9.498E-04 | 9.392E-03 |
| 9 | 1.35E-03 | 4.472E+02 | 4.472E+02 | INF | 0. | 2.277E-08 | 2.18E-01 | 2.770E+00 | 2.770E+00 | INF | 0. | 5.934E-04 | 1.056E-02 |
| 10 | 1.50E-03 | 4.466E+02 | 4.466E+02 | INF | 0. | 2.283E-08 | 1.96E-01 | 3.418E+00 | 3.418E+00 | INF | 0. | 3.897E-04 | 1.172E-02 |
| 15 | 2.26E-03 | 4.423E+02 | 4.423E+02 | INF | 0. | 2.327E-08 | 1.31E-01 | 7.667E+00 | 7.667E+00 | INF | 0. | 7.748E-05 | 1.747E-02 |
| 20 | 3.03E-03 | 4.364E+02 | 4.364E+02 | INF | 0. | 2.391E-08 | 9.75E-02 | 1.357E+01 | 1.357E+01 | INF | 0. | 2.473E-05 | 2.308E-02 |
| 25 | 3.81E-03 | 4.289E+02 | 4.289E+02 | INF | 0. | 2.475E-08 | 7.75E-02 | 2.108E+01 | 2.108E+01 | INF | 0. | 1.025E-05 | 2.852E-02 |
| 30 | 4.60E-03 | 4.199E+02 | 4.199E+02 | INF | 0. | 2.583E-08 | 6.41E-02 | 3.014E+01 | 3.014E+01 | INF | 0. | 5.012E-06 | 3.374E-02 |
| 35 | 5.42E-03 | 4.093E+02 | 4.093E+02 | INF | 0. | 2.718E-08 | 5.45E-02 | 4.069E+01 | 4.069E+01 | INF | 0. | 2.750E-06 | 3.871E-02 |
| 40 | 6.25E-03 | 3.974E+02 | 3.974E+02 | INF | 0. | 2.884E-08 | 4.72E-02 | 5.264E+01 | 5.264E+01 | INF | 0. | 1.643E-06 | 4.338E-02 |
| 45 | 7.12E-03 | 3.841E+02 | 3.841E+02 | INF | 0. | 3.087E-08 | 4.15E-02 | 6.590E+01 | 6.590E+01 | INF | 0. | 1.049E-06 | 4.772E-02 |
| 50 | 8.01E-03 | 3.696E+02 | 3.696E+02 | INF | 0. | 3.333E-08 | 3.69E-02 | 8.037E+01 | 8.037E+01 | INF | 0. | 7.050E-07 | 5.169E-02 |
| 55 | 8.95E-03 | 3.541E+02 | 3.541E+02 | INF | 0. | 3.633E-08 | 3.30E-02 | 9.595E+01 | 9.595E+01 | INF | 0. | 4.947E-07 | 5.528E-02 |
| 60 | 9.92E-03 | 3.375E+02 | 3.375E+02 | INF | 0. | 3.998E-08 | 2.98E-02 | 1.125E+02 | 1.125E+02 | INF | 0. | 3.598E-07 | 5.844E-02 |
| 65 | 1.09E-02 | 3.201E+02 | 3.201E+02 | INF | 0. | 4.445E-08 | 2.70E-02 | 1.299E+02 | 1.299E+02 | INF | 0. | 2.698E-07 | 6.116E-02 |
| 70 | 1.20E-02 | 3.020E+02 | 3.020E+02 | INF | 0. | 4.995E-08 | 2.45E-02 | 1.480E+02 | 1.480E+02 | INF | 0. | 2.078E-07 | 6.341E-02 |
| 75 | 1.32E-02 | 2.832E+02 | 2.832E+02 | INF | 0. | 5.677E-08 | 2.24E-02 | 1.668E+02 | 1.668E+02 | INF | 0. | 1.637E-07 | 6.518E-02 |
| 80 | 1.44E-02 | 2.641E+02 | 2.641E+02 | INF | 0. | 6.530E-08 | 2.05E-02 | 1.859E+02 | 1.859E+02 | INF | 0. | 1.317E-07 | 6.646E-02 |
| 85 | 1.57E-02 | 2.446E+02 | 2.446E+02 | INF | 0. | 7.611E-08 | 1.88E-02 | 2.054E+02 | 2.054E+02 | INF | 0. | 1.079E-07 | 6.723E-02 |
| 90 | 1.72E-02 | 2.250E+02 | 2.250E+02 | INF | 0. | 8.995E-08 | 1.72E-02 | 2.250E+02 | 2.250E+02 | INF | 0. | 8.995E-08 | 6.748E-02 |
| 95 | 1.88E-02 | 2.054E+02 | 2.054E+02 | INF | 0. | 1.079E-07 | 1.57E-02 | 2.446E+02 | 2.446E+02 | INF | 0. | 7.611E-08 | 6.723E-02 |
| 100 | 2.05E-02 | 1.859E+02 | 1.859E+02 | INF | 0. | 1.317E-07 | 1.44E-02 | 2.641E+02 | 2.641E+02 | INF | 0. | 6.530E-08 | 6.646E-02 |
| 105 | 2.24E-02 | 1.668E+02 | 1.668E+02 | INF | 0. | 1.637E-07 | 1.32E-02 | 2.832E+02 | 2.832E+02 | INF | 0. | 5.677E-08 | 6.518E-02 |
| 110 | 2.45E-02 | 1.480E+02 | 1.480E+02 | INF | 0. | 2.078E-07 | 1.20E-02 | 3.020E+02 | 3.020E+02 | INF | 0. | 4.995E-08 | 6.341E-02 |
| 115 | 2.70E-02 | 1.299E+02 | 1.299E+02 | INF | 0. | 2.698E-07 | 1.09E-02 | 3.201E+02 | 3.201E+02 | INF | 0. | 4.445E-08 | 6.116E-02 |
| 120 | 2.98E-02 | 1.125E+02 | 1.125E+02 | INF | 0. | 3.598E-07 | 9.92E-03 | 3.375E+02 | 3.375E+02 | INF | 0. | 3.998E-08 | 5.844E-02 |
| 125 | 3.30E-02 | 9.595E+01 | 9.595E+01 | INF | 0. | 4.947E-07 | 8.95E-03 | 3.541E+02 | 3.541E+02 | INF | 0. | 3.633E-08 | 5.528E-02 |
| 130 | 3.69E-02 | 8.037E+01 | 8.037E+01 | INF | 0. | 7.050E-07 | 8.01E-03 | 3.696E+02 | 3.696E+02 | INF | 0. | 3.333E-08 | 5.169E-02 |
| 135 | 4.15E-02 | 6.590E+01 | 6.590E+01 | INF | 0. | 1.049E-06 | 7.12E-03 | 3.841E+02 | 3.841E+02 | INF | 0. | 3.087E-08 | 4.772E-02 |
| 140 | 4.72E-02 | 5.264E+01 | 5.264E+01 | INF | 0. | 1.643E-06 | 6.25E-03 | 3.974E+02 | 3.974E+02 | INF | 0. | 2.884E-08 | 4.338E-02 |
| 145 | 5.45E-02 | 4.069E+01 | 4.069E+01 | INF | 0. | 2.750E-06 | 5.42E-03 | 4.093E+02 | 4.093E+02 | INF | 0. | 2.718E-08 | 3.871E-02 |
| 150 | 6.41E-02 | 3.014E+01 | 3.014E+01 | INF | 0. | 5.012E-06 | 4.60E-03 | 4.199E+02 | 4.199E+02 | INF | 0. | 2.583E-08 | 3.374E-02 |
| 155 | 7.75E-02 | 2.108E+01 | 2.108E+01 | INF | 0. | 1.025E-05 | 3.81E-03 | 4.289E+02 | 4.289E+02 | INF | 0. | 2.475E-08 | 2.852E-02 |
| 160 | 9.75E-02 | 1.357E+01 | 1.357E+01 | INF | 0. | 2.473E-05 | 3.03E-03 | 4.364E+02 | 4.364E+02 | INF | 0. | 2.391E-08 | 2.308E-02 |
| 165 | 1.31E-01 | 7.667E+00 | 7.667E+00 | INF | 0. | 7.748E-05 | 2.26E-03 | 4.423E+02 | 4.423E+02 | INF | 0. | 2.327E-08 | 1.747E-02 |
| 170 | 1.96E-01 | 3.418E+00 | 3.418E+00 | INF | 0. | 3.897E-04 | 1.50E-03 | 4.466E+02 | 4.466E+02 | INF | 0. | 2.283E-08 | 1.172E-02 |
| 175 | 3.94E-01 | 8.562E-01 | 8.562E-01 | INF | 0. | 6.212E-03 | 7.50E-04 | 4.491E+02 | 4.491E+02 | INF | 0. | 2.257E-08 | 5.881E-03 |
| 180 | 1.80E+02 | 1.012E-05 | 1.012E-05 | INF | 0. | 4.447E+07 | 0. | 4.500E+02 | 4.500E+02 | INF | 0. | 2.249E-08 | 0. |

PI ZERO (1) => GAMMA (2) + GAMMA (3) AT 500 GEV/C P1 LAB

M1 = 1.34964E-01 M2 = 0. M3 = 0.
P2CM= 6.74822E-02
E2CM= 6.74822E-02 E3CM= 6.74822E-02

1-V1LAB= 3.643E-08 GCM = 3.70468E+03 S = 1.82154E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 5.000E+02 | 5.000E+02 | INF | 0. | 1.822E-08 | 1.80E+02 | 9.108E-06 | 9.108E-06 | INF | 0. | 5.490E+07 | 0. |
| 1 | 1.35E-04 | 5.000E+02 | 5.000E+02 | INF | 0. | 1.822E-08 | 1.77E+00 | 3.809E-02 | 3.809E-02 | INF | 0. | 3.140E+00 | 1.178E-03 |
| 2 | 2.70E-04 | 4.998E+02 | 4.998E+02 | INF | 0. | 1.823E-08 | 8.86E-01 | 1.523E-01 | 1.523E-01 | INF | 0. | 1.963E-01 | 2.355E-03 |
| 3 | 4.05E-04 | 4.997E+02 | 4.997E+02 | INF | 0. | 1.824E-08 | 5.91E-01 | 3.426E-01 | 3.426E-01 | INF | 0. | 3.879E-02 | 3.532E-03 |
| 4 | 5.40E-04 | 4.994E+02 | 4.994E+02 | INF | 0. | 1.826E-08 | 4.43E-01 | 6.090E-01 | 6.090E-01 | INF | 0. | 1.228E-02 | 4.707E-03 |
| 5 | 6.75E-04 | 4.990E+02 | 4.990E+02 | INF | 0. | 1.828E-08 | 3.54E-01 | 9.513E-01 | 9.513E-01 | INF | 0. | 5.032E-03 | 5.881E-03 |
| 6 | 8.11E-04 | 4.986E+02 | 4.986E+02 | INF | 0. | 1.832E-08 | 2.95E-01 | 1.370E+00 | 1.370E+00 | INF | 0. | 2.428E-03 | 7.054E-03 |
| 7 | 9.46E-04 | 4.981E+02 | 4.981E+02 | INF | 0. | 1.835E-08 | 2.53E-01 | 1.863E+00 | 1.863E+00 | INF | 0. | 1.311E-03 | 8.224E-03 |
| 8 | 1.08E-03 | 4.976E+02 | 4.976E+02 | INF | 0. | 1.839E-08 | 2.21E-01 | 2.433E+00 | 2.433E+00 | INF | 0. | 7.693E-04 | 9.392E-03 |
| 9 | 1.22E-03 | 4.969E+02 | 4.969E+02 | INF | 0. | 1.844E-08 | 1.97E-01 | 3.078E+00 | 3.078E+00 | INF | 0. | 4.807E-04 | 1.056E-02 |
| 10 | 1.35E-03 | 4.962E+02 | 4.962E+02 | INF | 0. | 1.850E-08 | 1.77E-01 | 3.798E+00 | 3.798E+00 | INF | 0. | 3.157E-04 | 1.172E-02 |
| 15 | 2.04E-03 | 4.915E+02 | 4.915E+02 | INF | 0. | 1.885E-08 | 1.17E-01 | 8.519E+00 | 8.519E+00 | INF | 0. | 6.275E-05 | 1.747E-02 |
| 20 | 2.73E-03 | 4.849E+02 | 4.849E+02 | INF | 0. | 1.937E-08 | 8.77E-02 | 1.508E+01 | 1.508E+01 | INF | 0. | 2.003E-05 | 2.308E-02 |
| 25 | 3.43E-03 | 4.766E+02 | 4.766E+02 | INF | 0. | 2.005E-08 | 6.98E-02 | 2.342E+01 | 2.342E+01 | INF | 0. | 8.300E-06 | 2.852E-02 |
| 30 | 4.14E-03 | 4.665E+02 | 4.665E+02 | INF | 0. | 2.092E-08 | 5.77E-02 | 3.349E+01 | 3.349E+01 | INF | 0. | 4.059E-06 | 3.374E-02 |
| 35 | 4.88E-03 | 4.548E+02 | 4.548E+02 | INF | 0. | 2.202E-08 | 4.91E-02 | 4.521E+01 | 4.521E+01 | INF | 0. | 2.228E-06 | 3.871E-02 |
| 40 | 5.63E-03 | 4.415E+02 | 4.415E+02 | INF | 0. | 2.336E-08 | 4.25E-02 | 5.849E+01 | 5.849E+01 | INF | 0. | 1.331E-06 | 4.338E-02 |
| 45 | 6.41E-03 | 4.268E+02 | 4.268E+02 | INF | 0. | 2.500E-08 | 3.73E-02 | 7.322E+01 | 7.322E+01 | INF | 0. | 8.493E-07 | 4.772E-02 |
| 50 | 7.21E-03 | 4.107E+02 | 4.107E+02 | INF | 0. | 2.701E-08 | 3.32E-02 | 8.930E+01 | 8.930E+01 | INF | 0. | 5.710E-07 | 5.169E-02 |
| 55 | 8.05E-03 | 3.934E+02 | 3.934E+02 | INF | 0. | 2.943E-08 | 2.97E-02 | 1.066E+02 | 1.066E+02 | INF | 0. | 4.007E-07 | 5.528E-02 |
| 60 | 8.93E-03 | 3.750E+02 | 3.750E+02 | INF | 0. | 3.238E-08 | 2.68E-02 | 1.250E+02 | 1.250E+02 | INF | 0. | 2.914E-07 | 5.844E-02 |
| 65 | 9.85E-03 | 3.557E+02 | 3.557E+02 | INF | 0. | 3.600E-08 | 2.43E-02 | 1.443E+02 | 1.443E+02 | INF | 0. | 2.186E-07 | 6.116E-02 |
| 70 | 1.08E-02 | 3.355E+02 | 3.355E+02 | INF | 0. | 4.046E-08 | 2.21E-02 | 1.645E+02 | 1.645E+02 | INF | 0. | 1.683E-07 | 6.341E-02 |
| 75 | 1.19E-02 | 3.147E+02 | 3.147E+02 | INF | 0. | 4.598E-08 | 2.02E-02 | 1.853E+02 | 1.853E+02 | INF | 0. | 1.326E-07 | 6.518E-02 |
| 80 | 1.30E-02 | 2.934E+02 | 2.934E+02 | INF | 0. | 5.290E-08 | 1.84E-02 | 2.066E+02 | 2.066E+02 | INF | 0. | 1.067E-07 | 6.646E-02 |
| 85 | 1.42E-02 | 2.718E+02 | 2.718E+02 | INF | 0. | 6.165E-08 | 1.69E-02 | 2.282E+02 | 2.282E+02 | INF | 0. | 8.744E-08 | 6.723E-02 |
| 90 | 1.55E-02 | 2.500E+02 | 2.500E+02 | INF | 0. | 7.286E-08 | 1.55E-02 | 2.500E+02 | 2.500E+02 | INF | 0. | 7.286E-08 | 6.748E-02 |
| 95 | 1.69E-02 | 2.282E+02 | 2.282E+02 | INF | 0. | 8.744E-08 | 1.42E-02 | 2.718E+02 | 2.718E+02 | INF | 0. | 6.165E-08 | 6.723E-02 |
| 100 | 1.84E-02 | 2.066E+02 | 2.066E+02 | INF | 0. | 1.067E-07 | 1.30E-02 | 2.934E+02 | 2.934E+02 | INF | 0. | 5.290E-08 | 6.646E-02 |
| 105 | 2.02E-02 | 1.853E+02 | 1.853E+02 | INF | 0. | 1.326E-07 | 1.19E-02 | 3.147E+02 | 3.147E+02 | INF | 0. | 4.598E-08 | 6.518E-02 |
| 110 | 2.21E-02 | 1.645E+02 | 1.645E+02 | INF | 0. | 1.683E-07 | 1.08E-02 | 3.355E+02 | 3.355E+02 | INF | 0. | 4.046E-08 | 6.341E-02 |
| 115 | 2.43E-02 | 1.443E+02 | 1.443E+02 | INF | 0. | 2.186E-07 | 9.85E-03 | 3.557E+02 | 3.557E+02 | INF | 0. | 3.600E-08 | 6.116E-02 |
| 120 | 2.68E-02 | 1.250E+02 | 1.250E+02 | INF | 0. | 2.914E-07 | 8.93E-03 | 3.750E+02 | 3.750E+02 | INF | 0. | 3.238E-08 | 5.844E-02 |
| 125 | 2.97E-02 | 1.066E+02 | 1.066E+02 | INF | 0. | 4.007E-07 | 8.05E-03 | 3.934E+02 | 3.934E+02 | INF | 0. | 2.943E-08 | 5.528E-02 |
| 130 | 3.32E-02 | 8.930E+01 | 8.930E+01 | INF | 0. | 5.710E-07 | 7.21E-03 | 4.107E+02 | 4.107E+02 | INF | 0. | 2.700E-08 | 5.169E-02 |
| 135 | 3.73E-02 | 7.322E+01 | 7.322E+01 | INF | 0. | 8.493E-07 | 6.41E-03 | 4.268E+02 | 4.268E+02 | INF | 0. | 2.500E-08 | 4.772E-02 |
| 140 | 4.25E-02 | 5.849E+01 | 5.849E+01 | INF | 0. | 1.331E-06 | 5.63E-03 | 4.415E+02 | 4.415E+02 | INF | 0. | 2.336E-08 | 4.338E-02 |
| 145 | 4.91E-02 | 4.521E+01 | 4.521E+01 | INF | 0. | 2.228E-06 | 4.88E-03 | 4.548E+02 | 4.548E+02 | INF | 0. | 2.202E-08 | 3.871E-02 |
| 150 | 5.77E-02 | 3.349E+01 | 3.349E+01 | INF | 0. | 4.059E-06 | 4.14E-03 | 4.665E+02 | 4.665E+02 | INF | 0. | 2.092E-08 | 3.374E-02 |
| 155 | 6.98E-02 | 2.342E+01 | 2.342E+01 | INF | 0. | 8.300E-06 | 3.43E-03 | 4.766E+02 | 4.766E+02 | INF | 0. | 2.005E-08 | 2.852E-02 |
| 160 | 8.77E-02 | 1.508E+01 | 1.508E+01 | INF | 0. | 2.003E-05 | 2.73E-03 | 4.849E+02 | 4.849E+02 | INF | 0. | 1.937E-08 | 2.308E-02 |
| 165 | 1.17E-01 | 8.519E+00 | 8.519E+00 | INF | 0. | 6.275E-05 | 2.04E-03 | 4.915E+02 | 4.915E+02 | INF | 0. | 1.885E-08 | 1.747E-02 |
| 170 | 1.77E-01 | 3.798E+00 | 3.798E+00 | INF | 0. | 3.157E-04 | 1.35E-03 | 4.962E+02 | 4.962E+02 | INF | 0. | 1.850E-08 | 1.172E-02 |
| 175 | 3.54E-01 | 9.513E-01 | 9.513E-01 | INF | 0. | 5.032E-03 | 6.75E-04 | 4.990E+02 | 4.990E+02 | INF | 0. | 1.828E-08 | 5.881E-03 |
| 180 | 1.80E+02 | 9.108E-06 | 9.108E-06 | INF | 0. | 5.490E+07 | 0. | 5.000E+02 | 5.000E+02 | INF | 0. | 1.822E-08 | 0. |

PI ZERO (1) => GAMMA (2) + GAMMA (3) AT 750 GEV/C P1 LAB

M1 = 1.34964E-01 M2 = 0. M3 = 0.
P2CM= 6.74822E-02
E2CM= 6.74822E-02 E3CM= 6.74822E-02

1-V1LAB= 1.619E-08 GCM = 5.55702E+03 S = 1.82154E-02

| 02 CM | 02 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | 03 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 7.500E+02 | 7.500E+02 | INF | 0. | 8.096E-09 | 1.80E+02 | 6.072E-06 | 6.072E-06 | INF | 0. | 1.235E+08 | 0. |
| 1 | 9.00E-05 | 7.499E+02 | 7.499E+02 | INF | 0. | 8.097E-09 | 1.18E+00 | 5.712E-02 | 5.712E-02 | INF | 0. | 1.396E+00 | 1.178E-03 |
| 2 | 1.80E-04 | 7.498E+02 | 7.498E+02 | INF | 0. | 8.101E-09 | 5.91E-01 | 2.284E-01 | 2.284E-01 | INF | 0. | 8.726E-02 | 2.355E-03 |
| 3 | 2.70E-04 | 7.495E+02 | 7.495E+02 | INF | 0. | 8.107E-09 | 3.94E-01 | 5.139E-01 | 5.139E-01 | INF | 0. | 1.724E-02 | 3.532E-03 |
| 4 | 3.60E-04 | 7.491E+02 | 7.491E+02 | INF | 0. | 8.115E-09 | 2.95E-01 | 9.135E-01 | 9.135E-01 | INF | 0. | 5.457E-03 | 4.707E-03 |
| 5 | 4.50E-04 | 7.486E+02 | 7.486E+02 | INF | 0. | 8.127E-09 | 2.36E-01 | 1.427E+00 | 1.427E+00 | INF | 0. | 2.236E-03 | 5.881E-03 |
| 6 | 5.40E-04 | 7.479E+02 | 7.479E+02 | INF | 0. | 8.140E-09 | 1.97E-01 | 2.054E+00 | 2.054E+00 | INF | 0. | 1.079E-03 | 7.054E-03 |
| 7 | 6.31E-04 | 7.472E+02 | 7.472E+02 | INF | 0. | 8.156E-09 | 1.69E-01 | 2.795E+00 | 2.795E+00 | INF | 0. | 5.828E-04 | 8.224E-03 |
| 8 | 7.21E-04 | 7.464E+02 | 7.464E+02 | INF | 0. | 8.175E-09 | 1.47E-01 | 3.649E+00 | 3.649E+00 | INF | 0. | 3.419E-04 | 9.392E-03 |
| 9 | 8.11E-04 | 7.454E+02 | 7.454E+02 | INF | 0. | 8.196E-09 | 1.31E-01 | 4.617E+00 | 4.617E+00 | INF | 0. | 2.136E-04 | 1.056E-02 |
| 10 | 9.02E-04 | 7.443E+02 | 7.443E+02 | INF | 0. | 8.220E-09 | 1.18E-01 | 5.697E+00 | 5.697E+00 | INF | 0. | 1.403E-04 | 1.172E-02 |
| 15 | 1.36E-03 | 7.372E+02 | 7.372E+02 | INF | 0. | 8.379E-09 | 7.83E-02 | 1.278E+01 | 1.278E+01 | INF | 0. | 2.789E-05 | 1.747E-02 |
| 20 | 1.82E-03 | 7.274E+02 | 7.274E+02 | INF | 0. | 8.607E-09 | 5.85E-02 | 2.262E+01 | 2.262E+01 | INF | 0. | 8.904E-06 | 2.308E-02 |
| 25 | 2.29E-03 | 7.149E+02 | 7.149E+02 | INF | 0. | 8.911E-09 | 4.65E-02 | 3.513E+01 | 3.513E+01 | INF | 0. | 3.689E-06 | 2.852E-02 |
| 30 | 2.76E-03 | 6.998E+02 | 6.998E+02 | INF | 0. | 9.300E-09 | 3.85E-02 | 5.024E+01 | 5.024E+01 | INF | 0. | 1.804E-06 | 3.374E-02 |
| 35 | 3.25E-03 | 6.822E+02 | 6.822E+02 | INF | 0. | 9.785E-09 | 3.27E-02 | 6.782E+01 | 6.782E+01 | INF | 0. | 9.901E-07 | 3.871E-02 |
| 40 | 3.75E-03 | 6.623E+02 | 6.623E+02 | INF | 0. | 1.038E-08 | 2.83E-02 | 8.773E+01 | 8.773E+01 | INF | 0. | 5.916E-07 | 4.338E-02 |
| 45 | 4.27E-03 | 6.402E+02 | 6.402E+02 | INF | 0. | 1.111E-08 | 2.49E-02 | 1.098E+02 | 1.098E+02 | INF | 0. | 3.775E-07 | 4.772E-02 |
| 50 | 4.81E-03 | 6.160E+02 | 6.160E+02 | INF | 0. | 1.200E-08 | 2.21E-02 | 1.340E+02 | 1.340E+02 | INF | 0. | 2.538E-07 | 5.169E-02 |
| 55 | 5.37E-03 | 5.901E+02 | 5.901E+02 | INF | 0. | 1.308E-08 | 1.98E-02 | 1.599E+02 | 1.599E+02 | INF | 0. | 1.781E-07 | 5.528E-02 |
| 60 | 5.95E-03 | 5.625E+02 | 5.625E+02 | INF | 0. | 1.439E-08 | 1.79E-02 | 1.875E+02 | 1.875E+02 | INF | 0. | 1.295E-07 | 5.844E-02 |
| 65 | 6.57E-03 | 5.335E+02 | 5.335E+02 | INF | 0. | 1.600E-08 | 1.62E-02 | 2.165E+02 | 2.165E+02 | INF | 0. | 9.714E-08 | 6.116E-02 |
| 70 | 7.22E-03 | 5.033E+02 | 5.033E+02 | INF | 0. | 1.798E-08 | 1.47E-02 | 2.467E+02 | 2.467E+02 | INF | 0. | 7.480E-08 | 6.341E-02 |
| 75 | 7.91E-03 | 4.721E+02 | 4.721E+02 | INF | 0. | 2.044E-08 | 1.34E-02 | 2.779E+02 | 2.779E+02 | INF | 0. | 5.895E-08 | 6.518E-02 |
| 80 | 8.65E-03 | 4.401E+02 | 4.401E+02 | INF | 0. | 2.351E-08 | 1.23E-02 | 3.099E+02 | 3.099E+02 | INF | 0. | 4.742E-08 | 6.646E-02 |
| 85 | 9.45E-03 | 4.077E+02 | 4.077E+02 | INF | 0. | 2.740E-08 | 1.13E-02 | 3.423E+02 | 3.423E+02 | INF | 0. | 3.886E-08 | 6.723E-02 |
| 90 | 1.03E-02 | 3.750E+02 | 3.750E+02 | INF | 0. | 3.238E-08 | 1.03E-02 | 3.750E+02 | 3.750E+02 | INF | 0. | 3.238E-08 | 6.748E-02 |
| 95 | 1.13E-02 | 3.423E+02 | 3.423E+02 | INF | 0. | 3.886E-08 | 9.45E-03 | 4.077E+02 | 4.077E+02 | INF | 0. | 2.740E-08 | 6.723E-02 |
| 100 | 1.23E-02 | 3.099E+02 | 3.099E+02 | INF | 0. | 4.742E-08 | 8.65E-03 | 4.401E+02 | 4.401E+02 | INF | 0. | 2.351E-08 | 6.646E-02 |
| 105 | 1.34E-02 | 2.779E+02 | 2.779E+02 | INF | 0. | 5.895E-08 | 7.91E-03 | 4.721E+02 | 4.721E+02 | INF | 0. | 2.044E-08 | 6.518E-02 |
| 110 | 1.47E-02 | 2.467E+02 | 2.467E+02 | INF | 0. | 7.480E-08 | 7.22E-03 | 5.033E+02 | 5.033E+02 | INF | 0. | 1.798E-08 | 6.341E-02 |
| 115 | 1.62E-02 | 2.165E+02 | 2.165E+02 | INF | 0. | 9.714E-08 | 6.57E-03 | 5.335E+02 | 5.335E+02 | INF | 0. | 1.600E-08 | 6.116E-02 |
| 120 | 1.79E-02 | 1.875E+02 | 1.875E+02 | INF | 0. | 1.295E-07 | 5.95E-03 | 5.625E+02 | 5.625E+02 | INF | 0. | 1.439E-08 | 5.844E-02 |
| 125 | 1.98E-02 | 1.599E+02 | 1.599E+02 | INF | 0. | 1.781E-07 | 5.37E-03 | 5.901E+02 | 5.901E+02 | INF | 0. | 1.308E-08 | 5.528E-02 |
| 130 | 2.21E-02 | 1.340E+02 | 1.340E+02 | INF | 0. | 2.538E-07 | 4.81E-03 | 6.160E+02 | 6.160E+02 | INF | 0. | 1.200E-08 | 5.169E-02 |
| 135 | 2.49E-02 | 1.098E+02 | 1.098E+02 | INF | 0. | 3.775E-07 | 4.27E-03 | 6.402E+02 | 6.402E+02 | INF | 0. | 1.111E-08 | 4.772E-02 |
| 140 | 2.83E-02 | 8.773E+01 | 8.773E+01 | INF | 0. | 5.916E-07 | 3.75E-03 | 6.623E+02 | 6.623E+02 | INF | 0. | 1.078E-08 | 4.338E-02 |
| 145 | 3.27E-02 | 6.782E+01 | 6.782E+01 | INF | 0. | 9.901E-07 | 3.25E-03 | 6.822E+02 | 6.822E+02 | INF | 0. | 9.785E-09 | 3.871E-02 |
| 150 | 3.85E-02 | 5.024E+01 | 5.024E+01 | INF | 0. | 1.804E-06 | 2.76E-03 | 6.998E+02 | 6.998E+02 | INF | 0. | 9.300E-09 | 3.374E-02 |
| 155 | 4.65E-02 | 3.513E+01 | 3.513E+01 | INF | 0. | 3.689E-06 | 2.29E-03 | 7.149E+02 | 7.149E+02 | INF | 0. | 8.911E-09 | 2.852E-02 |
| 160 | 5.85E-02 | 2.262E+01 | 2.262E+01 | INF | 0. | 8.904E-06 | 1.82E-03 | 7.274E+02 | 7.274E+02 | INF | 0. | 8.607E-09 | 2.308E-02 |
| 165 | 7.83E-02 | 1.278E+01 | 1.278E+01 | INF | 0. | 2.789E-05 | 1.36E-03 | 7.372E+02 | 7.372E+02 | INF | 0. | 8.379E-09 | 1.747E-02 |
| 170 | 1.18E-01 | 5.697E+00 | 5.697E+00 | INF | 0. | 1.403E-04 | 9.02E-04 | 7.443E+02 | 7.443E+02 | INF | 0. | 8.220E-09 | 1.172E-02 |
| 175 | 2.36E-01 | 1.427E+00 | 1.427E+00 | INF | 0. | 2.236E-03 | 4.50E-04 | 7.486E+02 | 7.486E+02 | INF | 0. | 8.127E-09 | 5.881E-03 |
| 180 | 1.80E+02 | 6.072E-06 | 6.072E-06 | INF | 0. | 1.235E+08 | 0. | 7.500E+02 | 7.500E+02 | INF | 0. | 8.096E-09 | 0. |

PI ZERO (1) => GAMMA (2) + GAMMA (3) AT 1000 GEV/C P1 LAB

M1 = 1.34964E-01 M2 = 0. M3 = 0.
P2CM= 6.74822E-02
E2CM= 6.74822E-02 E3CM= 6.74822E-02

1-V1LAB= 9.108E-09 GCM = 7.40936E+03 S = 1.82154E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.000E+03 | 1.000E+03 | INF | 0. | 4.554E-09 | 1.80E+02 | 4.554E-06 | 4.554E-06 | INF | 0. | 2.196E+08 | 0. |
| 1 | 6.74E-05 | 9.999E+02 | 9.999E+02 | INF | 0. | 4.555E-09 | 8.86E-01 | 7.616E-02 | 7.616E-02 | INF | 0. | 7.852E-01 | 1.178E-03 |
| 2 | 1.35E-04 | 9.997E+02 | 9.997E+02 | INF | 0. | 4.557E-09 | 4.43E-01 | 3.046E-01 | 3.046E-01 | INF | 0. | 4.908E-02 | 2.355E-03 |
| 3 | 2.03E-04 | 9.993E+02 | 9.993E+02 | INF | 0. | 4.560E-09 | 2.95E-01 | 6.852E-01 | 6.852E-01 | INF | 0. | 9.698E-03 | 3.532E-03 |
| 4 | 2.70E-04 | 9.988E+02 | 9.988E+02 | INF | 0. | 4.565E-09 | 2.21E-01 | 1.218E+00 | 1.218E+00 | INF | 0. | 3.070E-03 | 4.707E-03 |
| 5 | 3.38E-04 | 9.981E+02 | 9.981E+02 | INF | 0. | 4.571E-09 | 1.77E-01 | 1.903E+00 | 1.903E+00 | INF | 0. | 1.258E-03 | 5.881E-03 |
| 6 | 4.05E-04 | 9.973E+02 | 9.973E+02 | INF | 0. | 4.579E-09 | 1.48E-01 | 2.739E+00 | 2.739E+00 | INF | 0. | 6.070E-04 | 7.054E-03 |
| 7 | 4.73E-04 | 9.963E+02 | 9.963E+02 | INF | 0. | 4.588E-09 | 1.26E-01 | 3.727E+00 | 3.727E+00 | INF | 0. | 3.279E-04 | 8.224E-03 |
| 8 | 5.41E-04 | 9.951E+02 | 9.951E+02 | INF | 0. | 4.598E-09 | 1.11E-01 | 4.866E+00 | 4.866E+00 | INF | 0. | 1.923E-04 | 9.392E-03 |
| 9 | 6.09E-04 | 9.938E+02 | 9.938E+02 | INF | 0. | 4.610E-09 | 9.83E-02 | 6.156E+00 | 6.156E+00 | INF | 0. | 1.202E-04 | 1.056E-02 |
| 10 | 6.77E-04 | 9.924E+02 | 9.924E+02 | INF | 0. | 4.624E-09 | 8.84E-02 | 7.596E+00 | 7.596E+00 | INF | 0. | 7.892E-05 | 1.172E-02 |
| 15 | 1.02E-03 | 9.830E+02 | 9.830E+02 | INF | 0. | 4.713E-09 | 5.87E-02 | 1.704E+01 | 1.704E+01 | INF | 0. | 1.569E-05 | 1.747E-02 |
| 20 | 1.36E-03 | 9.698E+02 | 9.698E+02 | INF | 0. | 4.841E-09 | 4.39E-02 | 3.015E+01 | 3.015E+01 | INF | 0. | 5.008E-06 | 2.308E-02 |
| 25 | 1.71E-03 | 9.532E+02 | 9.532E+02 | INF | 0. | 5.012E-09 | 3.49E-02 | 4.685E+01 | 4.685E+01 | INF | 0. | 2.075E-06 | 2.852E-02 |
| 30 | 2.07E-03 | 9.330E+02 | 9.330E+02 | INF | 0. | 5.231E-09 | 2.89E-02 | 6.699E+01 | 6.699E+01 | INF | 0. | 1.015E-06 | 3.374E-02 |
| 35 | 2.44E-03 | 9.096E+02 | 9.096E+02 | INF | 0. | 5.504E-09 | 2.45E-02 | 9.042E+01 | 9.042E+01 | INF | 0. | 5.569E-07 | 3.871E-02 |
| 40 | 2.81E-03 | 8.830E+02 | 8.830E+02 | INF | 0. | 5.840E-09 | 2.12E-02 | 1.170E+02 | 1.170E+02 | INF | 0. | 3.328E-07 | 4.338E-02 |
| 45 | 3.20E-03 | 8.536E+02 | 8.536E+02 | INF | 0. | 6.251E-09 | 1.87E-02 | 1.464E+02 | 1.464E+02 | INF | 0. | 2.123E-07 | 4.772E-02 |
| 50 | 3.61E-03 | 8.214E+02 | 8.214E+02 | INF | 0. | 6.750E-09 | 1.66E-02 | 1.786E+02 | 1.786E+02 | INF | 0. | 1.428E-07 | 5.169E-02 |
| 55 | 4.03E-03 | 7.868E+02 | 7.868E+02 | INF | 0. | 7.356E-09 | 1.49E-02 | 2.132E+02 | 2.132E+02 | INF | 0. | 1.002E-07 | 5.528E-02 |
| 60 | 4.46E-03 | 7.500E+02 | 7.500E+02 | INF | 0. | 8.096E-09 | 1.34E-02 | 2.500E+02 | 2.500E+02 | INF | 0. | 7.286E-08 | 5.844E-02 |
| 65 | 4.93E-03 | 7.113E+02 | 7.113E+02 | INF | 0. | 9.000E-09 | 1.21E-02 | 2.887E+02 | 2.887E+02 | INF | 0. | 5.464E-08 | 6.116E-02 |
| 70 | 5.41E-03 | 6.710E+02 | 6.710E+02 | INF | 0. | 1.011E-08 | 1.10E-02 | 3.290E+02 | 3.290E+02 | INF | 0. | 4.207E-08 | 6.341E-02 |
| 75 | 5.93E-03 | 6.294E+02 | 6.294E+02 | INF | 0. | 1.150E-08 | 1.01E-02 | 3.706E+02 | 3.706E+02 | INF | 0. | 3.316E-08 | 6.518E-02 |
| 80 | 6.49E-03 | 5.868E+02 | 5.868E+02 | INF | 0. | 1.322E-08 | 9.22E-03 | 4.132E+02 | 4.132E+02 | INF | 0. | 2.668E-08 | 6.646E-02 |
| 85 | 7.09E-03 | 5.436E+02 | 5.436E+02 | INF | 0. | 1.541E-08 | 8.44E-03 | 4.564E+02 | 4.564E+02 | INF | 0. | 2.186E-08 | 6.723E-02 |
| 90 | 7.73E-03 | 5.000E+02 | 5.000E+02 | INF | 0. | 1.822E-08 | 7.73E-03 | 5.000E+02 | 5.000E+02 | INF | 0. | 1.822E-08 | 6.748E-02 |
| 95 | 8.44E-03 | 4.564E+02 | 4.564E+02 | INF | 0. | 2.186E-08 | 7.09E-03 | 5.436E+02 | 5.436E+02 | INF | 0. | 1.541E-08 | 6.723E-02 |
| 100 | 9.22E-03 | 4.132E+02 | 4.132E+02 | INF | 0. | 2.668E-08 | 6.49E-03 | 5.868E+02 | 5.868E+02 | INF | 0. | 1.322E-08 | 6.646E-02 |
| 105 | 1.01E-02 | 3.706E+02 | 3.706E+02 | INF | 0. | 3.316E-08 | 5.93E-03 | 6.294E+02 | 6.294E+02 | INF | 0. | 1.150E-08 | 6.518E-02 |
| 110 | 1.10E-02 | 3.290E+02 | 3.290E+02 | INF | 0. | 4.207E-08 | 5.41E-03 | 6.710E+02 | 6.710E+02 | INF | 0. | 1.011E-08 | 6.341E-02 |
| 115 | 1.21E-02 | 2.887E+02 | 2.887E+02 | INF | 0. | 5.464E-08 | 4.93E-03 | 7.113E+02 | 7.113E+02 | INF | 0. | 9.000E-09 | 6.116E-02 |
| 120 | 1.34E-02 | 2.500E+02 | 2.500E+02 | INF | 0. | 7.286E-08 | 4.46E-03 | 7.500E+02 | 7.500E+02 | INF | 0. | 8.096E-09 | 5.844E-02 |
| 125 | 1.49E-02 | 2.132E+02 | 2.132E+02 | INF | 0. | 1.002E-07 | 4.03E-03 | 7.868E+02 | 7.868E+02 | INF | 0. | 7.356E-09 | 5.528E-02 |
| 130 | 1.66E-02 | 1.786E+02 | 1.786E+02 | INF | 0. | 1.428E-07 | 3.61E-03 | 8.214E+02 | 8.214E+02 | INF | 0. | 6.750E-09 | 5.169E-02 |
| 135 | 1.87E-02 | 1.464E+02 | 1.464E+02 | INF | 0. | 2.123E-07 | 3.20E-03 | 8.536E+02 | 8.536E+02 | INF | 0. | 6.251E-09 | 4.772E-02 |
| 140 | 2.12E-02 | 1.170E+02 | 1.170E+02 | INF | 0. | 3.328E-07 | 2.81E-03 | 8.830E+02 | 8.830E+02 | INF | 0. | 5.840E-09 | 4.338E-02 |
| 145 | 2.45E-02 | 9.042E+01 | 9.042E+01 | INF | 0. | 5.569E-07 | 2.44E-03 | 9.096E+02 | 9.096E+02 | INF | 0. | 5.504E-09 | 3.871E-02 |
| 150 | 2.89E-02 | 6.699E+01 | 6.699E+01 | INF | 0. | 1.015E-06 | 2.07E-03 | 9.330E+02 | 9.330E+02 | INF | 0. | 5.231E-09 | 3.374E-02 |
| 155 | 3.49E-02 | 4.685E+01 | 4.685E+01 | INF | 0. | 2.075E-06 | 1.71E-03 | 9.532E+02 | 9.532E+02 | INF | 0. | 5.012E-09 | 2.852E-02 |
| 160 | 4.39E-02 | 3.015E+01 | 3.015E+01 | INF | 0. | 5.008E-06 | 1.36E-03 | 9.698E+02 | 9.698E+02 | INF | 0. | 4.841E-09 | 2.308E-02 |
| 165 | 5.87E-02 | 1.704E+01 | 1.704E+01 | INF | 0. | 1.569E-05 | 1.02E-03 | 9.830E+02 | 9.830E+02 | INF | 0. | 4.713E-09 | 1.747E-02 |
| 170 | 8.84E-02 | 7.596E+00 | 7.596E+00 | INF | 0. | 7.892E-05 | 6.77E-04 | 9.924E+02 | 9.924E+02 | INF | 0. | 4.624E-09 | 1.172E-02 |
| 175 | 1.77E-01 | 1.903E+00 | 1.903E+00 | INF | 0. | 1.258E-03 | 3.38E-04 | 9.981E+02 | 9.981E+02 | INF | 0. | 4.571E-09 | 5.881E-03 |
| 180 | 1.80E+02 | 4.554E-06 | 4.554E-06 | INF | 0. | 2.196E+08 | 0. | 1.000E+03 | 1.000E+03 | INF | 0. | 4.554E-09 | 0. |

PI PLUS (1) => MU PLUS (2) + NEUTRINO (3) AT 10 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 1.05659E-01 M3 = 0.
P2CM= 2.97901E-02
E2CM= 1.09779E-01 E3CM= 2.97901E-02

1-V1LAB= 9.738E-05 GCM = 7.16562E+01 S = 1.94794E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.000E+01 | 9.895E+00 | 9.465E+01 | 5.581E-05 | 8.874E-06 | 1.80E+02 | 2.079E-04 | 2.079E-04 | INF | 0. | 2.054E+04 | 0. |
| 1 | 2.98E-03 | 1.000E+01 | 9.895E+00 | 9.465E+01 | 5.582E-05 | 8.874E-06 | 7.73E+01 | 5.330E-04 | 5.330E-04 | INF | 0. | 3.124E+03 | 5.199E-04 |
| 2 | 5.96E-03 | 9.999E+00 | 9.894E+00 | 9.464E+01 | 5.583E-05 | 8.873E-06 | 4.36E+01 | 1.508E-03 | 1.508E-03 | INF | 0. | 3.902E+02 | 1.040E-03 |
| 3 | 8.94E-03 | 9.997E+00 | 9.892E+00 | 9.462E+01 | 5.585E-05 | 8.872E-06 | 2.98E+01 | 3.133E-03 | 3.133E-03 | INF | 0. | 9.041E+01 | 1.559E-03 |
| 4 | 1.19E-02 | 9.995E+00 | 9.890E+00 | 9.460E+01 | 5.587E-05 | 8.871E-06 | 2.26E+01 | 5.407E-03 | 5.407E-03 | INF | 0. | 3.035E+01 | 2.078E-03 |
| 5 | 1.49E-02 | 9.992E+00 | 9.887E+00 | 9.457E+01 | 5.590E-05 | 8.869E-06 | 1.82E+01 | 8.330E-03 | 8.330E-03 | INF | 0. | 1.279E+01 | 2.596E-03 |
| 6 | 1.79E-02 | 9.989E+00 | 9.883E+00 | 9.454E+01 | 5.594E-05 | 8.867E-06 | 1.52E+01 | 1.190E-02 | 1.190E-02 | INF | 0. | 6.266E+00 | 3.114E-03 |
| 7 | 2.08E-02 | 9.984E+00 | 9.879E+00 | 9.450E+01 | 5.599E-05 | 8.864E-06 | 1.30E+01 | 1.612E-02 | 1.612E-02 | INF | 0. | 3.416E+00 | 3.671E-03 |
| 8 | 2.38E-02 | 9.979E+00 | 9.874E+00 | 9.445E+01 | 5.605E-05 | 8.861E-06 | 1.14E+01 | 2.098E-02 | 2.098E-02 | INF | 0. | 2.016E+00 | 4.146E-03 |
| 9 | 2.68E-02 | 9.974E+00 | 9.869E+00 | 9.440E+01 | 5.611E-05 | 8.858E-06 | 1.01E+01 | 2.649E-02 | 2.649E-02 | INF | 0. | 1.265E+00 | 4.660E-03 |
| 10 | 2.97E-02 | 9.968E+00 | 9.863E+00 | 9.434E+01 | 5.618E-05 | 8.854E-06 | 9.12E+00 | 3.263E-02 | 3.263E-02 | INF | 0. | 8.333E-01 | 5.173E-03 |
| 15 | 4.45E-02 | 9.927E+00 | 9.822E+00 | 9.396E+01 | 5.663E-05 | 8.828E-06 | 6.07E+00 | 7.294E-02 | 7.294E-02 | INF | 0. | 1.668E-01 | 7.710E-03 |
| 20 | 5.91E-02 | 9.871E+00 | 9.766E+00 | 9.343E+01 | 5.728E-05 | 8.788E-06 | 4.53E+00 | 1.289E-01 | 1.289E-01 | INF | 0. | 5.339E-02 | 1.019E-02 |
| 25 | 7.36E-02 | 9.800E+00 | 9.695E+00 | 9.276E+01 | 5.811E-05 | 8.734E-06 | 3.61E+00 | 2.002E-01 | 2.002E-01 | INF | 0. | 2.214E-02 | 1.259E-02 |
| 30 | 8.79E-02 | 9.714E+00 | 9.609E+00 | 9.194E+01 | 5.915E-05 | 8.661E-06 | 2.98E+00 | 2.862E-01 | 2.862E-01 | INF | 0. | 1.084E-02 | 1.490E-02 |
| 35 | 1.02E-01 | 9.614E+00 | 9.509E+00 | 9.100E+01 | 6.038E-05 | 8.566E-06 | 2.54E+00 | 3.862E-01 | 3.862E-01 | INF | 0. | 5.950E-03 | 1.709E-02 |
| 40 | 1.15E-01 | 9.501E+00 | 9.396E+00 | 8.992E+01 | 6.183E-05 | 8.444E-06 | 2.20E+00 | 4.996E-01 | 4.996E-01 | INF | 0. | 3.556E-03 | 1.915E-02 |
| 45 | 1.29E-01 | 9.375E+00 | 9.270E+00 | 8.873E+01 | 6.350E-05 | 8.289E-06 | 1.93E+00 | 6.254E-01 | 6.254E-01 | INF | 0. | 2.269E-03 | 2.106E-02 |
| 50 | 1.42E-01 | 9.238E+00 | 9.133E+00 | 8.743E+01 | 6.541E-05 | 8.095E-06 | 1.71E+00 | 7.627E-01 | 7.627E-01 | INF | 0. | 1.526E-03 | 2.282E-02 |
| 55 | 1.54E-01 | 9.090E+00 | 8.985E+00 | 8.604E+01 | 6.755E-05 | 7.853E-06 | 1.54E+00 | 9.104E-01 | 9.104E-01 | INF | 0. | 1.071E-03 | 2.440E-02 |
| 60 | 1.65E-01 | 8.933E+00 | 8.828E+00 | 8.455E+01 | 6.994E-05 | 7.554E-06 | 1.38E+00 | 1.067E+00 | 1.067E+00 | INF | 0. | 7.789E-04 | 2.580E-02 |
| 65 | 1.76E-01 | 8.768E+00 | 8.663E+00 | 8.299E+01 | 7.260E-05 | 7.187E-06 | 1.26E+00 | 1.233E+00 | 1.233E+00 | INF | 0. | 5.841E-04 | 2.700E-02 |
| 70 | 1.87E-01 | 8.596E+00 | 8.491E+00 | 8.136E+01 | 7.554E-05 | 6.742E-06 | 1.14E+00 | 1.405E+00 | 1.405E+00 | INF | 0. | 4.498E-04 | 2.799E-02 |
| 75 | 1.96E-01 | 8.418E+00 | 8.313E+00 | 7.968E+01 | 7.876E-05 | 6.204E-06 | 1.04E+00 | 1.582E+00 | 1.582E+00 | INF | 0. | 3.545E-04 | 2.878E-02 |
| 80 | 2.04E-01 | 8.236E+00 | 8.131E+00 | 7.796E+01 | 8.228E-05 | 5.560E-06 | 9.53E-01 | 1.764E+00 | 1.764E+00 | INF | 0. | 2.852E-04 | 2.934E-02 |
| 85 | 2.11E-01 | 8.052E+00 | 7.947E+00 | 7.621E+01 | 8.609E-05 | 4.795E-06 | 8.73E-01 | 1.949E+00 | 1.949E+00 | INF | 0. | 2.337E-04 | 2.968E-02 |
| 90 | 2.17E-01 | 7.866E+00 | 7.761E+00 | 7.445E+01 | 9.021E-05 | 3.893E-06 | 8.00E-01 | 2.135E+00 | 2.135E+00 | INF | 0. | 1.948E-04 | 2.979E-02 |
| 95 | 2.21E-01 | 7.680E+00 | 7.575E+00 | 7.269E+01 | 9.463E-05 | 2.839E-06 | 7.33E-01 | 2.321E+00 | 2.321E+00 | INF | 0. | 1.648E-04 | 2.968E-02 |
| 100 | 2.24E-01 | 7.495E+00 | 7.390E+00 | 7.094E+01 | 9.935E-05 | 1.621E-06 | 6.71E-01 | 2.505E+00 | 2.505E+00 | INF | 0. | 1.414E-04 | 2.934E-02 |
| 105 | 2.25E-01 | 7.313E+00 | 7.208E+00 | 6.922E+01 | 1.044E-04 | 2.244E-07 | 6.14E-01 | 2.687E+00 | 2.687E+00 | INF | 0. | 1.229E-04 | 2.878E-02 |
| 110 | 2.25E-01 | 7.136E+00 | 7.031E+00 | 6.754E+01 | 1.096E-04 | -1.357E-06 | 5.60E-01 | 2.865E+00 | 2.865E+00 | INF | 0. | 1.081E-04 | 2.799E-02 |
| 115 | 2.22E-01 | 6.963E+00 | 6.859E+00 | 6.591E+01 | 1.151E-04 | -3.126E-06 | 5.09E-01 | 3.037E+00 | 3.037E+00 | INF | 0. | 9.624E-05 | 2.700E-02 |
| 120 | 2.17E-01 | 6.798E+00 | 6.693E+00 | 6.435E+01 | 1.208E-04 | -5.079E-06 | 4.62E-01 | 3.202E+00 | 3.202E+00 | INF | 0. | 8.656E-05 | 2.580E-02 |
| 125 | 2.11E-01 | 6.641E+00 | 6.536E+00 | 6.286E+01 | 1.265E-04 | -7.201E-06 | 4.16E-01 | 3.359E+00 | 3.359E+00 | INF | 0. | 7.866E-05 | 2.440E-02 |
| 130 | 2.01E-01 | 6.493E+00 | 6.389E+00 | 6.146E+01 | 1.324E-04 | -9.468E-06 | 3.73E-01 | 3.507E+00 | 3.507E+00 | INF | 0. | 7.217E-05 | 2.282E-02 |
| 135 | 1.90E-01 | 6.356E+00 | 6.251E+00 | 6.017E+01 | 1.381E-04 | -1.184E-05 | 3.31E-01 | 3.644E+00 | 3.644E+00 | INF | 0. | 6.684E-05 | 2.106E-02 |
| 140 | 1.76E-01 | 6.230E+00 | 6.126E+00 | 5.897E+01 | 1.438E-04 | -1.428E-05 | 2.91E-01 | 3.770E+00 | 3.770E+00 | INF | 0. | 6.245E-05 | 1.915E-02 |
| 145 | 1.60E-01 | 6.117E+00 | 6.012E+00 | 5.790E+01 | 1.491E-04 | -1.671E-05 | 2.52E-01 | 3.883E+00 | 3.883E+00 | INF | 0. | 5.886E-05 | 1.709E-02 |
| 150 | 1.42E-01 | 6.017E+00 | 5.912E+00 | 5.696E+01 | 1.541E-04 | -1.905E-05 | 2.14E-01 | 3.983E+00 | 3.983E+00 | INF | 0. | 5.594E-05 | 1.490E-02 |
| 155 | 1.22E-01 | 5.931E+00 | 5.826E+00 | 5.614E+01 | 1.586E-04 | -2.124E-05 | 1.77E-01 | 4.069E+00 | 4.069E+00 | INF | 0. | 5.360E-05 | 1.259E-02 |
| 160 | 9.96E-02 | 5.860E+00 | 5.755E+00 | 5.547E+01 | 1.625E-04 | -2.319E-05 | 1.41E-01 | 4.140E+00 | 4.140E+00 | INF | 0. | 5.177E-05 | 1.019E-02 |
| 165 | 7.61E-02 | 5.804E+00 | 5.699E+00 | 5.494E+01 | 1.657E-04 | -2.480E-05 | 1.05E-01 | 4.196E+00 | 4.196E+00 | INF | 0. | 5.040E-05 | 7.710E-03 |
| 170 | 5.14E-02 | 5.763E+00 | 5.659E+00 | 5.456E+01 | 1.680E-04 | -2.601E-05 | 7.00E-02 | 4.237E+00 | 4.237E+00 | INF | 0. | 4.944E-05 | 5.173E-03 |
| 175 | 2.59E-02 | 5.739E+00 | 5.634E+00 | 5.433E+01 | 1.694E-04 | -2.677E-05 | 3.49E-02 | 4.261E+00 | 4.261E+00 | INF | 0. | 4.888E-05 | 2.596E-03 |
| 180 | 0. | 5.731E+00 | 5.626E+00 | 5.425E+01 | 1.699E-04 | -2.702E-05 | 0. | 4.269E+00 | 4.269E+00 | INF | 0. | 4.869E-05 | 0. |

PI PLUS (1) => MU PLUS (2) + NEUTRINO (3) AT 20 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 1.05659E-01 M3 = 0.
P2CM= 2.97901E-02
E2CM= 1.09779E-01 E3CM= 2.97901E-02

1-V1LAB= 2.435E-05 GCM = 1.43302E+02 S = 1.94794E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.000E+01 | 1.989E+01 | 1.893E+02 | 1.395E-05 | 2.219E-06 | 1.80E+02 | 1.039E-04 | 1.039E-04 | INF | 0. | 8.214E+04 | 0. |
| 1 | 1.49E-03 | 2.000E+01 | 1.989E+01 | 1.893E+02 | 1.396E-05 | 2.219E-06 | 4.36E+01 | 7.541E-04 | 7.541E-04 | INF | 0. | 1.561E+03 | 5.199E-04 |
| 2 | 2.98E-03 | 2.000E+01 | 1.989E+01 | 1.893E+02 | 1.396E-05 | 2.218E-06 | 2.26E+01 | 2.704E-03 | 2.704E-03 | INF | 0. | 1.213E+02 | 1.040E-03 |
| 3 | 4.47E-03 | 1.999E+01 | 1.989E+01 | 1.892E+02 | 1.396E-05 | 2.218E-06 | 1.52E+01 | 5.954E-03 | 5.954E-03 | INF | 0. | 2.503E+01 | 1.559E-03 |
| 4 | 5.96E-03 | 1.999E+01 | 1.988E+01 | 1.892E+02 | 1.397E-05 | 2.218E-06 | 1.14E+01 | 1.050E-02 | 1.050E-02 | INF | 0. | 8.045E+00 | 2.078E-03 |
| 5 | 7.44E-03 | 1.998E+01 | 1.988E+01 | 1.891E+02 | 1.398E-05 | 2.217E-06 | 9.14E+00 | 1.635E-02 | 1.635E-02 | INF | 0. | 3.320E+00 | 2.596E-03 |
| 6 | 8.93E-03 | 1.998E+01 | 1.987E+01 | 1.891E+02 | 1.399E-05 | 2.217E-06 | 7.62E+00 | 2.349E-02 | 2.349E-02 | INF | 0. | 1.608E+00 | 3.114E-03 |
| 7 | 1.04E-02 | 1.997E+01 | 1.986E+01 | 1.890E+02 | 1.400E-05 | 2.216E-06 | 6.53E+00 | 3.192E-02 | 3.192E-02 | INF | 0. | 8.708E-01 | 3.631E-03 |
| 8 | 1.19E-02 | 1.996E+01 | 1.985E+01 | 1.889E+02 | 1.401E-05 | 2.215E-06 | 5.71E+00 | 4.165E-02 | 4.165E-02 | INF | 0. | 5.116E-01 | 4.146E-03 |
| 9 | 1.34E-02 | 1.995E+01 | 1.984E+01 | 1.888E+02 | 1.403E-05 | 2.215E-06 | 5.08E+00 | 5.266E-02 | 5.266E-02 | INF | 0. | 3.200E-01 | 4.660E-03 |
| 10 | 1.49E-02 | 1.994E+01 | 1.983E+01 | 1.887E+02 | 1.405E-05 | 2.214E-06 | 4.57E+00 | 6.496E-02 | 6.496E-02 | INF | 0. | 2.103E-01 | 5.173E-03 |
| 15 | 2.22E-02 | 1.985E+01 | 1.975E+01 | 1.879E+02 | 1.416E-05 | 2.207E-06 | 3.04E+00 | 1.456E-01 | 1.456E-01 | INF | 0. | 4.188E-02 | 7.710E-03 |
| 20 | 2.96E-02 | 1.974E+01 | 1.964E+01 | 1.869E+02 | 1.432E-05 | 2.197E-06 | 2.27E+00 | 2.575E-01 | 2.575E-01 | INF | 0. | 1.338E-02 | 1.019E-02 |
| 25 | 3.68E-02 | 1.960E+01 | 1.949E+01 | 1.855E+02 | 1.453E-05 | 2.184E-06 | 1.80E+00 | 4.001E-01 | 4.001E-01 | INF | 0. | 5.545E-03 | 1.259E-02 |
| 30 | 4.39E-02 | 1.943E+01 | 1.932E+01 | 1.839E+02 | 1.479E-05 | 2.165E-06 | 1.49E+00 | 5.720E-01 | 5.720E-01 | INF | 0. | 2.712E-03 | 1.490E-02 |
| 35 | 5.09E-02 | 1.923E+01 | 1.912E+01 | 1.820E+02 | 1.510E-05 | 2.142E-06 | 1.27E+00 | 7.721E-01 | 7.721E-01 | INF | 0. | 1.489E-03 | 1.709E-02 |
| 40 | 5.77E-02 | 1.900E+01 | 1.890E+01 | 1.798E+02 | 1.546E-05 | 2.111E-06 | 1.10E+00 | 9.988E-01 | 9.988E-01 | INF | 0. | 8.895E-04 | 1.915E-02 |
| 45 | 6.44E-02 | 1.875E+01 | 1.864E+01 | 1.775E+02 | 1.588E-05 | 2.072E-06 | 9.65E-01 | 1.250E+00 | 1.250E+00 | INF | 0. | 5.676E-04 | 2.106E-02 |
| 50 | 7.08E-02 | 1.848E+01 | 1.837E+01 | 1.749E+02 | 1.635E-05 | 2.024E-06 | 8.57E-01 | 1.525E+00 | 1.525E+00 | INF | 0. | 3.816E-04 | 2.282E-02 |
| 55 | 7.69E-02 | 1.818E+01 | 1.807E+01 | 1.721E+02 | 1.689E-05 | 1.963E-06 | 7.68E-01 | 1.820E+00 | 1.820E+00 | INF | 0. | 2.678E-04 | 2.440E-02 |
| 60 | 8.27E-02 | 1.787E+01 | 1.776E+01 | 1.691E+02 | 1.749E-05 | 1.888E-06 | 6.93E-01 | 2.135E+00 | 2.135E+00 | INF | 0. | 1.948E-04 | 2.580E-02 |
| 65 | 8.82E-02 | 1.754E+01 | 1.743E+01 | 1.660E+02 | 1.815E-05 | 1.797E-06 | 6.28E-01 | 2.465E+00 | 2.465E+00 | INF | 0. | 1.461E-04 | 2.700E-02 |
| 70 | 9.33E-02 | 1.719E+01 | 1.709E+01 | 1.627E+02 | 1.889E-05 | 1.685E-06 | 5.71E-01 | 2.809E+00 | 2.809E+00 | INF | 0. | 1.125E-04 | 2.799E-02 |
| 75 | 9.79E-02 | 1.684E+01 | 1.673E+01 | 1.593E+02 | 1.969E-05 | 1.551E-06 | 5.21E-01 | 3.164E+00 | 3.164E+00 | INF | 0. | 8.864E-05 | 2.878E-02 |
| 80 | 1.02E-01 | 1.647E+01 | 1.637E+01 | 1.559E+02 | 2.057E-05 | 1.390E-06 | 4.76E-01 | 3.528E+00 | 3.528E+00 | INF | 0. | 7.131E-05 | 2.934E-02 |
| 85 | 1.06E-01 | 1.610E+01 | 1.600E+01 | 1.524E+02 | 2.153E-05 | 1.199E-06 | 4.36E-01 | 3.897E+00 | 3.897E+00 | INF | 0. | 5.844E-05 | 2.968E-02 |
| 90 | 1.09E-01 | 1.573E+01 | 1.563E+01 | 1.489E+02 | 2.256E-05 | 9.732E-07 | 4.00E-01 | 4.269E+00 | 4.269E+00 | INF | 0. | 4.870E-05 | 2.979E-02 |
| 95 | 1.11E-01 | 1.536E+01 | 1.525E+01 | 1.454E+02 | 2.366E-05 | 7.098E-07 | 3.66E-01 | 4.641E+00 | 4.641E+00 | INF | 0. | 4.120E-05 | 2.968E-02 |
| 100 | 1.12E-01 | 1.499E+01 | 1.488E+01 | 1.419E+02 | 2.484E-05 | 4.051E-07 | 3.35E-01 | 5.010E+00 | 5.010E+00 | INF | 0. | 3.535E-05 | 2.934E-02 |
| 105 | 1.13E-01 | 1.463E+01 | 1.452E+01 | 1.384E+02 | 2.609E-05 | 5.601E-08 | 3.07E-01 | 5.374E+00 | 5.374E+00 | INF | 0. | 3.073E-05 | 2.878E-02 |
| 110 | 1.12E-01 | 1.427E+01 | 1.417E+01 | 1.351E+02 | 2.741E-05 | -3.393E-07 | 2.80E-01 | 5.729E+00 | 5.729E+00 | INF | 0. | 2.704E-05 | 2.799E-02 |
| 115 | 1.11E-01 | 1.393E+01 | 1.382E+01 | 1.318E+02 | 2.878E-05 | -7.817E-07 | 2.55E-01 | 6.073E+00 | 6.073E+00 | INF | 0. | 2.406E-05 | 2.700E-02 |
| 120 | 1.09E-01 | 1.360E+01 | 1.349E+01 | 1.287E+02 | 3.019E-05 | -1.270E-06 | 2.31E-01 | 6.403E+00 | 6.403E+00 | INF | 0. | 2.164E-05 | 2.580E-02 |
| 125 | 1.05E-01 | 1.328E+01 | 1.318E+01 | 1.257E+02 | 3.164E-05 | -1.800E-06 | 2.08E-01 | 6.718E+00 | 6.718E+00 | INF | 0. | 1.967E-05 | 2.440E-02 |
| 130 | 1.01E-01 | 1.299E+01 | 1.288E+01 | 1.229E+02 | 3.309E-05 | -2.367E-06 | 1.86E-01 | 7.013E+00 | 7.013E+00 | INF | 0. | 1.804E-05 | 2.282E-02 |
| 135 | 9.49E-02 | 1.271E+01 | 1.261E+01 | 1.203E+02 | 3.454E-05 | -2.961E-06 | 1.66E-01 | 7.288E+00 | 7.288E+00 | INF | 0. | 1.671E-05 | 2.106E-02 |
| 140 | 8.80E-02 | 1.246E+01 | 1.236E+01 | 1.179E+02 | 3.595E-05 | -3.569E-06 | 1.46E-01 | 7.539E+00 | 7.539E+00 | INF | 0. | 1.561E-05 | 1.915E-02 |
| 145 | 8.00E-02 | 1.223E+01 | 1.213E+01 | 1.158E+02 | 3.729E-05 | -4.176E-06 | 1.26E-01 | 7.766E+00 | 7.766E+00 | INF | 0. | 1.472E-05 | 1.709E-02 |
| 150 | 7.09E-02 | 1.203E+01 | 1.193E+01 | 1.139E+02 | 3.854E-05 | -4.764E-06 | 1.07E-01 | 7.966E+00 | 7.966E+00 | INF | 0. | 1.399E-05 | 1.490E-02 |
| 155 | 6.08E-02 | 1.186E+01 | 1.176E+01 | 1.123E+02 | 3.967E-05 | -5.311E-06 | 8.86E-02 | 8.138E+00 | 8.138E+00 | INF | 0. | 1.340E-05 | 1.259E-02 |
| 160 | 4.98E-02 | 1.172E+01 | 1.161E+01 | 1.109E+02 | 4.064E-05 | -5.796E-06 | 7.05E-02 | 8.280E+00 | 8.280E+00 | INF | 0. | 1.294E-05 | 1.019E-02 |
| 165 | 3.81E-02 | 1.161E+01 | 1.150E+01 | 1.099E+02 | 4.143E-05 | -6.200E-06 | 5.26E-02 | 8.392E+00 | 8.392E+00 | INF | 0. | 1.260E-05 | 7.710E-03 |
| 170 | 2.57E-02 | 1.153E+01 | 1.142E+01 | 1.091E+02 | 4.201E-05 | -6.503E-06 | 3.50E-02 | 8.473E+00 | 8.473E+00 | INF | 0. | 1.236E-05 | 5.173E-03 |
| 175 | 1.30E-02 | 1.148E+01 | 1.137E+01 | 1.086E+02 | 4.236E-05 | -6.691E-06 | 1.75E-02 | 8.522E+00 | 8.522E+00 | INF | 0. | 1.222E-05 | 2.596E-03 |
| 180 | 0. | 1.146E+01 | 1.136E+01 | 1.085E+02 | 4.248E-05 | -6.755E-06 | 0. | 8.538E+00 | 8.538E+00 | INF | 0. | 1.217E-05 | 0. |

PI PLUS (1) => MU PLUS (2) + NEUTRINO (3) AT 30 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 1.05659E-01 M3 = 0.
P2CM= 2.97901E-02
E2CM= 1.09779E-01 E3CM= 2.97901E-02

1-V1LAB= 1.082E-05 GCM = 2.14950E+02 S = 1.94794E-02

| Θ2 CM | Θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | Θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 3.000E+01 | 2.989E+01 | 2.839E+02 | 6.202E-06 | 9.861E-07 | 1.80E+02 | 6.930E-05 | 6.930E-05 | INF | 0. | 1.848E+05 | 0. |
| 1 | 9.93E-04 | 3.000E+01 | 2.989E+01 | 2.839E+02 | 6.202E-06 | 9.860E-07 | 2.99E+01 | 1.045E-03 | 1.045E-03 | INF | 0. | 8.134E+02 | 5.199E-04 |
| 2 | 1.99E-03 | 3.000E+01 | 2.989E+01 | 2.839E+02 | 6.204E-06 | 9.860E-07 | 1.52E+01 | 3.970E-03 | 3.970E-03 | INF | 0. | 5.631E+01 | 1.040E-03 |
| 3 | 2.98E-03 | 2.999E+01 | 2.989E+01 | 2.839E+02 | 6.206E-06 | 9.859E-07 | 1.02E+01 | 8.845E-03 | 8.845E-03 | INF | 0. | 1.134E+01 | 1.559E-03 |
| 4 | 3.97E-03 | 2.998E+01 | 2.988E+01 | 2.838E+02 | 6.209E-06 | 9.857E-07 | 7.62E+00 | 1.567E-02 | 1.567E-02 | INF | 0. | 3.615E+00 | 2.078E-03 |
| 5 | 4.96E-03 | 2.998E+01 | 2.987E+01 | 2.837E+02 | 6.212E-06 | 9.855E-07 | 6.10E+00 | 2.444E-02 | 2.444E-02 | INF | 0. | 1.486E+00 | 2.596E-03 |
| 6 | 5.95E-03 | 2.996E+01 | 2.986E+01 | 2.836E+02 | 6.217E-06 | 9.853E-07 | 5.08E+00 | 3.515E-02 | 3.515E-02 | INF | 0. | 7.184E-01 | 3.114E-03 |
| 7 | 6.94E-03 | 2.995E+01 | 2.985E+01 | 2.835E+02 | 6.222E-06 | 9.850E-07 | 4.36E+00 | 4.780E-02 | 4.780E-02 | INF | 0. | 3.884E-01 | 3.631E-03 |
| 8 | 7.93E-03 | 2.994E+01 | 2.983E+01 | 2.833E+02 | 6.228E-06 | 9.846E-07 | 3.81E+00 | 6.239E-02 | 6.239E-02 | INF | 0. | 2.280E-01 | 4.146E-03 |
| 9 | 8.92E-03 | 2.992E+01 | 2.982E+01 | 2.832E+02 | 6.235E-06 | 9.842E-07 | 3.39E+00 | 7.890E-02 | 7.890E-02 | INF | 0. | 1.425E-01 | 4.660E-03 |
| 10 | 9.91E-03 | 2.990E+01 | 2.980E+01 | 2.830E+02 | 6.243E-06 | 9.838E-07 | 3.05E+00 | 9.735E-02 | 9.735E-02 | INF | 0. | 9.364E-02 | 5.173E-03 |
| 15 | 1.48E-02 | 2.978E+01 | 2.968E+01 | 2.819E+02 | 6.293E-06 | 9.809E-07 | 2.02E+00 | 2.183E-01 | 2.183E-01 | INF | 0. | 1.863E-02 | 7.710E-03 |
| 20 | 1.97E-02 | 2.961E+01 | 2.951E+01 | 2.803E+02 | 6.365E-06 | 9.765E-07 | 1.51E+00 | 3.862E-01 | 3.862E-01 | INF | 0. | 5.949E-03 | 1.019E-02 |
| 25 | 2.45E-02 | 2.940E+01 | 2.929E+01 | 2.783E+02 | 6.458E-06 | 9.705E-07 | 1.20E+00 | 6.000E-01 | 6.000E-01 | INF | 0. | 2.465E-03 | 1.259E-02 |
| 30 | 2.93E-02 | 2.914E+01 | 2.904E+01 | 2.758E+02 | 6.573E-06 | 9.624E-07 | 9.95E-01 | 8.580E-01 | 8.580E-01 | INF | 0. | 1.206E-03 | 1.490E-02 |
| 35 | 3.39E-02 | 2.884E+01 | 2.874E+01 | 2.730E+02 | 6.710E-06 | 9.518E-07 | 8.45E-01 | 1.158E+00 | 1.158E+00 | INF | 0. | 6.617E-04 | 1.709E-02 |
| 40 | 3.85E-02 | 2.850E+01 | 2.840E+01 | 2.698E+02 | 6.871E-06 | 9.383E-07 | 7.32E-01 | 1.498E+00 | 1.498E+00 | INF | 0. | 3.954E-04 | 1.915E-02 |
| 45 | 4.29E-02 | 2.812E+01 | 2.802E+01 | 2.662E+02 | 7.057E-06 | 9.211E-07 | 6.44E-01 | 1.876E+00 | 1.876E+00 | INF | 0. | 2.523E-04 | 2.106E-02 |
| 50 | 4.72E-02 | 2.771E+01 | 2.761E+01 | 2.623E+02 | 7.268E-06 | 8.995E-07 | 5.72E-01 | 2.287E+00 | 2.287E+00 | INF | 0. | 1.696E-04 | 2.282E-02 |
| 55 | 5.13E-02 | 2.727E+01 | 2.716E+01 | 2.581E+02 | 7.506E-06 | 8.726E-07 | 5.12E-01 | 2.731E+00 | 2.731E+00 | INF | 0. | 1.190E-04 | 2.440E-02 |
| 60 | 5.52E-02 | 2.680E+01 | 2.669E+01 | 2.536E+02 | 7.773E-06 | 8.393E-07 | 4.62E-01 | 3.202E+00 | 3.202E+00 | INF | 0. | 8.657E-05 | 2.580E-02 |
| 65 | 5.88E-02 | 2.630E+01 | 2.620E+01 | 2.489E+02 | 8.068E-06 | 7.986E-07 | 4.18E-01 | 3.697E+00 | 3.697E+00 | INF | 0. | 6.492E-05 | 2.700E-02 |
| 70 | 6.22E-02 | 2.579E+01 | 2.568E+01 | 2.441E+02 | 8.394E-06 | 7.491E-07 | 3.81E-01 | 4.213E+00 | 4.213E+00 | INF | 0. | 4.999E-05 | 2.799E-02 |
| 75 | 6.53E-02 | 2.525E+01 | 2.515E+01 | 2.390E+02 | 8.752E-06 | 6.893E-07 | 3.47E-01 | 4.746E+00 | 4.746E+00 | INF | 0. | 3.940E-05 | 2.878E-02 |
| 80 | 6.80E-02 | 2.471E+01 | 2.460E+01 | 2.339E+02 | 9.143E-06 | 6.178E-07 | 3.18E-01 | 5.291E+00 | 5.291E+00 | INF | 0. | 3.170E-05 | 2.934E-02 |
| 85 | 7.04E-02 | 2.415E+01 | 2.405E+01 | 2.286E+02 | 9.567E-06 | 5.327E-07 | 2.91E-01 | 5.845E+00 | 5.845E+00 | INF | 0. | 2.597E-05 | 2.968E-02 |
| 90 | 7.23E-02 | 2.360E+01 | 2.349E+01 | 2.233E+02 | 1.002E-05 | 4.325E-07 | 2.67E-01 | 6.403E+00 | 6.403E+00 | INF | 0. | 2.164E-05 | 2.979E-02 |
| 95 | 7.38E-02 | 2.304E+01 | 2.293E+01 | 2.180E+02 | 1.052E-05 | 3.155E-07 | 2.44E-01 | 6.961E+00 | 6.961E+00 | INF | 0. | 1.831E-05 | 2.968E-02 |
| 100 | 7.48E-02 | 2.248E+01 | 2.238E+01 | 2.128E+02 | 1.104E-05 | 1.800E-07 | 2.24E-01 | 7.515E+00 | 7.515E+00 | INF | 0. | 1.571E-05 | 2.934E-02 |
| 105 | 7.51E-02 | 2.194E+01 | 2.183E+01 | 2.076E+02 | 1.160E-05 | 2.488E-08 | 2.05E-01 | 8.061E+00 | 8.061E+00 | INF | 0. | 1.366E-05 | 2.878E-02 |
| 110 | 7.49E-02 | 2.141E+01 | 2.130E+01 | 2.026E+02 | 1.218E-05 | -1.508E-07 | 1.87E-01 | 8.593E+00 | 8.593E+00 | INF | 0. | 1.202E-05 | 2.799E-02 |
| 115 | 7.40E-02 | 2.089E+01 | 2.079E+01 | 1.977E+02 | 1.279E-05 | -3.474E-07 | 1.70E-01 | 9.110E+00 | 9.110E+00 | INF | 0. | 1.069E-05 | 2.700E-02 |
| 120 | 7.25E-02 | 2.040E+01 | 2.029E+01 | 1.930E+02 | 1.342E-05 | -5.644E-07 | 1.54E-01 | 9.605E+00 | 9.605E+00 | INF | 0. | 9.619E-06 | 2.580E-02 |
| 125 | 7.02E-02 | 1.992E+01 | 1.982E+01 | 1.886E+02 | 1.406E-05 | -8.002E-07 | 1.39E-01 | 1.008E+01 | 1.008E+01 | INF | 0. | 8.741E-06 | 2.440E-02 |
| 130 | 6.71E-02 | 1.948E+01 | 1.938E+01 | 1.844E+02 | 1.471E-05 | -1.052E-06 | 1.24E-01 | 1.052E+01 | 1.052E+01 | INF | 0. | 8.020E-06 | 2.282E-02 |
| 135 | 6.33E-02 | 1.907E+01 | 1.896E+01 | 1.805E+02 | 1.535E-05 | -1.316E-06 | 1.10E-01 | 1.093E+01 | 1.093E+01 | INF | 0. | 7.427E-06 | 2.106E-02 |
| 140 | 5.87E-02 | 1.869E+01 | 1.859E+01 | 1.769E+02 | 1.598E-05 | -1.586E-06 | 9.70E-02 | 1.131E+01 | 1.131E+01 | INF | 0. | 6.939E-06 | 1.915E-02 |
| 145 | 5.33E-02 | 1.835E+01 | 1.825E+01 | 1.737E+02 | 1.657E-05 | -1.856E-06 | 8.40E-02 | 1.165E+01 | 1.165E+01 | INF | 0. | 6.540E-06 | 1.709E-02 |
| 150 | 4.73E-02 | 1.805E+01 | 1.795E+01 | 1.708E+02 | 1.713E-05 | -2.117E-06 | 7.14E-02 | 1.195E+01 | 1.195E+01 | INF | 0. | 6.216E-06 | 1.490E-02 |
| 155 | 4.05E-02 | 1.779E+01 | 1.769E+01 | 1.684E+02 | 1.763E-05 | -2.360E-06 | 5.91E-02 | 1.221E+01 | 1.221E+01 | INF | 0. | 5.956E-06 | 1.259E-02 |
| 160 | 3.32E-02 | 1.758E+01 | 1.747E+01 | 1.664E+02 | 1.806E-05 | -2.576E-06 | 4.70E-02 | 1.242E+01 | 1.242E+01 | INF | 0. | 5.753E-06 | 1.019E-02 |
| 165 | 2.54E-02 | 1.741E+01 | 1.731E+01 | 1.648E+02 | 1.841E-05 | -2.755E-06 | 3.51E-02 | 1.259E+01 | 1.259E+01 | INF | 0. | 5.600E-06 | 7.710E-03 |
| 170 | 1.71E-02 | 1.729E+01 | 1.719E+01 | 1.636E+02 | 1.867E-05 | -2.890E-06 | 2.33E-02 | 1.271E+01 | 1.271E+01 | INF | 0. | 5.494E-06 | 5.173E-03 |
| 175 | 8.64E-03 | 1.722E+01 | 1.711E+01 | 1.630E+02 | 1.883E-05 | -2.974E-06 | 1.16E-02 | 1.278E+01 | 1.278E+01 | INF | 0. | 5.432E-06 | 2.596E-03 |
| 180 | 0. | 1.719E+01 | 1.709E+01 | 1.627E+02 | 1.888E-05 | -3.002E-06 | 0. | 1.281E+01 | 1.281E+01 | INF | 0. | 5.411E-06 | 0. |

PI PLUS (1) => MU PLUS (2) + NEUTRINO (3) AT 40 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 1.05659E-01 M3 = 0.
P2CM= 2.97901E-02
E2CM= 1.09779E-01 E3CM= 2.97901E-02

1-V1LAB= 6.087E-06 GCM = 2.86599E+02 S = 1.94794E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 4.000E+01 | 3.989E+01 | 3.786E+02 | 3.489E-06 | 5.547E-07 | 1.80E+02 | 5.197E-05 | 5.197E-05 | INF | 0. | 3.286E+05 | 0. |
| 1 | 7.45E-04 | 4.000E+01 | 3.989E+01 | 3.786E+02 | 3.489E-06 | 5.546E-07 | 2.26E+01 | 1.352E-03 | 1.352E-03 | INF | 0. | 4.853E+02 | 5.199E-04 |
| 2 | 1.49E-03 | 3.999E+01 | 3.989E+01 | 3.785E+02 | 3.490E-06 | 5.546E-07 | 1.14E+01 | 5.253E-03 | 5.253E-03 | INF | 0. | 3.216E+01 | 1.040E-03 |
| 3 | 2.23E-03 | 3.999E+01 | 3.988E+01 | 3.785E+02 | 3.491E-06 | 5.545E-07 | 7.62E+00 | 1.175E-02 | 1.175E-02 | INF | 0. | 6.425E+00 | 1.559E-03 |
| 4 | 2.98E-03 | 3.998E+01 | 3.987E+01 | 3.784E+02 | 3.492E-06 | 5.545E-07 | 5.72E+00 | 2.085E-02 | 2.085E-02 | INF | 0. | 2.042E+00 | 2.078E-03 |
| 5 | 3.72E-03 | 3.997E+01 | 3.986E+01 | 3.783E+02 | 3.494E-06 | 5.543E-07 | 4.58E+00 | 3.254E-02 | 3.254E-02 | INF | 0. | 8.381E-01 | 2.596E-03 |
| 6 | 4.47E-03 | 3.995E+01 | 3.985E+01 | 3.781E+02 | 3.497E-06 | 5.542E-07 | 3.81E+00 | 4.682E-02 | 4.682E-02 | INF | 0. | 4.048E-01 | 3.114E-03 |
| 7 | 5.21E-03 | 3.994E+01 | 3.983E+01 | 3.780E+02 | 3.500E-06 | 5.540E-07 | 3.27E+00 | 6.369E-02 | 6.369E-02 | INF | 0. | 2.188E-01 | 3.631E-03 |
| 8 | 5.95E-03 | 3.992E+01 | 3.981E+01 | 3.778E+02 | 3.503E-06 | 5.539E-07 | 2.86E+00 | 8.314E-02 | 8.314E-02 | INF | 0. | 1.284E-01 | 4.146E-03 |
| 9 | 6.69E-03 | 3.989E+01 | 3.979E+01 | 3.776E+02 | 3.507E-06 | 5.536E-07 | 2.54E+00 | 1.052E-01 | 1.052E-01 | INF | 0. | 8.024E-02 | 4.660E-03 |
| 10 | 7.43E-03 | 3.987E+01 | 3.976E+01 | 3.773E+02 | 3.511E-06 | 5.534E-07 | 2.28E+00 | 1.298E-01 | 1.298E-01 | INF | 0. | 5.271E-02 | 5.173E-03 |
| 15 | 1.11E-02 | 3.971E+01 | 3.960E+01 | 3.758E+02 | 3.540E-06 | 5.517E-07 | 1.52E+00 | 2.910E-01 | 2.910E-01 | INF | 0. | 1.048E-02 | 7.710E-03 |
| 20 | 1.48E-02 | 3.949E+01 | 3.938E+01 | 3.737E+02 | 3.580E-06 | 5.493E-07 | 1.13E+00 | 5.149E-01 | 5.149E-01 | INF | 0. | 3.347E-03 | 1.019E-02 |
| 25 | 1.84E-02 | 3.920E+01 | 3.909E+01 | 3.710E+02 | 3.633E-06 | 5.459E-07 | 9.02E-01 | 8.000E-01 | 8.000E-01 | INF | 0. | 1.387E-03 | 1.259E-02 |
| 30 | 2.20E-02 | 3.886E+01 | 3.875E+01 | 3.678E+02 | 3.697E-06 | 5.413E-07 | 7.46E-01 | 1.144E+00 | 1.144E+00 | INF | 0. | 6.782E-04 | 1.490E-02 |
| 35 | 2.55E-02 | 3.846E+01 | 3.835E+01 | 3.640E+02 | 3.774E-06 | 5.354E-07 | 6.34E-01 | 1.544E+00 | 1.544E+00 | INF | 0. | 3.722E-04 | 1.709E-02 |
| 40 | 2.89E-02 | 3.800E+01 | 3.790E+01 | 3.597E+02 | 3.865E-06 | 5.278E-07 | 5.49E-01 | 1.998E+00 | 1.998E+00 | INF | 0. | 2.224E-04 | 1.915E-02 |
| 45 | 3.22E-02 | 3.750E+01 | 3.739E+01 | 3.549E+02 | 3.969E-06 | 5.181E-07 | 4.83E-01 | 2.501E+00 | 2.501E+00 | INF | 0. | 1.419E-04 | 2.106E-02 |
| 50 | 3.54E-02 | 3.695E+01 | 3.684E+01 | 3.497E+02 | 4.088E-06 | 5.059E-07 | 4.29E-01 | 3.050E+00 | 3.050E+00 | INF | 0. | 9.541E-05 | 2.282E-02 |
| 55 | 3.85E-02 | 3.636E+01 | 3.625E+01 | 3.441E+02 | 4.222E-06 | 4.908E-07 | 3.84E-01 | 3.641E+00 | 3.641E+00 | INF | 0. | 6.695E-05 | 2.440E-02 |
| 60 | 4.14E-02 | 3.573E+01 | 3.563E+01 | 3.382E+02 | 4.372E-06 | 4.721E-07 | 3.46E-01 | 4.269E+00 | 4.269E+00 | INF | 0. | 4.870E-05 | 2.580E-02 |
| 65 | 4.41E-02 | 3.507E+01 | 3.496E+01 | 3.319E+02 | 4.538E-06 | 4.492E-07 | 3.14E-01 | 4.930E+00 | 4.930E+00 | INF | 0. | 3.652E-05 | 2.700E-02 |
| 70 | 4.66E-02 | 3.438E+01 | 3.428E+01 | 3.254E+02 | 4.722E-06 | 4.214E-07 | 2.86E-01 | 5.618E+00 | 5.618E+00 | INF | 0. | 2.812E-05 | 2.799E-02 |
| 75 | 4.90E-02 | 3.367E+01 | 3.357E+01 | 3.187E+02 | 4.923E-06 | 3.878E-07 | 2.61E-01 | 6.328E+00 | 6.328E+00 | INF | 0. | 2.216E-05 | 2.878E-02 |
| 80 | 5.10E-02 | 3.294E+01 | 3.284E+01 | 3.118E+02 | 5.143E-06 | 3.475E-07 | 2.38E-01 | 7.055E+00 | 7.055E+00 | INF | 0. | 1.783E-05 | 2.934E-02 |
| 85 | 5.28E-02 | 3.221E+01 | 3.210E+01 | 3.048E+02 | 5.381E-06 | 2.997E-07 | 2.18E-01 | 7.794E+00 | 7.794E+00 | INF | 0. | 1.461E-05 | 2.968E-02 |
| 90 | 5.43E-02 | 3.146E+01 | 3.136E+01 | 2.978E+02 | 5.639E-06 | 2.433E-07 | 2.00E-01 | 8.538E+00 | 8.538E+00 | INF | 0. | 1.217E-05 | 2.979E-02 |
| 95 | 5.54E-02 | 3.072E+01 | 3.061E+01 | 2.907E+02 | 5.916E-06 | 1.774E-07 | 1.83E-01 | 9.282E+00 | 9.282E+00 | INF | 0. | 1.030E-05 | 2.968E-02 |
| 100 | 5.61E-02 | 2.998E+01 | 2.987E+01 | 2.837E+02 | 6.211E-06 | 1.013E-07 | 1.68E-01 | 1.002E+01 | 1.002E+01 | INF | 0. | 8.838E-06 | 2.934E-02 |
| 105 | 5.64E-02 | 2.925E+01 | 2.915E+01 | 2.769E+02 | 6.523E-06 | 1.400E-08 | 1.53E-01 | 1.075E+01 | 1.075E+01 | INF | 0. | 7.683E-06 | 2.878E-02 |
| 110 | 5.62E-02 | 2.854E+01 | 2.844E+01 | 2.701E+02 | 6.852E-06 | -8.484E-08 | 1.40E-01 | 1.146E+01 | 1.146E+01 | INF | 0. | 6.769E-06 | 2.799E-02 |
| 115 | 5.55E-02 | 2.785E+01 | 2.775E+01 | 2.636E+02 | 7.195E-06 | -1.954E-07 | 1.27E-01 | 1.215E+01 | 1.215E+01 | INF | 0. | 6.016E-06 | 2.700E-02 |
| 120 | 5.44E-02 | 2.719E+01 | 2.709E+01 | 2.574E+02 | 7.548E-06 | -3.175E-07 | 1.15E-01 | 1.281E+01 | 1.281E+01 | INF | 0. | 5.411E-06 | 2.580E-02 |
| 125 | 5.26E-02 | 2.657E+01 | 2.646E+01 | 2.514E+02 | 7.910E-06 | -4.501E-07 | 1.04E-01 | 1.343E+01 | 1.343E+01 | INF | 0. | 4.917E-06 | 2.440E-02 |
| 130 | 5.03E-02 | 2.597E+01 | 2.587E+01 | 2.458E+02 | 8.274E-06 | -5.918E-07 | 9.32E-02 | 1.403E+01 | 1.403E+01 | INF | 0. | 4.511E-06 | 2.282E-02 |
| 135 | 4.75E-02 | 2.543E+01 | 2.532E+01 | 2.406E+02 | 8.635E-06 | -7.402E-07 | 8.28E-02 | 1.457E+01 | 1.457E+01 | INF | 0. | 4.178E-06 | 2.106E-02 |
| 140 | 4.40E-02 | 2.492E+01 | 2.482E+01 | 2.359E+02 | 8.987E-06 | -8.923E-07 | 7.28E-02 | 1.508E+01 | 1.508E+01 | INF | 0. | 3.903E-06 | 1.915E-02 |
| 145 | 4.00E-02 | 2.447E+01 | 2.436E+01 | 2.316E+02 | 9.323E-06 | -1.044E-06 | 6.30E-02 | 1.553E+01 | 1.553E+01 | INF | 0. | 3.679E-06 | 1.709E-02 |
| 150 | 3.55E-02 | 2.407E+01 | 2.396E+01 | 2.278E+02 | 9.636E-06 | -1.191E-06 | 5.36E-02 | 1.593E+01 | 1.593E+01 | INF | 0. | 3.496E-06 | 1.490E-02 |
| 155 | 3.04E-02 | 2.372E+01 | 2.362E+01 | 2.245E+02 | 9.917E-06 | -1.328E-06 | 4.43E-02 | 1.628E+01 | 1.628E+01 | INF | 0. | 3.350E-06 | 1.259E-02 |
| 160 | 2.49E-02 | 2.344E+01 | 2.333E+01 | 2.218E+02 | 1.016E-05 | -1.449E-06 | 3.53E-02 | 1.656E+01 | 1.656E+01 | INF | 0. | 3.236E-06 | 1.019E-02 |
| 165 | 1.90E-02 | 2.322E+01 | 2.311E+01 | 2.197E+02 | 1.036E-05 | -1.550E-06 | 2.63E-02 | 1.678E+01 | 1.678E+01 | INF | 0. | 3.150E-06 | 7.710E-03 |
| 170 | 1.29E-02 | 2.305E+01 | 2.295E+01 | 2.182E+02 | 1.050E-05 | -1.626E-06 | 1.75E-02 | 1.695E+01 | 1.695E+01 | INF | 0. | 3.090E-06 | 5.173E-03 |
| 175 | 6.48E-03 | 2.296E+01 | 2.285E+01 | 2.173E+02 | 1.059E-05 | -1.673E-06 | 8.73E-03 | 1.704E+01 | 1.704E+01 | INF | 0. | 3.055E-06 | 2.596E-03 |
| 180 | 0. | 2.292E+01 | 2.282E+01 | 2.170E+02 | 1.062E-05 | -1.689E-06 | 0. | 1.708E+01 | 1.708E+01 | INF | 0. | 3.044E-06 | 0. |

PI PLUS (1) => MU PLUS (2) + NEUTRINO (3) AT 50 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 1.05659E-01 M3 = 0.
P2CM= 2.97901E-02
E2CM= 1.09779E-01 E3CM= 2.97901E-02

1-V1LAB= 3.896E-06 GCM = 3.58248E+02 S = 1.94794E-02

| Θ2 CM | Θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | Θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 5.000E+01 | 4.989E+01 | 4.732E+02 | 2.233E-06 | 3.550E-07 | 1.80E+02 | 4.158E-05 | 4.158E-05 | INF | 0. | 5.134E+05 | 0. |
| 1 | 5.96E-04 | 5.000E+01 | 4.989E+01 | 4.732E+02 | 2.233E-06 | 3.550E-07 | 1.82E+01 | 1.667E-03 | 1.667E-03 | INF | 0. | 3.194E+02 | 5.199E-04 |
| 2 | 1.19E-03 | 4.999E+01 | 4.989E+01 | 4.732E+02 | 2.233E-06 | 3.549E-07 | 9.14E+00 | 6.543E-03 | 6.543E-03 | INF | 0. | 2.073E+01 | 1.040E-03 |
| 3 | 1.79E-03 | 4.999E+01 | 4.988E+01 | 4.731E+02 | 2.234E-06 | 3.549E-07 | 6.10E+00 | 1.467E-02 | 1.467E-02 | INF | 0. | 4.125E+00 | 1.559E-03 |
| 4 | 2.38E-03 | 4.997E+01 | 4.987E+01 | 4.730E+02 | 2.235E-06 | 3.549E-07 | 4.58E+00 | 2.604E-02 | 2.604E-02 | INF | 0. | 1.309E+00 | 2.078E-03 |
| 5 | 2.98E-03 | 4.996E+01 | 4.985E+01 | 4.728E+02 | 2.236E-06 | 3.548E-07 | 3.66E+00 | 4.065E-02 | 4.065E-02 | INF | 0. | 5.370E-01 | 2.596E-03 |
| 6 | 3.57E-03 | 4.994E+01 | 4.984E+01 | 4.727E+02 | 2.238E-06 | 3.547E-07 | 3.05E+00 | 5.850E-02 | 5.850E-02 | INF | 0. | 2.593E-01 | 3.114E-03 |
| 7 | 4.17E-03 | 4.992E+01 | 4.981E+01 | 4.725E+02 | 2.240E-06 | 3.546E-07 | 2.61E+00 | 7.959E-02 | 7.959E-02 | INF | 0. | 1.401E-01 | 3.631F-03 |
| 8 | 4.76E-03 | 4.990E+01 | 4.979E+01 | 4.722E+02 | 2.242E-06 | 3.545E-07 | 2.29E+00 | 1.039E-01 | 1.039E-01 | INF | 0. | 8.220E-02 | 4.146E-03 |
| 9 | 5.35E-03 | 4.987E+01 | 4.976E+01 | 4.720E+02 | 2.245E-06 | 3.543E-07 | 2.03E+00 | 1.314E-01 | 1.314E-01 | INF | 0. | 5.137E-02 | 4.660E-03 |
| 10 | 5.95E-03 | 4.984E+01 | 4.973E+01 | 4.717E+02 | 2.247E-06 | 3.542E-07 | 1.83E+00 | 1.622E-01 | 1.622E-01 | INF | 0. | 3.374E-02 | 5.173E-03 |
| 15 | 8.90E-03 | 4.964E+01 | 4.953E+01 | 4.698E+02 | 2.266E-06 | 3.531E-07 | 1.21E+00 | 3.637E-01 | 3.637E-01 | INF | 0. | 6.709E-03 | 7.710F-03 |
| 20 | 1.18E-02 | 4.936E+01 | 4.925E+01 | 4.671E+02 | 2.291E-06 | 3.515E-07 | 9.07E-01 | 6.437E-01 | 6.437E-01 | INF | 0. | 2.142E-03 | 1.019E-02 |
| 25 | 1.47E-02 | 4.900E+01 | 4.889E+01 | 4.638E+02 | 2.325E-06 | 3.494E-07 | 7.21E-01 | 9.999E-01 | 9.999E-01 | INF | 0. | 8.876E-04 | 1.259E-02 |
| 30 | 1.76E-02 | 4.857E+01 | 4.846E+01 | 4.597E+02 | 2.366E-06 | 3.465E-07 | 5.97E-01 | 1.430E+00 | 1.430E+00 | INF | 0. | 4.341E-04 | 1.490E-02 |
| 35 | 2.04E-02 | 4.807E+01 | 4.796E+01 | 4.550E+02 | 2.416E-06 | 3.427E-07 | 5.07E-01 | 1.930E+00 | 1.930E+00 | INF | 0. | 2.382E-04 | 1.709E-02 |
| 40 | 2.31E-02 | 4.750E+01 | 4.740E+01 | 4.496E+02 | 2.474E-06 | 3.378E-07 | 4.39E-01 | 2.497E+00 | 2.497E+00 | INF | 0. | 1.423E-04 | 1.915E-02 |
| 45 | 2.57E-02 | 4.687E+01 | 4.677E+01 | 4.436E+02 | 2.540E-06 | 3.316E-07 | 3.86E-01 | 3.126E+00 | 3.126E+00 | INF | 0. | 9.083E-05 | 2.106E-02 |
| 50 | 2.83E-02 | 4.619E+01 | 4.608E+01 | 4.371E+02 | 2.617E-06 | 3.238E-07 | 3.43E-01 | 3.812E+00 | 3.812E+00 | INF | 0. | 6.106E-05 | 2.282E-02 |
| 55 | 3.08E-02 | 4.545E+01 | 4.534E+01 | 4.301E+02 | 2.702E-06 | 3.141E-07 | 3.07E-01 | 4.551E+00 | 4.551E+00 | INF | 0. | 4.285E-05 | 2.440E-02 |
| 60 | 3.31E-02 | 4.466E+01 | 4.456E+01 | 4.227E+02 | 2.798E-06 | 3.022E-07 | 2.77E-01 | 5.336E+00 | 5.336E+00 | INF | 0. | 3.117E-05 | 2.580E-02 |
| 65 | 3.53E-02 | 4.384E+01 | 4.373E+01 | 4.149E+02 | 2.905E-06 | 2.875E-07 | 2.51E-01 | 6.162E+00 | 6.162E+00 | INF | 0. | 2.337E-05 | 2.700E-02 |
| 70 | 3.73E-02 | 4.298E+01 | 4.287E+01 | 4.068E+02 | 3.022E-06 | 2.697E-07 | 2.28E-01 | 7.022E+00 | 7.022E+00 | INF | 0. | 1.800E-05 | 2.799E-02 |
| 75 | 3.92E-02 | 4.209E+01 | 4.198E+01 | 3.984E+02 | 3.151E-06 | 2.482E-07 | 2.08E-01 | 7.910E+00 | 7.910E+00 | INF | 0. | 1.418E-05 | 2.878E-02 |
| 80 | 4.08E-02 | 4.118E+01 | 4.108E+01 | 3.898E+02 | 3.291E-06 | 2.224E-07 | 1.91E-01 | 8.819E+00 | 8.819E+00 | INF | 0. | 1.141F-05 | 2.934E-02 |
| 85 | 4.22E-02 | 4.026E+01 | 4.015E+01 | 3.810E+02 | 3.444E-06 | 1.918E-07 | 1.75E-01 | 9.742E+00 | 9.742E+00 | INF | 0. | 9.351E-06 | 2.968E-02 |
| 90 | 4.34E-02 | 3.933E+01 | 3.922E+01 | 3.722E+02 | 3.609E-06 | 1.557E-07 | 1.60E-01 | 1.067E+01 | 1.067E+01 | INF | 0. | 7.792E-06 | 2.979E-02 |
| 95 | 4.43E-02 | 3.840E+01 | 3.829E+01 | 3.634E+02 | 3.786E-06 | 1.136E-07 | 1.47E-01 | 1.160E+01 | 1.160E+01 | INF | 0. | 6.592E-06 | 2.968E-02 |
| 100 | 4.49E-02 | 3.747E+01 | 3.737E+01 | 3.547E+02 | 3.975E-06 | 6.480E-08 | 1.34E-01 | 1.253E+01 | 1.253E+01 | INF | 0. | 5.657E-06 | 2.934E-02 |
| 105 | 4.51E-02 | 3.657E+01 | 3.646E+01 | 3.461E+02 | 4.175E-06 | 8.957E-09 | 1.23E-01 | 1.343E+01 | 1.343E+01 | INF | 0. | 4.917E-06 | 2.878E-02 |
| 110 | 4.50E-02 | 3.568E+01 | 3.557E+01 | 3.377E+02 | 4.385E-06 | -5.430E-08 | 1.12E-01 | 1.432E+01 | 1.432E+01 | INF | 0. | 4.326E-06 | 2.799E-02 |
| 115 | 4.44E-02 | 3.482E+01 | 3.471E+01 | 3.295E+02 | 4.605E-06 | -1.251E-07 | 1.02E-01 | 1.518E+01 | 1.518E+01 | INF | 0. | 3.850E-06 | 2.700F-02 |
| 120 | 4.35E-02 | 3.399E+01 | 3.389E+01 | 3.217E+02 | 4.831E-06 | -2.032E-07 | 9.23E-02 | 1.601E+01 | 1.601E+01 | INF | 0. | 3.463E-06 | 2.580E-02 |
| 125 | 4.21E-02 | 3.321E+01 | 3.310E+01 | 3.143E+02 | 5.062E-06 | -2.881E-07 | 8.33E-02 | 1.679E+01 | 1.679E+01 | INF | 0. | 3.147E-06 | 2.440E-02 |
| 130 | 4.03E-02 | 3.247E+01 | 3.236E+01 | 3.073E+02 | 5.295E-06 | -3.787E-07 | 7.46E-02 | 1.753E+01 | 1.753E+01 | INF | 0. | 2.887E-06 | 2.282E-02 |
| 135 | 3.80E-02 | 3.178E+01 | 3.168E+01 | 3.008E+02 | 5.526E-06 | -4.738E-07 | 6.62E-02 | 1.822E+01 | 1.822E+01 | INF | 0. | 2.674E-06 | 2.106E-02 |
| 140 | 3.52E-02 | 3.115E+01 | 3.105E+01 | 2.948E+02 | 5.752E-06 | -5.711E-07 | 5.82E-02 | 1.885E+01 | 1.885E+01 | INF | 0. | 2.498E-06 | 1.915E-02 |
| 145 | 3.20E-02 | 3.059E+01 | 3.048E+01 | 2.895E+02 | 5.967E-06 | -6.682E-07 | 5.04E-02 | 1.941E+01 | 1.941E+01 | INF | 0. | 2.354E-06 | 1.709E-02 |
| 150 | 2.84E-02 | 3.009E+01 | 2.998E+01 | 2.847E+02 | 6.167E-06 | -7.622E-07 | 4.29E-02 | 1.991E+01 | 1.991E+01 | INF | 0. | 2.238E-06 | 1.490E-02 |
| 155 | 2.43E-02 | 2.966E+01 | 2.955E+01 | 2.807E+02 | 6.347E-06 | -8.497E-07 | 3.55E-02 | 2.034E+01 | 2.034E+01 | INF | 0. | 2.144F-06 | 1.259E-02 |
| 160 | 1.99E-02 | 2.930E+01 | 2.919E+01 | 2.773E+02 | 6.502E-06 | -9.274E-07 | 2.82E-02 | 2.070E+01 | 2.070E+01 | INF | 0. | 2.071E-06 | 1.019E-02 |
| 165 | 1.52E-02 | 2.902E+01 | 2.891E+01 | 2.747E+02 | 6.628E-06 | -9.920E-07 | 2.11E-02 | 2.098E+01 | 2.098E+01 | INF | 0. | 2.016E-06 | 7.710E-03 |
| 170 | 1.03E-02 | 2.882E+01 | 2.871E+01 | 2.727E+02 | 6.721E-06 | -1.040E-06 | 1.40E-02 | 2.118E+01 | 2.118E+01 | INF | 0. | 1.978F-06 | 5.173E-03 |
| 175 | 5.18E-03 | 2.870E+01 | 2.859E+01 | 2.716E+02 | 6.779E-06 | -1.071E-06 | 6.98E-03 | 2.130E+01 | 2.130E+01 | INF | 0. | 1.955E-06 | 2.596E-03 |
| 180 | 0. | 2.866E+01 | 2.855E+01 | 2.712E+02 | 6.798E-06 | -1.081E-06 | 0. | 2.134E+01 | 2.134E+01 | INF | 0. | 1.948E-06 | 0. |

PI PLUS (1) => MU PLUS (2) + NEUTRINO (3) AT 60 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 1.05659E-01 M3 = 0.
P2CM= 2.97901E-02
E2CM= 1.09779E-01 E3CM= 2.97901E-02

1-V1LAB= 2.705E-06 GCM = 4.29897E+02 S = 1.94794E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 6.000E+01 | 5.989E+01 | 5.679E+02 | 1.551E-06 | 2.465E-07 | 1.80E+02 | 3.465E-05 | 3.465E-05 | INF | 0. | 7.392E+05 | 0. |
| 1 | 4.96E-04 | 6.000E+01 | 5.989E+01 | 5.678E+02 | 1.551E-06 | 2.465E-07 | 1.52E+01 | 1.985E-03 | 1.985E-03 | INF | 0. | 2.252E+02 | 5.199E-04 |
| 2 | 9.93E-04 | 5.999E+01 | 5.989E+01 | 5.678E+02 | 1.551E-06 | 2.465E-07 | 7.62E+00 | 7.836E-03 | 7.836E-03 | INF | 0. | 1.445E+01 | 1.040E-03 |
| 3 | 1.49E-03 | 5.998E+01 | 5.988E+01 | 5.677E+02 | 1.551E-06 | 2.465E-07 | 5.09E+00 | 1.759E-02 | 1.759E-02 | INF | 0. | 2.870E+00 | 1.559E-03 |
| 4 | 1.99E-03 | 5.997E+01 | 5.986E+01 | 5.676E+02 | 1.552E-06 | 2.464E-07 | 3.82E+00 | 3.123E-02 | 3.123E-02 | INF | 0. | 9.099E-01 | 2.078E-03 |
| 5 | 2.48E-03 | 5.995E+01 | 5.985E+01 | 5.674E+02 | 1.553E-06 | 2.464E-07 | 3.05E+00 | 4.877E-02 | 4.877E-02 | INF | 0. | 3.731E-01 | 2.596E-03 |
| 6 | 2.98E-03 | 5.993E+01 | 5.982E+01 | 5.672E+02 | 1.554E-06 | 2.463E-07 | 2.54E+00 | 7.019E-02 | 7.019E-02 | INF | 0. | 1.801E-01 | 3.114E-03 |
| 7 | 3.47E-03 | 5.990E+01 | 5.980E+01 | 5.670E+02 | 1.555E-06 | 2.462E-07 | 2.18E+00 | 9.549E-02 | 9.549E-02 | INF | 0. | 9.732E-02 | 3.631E-03 |
| 8 | 3.97E-03 | 5.988E+01 | 5.977E+01 | 5.667E+02 | 1.557E-06 | 2.462E-07 | 1.91E+00 | 1.247E-01 | 1.247E-01 | INF | 0. | 5.710E-02 | 4.146E-03 |
| 9 | 4.46E-03 | 5.984E+01 | 5.974E+01 | 5.664E+02 | 1.559E-06 | 2.461E-07 | 1.69E+00 | 1.577E-01 | 1.577E-01 | INF | 0. | 3.568E-02 | 4.660E-03 |
| 10 | 4.96E-03 | 5.981E+01 | 5.970E+01 | 5.660E+02 | 1.561E-06 | 2.460E-07 | 1.52E+00 | 1.946E-01 | 1.946E-01 | INF | 0. | 2.344E-02 | 5.173E-03 |
| 15 | 7.42E-03 | 5.956E+01 | 5.946E+01 | 5.637E+02 | 1.573E-06 | 2.452E-07 | 1.01E+00 | 4.364E-01 | 4.364E-01 | INF | 0. | 4.660E-03 | 7.710E-03 |
| 20 | 9.86E-03 | 5.923E+01 | 5.912E+01 | 5.606E+02 | 1.591E-06 | 2.441E-07 | 7.56E-01 | 7.724E-01 | 7.724E-01 | INF | 0. | 1.488E-03 | 1.019E-02 |
| 25 | 1.23E-02 | 5.880E+01 | 5.869E+01 | 5.565E+02 | 1.614E-06 | 2.426E-07 | 6.01E-01 | 1.200E+00 | 1.200E+00 | INF | 0. | 6.164E-04 | 1.259E-02 |
| 30 | 1.46E-02 | 5.828E+01 | 5.818E+01 | 5.516E+02 | 1.643E-06 | 2.406E-07 | 4.97E-01 | 1.716E+00 | 1.716E+00 | INF | 0. | 3.014E-04 | 1.490E-02 |
| 35 | 1.70E-02 | 5.768E+01 | 5.758E+01 | 5.459E+02 | 1.678E-06 | 2.380E-07 | 4.23E-01 | 2.316E+00 | 2.316E+00 | INF | 0. | 1.654E-04 | 1.709E-02 |
| 40 | 1.92E-02 | 5.700E+01 | 5.690E+01 | 5.395E+02 | 1.718E-06 | 2.346E-07 | 3.66E-01 | 2.996E+00 | 2.996E+00 | INF | 0. | 9.885E-05 | 1.915E-02 |
| 45 | 2.15E-02 | 5.625E+01 | 5.614E+01 | 5.324E+02 | 1.764E-06 | 2.303E-07 | 3.22E-01 | 3.751E+00 | 3.751E+00 | INF | 0. | 6.307E-05 | 2.106E-02 |
| 50 | 2.36E-02 | 5.543E+01 | 5.532E+01 | 5.246E+02 | 1.817E-06 | 2.249E-07 | 2.86E-01 | 4.575E+00 | 4.575E+00 | INF | 0. | 4.240E-05 | 2.282E-02 |
| 55 | 2.56E-02 | 5.454E+01 | 5.443E+01 | 5.162E+02 | 1.877E-06 | 2.181E-07 | 2.56E-01 | 5.461E+00 | 5.461E+00 | INF | 0. | 2.976E-05 | 2.440E-02 |
| 60 | 2.76E-02 | 5.360E+01 | 5.349E+01 | 5.073E+02 | 1.943E-06 | 2.098E-07 | 2.31E-01 | 6.403E+00 | 6.403E+00 | INF | 0. | 2.164E-05 | 2.580E-02 |
| 65 | 2.94E-02 | 5.261E+01 | 5.250E+01 | 4.979E+02 | 2.017E-06 | 1.997E-07 | 2.09E-01 | 7.394E+00 | 7.394E+00 | INF | 0. | 1.623E-05 | 2.700E-02 |
| 70 | 3.11E-02 | 5.157E+01 | 5.147E+01 | 4.881E+02 | 2.099E-06 | 1.873E-07 | 1.90E-01 | 8.427E+00 | 8.427E+00 | INF | 0. | 1.250E-05 | 2.799E-02 |
| 75 | 3.26E-02 | 5.051E+01 | 5.040E+01 | 4.780E+02 | 2.188E-06 | 1.723E-07 | 1.74E-01 | 9.492E+00 | 9.492E+00 | INF | 0. | 9.850E-06 | 2.878E-02 |
| 80 | 3.40E-02 | 4.942E+01 | 4.931E+01 | 4.677E+02 | 2.286E-06 | 1.544E-07 | 1.59E-01 | 1.058E+01 | 1.058E+01 | INF | 0. | 7.924E-06 | 2.934E-02 |
| 85 | 3.52E-02 | 4.831E+01 | 4.820E+01 | 4.572E+02 | 2.392E-06 | 1.332E-07 | 1.45E-01 | 1.169E+01 | 1.169E+01 | INF | 0. | 6.493E-06 | 2.968E-02 |
| 90 | 3.62E-02 | 4.719E+01 | 4.709E+01 | 4.467E+02 | 2.506E-06 | 1.081E-07 | 1.33E-01 | 1.281E+01 | 1.281E+01 | INF | 0. | 5.411E-06 | 2.979E-02 |
| 95 | 3.69E-02 | 4.608E+01 | 4.597E+01 | 4.361E+02 | 2.629E-06 | 7.886E-08 | 1.22E-01 | 1.392E+01 | 1.392E+01 | INF | 0. | 4.578E-06 | 2.968E-02 |
| 100 | 3.74E-02 | 4.497E+01 | 4.486E+01 | 4.256E+02 | 2.760E-06 | 4.500E-08 | 1.12E-01 | 1.503E+01 | 1.503E+01 | INF | 0. | 3.928E-06 | 2.934E-02 |
| 105 | 3.76E-02 | 4.388E+01 | 4.377E+01 | 4.153E+02 | 2.899E-06 | 6.220E-09 | 1.02E-01 | 1.612E+01 | 1.612E+01 | INF | 0. | 3.415E-06 | 2.878E-02 |
| 110 | 3.75E-02 | 4.281E+01 | 4.271E+01 | 4.052E+02 | 3.045E-06 | -3.771E-08 | 9.33E-02 | 1.719E+01 | 1.719E+01 | INF | 0. | 3.004E-06 | 2.799E-02 |
| 115 | 3.70E-02 | 4.178E+01 | 4.168E+01 | 3.954E+02 | 3.198E-06 | -8.685E-08 | 8.49E-02 | 1.822E+01 | 1.822E+01 | INF | 0. | 2.674E-06 | 2.700E-02 |
| 120 | 3.62E-02 | 4.079E+01 | 4.068E+01 | 3.861E+02 | 3.355E-06 | -1.411E-07 | 7.69E-02 | 1.921E+01 | 1.921E+01 | INF | 0. | 2.405E-06 | 2.580E-02 |
| 125 | 3.51E-02 | 3.985E+01 | 3.974E+01 | 3.771E+02 | 3.515E-06 | -2.000E-07 | 6.94E-02 | 2.015E+01 | 2.015E+01 | INF | 0. | 2.185E-06 | 2.440E-02 |
| 130 | 3.36E-02 | 3.896E+01 | 3.886E+01 | 3.687E+02 | 3.677E-06 | -2.630E-07 | 6.21E-02 | 2.104E+01 | 2.104E+01 | INF | 0. | 2.005E-06 | 2.282E-02 |
| 135 | 3.16E-02 | 3.814E+01 | 3.803E+01 | 3.610E+02 | 3.838E-06 | -3.290E-07 | 5.52E-02 | 2.186E+01 | 2.186E+01 | INF | 0. | 1.857E-06 | 2.106E-02 |
| 140 | 2.93E-02 | 3.738E+01 | 3.728E+01 | 3.538E+02 | 3.994E-06 | -3.966E-07 | 4.85E-02 | 2.262E+01 | 2.262E+01 | INF | 0. | 1.735E-06 | 1.915E-02 |
| 145 | 2.67E-02 | 3.670E+01 | 3.660E+01 | 3.474E+02 | 4.144E-06 | -4.640E-07 | 4.20E-02 | 2.330E+01 | 2.330E+01 | INF | 0. | 1.635E-06 | 1.709E-02 |
| 150 | 2.36E-02 | 3.610E+01 | 3.600E+01 | 3.417E+02 | 4.283E-06 | -5.293E-07 | 3.57E-02 | 2.390E+01 | 2.390E+01 | INF | 0. | 1.554E-06 | 1.490E-02 |
| 155 | 2.03E-02 | 3.559E+01 | 3.548E+01 | 3.368E+02 | 4.408E-06 | -5.901E-07 | 2.95E-02 | 2.441E+01 | 2.441E+01 | INF | 0. | 1.489E-06 | 1.259E-02 |
| 160 | 1.66E-02 | 3.516E+01 | 3.505E+01 | 3.328E+02 | 4.516E-06 | -6.440E-07 | 2.35E-02 | 2.484E+01 | 2.484E+01 | INF | 0. | 1.438E-06 | 1.019E-02 |
| 165 | 1.27E-02 | 3.482E+01 | 3.472E+01 | 3.296E+02 | 4.603E-06 | -6.889E-07 | 1.75E-02 | 2.518E+01 | 2.518E+01 | INF | 0. | 1.400E-06 | 7.710E-03 |
| 170 | 8.57E-03 | 3.458E+01 | 3.448E+01 | 3.273E+02 | 4.668E-06 | -7.225E-07 | 1.17E-02 | 2.542E+01 | 2.542E+01 | INF | 0. | 1.374E-06 | 5.173E-03 |
| 175 | 4.32E-03 | 3.444E+01 | 3.433E+01 | 3.259E+02 | 4.707E-06 | -7.434E-07 | 5.82E-03 | 2.556E+01 | 2.556E+01 | INF | 0. | 1.358E-06 | 2.596E-03 |
| 180 | 0. | 3.439E+01 | 3.428E+01 | 3.255E+02 | 4.721E-06 | -7.505E-07 | 0. | 2.561E+01 | 2.561E+01 | INF | 0. | 1.353E-06 | 0. |

PI PLUS (1) => MU PLUS (2) + NEUTRINO (3) AT 70 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 1.05659E-01 M3 = 0.
P2CM= 2.97901E-02
E2CM= 1.09779E-01 E3CM= 2.97901E-02

1-V1LAB= 1.988E-06 GCM = 5.01546E+02 S = 1.94794E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 7.000E+01 | 6.989E+01 | 6.625E+02 | 1.139E-06 | 1.811E-07 | 1.80E+02 | 2.970E-05 | 2.970E-05 | INF | 0. | 1.006E+06 | 0. |
| 1 | 4.26E-04 | 7.000E+01 | 6.989E+01 | 6.625E+02 | 1.139E-06 | 1.811E-07 | 1.30E+01 | 2.305E-03 | 2.305E-03 | INF | 0. | 1.670E+02 | 5.199E-04 |
| 2 | 8.51E-04 | 6.999E+01 | 6.989E+01 | 6.624E+02 | 1.139E-06 | 1.811E-07 | 6.54E+00 | 9.131E-03 | 9.131E-03 | INF | 0. | 1.064E+01 | 1.040E-03 |
| 3 | 1.28E-03 | 6.998E+01 | 6.987E+01 | 6.623E+02 | 1.140E-06 | 1.811E-07 | 4.36E+00 | 2.051E-02 | 2.051E-02 | INF | 0. | 2.111E+00 | 1.559E-03 |
| 4 | 1.70E-03 | 6.996E+01 | 6.986E+01 | 6.622E+02 | 1.140E-06 | 1.810E-07 | 3.27E+00 | 3.643E-02 | 3.643E-02 | INF | 0. | 6.689E-01 | 2.078E-03 |
| 5 | 2.13E-03 | 6.994E+01 | 6.984E+01 | 6.620E+02 | 1.141E-06 | 1.810E-07 | 2.62E+00 | 5.689E-02 | 5.689E-02 | INF | 0. | 2.743E-01 | 2.596E-03 |
| 6 | 2.55E-03 | 6.992E+01 | 6.981E+01 | 6.617E+02 | 1.142E-06 | 1.810E-07 | 2.18E+00 | 8.188E-02 | 8.188E-02 | INF | 0. | 1.324E-01 | 3.114E-03 |
| 7 | 2.98E-03 | 6.989E+01 | 6.978E+01 | 6.615E+02 | 1.143E-06 | 1.809E-07 | 1.87E+00 | 1.114E-01 | 1.114E-01 | INF | 0. | 7.151E-02 | 3.631E-03 |
| 8 | 3.40E-03 | 6.985E+01 | 6.975E+01 | 6.611E+02 | 1.144E-06 | 1.809E-07 | 1.63E+00 | 1.454E-01 | 1.454E-01 | INF | 0. | 4.196E-02 | 4.146E-03 |
| 9 | 3.82E-03 | 6.982E+01 | 6.971E+01 | 6.608E+02 | 1.145E-06 | 1.808E-07 | 1.45E+00 | 1.840E-01 | 1.840E-01 | INF | 0. | 2.622E-02 | 4.660E-03 |
| 10 | 4.25E-03 | 6.977E+01 | 6.967E+01 | 6.604E+02 | 1.147E-06 | 1.807E-07 | 1.31E+00 | 2.270E-01 | 2.270E-01 | INF | 0. | 1.722E-02 | 5.173E-03 |
| 15 | 6.36E-03 | 6.949E+01 | 6.939E+01 | 6.577E+02 | 1.156E-06 | 1.802E-07 | 8.68E-01 | 5.091E-01 | 5.091E-01 | INF | 0. | 3.424E-03 | 7.710E-03 |
| 20 | 8.45E-03 | 6.910E+01 | 6.899E+01 | 6.540E+02 | 1.169E-06 | 1.794E-07 | 6.48E-01 | 9.011E-01 | 9.011E-01 | INF | 0. | 1.093E-03 | 1.019E-02 |
| 25 | 1.05E-02 | 6.860E+01 | 6.849E+01 | 6.493E+02 | 1.186E-06 | 1.782E-07 | 5.15E-01 | 1.400E+00 | 1.400E+00 | INF | 0. | 4.529E-04 | 1.259E-02 |
| 30 | 1.26E-02 | 6.800E+01 | 6.789E+01 | 6.436E+02 | 1.207E-06 | 1.768E-07 | 4.26E-01 | 2.002E+00 | 2.002E+00 | INF | 0. | 2.215E-04 | 1.490E-02 |
| 35 | 1.45E-02 | 6.730E+01 | 6.719E+01 | 6.369E+02 | 1.232E-06 | 1.748E-07 | 3.62E-01 | 2.702E+00 | 2.702E+00 | INF | 0. | 1.215E-04 | 1.709E-02 |
| 40 | 1.65E-02 | 6.650E+01 | 6.640E+01 | 6.294E+02 | 1.262E-06 | 1.723E-07 | 3.14E-01 | 3.496E+00 | 3.496E+00 | INF | 0. | 7.263E-05 | 1.915E-02 |
| 45 | 1.84E-02 | 6.562E+01 | 6.552E+01 | 6.211E+02 | 1.296E-06 | 1.692E-07 | 2.76E-01 | 4.376E+00 | 4.376E+00 | INF | 0. | 4.634E-05 | 2.106E-02 |
| 50 | 2.02E-02 | 6.466E+01 | 6.456E+01 | 6.120E+02 | 1.335E-06 | 1.652E-07 | 2.45E-01 | 5.337E+00 | 5.337E+00 | INF | 0. | 3.115E-05 | 2.282E-02 |
| 55 | 2.20E-02 | 6.363E+01 | 6.352E+01 | 6.022E+02 | 1.379E-06 | 1.603E-07 | 2.19E-01 | 6.371E+00 | 6.371E+00 | INF | 0. | 2.186E-05 | 2.440E-02 |
| 60 | 2.36E-02 | 6.253E+01 | 6.242E+01 | 5.918E+02 | 1.428E-06 | 1.542E-07 | 1.98E-01 | 7.471E+00 | 7.471E+00 | INF | 0. | 1.590E-05 | 2.580E-02 |
| 65 | 2.52E-02 | 6.137E+01 | 6.127E+01 | 5.809E+02 | 1.482E-06 | 1.467E-07 | 1.79E-01 | 8.627E+00 | 8.627E+00 | INF | 0. | 1.192E-05 | 2.700E-02 |
| 70 | 2.67E-02 | 6.017E+01 | 6.006E+01 | 5.695E+02 | 1.542E-06 | 1.376E-07 | 1.63E-01 | 9.831E+00 | 9.831E+00 | INF | 0. | 9.182E-06 | 2.799E-02 |
| 75 | 2.80E-02 | 5.893E+01 | 5.882E+01 | 5.577E+02 | 1.608E-06 | 1.266E-07 | 1.49E-01 | 1.107E+01 | 1.107E+01 | INF | 0. | 7.237E-06 | 2.878E-02 |
| 80 | 2.92E-02 | 5.765E+01 | 5.755E+01 | 5.457E+02 | 1.679E-06 | 1.135E-07 | 1.36E-01 | 1.235E+01 | 1.235E+01 | INF | 0. | 5.822E-06 | 2.934E-02 |
| 85 | 3.02E-02 | 5.636E+01 | 5.626E+01 | 5.334E+02 | 1.757E-06 | 9.785E-08 | 1.25E-01 | 1.364E+01 | 1.364E+01 | INF | 0. | 4.771E-06 | 2.968E-02 |
| 90 | 3.10E-02 | 5.506E+01 | 5.495E+01 | 5.211E+02 | 1.841E-06 | 7.944E-08 | 1.14E-01 | 1.494E+01 | 1.494E+01 | INF | 0. | 3.975E-06 | 2.979E-02 |
| 95 | 3.16E-02 | 5.376E+01 | 5.365E+01 | 5.088E+02 | 1.932E-06 | 5.794E-08 | 1.05E-01 | 1.624E+01 | 1.624E+01 | INF | 0. | 3.364E-06 | 2.968E-02 |
| 100 | 3.20E-02 | 5.246E+01 | 5.236E+01 | 4.965E+02 | 2.028E-06 | 3.306E-08 | 9.59E-02 | 1.754E+01 | 1.754E+01 | INF | 0. | 2.886E-06 | 2.934E-02 |
| 105 | 3.22E-02 | 5.119E+01 | 5.109E+01 | 4.845E+02 | 2.130E-06 | 4.570E-09 | 8.77E-02 | 1.881E+01 | 1.881E+01 | INF | 0. | 2.509E-06 | 2.878E-02 |
| 110 | 3.21E-02 | 4.995E+01 | 4.984E+01 | 4.727E+02 | 2.237E-06 | -2.770E-08 | 8.00E-02 | 2.005E+01 | 2.005E+01 | INF | 0. | 2.207E-06 | 2.799E-02 |
| 115 | 3.17E-02 | 4.874E+01 | 4.864E+01 | 4.613E+02 | 2.349E-06 | -6.381E-08 | 7.28E-02 | 2.126E+01 | 2.126E+01 | INF | 0. | 1.964E-06 | 2.700E-02 |
| 120 | 3.11E-02 | 4.759E+01 | 4.748E+01 | 4.504E+02 | 2.465E-06 | -1.037E-07 | 6.60E-02 | 2.241E+01 | 2.241E+01 | INF | 0. | 1.767E-06 | 2.580E-02 |
| 125 | 3.01E-02 | 4.649E+01 | 4.638E+01 | 4.400E+02 | 2.583E-06 | -1.470E-07 | 5.95E-02 | 2.351E+01 | 2.351E+01 | INF | 0. | 1.605E-06 | 2.440E-02 |
| 130 | 2.88E-02 | 4.545E+01 | 4.535E+01 | 4.302E+02 | 2.702E-06 | -1.932E-07 | 5.33E-02 | 2.455E+01 | 2.455E+01 | INF | 0. | 1.473E-06 | 2.282E-02 |
| 135 | 2.71E-02 | 4.449E+01 | 4.439E+01 | 4.211E+02 | 2.820E-06 | -2.417E-07 | 4.73E-02 | 2.551E+01 | 2.551E+01 | INF | 0. | 1.364E-06 | 2.106E-02 |
| 140 | 2.52E-02 | 4.361E+01 | 4.351E+01 | 4.128E+02 | 2.935E-06 | -2.914E-07 | 4.16E-02 | 2.639E+01 | 2.639E+01 | INF | 0. | 1.275E-06 | 1.915E-02 |
| 145 | 2.29E-02 | 4.282E+01 | 4.271E+01 | 4.053E+02 | 3.044E-06 | -3.409E-07 | 3.60E-02 | 2.718E+01 | 2.718E+01 | INF | 0. | 1.201E-06 | 1.709E-02 |
| 150 | 2.03E-02 | 4.212E+01 | 4.201E+01 | 3.986E+02 | 3.146E-06 | -3.889E-07 | 3.06E-02 | 2.788E+01 | 2.788E+01 | INF | 0. | 1.142E-06 | 1.490E-02 |
| 155 | 1.74E-02 | 4.152E+01 | 4.141E+01 | 3.929E+02 | 3.238E-06 | -4.335E-07 | 2.53E-02 | 2.848E+01 | 2.848E+01 | INF | 0. | 1.094E-06 | 1.259E-02 |
| 160 | 1.42E-02 | 4.102E+01 | 4.091E+01 | 3.882E+02 | 3.318E-06 | -4.732E-07 | 2.01E-02 | 2.898E+01 | 2.898E+01 | INF | 0. | 1.057E-06 | 1.019E-02 |
| 165 | 1.09E-02 | 4.063E+01 | 4.052E+01 | 3.845E+02 | 3.382E-06 | -5.061E-07 | 1.50E-02 | 2.937E+01 | 2.937E+01 | INF | 0. | 1.029E-06 | 7.710E-03 |
| 170 | 7.35E-03 | 4.034E+01 | 4.024E+01 | 3.818E+02 | 3.429E-06 | -5.308E-07 | 9.99E-03 | 2.966E+01 | 2.966E+01 | INF | 0. | 1.009E-06 | 5.173E-03 |
| 175 | 3.70E-03 | 4.017E+01 | 4.007E+01 | 3.802E+02 | 3.458E-06 | -5.462E-07 | 4.99E-03 | 2.983E+01 | 2.983E+01 | INF | 0. | 9.976E-07 | 2.596E-03 |
| 180 | 0. | 4.012E+01 | 4.001E+01 | 3.797E+02 | 3.468E-06 | -5.514E-07 | 0. | 2.988E+01 | 2.988E+01 | INF | 0. | 9.938E-07 | 0. |

PI PLUS (1) => MU PLUS (2) + NEUTRINO (3) AT 80 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 1.05659E-01 M3 = 0.
P2CM= 2.97901E-02
E2CM= 1.09779E-01 E3CM= 2.97901E-02

1-V1LAB= 1.522E-06 GCM = 5.73195E+02 S = 1.94794E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 8.000E+01 | 7.989E+01 | 7.572E+02 | 8.722E-07 | 1.387E-07 | 1.80E+02 | 2.599E-05 | 2.599E-05 | INF | 0. | 1.314E+06 | 0. |
| 1 | 3.72E-04 | 8.000E+01 | 7.989E+01 | 7.571E+02 | 8.722E-07 | 1.387E-07 | 1.14E+01 | 2.627E-03 | 2.627E-03 | INF | 0. | 1.286E+02 | 5.199E-04 |
| 2 | 7.45E-04 | 7.999E+01 | 7.988E+01 | 7.571E+02 | 8.724E-07 | 1.387E-07 | 5.72E+00 | 1.043E-02 | 1.043E-02 | INF | 0. | 8.161E+00 | 1.040E-03 |
| 3 | 1.12E-03 | 7.998E+01 | 7.987E+01 | 7.569E+02 | 8.727E-07 | 1.386E-07 | 3.82E+00 | 2.343E-02 | 2.343E-02 | INF | 0. | 1.617E+00 | 1.559E-03 |
| 4 | 1.49E-03 | 7.996E+01 | 7.985E+01 | 7.568E+02 | 8.731E-07 | 1.386E-07 | 2.86E+00 | 4.162E-02 | 4.162E-02 | INF | 0. | 5.123E-01 | 2.078E-03 |
| 5 | 1.86E-03 | 7.994E+01 | 7.983E+01 | 7.565E+02 | 8.736E-07 | 1.386E-07 | 2.29E+00 | 6.500E-02 | 6.500E-02 | INF | 0. | 2.100E-01 | 2.596E-03 |
| 6 | 2.23E-03 | 7.991E+01 | 7.980E+01 | 7.563E+02 | 8.742E-07 | 1.386E-07 | 1.91E+00 | 9.357E-02 | 9.357E-02 | INF | 0. | 1.014E-01 | 3.114E-03 |
| 7 | 2.60E-03 | 7.987E+01 | 7.977E+01 | 7.559E+02 | 8.750E-07 | 1.385E-07 | 1.63E+00 | 1.273E-01 | 1.273E-01 | INF | 0. | 5.476E-02 | 3.631E-03 |
| 8 | 2.98E-03 | 7.983E+01 | 7.973E+01 | 7.556E+02 | 8.758E-07 | 1.385E-07 | 1.43E+00 | 1.662E-01 | 1.662E-01 | INF | 0. | 3.213E-02 | 4.146E-03 |
| 9 | 3.35E-03 | 7.979E+01 | 7.968E+01 | 7.552E+02 | 8.768E-07 | 1.384E-07 | 1.27E+00 | 2.103E-01 | 2.103E-01 | INF | 0. | 2.008E-02 | 4.660E-03 |
| 10 | 3.72E-03 | 7.974E+01 | 7.964E+01 | 7.547E+02 | 8.779E-07 | 1.383E-07 | 1.14E+00 | 2.594E-01 | 2.594E-01 | INF | 0. | 1.318E-02 | 5.173E-03 |
| 15 | 5.56E-03 | 7.942E+01 | 7.931E+01 | 7.516E+02 | 8.850E-07 | 1.379E-07 | 7.59E-01 | 5.819E-01 | 5.819E-01 | INF | 0. | 2.621E-03 | 7.710E-03 |
| 20 | 7.39E-03 | 7.897E+01 | 7.886E+01 | 7.474E+02 | 8.951E-07 | 1.373E-07 | 5.67E-01 | 1.030E+00 | 1.030E+00 | INF | 0. | 8.368E-04 | 1.019E-02 |
| 25 | 9.20E-03 | 7.840E+01 | 7.829E+01 | 7.420E+02 | 9.081E-07 | 1.365E-07 | 4.51E-01 | 1.600E+00 | 1.600E+00 | INF | 0. | 3.467E-04 | 1.259E-02 |
| 30 | 1.10E-02 | 7.771E+01 | 7.761E+01 | 7.355E+02 | 9.243E-07 | 1.353E-07 | 3.73E-01 | 2.288E+00 | 2.288E+00 | INF | 0. | 1.696E-04 | 1.490E-02 |
| 35 | 1.27E-02 | 7.691E+01 | 7.681E+01 | 7.279E+02 | 9.436E-07 | 1.338E-07 | 3.17E-01 | 3.088E+00 | 3.088E+00 | INF | 0. | 9.306E-05 | 1.709E-02 |
| 40 | 1.44E-02 | 7.601E+01 | 7.590E+01 | 7.193E+02 | 9.663E-07 | 1.319E-07 | 2.75E-01 | 3.995E+00 | 3.995E+00 | INF | 0. | 5.561E-05 | 1.915E-02 |
| 45 | 1.61E-02 | 7.500E+01 | 7.489E+01 | 7.098E+02 | 9.924E-07 | 1.295E-07 | 2.41E-01 | 5.001E+00 | 5.001E+00 | INF | 0. | 3.548E-05 | 2.106E-02 |
| 50 | 1.77E-02 | 7.390E+01 | 7.379E+01 | 6.994E+02 | 1.022E-06 | 1.265E-07 | 2.14E-01 | 6.100E+00 | 6.100E+00 | INF | 0. | 2.385E-05 | 2.282E-02 |
| 55 | 1.92E-02 | 7.272E+01 | 7.261E+01 | 6.882E+02 | 1.056E-06 | 1.227E-07 | 1.92E-01 | 7.281E+00 | 7.281E+00 | INF | 0. | 1.674E-05 | 2.440E-02 |
| 60 | 2.07E-02 | 7.146E+01 | 7.136E+01 | 6.763E+02 | 1.093E-06 | 1.180E-07 | 1.73E-01 | 8.538E+00 | 8.538E+00 | INF | 0. | 1.217E-05 | 2.580E-02 |
| 65 | 2.21E-02 | 7.014E+01 | 7.004E+01 | 6.638E+02 | 1.135E-06 | 1.123E-07 | 1.57E-01 | 9.859E+00 | 9.859E+00 | INF | 0. | 9.130E-06 | 2.700E-02 |
| 70 | 2.33E-02 | 6.876E+01 | 6.866E+01 | 6.508E+02 | 1.180E-06 | 1.053E-07 | 1.43E-01 | 1.124E+01 | 1.124E+01 | INF | 0. | 7.030E-06 | 2.799E-02 |
| 75 | 2.45E-02 | 6.734E+01 | 6.724E+01 | 6.374E+02 | 1.231E-06 | 9.694E-08 | 1.30E-01 | 1.266E+01 | 1.266E+01 | INF | 0. | 5.540E-06 | 2.878E-02 |
| 80 | 2.55E-02 | 6.589E+01 | 6.578E+01 | 6.236E+02 | 1.286E-06 | 8.687E-08 | 1.19E-01 | 1.411E+01 | 1.411E+01 | INF | 0. | 4.457E-06 | 2.934E-02 |
| 85 | 2.64E-02 | 6.441E+01 | 6.431E+01 | 6.096E+02 | 1.345E-06 | 7.491E-08 | 1.09E-01 | 1.559E+01 | 1.559E+01 | INF | 0. | 3.653E-06 | 2.968E-02 |
| 90 | 2.71E-02 | 6.292E+01 | 6.282E+01 | 5.955E+02 | 1.410E-06 | 6.082E-08 | 1.00E-01 | 1.708E+01 | 1.708E+01 | INF | 0. | 3.044E-06 | 2.979E-02 |
| 95 | 2.77E-02 | 6.144E+01 | 6.133E+01 | 5.815E+02 | 1.479E-06 | 4.436E-08 | 9.16E-02 | 1.856E+01 | 1.856E+01 | INF | 0. | 2.575E-06 | 2.968E-02 |
| 100 | 2.80E-02 | 5.996E+01 | 5.985E+01 | 5.675E+02 | 1.553E-06 | 2.531E-08 | 8.39E-02 | 2.004E+01 | 2.004E+01 | INF | 0. | 2.210E-06 | 2.934E-02 |
| 105 | 2.82E-02 | 5.851E+01 | 5.840E+01 | 5.537E+02 | 1.631E-06 | 3.499E-09 | 7.67E-02 | 2.150E+01 | 2.150E+01 | INF | 0. | 1.921E-06 | 2.878E-02 |
| 110 | 2.81E-02 | 5.708E+01 | 5.698E+01 | 5.403E+02 | 1.713E-06 | -2.121E-08 | 7.00E-02 | 2.292E+01 | 2.292E+01 | INF | 0. | 1.690E-06 | 2.799E-02 |
| 115 | 2.78E-02 | 5.571E+01 | 5.560E+01 | 5.272E+02 | 1.799E-06 | -4.886E-08 | 6.37E-02 | 2.429E+01 | 2.429E+01 | INF | 0. | 1.504E-06 | 2.700E-02 |
| 120 | 2.72E-02 | 5.439E+01 | 5.428E+01 | 5.147E+02 | 1.887E-06 | -7.936E-08 | 5.77E-02 | 2.561E+01 | 2.561E+01 | INF | 0. | 1.353E-06 | 2.580E-02 |
| 125 | 2.63E-02 | 5.313E+01 | 5.302E+01 | 5.028E+02 | 1.977E-06 | -1.125E-07 | 5.20E-02 | 2.687E+01 | 2.687E+01 | INF | 0. | 1.229E-06 | 2.440E-02 |
| 130 | 2.52E-02 | 5.195E+01 | 5.184E+01 | 4.917E+02 | 2.068E-06 | -1.479E-07 | 4.66E-02 | 2.805E+01 | 2.805E+01 | INF | 0. | 1.128E-06 | 2.282E-02 |
| 135 | 2.37E-02 | 5.085E+01 | 5.074E+01 | 4.813E+02 | 2.159E-06 | -1.851E-07 | 4.14E-02 | 2.915E+01 | 2.915E+01 | INF | 0. | 1.044E-06 | 2.106E-02 |
| 140 | 2.20E-02 | 4.984E+01 | 4.974E+01 | 4.717E+02 | 2.247E-06 | -2.231E-07 | 3.64E-02 | 3.016E+01 | 3.016E+01 | INF | 0. | 9.759E-07 | 1.915E-02 |
| 145 | 2.00E-02 | 4.894E+01 | 4.883E+01 | 4.632E+02 | 2.331E-06 | -2.610E-07 | 3.15E-02 | 3.106E+01 | 3.106E+01 | INF | 0. | 9.197E-07 | 1.709E-02 |
| 150 | 1.77E-02 | 4.814E+01 | 4.803E+01 | 4.556E+02 | 2.409E-06 | -2.977E-07 | 2.68E-02 | 3.186E+01 | 3.186E+01 | INF | 0. | 8.741E-07 | 1.490E-02 |
| 155 | 1.52E-02 | 4.745E+01 | 4.734E+01 | 4.491E+02 | 2.479E-06 | -3.319E-07 | 2.22E-02 | 3.255E+01 | 3.255E+01 | INF | 0. | 8.375E-07 | 1.259E-02 |
| 160 | 1.25E-02 | 4.688E+01 | 4.677E+01 | 4.437E+02 | 2.540E-06 | -3.623E-07 | 1.76E-02 | 3.312E+01 | 3.312E+01 | INF | 0. | 8.090E-07 | 1.019E-02 |
| 165 | 9.51E-03 | 4.643E+01 | 4.633E+01 | 4.394E+02 | 2.589E-06 | -3.875E-07 | 1.32E-02 | 3.357E+01 | 3.357E+01 | INF | 0. | 7.875E-07 | 7.710E-03 |
| 170 | 6.43E-03 | 4.611E+01 | 4.600E+01 | 4.364E+02 | 2.626E-06 | -4.064E-07 | 8.75E-03 | 3.389E+01 | 3.389E+01 | INF | 0. | 7.726E-07 | 5.173E-03 |
| 175 | 3.24E-03 | 4.591E+01 | 4.581E+01 | 4.345E+02 | 2.648E-06 | -4.182E-07 | 4.36E-03 | 3.409E+01 | 3.409E+01 | INF | 0. | 7.638E-07 | 2.596E-03 |
| 180 | 0. | 4.585E+01 | 4.574E+01 | 4.339E+02 | 2.655E-06 | -4.222E-07 | 0. | 3.415E+01 | 3.415E+01 | INF | 0. | 7.609E-07 | 0. |

PI PLUS (1) => MU PLUS (2) + NEUTRINO (3) AT 90 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 1.05659E-01 M3 = 0.
P2CM= 2.97901E-02
E2CM= 1.09779E-01 E3CM= 2.97901E-02

1-V1LAB= 1.202E-06 GCM = 6.44844E+02 S = 1.94794E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 9.000E+01 | 8.989E+01 | 8.518E+02 | 6.891E-07 | 1.096E-07 | 1.80E+02 | 2.310E-05 | 2.310E-05 | INF | 0. | 1.663E+06 | 0. |
| 1 | 3.31E-04 | 9.000E+01 | 8.989E+01 | 8.518E+02 | 6.892E-07 | 1.096E-07 | 1.02E+01 | 2.949E-03 | 2.949E-03 | INF | 0. | 1.021E+02 | 5.199E-04 |
| 2 | 6.62E-04 | 8.999E+01 | 8.988E+01 | 8.517E+02 | 6.893E-07 | 1.096E-07 | 5.09E+00 | 1.173E-02 | 1.173E-02 | INF | 0. | 6.455E+00 | 1.040E-03 |
| 3 | 9.93E-04 | 8.997E+01 | 8.987E+01 | 8.515E+02 | 6.895E-07 | 1.095E-07 | 3.39E+00 | 2.635E-02 | 2.635E-02 | INF | 0. | 1.278E+00 | 1.559E-03 |
| 4 | 1.32E-03 | 8.995E+01 | 8.985E+01 | 8.514E+02 | 6.898E-07 | 1.095E-07 | 2.54E+00 | 4.682E-02 | 4.682E-02 | INF | 0. | 4.049E-01 | 2.078E-03 |
| 5 | 1.65E-03 | 8.993E+01 | 8.982E+01 | 8.511E+02 | 6.902E-07 | 1.095E-07 | 2.03E+00 | 7.312E-02 | 7.312E-02 | INF | 0. | 1.660E-01 | 2.596E-03 |
| 6 | 1.98E-03 | 8.989E+01 | 8.979E+01 | 8.508E+02 | 6.907E-07 | 1.095E-07 | 1.70E+00 | 1.053E-01 | 1.053E-01 | INF | 0. | 8.010E-02 | 3.114E-03 |
| 7 | 2.31E-03 | 8.986E+01 | 8.975E+01 | 8.504E+02 | 6.913E-07 | 1.094E-07 | 1.45E+00 | 1.432E-01 | 1.432E-01 | INF | 0. | 4.327E-02 | 3.631E-03 |
| 8 | 2.64E-03 | 8.981E+01 | 8.971E+01 | 8.500E+02 | 6.920E-07 | 1.094E-07 | 1.27E+00 | 1.870E-01 | 1.870E-01 | INF | 0. | 2.539E-02 | 4.146E-03 |
| 9 | 2.97E-03 | 8.976E+01 | 8.966E+01 | 8.496E+02 | 6.928E-07 | 1.094E-07 | 1.13E+00 | 2.365E-01 | 2.365E-01 | INF | 0. | 1.586E-02 | 4.660E-03 |
| 10 | 3.30E-03 | 8.971E+01 | 8.960E+01 | 8.490E+02 | 6.936E-07 | 1.093E-07 | 1.02E+00 | 2.919E-01 | 2.919E-01 | INF | 0. | 1.042E-02 | 5.173E-03 |
| 15 | 4.94E-03 | 8.935E+01 | 8.924E+01 | 8.456E+02 | 6.993E-07 | 1.090E-07 | 6.75E-01 | 6.546E-01 | 6.546E-01 | INF | 0. | 2.071E-03 | 7.710E-03 |
| 20 | 6.57E-03 | 8.884E+01 | 8.874E+01 | 8.408E+02 | 7.072E-07 | 1.085E-07 | 5.04E-01 | 1.159E+00 | 1.159E+00 | INF | 0. | 6.612E-04 | 1.019E-02 |
| 25 | 8.18E-03 | 8.820E+01 | 8.809E+01 | 8.348E+02 | 7.175E-07 | 1.078E-07 | 4.01E-01 | 1.800E+00 | 1.800E+00 | INF | 0. | 2.740E-04 | 1.259E-02 |
| 30 | 9.76E-03 | 8.743E+01 | 8.732E+01 | 8.274E+02 | 7.303E-07 | 1.069E-07 | 3.32E-01 | 2.574E+00 | 2.574E+00 | INF | 0. | 1.340E-04 | 1.490E-02 |
| 35 | 1.13E-02 | 8.653E+01 | 8.642E+01 | 8.189E+02 | 7.456E-07 | 1.058E-07 | 2.82E-01 | 3.474E+00 | 3.474E+00 | INF | 0. | 7.353E-05 | 1.709E-02 |
| 40 | 1.28E-02 | 8.551E+01 | 8.540E+01 | 8.093E+02 | 7.635E-07 | 1.043E-07 | 2.44E-01 | 4.494E+00 | 4.494E+00 | INF | 0. | 4.394E-05 | 1.915E-02 |
| 45 | 1.43E-02 | 8.437E+01 | 8.427E+01 | 7.985E+02 | 7.841E-07 | 1.023E-07 | 2.15E-01 | 5.626E+00 | 5.626E+00 | INF | 0. | 2.803E-05 | 2.106E-02 |
| 50 | 1.57E-02 | 8.314E+01 | 8.303E+01 | 7.868E+02 | 8.076E-07 | 9.994E-08 | 1.91E-01 | 6.862E+00 | 6.862E+00 | INF | 0. | 1.885E-05 | 2.282E-02 |
| 55 | 1.71E-02 | 8.181E+01 | 8.170E+01 | 7.743E+02 | 8.340E-07 | 9.695E-08 | 1.71E-01 | 8.192E+00 | 8.192E+00 | INF | 0. | 1.323E-05 | 2.440E-02 |
| 60 | 1.84E-02 | 8.040E+01 | 8.029E+01 | 7.609E+02 | 8.636E-07 | 9.326E-08 | 1.54E-01 | 9.605E+00 | 9.605E+00 | INF | 0. | 9.619E-06 | 2.580E-02 |
| 65 | 1.96E-02 | 7.891E+01 | 7.880E+01 | 7.468E+02 | 8.965E-07 | 8.873E-08 | 1.39E-01 | 1.109E+01 | 1.109E+01 | INF | 0. | 7.214E-06 | 2.700E-02 |
| 70 | 2.07E-02 | 7.736E+01 | 7.725E+01 | 7.322E+02 | 9.327E-07 | 8.323E-08 | 1.27E-01 | 1.264E+01 | 1.264E+01 | INF | 0. | 5.555E-06 | 2.799E-02 |
| 75 | 2.18E-02 | 7.576E+01 | 7.566E+01 | 7.170E+02 | 9.725E-07 | 7.659E-08 | 1.16E-01 | 1.424E+01 | 1.424E+01 | INF | 0. | 4.378E-06 | 2.878E-02 |
| 80 | 2.27E-02 | 7.413E+01 | 7.402E+01 | 7.016E+02 | 1.016E-06 | 6.864E-08 | 1.06E-01 | 1.587E+01 | 1.587E+01 | INF | 0. | 3.522E-06 | 2.934E-02 |
| 85 | 2.35E-02 | 7.246E+01 | 7.236E+01 | 6.858E+02 | 1.063E-06 | 5.919E-08 | 9.70E-02 | 1.754E+01 | 1.754E+01 | INF | 0. | 2.886E-06 | 2.968E-02 |
| 90 | 2.41E-02 | 7.079E+01 | 7.068E+01 | 6.700E+02 | 1.114E-06 | 4.806E-08 | 8.89E-02 | 1.921E+01 | 1.921E+01 | INF | 0. | 2.405E-06 | 2.979E-02 |
| 95 | 2.46E-02 | 6.912E+01 | 6.901E+01 | 6.541E+02 | 1.169E-06 | 3.505E-08 | 8.14E-02 | 2.088E+01 | 2.088E+01 | INF | 0. | 2.035E-06 | 2.968E-02 |
| 100 | 2.49E-02 | 6.745E+01 | 6.735E+01 | 6.384E+02 | 1.227E-06 | 2.000E-08 | 7.46E-02 | 2.255E+01 | 2.255E+01 | INF | 0. | 1.746E-06 | 2.934E-02 |
| 105 | 2.50E-02 | 6.582E+01 | 6.571E+01 | 6.229E+02 | 1.289E-06 | 2.764E-09 | 6.82E-02 | 2.418E+01 | 2.418E+01 | INF | 0. | 1.518E-06 | 2.878E-02 |
| 110 | 2.50E-02 | 6.422E+01 | 6.411E+01 | 6.078E+02 | 1.353E-06 | -1.676E-08 | 6.22E-02 | 2.578E+01 | 2.578E+01 | INF | 0. | 1.335E-06 | 2.799E-02 |
| 115 | 2.47E-02 | 6.267E+01 | 6.257E+01 | 5.931E+02 | 1.421E-06 | -3.860E-08 | 5.66E-02 | 2.733E+01 | 2.733E+01 | INF | 0. | 1.188E-06 | 2.700E-02 |
| 120 | 2.42E-02 | 6.119E+01 | 6.108E+01 | 5.791E+02 | 1.491E-06 | -6.271E-08 | 5.13E-02 | 2.881E+01 | 2.881E+01 | INF | 0. | 1.069E-06 | 2.580E-02 |
| 125 | 2.34E-02 | 5.977E+01 | 5.967E+01 | 5.657E+02 | 1.562E-06 | -8.891E-08 | 4.63E-02 | 3.023E+01 | 3.023E+01 | INF | 0. | 9.712E-07 | 2.440E-02 |
| 130 | 2.24E-02 | 5.844E+01 | 5.834E+01 | 5.531E+02 | 1.634E-06 | -1.169E-07 | 4.14E-02 | 3.156E+01 | 3.156E+01 | INF | 0. | 8.911E-07 | 2.282E-02 |
| 135 | 2.11E-02 | 5.721E+01 | 5.710E+01 | 5.414E+02 | 1.706E-06 | -1.462E-07 | 3.68E-02 | 3.279E+01 | 3.279E+01 | INF | 0. | 8.252E-07 | 2.106E-02 |
| 140 | 1.96E-02 | 5.607E+01 | 5.597E+01 | 5.307E+02 | 1.775E-06 | -1.763E-07 | 3.23E-02 | 3.393E+01 | 3.393E+01 | INF | 0. | 7.711E-07 | 1.915E-02 |
| 145 | 1.78E-02 | 5.505E+01 | 5.495E+01 | 5.211E+02 | 1.842E-06 | -2.062E-07 | 2.80E-02 | 3.495E+01 | 3.495E+01 | INF | 0. | 7.267E-07 | 1.709E-02 |
| 150 | 1.58E-02 | 5.415E+01 | 5.405E+01 | 5.125E+02 | 1.903E-06 | -2.352E-07 | 2.38E-02 | 3.585E+01 | 3.585E+01 | INF | 0. | 6.906E-07 | 1.490E-02 |
| 155 | 1.35E-02 | 5.338E+01 | 5.327E+01 | 5.052E+02 | 1.959E-06 | -2.623E-07 | 1.97E-02 | 3.662E+01 | 3.662E+01 | INF | 0. | 6.618E-07 | 1.259E-02 |
| 160 | 1.11E-02 | 5.274E+01 | 5.263E+01 | 4.991E+02 | 2.007E-06 | -2.862E-07 | 1.57E-02 | 3.726E+01 | 3.726E+01 | INF | 0. | 6.392E-07 | 1.019E-02 |
| 165 | 8.46E-03 | 5.223E+01 | 5.213E+01 | 4.944E+02 | 2.046E-06 | -3.062E-07 | 1.17E-02 | 3.777E+01 | 3.777E+01 | INF | 0. | 6.222E-07 | 7.710E-03 |
| 170 | 5.71E-03 | 5.187E+01 | 5.177E+01 | 4.909E+02 | 2.075E-06 | -3.211E-07 | 7.77E-03 | 3.813E+01 | 3.813E+01 | INF | 0. | 6.105E-07 | 5.173E-03 |
| 175 | 2.88E-03 | 5.165E+01 | 5.155E+01 | 4.889E+02 | 2.092E-06 | -3.304E-07 | 3.88E-03 | 3.835E+01 | 3.835E+01 | INF | 0. | 6.035E-07 | 2.596E-03 |
| 180 | 0. | 5.158E+01 | 5.147E+01 | 4.882E+02 | 2.098E-06 | -3.336E-07 | 0. | 3.842E+01 | 3.842E+01 | INF | 0. | 6.012E-07 | 0. |

PI PLUS (1) => MU PLUS (2) + NEUTRINO (3) AT 100 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 1.05659E-01 M3 = 0.
P2CM= 2.97901E-02
E2CM= 1.09779E-01 E3CM= 2.97901E-02

1-V1LAB= 9.740E-07 GCM = 7.16493E+02 S = 1.94794E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.000E+02 | 9.989E+01 | 9.464E+02 | 5.582E-07 | 8.875E-08 | 1.80E+02 | 2.079E-05 | 2.079E-05 | INF | 0. | 2.053E+06 | 0. |
| 1 | 2.98E-04 | 1.000E+02 | 9.989E+01 | 9.464E+02 | 5.582E-07 | 8.874E-08 | 9.14E+00 | 3.272E-03 | 3.272E-03 | INF | 0. | 8.291E+01 | 5.199E-04 |
| 2 | 5.96E-04 | 9.999E+01 | 9.988E+01 | 9.463E+02 | 5.583E-07 | 8.874E-08 | 4.58E+00 | 1.302E-02 | 1.302E-02 | INF | 0. | 5.232E+00 | 1.040E-03 |
| 3 | 8.94E-04 | 9.997E+01 | 9.987E+01 | 9.462E+02 | 5.585E-07 | 8.873E-08 | 3.05E+00 | 2.927E-02 | 2.927E-02 | INF | 0. | 1.036E+00 | 1.559E-03 |
| 4 | 1.19E-03 | 9.995E+01 | 9.984E+01 | 9.459E+02 | 5.588E-07 | 8.871E-08 | 2.29E+00 | 5.201E-02 | 5.201E-02 | INF | 0. | 3.280E-01 | 2.078E-03 |
| 5 | 1.49E-03 | 9.992E+01 | 9.981E+01 | 9.457E+02 | 5.591E-07 | 8.870E-08 | 1.83E+00 | 8.124E-02 | 8.124E-02 | INF | 0. | 1.345E-01 | 2.596E-03 |
| 6 | 1.79E-03 | 9.988E+01 | 9.978E+01 | 9.453E+02 | 5.595E-07 | 8.867E-08 | 1.53E+00 | 1.169E-01 | 1.169E-01 | INF | 0. | 6.489E-02 | 3.114E-03 |
| 7 | 2.08E-03 | 9.984E+01 | 9.974E+01 | 9.449E+02 | 5.600E-07 | 8.865E-08 | 1.31E+00 | 1.591E-01 | 1.591E-01 | INF | 0. | 3.505E-02 | 3.631E-03 |
| 8 | 2.38E-03 | 9.979E+01 | 9.969E+01 | 9.445E+02 | 5.605E-07 | 8.862E-08 | 1.14E+00 | 2.077E-01 | 2.077E-01 | INF | 0. | 2.056E-02 | 4.146E-03 |
| 9 | 2.68E-03 | 9.974E+01 | 9.963E+01 | 9.440E+02 | 5.611E-07 | 8.858E-08 | 1.02E+00 | 2.628E-01 | 2.628E-01 | INF | 0. | 1.285E-02 | 4.660E-03 |
| 10 | 2.97E-03 | 9.968E+01 | 9.957E+01 | 9.434E+02 | 5.618E-07 | 8.854E-08 | 9.14E-01 | 3.243E-01 | 3.243E-01 | INF | 0. | 8.439E-03 | 5.173E-03 |
| 15 | 4.45E-03 | 9.927E+01 | 9.917E+01 | 9.396E+02 | 5.664E-07 | 8.828E-08 | 6.07E-01 | 7.273E-01 | 7.273E-01 | INF | 0. | 1.678E-03 | 7.710E-03 |
| 20 | 5.91E-03 | 9.871E+01 | 9.861E+01 | 9.343E+02 | 5.728E-07 | 8.789E-08 | 4.54E-01 | 1.287E+00 | 1.287E+00 | INF | 0. | 5.356E-04 | 1.019E-02 |
| 25 | 7.36E-03 | 9.800E+01 | 9.789E+01 | 9.275E+02 | 5.812E-07 | 8.734E-08 | 3.61E-01 | 2.000E+00 | 2.000E+00 | INF | 0. | 2.219E-04 | 1.259E-02 |
| 30 | 8.79E-03 | 9.714E+01 | 9.703E+01 | 9.194E+02 | 5.915E-07 | 8.661E-08 | 2.98E-01 | 2.860E+00 | 2.860E+00 | INF | 0. | 1.085E-04 | 1.490E-02 |
| 35 | 1.02E-02 | 9.614E+01 | 9.603E+01 | 9.099E+02 | 6.039E-07 | 8.566E-08 | 2.54E-01 | 3.860E+00 | 3.860E+00 | INF | 0. | 5.956E-05 | 1.709E-02 |
| 40 | 1.15E-02 | 9.501E+01 | 9.490E+01 | 8.992E+02 | 6.184E-07 | 8.444E-08 | 2.20E-01 | 4.994E+00 | 4.994E+00 | INF | 0. | 3.559E-05 | 1.915E-02 |
| 45 | 1.29E-02 | 9.375E+01 | 9.364E+01 | 8.873E+02 | 6.351E-07 | 8.290E-08 | 1.93E-01 | 6.252E+00 | 6.252E+00 | INF | 0. | 2.271E-05 | 2.106E-02 |
| 50 | 1.42E-02 | 9.238E+01 | 9.227E+01 | 8.743E+02 | 6.541E-07 | 8.095E-08 | 1.71E-01 | 7.625E+00 | 7.625E+00 | INF | 0. | 1.527E-05 | 2.282E-02 |
| 55 | 1.54E-02 | 9.090E+01 | 9.079E+01 | 8.603E+02 | 6.756E-07 | 7.853E-08 | 1.54E-01 | 9.102E+00 | 9.102E+00 | INF | 0. | 1.071E-05 | 2.440E-02 |
| 60 | 1.65E-02 | 8.933E+01 | 8.922E+01 | 8.454E+02 | 6.995E-07 | 7.554E-08 | 1.39E-01 | 1.067E+01 | 1.067E+01 | INF | 0. | 7.792E-06 | 2.580E-02 |
| 65 | 1.76E-02 | 8.768E+01 | 8.757E+01 | 8.298E+02 | 7.261E-07 | 7.188E-08 | 1.26E-01 | 1.232E+01 | 1.232E+01 | INF | 0. | 5.843E-06 | 2.700E-02 |
| 70 | 1.87E-02 | 8.596E+01 | 8.585E+01 | 8.135E+02 | 7.555E-07 | 6.742E-08 | 1.14E-01 | 1.404E+01 | 1.404E+01 | INF | 0. | 4.499E-06 | 2.799E-02 |
| 75 | 1.96E-02 | 8.418E+01 | 8.407E+01 | 7.967E+02 | 7.877E-07 | 6.204E-08 | 1.04E-01 | 1.582E+01 | 1.582E+01 | INF | 0. | 3.546E-06 | 2.878E-02 |
| 80 | 2.04E-02 | 8.236E+01 | 8.226E+01 | 7.795E+02 | 8.229E-07 | 5.560E-08 | 9.53E-02 | 1.764E+01 | 1.764E+01 | INF | 0. | 2.853E-06 | 2.934E-02 |
| 85 | 2.11E-02 | 8.052E+01 | 8.041E+01 | 7.620E+02 | 8.610E-07 | 4.795E-08 | 8.73E-02 | 1.948E+01 | 1.948E+01 | INF | 0. | 2.338E-06 | 2.968E-02 |
| 90 | 2.17E-02 | 7.866E+01 | 7.855E+01 | 7.444E+02 | 9.022E-07 | 3.893E-08 | 8.00E-02 | 2.134E+01 | 2.134E+01 | INF | 0. | 1.948E-06 | 2.979E-02 |
| 95 | 2.21E-02 | 7.680E+01 | 7.669E+01 | 7.268E+02 | 9.465E-07 | 2.839E-08 | 7.33E-02 | 2.320E+01 | 2.320E+01 | INF | 0. | 1.648E-06 | 2.968E-02 |
| 100 | 2.24E-02 | 7.495E+01 | 7.484E+01 | 7.093E+02 | 9.937E-07 | 1.620E-08 | 6.71E-02 | 2.505E+01 | 2.505E+01 | INF | 0. | 1.414E-06 | 2.934E-02 |
| 105 | 2.25E-02 | 7.313E+01 | 7.303E+01 | 6.921E+02 | 1.044E-06 | 2.239E-09 | 6.14E-02 | 2.687E+01 | 2.687E+01 | INF | 0. | 1.229E-06 | 2.878E-02 |
| 110 | 2.25E-02 | 7.136E+01 | 7.125E+01 | 6.753E+02 | 1.096E-06 | -1.357E-08 | 5.60E-02 | 2.864E+01 | 2.864E+01 | INF | 0. | 1.082E-06 | 2.799E-02 |
| 115 | 2.22E-02 | 6.964E+01 | 6.953E+01 | 6.591E+02 | 1.151E-06 | -3.127E-08 | 5.09E-02 | 3.036E+01 | 3.036E+01 | INF | 0. | 9.625E-07 | 2.700E-02 |
| 120 | 2.17E-02 | 6.798E+01 | 6.788E+01 | 6.434E+02 | 1.208E-06 | -5.079E-08 | 4.62E-02 | 3.202E+01 | 3.202E+01 | INF | 0. | 8.658E-07 | 2.580E-02 |
| 125 | 2.11E-02 | 6.641E+01 | 6.631E+01 | 6.286E+02 | 1.266E-06 | -7.202E-08 | 4.16E-02 | 3.359E+01 | 3.359E+01 | INF | 0. | 7.867E-07 | 2.440E-02 |
| 130 | 2.01E-02 | 6.494E+01 | 6.483E+01 | 6.146E+02 | 1.324E-06 | -9.469E-08 | 3.73E-02 | 3.506E+01 | 3.506E+01 | INF | 0. | 7.218E-07 | 2.282E-02 |
| 135 | 1.90E-02 | 6.356E+01 | 6.346E+01 | 6.016E+02 | 1.382E-06 | -1.184E-07 | 3.31E-02 | 3.644E+01 | 3.644E+01 | INF | 0. | 6.684E-07 | 2.106E-02 |
| 140 | 1.76E-02 | 6.230E+01 | 6.220E+01 | 5.897E+02 | 1.438E-06 | -1.428E-07 | 2.91E-02 | 3.770E+01 | 3.770E+01 | INF | 0. | 6.246E-07 | 1.915E-02 |
| 145 | 1.60E-02 | 6.117E+01 | 6.107E+01 | 5.789E+02 | 1.492E-06 | -1.670E-07 | 2.52E-02 | 3.883E+01 | 3.883E+01 | INF | 0. | 5.886E-07 | 1.719E-02 |
| 150 | 1.42E-02 | 6.017E+01 | 6.007E+01 | 5.695E+02 | 1.542E-06 | -1.905E-07 | 2.14E-02 | 3.983E+01 | 3.983E+01 | INF | 0. | 5.594E-07 | 1.490E-02 |
| 155 | 1.22E-02 | 5.931E+01 | 5.921E+01 | 5.613E+02 | 1.587E-06 | -2.124E-07 | 1.77E-02 | 4.069E+01 | 4.069E+01 | INF | 0. | 5.360E-07 | 1.259E-02 |
| 160 | 9.96E-03 | 5.860E+01 | 5.849E+01 | 5.546E+02 | 1.626E-06 | -2.318E-07 | 1.41E-02 | 4.140E+01 | 4.140E+01 | INF | 0. | 5.177E-07 | 1.019E-02 |
| 165 | 7.61E-03 | 5.804E+01 | 5.793E+01 | 5.493E+02 | 1.657E-06 | -2.480E-07 | 1.05E-02 | 4.196E+01 | 4.196E+01 | INF | 0. | 5.040E-07 | 7.710E-03 |
| 170 | 5.14E-03 | 5.764E+01 | 5.753E+01 | 5.455E+02 | 1.680E-06 | -2.601E-07 | 7.00E-03 | 4.236E+01 | 4.236E+01 | INF | 0. | 4.945E-07 | 5.173E-03 |
| 175 | 2.59E-03 | 5.739E+01 | 5.729E+01 | 5.432E+02 | 1.695E-06 | -2.676E-07 | 3.49E-03 | 4.261E+01 | 4.261E+01 | INF | 0. | 4.888E-07 | 2.596E-03 |
| 180 | 0. | 5.731E+01 | 5.721E+01 | 5.424E+02 | 1.699E-06 | -2.702E-07 | 0. | 4.269E+01 | 4.269E+01 | INF | 0. | 4.870E-07 | 0. |

PI PLUS (1) => MU PLUS (2) + NEUTRINO (3) AT 125 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 1.05659E-01 M3 = 0.
P2CM= 2.97901E-02
E2CM= 1.09779E-01 E3CM= 2.97901E-02

1-V1LAB= 6.233E-07 GCM = 8.95616E+02 S = 1.94794E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.250E+02 | 1.249E+02 | 1.183E+03 | 3.572E-07 | 5.680E-08 | 1.80E+02 | 1.663E-05 | 1.663E-05 | INF | 0. | 3.209E+06 | 0. |
| 1 | 2.38E-04 | 1.250E+02 | 1.249E+02 | 1.183E+03 | 3.573E-07 | 5.680E-08 | 7.32E+00 | 4.080E-03 | 4.080E-03 | INF | 0. | 5.331E+01 | 5.199E-04 |
| 2 | 4.77E-04 | 1.250E+02 | 1.249E+02 | 1.183E+03 | 3.573E-07 | 5.679E-08 | 3.66E+00 | 1.627E-02 | 1.627E-02 | INF | 0. | 3.353E+00 | 1.040E-03 |
| 3 | 7.15E-04 | 1.250E+02 | 1.249E+02 | 1.183E+03 | 3.575E-07 | 5.679E-08 | 2.44E+00 | 3.658E-02 | 3.658E-02 | INF | 0. | 6.632E-01 | 1.559E-03 |
| 4 | 9.53E-04 | 1.249E+02 | 1.248E+02 | 1.182E+03 | 3.576E-07 | 5.678E-08 | 1.83E+00 | 6.501E-02 | 6.501E-02 | INF | 0. | 2.100E-01 | 2.078E-03 |
| 5 | 1.19E-03 | 1.249E+02 | 1.248E+02 | 1.182E+03 | 3.578E-07 | 5.677E-08 | 1.47E+00 | 1.015E-01 | 1.015E-01 | INF | 0. | 8.607E-02 | 2.596E-03 |
| 6 | 1.43E-03 | 1.249E+02 | 1.247E+02 | 1.182E+03 | 3.581E-07 | 5.675E-08 | 1.22E+00 | 1.462E-01 | 1.462E-01 | INF | 0. | 4.153E-02 | 3.114E-03 |
| 7 | 1.67E-03 | 1.248E+02 | 1.247E+02 | 1.181E+03 | 3.584E-07 | 5.673E-08 | 1.05E+00 | 1.989E-01 | 1.989E-01 | INF | 0. | 2.243E-02 | 3.631E-03 |
| 8 | 1.90E-03 | 1.247E+02 | 1.246E+02 | 1.181E+03 | 3.587E-07 | 5.671E-08 | 9.15E-01 | 2.597E-01 | 2.597E-01 | INF | 0. | 1.316E-02 | 4.146E-03 |
| 9 | 2.14E-03 | 1.247E+02 | 1.246E+02 | 1.180E+03 | 3.591E-07 | 5.669E-08 | 8.13E-01 | 3.285E-01 | 3.285E-01 | INF | 0. | 8.224E-03 | 4.660E-03 |
| 10 | 2.38E-03 | 1.246E+02 | 1.245E+02 | 1.179E+03 | 3.596E-07 | 5.667E-08 | 7.31E-01 | 4.054E-01 | 4.054E-01 | INF | 0. | 5.401E-03 | 5.173E-03 |
| 15 | 3.56E-03 | 1.241E+02 | 1.240E+02 | 1.174E+03 | 3.625E-07 | 5.650E-08 | 4.86E-01 | 9.091E-01 | 9.091E-01 | INF | 0. | 1.074E-03 | 7.710E-03 |
| 20 | 4.73E-03 | 1.234E+02 | 1.233E+02 | 1.168E+03 | 3.666E-07 | 5.625E-08 | 3.63E-01 | 1.609E+00 | 1.609E+00 | INF | 0. | 3.428E-04 | 1.019E-02 |
| 25 | 5.89E-03 | 1.225E+02 | 1.224E+02 | 1.159E+03 | 3.720E-07 | 5.590E-08 | 2.89E-01 | 2.500E+00 | 2.500E+00 | INF | 0. | 1.420E-04 | 1.259E-02 |
| 30 | 7.03E-03 | 1.214E+02 | 1.213E+02 | 1.149E+03 | 3.786E-07 | 5.543E-08 | 2.39E-01 | 3.575E+00 | 3.575E+00 | INF | 0. | 6.946E-05 | 1.490E-02 |
| 35 | 8.15E-03 | 1.202E+02 | 1.201E+02 | 1.137E+03 | 3.865E-07 | 5.482E-08 | 2.03E-01 | 4.825E+00 | 4.825E+00 | INF | 0. | 3.812E-05 | 1.709E-02 |
| 40 | 9.24E-03 | 1.188E+02 | 1.187E+02 | 1.124E+03 | 3.958E-07 | 5.404E-08 | 1.76E-01 | 6.242E+00 | 6.242E+00 | INF | 0. | 2.278E-05 | 1.915E-02 |
| 45 | 1.03E-02 | 1.172E+02 | 1.171E+02 | 1.109E+03 | 4.065E-07 | 5.305E-08 | 1.54E-01 | 7.815E+00 | 7.815E+00 | INF | 0. | 1.453E-05 | 2.106E-02 |
| 50 | 1.13E-02 | 1.155E+02 | 1.154E+02 | 1.093E+03 | 4.187E-07 | 5.181E-08 | 1.37E-01 | 9.531E+00 | 9.531E+00 | INF | 0. | 9.770E-06 | 2.282E-02 |
| 55 | 1.23E-02 | 1.136E+02 | 1.135E+02 | 1.075E+03 | 4.324E-07 | 5.026E-08 | 1.23E-01 | 1.138E+01 | 1.138E+01 | INF | 0. | 6.856E-06 | 2.440E-02 |
| 60 | 1.32E-02 | 1.117E+02 | 1.116E+02 | 1.057E+03 | 4.477E-07 | 4.835E-08 | 1.11E-01 | 1.334E+01 | 1.334E+01 | INF | 0. | 4.987E-06 | 2.580E-02 |
| 65 | 1.41E-02 | 1.096E+02 | 1.095E+02 | 1.037E+03 | 4.647E-07 | 4.600E-08 | 1.00E-01 | 1.540E+01 | 1.540E+01 | INF | 0. | 3.740E-06 | 2.700E-02 |
| 70 | 1.49E-02 | 1.074E+02 | 1.073E+02 | 1.017E+03 | 4.835E-07 | 4.315E-08 | 9.14E-02 | 1.756E+01 | 1.756E+01 | INF | 0. | 2.880E-06 | 2.799E-02 |
| 75 | 1.57E-02 | 1.052E+02 | 1.051E+02 | 9.959E+02 | 5.041E-07 | 3.971E-08 | 8.34E-02 | 1.978E+01 | 1.978E+01 | INF | 0. | 2.269E-06 | 2.878E-02 |
| 80 | 1.63E-02 | 1.030E+02 | 1.028E+02 | 9.744E+02 | 5.266E-07 | 3.558E-08 | 7.62E-02 | 2.205E+01 | 2.205E+01 | INF | 0. | 1.826E-06 | 2.934E-02 |
| 85 | 1.69E-02 | 1.006E+02 | 1.005E+02 | 9.525E+02 | 5.511E-07 | 3.068E-08 | 6.98E-02 | 2.436E+01 | 2.436E+01 | INF | 0. | 1.496E-06 | 2.968E-02 |
| 90 | 1.74E-02 | 9.832E+01 | 9.821E+01 | 9.305E+02 | 5.774E-07 | 2.491E-08 | 6.40E-02 | 2.668E+01 | 2.668E+01 | INF | 0. | 1.247E-06 | 2.979E-02 |
| 95 | 1.77E-02 | 9.599E+01 | 9.589E+01 | 9.085E+02 | 6.058E-07 | 1.817E-08 | 5.86E-02 | 2.901E+01 | 2.901E+01 | INF | 0. | 1.055E-06 | 2.968E-02 |
| 100 | 1.79E-02 | 9.369E+01 | 9.358E+01 | 8.867E+02 | 6.360E-07 | 1.037E-08 | 5.37E-02 | 3.131E+01 | 3.131E+01 | INF | 0. | 9.051E-07 | 2.934E-02 |
| 105 | 1.80E-02 | 9.141E+01 | 9.131E+01 | 8.652E+02 | 6.680E-07 | 1.433E-09 | 4.91E-02 | 3.359E+01 | 3.359E+01 | INF | 0. | 7.867E-07 | 2.878E-02 |
| 110 | 1.80E-02 | 8.919E+01 | 8.909E+01 | 8.442E+02 | 7.016E-07 | -8.688E-09 | 4.48E-02 | 3.581E+01 | 3.581E+01 | INF | 0. | 6.922E-07 | 2.799E-02 |
| 115 | 1.78E-02 | 8.704E+01 | 8.694E+01 | 8.238E+02 | 7.367E-07 | -2.001E-08 | 4.08E-02 | 3.796E+01 | 3.796E+01 | INF | 0. | 6.160E-07 | 2.700E-02 |
| 120 | 1.74E-02 | 8.498E+01 | 8.487E+01 | 8.043E+02 | 7.730E-07 | -3.251E-08 | 3.69E-02 | 4.002E+01 | 4.002E+01 | INF | 0. | 5.541E-07 | 2.580E-02 |
| 125 | 1.68E-02 | 8.302E+01 | 8.291E+01 | 7.857E+02 | 8.100E-07 | -4.609E-08 | 3.33E-02 | 4.198E+01 | 4.198E+01 | INF | 0. | 5.035E-07 | 2.440E-02 |
| 130 | 1.61E-02 | 8.117E+01 | 8.106E+01 | 7.682E+02 | 8.472E-07 | -6.060E-08 | 2.98E-02 | 4.383E+01 | 4.383E+01 | INF | 0. | 4.619E-07 | 2.282E-02 |
| 135 | 1.52E-02 | 7.945E+01 | 7.935E+01 | 7.520E+02 | 8.842E-07 | -7.580E-08 | 2.65E-02 | 4.555E+01 | 4.555E+01 | INF | 0. | 4.278E-07 | 2.106E-02 |
| 140 | 1.41E-02 | 7.788E+01 | 7.778E+01 | 7.371E+02 | 9.203E-07 | -9.137E-08 | 2.33E-02 | 4.712E+01 | 4.712E+01 | INF | 0. | 3.997E-07 | 1.915E-02 |
| 145 | 1.28E-02 | 7.646E+01 | 7.636E+01 | 7.237E+02 | 9.547E-07 | -1.069E-07 | 2.02E-02 | 4.854E+01 | 4.854E+01 | INF | 0. | 3.767E-07 | 1.709E-02 |
| 150 | 1.13E-02 | 7.521E+01 | 7.511E+01 | 7.118E+02 | 9.867E-07 | -1.219E-07 | 1.71E-02 | 4.979E+01 | 4.979E+01 | INF | 0. | 3.580E-07 | 1.490E-02 |
| 155 | 9.73E-03 | 7.414E+01 | 7.403E+01 | 7.017E+02 | 1.016E-06 | -1.360E-07 | 1.42E-02 | 5.086E+01 | 5.086E+01 | INF | 0. | 3.431E-07 | 1.259E-02 |
| 160 | 7.97E-03 | 7.325E+01 | 7.314E+01 | 6.932E+02 | 1.040E-06 | -1.484E-07 | 1.13E-02 | 5.175E+01 | 5.175E+01 | INF | 0. | 3.314E-07 | 1.019E-02 |
| 165 | 6.09E-03 | 7.255E+01 | 7.244E+01 | 6.866E+02 | 1.061E-06 | -1.587E-07 | 8.42E-03 | 5.245E+01 | 5.245E+01 | INF | 0. | 3.226E-07 | 7.710E-03 |
| 170 | 4.11E-03 | 7.204E+01 | 7.194E+01 | 6.819E+02 | 1.075E-06 | -1.665E-07 | 5.60E-03 | 5.296E+01 | 5.296E+01 | INF | 0. | 3.165E-07 | 5.173E-03 |
| 175 | 2.07E-03 | 7.174E+01 | 7.163E+01 | 6.790E+02 | 1.085E-06 | -1.713E-07 | 2.79E-03 | 5.326E+01 | 5.326E+01 | INF | 0. | 3.129E-07 | 2.596E-03 |
| 180 | 0. | 7.164E+01 | 7.153E+01 | 6.780E+02 | 1.088E-06 | -1.729E-07 | 0. | 5.336E+01 | 5.336E+01 | INF | 0. | 3.117E-07 | 0. |

PI PLUS (1) => MU PLUS (2) + NEUTRINO (3) AT 150 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 1.05659E-01 M3 = 0.
P2CM= 2.97901E-02
E2CM= 1.09779E-01 E3CM= 2.97901E-02

1-V1LAB= 4.329E-07 GCM = 1.07474E+03 S = 1.94794E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.500E+02 | 1.499E+02 | 1.420E+03 | 2.481E-07 | 3.944E-08 | 1.80E+02 | 1.386E-05 | 1.386E-05 | INF | 0. | 4.620E+06 | 0. |
| 1 | 1.99E-04 | 1.500E+02 | 1.499E+02 | 1.420E+03 | 2.481E-07 | 3.944E-08 | 6.10E+00 | 4.890E-03 | 4.890E-03 | INF | 0. | 3.711E+01 | 5.199E-04 |
| 2 | 3.97E-04 | 1.500E+02 | 1.499E+02 | 1.419E+03 | 2.482E-07 | 3.944E-08 | 3.05E+00 | 1.952E-02 | 1.952E-02 | INF | 0. | 2.370E+00 | 1.040E-03 |
| 3 | 5.96E-04 | 1.500E+02 | 1.499E+02 | 1.419E+03 | 2.482E-07 | 3.943E-08 | 2.04E+00 | 4.389E-02 | 4.389E-02 | INF | 0. | 4.607E-01 | 1.559E-03 |
| 4 | 7.94E-04 | 1.499E+02 | 1.498E+02 | 1.419E+03 | 2.483E-07 | 3.943E-08 | 1.53E+00 | 7.800E-02 | 7.800E-02 | INF | 0. | 1.458E-01 | 2.078E-03 |
| 5 | 9.93E-04 | 1.499E+02 | 1.498E+02 | 1.419E+03 | 2.485E-07 | 3.942E-08 | 1.22E+00 | 1.218E-01 | 1.218E-01 | INF | 0. | 5.977E-02 | 2.596E-03 |
| 6 | 1.19E-03 | 1.498E+02 | 1.497E+02 | 1.418E+03 | 2.487E-07 | 3.941E-08 | 1.02E+00 | 1.754E-01 | 1.754E-01 | INF | 0. | 2.884E-02 | 3.114E-03 |
| 7 | 1.39E-03 | 1.498E+02 | 1.497E+02 | 1.417E+03 | 2.489E-07 | 3.940E-08 | 8.72E-01 | 2.387E-01 | 2.387E-01 | INF | 0. | 1.558E-02 | 3.631E-03 |
| 8 | 1.59E-03 | 1.497E+02 | 1.496E+02 | 1.417E+03 | 2.491E-07 | 3.939E-08 | 7.62E-01 | 3.116E-01 | 3.116E-01 | INF | 0. | 9.140E-03 | 4.146E-03 |
| 9 | 1.78E-03 | 1.496E+02 | 1.495E+02 | 1.416E+03 | 2.494E-07 | 3.937E-08 | 6.77E-01 | 3.942E-01 | 3.942E-01 | INF | 0. | 5.711E-03 | 4.660E-03 |
| 10 | 1.98E-03 | 1.495E+02 | 1.494E+02 | 1.415E+03 | 2.497E-07 | 3.935E-08 | 6.09E-01 | 4.864E-01 | 4.864E-01 | INF | 0. | 3.751E-03 | 5.173E-03 |
| 15 | 2.97E-03 | 1.489E+02 | 1.488E+02 | 1.409E+03 | 2.517E-07 | 3.924E-08 | 4.05E-01 | 1.091E+00 | 1.091E+00 | INF | 0. | 7.456E-04 | 7.710E-03 |
| 20 | 3.94E-03 | 1.481E+02 | 1.480E+02 | 1.401E+03 | 2.546E-07 | 3.906E-08 | 3.02E-01 | 1.931E+00 | 1.931E+00 | INF | 0. | 2.380E-04 | 1.019E-02 |
| 25 | 4.91E-03 | 1.470E+02 | 1.469E+02 | 1.391E+03 | 2.583E-07 | 3.882E-08 | 2.40E-01 | 3.000E+00 | 3.000E+00 | INF | 0. | 9.862E-05 | 1.259E-02 |
| 30 | 5.86E-03 | 1.457E+02 | 1.456E+02 | 1.379E+03 | 2.629E-07 | 3.849E-08 | 1.99E-01 | 4.289E+00 | 4.289E+00 | INF | 0. | 4.823E-05 | 1.490E-02 |
| 35 | 6.79E-03 | 1.442E+02 | 1.441E+02 | 1.365E+03 | 2.684E-07 | 3.807E-08 | 1.69E-01 | 5.790E+00 | 5.790E+00 | INF | 0. | 2.647E-05 | 1.709E-02 |
| 40 | 7.70E-03 | 1.425E+02 | 1.424E+02 | 1.349E+03 | 2.749E-07 | 3.753E-08 | 1.46E-01 | 7.490E+00 | 7.490E+00 | INF | 0. | 1.582E-05 | 1.915E-02 |
| 45 | 8.58E-03 | 1.406E+02 | 1.405E+02 | 1.331E+03 | 2.823E-07 | 3.684E-08 | 1.29E-01 | 9.377E+00 | 9.377E+00 | INF | 0. | 1.009E-05 | 2.106E-02 |
| 50 | 9.44E-03 | 1.386E+02 | 1.385E+02 | 1.311E+03 | 2.907E-07 | 3.598E-08 | 1.14E-01 | 1.144E+01 | 1.144E+01 | INF | 0. | 6.785E-06 | 2.282E-02 |
| 55 | 1.03E-02 | 1.363E+02 | 1.362E+02 | 1.290E+03 | 3.003E-07 | 3.490E-08 | 1.02E-01 | 1.365E+01 | 1.365E+01 | INF | 0. | 4.761E-06 | 2.440E-02 |
| 60 | 1.10E-02 | 1.340E+02 | 1.339E+02 | 1.268E+03 | 3.109E-07 | 3.357E-08 | 9.23E-02 | 1.601E+01 | 1.601E+01 | INF | 0. | 3.463E-06 | 2.580E-02 |
| 65 | 1.18E-02 | 1.315E+02 | 1.314E+02 | 1.245E+03 | 3.227E-07 | 3.194E-08 | 8.37E-02 | 1.849E+01 | 1.849E+01 | INF | 0. | 2.597E-06 | 2.700E-02 |
| 70 | 1.24E-02 | 1.289E+02 | 1.288E+02 | 1.220E+03 | 3.358E-07 | 2.996E-08 | 7.61E-02 | 2.107E+01 | 2.107E+01 | INF | 0. | 2.000E-06 | 2.799E-02 |
| 75 | 1.31E-02 | 1.263E+02 | 1.262E+02 | 1.195E+03 | 3.501E-07 | 2.757E-08 | 6.95E-02 | 2.373E+01 | 2.373E+01 | INF | 0. | 1.576E-06 | 2.878E-02 |
| 80 | 1.36E-02 | 1.235E+02 | 1.234E+02 | 1.169E+03 | 3.657E-07 | 2.471E-08 | 6.35E-02 | 2.646E+01 | 2.646E+01 | INF | 0. | 1.268E-06 | 2.934E-02 |
| 85 | 1.41E-02 | 1.208E+02 | 1.207E+02 | 1.143E+03 | 3.827E-07 | 2.131E-08 | 5.82E-02 | 2.923E+01 | 2.923E+01 | INF | 0. | 1.039E-06 | 2.968E-02 |
| 90 | 1.45E-02 | 1.180E+02 | 1.179E+02 | 1.117E+03 | 4.010E-07 | 1.730E-08 | 5.33E-02 | 3.202E+01 | 3.202E+01 | INF | 0. | 8.658E-07 | 2.979E-02 |
| 95 | 1.48E-02 | 1.152E+02 | 1.151E+02 | 1.090E+03 | 4.207E-07 | 1.262E-08 | 4.89E-02 | 3.481E+01 | 3.481E+01 | INF | 0. | 7.325E-07 | 2.968E-02 |
| 100 | 1.50E-02 | 1.124E+02 | 1.123E+02 | 1.064E+03 | 4.416E-07 | 7.200E-09 | 4.47E-02 | 3.758E+01 | 3.758E+01 | INF | 0. | 6.285E-07 | 2.934E-02 |
| 105 | 1.50E-02 | 1.097E+02 | 1.096E+02 | 1.038E+03 | 4.639E-07 | 9.952E-10 | 4.09E-02 | 4.030E+01 | 4.030E+01 | INF | 0. | 5.463E-07 | 2.878E-02 |
| 110 | 1.50E-02 | 1.070E+02 | 1.069E+02 | 1.013E+03 | 4.872E-07 | -6.033E-09 | 3.73E-02 | 4.297E+01 | 4.297E+01 | INF | 0. | 4.807E-07 | 2.799E-02 |
| 115 | 1.48E-02 | 1.045E+02 | 1.043E+02 | 9.886E+02 | 5.116E-07 | -1.390E-08 | 3.40E-02 | 4.555E+01 | 4.555E+01 | INF | 0. | 4.278E-07 | 2.700E-02 |
| 120 | 1.45E-02 | 1.020E+02 | 1.019E+02 | 9.651E+02 | 5.368E-07 | -2.257E-08 | 3.08E-02 | 4.802E+01 | 4.802E+01 | INF | 0. | 3.848E-07 | 2.580E-02 |
| 125 | 1.40E-02 | 9.962E+01 | 9.951E+01 | 9.428E+02 | 5.625E-07 | -3.201E-08 | 2.78E-02 | 5.038E+01 | 5.038E+01 | INF | 0. | 3.496E-07 | 2.440E-02 |
| 130 | 1.34E-02 | 9.740E+01 | 9.730E+01 | 9.219E+02 | 5.884E-07 | -4.208E-08 | 2.49E-02 | 5.260E+01 | 5.260E+01 | INF | 0. | 3.208E-07 | 2.282E-02 |
| 135 | 1.27E-02 | 9.534E+01 | 9.524E+01 | 9.024E+02 | 6.140E-07 | -5.264E-08 | 2.21E-02 | 5.466E+01 | 5.466E+01 | INF | 0. | 2.971E-07 | 2.106E-02 |
| 140 | 1.17E-02 | 9.346E+01 | 9.335E+01 | 8.845E+02 | 6.391E-07 | -6.345E-08 | 1.94E-02 | 5.654E+01 | 5.654E+01 | INF | 0. | 2.776E-07 | 1.915E-02 |
| 145 | 1.07E-02 | 9.176E+01 | 9.165E+01 | 8.684E+02 | 6.630E-07 | -7.424E-08 | 1.68E-02 | 5.824E+01 | 5.824E+01 | INF | 0. | 2.616E-07 | 1.709E-02 |
| 150 | 9.46E-03 | 9.026E+01 | 9.015E+01 | 8.542E+02 | 6.852E-07 | -8.468E-08 | 1.43E-02 | 5.974E+01 | 5.974E+01 | INF | 0. | 2.486E-07 | 1.490E-02 |
| 155 | 8.11E-03 | 8.897E+01 | 8.886E+01 | 8.420E+02 | 7.052E-07 | -9.441E-08 | 1.18E-02 | 6.103E+01 | 6.103E+01 | INF | 0. | 2.382E-07 | 1.259E-02 |
| 160 | 6.64E-03 | 8.790E+01 | 8.779E+01 | 8.319E+02 | 7.225E-07 | -1.030E-07 | 9.40E-03 | 6.210E+01 | 6.210E+01 | INF | 0. | 2.301E-07 | 1.019E-02 |
| 165 | 5.07E-03 | 8.706E+01 | 8.695E+01 | 8.239E+02 | 7.365E-07 | -1.102E-07 | 7.02E-03 | 6.294E+01 | 6.294E+01 | INF | 0. | 2.240F-07 | 7.71JE-03 |
| 170 | 3.43E-03 | 8.645E+01 | 8.635E+01 | 8.182E+02 | 7.468E-07 | -1.156E-07 | 4.66E-03 | 6.355E+01 | 6.355E+01 | INF | 0. | 2.198E-07 | 5.173F-03 |
| 175 | 1.73E-03 | 8.609E+01 | 8.598E+01 | 8.148E+02 | 7.532E-07 | -1.189E-07 | 2.33E-03 | 6.391E+01 | 6.391E+01 | INF | 0. | 2.173E-07 | 2.596E-03 |
| 180 | 0. | 8.597E+01 | 8.586E+01 | 8.136E+02 | 7.553E-07 | -1.201E-07 | 0. | 6.403E+01 | 6.403E+01 | INF | 0. | 2.164E-07 | 0. |

PI PLUS (1) => MU PLUS (2) + NEUTRINO (3) AT 175 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 1.05659E-01 M3 = 0.
P2CM= 2.97901E-02
E2CM= 1.09779E-01 E3CM= 2.97901E-02

1-V1LAB= 3.180E-07 GCM = 1.25386E+03 S = 1.94794E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.750E+02 | 1.749E+02 | 1.656E+03 | 1.823E-07 | 2.898E-08 | 1.80E+02 | 1.188E-05 | 1.188E-05 | INF | 0. | 6.289E+06 | 0. |
| 1 | 1.70E-04 | 1.750E+02 | 1.749E+02 | 1.656E+03 | 1.823E-07 | 2.898E-08 | 5.23E+00 | 5.701E-03 | 5.701E-03 | INF | 0. | 2.731E+01 | 5.199E-04 |
| 2 | 3.40E-04 | 1.750E+02 | 1.749E+02 | 1.656E+03 | 1.823E-07 | 2.898E-08 | 2.62E+00 | 2.277E-02 | 2.277E-02 | INF | 0. | 1.712E+00 | 1.040E-03 |
| 3 | 5.11E-04 | 1.749E+02 | 1.748E+02 | 1.656E+03 | 1.824E-07 | 2.897E-08 | 1.74E+00 | 5.120E-02 | 5.120E-02 | INF | 0. | 3.385E-01 | 1.559E-03 |
| 4 | 6.81E-04 | 1.749E+02 | 1.748E+02 | 1.655E+03 | 1.825E-07 | 2.897E-08 | 1.31E+00 | 9.100E-02 | 9.100E-02 | INF | 0. | 1.072E-01 | 2.078E-03 |
| 5 | 8.51E-04 | 1.749E+02 | 1.748E+02 | 1.655E+03 | 1.826E-07 | 2.896E-08 | 1.05E+00 | 1.422E-01 | 1.422E-01 | INF | 0. | 4.392E-02 | 2.596E-03 |
| 6 | 1.02E-03 | 1.748E+02 | 1.747E+02 | 1.654E+03 | 1.827E-07 | 2.895E-08 | 8.72E-01 | 2.046E-01 | 2.046E-01 | INF | 0. | 2.119E-02 | 3.114E-03 |
| 7 | 1.19E-03 | 1.747E+02 | 1.746E+02 | 1.654E+03 | 1.828E-07 | 2.895E-08 | 7.47E-01 | 2.784E-01 | 2.784E-01 | INF | 0. | 1.145E-02 | 3.631E-03 |
| 8 | 1.36E-03 | 1.746E+02 | 1.745E+02 | 1.653E+03 | 1.830E-07 | 2.894E-08 | 6.53E-01 | 3.635E-01 | 3.635E-01 | INF | 0. | 6.715E-03 | 4.146E-03 |
| 9 | 1.53E-03 | 1.745E+02 | 1.744E+02 | 1.652E+03 | 1.832E-07 | 2.892E-08 | 5.81E-01 | 4.599E-01 | 4.599E-01 | INF | 0. | 4.196E-03 | 4.660E-03 |
| 10 | 1.70E-03 | 1.744E+02 | 1.743E+02 | 1.651E+03 | 1.835E-07 | 2.891E-08 | 5.22E-01 | 5.675E-01 | 5.675E-01 | INF | 0. | 2.756E-03 | 5.173E-03 |
| 15 | 2.54E-03 | 1.737E+02 | 1.736E+02 | 1.644E+03 | 1.849E-07 | 2.883E-08 | 3.47E-01 | 1.273E+00 | 1.273E+00 | INF | 0. | 5.478E-04 | 7.710E-03 |
| 20 | 3.38E-03 | 1.727E+02 | 1.726E+02 | 1.635E+03 | 1.871E-07 | 2.870E-08 | 2.59E-01 | 2.253E+00 | 2.253E+00 | INF | 0. | 1.749E-04 | 1.019E-02 |
| 25 | 4.21E-03 | 1.715E+02 | 1.714E+02 | 1.623E+03 | 1.898E-07 | 2.852E-08 | 2.06E-01 | 3.500E+00 | 3.500E+00 | INF | 0. | 7.246E-05 | 1.259E-02 |
| 30 | 5.02E-03 | 1.700E+02 | 1.699E+02 | 1.609E+03 | 1.932E-07 | 2.828E-08 | 1.71E-01 | 5.004E+00 | 5.004E+00 | INF | 0. | 3.544E-05 | 1.490E-02 |
| 35 | 5.82E-03 | 1.682E+02 | 1.681E+02 | 1.592E+03 | 1.972E-07 | 2.797E-08 | 1.45E-01 | 6.755E+00 | 6.755E+00 | INF | 0. | 1.945E-05 | 1.709E-02 |
| 40 | 6.60E-03 | 1.663E+02 | 1.662E+02 | 1.574E+03 | 2.019E-07 | 2.757E-08 | 1.26E-01 | 8.739E+00 | 8.739E+00 | INF | 0. | 1.162E-05 | 1.915E-02 |
| 45 | 7.36E-03 | 1.641E+02 | 1.640E+02 | 1.553E+03 | 2.074E-07 | 2.707E-08 | 1.10E-01 | 1.094E+01 | 1.094E+01 | INF | 0. | 7.414E-06 | 2.106E-02 |
| 50 | 8.09E-03 | 1.617E+02 | 1.616E+02 | 1.530E+03 | 2.136E-07 | 2.643E-08 | 9.80E-02 | 1.334E+01 | 1.334E+01 | INF | 0. | 4.985E-06 | 2.282E-02 |
| 55 | 8.79E-03 | 1.591E+02 | 1.590E+02 | 1.506E+03 | 2.206E-07 | 2.564E-08 | 8.78E-02 | 1.593E+01 | 1.593E+01 | INF | 0. | 3.498E-06 | 2.440E-02 |
| 60 | 9.46E-03 | 1.563E+02 | 1.562E+02 | 1.480E+03 | 2.284E-07 | 2.467E-08 | 7.91E-02 | 1.868E+01 | 1.868E+01 | INF | 0. | 2.544E-06 | 2.580E-02 |
| 65 | 1.01E-02 | 1.534E+02 | 1.533E+02 | 1.452E+03 | 2.371E-07 | 2.347E-08 | 7.17E-02 | 2.157E+01 | 2.157E+01 | INF | 0. | 1.908E-06 | 2.700E-02 |
| 70 | 1.07E-02 | 1.504E+02 | 1.503E+02 | 1.424E+03 | 2.467E-07 | 2.201E-08 | 6.53E-02 | 2.458E+01 | 2.458E+01 | INF | 0. | 1.469E-06 | 2.799E-02 |
| 75 | 1.12E-02 | 1.473E+02 | 1.472E+02 | 1.394E+03 | 2.572E-07 | 2.026E-08 | 5.96E-02 | 2.769E+01 | 2.769E+01 | INF | 0. | 1.158E-06 | 2.878E-02 |
| 80 | 1.17E-02 | 1.441E+02 | 1.440E+02 | 1.364E+03 | 2.687E-07 | 1.815E-08 | 5.45E-02 | 3.087E+01 | 3.087E+01 | INF | 0. | 9.315E-07 | 2.934E-02 |
| 85 | 1.21E-02 | 1.409E+02 | 1.408E+02 | 1.334E+03 | 2.812E-07 | 1.566E-08 | 4.99E-02 | 3.410E+01 | 3.410E+01 | INF | 0. | 7.633E-07 | 2.968E-02 |
| 90 | 1.24E-02 | 1.376E+02 | 1.375E+02 | 1.303E+03 | 2.946E-07 | 1.271E-08 | 4.57E-02 | 3.735E+01 | 3.735E+01 | INF | 0. | 6.361E-07 | 2.979E-02 |
| 95 | 1.27E-02 | 1.344E+02 | 1.343E+02 | 1.272E+03 | 3.091E-07 | 9.271E-09 | 4.19E-02 | 4.061E+01 | 4.061E+01 | INF | 0. | 5.382E-07 | 2.968E-02 |
| 100 | 1.28E-02 | 1.312E+02 | 1.311E+02 | 1.241E+03 | 3.245E-07 | 5.290E-09 | 3.83E-02 | 4.384E+01 | 4.384E+01 | INF | 0. | 4.618E-07 | 2.934E-02 |
| 105 | 1.29E-02 | 1.280E+02 | 1.279E+02 | 1.211E+03 | 3.408E-07 | 7.311E-10 | 3.51E-02 | 4.702E+01 | 4.702E+01 | INF | 0. | 4.014E-07 | 2.878E-02 |
| 110 | 1.28E-02 | 1.249E+02 | 1.248E+02 | 1.182E+03 | 3.580E-07 | -4.433E-09 | 3.20E-02 | 5.013E+01 | 5.013E+01 | INF | 0. | 3.532E-07 | 2.799E-02 |
| 115 | 1.27E-02 | 1.219E+02 | 1.218E+02 | 1.153E+03 | 3.759E-07 | -1.021E-08 | 2.91E-02 | 5.314E+01 | 5.314E+01 | INF | 0. | 3.143E-07 | 2.700E-02 |
| 120 | 1.24E-02 | 1.190E+02 | 1.189E+02 | 1.126E+03 | 3.944E-07 | -1.659E-08 | 2.64E-02 | 5.603E+01 | 5.603E+01 | INF | 0. | 2.827E-07 | 2.580E-02 |
| 125 | 1.20E-02 | 1.162E+02 | 1.161E+02 | 1.100E+03 | 4.132E-07 | -2.352E-08 | 2.38E-02 | 5.878E+01 | 5.878E+01 | INF | 0. | 2.569E-07 | 2.440E-02 |
| 130 | 1.15E-02 | 1.136E+02 | 1.135E+02 | 1.076E+03 | 4.323E-07 | -3.092E-08 | 2.13E-02 | 6.136E+01 | 6.136E+01 | INF | 0. | 2.357E-07 | 2.282E-02 |
| 135 | 1.09E-02 | 1.112E+02 | 1.111E+02 | 1.053E+03 | 4.511E-07 | -3.867E-08 | 1.89E-02 | 6.377E+01 | 6.377E+01 | INF | 0. | 2.183E-07 | 2.106E-02 |
| 140 | 1.01E-02 | 1.090E+02 | 1.089E+02 | 1.032E+03 | 4.695E-07 | -4.662E-08 | 1.66E-02 | 6.597E+01 | 6.597E+01 | INF | 0. | 2.039E-07 | 1.915E-02 |
| 145 | 9.15E-03 | 1.070E+02 | 1.069E+02 | 1.013E+03 | 4.871E-07 | -5.455E-08 | 1.44E-02 | 6.795E+01 | 6.795E+01 | INF | 0. | 1.922E-07 | 1.709E-02 |
| 150 | 8.10E-03 | 1.053E+02 | 1.052E+02 | 9.966E+02 | 5.034E-07 | -6.222E-08 | 1.22E-02 | 6.970E+01 | 6.970E+01 | INF | 0. | 1.827E-07 | 1.490E-02 |
| 155 | 6.95E-03 | 1.038E+02 | 1.037E+02 | 9.823E+02 | 5.181E-07 | -6.936E-08 | 1.01E-02 | 7.121F+01 | 7.121E+01 | INF | 0. | 1.750E-07 | 1.259E-02 |
| 160 | 5.69E-03 | 1.025E+02 | 1.024E+02 | 9.705E+02 | 5.308E-07 | -7.571E-08 | 8.06E-03 | 7.245E+01 | 7.245E+01 | INF | 0. | 1.691E-07 | 1.019E-02 |
| 165 | 4.35E-03 | 1.016E+02 | 1.015E+02 | 9.613E+02 | 5.411E-07 | -8.098E-08 | 6.02E-03 | 7.343E+01 | 7.343E+01 | INF | 0. | 1.646E-07 | 7.710E-03 |
| 170 | 2.94E-03 | 1.009E+02 | 1.008E+02 | 9.546E+02 | 5.487E-07 | -8.494E-08 | 4.00E-03 | 7.414E+01 | 7.414E+01 | INF | 0. | 1.615E-07 | 5.173E-03 |
| 175 | 1.48E-03 | 1.004E+02 | 1.003E+02 | 9.506E+02 | 5.534E-07 | -8.739E-08 | 2.00E-03 | 7.456E+01 | 7.456E+01 | INF | 0. | 1.596E-07 | 2.596E-03 |
| 180 | 0. | 1.003E+02 | 1.002E+02 | 9.492E+02 | 5.549E-07 | -8.822E-08 | 0. | 7.471E+01 | 7.471E+01 | INF | 0. | 1.590E-07 | 0. |

PI PLUS (1) => MU PLUS (2) + NEUTRINO (3) AT 200 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 1.05659E-01 M3 = 0.
P2CM= 2.97901E-02
E2CM= 1.09779E-01 E3CM= 2.97901E-02

1-V1LAB= 2.435E-07 GCM = 1.43299E+03 S = 1.94794E-02

| Θ2 CM | Θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | Θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.000E+02 | 1.999E+02 | 1.893E+03 | 1.395E-07 | 2.219E-08 | 1.80E+02 | 1.039E-05 | 1.039E-05 | INF | 0. | 8.214E+06 | 0. |
| 1 | 1.49E-04 | 2.000E+02 | 1.999E+02 | 1.893E+03 | 1.396E-07 | 2.219E-08 | 4.58E+00 | 6.512E-03 | 6.512E-03 | INF | 0. | 2.093E+01 | 5.199E-04 |
| 2 | 2.98E-04 | 2.000E+02 | 1.999E+02 | 1.893E+03 | 1.396E-07 | 2.218E-08 | 2.29E+00 | 2.602E-02 | 2.602E-02 | INF | 0. | 1.311E+00 | 1.040E-03 |
| 3 | 4.47E-04 | 1.999E+02 | 1.998E+02 | 1.892E+03 | 1.396E-07 | 2.218E-08 | 1.53E+00 | 5.851E-02 | 5.851E-02 | INF | 0. | 2.592E-01 | 1.559E-03 |
| 4 | 5.96E-04 | 1.999E+02 | 1.998E+02 | 1.892E+03 | 1.397E-07 | 2.218E-08 | 1.14E+00 | 1.040E-01 | 1.040E-01 | INF | 0. | 8.205E-02 | 2.078E-03 |
| 5 | 7.44E-04 | 1.998E+02 | 1.997E+02 | 1.891E+03 | 1.398E-07 | 2.217E-08 | 9.16E-01 | 1.625E-01 | 1.625E-01 | INF | 0. | 3.363E-02 | 2.596E-03 |
| 6 | 8.93E-04 | 1.998E+02 | 1.997E+02 | 1.891E+03 | 1.399E-07 | 2.217E-08 | 7.63E-01 | 2.339E-01 | 2.339E-01 | INF | 0. | 1.623E-02 | 3.114E-03 |
| 7 | 1.04E-03 | 1.997E+02 | 1.996E+02 | 1.890E+03 | 1.400E-07 | 2.216E-08 | 6.54E-01 | 3.182E-01 | 3.182E-01 | INF | 0. | 8.765E-03 | 3.631E-03 |
| 8 | 1.19E-03 | 1.996E+02 | 1.995E+02 | 1.889E+03 | 1.401E-07 | 2.215E-08 | 5.72E-01 | 4.155E-01 | 4.155E-01 | INF | 0. | 5.142E-03 | 4.146E-03 |
| 9 | 1.34E-03 | 1.995E+02 | 1.994E+02 | 1.888E+03 | 1.403E-07 | 2.215E-08 | 5.08E-01 | 5.256E-01 | 5.256E-01 | INF | 0. | 3.213E-03 | 4.660E-03 |
| 10 | 1.49E-03 | 1.994E+02 | 1.992E+02 | 1.887E+03 | 1.405E-07 | 2.214E-08 | 4.57E-01 | 6.485E-01 | 6.485E-01 | INF | 0. | 2.110E-03 | 5.173E-03 |
| 15 | 2.23E-03 | 1.985E+02 | 1.984E+02 | 1.879E+03 | 1.416E-07 | 2.207E-08 | 3.04E-01 | 1.455E+00 | 1.455E+00 | INF | 0. | 4.194E-04 | 7.710E-03 |
| 20 | 2.96E-03 | 1.974E+02 | 1.973E+02 | 1.869E+03 | 1.432E-07 | 2.197E-08 | 2.27E-01 | 2.574E+00 | 2.574E+00 | INF | 0. | 1.339E-04 | 1.019E-02 |
| 25 | 3.68E-03 | 1.960E+02 | 1.959E+02 | 1.855E+03 | 1.453E-07 | 2.184E-08 | 1.80E-01 | 4.000E+00 | 4.000E+00 | INF | 0. | 5.548E-05 | 1.259E-02 |
| 30 | 4.39E-03 | 1.943E+02 | 1.942E+02 | 1.839E+03 | 1.479E-07 | 2.165E-08 | 1.49E-01 | 5.719E+00 | 5.719E+00 | INF | 0. | 2.713E-05 | 1.490E-02 |
| 35 | 5.09E-03 | 1.923E+02 | 1.922E+02 | 1.820E+03 | 1.510E-07 | 2.142E-08 | 1.27E-01 | 7.720E+00 | 7.720E+00 | INF | 0. | 1.489E-05 | 1.709E-02 |
| 40 | 5.77E-03 | 1.900E+02 | 1.899E+02 | 1.798E+03 | 1.546E-07 | 2.111E-08 | 1.10E-01 | 9.987E+00 | 9.987E+00 | INF | 0. | 8.897E-06 | 1.915E-02 |
| 45 | 6.44E-03 | 1.875E+02 | 1.874E+02 | 1.775E+03 | 1.588E-07 | 2.072E-08 | 9.65E-02 | 1.250E+01 | 1.250E+01 | INF | 0. | 5.677E-06 | 2.106E-02 |
| 50 | 7.08E-03 | 1.848E+02 | 1.846E+02 | 1.749E+03 | 1.635E-07 | 2.024E-08 | 8.57E-02 | 1.525E+01 | 1.525E+01 | INF | 0. | 3.816E-06 | 2.282E-02 |
| 55 | 7.69E-03 | 1.818E+02 | 1.817E+02 | 1.721E+03 | 1.689E-07 | 1.963E-08 | 7.68E-02 | 1.820E+01 | 1.820E+01 | INF | 0. | 2.678E-06 | 2.440E-02 |
| 60 | 8.27E-03 | 1.787E+02 | 1.785E+02 | 1.691E+03 | 1.749E-07 | 1.888E-08 | 6.93E-02 | 2.134E+01 | 2.134E+01 | INF | 0. | 1.948E-06 | 2.580E-02 |
| 65 | 8.82E-03 | 1.754E+02 | 1.752E+02 | 1.660E+03 | 1.815E-07 | 1.797E-08 | 6.28E-02 | 2.465E+01 | 2.465E+01 | INF | 0. | 1.461E-06 | 2.700E-02 |
| 70 | 9.33E-03 | 1.719E+02 | 1.718E+02 | 1.627E+03 | 1.889E-07 | 1.685E-08 | 5.71E-02 | 2.809E+01 | 2.809E+01 | INF | 0. | 1.125E-06 | 2.799E-02 |
| 75 | 9.79E-03 | 1.684E+02 | 1.683E+02 | 1.593E+03 | 1.969E-07 | 1.551E-08 | 5.21E-02 | 3.164E+01 | 3.164E+01 | INF | 0. | 8.865E-07 | 2.878E-02 |
| 80 | 1.02E-02 | 1.647E+02 | 1.646E+02 | 1.559E+03 | 2.057E-07 | 1.390E-08 | 4.77E-02 | 3.528E+01 | 3.528E+01 | INF | 0. | 7.132E-07 | 2.934E-02 |
| 85 | 1.06E-02 | 1.610E+02 | 1.609E+02 | 1.524E+03 | 2.153E-07 | 1.199E-08 | 4.36E-02 | 3.897E+01 | 3.897E+01 | INF | 0. | 5.844E-07 | 2.968E-02 |
| 90 | 1.09E-02 | 1.573E+02 | 1.572E+02 | 1.489E+03 | 2.256E-07 | 9.731E-09 | 4.00E-02 | 4.269E+01 | 4.269E+01 | INF | 0. | 4.870E-07 | 2.979E-02 |
| 95 | 1.11E-02 | 1.536E+02 | 1.535E+02 | 1.454E+03 | 2.366E-07 | 7.098E-09 | 3.66E-02 | 4.641E+01 | 4.641E+01 | INF | 0. | 4.120E-07 | 2.968E-02 |
| 100 | 1.12E-02 | 1.499E+02 | 1.498E+02 | 1.419E+03 | 2.484E-07 | 4.050E-09 | 3.36E-02 | 5.010E+01 | 5.010E+01 | INF | 0. | 3.535E-07 | 2.934E-02 |
| 105 | 1.13E-02 | 1.463E+02 | 1.462E+02 | 1.384E+03 | 2.609E-07 | 5.598E-10 | 3.07E-02 | 5.374E+01 | 5.374E+01 | INF | 0. | 3.073E-07 | 2.878E-02 |
| 110 | 1.12E-02 | 1.427E+02 | 1.426E+02 | 1.351E+03 | 2.741E-07 | -3.394E-09 | 2.80E-02 | 5.729E+01 | 5.729E+01 | INF | 0. | 2.704E-07 | 2.799E-02 |
| 115 | 1.11E-02 | 1.393E+02 | 1.392E+02 | 1.318E+03 | 2.878E-07 | -7.817E-09 | 2.55E-02 | 6.073E+01 | 6.073E+01 | INF | 0. | 2.406E-07 | 2.700E-02 |
| 120 | 1.09E-02 | 1.360E+02 | 1.359E+02 | 1.287E+03 | 3.019E-07 | -1.270E-08 | 2.31E-02 | 6.403E+01 | 6.403E+01 | INF | 0. | 2.164E-07 | 2.580E-02 |
| 125 | 1.05E-02 | 1.328E+02 | 1.327E+02 | 1.257E+03 | 3.164E-07 | -1.800E-08 | 2.08E-02 | 6.717E+01 | 6.717E+01 | INF | 0. | 1.967E-07 | 2.440E-02 |
| 130 | 1.01E-02 | 1.299E+02 | 1.298E+02 | 1.229E+03 | 3.309E-07 | -2.367E-08 | 1.86E-02 | 7.013E+01 | 7.013E+01 | INF | 0. | 1.804E-07 | 2.282E-02 |
| 135 | 9.49E-03 | 1.271E+02 | 1.270E+02 | 1.203E+03 | 3.454E-07 | -2.961E-08 | 1.66E-02 | 7.287E+01 | 7.287E+01 | INF | 0. | 1.671E-07 | 2.106E-02 |
| 140 | 8.80E-03 | 1.246E+02 | 1.245E+02 | 1.179E+03 | 3.595E-07 | -3.569E-08 | 1.46E-02 | 7.539E+01 | 7.539E+01 | INF | 0. | 1.561E-07 | 1.915E-02 |
| 145 | 8.00E-03 | 1.223E+02 | 1.222E+02 | 1.158E+03 | 3.729E-07 | -4.176E-08 | 1.26E-02 | 7.766E+01 | 7.766E+01 | INF | 0. | 1.472E-07 | 1.709E-02 |
| 150 | 7.09E-03 | 1.203E+02 | 1.202E+02 | 1.139E+03 | 3.854E-07 | -4.763E-08 | 1.07E-02 | 7.966E+01 | 7.966E+01 | INF | 0. | 1.399E-07 | 1.490E-02 |
| 155 | 6.08E-03 | 1.186E+02 | 1.185E+02 | 1.123E+03 | 3.967E-07 | -5.311E-08 | 8.86E-03 | 8.138E+01 | 8.138E+01 | INF | 0. | 1.340E-07 | 1.259E-02 |
| 160 | 4.98E-03 | 1.172E+02 | 1.171E+02 | 1.109E+03 | 4.064E-07 | -5.796E-08 | 7.05E-03 | 8.280E+01 | 8.280E+01 | INF | 0. | 1.294E-07 | 1.019E-02 |
| 165 | 3.81E-03 | 1.161E+02 | 1.160E+02 | 1.099E+03 | 4.143E-07 | -6.200E-08 | 5.26E-03 | 8.392E+01 | 8.392E+01 | INF | 0. | 1.260E-07 | 7.710E-03 |
| 170 | 2.57E-03 | 1.153E+02 | 1.152E+02 | 1.091E+03 | 4.201E-07 | -6.503E-08 | 3.50E-03 | 8.473E+01 | 8.473E+01 | INF | 0. | 1.236E-07 | 5.173E-03 |
| 175 | 1.30E-03 | 1.148E+02 | 1.147E+02 | 1.086E+03 | 4.237E-07 | -6.691E-08 | 1.75E-03 | 8.522E+01 | 8.522E+01 | INF | 0. | 1.222E-07 | 2.596E-03 |
| 180 | 0. | 1.146E+02 | 1.145E+02 | 1.085E+03 | 4.249E-07 | -6.755E-08 | 0. | 8.538E+01 | 8.538E+01 | INF | 0. | 1.217E-07 | 0. |

PI PLUS (1) => MU PLUS (2) + NEUTRINO (3) AT 225 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 1.05659E-01 M3 = 0.
P2CM= 2.97901E-02
E2CM= 1.09779E-01 E3CM= 2.97901E-02

1-V1LAB= 1.924E-07 GCM = 1.61211E+03 S = 1.94794E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.250E+02 | 2.249E+02 | 2.129E+03 | 1.103E-07 | 1.753E-08 | 1.80E+02 | 9.239E-06 | 9.239E-06 | INF | 0. | 1.040E+07 | 0. |
| 1 | 1.32E-04 | 2.250E+02 | 2.249E+02 | 2.129E+03 | 1.103E-07 | 1.753E-08 | 4.07E+00 | 7.324E-03 | 7.324E-03 | INF | 0. | 1.655E+01 | 5.199E-04 |
| 2 | 2.65E-04 | 2.250E+02 | 2.249E+02 | 2.129E+03 | 1.103E-07 | 1.753E-08 | 2.04E+00 | 2.926E-02 | 2.926E-02 | INF | 0. | 1.036E+00 | 1.040E-03 |
| 3 | 3.97E-04 | 2.249E+02 | 2.248E+02 | 2.129E+03 | 1.103E-07 | 1.753E-08 | 1.36E+00 | 6.583E-02 | 6.583E-02 | INF | 0. | 2.048E-01 | 1.559E-03 |
| 4 | 5.29E-04 | 2.249E+02 | 2.248E+02 | 2.128E+03 | 1.104E-07 | 1.752E-08 | 1.02E+00 | 1.170E-01 | 1.170E-01 | INF | 0. | 6.483E-02 | 2.078E-03 |
| 5 | 6.62E-04 | 2.248E+02 | 2.247E+02 | 2.128E+03 | 1.104E-07 | 1.752E-08 | 8.14E-01 | 1.828E-01 | 1.828E-01 | INF | 0. | 2.657E-02 | 2.596E-03 |
| 6 | 7.94E-04 | 2.247E+02 | 2.246E+02 | 2.127E+03 | 1.105E-07 | 1.752E-08 | 6.78E-01 | 2.631E-01 | 2.631E-01 | INF | 0. | 1.282E-02 | 3.114E-03 |
| 7 | 9.26E-04 | 2.246E+02 | 2.245E+02 | 2.126E+03 | 1.106E-07 | 1.751E-08 | 5.81E-01 | 3.580E-01 | 3.580E-01 | INF | 0. | 6.925E-03 | 3.631E-03 |
| 8 | 1.06E-03 | 2.245E+02 | 2.244E+02 | 2.125E+03 | 1.107E-07 | 1.750E-08 | 5.08E-01 | 4.674E-01 | 4.674E-01 | INF | 0. | 4.063E-03 | 4.146E-03 |
| 9 | 1.19E-03 | 2.244E+02 | 2.243E+02 | 2.124E+03 | 1.108E-07 | 1.750E-08 | 4.52E-01 | 5.913E-01 | 5.913E-01 | INF | 0. | 2.538E-03 | 4.660E-03 |
| 10 | 1.32E-03 | 2.243E+02 | 2.242E+02 | 2.123E+03 | 1.110E-07 | 1.749E-08 | 4.06E-01 | 7.296E-01 | 7.296E-01 | INF | 0. | 1.667E-03 | 5.173E-03 |
| 15 | 1.98E-03 | 2.234E+02 | 2.233E+02 | 2.114E+03 | 1.119E-07 | 1.744E-08 | 2.70E-01 | 1.636E+00 | 1.636E+00 | INF | 0. | 3.314E-04 | 7.710E-03 |
| 20 | 2.63E-03 | 2.221E+02 | 2.220E+02 | 2.102E+03 | 1.132E-07 | 1.736E-08 | 2.02E-01 | 2.896E+00 | 2.896E+00 | INF | 0. | 1.058E-04 | 1.019E-02 |
| 25 | 3.27E-03 | 2.205E+02 | 2.204E+02 | 2.087E+03 | 1.148E-07 | 1.725E-08 | 1.60E-01 | 4.500E+00 | 4.500E+00 | INF | 0. | 4.383E-05 | 1.259E-02 |
| 30 | 3.90E-03 | 2.186E+02 | 2.185E+02 | 2.069E+03 | 1.168E-07 | 1.711E-08 | 1.33E-01 | 6.434E+00 | 6.434E+00 | INF | 0. | 2.144E-05 | 1.490E-02 |
| 35 | 4.53E-03 | 2.163E+02 | 2.162E+02 | 2.047E+03 | 1.193E-07 | 1.692E-08 | 1.13E-01 | 8.685E+00 | 8.685E+00 | INF | 0. | 1.176E-05 | 1.709E-02 |
| 40 | 5.13E-03 | 2.138E+02 | 2.137E+02 | 2.023E+03 | 1.222E-07 | 1.668E-08 | 9.76E-02 | 1.124E+01 | 1.124E+01 | INF | 0. | 7.030E-06 | 1.915E-02 |
| 45 | 5.72E-03 | 2.109E+02 | 2.108E+02 | 1.996E+03 | 1.255E-07 | 1.637E-08 | 8.58E-02 | 1.407E+01 | 1.407E+01 | INF | 0. | 4.485E-06 | 2.106E-02 |
| 50 | 6.29E-03 | 2.078E+02 | 2.077E+02 | 1.967E+03 | 1.292E-07 | 1.599E-08 | 7.62E-02 | 1.716E+01 | 1.716E+01 | INF | 0. | 3.015E-06 | 2.282E-02 |
| 55 | 6.84E-03 | 2.045E+02 | 2.044E+02 | 1.936E+03 | 1.334E-07 | 1.551E-08 | 6.83E-02 | 2.048E+01 | 2.048E+01 | INF | 0. | 2.116E-06 | 2.440E-02 |
| 60 | 7.35E-03 | 2.010E+02 | 2.009E+02 | 1.902E+03 | 1.382E-07 | 1.492E-08 | 6.16E-02 | 2.401E+01 | 2.401E+01 | INF | 0. | 1.539E-06 | 2.580E-02 |
| 65 | 7.84E-03 | 1.973E+02 | 1.972E+02 | 1.867E+03 | 1.434E-07 | 1.420E-08 | 5.58E-02 | 2.773E+01 | 2.773E+01 | INF | 0. | 1.154E-06 | 2.700E-02 |
| 70 | 8.29E-03 | 1.934E+02 | 1.933E+02 | 1.830E+03 | 1.492E-07 | 1.332E-08 | 5.08E-02 | 3.160E+01 | 3.160E+01 | INF | 0. | 8.888E-07 | 2.799E-02 |
| 75 | 8.70E-03 | 1.894E+02 | 1.893E+02 | 1.793E+03 | 1.556E-07 | 1.225E-08 | 4.63E-02 | 3.560E+01 | 3.560E+01 | INF | 0. | 7.004E-07 | 2.878E-02 |
| 80 | 9.07E-03 | 1.853E+02 | 1.852E+02 | 1.754E+03 | 1.625E-07 | 1.098E-08 | 4.24E-02 | 3.969E+01 | 3.969E+01 | INF | 0. | 5.635E-07 | 2.934E-02 |
| 85 | 9.39E-03 | 1.812E+02 | 1.811E+02 | 1.715E+03 | 1.701E-07 | 9.471E-09 | 3.88E-02 | 4.384E+01 | 4.384E+01 | INF | 0. | 4.618E-07 | 2.968E-02 |
| 90 | 9.64E-03 | 1.770E+02 | 1.769E+02 | 1.675E+03 | 1.782E-07 | 7.689E-09 | 3.55E-02 | 4.802E+01 | 4.802E+01 | INF | 0. | 3.848E-07 | 2.979E-02 |
| 95 | 9.84E-03 | 1.728E+02 | 1.727E+02 | 1.635E+03 | 1.870E-07 | 5.608E-09 | 3.26E-02 | 5.221E+01 | 5.221E+01 | INF | 0. | 3.256E-07 | 2.968E-02 |
| 100 | 9.97E-03 | 1.686E+02 | 1.685E+02 | 1.596E+03 | 1.963E-07 | 3.200E-09 | 2.98E-02 | 5.636E+01 | 5.636E+01 | INF | 0. | 2.793E-07 | 2.934E-02 |
| 105 | 1.00E-02 | 1.645E+02 | 1.644E+02 | 1.557E+03 | 2.062E-07 | 4.423E-10 | 2.73E-02 | 6.045E+01 | 6.045E+01 | INF | 0. | 2.428E-07 | 2.878E-02 |
| 110 | 9.99E-03 | 1.605E+02 | 1.604E+02 | 1.520E+03 | 2.166E-07 | -2.681E-09 | 2.49E-02 | 6.445E+01 | 6.445E+01 | INF | 0. | 2.136E-07 | 2.799E-02 |
| 115 | 9.87E-03 | 1.567E+02 | 1.566E+02 | 1.483E+03 | 2.274E-07 | -6.176E-09 | 2.26E-02 | 6.832E+01 | 6.832E+01 | INF | 0. | 1.901E-07 | 2.700E-02 |
| 120 | 9.66E-03 | 1.530E+02 | 1.529E+02 | 1.448E+03 | 2.386E-07 | -1.003E-08 | 2.05E-02 | 7.204E+01 | 7.204E+01 | INF | 0. | 1.710E-07 | 2.580E-02 |
| 125 | 9.36E-03 | 1.494E+02 | 1.493E+02 | 1.414E+03 | 2.500E-07 | -1.423E-08 | 1.85E-02 | 7.557E+01 | 7.557E+01 | INF | 0. | 1.554E-07 | 2.440E-02 |
| 130 | 8.95E-03 | 1.461E+02 | 1.460E+02 | 1.383E+03 | 2.615E-07 | -1.870E-08 | 1.66E-02 | 7.889E+01 | 7.889E+01 | INF | 0. | 1.426E-07 | 2.282E-02 |
| 135 | 8.44E-03 | 1.430E+02 | 1.429E+02 | 1.354E+03 | 2.729E-07 | -2.340E-08 | 1.47E-02 | 8.198E+01 | 8.198E+01 | INF | 0. | 1.320E-07 | 2.106E-02 |
| 140 | 7.83E-03 | 1.402E+02 | 1.401E+02 | 1.327E+03 | 2.840E-07 | -2.820E-08 | 1.29E-02 | 8.481E+01 | 8.481E+01 | INF | 0. | 1.234E-07 | 1.915E-02 |
| 145 | 7.11E-03 | 1.376E+02 | 1.375E+02 | 1.303E+03 | 2.947E-07 | -3.300E-08 | 1.12E-02 | 8.736E+01 | 8.736E+01 | INF | 0. | 1.163E-07 | 1.709E-02 |
| 150 | 6.30E-03 | 1.354E+02 | 1.353E+02 | 1.281E+03 | 3.045E-07 | -3.764E-08 | 9.52E-03 | 8.962E+01 | 8.962E+01 | INF | 0. | 1.105E-07 | 1.490E-02 |
| 155 | 5.41E-03 | 1.334E+02 | 1.333E+02 | 1.263E+03 | 3.134E-07 | -4.196E-08 | 7.88E-03 | 9.155E+01 | 9.155E+01 | INF | 0. | 1.059E-07 | 1.259E-02 |
| 160 | 4.43E-03 | 1.318E+02 | 1.317E+02 | 1.248E+03 | 3.211E-07 | -4.580E-08 | 6.27E-03 | 9.315E+01 | 9.315E+01 | INF | 0. | 1.023E-07 | 1.019E-02 |
| 165 | 3.38E-03 | 1.306E+02 | 1.305E+02 | 1.236E+03 | 3.273E-07 | -4.899E-08 | 4.68E-03 | 9.441E+01 | 9.441E+01 | INF | 0. | 9.956E-08 | 7.710E-03 |
| 170 | 2.29E-03 | 1.297E+02 | 1.296E+02 | 1.227E+03 | 3.319E-07 | -5.138E-08 | 3.11E-03 | 9.532E+01 | 9.532E+01 | INF | 0. | 9.767E-08 | 5.173E-03 |
| 175 | 1.15E-03 | 1.291E+02 | 1.290E+02 | 1.222E+03 | 3.347E-07 | -5.287E-08 | 1.55E-03 | 9.587E+01 | 9.587E+01 | INF | 0. | 9.656E-08 | 2.596E-03 |
| 180 | 0. | 1.290E+02 | 1.288E+02 | 1.220E+03 | 3.357E-07 | -5.337E-08 | 0. | 9.605E+01 | 9.605E+01 | INF | 0. | 9.619E-08 | 0. |

PI PLUS (1) => MU PLUS (2) + NEUTRINO (3) AT 250 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 1.05659E-01 M3 = 0.
P2CM= 2.97901E-02
E2CM= 1.09779E-01 E3CM= 2.97901E-02

1-V1LAB= 1.558E-07 GCM = 1.79123E+03 S = 1.94794E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.500E+02 | 2.499E+02 | 2.366E+03 | 8.931E-08 | 1.420E-08 | 1.80E+02 | 8.316E-06 | 8.316E-06 | INF | 0. | 1.283E+07 | 0. |
| 1 | 1.19E-04 | 2.500E+02 | 2.499E+02 | 2.366E+03 | 8.932E-08 | 1.420E-08 | 3.66E+00 | 8.135E-03 | 8.135E-03 | INF | 0. | 1.341E+01 | 5.199E-04 |
| 2 | 2.38E-04 | 2.500E+02 | 2.499E+02 | 2.366E+03 | 8.933E-08 | 1.420E-08 | 1.83E+00 | 3.251E-02 | 3.251E-02 | INF | 0. | 8.394E-01 | 1.040E-03 |
| 3 | 3.57E-04 | 2.499E+02 | 2.498E+02 | 2.365E+03 | 8.936E-08 | 1.420E-08 | 1.22E+00 | 7.314E-02 | 7.314E-02 | INF | 0. | 1.659E-01 | 1.559E-03 |
| 4 | 4.77E-04 | 2.499E+02 | 2.498E+02 | 2.365E+03 | 8.940E-08 | 1.419E-08 | 9.16E-01 | 1.300E-01 | 1.300E-01 | INF | 0. | 5.252E-02 | 2.078E-03 |
| 5 | 5.96E-04 | 2.498E+02 | 2.497E+02 | 2.364E+03 | 8.946E-08 | 1.419E-08 | 7.33E-01 | 2.031E-01 | 2.031E-01 | INF | 0. | 2.152E-02 | 2.596E-03 |
| 6 | 7.14E-04 | 2.497E+02 | 2.496E+02 | 2.363E+03 | 8.952E-08 | 1.419E-08 | 6.10E-01 | 2.923E-01 | 2.923E-01 | INF | 0. | 1.039E-02 | 3.114E-03 |
| 7 | 8.33E-04 | 2.496E+02 | 2.495E+02 | 2.362E+03 | 8.960E-08 | 1.418E-08 | 5.23E-01 | 3.978E-01 | 3.978E-01 | INF | 0. | 5.609E-03 | 3.631E-03 |
| 8 | 9.52E-04 | 2.495E+02 | 2.494E+02 | 2.361E+03 | 8.968E-08 | 1.418E-08 | 4.57E-01 | 5.193E-01 | 5.193E-01 | INF | 0. | 3.291E-03 | 4.146E-03 |
| 9 | 1.07E-03 | 2.493E+02 | 2.492E+02 | 2.360E+03 | 8.978E-08 | 1.417E-08 | 4.06E-01 | 6.570E-01 | 6.570E-01 | INF | 0. | 2.056E-03 | 4.660E-03 |
| 10 | 1.19E-03 | 2.492E+02 | 2.491E+02 | 2.358E+03 | 8.989E-08 | 1.417E-08 | 3.66E-01 | 8.107E-01 | 8.107E-01 | INF | 0. | 1.350E-03 | 5.173E-03 |
| 15 | 1.78E-03 | 2.482E+02 | 2.481E+02 | 2.349E+03 | 9.062E-08 | 1.412E-08 | 2.43E-01 | 1.818E+00 | 1.818E+00 | INF | 0. | 2.684E-04 | 7.710E-03 |
| 20 | 2.37E-03 | 2.468E+02 | 2.467E+02 | 2.336E+03 | 9.166E-08 | 1.406E-08 | 1.81E-01 | 3.218E+00 | 3.218E+00 | INF | 0. | 8.569E-05 | 1.019E-02 |
| 25 | 2.94E-03 | 2.450E+02 | 2.449E+02 | 2.319E+03 | 9.299E-08 | 1.397E-08 | 1.44E-01 | 5.000E+00 | 5.000E+00 | INF | 0. | 3.550E-05 | 1.259E-02 |
| 30 | 3.51E-03 | 2.429E+02 | 2.427E+02 | 2.298E+03 | 9.465E-08 | 1.386E-08 | 1.19E-01 | 7.149E+00 | 7.149E+00 | INF | 0. | 1.736E-05 | 1.490E-02 |
| 35 | 4.07E-03 | 2.403E+02 | 2.402E+02 | 2.275E+03 | 9.663E-08 | 1.371E-08 | 1.01E-01 | 9.650E+00 | 9.650E+00 | INF | 0. | 9.529E-06 | 1.709E-02 |
| 40 | 4.62E-03 | 2.375E+02 | 2.374E+02 | 2.248E+03 | 9.895E-08 | 1.351E-08 | 8.79E-02 | 1.248E+01 | 1.248E+01 | INF | 0. | 5.694E-06 | 1.915E-02 |
| 45 | 5.15E-03 | 2.344E+02 | 2.343E+02 | 2.218E+03 | 1.016E-07 | 1.326E-08 | 7.72E-02 | 1.563E+01 | 1.563E+01 | INF | 0. | 3.633E-06 | 2.106E-02 |
| 50 | 5.66E-03 | 2.309E+02 | 2.308E+02 | 2.186E+03 | 1.047E-07 | 1.295E-08 | 6.86E-02 | 1.906E+01 | 1.906E+01 | INF | 0. | 2.443E-06 | 2.282E-02 |
| 55 | 6.15E-03 | 2.272E+02 | 2.271E+02 | 2.151E+03 | 1.081E-07 | 1.256E-08 | 6.14E-02 | 2.275E+01 | 2.275E+01 | INF | 0. | 1.714E-06 | 2.440E-02 |
| 60 | 6.62E-03 | 2.233E+02 | 2.232E+02 | 2.114E+03 | 1.119E-07 | 1.209E-08 | 5.54E-02 | 2.668E+01 | 2.668E+01 | INF | 0. | 1.247E-06 | 2.580E-02 |
| 65 | 7.06E-03 | 2.192E+02 | 2.191E+02 | 2.074E+03 | 1.162E-07 | 1.150E-08 | 5.02E-02 | 3.081E+01 | 3.081E+01 | INF | 0. | 9.349E-07 | 2.700E-02 |
| 70 | 7.46E-03 | 2.149E+02 | 2.148E+02 | 2.034E+03 | 1.209E-07 | 1.079E-08 | 4.57E-02 | 3.511E+01 | 3.511E+01 | INF | 0. | 7.199E-07 | 2.799E-02 |
| 75 | 7.83E-03 | 2.104E+02 | 2.103E+02 | 1.992E+03 | 1.260E-07 | 9.926E-09 | 4.17E-02 | 3.955E+01 | 3.955E+01 | INF | 0. | 5.673E-07 | 2.878E-02 |
| 80 | 8.16E-03 | 2.059E+02 | 2.058E+02 | 1.949E+03 | 1.317E-07 | 8.896E-09 | 3.81E-02 | 4.409E+01 | 4.409E+01 | INF | 0. | 4.564E-07 | 2.934E-02 |
| 85 | 8.45E-03 | 2.013E+02 | 2.012E+02 | 1.905E+03 | 1.378E-07 | 7.671E-09 | 3.49E-02 | 4.871E+01 | 4.871E+01 | INF | 0. | 3.740E-07 | 2.968E-02 |
| 90 | 8.68E-03 | 1.966E+02 | 1.965E+02 | 1.861E+03 | 1.444E-07 | 6.228E-09 | 3.20E-02 | 5.336E+01 | 5.336E+01 | INF | 0. | 3.117E-07 | 2.979E-02 |
| 95 | 8.86E-03 | 1.920E+02 | 1.919E+02 | 1.817E+03 | 1.514E-07 | 4.543E-09 | 2.93E-02 | 5.801E+01 | 5.801E+01 | INF | 0. | 2.637E-07 | 2.968E-02 |
| 100 | 8.97E-03 | 1.874E+02 | 1.873E+02 | 1.773E+03 | 1.590E-07 | 2.592E-09 | 2.68E-02 | 6.263E+01 | 6.263E+01 | INF | 0. | 2.263E-07 | 2.934E-02 |
| 105 | 9.02E-03 | 1.828E+02 | 1.827E+02 | 1.730E+03 | 1.670E-07 | 3.583E-10 | 2.45E-02 | 6.717E+01 | 6.717E+01 | INF | 0. | 1.967E-07 | 2.878E-02 |
| 110 | 8.99E-03 | 1.784E+02 | 1.783E+02 | 1.688E+03 | 1.754E-07 | -2.172E-09 | 2.24E-02 | 7.161E+01 | 7.161E+01 | INF | 0. | 1.731E-07 | 2.799E-02 |
| 115 | 8.89E-03 | 1.741E+02 | 1.740E+02 | 1.648E+03 | 1.842E-07 | -5.003E-09 | 2.04E-02 | 7.591E+01 | 7.591E+01 | INF | 0. | 1.540E-07 | 2.700E-02 |
| 120 | 8.70E-03 | 1.700E+02 | 1.699E+02 | 1.609E+03 | 1.932E-07 | -8.127E-09 | 1.85E-02 | 8.004E+01 | 8.004E+01 | INF | 0. | 1.385E-07 | 2.580E-02 |
| 125 | 8.42E-03 | 1.660E+02 | 1.659E+02 | 1.571E+03 | 2.025E-07 | -1.152E-08 | 1.67E-02 | 8.397E+01 | 8.397E+01 | INF | 0. | 1.259E-07 | 2.440E-02 |
| 130 | 8.05E-03 | 1.623E+02 | 1.622E+02 | 1.536E+03 | 2.118E-07 | -1.515E-08 | 1.49E-02 | 8.766E+01 | 8.766E+01 | INF | 0. | 1.155E-07 | 2.282E-02 |
| 135 | 7.60E-03 | 1.589E+02 | 1.588E+02 | 1.504E+03 | 2.211E-07 | -1.895E-08 | 1.32E-02 | 9.109E+01 | 9.109E+01 | INF | 0. | 1.069E-07 | 2.106E-02 |
| 140 | 7.04E-03 | 1.558E+02 | 1.557E+02 | 1.474E+03 | 2.301E-07 | -2.284E-08 | 1.16E-02 | 9.424E+01 | 9.424E+01 | INF | 0. | 9.993E-08 | 1.915E-02 |
| 145 | 6.40E-03 | 1.529E+02 | 1.528E+02 | 1.447E+03 | 2.387E-07 | -2.673E-08 | 1.01E-02 | 9.707E+01 | 9.707E+01 | INF | 0. | 9.418E-08 | 1.709E-02 |
| 150 | 5.67E-03 | 1.504E+02 | 1.503E+02 | 1.424E+03 | 2.467E-07 | -3.049E-08 | 8.57E-03 | 9.957E+01 | 9.957E+01 | INF | 0. | 8.951E-08 | 1.490E-02 |
| 155 | 4.86E-03 | 1.483E+02 | 1.482E+02 | 1.403E+03 | 2.539E-07 | -3.399E-08 | 7.09E-03 | 1.017E+02 | 1.017E+02 | INF | 0. | 8.577E-08 | 1.259E-02 |
| 160 | 3.98E-03 | 1.465E+02 | 1.464E+02 | 1.386E+03 | 2.601E-07 | -3.710E-08 | 5.64E-03 | 1.035E+02 | 1.035E+02 | INF | 0. | 8.284E-08 | 1.019E-02 |
| 165 | 3.04E-03 | 1.451E+02 | 1.450E+02 | 1.373E+03 | 2.651E-07 | -3.968E-08 | 4.21E-03 | 1.049E+02 | 1.049E+02 | INF | 0. | 8.064E-08 | 7.710E-03 |
| 170 | 2.06E-03 | 1.441E+02 | 1.440E+02 | 1.364E+03 | 2.689E-07 | -4.162E-08 | 2.80E-03 | 1.059E+02 | 1.059E+02 | INF | 0. | 7.912E-08 | 5.173E-03 |
| 175 | 1.04E-03 | 1.435E+02 | 1.434E+02 | 1.358E+03 | 2.711E-07 | -4.282E-08 | 1.40E-03 | 1.065E+02 | 1.065E+02 | INF | 0. | 7.822E-08 | 2.596E-03 |
| 180 | 0. | 1.433E+02 | 1.432E+02 | 1.356E+03 | 2.719E-07 | -4.323E-08 | 0. | 1.067E+02 | 1.067E+02 | INF | 0. | 7.792E-08 | 0. |

PI PLUS (1) => MU PLUS (2) + NEUTRINO (3) AT 275 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 1.05659E-01 M3 = 0.
P2CM= 2.97901E-02
E2CM= 1.09779E-01 E3CM= 2.97901E-02

1-V1LAB= 1.288E-07 GCM = 1.97035E+03 S = 1.94794E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.750E+02 | 2.749E+02 | 2.603E+03 | 7.381E-08 | 1.173E-08 | 1.80E+02 | 7.560E-06 | 7.560E-06 | INF | 0. | 1.553E+07 | 0. |
| 1 | 1.08E-04 | 2.750E+02 | 2.749E+02 | 2.603E+03 | 7.382E-08 | 1.173E-08 | 3.33E+00 | 8.947E-03 | 8.947E-03 | INF | 0. | 1.109E+01 | 5.199E-04 |
| 2 | 2.17E-04 | 2.750E+02 | 2.749E+02 | 2.602E+03 | 7.383E-08 | 1.173E-08 | 1.67E+00 | 3.576E-02 | 3.576E-02 | INF | 0. | 6.938E-01 | 1.040E-03 |
| 3 | 3.25E-04 | 2.749E+02 | 2.748E+02 | 2.602E+03 | 7.385E-08 | 1.173E-08 | 1.11E+00 | 8.045E-02 | 8.045E-02 | INF | 0. | 1.371E-01 | 1.559E-03 |
| 4 | 4.33E-04 | 2.749E+02 | 2.748E+02 | 2.601E+03 | 7.389E-08 | 1.173E-08 | 8.33E-01 | 1.430E-01 | 1.430E-01 | INF | 0. | 4.340E-02 | 2.078E-03 |
| 5 | 5.41E-04 | 2.748E+02 | 2.747E+02 | 2.601E+03 | 7.393E-08 | 1.173E-08 | 6.66E-01 | 2.234E-01 | 2.234E-01 | INF | 0. | 1.779E-02 | 2.596E-03 |
| 6 | 6.50E-04 | 2.747E+02 | 2.746E+02 | 2.600E+03 | 7.398E-08 | 1.173E-08 | 5.55E-01 | 3.216E-01 | 3.216E-01 | INF | 0. | 8.583E-03 | 3.114E-03 |
| 7 | 7.58E-04 | 2.746E+02 | 2.745E+02 | 2.599E+03 | 7.405E-08 | 1.172E-08 | 4.75E-01 | 4.375E-01 | 4.375E-01 | INF | 0. | 4.636E-03 | 3.631E-03 |
| 8 | 8.66E-04 | 2.744E+02 | 2.743E+02 | 2.597E+03 | 7.412E-08 | 1.172E-08 | 4.16E-01 | 5.712E-01 | 5.712E-01 | INF | 0. | 2.720E-03 | 4.146E-03 |
| 9 | 9.73E-04 | 2.743E+02 | 2.742E+02 | 2.596E+03 | 7.420E-08 | 1.171E-08 | 3.69E-01 | 7.227E-01 | 7.227E-01 | INF | 0. | 1.699E-03 | 4.660E-03 |
| 10 | 1.08E-03 | 2.741E+02 | 2.740E+02 | 2.594E+03 | 7.429E-08 | 1.171E-08 | 3.32E-01 | 8.917E-01 | 8.917E-01 | INF | 0. | 1.116E-03 | 5.173E-03 |
| 15 | 1.62E-03 | 2.730E+02 | 2.729E+02 | 2.584E+03 | 7.490E-08 | 1.167E-08 | 2.21E-01 | 2.000E+00 | 2.000E+00 | INF | 0. | 2.218E-04 | 7.710E-03 |
| 20 | 2.15E-03 | 2.715E+02 | 2.714E+02 | 2.569E+03 | 7.575E-08 | 1.162E-08 | 1.65E-01 | 3.540E+00 | 3.540E+00 | INF | 0. | 7.082E-05 | 1.019E-02 |
| 25 | 2.68E-03 | 2.695E+02 | 2.694E+02 | 2.551E+03 | 7.685E-08 | 1.155E-08 | 1.31E-01 | 5.499E+00 | 5.499E+00 | INF | 0. | 2.934E-05 | 1.259E-02 |
| 30 | 3.19E-03 | 2.671E+02 | 2.670E+02 | 2.528E+03 | 7.822E-08 | 1.145E-08 | 1.09E-01 | 7.864E+00 | 7.864E+00 | INF | 0. | 1.435E-05 | 1.490E-02 |
| 35 | 3.70E-03 | 2.644E+02 | 2.643E+02 | 2.502E+03 | 7.986E-08 | 1.133E-08 | 9.22E-02 | 1.062E+01 | 1.062E+01 | INF | 0. | 7.876E-06 | 1.709E-02 |
| 40 | 4.20E-03 | 2.613E+02 | 2.612E+02 | 2.473E+03 | 8.177E-08 | 1.117E-08 | 7.99E-02 | 1.373E+01 | 1.373E+01 | INF | 0. | 4.706E-06 | 1.915E-02 |
| 45 | 4.68E-03 | 2.578E+02 | 2.577E+02 | 2.440E+03 | 8.398E-08 | 1.096E-08 | 7.02E-02 | 1.719E+01 | 1.719E+01 | INF | 0. | 3.003E-06 | 2.106E-02 |
| 50 | 5.15E-03 | 2.540E+02 | 2.539E+02 | 2.404E+03 | 8.650E-08 | 1.070E-08 | 6.24E-02 | 2.097E+01 | 2.097E+01 | INF | 0. | 2.019E-06 | 2.282E-02 |
| 55 | 5.59E-03 | 2.500E+02 | 2.499E+02 | 2.366E+03 | 8.933E-08 | 1.038E-08 | 5.59E-02 | 2.503E+01 | 2.503E+01 | INF | 0. | 1.417E-06 | 2.440E-02 |
| 60 | 6.02E-03 | 2.457E+02 | 2.455E+02 | 2.325E+03 | 9.250E-08 | 9.989E-09 | 5.04E-02 | 2.935E+01 | 2.935E+01 | INF | 0. | 1.030E-06 | 2.580E-02 |
| 65 | 6.42E-03 | 2.411E+02 | 2.410E+02 | 2.282E+03 | 9.602E-08 | 9.504E-09 | 4.56E-02 | 3.389E+01 | 3.389E+01 | INF | 0. | 7.727E-07 | 2.700E-02 |
| 70 | 6.79E-03 | 2.364E+02 | 2.363E+02 | 2.237E+03 | 9.990E-08 | 8.915E-09 | 4.15E-02 | 3.862E+01 | 3.862E+01 | INF | 0. | 5.950E-07 | 2.799E-02 |
| 75 | 7.12E-03 | 2.315E+02 | 2.314E+02 | 2.191E+03 | 1.042E-07 | 8.204E-09 | 3.79E-02 | 4.351E+01 | 4.351E+01 | INF | 0. | 4.689E-07 | 2.878E-02 |
| 80 | 7.42E-03 | 2.265E+02 | 2.264E+02 | 2.144E+03 | 1.088E-07 | 7.352E-09 | 3.47E-02 | 4.850E+01 | 4.850E+01 | INF | 0. | 3.772E-07 | 2.934E-02 |
| 85 | 7.68E-03 | 2.214E+02 | 2.213E+02 | 2.096E+03 | 1.139E-07 | 6.340E-09 | 3.17E-02 | 5.358E+01 | 5.358E+01 | INF | 0. | 3.091E-07 | 2.968E-02 |
| 90 | 7.89E-03 | 2.163E+02 | 2.162E+02 | 2.047E+03 | 1.193E-07 | 5.147E-09 | 2.91E-02 | 5.870E+01 | 5.870E+01 | INF | 0. | 2.576E-07 | 2.979E-02 |
| 95 | 8.05E-03 | 2.112E+02 | 2.111E+02 | 1.999E+03 | 1.252E-07 | 3.754E-09 | 2.66E-02 | 6.381E+01 | 6.381E+01 | INF | 0. | 2.179E-07 | 2.968E-02 |
| 100 | 8.16E-03 | 2.061E+02 | 2.060E+02 | 1.951E+03 | 1.314E-07 | 2.142E-09 | 2.44E-02 | 6.889E+01 | 6.889E+01 | INF | 0. | 1.87E-07 | 2.934E-02 |
| 105 | 8.20E-03 | 2.011E+02 | 2.010E+02 | 1.903E+03 | 1.380E-07 | 2.961E-10 | 2.23E-02 | 7.389E+01 | 7.389E+01 | INF | 0. | 1.625E-07 | 2.878E-02 |
| 110 | 8.17E-03 | 1.962E+02 | 1.961E+02 | 1.857E+03 | 1.450E-07 | -1.795E-09 | 2.04E-02 | 7.877E+01 | 7.877E+01 | INF | 0. | 1.430E-07 | 2.799E-02 |
| 115 | 8.08E-03 | 1.915E+02 | 1.914E+02 | 1.812E+03 | 1.522E-07 | -4.135E-09 | 1.85E-02 | 8.350E+01 | 8.350E+01 | INF | 0. | 1.273E-07 | 2.700E-02 |
| 120 | 7.91E-03 | 1.870E+02 | 1.868E+02 | 1.769E+03 | 1.597E-07 | -6.716E-09 | 1.68E-02 | 8.805E+01 | 8.805E+01 | INF | 0. | 1.145E-07 | 2.580E-02 |
| 125 | 7.66E-03 | 1.826E+02 | 1.825E+02 | 1.729E+03 | 1.673E-07 | -9.523E-09 | 1.51E-02 | 9.236E+01 | 9.236E+01 | INF | 0. | 1.040E-07 | 2.440E-02 |
| 130 | 7.32E-03 | 1.786E+02 | 1.785E+02 | 1.690E+03 | 1.750E-07 | -1.252E-08 | 1.36E-02 | 9.643E+01 | 9.643E+01 | INF | 0. | 9.544E-08 | 2.282E-02 |
| 135 | 6.90E-03 | 1.748E+02 | 1.747E+02 | 1.654E+03 | 1.827E-07 | -1.566E-08 | 1.20E-02 | 1.002E+02 | 1.002E+02 | INF | 0. | 8.839E-08 | 2.106E-02 |
| 140 | 6.40E-03 | 1.713E+02 | 1.712E+02 | 1.622E+03 | 1.901E-07 | -1.888E-08 | 1.06E-02 | 1.037E+02 | 1.037E+02 | INF | 0. | 8.259E-08 | 1.915E-02 |
| 145 | 5.82E-03 | 1.682E+02 | 1.681E+02 | 1.592E+03 | 1.973E-07 | -2.209E-08 | 9.17E-03 | 1.068E+02 | 1.068E+02 | INF | 0. | 7.783E-08 | 1.709E-02 |
| 150 | 5.16E-03 | 1.655E+02 | 1.654E+02 | 1.566E+03 | 2.039E-07 | -2.520E-08 | 7.79E-03 | 1.095E+02 | 1.095E+02 | INF | 0. | 7.397E-08 | 1.490E-02 |
| 155 | 4.42E-03 | 1.631E+02 | 1.630E+02 | 1.544E+03 | 2.098E-07 | -2.809E-08 | 6.45E-03 | 1.119E+02 | 1.119E+02 | INF | 0. | 7.088E-08 | 1.259E-02 |
| 160 | 3.62E-03 | 1.611E+02 | 1.610E+02 | 1.525E+03 | 2.150E-07 | -3.066E-08 | 5.13E-03 | 1.139E+02 | 1.139E+02 | INF | 0. | 6.846E-08 | 1.019E-02 |
| 165 | 2.77E-03 | 1.596E+02 | 1.595E+02 | 1.511E+03 | 2.191E-07 | -3.279E-08 | 3.83E-03 | 1.154E+02 | 1.154E+02 | INF | 0. | 6.665E-08 | 7.710E-03 |
| 170 | 1.87E-03 | 1.585E+02 | 1.584E+02 | 1.500E+03 | 2.222E-07 | -3.440E-08 | 2.54E-03 | 1.165E+02 | 1.165E+02 | INF | 0. | 6.538E-08 | 5.173E-03 |
| 175 | 9.43E-04 | 1.578E+02 | 1.577E+02 | 1.494E+03 | 2.241E-07 | -3.539E-08 | 1.27E-03 | 1.172E+02 | 1.172E+02 | INF | 0. | 6.464E-08 | 2.596E-03 |
| 180 | 0. | 1.576E+02 | 1.575E+02 | 1.492E+03 | 2.247E-07 | -3.573E-08 | 0. | 1.174E+02 | 1.174E+02 | INF | 0. | 6.439E-08 | 0. |

PI PLUS (1) => MU PLUS (2) + NEUTRINO (3) AT 300 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 1.05659E-01 M3 = 0.
P2CM= 2.97901E-02
E2CM= 1.09779E-01 E3CM= 2.97901E-02

1-V1LAB= 1.082E-07 GCM = 2.14948E+03 S = 1.94794E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 3.000E+02 | 2.999E+02 | 2.839E+03 | 6.202E-08 | 9.861E-09 | 1.80E+02 | 6.930E-06 | 6.930E-06 | INF | 0. | 1.848E+07 | 0. |
| 1 | 9.92E-05 | 3.000E+02 | 2.999E+02 | 2.839E+03 | 6.203E-08 | 9.860E-09 | 3.05E+00 | 9.759E-03 | 9.759E-03 | INF | 0. | 9.317E+00 | 5.199E-04 |
| 2 | 1.99E-04 | 3.000E+02 | 2.999E+02 | 2.839E+03 | 6.204E-08 | 9.860E-09 | 1.53E+00 | 3.901E-02 | 3.901E-02 | INF | 0. | 5.830E-01 | 1.040E-03 |
| 3 | 2.98E-04 | 2.999E+02 | 2.998E+02 | 2.838E+03 | 6.206E-08 | 9.859E-09 | 1.02E+00 | 8.776E-02 | 8.776E-02 | INF | 0. | 1.152E-01 | 1.559E-03 |
| 4 | 3.97E-04 | 2.998E+02 | 2.997E+02 | 2.838E+03 | 6.209E-08 | 9.857E-09 | 7.63E-01 | 1.560E-01 | 1.560E-01 | INF | 0. | 3.647E-02 | 2.078E-03 |
| 5 | 4.96E-04 | 2.998E+02 | 2.997E+02 | 2.837E+03 | 6.212E-08 | 9.855E-09 | 6.11E-01 | 2.437E-01 | 2.437E-01 | INF | 0. | 1.495E-02 | 2.596E-03 |
| 6 | 5.95E-04 | 2.996E+02 | 2.995E+02 | 2.836E+03 | 6.217E-08 | 9.853E-09 | 5.09E-01 | 3.508E-01 | 3.508E-01 | INF | 0. | 7.212E-03 | 3.114E-03 |
| 7 | 6.94E-04 | 2.995E+02 | 2.994E+02 | 2.835E+03 | 6.222E-08 | 9.850E-09 | 4.36E-01 | 4.773E-01 | 4.773E-01 | INF | 0. | 3.895E-03 | 3.631E-03 |
| 8 | 7.93E-04 | 2.994E+02 | 2.993E+02 | 2.833E+03 | 6.228E-08 | 9.846E-09 | 3.81E-01 | 6.232E-01 | 6.232E-01 | INF | 0. | 2.285E-03 | 4.146E-03 |
| 9 | 8.92E-04 | 2.992E+02 | 2.991E+02 | 2.832E+03 | 6.235E-08 | 9.842E-09 | 3.39E-01 | 7.884E-01 | 7.884E-01 | INF | 0. | 1.428E-03 | 4.660E-03 |
| 10 | 9.91E-04 | 2.990E+02 | 2.989E+02 | 2.830E+03 | 6.243E-08 | 9.838E-09 | 3.05E-01 | 9.728E-01 | 9.728E-01 | INF | 0. | 9.377E-04 | 5.173E-03 |
| 15 | 1.48E-03 | 2.978E+02 | 2.977E+02 | 2.819E+03 | 6.293E-08 | 9.809E-09 | 2.02E-01 | 2.182E+00 | 2.182E+00 | INF | 0. | 1.864E-04 | 7.710E-03 |
| 20 | 1.97E-03 | 2.961E+02 | 2.960E+02 | 2.803E+03 | 6.365E-08 | 9.765E-09 | 1.51E-01 | 3.862E+00 | 3.862E+00 | INF | 0. | 5.951E-05 | 1.019E-02 |
| 25 | 2.45E-03 | 2.940E+02 | 2.939E+02 | 2.783E+03 | 6.458E-08 | 9.705E-09 | 1.20E-01 | 5.999E+00 | 5.999E+00 | INF | 0. | 2.466E-05 | 1.259E-02 |
| 30 | 2.93E-03 | 2.914E+02 | 2.913E+02 | 2.758E+03 | 6.573E-08 | 9.624E-09 | 9.95E-02 | 8.579E+00 | 8.579E+00 | INF | 0. | 1.206E-05 | 1.490E-02 |
| 35 | 3.39E-03 | 2.884E+02 | 2.883E+02 | 2.730E+03 | 6.710E-08 | 9.518E-09 | 8.45E-02 | 1.158E+01 | 1.158E+01 | INF | 0. | 6.618E-06 | 1.709E-02 |
| 40 | 3.85E-03 | 2.850E+02 | 2.849E+02 | 2.698E+03 | 6.871E-08 | 9.383E-09 | 7.32E-02 | 1.498E+01 | 1.498E+01 | INF | 0. | 3.954E-06 | 1.915E-02 |
| 45 | 4.29E-03 | 2.812E+02 | 2.811E+02 | 2.662E+03 | 7.057E-08 | 9.211E-09 | 6.44E-02 | 1.875E+01 | 1.875E+01 | INF | 0. | 2.523E-06 | 2.106E-02 |
| 50 | 4.72E-03 | 2.771E+02 | 2.770E+02 | 2.623E+03 | 7.268E-08 | 8.995E-09 | 5.72E-02 | 2.287E+01 | 2.287E+01 | INF | 0. | 1.696E-06 | 2.282E-02 |
| 55 | 5.13E-03 | 2.727E+02 | 2.726E+02 | 2.581E+03 | 7.506E-08 | 8.726E-09 | 5.12E-02 | 2.731E+01 | 2.731E+01 | INF | 0. | 1.190E-06 | 2.440E-02 |
| 60 | 5.52E-03 | 2.680E+02 | 2.679E+02 | 2.536E+03 | 7.773E-08 | 8.393E-09 | 4.62E-02 | 3.202E+01 | 3.202E+01 | INF | 0. | 8.658E-07 | 2.580E-02 |
| 65 | 5.88E-03 | 2.630E+02 | 2.629E+02 | 2.489E+03 | 8.068E-08 | 7.986E-09 | 4.18E-02 | 3.697E+01 | 3.697E+01 | INF | 0. | 6.492E-07 | 2.700E-02 |
| 70 | 6.22E-03 | 2.579E+02 | 2.578E+02 | 2.441E+03 | 8.394E-08 | 7.491E-09 | 3.81E-02 | 4.213E+01 | 4.213E+01 | INF | 0. | 4.999E-07 | 2.799E-02 |
| 75 | 6.53E-03 | 2.525E+02 | 2.524E+02 | 2.390E+03 | 8.752E-08 | 6.893E-09 | 3.47E-02 | 4.746E+01 | 4.746E+01 | INF | 0. | 3.940E-07 | 2.878E-02 |
| 80 | 6.80E-03 | 2.471E+02 | 2.470E+02 | 2.339E+03 | 9.143E-08 | 6.178E-09 | 3.18E-02 | 5.291E+01 | 5.291E+01 | INF | 0. | 3.170E-07 | 2.934E-02 |
| 85 | 7.04E-03 | 2.415E+02 | 2.414E+02 | 2.286E+03 | 9.567E-08 | 5.327E-09 | 2.91E-02 | 5.845E+01 | 5.845E+01 | INF | 0. | 2.597E-07 | 2.968E-02 |
| 90 | 7.23E-03 | 2.360E+02 | 2.359E+02 | 2.233E+03 | 1.002E-07 | 4.325E-09 | 2.67E-02 | 6.403E+01 | 6.403E+01 | INF | 0. | 2.164E-07 | 2.979E-02 |
| 95 | 7.38E-03 | 2.304E+02 | 2.303E+02 | 2.180E+03 | 1.052E-07 | 3.155E-09 | 2.44E-02 | 6.961E+01 | 6.961E+01 | INF | 0. | 1.831E-07 | 2.968E-02 |
| 100 | 7.48E-03 | 2.248E+02 | 2.247E+02 | 2.128E+03 | 1.104E-07 | 1.800E-09 | 2.24E-02 | 7.515E+01 | 7.515E+01 | INF | 0. | 1.571E-07 | 2.934E-02 |
| 105 | 7.51E-03 | 2.194E+02 | 2.193E+02 | 2.076E+03 | 1.160E-07 | 2.488E-10 | 2.05E-02 | 8.061E+01 | 8.061E+01 | INF | 0. | 1.366E-07 | 2.878E-02 |
| 110 | 7.49E-03 | 2.141E+02 | 2.140E+02 | 2.026E+03 | 1.218E-07 | -1.508E-09 | 1.87E-02 | 8.593E+01 | 8.593E+01 | INF | 0. | 1.202E-07 | 2.799E-02 |
| 115 | 7.40E-03 | 2.089E+02 | 2.088E+02 | 1.977E+03 | 1.279E-07 | -3.474E-09 | 1.70E-02 | 9.109E+01 | 9.109E+01 | INF | 0. | 1.069E-07 | 2.700E-02 |
| 120 | 7.25E-03 | 2.040E+02 | 2.038E+02 | 1.930E+03 | 1.342E-07 | -5.644E-09 | 1.54E-02 | 9.605E+01 | 9.605E+01 | INF | 0. | 9.619E-08 | 2.580E-02 |
| 125 | 7.02E-03 | 1.992E+02 | 1.991E+02 | 1.886E+03 | 1.406E-07 | -8.002E-09 | 1.39E-02 | 1.008E+02 | 1.008E+02 | INF | 0. | 8.741E-08 | 2.440E-02 |
| 130 | 6.71E-03 | 1.948E+02 | 1.947E+02 | 1.844E+03 | 1.471E-07 | -1.052E-08 | 1.24E-02 | 1.052E+02 | 1.052E+02 | INF | 0. | 8.020E-08 | 2.282E-02 |
| 135 | 6.33E-03 | 1.907E+02 | 1.906E+02 | 1.805E+03 | 1.535E-07 | -1.316E-08 | 1.10E-02 | 1.093E+02 | 1.093E+02 | INF | 0. | 7.427E-08 | 2.106E-02 |
| 140 | 5.87E-03 | 1.869E+02 | 1.868E+02 | 1.769E+03 | 1.598E-07 | -1.586E-08 | 9.70E-03 | 1.131E+02 | 1.131E+02 | INF | 0. | 6.940E-08 | 1.915E-02 |
| 145 | 5.33E-03 | 1.835E+02 | 1.834E+02 | 1.737E+03 | 1.657E-07 | -1.856E-08 | 8.40E-03 | 1.165E+02 | 1.165E+02 | INF | 0. | 6.540E-08 | 1.709E-02 |
| 150 | 4.73E-03 | 1.805E+02 | 1.804E+02 | 1.708E+03 | 1.713E-07 | -2.117E-08 | 7.14E-03 | 1.195E+02 | 1.195E+02 | INF | 0. | 6.216E-08 | 1.490E-02 |
| 155 | 4.05E-03 | 1.779E+02 | 1.778E+02 | 1.684E+03 | 1.763E-07 | -2.360E-08 | 5.91E-03 | 1.221E+02 | 1.221E+02 | INF | 0. | 5.956E-08 | 1.259E-02 |
| 160 | 3.32E-03 | 1.758E+02 | 1.757E+02 | 1.664E+03 | 1.806E-07 | -2.576E-08 | 4.70E-03 | 1.242E+02 | 1.242E+02 | INF | 0. | 5.753E-08 | 1.019E-02 |
| 165 | 2.54E-03 | 1.741E+02 | 1.740E+02 | 1.648E+03 | 1.841E-07 | -2.755E-08 | 3.51E-03 | 1.259E+02 | 1.259E+02 | INF | 0. | 5.600E-08 | 7.710E-03 |
| 170 | 1.71E-03 | 1.729E+02 | 1.728E+02 | 1.636E+03 | 1.867E-07 | -2.890E-08 | 2.33E-03 | 1.271E+02 | 1.271E+02 | INF | 0. | 5.494E-08 | 5.173E-03 |
| 175 | 8.64E-04 | 1.722E+02 | 1.721E+02 | 1.630E+03 | 1.883E-07 | -2.974E-08 | 1.16E-03 | 1.278E+02 | 1.278E+02 | INF | 0. | 5.432E-08 | 2.596E-03 |
| 180 | 0. | 1.719E+02 | 1.718E+02 | 1.627E+03 | 1.888E-07 | -3.002E-08 | 0. | 1.281E+02 | 1.281E+02 | INF | 0. | 5.411E-08 | 0. |

PI PLUS (1) => MU PLUS (2) + NEUTRINO (3) AT 350 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 1.05659E-01 M3 = 0.
P2CM= 2.97901E-02
E2CM= 1.09779E-01 E3CM= 2.97901E-02

1-V1LAB= 7.951E-08 GCM = 2.50772E+03 S = 1.94794E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 3.500E+02 | 3.499E+02 | 3.313E+03 | 4.557E-08 | 7.244E-09 | 1.80E+02 | 5.940E-06 | 5.940E-06 | INF | 0. | 2.515E+07 | 0. |
| 1 | 8.52E-05 | 3.500E+02 | 3.499E+02 | 3.312E+03 | 4.557E-08 | 7.244E-09 | 2.62E+00 | 1.138E-02 | 1.138E-02 | INF | 0. | 6.848E+00 | 5.199E-04 |
| 2 | 1.70E-04 | 3.500E+02 | 3.498E+02 | 3.312E+03 | 4.558E-08 | 7.244E-09 | 1.31E+00 | 4.551E-02 | 4.551E-02 | INF | 0. | 4.284E-01 | 1.040E-03 |
| 3 | 2.55E-04 | 3.499E+02 | 3.498E+02 | 3.312E+03 | 4.559E-08 | 7.243E-09 | 8.73E-01 | 1.024E-01 | 1.024E-01 | INF | 0. | 8.466E-02 | 1.559E-03 |
| 4 | 3.40E-04 | 3.498E+02 | 3.497E+02 | 3.311E+03 | 4.561E-08 | 7.242E-09 | 6.54E-01 | 1.820E-01 | 1.820E-01 | INF | 0. | 2.680E-02 | 2.078E-03 |
| 5 | 4.25E-04 | 3.497E+02 | 3.496E+02 | 3.310E+03 | 4.564E-08 | 7.240E-09 | 5.23E-01 | 2.843E-01 | 2.843E-01 | INF | 0. | 1.098E-02 | 2.596E-03 |
| 6 | 5.10E-04 | 3.496E+02 | 3.495E+02 | 3.309E+03 | 4.567E-08 | 7.239E-09 | 4.36E-01 | 4.092E-01 | 4.092E-01 | INF | 0. | 5.299E-03 | 3.114E-03 |
| 7 | 5.95E-04 | 3.494E+02 | 3.493E+02 | 3.307E+03 | 4.571E-08 | 7.237E-09 | 3.74E-01 | 5.568E-01 | 5.568E-01 | INF | 0. | 2.862E-03 | 3.631E-03 |
| 8 | 6.80E-04 | 3.493E+02 | 3.492E+02 | 3.306E+03 | 4.576E-08 | 7.234E-09 | 3.27E-01 | 7.270E-01 | 7.270E-01 | INF | 0. | 1.679E-03 | 4.146E-03 |
| 9 | 7.65E-04 | 3.491E+02 | 3.490E+02 | 3.304E+03 | 4.581E-08 | 7.231E-09 | 2.90E-01 | 9.198E-01 | 9.198E-01 | INF | 0. | 1.049E-03 | 4.660E-03 |
| 10 | 8.50E-04 | 3.489E+02 | 3.488E+02 | 3.302E+03 | 4.586E-08 | 7.228E-09 | 2.61E-01 | 1.135E+00 | 1.135E+00 | INF | 0. | 6.890E-04 | 5.173E-03 |
| 15 | 1.27E-03 | 3.475E+02 | 3.473E+02 | 3.288E+03 | 4.624E-08 | 7.206E-09 | 1.74E-01 | 2.546E+00 | 2.546E+00 | INF | 0. | 1.370E-04 | 7.710E-03 |
| 20 | 1.69E-03 | 3.455E+02 | 3.454E+02 | 3.270E+03 | 4.676E-08 | 7.174E-09 | 1.30E-01 | 4.505E+00 | 4.505E+00 | INF | 0. | 4.372E-05 | 1.019E-02 |
| 25 | 2.10E-03 | 3.430E+02 | 3.429E+02 | 3.246E+03 | 4.745E-08 | 7.130E-09 | 1.03E-01 | 6.999E+00 | 6.999E+00 | INF | 0. | 1.811E-05 | 1.259E-02 |
| 30 | 2.51E-03 | 3.400E+02 | 3.399E+02 | 3.218E+03 | 4.829E-08 | 7.070E-09 | 8.53E-02 | 1.001E+01 | 1.001E+01 | INF | 0. | 8.859E-06 | 1.490E-02 |
| 35 | 2.91E-03 | 3.365E+02 | 3.364E+02 | 3.185E+03 | 4.930E-08 | 6.993E-09 | 7.25E-02 | 1.351E+01 | 1.351E+01 | INF | 0. | 4.862E-06 | 1.709E-02 |
| 40 | 3.30E-03 | 3.325E+02 | 3.324E+02 | 3.147E+03 | 5.048E-08 | 6.893E-09 | 6.28E-02 | 1.748E+01 | 1.748E+01 | INF | 0. | 2.905E-06 | 1.915E-02 |
| 45 | 3.68E-03 | 3.281E+02 | 3.280E+02 | 3.105E+03 | 5.185E-08 | 6.767E-09 | 5.52E-02 | 2.188E+01 | 2.188E+01 | INF | 0. | 1.854E-06 | 2.106E-02 |
| 50 | 4.04E-03 | 3.233E+02 | 3.232E+02 | 3.060E+03 | 5.340E-08 | 6.608E-09 | 4.90E-02 | 2.669E+01 | 2.669E+01 | INF | 0. | 1.246E-06 | 2.282E-02 |
| 55 | 4.39E-03 | 3.181E+02 | 3.180E+02 | 3.011E+03 | 5.515E-08 | 6.411E-09 | 4.39E-02 | 3.186E+01 | 3.186E+01 | INF | 0. | 8.745E-07 | 2.440E-02 |
| 60 | 4.73E-03 | 3.126E+02 | 3.125E+02 | 2.959E+03 | 5.711E-08 | 6.166E-09 | 3.96E-02 | 3.735E+01 | 3.735E+01 | INF | 0. | 6.361E-07 | 2.580E-02 |
| 65 | 5.04E-03 | 3.069E+02 | 3.068E+02 | 2.904E+03 | 5.928E-08 | 5.867E-09 | 3.59E-02 | 4.313E+01 | 4.313E+01 | INF | 0. | 4.770E-07 | 2.700E-02 |
| 70 | 5.33E-03 | 3.008E+02 | 3.007E+02 | 2.847E+03 | 6.167E-08 | 5.504E-09 | 3.26E-02 | 4.915E+01 | 4.915E+01 | INF | 0. | 3.673E-07 | 2.799E-02 |
| 75 | 5.60E-03 | 2.946E+02 | 2.945E+02 | 2.788E+03 | 6.430E-08 | 5.065E-09 | 2.98E-02 | 5.537E+01 | 5.537E+01 | INF | 0. | 2.895E-07 | 2.878E-02 |
| 80 | 5.83E-03 | 2.883E+02 | 2.882E+02 | 2.728E+03 | 6.717E-08 | 4.539E-09 | 2.72E-02 | 6.173E+01 | 6.173E+01 | INF | 0. | 2.329E-07 | 2.934E-02 |
| 85 | 6.03E-03 | 2.818E+02 | 2.817E+02 | 2.667E+03 | 7.029E-08 | 3.914E-09 | 2.49E-02 | 6.819E+01 | 6.819E+01 | INF | 0. | 1.908E-07 | 2.968E-02 |
| 90 | 6.20E-03 | 2.753E+02 | 2.752E+02 | 2.605E+03 | 7.365E-08 | 3.178E-09 | 2.28E-02 | 7.471E+01 | 7.471E+01 | INF | 0. | 1.590E-07 | 2.979E-02 |
| 95 | 6.33E-03 | 2.688E+02 | 2.687E+02 | 2.544E+03 | 7.726E-08 | 2.318E-09 | 2.09E-02 | 8.122E+01 | 8.122E+01 | INF | 0. | 1.345E-07 | 2.968E-02 |
| 100 | 6.41E-03 | 2.623E+02 | 2.622E+02 | 2.483E+03 | 8.112E-08 | 1.323E-09 | 1.92E-02 | 8.768E+01 | 8.768E+01 | INF | 0. | 1.154E-07 | 2.934E-02 |
| 105 | 6.44E-03 | 2.560E+02 | 2.559E+02 | 2.422E+03 | 8.520E-08 | 1.828E-10 | 1.75E-02 | 9.404E+01 | 9.404E+01 | INF | 0. | 1.003E-07 | 2.878E-02 |
| 110 | 6.42E-03 | 2.497E+02 | 2.496E+02 | 2.364E+03 | 8.949E-08 | -1.108E-09 | 1.60E-02 | 1.003E+02 | 1.003E+02 | INF | 0. | 8.829E-08 | 2.799E-02 |
| 115 | 6.35E-03 | 2.437E+02 | 2.436E+02 | 2.307E+03 | 9.397E-08 | -2.552E-09 | 1.46E-02 | 1.063E+02 | 1.063E+02 | INF | 0. | 7.857E-08 | 2.700E-02 |
| 120 | 6.21E-03 | 2.379E+02 | 2.378E+02 | 2.252E+03 | 9.859E-08 | -4.146E-09 | 1.32E-02 | 1.121E+02 | 1.121E+02 | INF | 0. | 7.067E-08 | 2.580E-02 |
| 125 | 6.02E-03 | 2.324E+02 | 2.323E+02 | 2.200E+03 | 1.033E-07 | -5.879E-09 | 1.19E-02 | 1.176E+02 | 1.176E+02 | INF | 0. | 6.422E-08 | 2.440E-02 |
| 130 | 5.75E-03 | 2.273E+02 | 2.272E+02 | 2.151E+03 | 1.081E-07 | -7.730E-09 | 1.07E-02 | 1.227E+02 | 1.227E+02 | INF | 0. | 5.892E-08 | 2.282E-02 |
| 135 | 5.43E-03 | 2.225E+02 | 2.224E+02 | 2.106E+03 | 1.128E-07 | -9.668E-09 | 9.46E-03 | 1.275E+02 | 1.275E+02 | INF | 0. | 5.457E-08 | 2.106E-02 |
| 140 | 5.03E-03 | 2.181E+02 | 2.180E+02 | 2.064E+03 | 1.174E-07 | -1.165E-08 | 8.32E-03 | 1.319E+02 | 1.319E+02 | INF | 0. | 5.098E-08 | 1.915E-02 |
| 145 | 4.57E-03 | 2.141E+02 | 2.140E+02 | 2.026E+03 | 1.218E-07 | -1.364E-08 | 7.20E-03 | 1.359E+02 | 1.359E+02 | INF | 0. | 4.805E-08 | 1.709E-02 |
| 150 | 4.05E-03 | 2.106E+02 | 2.105E+02 | 1.993E+03 | 1.259E-07 | -1.555E-08 | 6.12E-03 | 1.394E+02 | 1.394E+02 | INF | 0. | 4.567E-08 | 1.490E-02 |
| 155 | 3.47E-03 | 2.076E+02 | 2.075E+02 | 1.965E+03 | 1.295E-07 | -1.734E-08 | 5.07E-03 | 1.424E+02 | 1.424E+02 | INF | 0. | 4.376E-08 | 1.259E-02 |
| 160 | 2.85E-03 | 2.051E+02 | 2.050E+02 | 1.941E+03 | 1.327E-07 | -1.893E-08 | 4.03E-03 | 1.449E+02 | 1.449E+02 | INF | 0. | 4.226E-08 | 1.019E-02 |
| 165 | 2.17E-03 | 2.031E+02 | 2.030E+02 | 1.923E+03 | 1.353E-07 | -2.024E-08 | 3.01E-03 | 1.469E+02 | 1.469E+02 | INF | 0. | 4.114E-08 | 7.710E-03 |
| 170 | 1.47E-03 | 2.017E+02 | 2.016E+02 | 1.909E+03 | 1.372E-07 | -2.123E-08 | 2.00E-03 | 1.483E+02 | 1.483E+02 | INF | 0. | 4.036E-08 | 5.173E-03 |
| 175 | 7.41E-04 | 2.009E+02 | 2.008E+02 | 1.901E+03 | 1.383E-07 | -2.185E-08 | 9.98E-04 | 1.491E+02 | 1.491E+02 | INF | 0. | 3.991E-08 | 2.596E-03 |
| 180 | 0. | 2.006E+02 | 2.005E+02 | 1.898E+03 | 1.387E-07 | -2.206E-08 | 0. | 1.494E+02 | 1.494E+02 | INF | 0. | 3.975E-08 | 0. |

PI PLUS (1) => MU PLUS (2) + NEUTRINO (3) AT 400 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 1.05659E-01 M3 = 0.
P2CM= 2.97901E-02
E2CM= 1.09779E-01 E3CM= 2.97901E-02

1-V1LAB= 6.087E-08 GCM = 2.86597E+03 S = 1.94794E-02

| Θ2 CM | Θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | Θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 4.000E+02 | 3.999E+02 | 3.786E+03 | 3.489E-08 | 5.547E-09 | 1.80E+02 | 5.197E-06 | 5.197E-06 | INF | 0. | 3.286E+07 | 0. |
| 1 | 7.47E-05 | 4.000E+02 | 3.999E+02 | 3.786E+03 | 3.489E-08 | 5.546E-09 | 2.29E+00 | 1.301E-02 | 1.301E-02 | INF | 0. | 5.244E+00 | 5.199E-04 |
| 2 | 1.49E-04 | 3.999E+02 | 3.998E+02 | 3.785E+03 | 3.490E-08 | 5.546E-09 | 1.15E+00 | 5.201E-02 | 5.201E-02 | INF | 0. | 3.280E-01 | 1.040E-03 |
| 3 | 2.23E-04 | 3.999E+02 | 3.998E+02 | 3.785E+03 | 3.491E-08 | 5.545E-09 | 7.63E-01 | 1.170E-01 | 1.170E-01 | INF | 0. | 6.482E-02 | 1.559E-03 |
| 4 | 2.98E-04 | 3.998E+02 | 3.997E+02 | 3.784E+03 | 3.492E-08 | 5.545E-09 | 5.72E-01 | 2.080E-01 | 2.080E-01 | INF | 0. | 2.052E-02 | 2.078E-03 |
| 5 | 3.72E-04 | 3.997E+02 | 3.996E+02 | 3.783E+03 | 3.494E-08 | 5.543E-09 | 4.58E-01 | 3.249E-01 | 3.249E-01 | INF | 0. | 8.407E-03 | 2.596E-03 |
| 6 | 4.47E-04 | 3.995E+02 | 3.994E+02 | 3.781E+03 | 3.497E-08 | 5.542E-09 | 3.81E-01 | 4.677E-01 | 4.677E-01 | INF | 0. | 4.057E-03 | 3.114E-03 |
| 7 | 5.21E-04 | 3.994E+02 | 3.993E+02 | 3.780E+03 | 3.500E-08 | 5.540E-09 | 3.27E-01 | 6.364E-01 | 6.364E-01 | INF | 0. | 2.191E-03 | 3.631E-03 |
| 8 | 5.95E-04 | 3.992E+02 | 3.991E+02 | 3.778E+03 | 3.503E-08 | 5.539E-09 | 2.86E-01 | 8.309E-01 | 8.309E-01 | INF | 0. | 1.285E-03 | 4.146E-03 |
| 9 | 6.69E-04 | 3.989E+02 | 3.988E+02 | 3.776E+03 | 3.507E-08 | 5.536E-09 | 2.54E-01 | 1.051E+00 | 1.051E+00 | INF | 0. | 8.032E-04 | 4.660E-03 |
| 10 | 7.43E-04 | 3.987E+02 | 3.986E+02 | 3.773E+03 | 3.511E-08 | 5.534E-09 | 2.29E-01 | 1.297E+00 | 1.297E+00 | INF | 0. | 5.275E-04 | 5.173E-03 |
| 15 | 1.11E-03 | 3.971E+02 | 3.970E+02 | 3.758E+03 | 3.540E-08 | 5.517E-09 | 1.52E-01 | 2.909E+00 | 2.909E+00 | INF | 0. | 1.049E-04 | 7.710E-03 |
| 20 | 1.48E-03 | 3.949E+02 | 3.947E+02 | 3.737E+03 | 3.580E-08 | 5.493E-09 | 1.13E-01 | 5.149E+00 | 5.149E+00 | INF | 0. | 3.347E-05 | 1.019E-02 |
| 25 | 1.84E-03 | 3.920E+02 | 3.919E+02 | 3.710E+03 | 3.633E-08 | 5.459E-09 | 9.02E-02 | 7.999E+00 | 7.999E+00 | INF | 0. | 1.387E-05 | 1.259E-02 |
| 30 | 2.20E-03 | 3.886E+02 | 3.885E+02 | 3.677E+03 | 3.697E-08 | 5.413E-09 | 7.46E-02 | 1.144E+01 | 1.144E+01 | INF | 0. | 6.783E-06 | 1.490E-02 |
| 35 | 2.55E-03 | 3.846E+02 | 3.845E+02 | 3.640E+03 | 3.774E-08 | 5.354E-09 | 6.34E-02 | 1.544E+01 | 1.544E+01 | INF | 0. | 3.722E-06 | 1.709E-02 |
| 40 | 2.89E-03 | 3.800E+02 | 3.799E+02 | 3.597E+03 | 3.865E-08 | 5.278E-09 | 5.49E-02 | 1.997E+01 | 1.997E+01 | INF | 0. | 2.224E-06 | 1.915E-02 |
| 45 | 3.22E-03 | 3.750E+02 | 3.749E+02 | 3.549E+03 | 3.970E-08 | 5.181E-09 | 4.83E-02 | 2.501E+01 | 2.501E+01 | INF | 0. | 1.419E-06 | 2.106E-02 |
| 50 | 3.54E-03 | 3.695E+02 | 3.694E+02 | 3.497E+03 | 4.088E-08 | 5.059E-09 | 4.29E-02 | 3.050E+01 | 3.050E+01 | INF | 0. | 9.541E-07 | 2.282E-02 |
| 55 | 3.85E-03 | 3.636E+02 | 3.635E+02 | 3.441E+03 | 4.222E-08 | 4.908E-09 | 3.84E-02 | 3.641E+01 | 3.641E+01 | INF | 0. | 6.695E-07 | 2.440E-02 |
| 60 | 4.14E-03 | 3.573E+02 | 3.572E+02 | 3.382E+03 | 4.372E-08 | 4.721E-09 | 3.46E-02 | 4.269E+01 | 4.269E+01 | INF | 0. | 4.870E-07 | 2.580E-02 |
| 65 | 4.41E-03 | 3.507E+02 | 3.506E+02 | 3.319E+03 | 4.538E-08 | 4.492E-09 | 3.14E-02 | 4.930E+01 | 4.930E+01 | INF | 0. | 3.652E-07 | 2.700E-02 |
| 70 | 4.66E-03 | 3.438E+02 | 3.437E+02 | 3.254E+03 | 4.722E-08 | 4.214E-09 | 2.86E-02 | 5.618E+01 | 5.618E+01 | INF | 0. | 2.812E-07 | 2.799E-02 |
| 75 | 4.90E-03 | 3.367E+02 | 3.366E+02 | 3.187E+03 | 4.923E-08 | 3.878E-09 | 2.61E-02 | 6.328E+01 | 6.328E+01 | INF | 0. | 2.216E-07 | 2.878E-02 |
| 80 | 5.10E-03 | 3.294E+02 | 3.293E+02 | 3.118E+03 | 5.143E-08 | 3.475E-09 | 2.38E-02 | 7.055E+01 | 7.055E+01 | INF | 0. | 1.783E-07 | 2.934E-02 |
| 85 | 5.28E-03 | 3.221E+02 | 3.220E+02 | 3.048E+03 | 5.381E-08 | 2.997E-09 | 2.18E-02 | 7.794E+01 | 7.794E+01 | INF | 0. | 1.461E-07 | 2.968E-02 |
| 90 | 5.43E-03 | 3.146E+02 | 3.145E+02 | 2.978E+03 | 5.639E-08 | 2.433E-09 | 2.00E-02 | 8.538E+01 | 8.538E+01 | INF | 0. | 1.217E-07 | 2.979E-02 |
| 95 | 5.54E-03 | 3.072E+02 | 3.071E+02 | 2.907E+03 | 5.916E-08 | 1.774E-09 | 1.83E-02 | 9.282E+01 | 9.282E+01 | INF | 0. | 1.030E-07 | 2.968E-02 |
| 100 | 5.61E-03 | 2.998E+02 | 2.997E+02 | 2.837E+03 | 6.211E-08 | 1.013E-09 | 1.68E-02 | 1.002E+02 | 1.002E+02 | INF | 0. | 8.839E-08 | 2.934E-02 |
| 105 | 5.64E-03 | 2.925E+02 | 2.924E+02 | 2.769E+03 | 6.523E-08 | 1.399E-10 | 1.53E-02 | 1.075E+02 | 1.075E+02 | INF | 0. | 7.683E-08 | 2.878E-02 |
| 110 | 5.62E-03 | 2.854E+02 | 2.853E+02 | 2.701E+03 | 6.852E-08 | -8.484E-10 | 1.40E-02 | 1.146E+02 | 1.146E+02 | INF | 0. | 6.760E-08 | 2.799E-02 |
| 115 | 5.55E-03 | 2.785E+02 | 2.784E+02 | 2.636E+03 | 7.195E-08 | -1.954E-09 | 1.27E-02 | 1.215E+02 | 1.215E+02 | INF | 0. | 6.016E-08 | 2.700E-02 |
| 120 | 5.44E-03 | 2.719E+02 | 2.718E+02 | 2.574E+03 | 7.548E-08 | -3.175E-09 | 1.15E-02 | 1.281E+02 | 1.281E+02 | INF | 0. | 5.411E-08 | 2.580E-02 |
| 125 | 5.26E-03 | 2.657E+02 | 2.655E+02 | 2.514E+03 | 7.910E-08 | -4.501E-09 | 1.04E-02 | 1.343E+02 | 1.343E+02 | INF | 0. | 4.917E-08 | 2.440E-02 |
| 130 | 5.03E-03 | 2.597E+02 | 2.596E+02 | 2.458E+03 | 8.274E-08 | -5.918E-09 | 9.32E-03 | 1.403E+02 | 1.403E+02 | INF | 0. | 4.511E-08 | 2.282E-02 |
| 135 | 4.75E-03 | 2.543E+02 | 2.541E+02 | 2.406E+03 | 8.635E-08 | -7.402E-09 | 8.28E-03 | 1.457E+02 | 1.457E+02 | INF | 0. | 4.178E-08 | 2.106E-02 |
| 140 | 4.40E-03 | 2.492E+02 | 2.491E+02 | 2.359E+03 | 8.987E-08 | -8.923E-09 | 7.28E-03 | 1.508E+02 | 1.508E+02 | INF | 0. | 3.903E-08 | 1.915E-02 |
| 145 | 4.00E-03 | 2.447E+02 | 2.446E+02 | 2.316E+03 | 9.323E-08 | -1.044E-08 | 6.30E-03 | 1.553E+02 | 1.553E+02 | INF | 0. | 3.679E-08 | 1.709E-02 |
| 150 | 3.55E-03 | 2.407E+02 | 2.406E+02 | 2.278E+03 | 9.636E-08 | -1.191E-08 | 5.36E-03 | 1.593E+02 | 1.593E+02 | INF | 0. | 3.496E-08 | 1.490E-02 |
| 155 | 3.04E-03 | 2.372E+02 | 2.371E+02 | 2.245E+03 | 9.917E-08 | -1.328E-08 | 4.43E-03 | 1.628E+02 | 1.628E+02 | INF | 0. | 3.350E-08 | 1.259E-02 |
| 160 | 2.49E-03 | 2.344E+02 | 2.343E+02 | 2.218E+03 | 1.016E-07 | -1.449E-08 | 3.53E-03 | 1.656E+02 | 1.656E+02 | INF | 0. | 3.236E-08 | 1.019E-02 |
| 165 | 1.90E-03 | 2.322E+02 | 2.320E+02 | 2.197E+03 | 1.036E-07 | -1.550E-08 | 2.63E-03 | 1.678E+02 | 1.678E+02 | INF | 0. | 3.150E-08 | 7.710E-03 |
| 170 | 1.29E-03 | 2.305E+02 | 2.304E+02 | 2.182E+03 | 1.050E-07 | -1.626E-08 | 1.75E-03 | 1.695E+02 | 1.695E+02 | INF | 0. | 3.090E-08 | 5.173E-03 |
| 175 | 6.48E-04 | 2.296E+02 | 2.295E+02 | 2.173E+03 | 1.059E-07 | -1.673E-08 | 8.73E-04 | 1.704E+02 | 1.704E+02 | INF | 0. | 3.055E-08 | 2.596E-03 |
| 180 | 0. | 2.292E+02 | 2.291E+02 | 2.170E+03 | 1.062E-07 | -1.689E-08 | 0. | 1.708E+02 | 1.708E+02 | INF | 0. | 3.044E-08 | 0. |

PI PLUS => MU PLUS + NEUTRINO AT 450 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.39569E-01 M2 = 1.05659E-01 M3 = 0.
P2CM= 2.97901E-02
E2CM= 1.09779E-01 E3CM= 2.97901E-02

1-V1LAB= 4.810E-08 GCM = 3.22422E+03 S = 1.94794E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 4.500E+02 | 4.499E+02 | 4.259E+03 | 2.757E-08 | 4.382E-09 | 1.80E+02 | 4.620E-06 | 4.620E-06 | INF | 0. | 4.158E+07 | 0. |
| 1 | 6.62E-05 | 4.500E+02 | 4.499E+02 | 4.259E+03 | 2.757E-08 | 4.382E-09 | 2.04E+00 | 1.463E-02 | 1.463E-02 | INF | 0. | 4.144E+00 | 5.199E-04 |
| 2 | 1.32E-04 | 4.499E+02 | 4.498E+02 | 4.258E+03 | 2.757E-08 | 4.382E-09 | 1.02E+00 | 5.852E-02 | 5.852E-02 | INF | 0. | 2.592E-01 | 1.040E-03 |
| 3 | 1.99E-04 | 4.499E+02 | 4.498E+02 | 4.258E+03 | 2.758E-08 | 4.382E-09 | 6.79E-01 | 1.316E-01 | 1.316E-01 | INF | 0. | 5.121E-02 | 1.559E-03 |
| 4 | 2.65E-04 | 4.498E+02 | 4.497E+02 | 4.257E+03 | 2.759E-08 | 4.381E-09 | 5.09E-01 | 2.340E-01 | 2.340E-01 | INF | 0. | 1.621E-02 | 2.078E-03 |
| 5 | 3.31E-04 | 4.496E+02 | 4.495E+02 | 4.256E+03 | 2.761E-08 | 4.380E-09 | 4.07E-01 | 3.655E-01 | 3.655E-01 | INF | 0. | 6.643E-03 | 2.596E-03 |
| 6 | 3.97E-04 | 4.495E+02 | 4.494E+02 | 4.254E+03 | 2.763E-08 | 4.379E-09 | 3.39E-01 | 5.262E-01 | 5.262E-01 | INF | 0. | 3.205E-03 | 3.114E-03 |
| 7 | 4.63E-04 | 4.493E+02 | 4.492E+02 | 4.252E+03 | 2.765E-08 | 4.378E-09 | 2.91E-01 | 7.159E-01 | 7.159E-01 | INF | 0. | 1.731E-03 | 3.631E-03 |
| 8 | 5.29E-04 | 4.491E+02 | 4.490E+02 | 4.250E+03 | 2.768E-08 | 4.376E-09 | 2.54E-01 | 9.348E-01 | 9.348E-01 | INF | 0. | 1.016E-03 | 4.146E-03 |
| 9 | 5.95E-04 | 4.488E+02 | 4.487E+02 | 4.248E+03 | 2.771E-08 | 4.374E-09 | 2.26E-01 | 1.183E+00 | 1.183E+00 | INF | 0. | 6.346E-04 | 4.660E-03 |
| 10 | 6.61E-04 | 4.485E+02 | 4.484E+02 | 4.245E+03 | 2.774E-08 | 4.373E-09 | 2.03E-01 | 1.459E+00 | 1.459E+00 | INF | 0. | 4.168E-04 | 5.173E-03 |
| 15 | 9.89E-04 | 4.467E+02 | 4.466E+02 | 4.228E+03 | 2.797E-08 | 4.359E-09 | 1.35E-01 | 3.273E+00 | 3.273E+00 | INF | 0. | 8.285E-05 | 7.710E-03 |
| 20 | 1.31E-03 | 4.442E+02 | 4.441E+02 | 4.204E+03 | 2.829E-08 | 4.340E-09 | 1.01E-01 | 5.793E+00 | 5.793E+00 | INF | 0. | 2.645E-05 | 1.019E-02 |
| 25 | 1.64E-03 | 4.410E+02 | 4.409E+02 | 4.174E+03 | 2.870E-08 | 4.313E-09 | 8.02E-02 | 8.999E+00 | 8.999E+00 | INF | 0. | 1.096E-05 | 1.259E-02 |
| 30 | 1.95E-03 | 4.371E+02 | 4.370E+02 | 4.137E+03 | 2.921E-08 | 4.277E-09 | 6.63E-02 | 1.287E+01 | 1.287E+01 | INF | 0. | 5.359E-06 | 1.490E-02 |
| 35 | 2.26E-03 | 4.326E+02 | 4.325E+02 | 4.095E+03 | 2.982E-08 | 4.230E-09 | 5.64E-02 | 1.737E+01 | 1.737E+01 | INF | 0. | 2.941E-06 | 1.709E-02 |
| 40 | 2.57E-03 | 4.275E+02 | 4.274E+02 | 4.046E+03 | 3.054E-08 | 4.170E-09 | 4.88E-02 | 2.247E+01 | 2.247E+01 | INF | 0. | 1.757E-06 | 1.915E-02 |
| 45 | 2.86E-03 | 4.219E+02 | 4.218E+02 | 3.993E+03 | 3.136E-08 | 4.094E-09 | 4.29E-02 | 2.813E+01 | 2.813E+01 | INF | 0. | 1.121E-06 | 2.106E-02 |
| 50 | 3.15E-03 | 4.157E+02 | 4.156E+02 | 3.934E+03 | 3.230E-08 | 3.998E-09 | 3.81E-02 | 3.431E+01 | 3.431E+01 | INF | 0. | 7.539E-07 | 2.282E-02 |
| 55 | 3.42E-03 | 4.090E+02 | 4.089E+02 | 3.871E+03 | 3.336E-08 | 3.878E-09 | 3.41E-02 | 4.096E+01 | 4.096E+01 | INF | 0. | 5.290E-07 | 2.440E-02 |
| 60 | 3.68E-03 | 4.020E+02 | 4.019E+02 | 3.804E+03 | 3.455E-08 | 3.730E-09 | 3.08E-02 | 4.802E+01 | 4.802E+01 | INF | 0. | 3.848E-07 | 2.580E-02 |
| 65 | 3.92E-03 | 3.945E+02 | 3.944E+02 | 3.734E+03 | 3.586E-08 | 3.549E-09 | 2.79E-02 | 5.546E+01 | 5.546E+01 | INF | 0. | 2.866E-07 | 2.700E-02 |
| 70 | 4.15E-03 | 3.868E+02 | 3.867E+02 | 3.661E+03 | 3.731E-08 | 3.329E-09 | 2.54E-02 | 6.320E+01 | 6.320E+01 | INF | 0. | 2.222E-07 | 2.799E-02 |
| 75 | 4.35E-03 | 3.788E+02 | 3.787E+02 | 3.585E+03 | 3.890E-08 | 3.064E-09 | 2.32E-02 | 7.119E+01 | 7.119E+01 | INF | 0. | 1.751E-07 | 2.878E-02 |
| 80 | 4.54E-03 | 3.706E+02 | 3.705E+02 | 3.508E+03 | 4.064E-08 | 2.746E-09 | 2.12E-02 | 7.937E+01 | 7.937E+01 | INF | 0. | 1.409E-07 | 2.934E-02 |
| 85 | 4.69E-03 | 3.623E+02 | 3.622E+02 | 3.429E+03 | 4.252E-08 | 2.368E-09 | 1.94E-02 | 8.768E+01 | 8.768E+01 | INF | 0. | 1.154E-07 | 2.968E-02 |
| 90 | 4.82E-03 | 3.540E+02 | 3.538E+02 | 3.350E+03 | 4.456E-08 | 1.922E-09 | 1.78E-02 | 9.605E+01 | 9.605E+01 | INF | 0. | 9.619E-08 | 2.979E-02 |
| 95 | 4.92E-03 | 3.456E+02 | 3.455E+02 | 3.271E+03 | 4.674E-08 | 1.402E-09 | 1.63E-02 | 1.044E+02 | 1.044E+02 | INF | 0. | 8.139E-08 | 2.968E-02 |
| 100 | 4.98E-03 | 3.373E+02 | 3.372E+02 | 3.192E+03 | 4.907E-08 | 8.001E-10 | 1.49E-02 | 1.127E+02 | 1.127E+02 | INF | 0. | 6.984E-08 | 2.934E-02 |
| 105 | 5.01E-03 | 3.291E+02 | 3.290E+02 | 3.115E+03 | 5.154E-08 | 1.106E-10 | 1.36E-02 | 1.209E+02 | 1.209E+02 | INF | 0. | 6.071E-08 | 2.878E-02 |
| 110 | 5.00E-03 | 3.211E+02 | 3.210E+02 | 3.039E+03 | 5.414E-08 | -6.704E-10 | 1.24E-02 | 1.289E+02 | 1.289E+02 | INF | 0. | 5.341E-08 | 2.799E-02 |
| 115 | 4.94E-03 | 3.134E+02 | 3.133E+02 | 2.966E+03 | 5.685E-08 | -1.544E-09 | 1.13E-02 | 1.366E+02 | 1.366E+02 | INF | 0. | 4.753E-08 | 2.700E-02 |
| 120 | 4.83E-03 | 3.059E+02 | 3.058E+02 | 2.895E+03 | 5.964E-08 | -2.508E-09 | 1.03E-02 | 1.441E+02 | 1.441E+02 | INF | 0. | 4.275E-08 | 2.580E-02 |
| 125 | 4.68E-03 | 2.989E+02 | 2.988E+02 | 2.829E+03 | 6.250E-08 | -3.556E-09 | 9.25E-03 | 1.511E+02 | 1.511E+02 | INF | 0. | 3.885E-08 | 2.440E-02 |
| 130 | 4.47E-03 | 2.922E+02 | 2.921E+02 | 2.766E+03 | 6.537E-08 | -4.676E-09 | 8.29E-03 | 1.578E+02 | 1.578E+02 | INF | 0. | 3.564E-08 | 2.282E-02 |
| 135 | 4.22E-03 | 2.860E+02 | 2.859E+02 | 2.707E+03 | 6.823E-08 | -5.849E-09 | 7.36E-03 | 1.640E+02 | 1.640E+02 | INF | 0. | 3.301E-08 | 2.106E-02 |
| 140 | 3.91E-03 | 2.804E+02 | 2.803E+02 | 2.654E+03 | 7.101E-08 | -7.050E-09 | 6.47E-03 | 1.696E+02 | 1.696E+02 | INF | 0. | 3.084E-08 | 1.915E-02 |
| 145 | 3.56E-03 | 2.753E+02 | 2.752E+02 | 2.605E+03 | 7.367E-08 | -8.249E-09 | 5.60E-03 | 1.747E+02 | 1.747E+02 | INF | 0. | 2.907E-08 | 1.709E-02 |
| 150 | 3.15E-03 | 2.708E+02 | 2.707E+02 | 2.563E+03 | 7.614E-08 | -9.409E-09 | 4.76E-03 | 1.792E+02 | 1.792E+02 | INF | 0. | 2.763E-08 | 1.490E-02 |
| 155 | 2.70E-03 | 2.669E+02 | 2.668E+02 | 2.526E+03 | 7.836E-08 | -1.049E-08 | 3.94E-03 | 1.831E+02 | 1.831E+02 | INF | 0. | 2.647E-08 | 1.259E-02 |
| 160 | 2.21E-03 | 2.637E+02 | 2.636E+02 | 2.496E+03 | 8.028E-08 | -1.145E-08 | 3.13E-03 | 1.863E+02 | 1.863E+02 | INF | 0. | 2.557E-08 | 1.019E-02 |
| 165 | 1.69E-03 | 2.612E+02 | 2.611E+02 | 2.472E+03 | 8.183E-08 | -1.225E-08 | 2.34E-03 | 1.888E+02 | 1.888E+02 | INF | 0. | 2.489E-08 | 7.710E-03 |
| 170 | 1.14E-03 | 2.594E+02 | 2.593E+02 | 2.455E+03 | 8.298E-08 | -1.285E-08 | 1.55E-03 | 1.906E+02 | 1.906E+02 | INF | 0. | 2.442E-08 | 5.173E-03 |
| 175 | 5.76E-04 | 2.583E+02 | 2.582E+02 | 2.444E+03 | 8.369E-08 | -1.322E-08 | 7.76E-04 | 1.917E+02 | 1.917E+02 | INF | 0. | 2.414E-08 | 2.596E-03 |
| 180 | 0. | 2.579E+02 | 2.578E+02 | 2.441E+03 | 8.392E-08 | -1.334E-08 | 0. | 1.921E+02 | 1.921E+02 | INF | 0. | 2.405E-08 | 0. |

PI PLUS (1) => MU PLUS (2) + NEUTRINO (3) AT 500 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 1.05659E-01 M3 = 0.
P2CM= 2.97901E-02
E2CM= 1.09779E-01 E3CM= 2.97901E-02

1-V1LAB= 3.896E-08 GCM = 3.58246E+03 S = 1.94794E-02

| Θ2 CM | Θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | Θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 5.000E+02 | 4.999E+02 | 4.732E+03 | 2.233E-08 | 3.550E-09 | 1.80E+02 | 4.158E-06 | 4.158E-06 | INF | 0. | 5.134E+07 | 0. |
| 1 | 5.95E-05 | 5.000E+02 | 4.999E+02 | 4.732E+03 | 2.233E-08 | 3.550E-09 | 1.83E+00 | 1.626E-02 | 1.626E-02 | INF | 0. | 3.357E+00 | 5.199E-04 |
| 2 | 1.19E-04 | 4.999E+02 | 4.998E+02 | 4.732E+03 | 2.233E-08 | 3.549E-09 | 9.16E-01 | 6.502E-02 | 6.502E-02 | INF | 0. | 2.099E-01 | 1.040E-03 |
| 3 | 1.79E-04 | 4.999E+02 | 4.997E+02 | 4.731E+03 | 2.234E-08 | 3.549E-09 | 6.11E-01 | 1.463E-01 | 1.463E-01 | INF | 0. | 4.148E-02 | 1.559E-03 |
| 4 | 2.38E-04 | 4.997E+02 | 4.996E+02 | 4.730E+03 | 2.235E-08 | 3.549E-09 | 4.58E-01 | 2.600E-01 | 2.600E-01 | INF | 0. | 1.313E-02 | 2.078E-03 |
| 5 | 2.98E-04 | 4.996E+02 | 4.995E+02 | 4.728E+03 | 2.236E-08 | 3.548E-09 | 3.66E-01 | 4.061E-01 | 4.061E-01 | INF | 0. | 5.381E-03 | 2.596E-03 |
| 6 | 3.57E-04 | 4.994E+02 | 4.993E+02 | 4.727E+03 | 2.238E-08 | 3.547E-09 | 3.05E-01 | 5.846E-01 | 5.846E-01 | INF | 0. | 2.596E-03 | 3.114E-03 |
| 7 | 4.17E-04 | 4.992E+02 | 4.991E+02 | 4.725E+03 | 2.240E-08 | 3.546E-09 | 2.61E-01 | 7.955E-01 | 7.955E-01 | INF | 0. | 1.402E-03 | 3.631E-03 |
| 8 | 4.76E-04 | 4.990E+02 | 4.989E+02 | 4.722E+03 | 2.242E-08 | 3.545E-09 | 2.29E-01 | 1.039E+00 | 1.039E+00 | INF | 0. | 8.227E-04 | 4.146E-03 |
| 9 | 5.35E-04 | 4.987E+02 | 4.986E+02 | 4.720E+03 | 2.245E-08 | 3.543E-09 | 2.03E-01 | 1.314E+00 | 1.314E+00 | INF | 0. | 5.140E-04 | 4.660E-03 |
| 10 | 5.95E-04 | 4.984E+02 | 4.983E+02 | 4.717E+03 | 2.247E-08 | 3.542E-09 | 1.83E-01 | 1.621E+00 | 1.621E+00 | INF | 0. | 3.376E-04 | 5.173E-03 |
| 15 | 8.90E-04 | 4.964E+02 | 4.963E+02 | 4.698E+03 | 2.266E-08 | 3.531E-09 | 1.21E-01 | 3.636E+00 | 3.636E+00 | INF | 0. | 6.711E-05 | 7.710E-03 |
| 20 | 1.18E-03 | 4.936E+02 | 4.935E+02 | 4.671E+03 | 2.291E-08 | 3.515E-09 | 9.07E-02 | 6.436E+00 | 6.436E+00 | INF | 0. | 2.142E-05 | 1.019E-02 |
| 25 | 1.47E-03 | 4.900E+02 | 4.899E+02 | 4.638E+03 | 2.325E-08 | 3.494E-09 | 7.21E-02 | 9.999E+00 | 9.999E+00 | INF | 0. | 8.876E-06 | 1.259E-02 |
| 30 | 1.76E-03 | 4.857E+02 | 4.856E+02 | 4.597E+03 | 2.366E-08 | 3.465E-09 | 5.97E-02 | 1.430E+01 | 1.430E+01 | INF | 0. | 4.341E-06 | 1.490E-02 |
| 35 | 2.04E-03 | 4.807E+02 | 4.806E+02 | 4.550E+03 | 2.416E-08 | 3.427E-09 | 5.07E-02 | 1.930E+01 | 1.930E+01 | INF | 0. | 2.382E-06 | 1.709E-02 |
| 40 | 2.31E-03 | 4.750E+02 | 4.749E+02 | 4.496E+03 | 2.474E-08 | 3.378E-09 | 4.39E-02 | 2.497E+01 | 2.497E+01 | INF | 0. | 1.424E-06 | 1.915E-02 |
| 45 | 2.57E-03 | 4.687E+02 | 4.686E+02 | 4.436E+03 | 2.540E-08 | 3.316E-09 | 3.86E-02 | 3.126E+01 | 3.126E+01 | INF | 0. | 9.083E-07 | 2.106E-02 |
| 50 | 2.83E-03 | 4.619E+02 | 4.618E+02 | 4.371E+03 | 2.617E-08 | 3.238E-09 | 3.43E-02 | 3.812E+01 | 3.812E+01 | INF | 0. | 6.106E-07 | 2.282E-02 |
| 55 | 3.08E-03 | 4.545E+02 | 4.544E+02 | 4.301E+03 | 2.702E-08 | 3.141E-09 | 3.07E-02 | 4.551E+01 | 4.551E+01 | INF | 0. | 4.285E-07 | 2.440E-02 |
| 60 | 3.31E-03 | 4.466E+02 | 4.465E+02 | 4.227E+03 | 2.798E-08 | 3.022E-09 | 2.77E-02 | 5.336E+01 | 5.336E+01 | INF | 0. | 3.117E-07 | 2.580E-02 |
| 65 | 3.53E-03 | 4.384E+02 | 4.383E+02 | 4.149E+03 | 2.905E-08 | 2.875E-09 | 2.51E-02 | 6.162E+01 | 6.162E+01 | INF | 0. | 2.337E-07 | 2.700E-02 |
| 70 | 3.73E-03 | 4.298E+02 | 4.297E+02 | 4.068E+03 | 3.022E-08 | 2.697E-09 | 2.28E-02 | 7.022E+01 | 7.022E+01 | INF | 0. | 1.800E-07 | 2.799E-02 |
| 75 | 3.92E-03 | 4.209E+02 | 4.208E+02 | 3.984E+03 | 3.151E-08 | 2.482E-09 | 2.08E-02 | 7.910E+01 | 7.910E+01 | INF | 0. | 1.418E-07 | 2.878E-02 |
| 80 | 4.08E-03 | 4.118E+02 | 4.117E+02 | 3.898E+03 | 3.291E-08 | 2.224E-09 | 1.91E-02 | 8.819E+01 | 8.819E+01 | INF | 0. | 1.141E-07 | 2.934E-02 |
| 85 | 4.22E-03 | 4.026E+02 | 4.025E+02 | 3.810E+03 | 3.444E-08 | 1.918E-09 | 1.75E-02 | 9.742E+01 | 9.742E+01 | INF | 0. | 9.351E-08 | 2.968E-02 |
| 90 | 4.34E-03 | 3.933E+02 | 3.932E+02 | 3.722E+03 | 3.609E-08 | 1.557E-09 | 1.60E-02 | 1.067E+02 | 1.067E+02 | INF | 0. | 7.792E-08 | 2.979E-02 |
| 95 | 4.43E-03 | 3.840E+02 | 3.839E+02 | 3.634E+03 | 3.786E-08 | 1.136E-09 | 1.47E-02 | 1.160E+02 | 1.160E+02 | INF | 0. | 6.593E-08 | 2.968E-02 |
| 100 | 4.49E-03 | 3.747E+02 | 3.746E+02 | 3.547E+03 | 3.975E-08 | 6.480E-10 | 1.34E-02 | 1.253E+02 | 1.253E+02 | INF | 0. | 5.657E-08 | 2.934E-02 |
| 105 | 4.51E-03 | 3.657E+02 | 3.656E+02 | 3.461E+03 | 4.175E-08 | 8.956E-11 | 1.23E-02 | 1.343E+02 | 1.343E+02 | INF | 0. | 4.917E-08 | 2.878E-02 |
| 110 | 4.50E-03 | 3.568E+02 | 3.567E+02 | 3.377E+03 | 4.385E-08 | -5.430E-10 | 1.12E-02 | 1.432E+02 | 1.432E+02 | INF | 0. | 4.326E-08 | 2.799E-02 |
| 115 | 4.44E-03 | 3.482E+02 | 3.481E+02 | 3.295E+03 | 4.605E-08 | -1.251E-09 | 1.02E-02 | 1.518E+02 | 1.518E+02 | INF | 0. | 3.850E-08 | 2.700E-02 |
| 120 | 4.35E-03 | 3.399E+02 | 3.398E+02 | 3.217E+03 | 4.831E-08 | -2.032E-09 | 9.23E-03 | 1.601E+02 | 1.601E+02 | INF | 0. | 3.463E-08 | 2.580E-02 |
| 125 | 4.21E-03 | 3.321E+02 | 3.320E+02 | 3.143E+03 | 5.062E-08 | -2.881E-09 | 8.33E-03 | 1.679E+02 | 1.679E+02 | INF | 0. | 3.147E-08 | 2.440E-02 |
| 130 | 4.03E-03 | 3.247E+02 | 3.246E+02 | 3.073E+03 | 5.295E-08 | -3.787E-09 | 7.46E-03 | 1.753E+02 | 1.753E+02 | INF | 0. | 2.887E-08 | 2.282E-02 |
| 135 | 3.80E-03 | 3.178E+02 | 3.177E+02 | 3.008E+03 | 5.526E-08 | -4.738E-09 | 6.62E-03 | 1.822E+02 | 1.822E+02 | INF | 0. | 2.674E-08 | 2.106E-02 |
| 140 | 3.52E-03 | 3.115E+02 | 3.114E+02 | 2.948E+03 | 5.752E-08 | -5.711E-09 | 5.82E-03 | 1.885E+02 | 1.885E+02 | INF | 0. | 2.498E-08 | 1.915E-02 |
| 145 | 3.20E-03 | 3.059E+02 | 3.058E+02 | 2.895E+03 | 5.967E-08 | -6.682E-09 | 5.04E-03 | 1.941E+02 | 1.941E+02 | INF | 0. | 2.354E-08 | 1.709E-02 |
| 150 | 2.84E-03 | 3.009E+02 | 3.007E+02 | 2.847E+03 | 6.167E-08 | -7.622E-09 | 4.29E-03 | 1.991E+02 | 1.991E+02 | INF | 0. | 2.238E-08 | 1.490E-02 |
| 155 | 2.43E-03 | 2.966E+02 | 2.964E+02 | 2.807E+03 | 6.347E-08 | -8.497E-09 | 3.55E-03 | 2.034E+02 | 2.034E+02 | INF | 0. | 2.144E-08 | 1.259E-02 |
| 160 | 1.99E-03 | 2.930E+02 | 2.929E+02 | 2.773E+03 | 6.502E-08 | -9.274E-09 | 2.82E-03 | 2.070E+02 | 2.070E+02 | INF | 0. | 2.071E-08 | 1.019E-02 |
| 165 | 1.52E-03 | 2.902E+02 | 2.901E+02 | 2.746E+03 | 6.628E-08 | -9.920E-09 | 2.11E-03 | 2.098E+02 | 2.098E+02 | INF | 0. | 2.016E-08 | 7.710E-03 |
| 170 | 1.03E-03 | 2.882E+02 | 2.881E+02 | 2.727E+03 | 6.722E-08 | -1.040E-08 | 1.40E-03 | 2.118E+02 | 2.118E+02 | INF | 0. | 1.978E-08 | 5.173E-03 |
| 175 | 5.18E-04 | 2.870E+02 | 2.869E+02 | 2.716E+03 | 6.779E-08 | -1.071E-08 | 6.98E-04 | 2.130E+02 | 2.130E+02 | INF | 0. | 1.955E-08 | 2.596E-03 |
| 180 | 0. | 2.866E+02 | 2.865E+02 | 2.712E+03 | 6.798E-08 | -1.081E-08 | 0. | 2.134E+02 | 2.134E+02 | INF | 0. | 1.948E-08 | 0. |

PI PLUS (1) => MU PLUS (2) + NEUTRINO (3) AT 750 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 1.05659E-01 M3 = 0.
P2CM= 2.97901E-02
E2CM= 1.09779E-01 E3CM= 2.97901E-02

1-V1LAB= 1.732E-08 GCM = 5.37369E+03 S = 1.94794E-02

| Θ2 CM | Θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | Θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 7.500E+02 | 7.499E+02 | 7.098E+03 | 9.923E-09 | 1.578E-09 | 1.80E+02 | 2.772E-06 | 2.772E-06 | INF | 0. | 1.155E+08 | 0. |
| 1 | 3.95E-05 | 7.500E+02 | 7.499E+02 | 7.098E+03 | 9.924E-09 | 1.578E-09 | 1.22E+00 | 2.438E-02 | 2.438E-02 | INF | 0. | 1.493E+00 | 5.199E-04 |
| 2 | 7.95E-05 | 7.499E+02 | 7.498E+02 | 7.097E+03 | 9.926E-09 | 1.578E-09 | 6.11E-01 | 9.752E-02 | 9.752E-02 | INF | 0. | 9.331E-02 | 1.040E-03 |
| 3 | 1.19E-04 | 7.498E+02 | 7.497E+02 | 7.096E+03 | 9.929E-09 | 1.577E-09 | 4.07E-01 | 2.194E-01 | 2.194E-01 | INF | 0. | 1.844E-02 | 1.559E-03 |
| 4 | 1.59E-04 | 7.496E+02 | 7.495E+02 | 7.095E+03 | 9.934E-09 | 1.577E-09 | 3.05E-01 | 3.900E-01 | 3.900E-01 | INF | 0. | 5.836E-03 | 2.078E-03 |
| 5 | 1.98E-04 | 7.494E+02 | 7.493E+02 | 7.093E+03 | 9.940E-09 | 1.577E-09 | 2.44E-01 | 6.092E-01 | 6.092E-01 | INF | 0. | 2.392E-03 | 2.596E-03 |
| 6 | 2.38E-04 | 7.491E+02 | 7.490E+02 | 7.090E+03 | 9.947E-09 | 1.576E-09 | 2.03E-01 | 8.770E-01 | 8.770E-01 | INF | 0. | 1.154E-03 | 3.114E-03 |
| 7 | 2.78E-04 | 7.488E+02 | 7.487E+02 | 7.087E+03 | 9.955E-09 | 1.576E-09 | 1.74E-01 | 1.193E+00 | 1.193E+00 | INF | 0. | 6.233E-04 | 3.631E-03 |
| 8 | 3.17E-04 | 7.484E+02 | 7.483E+02 | 7.084E+03 | 9.965E-09 | 1.575E-09 | 1.52E-01 | 1.558E+00 | 1.558E+00 | INF | 0. | 3.656E-04 | 4.146E-03 |
| 9 | 3.57E-04 | 7.480E+02 | 7.479E+02 | 7.080E+03 | 9.976E-09 | 1.575E-09 | 1.35E-01 | 1.971E+00 | 1.971E+00 | INF | 0. | 2.285E-04 | 4.660E-03 |
| 10 | 3.96E-04 | 7.476E+02 | 7.475E+02 | 7.075E+03 | 9.988E-09 | 1.574E-09 | 1.22E-01 | 2.432E+00 | 2.432E+00 | INF | 0. | 1.500E-04 | 5.173E-03 |
| 15 | 5.93E-04 | 7.445E+02 | 7.444E+02 | 7.047E+03 | 1.007E-08 | 1.569E-09 | 8.10E-02 | 5.455E+00 | 5.455E+00 | INF | 0. | 2.983E-05 | 7.710E-03 |
| 20 | 7.89E-04 | 7.403E+02 | 7.402E+02 | 7.007E+03 | 1.018E-08 | 1.562E-09 | 6.05E-02 | 9.654E+00 | 9.654E+00 | INF | 0. | 9.522E-06 | 1.019E-02 |
| 25 | 9.81E-04 | 7.350E+02 | 7.349E+02 | 6.956E+03 | 1.033E-08 | 1.553E-09 | 4.81E-02 | 1.500E+01 | 1.500E+01 | INF | 0. | 3.945E-06 | 1.259E-02 |
| 30 | 1.17E-03 | 7.286E+02 | 7.284E+02 | 6.895E+03 | 1.052E-08 | 1.540E-09 | 3.98E-02 | 2.145E+01 | 2.145E+01 | INF | 0. | 1.929E-06 | 1.490E-02 |
| 35 | 1.36E-03 | 7.210E+02 | 7.209E+02 | 6.824E+03 | 1.074E-08 | 1.523E-09 | 3.38E-02 | 2.895E+01 | 2.895E+01 | INF | 0. | 1.059E-06 | 1.709E-02 |
| 40 | 1.54E-03 | 7.125E+02 | 7.124E+02 | 6.744E+03 | 1.099E-08 | 1.501E-09 | 2.93E-02 | 3.745E+01 | 3.745E+01 | INF | 0. | 6.327E-07 | 1.915E-02 |
| 45 | 1.72E-03 | 7.031E+02 | 7.030E+02 | 6.655E+03 | 1.129E-08 | 1.474E-09 | 2.57E-02 | 4.689E+01 | 4.689E+01 | INF | 0. | 4.037E-07 | 2.106E-02 |
| 50 | 1.89E-03 | 6.928E+02 | 6.927E+02 | 6.557E+03 | 1.163E-08 | 1.439E-09 | 2.29E-02 | 5.718E+01 | 5.718E+01 | INF | 0. | 2.714E-07 | 2.282E-02 |
| 55 | 2.05E-03 | 6.817E+02 | 6.816E+02 | 6.452E+03 | 1.201E-08 | 1.396E-09 | 2.05E-02 | 6.826E+01 | 6.826E+01 | INF | 0. | 1.904E-07 | 2.440E-02 |
| 60 | 2.21E-03 | 6.700E+02 | 6.699E+02 | 6.341E+03 | 1.244E-08 | 1.343E-09 | 1.85E-02 | 8.004E+01 | 8.004E+01 | INF | 0. | 1.385E-07 | 2.580E-02 |
| 65 | 2.35E-03 | 6.576E+02 | 6.575E+02 | 6.223E+03 | 1.291E-08 | 1.278E-09 | 1.67E-02 | 9.243E+01 | 9.243E+01 | INF | 0. | 1.039E-07 | 2.700E-02 |
| 70 | 2.49E-03 | 6.447E+02 | 6.446E+02 | 6.101E+03 | 1.343E-08 | 1.199E-09 | 1.52E-02 | 1.053E+02 | 1.053E+02 | INF | 0. | 7.999E-08 | 2.799E-02 |
| 75 | 2.61E-03 | 6.313E+02 | 6.312E+02 | 5.975E+03 | 1.400E-08 | 1.103E-09 | 1.39E-02 | 1.187E+02 | 1.187E+02 | INF | 0. | 6.304E-08 | 2.878E-02 |
| 80 | 2.72E-03 | 6.177E+02 | 6.176E+02 | 5.846E+03 | 1.463E-08 | 9.884E-10 | 1.27E-02 | 1.323E+02 | 1.323E+02 | INF | 0. | 5.071E-08 | 2.934E-02 |
| 85 | 2.82E-03 | 6.039E+02 | 6.038E+02 | 5.715E+03 | 1.531E-08 | 8.524E-10 | 1.16E-02 | 1.461E+02 | 1.461E+02 | INF | 0. | 4.156E-08 | 2.968E-02 |
| 90 | 2.89E-03 | 5.899E+02 | 5.898E+02 | 5.583E+03 | 1.604E-08 | 6.920E-10 | 1.07E-02 | 1.601E+02 | 1.601E+02 | INF | 0. | 3.463E-08 | 2.979E-02 |
| 95 | 2.95E-03 | 5.760E+02 | 5.759E+02 | 5.451E+03 | 1.683E-08 | 5.047E-10 | 9.77E-03 | 1.740E+02 | 1.740E+02 | INF | 0. | 2.930E-08 | 2.968E-02 |
| 100 | 2.99E-03 | 5.621E+02 | 5.620E+02 | 5.320E+03 | 1.767E-08 | 2.880E-10 | 8.95E-03 | 1.879E+02 | 1.879E+02 | INF | 0. | 2.514E-08 | 2.934E-02 |
| 105 | 3.01E-03 | 5.485E+02 | 5.484E+02 | 5.191E+03 | 1.855E-08 | 3.981E-11 | 8.18E-03 | 2.015E+02 | 2.015E+02 | INF | 0. | 2.185E-08 | 2.878E-02 |
| 110 | 3.00E-03 | 5.352E+02 | 5.351E+02 | 5.065E+03 | 1.949E-08 | -2.413E-10 | 7.47E-03 | 2.148E+02 | 2.148E+02 | INF | 0. | 1.923E-08 | 2.799E-02 |
| 115 | 2.96E-03 | 5.223E+02 | 5.222E+02 | 4.943E+03 | 2.046E-08 | -5.559E-10 | 6.79E-03 | 2.277E+02 | 2.277E+02 | INF | 0. | 1.711E-08 | 2.700E-02 |
| 120 | 2.90E-03 | 5.099E+02 | 5.098E+02 | 4.826E+03 | 2.147E-08 | -9.030E-10 | 6.16E-03 | 2.401E+02 | 2.401E+02 | INF | 0. | 1.539E-08 | 2.580E-02 |
| 125 | 2.81E-03 | 4.981E+02 | 4.980E+02 | 4.714E+03 | 2.250E-08 | -1.280E-09 | 5.55E-03 | 2.519E+02 | 2.519E+02 | INF | 0. | 1.399E-08 | 2.440E-02 |
| 130 | 2.68E-03 | 4.870E+02 | 4.869E+02 | 4.609E+03 | 2.353E-08 | -1.683E-09 | 4.97E-03 | 2.630E+02 | 2.630E+02 | INF | 0. | 1.283E-08 | 2.282E-02 |
| 135 | 2.53E-03 | 4.767E+02 | 4.766E+02 | 4.512E+03 | 2.456E-08 | -2.106E-09 | 4.42E-03 | 2.733E+02 | 2.733E+02 | INF | 0. | 1.188E-08 | 2.106E-02 |
| 140 | 2.35E-03 | 4.673E+02 | 4.672E+02 | 4.423E+03 | 2.556E-08 | -2.538E-09 | 3.88E-03 | 2.827E+02 | 2.827E+02 | INF | 0. | 1.110E-08 | 1.915E-02 |
| 145 | 2.13E-03 | 4.588E+02 | 4.587E+02 | 4.342E+03 | 2.652E-08 | -2.970E-09 | 3.36E-03 | 2.912E+02 | 2.912E+02 | INF | 0. | 1.046E-08 | 1.709E-02 |
| 150 | 1.89E-03 | 4.513E+02 | 4.512E+02 | 4.271E+03 | 2.741E-08 | -3.387E-09 | 2.86E-03 | 2.987E+02 | 2.987E+02 | INF | 0. | 9.945E-09 | 1.490E-02 |
| 155 | 1.62E-03 | 4.448E+02 | 4.447E+02 | 4.210E+03 | 2.821E-08 | -3.776E-09 | 2.36E-03 | 3.052E+02 | 3.052E+02 | INF | 0. | 9.529E-09 | 1.259E-02 |
| 160 | 1.33E-03 | 4.395E+02 | 4.394E+02 | 4.159E+03 | 2.890E-08 | -4.122E-09 | 1.88E-03 | 3.105E+02 | 3.105E+02 | INF | 0. | 9.204E-09 | 1.019E-02 |
| 165 | 1.01E-03 | 4.353E+02 | 4.352E+02 | 4.120E+03 | 2.946E-08 | -4.409E-09 | 1.40E-03 | 3.147E+02 | 3.147E+02 | INF | 0. | 8.960E-09 | 7.710E-03 |
| 170 | 6.86E-04 | 4.323E+02 | 4.322E+02 | 4.091E+03 | 2.987E-08 | -4.624E-09 | 9.33E-04 | 3.177E+02 | 3.177E+02 | INF | 0. | 8.791E-09 | 5.173E-03 |
| 175 | 3.46E-04 | 4.304E+02 | 4.303E+02 | 4.074E+03 | 3.013E-08 | -4.758E-09 | 4.66E-04 | 3.196E+02 | 3.196E+02 | INF | 0. | 8.691E-09 | 2.596E-03 |
| 180 | 0. | 4.298E+02 | 4.297E+02 | 4.068E+03 | 3.021E-08 | -4.803E-09 | 0. | 3.202E+02 | 3.202E+02 | INF | 0. | 8.658E-09 | 0. |

PI PLUS (1) => MU PLUS (2) + NEUTRINO (3) AT 1000 GEV/C P1 LAB

M1 = 1.39569E-01 M2 = 1.05659E-01 M3 = 0.
P2CM= 2.97901E-02
E2CM= 1.09779E-01 E3CM= 2.97901E-02

1-V1LAB= 9.740E-09 GCM = 7.16493E+03 S = 1.94794E-02

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.000E+03 | 9.999E+02 | 9.464E+03 | 5.582E-09 | 8.875E-10 | 1.80E+02 | 2.079E-06 | 2.079E-06 | INF | 0. | 2.053E+08 | 0. |
| 1 | 2.98E-05 | 1.000E+03 | 9.999E+02 | 9.464E+03 | 5.582E-09 | 8.874E-10 | 9.16E-01 | 3.251E-02 | 3.251E-02 | INF | 0. | 8.396E-01 | 5.199E-04 |
| 2 | 5.95E-05 | 9.999E+02 | 9.998E+02 | 9.463E+03 | 5.583E-09 | 8.874E-10 | 4.58E-01 | 1.300E-01 | 1.300E-01 | INF | 0. | 5.249E-02 | 1.040E-03 |
| 3 | 8.94E-05 | 9.997E+02 | 9.996E+02 | 9.462E+03 | 5.585E-09 | 8.873E-10 | 3.05E-01 | 2.925E-01 | 2.925E-01 | INF | 0. | 1.037E-02 | 1.559E-03 |
| 4 | 1.19E-04 | 9.995E+02 | 9.994E+02 | 9.459E+03 | 5.588E-09 | 8.871E-10 | 2.29E-01 | 5.199E-01 | 5.199E-01 | INF | 0. | 3.283E-03 | 2.078E-03 |
| 5 | 1.49E-04 | 9.992E+02 | 9.991E+02 | 9.457E+03 | 5.591E-09 | 8.870E-10 | 1.83E-01 | 8.122E-01 | 8.122E-01 | INF | 0. | 1.345E-03 | 2.596E-03 |
| 6 | 1.79E-04 | 9.988E+02 | 9.987E+02 | 9.453E+03 | 5.595E-09 | 8.867E-10 | 1.53E-01 | 1.169E+00 | 1.169E+00 | INF | 0. | 6.491E-04 | 3.114E-03 |
| 7 | 2.08E-04 | 9.984E+02 | 9.983E+02 | 9.449E+03 | 5.600E-09 | 8.865E-10 | 1.31E-01 | 1.591E+00 | 1.591E+00 | INF | 0. | 3.506E-04 | 3.631E-03 |
| 8 | 2.38E-04 | 9.979E+02 | 9.978E+02 | 9.445E+03 | 5.605E-09 | 8.862E-10 | 1.14E-01 | 2.077E+00 | 2.077E+00 | INF | 0. | 2.057E-04 | 4.146E-03 |
| 9 | 2.68E-04 | 9.974E+02 | 9.973E+02 | 9.440E+03 | 5.611E-09 | 8.858E-10 | 1.02E-01 | 2.628E+00 | 2.628E+00 | INF | 0. | 1.285E-04 | 4.660E-03 |
| 10 | 2.97E-04 | 9.968E+02 | 9.967E+02 | 9.434E+03 | 5.618E-09 | 8.854E-10 | 9.14E-02 | 3.243E+00 | 3.243E+00 | INF | 0. | 8.440E-05 | 5.173E-03 |
| 15 | 4.45E-04 | 9.927E+02 | 9.926E+02 | 9.396E+03 | 5.664E-09 | 8.828E-10 | 6.07E-02 | 7.273E+00 | 7.273E+00 | INF | 0. | 1.678E-05 | 7.710E-03 |
| 20 | 5.91E-04 | 9.871E+02 | 9.870E+02 | 9.343E+03 | 5.728E-09 | 8.789E-10 | 4.54E-02 | 1.287E+01 | 1.287E+01 | INF | 0. | 5.356E-06 | 1.019E-02 |
| 25 | 7.36E-04 | 9.800E+02 | 9.799E+02 | 9.275E+03 | 5.812E-09 | 8.734E-10 | 3.61E-02 | 2.000E+01 | 2.000E+01 | INF | 0. | 2.219E-06 | 1.259E-02 |
| 30 | 8.79E-04 | 9.714E+02 | 9.713E+02 | 9.194E+03 | 5.915E-09 | 8.661E-10 | 2.98E-02 | 2.860E+01 | 2.860E+01 | INF | 0. | 1.085E-06 | 1.490E-02 |
| 35 | 1.02E-03 | 9.614E+02 | 9.613E+02 | 9.099E+03 | 6.039E-09 | 8.566E-10 | 2.54E-02 | 3.860E+01 | 3.860E+01 | INF | 0. | 5.956E-07 | 1.709E-02 |
| 40 | 1.15E-03 | 9.501E+02 | 9.500E+02 | 8.992E+03 | 6.184E-09 | 8.444E-10 | 2.20E-02 | 4.994E+01 | 4.994E+01 | INF | 0. | 3.559E-07 | 1.915E-02 |
| 45 | 1.29E-03 | 9.375E+02 | 9.374E+02 | 8.873E+03 | 6.351E-09 | 8.290E-10 | 1.93E-02 | 6.252E+01 | 6.252E+01 | INF | 0. | 2.271E-07 | 2.106E-02 |
| 50 | 1.42E-03 | 9.238E+02 | 9.236E+02 | 8.743E+03 | 6.541E-09 | 8.095E-10 | 1.71E-02 | 7.624E+01 | 7.624E+01 | INF | 0. | 1.527E-07 | 2.282E-02 |
| 55 | 1.54E-03 | 9.090E+02 | 9.089E+02 | 8.603E+03 | 6.756E-09 | 7.853E-10 | 1.54E-02 | 9.102E+01 | 9.102E+01 | INF | 0. | 1.071E-07 | 2.440E-02 |
| 60 | 1.65E-03 | 8.933E+02 | 8.932E+02 | 8.454E+03 | 6.995E-09 | 7.554E-10 | 1.39E-02 | 1.067E+02 | 1.067E+02 | INF | 0. | 7.792E-08 | 2.580E-02 |
| 65 | 1.76E-03 | 8.768E+02 | 8.767E+02 | 8.298E+03 | 7.261E-09 | 7.188E-10 | 1.26E-02 | 1.232E+02 | 1.232E+02 | INF | 0. | 5.843E-08 | 2.700E-02 |
| 70 | 1.87E-03 | 8.596E+02 | 8.595E+02 | 8.135E+03 | 7.555E-09 | 6.742E-10 | 1.14E-02 | 1.404E+02 | 1.404E+02 | INF | 0. | 4.499E-08 | 2.799E-02 |
| 75 | 1.96E-03 | 8.418E+02 | 8.417E+02 | 7.967E+03 | 7.877E-09 | 6.204E-10 | 1.04E-02 | 1.582E+02 | 1.582E+02 | INF | 0. | 3.546E-08 | 2.878E-02 |
| 80 | 2.04E-03 | 8.236E+02 | 8.235E+02 | 7.795E+03 | 8.229E-09 | 5.560E-10 | 9.53E-03 | 1.764E+02 | 1.764E+02 | INF | 0. | 2.853E-08 | 2.934E-02 |
| 85 | 2.11E-03 | 8.052E+02 | 8.051E+02 | 7.620E+03 | 8.610E-09 | 4.795E-10 | 8.73E-03 | 1.948E+02 | 1.948E+02 | INF | 0. | 2.338E-08 | 2.968E-02 |
| 90 | 2.17E-03 | 7.866E+02 | 7.865E+02 | 7.444E+03 | 9.023E-09 | 3.893E-10 | 8.00E-03 | 2.134E+02 | 2.134E+02 | INF | 0. | 1.948E-08 | 2.979E-02 |
| 95 | 2.21E-03 | 7.680E+02 | 7.678E+02 | 7.268E+03 | 9.465E-09 | 2.839E-10 | 7.33E-03 | 2.320E+02 | 2.320E+02 | INF | 0. | 1.648E-08 | 2.968E-02 |
| 100 | 2.24E-03 | 7.495E+02 | 7.494E+02 | 7.093E+03 | 9.937E-09 | 1.620E-10 | 6.71E-03 | 2.505E+02 | 2.505E+02 | INF | 0. | 1.414E-08 | 2.934E-02 |
| 105 | 2.25E-03 | 7.313E+02 | 7.312E+02 | 6.921E+03 | 1.044E-08 | 2.239E-11 | 6.14E-03 | 2.687E+02 | 2.687E+02 | INF | 0. | 1.229E-08 | 2.878E-02 |
| 110 | 2.25E-03 | 7.136E+02 | 7.134E+02 | 6.753E+03 | 1.096E-08 | -1.357E-10 | 5.60E-03 | 2.864E+02 | 2.864E+02 | INF | 0. | 1.082E-08 | 2.799E-02 |
| 115 | 2.22E-03 | 6.964E+02 | 6.962E+02 | 6.591E+03 | 1.151E-08 | -3.127E-10 | 5.09E-03 | 3.036E+02 | 3.036E+02 | INF | 0. | 9.625E-09 | 2.700E-02 |
| 120 | 2.17E-03 | 6.798E+02 | 6.797E+02 | 6.434E+03 | 1.208E-08 | -5.079E-10 | 4.62E-03 | 3.202E+02 | 3.202E+02 | INF | 0. | 8.658E-09 | 2.580E-02 |
| 125 | 2.11E-03 | 6.641E+02 | 6.640E+02 | 6.286E+03 | 1.266E-08 | -7.202E-10 | 4.16E-03 | 3.359E+02 | 3.359E+02 | INF | 0. | 7.867E-09 | 2.440E-02 |
| 130 | 2.01E-03 | 6.494E+02 | 6.493E+02 | 6.146E+03 | 1.324E-08 | -9.469E-10 | 3.73E-03 | 3.506E+02 | 3.506E+02 | INF | 0. | 7.218E-09 | 2.282E-02 |
| 135 | 1.90E-03 | 6.356E+02 | 6.355E+02 | 6.016E+03 | 1.382E-08 | -1.184E-09 | 3.31E-03 | 3.644E+02 | 3.644E+02 | INF | 0. | 6.684E-09 | 2.106E-02 |
| 140 | 1.76E-03 | 6.230E+02 | 6.229E+02 | 5.897E+03 | 1.438E-08 | -1.428E-09 | 2.91E-03 | 3.770E+02 | 3.770E+02 | INF | 0. | 6.246E-09 | 1.915E-02 |
| 145 | 1.60E-03 | 6.117E+02 | 6.116E+02 | 5.789E+03 | 1.492E-08 | -1.670E-09 | 2.52E-03 | 3.883E+02 | 3.883E+02 | INF | 0. | 5.886E-09 | 1.709E-02 |
| 150 | 1.42E-03 | 6.017E+02 | 6.016E+02 | 5.695E+03 | 1.542E-08 | -1.905E-09 | 2.14E-03 | 3.983E+02 | 3.983E+02 | INF | 0. | 5.594E-09 | 1.490E-02 |
| 155 | 1.22E-03 | 5.931E+02 | 5.930E+02 | 5.613E+03 | 1.587E-08 | -2.124E-09 | 1.77E-03 | 4.069E+02 | 4.069E+02 | INF | 0. | 5.360E-09 | 1.259E-02 |
| 160 | 9.96E-04 | 5.860E+02 | 5.859E+02 | 5.546E+03 | 1.626E-08 | -2.318E-09 | 1.41E-03 | 4.140E+02 | 4.140E+02 | INF | 0. | 5.177E-09 | 1.019E-02 |
| 165 | 7.61E-04 | 5.804E+02 | 5.803E+02 | 5.493E+03 | 1.657E-08 | -2.480E-09 | 1.05E-03 | 4.196E+02 | 4.196E+02 | INF | 0. | 5.040E-09 | 7.710E-03 |
| 170 | 5.14E-04 | 5.764E+02 | 5.762E+02 | 5.455E+03 | 1.680E-08 | -2.601E-09 | 7.00E-04 | 4.236E+02 | 4.236E+02 | INF | 0. | 4.945E-09 | 5.173E-03 |
| 175 | 2.59E-04 | 5.739E+02 | 5.738E+02 | 5.432E+03 | 1.695E-08 | -2.676E-09 | 3.49E-04 | 4.261E+02 | 4.261E+02 | INF | 0. | 4.888E-09 | 2.596E-03 |
| 180 | 0. | 5.731E+02 | 5.730E+02 | 5.424E+03 | 1.699E-08 | -2.702E-09 | 0. | 4.269E+02 | 4.269E+02 | INF | 0. | 4.870E-09 | 0. |

K ZERO (1) => PI PLUS (2) + PI MINUS (3) AT 10 GEV/C P1 LAB

M1 = 4.97710E-01 M2 = 1.39569E-01 M3 = 1.39569E-01
P2CM= 2.06032E-01
E2CM= 2.48855E-01 E3CM= 2.48855E-01

1-V1LAB= 1.236E-03 GCM = 2.01169E+01 S = 2.47715E-01

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 9.145E+00 | 9.006E+00 | 6.553E+01 | 1.164E-04 | 5.076E-04 | 0. | 8.553E-01 | 7.270E-01 | 6.209E+00 | 1.305E-02 | -5.803E-02 | 0. |
| 1 | 2.25E-02 | 9.144E+00 | 9.006E+00 | 6.552E+01 | 1.165E-04 | 5.077E-04 | 2.41E-01 | 8.559E-01 | 7.276E-01 | 6.214E+00 | 1.304E-02 | -5.785E-02 | 3.596E-03 |
| 2 | 4.51E-02 | 9.142E+00 | 9.004E+00 | 6.551E+01 | 1.165E-04 | 5.079E-04 | 4.80E-01 | 8.578E-01 | 7.295E-01 | 6.227E+00 | 1.298E-02 | -5.731E-02 | 7.190E-03 |
| 3 | 6.76E-02 | 9.139E+00 | 9.001E+00 | 6.549E+01 | 1.166E-04 | 5.082E-04 | 7.18E-01 | 8.610E-01 | 7.327E-01 | 6.250E+00 | 1.288E-02 | -5.642E-02 | 1.078E-02 |
| 4 | 9.01E-02 | 9.135E+00 | 8.996E+00 | 6.546E+01 | 1.167E-04 | 5.086E-04 | 9.51E-01 | 8.655E-01 | 7.371E-01 | 6.281E+00 | 1.275E-02 | -5.520E-02 | 1.437E-02 |
| 5 | 1.13E-01 | 9.129E+00 | 8.990E+00 | 6.542E+01 | 1.168E-04 | 5.092E-04 | 1.18E+00 | 8.712E-01 | 7.428E-01 | 6.322E+00 | 1.259E-02 | -5.368E-02 | 1.796E-02 |
| 6 | 1.35E-01 | 9.122E+00 | 8.984E+00 | 6.537E+01 | 1.170E-04 | 5.099E-04 | 1.41E+00 | 8.782E-01 | 7.497E-01 | 6.371E+00 | 1.239E-02 | -5.188E-02 | 2.154E-02 |
| 7 | 1.58E-01 | 9.114E+00 | 8.975E+00 | 6.531E+01 | 1.172E-04 | 5.107E-04 | 1.62E+00 | 8.865E-01 | 7.579E-01 | 6.430E+00 | 1.217E-02 | -4.984E-02 | 2.511E-02 |
| 8 | 1.80E-01 | 9.104E+00 | 8.966E+00 | 6.524E+01 | 1.175E-04 | 5.116E-04 | 1.83E+00 | 8.961E-01 | 7.673E-01 | 6.498E+00 | 1.191E-02 | -4.759E-02 | 2.867E-02 |
| 9 | 2.03E-01 | 9.094E+00 | 8.955E+00 | 6.516E+01 | 1.178E-04 | 5.127E-04 | 2.04E+00 | 9.069E-01 | 7.780E-01 | 6.574E+00 | 1.164E-02 | -4.518E-02 | 3.223E-02 |
| 10 | 2.26E-01 | 9.082E+00 | 8.943E+00 | 6.508E+01 | 1.181E-04 | 5.139E-04 | 2.23E+00 | 9.189E-01 | 7.899E-01 | 6.660E+00 | 1.134E-02 | -4.263E-02 | 3.578E-02 |
| 15 | 3.39E-01 | 9.004E+00 | 8.865E+00 | 6.452E+01 | 1.201E-04 | 5.219E-04 | 3.06E+00 | 9.979E-01 | 8.681E-01 | 7.220E+00 | 9.639E-03 | -2.926E-02 | 5.333E-02 |
| 20 | 4.54E-01 | 8.895E+00 | 8.757E+00 | 6.374E+01 | 1.231E-04 | 5.334E-04 | 3.65E+00 | 1.107E+00 | 9.767E-01 | 7.998E+00 | 7.848E-03 | -1.731E-02 | 7.047E-02 |
| 25 | 5.70E-01 | 8.757E+00 | 8.618E+00 | 6.275E+01 | 1.270E-04 | 5.485E-04 | 4.01E+00 | 1.247E+00 | 1.115E+00 | 8.988E+00 | 6.209E-03 | -8.475E-03 | 8.707E-02 |
| 30 | 6.87E-01 | 8.590E+00 | 8.452E+00 | 6.156E+01 | 1.320E-04 | 5.676E-04 | 4.18E+00 | 1.414E+00 | 1.282E+00 | 1.018E+01 | 4.834E-03 | -2.782E-03 | 1.030E-01 |
| 35 | 8.06E-01 | 8.396E+00 | 8.258E+00 | 6.017E+01 | 1.381E-04 | 5.910E-04 | 4.21E+00 | 1.609E+00 | 1.476E+00 | 1.157E+01 | 3.740E-03 | 4.989E-04 | 1.182E-01 |
| 40 | 9.28E-01 | 8.176E+00 | 8.038E+00 | 5.859E+01 | 1.457E-04 | 6.194E-04 | 4.15E+00 | 1.830E+00 | 1.695E+00 | 1.315E+01 | 2.896E-03 | 2.179E-03 | 1.324E-01 |
| 45 | 1.05E+00 | 7.932E+00 | 7.794E+00 | 5.684E+01 | 1.548E-04 | 6.533E-04 | 4.03E+00 | 2.074E+00 | 1.939E+00 | 1.490E+01 | 2.256E-03 | 2.897E-03 | 1.457E-01 |
| 50 | 1.18E+00 | 7.666E+00 | 7.528E+00 | 5.493E+01 | 1.657E-04 | 6.934E-04 | 3.87E+00 | 2.341E+00 | 2.206E+00 | 1.680E+01 | 1.772E-03 | 3.079E-03 | 1.578E-01 |
| 55 | 1.31E+00 | 7.379E+00 | 7.241E+00 | 5.288E+01 | 1.788E-04 | 7.408E-04 | 3.68E+00 | 2.628E+00 | 2.492E+00 | 1.886E+01 | 1.407E-03 | 2.986E-03 | 1.688E-01 |
| 60 | 1.45E+00 | 7.075E+00 | 6.936E+00 | 5.070E+01 | 1.945E-04 | 7.966E-04 | 3.49E+00 | 2.933E+00 | 2.797E+00 | 2.104E+01 | 1.130E-03 | 2.767E-03 | 1.784E-01 |
| 65 | 1.58E+00 | 6.754E+00 | 6.616E+00 | 4.840E+01 | 2.134E-04 | 8.621E-04 | 3.29E+00 | 3.254E+00 | 3.117E+00 | 2.333E+01 | 9.187E-04 | 2.504E-03 | 1.867E-01 |
| 70 | 1.73E+00 | 6.421E+00 | 6.282E+00 | 4.601E+01 | 2.362E-04 | 9.390E-04 | 3.09E+00 | 3.588E+00 | 3.451E+00 | 2.572E+01 | 7.558E-04 | 2.238E-03 | 1.936E-01 |
| 75 | 1.88E+00 | 6.076E+00 | 5.938E+00 | 4.355E+01 | 2.637E-04 | 1.029E-03 | 2.90E+00 | 3.932E+00 | 3.795E+00 | 2.819E+01 | 6.293E-04 | 1.990E-03 | 1.990E-01 |
| 80 | 2.03E+00 | 5.723E+00 | 5.585E+00 | 4.102E+01 | 2.972E-04 | 1.135E-03 | 2.71E+00 | 4.285E+00 | 4.148E+00 | 3.072E+01 | 5.300E-04 | 1.768E-03 | 2.029E-01 |
| 85 | 2.19E+00 | 5.365E+00 | 5.227E+00 | 3.845E+01 | 3.382E-04 | 1.259E-03 | 2.53E+00 | 4.643E+00 | 4.506E+00 | 3.328E+01 | 4.514E-04 | 1.573E-03 | 2.052E-01 |
| 90 | 2.36E+00 | 5.004E+00 | 4.867E+00 | 3.587E+01 | 3.887E-04 | 1.404E-03 | 2.36E+00 | 5.004E+00 | 4.867E+00 | 3.587E+01 | 3.887E-04 | 1.404E-03 | 2.060E-01 |
| 95 | 2.53E+00 | 4.643E+00 | 4.506E+00 | 3.328E+01 | 4.514E-04 | 1.573E-03 | 2.19E+00 | 5.365E+00 | 5.227E+00 | 3.845E+01 | 3.382E-04 | 1.259E-03 | 2.052E-01 |
| 100 | 2.71E+00 | 4.285E+00 | 4.148E+00 | 3.072E+01 | 5.300E-04 | 1.768E-03 | 2.03E+00 | 5.723E+00 | 5.585E+00 | 4.102E+01 | 2.972E-04 | 1.135E-03 | 2.029E-01 |
| 105 | 2.90E+00 | 3.932E+00 | 3.795E+00 | 2.819E+01 | 6.293E-04 | 1.990E-03 | 1.88E+00 | 6.076E+00 | 5.938E+00 | 4.355E+01 | 2.637E-04 | 1.029E-03 | 1.990E-01 |
| 110 | 3.09E+00 | 3.588E+00 | 3.451E+00 | 2.572E+01 | 7.558E-04 | 2.238E-03 | 1.73E+00 | 6.421E+00 | 6.282E+00 | 4.601E+01 | 2.362E-04 | 9.390E-04 | 1.936E-01 |
| 115 | 3.29E+00 | 3.254E+00 | 3.117E+00 | 2.333E+01 | 9.187E-04 | 2.504E-03 | 1.58E+00 | 6.754E+00 | 6.616E+00 | 4.840E+01 | 2.134E-04 | 8.621E-04 | 1.867E-01 |
| 120 | 3.49E+00 | 2.933E+00 | 2.797E+00 | 2.104E+01 | 1.136E-03 | 2.767E-03 | 1.45E+00 | 7.075E+00 | 6.936E+00 | 5.070E+01 | 1.945E-04 | 7.966E-04 | 1.784E-01 |
| 125 | 3.68E+00 | 2.628E+00 | 2.492E+00 | 1.886E+01 | 1.407E-03 | 2.986E-03 | 1.31E+00 | 7.379E+00 | 7.241E+00 | 5.288E+01 | 1.788E-04 | 7.408E-04 | 1.688E-01 |
| 130 | 3.87E+00 | 2.341E+00 | 2.206E+00 | 1.680E+01 | 1.772E-03 | 3.079E-03 | 1.18E+00 | 7.666E+00 | 7.528E+00 | 5.493E+01 | 1.657E-04 | 6.934E-04 | 1.578E-01 |
| 135 | 4.03E+00 | 2.074E+00 | 1.939E+00 | 1.490E+01 | 2.256E-03 | 2.897E-03 | 1.05E+00 | 7.932E+00 | 7.794E+00 | 5.684E+01 | 1.548E-04 | 6.533E-04 | 1.457E-01 |
| 140 | 4.15E+00 | 1.830E+00 | 1.695E+00 | 1.315E+01 | 2.896E-03 | 2.179E-03 | 9.28E-01 | 8.176E+00 | 8.038E+00 | 5.859E+01 | 1.457E-04 | 6.194E-04 | 1.324E-01 |
| 145 | 4.21E+00 | 1.609E+00 | 1.476E+00 | 1.157E+01 | 3.740E-03 | 4.989E-04 | 8.06E-01 | 8.396E+00 | 8.258E+00 | 6.017E+01 | 1.381E-04 | 5.910E-04 | 1.182E-01 |
| 150 | 4.18E+00 | 1.414E+00 | 1.282E+00 | 1.018E+01 | 4.834E-03 | -2.782E-03 | 6.87E-01 | 8.590E+00 | 8.452E+00 | 6.156E+01 | 1.320E-04 | 5.676E-04 | 1.030E-01 |
| 155 | 4.01E+00 | 1.247E+00 | 1.115E+00 | 8.988E+00 | 6.209E-03 | -8.475E-03 | 5.70E-01 | 8.757E+00 | 8.618E+00 | 6.275E+01 | 1.270E-04 | 5.485E-04 | 8.707E-02 |
| 160 | 3.65E+00 | 1.107E+00 | 9.767E-01 | 7.998E+00 | 7.848E-03 | -1.731E-02 | 4.54E-01 | 8.895E+00 | 8.757E+00 | 6.374E+01 | 1.231E-04 | 5.334E-04 | 7.047E-02 |
| 165 | 3.06E+00 | 9.979E-01 | 8.681E-01 | 7.220E+00 | 9.639E-03 | -2.926E-02 | 3.39E-01 | 9.004E+00 | 8.865E+00 | 6.452E+01 | 1.201E-04 | 5.219E-04 | 5.333E-02 |
| 170 | 2.23E+00 | 9.189E-01 | 7.899E-01 | 6.660E+00 | 1.134E-02 | -4.263E-02 | 2.26E-01 | 9.082E+00 | 8.943E+00 | 6.508E+01 | 1.181E-04 | 5.139E-04 | 3.578E-02 |
| 175 | 1.18E+00 | 8.712E-01 | 7.428E-01 | 6.322E+00 | 1.259E-02 | -5.368E-02 | 1.13E-01 | 9.129E+00 | 8.990E+00 | 6.542E+01 | 1.168E-04 | 5.092E-04 | 1.796E-02 |
| 180 | 0. | 8.553E-01 | 7.270E-01 | 6.209E+00 | 1.305E-02 | -5.803E-02 | 0. | 9.145E+00 | 9.006E+00 | 6.553E+01 | 1.164E-04 | 5.076E-04 | 0. |

K ZERO (1) => PI PLUS (2) + PI MINUS (3) AT 20 GEV/C P1 LAB

M1 = 4.97710E-01 M2 = 1.39569E-01 M3 = 1.39569E-01
P2CM= 2.06032E-01
E2CM= 2.48855E-01 E3CM= 2.48855E-01

1-V1LAB= 3.095E-04 GCM = 4.01965E+01 S = 2.47715E-01

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.828E+01 | 1.814E+01 | 1.310E+02 | 2.914E-05 | 1.270E-04 | 0. | 1.718E+00 | 1.584E+00 | 1.235E+01 | 3.283E-03 | -1.438E-02 | 0. |
| 1 | 1.13E-02 | 1.828E+01 | 1.814E+01 | 1.310E+02 | 2.914E-05 | 1.270E-04 | 1.20E-01 | 1.719E+00 | 1.586E+00 | 1.236E+01 | 3.278E-03 | -1.433E-02 | 3.596E-03 |
| 2 | 2.25E-02 | 1.828E+01 | 1.814E+01 | 1.310E+02 | 2.916E-05 | 1.271E-04 | 2.39E-01 | 1.723E+00 | 1.589E+00 | 1.239E+01 | 3.264E-03 | -1.420E-02 | 7.190E-03 |
| 3 | 3.38E-02 | 1.827E+01 | 1.813E+01 | 1.309E+02 | 2.918E-05 | 1.272E-04 | 3.57E-01 | 1.730E+00 | 1.596E+00 | 1.243E+01 | 3.240E-03 | -1.398E-02 | 1.078E-02 |
| 4 | 4.51E-02 | 1.826E+01 | 1.812E+01 | 1.308E+02 | 2.920E-05 | 1.273E-04 | 4.74E-01 | 1.738E+00 | 1.604E+00 | 1.250E+01 | 3.207E-03 | -1.369E-02 | 1.437E-02 |
| 5 | 5.64E-02 | 1.825E+01 | 1.811E+01 | 1.308E+02 | 2.924E-05 | 1.274E-04 | 5.88E-01 | 1.750E+00 | 1.616E+00 | 1.258E+01 | 3.166E-03 | -1.331E-02 | 1.796E-02 |
| 6 | 6.77E-02 | 1.824E+01 | 1.810E+01 | 1.307E+02 | 2.929E-05 | 1.276E-04 | 7.00E-01 | 1.764E+00 | 1.630E+00 | 1.268E+01 | 3.116E-03 | -1.287E-02 | 2.154E-02 |
| 7 | 7.90E-02 | 1.822E+01 | 1.808E+01 | 1.305E+02 | 2.934E-05 | 1.278E-04 | 8.08E-01 | 1.780E+00 | 1.646E+00 | 1.279E+01 | 3.059E-03 | -1.237E-02 | 2.511E-02 |
| 8 | 9.03E-02 | 1.820E+01 | 1.806E+01 | 1.304E+02 | 2.940E-05 | 1.280E-04 | 9.13E-01 | 1.799E+00 | 1.665E+00 | 1.293E+01 | 2.996E-03 | -1.182E-02 | 2.867E-02 |
| 9 | 1.02E-01 | 1.818E+01 | 1.804E+01 | 1.303E+02 | 2.947E-05 | 1.283E-04 | 1.01E+00 | 1.820E+00 | 1.686E+00 | 1.308E+01 | 2.926E-03 | -1.122E-02 | 3.223E-02 |
| 10 | 1.13E-01 | 1.816E+01 | 1.802E+01 | 1.301E+02 | 2.955E-05 | 1.286E-04 | 1.11E+00 | 1.844E+00 | 1.710E+00 | 1.325E+01 | 2.851E-03 | -1.060E-02 | 3.578E-02 |
| 15 | 1.70E-01 | 1.800E+01 | 1.786E+01 | 1.290E+02 | 3.006E-05 | 1.306E-04 | 1.53E+00 | 2.001E+00 | 1.866E+00 | 1.437E+01 | 2.423E-03 | -7.297E-03 | 5.333E-02 |
| 20 | 2.27E-01 | 1.778E+01 | 1.764E+01 | 1.274E+02 | 3.080E-05 | 1.335E-04 | 1.82E+00 | 2.219E+00 | 2.084E+00 | 1.593E+01 | 1.973E-03 | -4.334E-03 | 7.047E-02 |
| 25 | 2.85E-01 | 1.751E+01 | 1.737E+01 | 1.254E+02 | 3.178E-05 | 1.372E-04 | 2.00E+00 | 2.496E+00 | 2.360E+00 | 1.791E+01 | 1.560E-03 | -2.134E-03 | 8.707E-02 |
| 30 | 3.44E-01 | 1.717E+01 | 1.703E+01 | 1.230E+02 | 3.303E-05 | 1.420E-04 | 2.09E+00 | 2.830E+00 | 2.694E+00 | 2.030E+01 | 1.214E-03 | -7.091E-04 | 1.030E-01 |
| 35 | 4.03E-01 | 1.678E+01 | 1.665E+01 | 1.203E+02 | 3.457E-05 | 1.479E-04 | 2.10E+00 | 3.218E+00 | 3.082E+00 | 2.308E+01 | 9.391E-04 | 1.150E-04 | 1.182E-01 |
| 40 | 4.64E-01 | 1.634E+01 | 1.621E+01 | 1.171E+02 | 3.646E-05 | 1.550E-04 | 2.07E+00 | 3.658E+00 | 3.521E+00 | 2.623E+01 | 7.270E-04 | 5.388E-04 | 1.324E-01 |
| 45 | 5.26E-01 | 1.586E+01 | 1.572E+01 | 1.136E+02 | 3.873E-05 | 1.635E-04 | 2.01E+00 | 4.146E+00 | 4.009E+00 | 2.973E+01 | 5.660E-04 | 7.209E-04 | 1.457E-01 |
| 50 | 5.90E-01 | 1.532E+01 | 1.519E+01 | 1.098E+02 | 4.147E-05 | 1.735E-04 | 1.93E+00 | 4.679E+00 | 4.542E+00 | 3.354E+01 | 4.445E-04 | 7.681E-04 | 1.578E-01 |
| 55 | 6.56E-01 | 1.475E+01 | 1.461E+01 | 1.057E+02 | 4.476E-05 | 1.854E-04 | 1.84E+00 | 5.252E+00 | 5.115E+00 | 3.765E+01 | 3.528E-04 | 7.458E-04 | 1.688E-01 |
| 60 | 7.23E-01 | 1.414E+01 | 1.400E+01 | 1.013E+02 | 4.870E-05 | 1.993E-04 | 1.74E+00 | 5.862E+00 | 5.724E+00 | 4.201E+01 | 2.833E-04 | 6.916E-04 | 1.784E-01 |
| 65 | 7.92E-01 | 1.350E+01 | 1.336E+01 | 9.674E+01 | 5.343E-05 | 2.157E-04 | 1.65E+00 | 6.503E+00 | 6.365E+00 | 4.660E+01 | 2.303E-04 | 6.261E-04 | 1.867E-01 |
| 70 | 8.64E-01 | 1.283E+01 | 1.270E+01 | 9.196E+01 | 5.913E-05 | 2.350E-04 | 1.55E+00 | 7.170E+00 | 7.032E+00 | 5.138E+01 | 1.894E-04 | 5.599E-04 | 1.936E-01 |
| 75 | 9.39E-01 | 1.215E+01 | 1.201E+01 | 8.702E+01 | 6.602E-05 | 2.576E-04 | 1.45E+00 | 7.859E+00 | 7.721E+00 | 5.632E+01 | 1.577E-04 | 4.979E-04 | 1.990E-01 |
| 80 | 1.02E+00 | 1.144E+01 | 1.130E+01 | 8.197E+01 | 7.441E-05 | 2.841E-04 | 1.36E+00 | 8.564E+00 | 8.426E+00 | 6.137E+01 | 1.328E-04 | 4.423E-04 | 2.029E-01 |
| 85 | 1.10E+00 | 1.072E+01 | 1.059E+01 | 7.684E+01 | 8.468E-05 | 3.151E-04 | 1.27E+00 | 9.280E+00 | 9.142E+00 | 6.650E+01 | 1.131E-04 | 3.935E-04 | 2.052E-01 |
| 90 | 1.18E+00 | 1.000E+01 | 9.864E+00 | 7.167E+01 | 9.734E-05 | 3.513E-04 | 1.18E+00 | 1.000E+01 | 9.864E+00 | 7.167E+01 | 9.734E-05 | 3.513E-04 | 2.060E-01 |
| 95 | 1.27E+00 | 9.280E+00 | 9.142E+00 | 6.650E+01 | 1.131E-04 | 3.935E-04 | 1.10E+00 | 1.072E+01 | 1.059E+01 | 7.684E+01 | 8.468E-05 | 3.151E-04 | 2.052E-01 |
| 100 | 1.36E+00 | 8.564E+00 | 8.426E+00 | 6.137E+01 | 1.328E-04 | 4.423E-04 | 1.02E+00 | 1.144E+01 | 1.130E+01 | 8.197E+01 | 7.441E-05 | 2.841E-04 | 2.029E-01 |
| 105 | 1.45E+00 | 7.859E+00 | 7.721E+00 | 5.632E+01 | 1.577E-04 | 4.979E-04 | 9.39E-01 | 1.215E+01 | 1.201E+01 | 8.702E+01 | 6.602E-05 | 2.576E-04 | 1.990E-01 |
| 110 | 1.55E+00 | 7.170E+00 | 7.032E+00 | 5.138E+01 | 1.894E-04 | 5.599E-04 | 8.64E-01 | 1.283E+01 | 1.270E+01 | 9.196E+01 | 5.913E-05 | 2.350E-04 | 1.936E-01 |
| 115 | 1.65E+00 | 6.503E+00 | 6.365E+00 | 4.660E+01 | 2.303E-04 | 6.261E-04 | 7.92E-01 | 1.350E+01 | 1.336E+01 | 9.674E+01 | 5.343E-05 | 2.157E-04 | 1.867E-01 |
| 120 | 1.74E+00 | 5.862E+00 | 5.724E+00 | 4.201E+01 | 2.833E-04 | 6.916E-04 | 7.23E-01 | 1.414E+01 | 1.400E+01 | 1.013E+02 | 4.870E-05 | 1.993E-04 | 1.784E-01 |
| 125 | 1.84E+00 | 5.252E+00 | 5.115E+00 | 3.765E+01 | 3.528E-04 | 7.458E-04 | 6.56E-01 | 1.475E+01 | 1.461E+01 | 1.057E+02 | 4.476E-05 | 1.854E-04 | 1.688E-01 |
| 130 | 1.93E+00 | 4.679E+00 | 4.542E+00 | 3.354E+01 | 4.445E-04 | 7.681E-04 | 5.90E-01 | 1.532E+01 | 1.519E+01 | 1.098E+02 | 4.147E-05 | 1.735E-04 | 1.578E-01 |
| 135 | 2.01E+00 | 4.146E+00 | 4.009E+00 | 2.973E+01 | 5.660E-04 | 7.209E-04 | 5.26E-01 | 1.586E+01 | 1.572E+01 | 1.136E+02 | 3.873E-05 | 1.635E-04 | 1.457E-01 |
| 140 | 2.07E+00 | 3.658E+00 | 3.521E+00 | 2.623E+01 | 7.270E-04 | 5.388E-04 | 4.64E-01 | 1.634E+01 | 1.621E+01 | 1.171E+02 | 3.646E-05 | 1.550E-04 | 1.324E-01 |
| 145 | 2.10E+00 | 3.218E+00 | 3.082E+00 | 2.308E+01 | 9.391E-04 | 1.150E-04 | 4.03E-01 | 1.678E+01 | 1.665E+01 | 1.203E+02 | 3.457E-05 | 1.479E-04 | 1.182E-01 |
| 150 | 2.09E+00 | 2.830E+00 | 2.694E+00 | 2.030E+01 | 1.214E-03 | -7.091E-04 | 3.44E-01 | 1.717E+01 | 1.703E+01 | 1.230E+02 | 3.303E-05 | 1.420E-04 | 1.030E-01 |
| 155 | 2.00E+00 | 2.496E+00 | 2.360E+00 | 1.791E+01 | 1.560E-03 | -2.134E-03 | 2.85E-01 | 1.751E+01 | 1.737E+01 | 1.254E+02 | 3.178E-05 | 1.372E-04 | 8.707E-02 |
| 160 | 1.82E+00 | 2.219E+00 | 2.084E+00 | 1.593E+01 | 1.973E-03 | -4.334E-03 | 2.27E-01 | 1.778E+01 | 1.764E+01 | 1.274E+02 | 3.080E-05 | 1.335E-04 | 7.047E-02 |
| 165 | 1.53E+00 | 2.001E+00 | 1.866E+00 | 1.437E+01 | 2.423E-03 | -7.297E-03 | 1.70E-01 | 1.800E+01 | 1.786E+01 | 1.290E+02 | 3.006E-05 | 1.306E-04 | 5.333E-02 |
| 170 | 1.11E+00 | 1.844E+00 | 1.710E+00 | 1.325E+01 | 2.851E-03 | -1.060E-02 | 1.13E-01 | 1.816E+01 | 1.802E+01 | 1.301E+02 | 2.955E-05 | 1.286E-04 | 3.578E-02 |
| 175 | 5.88E-01 | 1.750E+00 | 1.616E+00 | 1.258E+01 | 3.166E-03 | -1.331E-02 | 5.64E-02 | 1.825E+01 | 1.811E+01 | 1.308E+02 | 2.924E-05 | 1.274E-04 | 1.796E-02 |
| 180 | 0. | 1.718E+00 | 1.584E+00 | 1.235E+01 | 3.283E-03 | -1.438E-02 | 0. | 1.828E+01 | 1.814E+01 | 1.310E+02 | 2.914E-05 | 1.270E-04 | 0. |

K ZERO (1) => PI PLUS (2) + PI MINUS (3) AT 30 GEV/C P1 LAB

M1 = 4.97710E-01 M2 = 1.39569E-01 M3 = 1.39569E-01
P2CM= 2.06032E-01
E2CM= 2.48855E-01 E3CM= 2.48855E-01

1-V1LAB= 1.376E-04 GCM = 6.02844E+01 S = 2.47715E-01

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.742E+01 | 2.728E+01 | 1.965E+02 | 1.295E-05 | 5.646E-05 | 0. | 2.579E+00 | 2.444E+00 | 1.851E+01 | 1.461E-03 | -6.380E-03 | 0. |
| 1 | 7.51E-03 | 2.742E+01 | 2.728E+01 | 1.965E+02 | 1.296E-05 | 5.646E-05 | 7.98E-02 | 2.581E+00 | 2.446E+00 | 1.852E+01 | 1.458E-03 | -6.360E-03 | 3.596E-03 |
| 2 | 1.50E-02 | 2.741E+01 | 2.727E+01 | 1.964E+02 | 1.296E-05 | 5.649E-05 | 1.59E-01 | 2.587E+00 | 2.451E+00 | 1.856E+01 | 1.452E-03 | -6.302E-03 | 7.190E-03 |
| 3 | 2.25E-02 | 2.740E+01 | 2.726E+01 | 1.963E+02 | 1.297E-05 | 5.652E-05 | 2.38E-01 | 2.597E+00 | 2.461E+00 | 1.863E+01 | 1.442E-03 | -6.205E-03 | 1.078E-02 |
| 4 | 3.01E-02 | 2.739E+01 | 2.725E+01 | 1.963E+02 | 1.298E-05 | 5.657E-05 | 3.16E-01 | 2.610E+00 | 2.474E+00 | 1.873E+01 | 1.427E-03 | -6.073E-03 | 1.437E-02 |
| 5 | 3.76E-02 | 2.737E+01 | 2.723E+01 | 1.961E+02 | 1.300E-05 | 5.663E-05 | 3.92E-01 | 2.627E+00 | 2.491E+00 | 1.885E+01 | 1.409E-03 | -5.908E-03 | 1.796E-02 |
| 6 | 4.51E-02 | 2.735E+01 | 2.721E+01 | 1.960E+02 | 1.302E-05 | 5.671E-05 | 4.66E-01 | 2.648E+00 | 2.512E+00 | 1.900E+01 | 1.387E-03 | -5.712E-03 | 2.154E-02 |
| 7 | 5.26E-02 | 2.733E+01 | 2.719E+01 | 1.958E+02 | 1.304E-05 | 5.680E-05 | 5.38E-01 | 2.672E+00 | 2.536E+00 | 1.917E+01 | 1.361E-03 | -5.490E-03 | 2.511E-02 |
| 8 | 6.02E-02 | 2.730E+01 | 2.716E+01 | 1.956E+02 | 1.307E-05 | 5.691E-05 | 6.08E-01 | 2.700E+00 | 2.565E+00 | 1.937E+01 | 1.333E-03 | -5.245E-03 | 2.867E-02 |
| 9 | 6.77E-02 | 2.727E+01 | 2.713E+01 | 1.954E+02 | 1.310E-05 | 5.703E-05 | 6.76E-01 | 2.733E+00 | 2.597E+00 | 1.960E+01 | 1.302E-03 | -4.982E-03 | 3.223E-02 |
| 10 | 7.53E-02 | 2.723E+01 | 2.709E+01 | 1.951E+02 | 1.313E-05 | 5.716E-05 | 7.40E-01 | 2.768E+00 | 2.632E+00 | 1.986E+01 | 1.268E-03 | -4.705E-03 | 3.578E-02 |
| 15 | 1.13E-01 | 2.700E+01 | 2.686E+01 | 1.934E+02 | 1.336E-05 | 5.805E-05 | 1.02E+00 | 3.003E+00 | 2.867E+00 | 2.154E+01 | 1.078E-03 | -3.242E-03 | 5.333E-02 |
| 20 | 1.51E-01 | 2.667E+01 | 2.653E+01 | 1.911E+02 | 1.369E-05 | 5.932E-05 | 1.21E+00 | 3.329E+00 | 3.193E+00 | 2.387E+01 | 8.776E-04 | -1.927E-03 | 7.047E-02 |
| 25 | 1.90E-01 | 2.626E+01 | 2.612E+01 | 1.881E+02 | 1.413E-05 | 6.100E-05 | 1.33E+00 | 3.744E+00 | 3.607E+00 | 2.685E+01 | 6.940E-04 | -9.495E-04 | 8.707E-02 |
| 30 | 2.29E-01 | 2.576E+01 | 2.562E+01 | 1.845E+02 | 1.468E-05 | 6.313E-05 | 1.39E+00 | 4.245E+00 | 4.107E+00 | 3.043E+01 | 5.401E-04 | -3.163E-04 | 1.030E-01 |
| 35 | 2.69E-01 | 2.517E+01 | 2.504E+01 | 1.804E+02 | 1.537E-05 | 6.574E-05 | 1.40E+00 | 4.827E+00 | 4.690E+00 | 3.460E+01 | 4.177E-04 | 5.029E-05 | 1.182E-01 |
| 40 | 3.10E-01 | 2.452E+01 | 2.438E+01 | 1.757E+02 | 1.621E-05 | 6.889E-05 | 1.38E+00 | 5.487E+00 | 5.349E+00 | 3.933E+01 | 3.234E-04 | 2.389E-04 | 1.324E-01 |
| 45 | 3.51E-01 | 2.378E+01 | 2.364E+01 | 1.704E+02 | 1.722E-05 | 7.266E-05 | 1.34E+00 | 6.219E+00 | 6.081E+00 | 4.457E+01 | 2.517E-04 | 3.201E-04 | 1.457E-01 |
| 50 | 3.93E-01 | 2.298E+01 | 2.285E+01 | 1.647E+02 | 1.844E-05 | 7.713E-05 | 1.29E+00 | 7.018E+00 | 6.880E+00 | 5.029E+01 | 1.977E-04 | 3.413E-04 | 1.578E-01 |
| 55 | 4.37E-01 | 2.212E+01 | 2.199E+01 | 1.585E+02 | 1.990E-05 | 8.241E-05 | 1.23E+00 | 7.878E+00 | 7.739E+00 | 5.645E+01 | 1.569E-04 | 3.314E-04 | 1.688E-01 |
| 60 | 4.82E-01 | 2.121E+01 | 2.107E+01 | 1.520E+02 | 2.165E-05 | 8.861E-05 | 1.16E+00 | 8.792E+00 | 8.653E+00 | 6.300E+01 | 1.260E-04 | 3.074E-04 | 1.784E-01 |
| 65 | 5.28E-01 | 2.025E+01 | 2.011E+01 | 1.451E+02 | 2.375E-05 | 9.590E-05 | 1.10E+00 | 9.753E+00 | 9.614E+00 | 6.988E+01 | 1.024E-04 | 2.783E-04 | 1.867E-01 |
| 70 | 5.76E-01 | 1.925E+01 | 1.911E+01 | 1.379E+02 | 2.629E-05 | 1.045E-04 | 1.03E+00 | 1.075E+01 | 1.062E+01 | 7.706E+01 | 8.421E-05 | 2.489E-04 | 1.936E-01 |
| 75 | 6.26E-01 | 1.822E+01 | 1.808E+01 | 1.305E+02 | 2.935E-05 | 1.145E-04 | 9.67E-01 | 1.179E+01 | 1.165E+01 | 8.446E+01 | 7.010E-05 | 2.213E-04 | 1.990E-01 |
| 80 | 6.78E-01 | 1.716E+01 | 1.702E+01 | 1.229E+02 | 3.308E-05 | 1.263E-04 | 9.05E-01 | 1.284E+01 | 1.271E+01 | 9.204E+01 | 5.903E-05 | 1.966E-04 | 2.029E-01 |
| 85 | 7.31E-01 | 1.608E+01 | 1.594E+01 | 1.152E+02 | 3.765E-05 | 1.401E-04 | 8.45E-01 | 1.392E+01 | 1.378E+01 | 9.973E+01 | 5.027E-05 | 1.749E-04 | 2.052E-01 |
| 90 | 7.87E-01 | 1.500E+01 | 1.486E+01 | 1.075E+02 | 4.328E-05 | 1.562E-04 | 7.87E-01 | 1.500E+01 | 1.486E+01 | 1.075E+02 | 4.328E-05 | 1.562E-04 | 2.060E-01 |
| 95 | 8.45E-01 | 1.392E+01 | 1.378E+01 | 9.973E+01 | 5.027E-05 | 1.749E-04 | 7.31E-01 | 1.608E+01 | 1.594E+01 | 1.152E+02 | 3.765E-05 | 1.401E-04 | 2.052E-01 |
| 100 | 9.05E-01 | 1.284E+01 | 1.271E+01 | 9.204E+01 | 5.903E-05 | 1.966E-04 | 6.78E-01 | 1.716E+01 | 1.702E+01 | 1.229E+02 | 3.308E-05 | 1.263E-04 | 2.029E-01 |
| 105 | 9.67E-01 | 1.179E+01 | 1.165E+01 | 8.446E+01 | 7.010E-05 | 2.213E-04 | 6.26E-01 | 1.822E+01 | 1.808E+01 | 1.305E+02 | 2.935E-05 | 1.145E-04 | 1.990E-01 |
| 110 | 1.03E+00 | 1.075E+01 | 1.062E+01 | 7.706E+01 | 8.421E-05 | 2.489E-04 | 5.76E-01 | 1.925E+01 | 1.911E+01 | 1.379E+02 | 2.629E-05 | 1.045E-04 | 1.936E-01 |
| 115 | 1.10E+00 | 9.753E+00 | 9.614E+00 | 6.988E+01 | 1.024E-04 | 2.783E-04 | 5.28E-01 | 2.025E+01 | 2.011E+01 | 1.451E+02 | 2.375E-05 | 9.590E-05 | 1.867E-01 |
| 120 | 1.16E+00 | 8.792E+00 | 8.653E+00 | 6.300E+01 | 1.260E-04 | 3.074E-04 | 4.82E-01 | 2.121E+01 | 2.107E+01 | 1.520E+02 | 2.165E-05 | 8.861E-05 | 1.784E-01 |
| 125 | 1.23E+00 | 7.878E+00 | 7.739E+00 | 5.645E+01 | 1.569E-04 | 3.314E-04 | 4.37E-01 | 2.212E+01 | 2.199E+01 | 1.585E+02 | 1.990E-05 | 8.241E-05 | 1.688E-01 |
| 130 | 1.29E+00 | 7.018E+00 | 6.880E+00 | 5.029E+01 | 1.977E-04 | 3.413E-04 | 3.93E-01 | 2.298E+01 | 2.285E+01 | 1.647E+02 | 1.844E-05 | 7.713E-05 | 1.578E-01 |
| 135 | 1.34E+00 | 6.219E+00 | 6.081E+00 | 4.457E+01 | 2.517E-04 | 3.201E-04 | 3.51E-01 | 2.378E+01 | 2.364E+01 | 1.704E+02 | 1.722E-05 | 7.266E-05 | 1.457E-01 |
| 140 | 1.38E+00 | 5.487E+00 | 5.349E+00 | 3.933E+01 | 3.234E-04 | 2.389E-04 | 3.10E-01 | 2.452E+01 | 2.438E+01 | 1.757E+02 | 1.621E-05 | 6.889E-05 | 1.324E-01 |
| 145 | 1.40E+00 | 4.827E+00 | 4.690E+00 | 3.460E+01 | 4.177E-04 | 5.029E-05 | 2.69E-01 | 2.517E+01 | 2.504E+01 | 1.804E+02 | 1.537E-05 | 6.574E-05 | 1.182E-01 |
| 150 | 1.39E+00 | 4.245E+00 | 4.107E+00 | 3.043E+01 | 5.401E-04 | -3.163E-04 | 2.29E-01 | 2.576E+01 | 2.562E+01 | 1.845E+02 | 1.468E-05 | 6.313E-05 | 1.030E-01 |
| 155 | 1.33E+00 | 3.744E+00 | 3.607E+00 | 2.685E+01 | 6.940E-04 | -9.495E-04 | 1.90E-01 | 2.626E+01 | 2.612E+01 | 1.881E+02 | 1.413E-05 | 6.100E-05 | 8.707E-02 |
| 160 | 1.21E+00 | 3.329E+00 | 3.193E+00 | 2.387E+01 | 8.776E-04 | -1.927E-03 | 1.51E-01 | 2.667E+01 | 2.653E+01 | 1.911E+02 | 1.369E-05 | 5.932E-05 | 7.047E-02 |
| 165 | 1.02E+00 | 3.003E+00 | 2.867E+00 | 2.154E+01 | 1.078E-03 | -3.242E-03 | 1.13E-01 | 2.700E+01 | 2.686E+01 | 1.934E+02 | 1.336E-05 | 5.805E-05 | 5.333E-02 |
| 170 | 7.40E-01 | 2.768E+00 | 2.632E+00 | 1.986E+01 | 1.268E-03 | -4.705E-03 | 7.53E-02 | 2.723E+01 | 2.709E+01 | 1.951E+02 | 1.313E-05 | 5.716E-05 | 3.578E-02 |
| 175 | 3.92E-01 | 2.627E+00 | 2.491E+00 | 1.885E+01 | 1.409E-03 | -5.908E-03 | 3.76E-02 | 2.737E+01 | 2.723E+01 | 1.961E+02 | 1.300E-05 | 5.663E-05 | 1.796E-02 |
| 180 | 0. | 2.579E+00 | 2.444E+00 | 1.851E+01 | 1.461E-03 | -6.380E-03 | 0. | 2.742E+01 | 2.728E+01 | 1.965E+02 | 1.295E-05 | 5.646E-05 | 0. |

K ZERO (1) => PI PLUS (2) + PI MINUS (3) AT 40 GEV/C P1 LAB

M1 = 4.97710E-01 M2 = 1.39569E-01 M3 = 1.39569E-01
P2CM= 2.06032E-01
E2CM= 2.48855E-01 E3CM= 2.48855E-01

1-V1LAB= 7.740E-05 GCM = 8.03743E+01 S = 2.47715E-01

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 3.656E+01 | 3.642E+01 | 2.619E+02 | 7.287E-06 | 3.176E-05 | 0. | 3.440E+00 | 3.304E+00 | 2.467E+01 | 8.219E-04 | -3.587E-03 | 0. |
| 1 | 5.64E-03 | 3.656E+01 | 3.642E+01 | 2.619E+02 | 7.288E-06 | 3.176E-05 | 5.98E-02 | 3.443E+00 | 3.306E+00 | 2.469E+01 | 8.207E-04 | -3.576E-03 | 3.596E-03 |
| 2 | 1.13E-02 | 3.655E+01 | 3.641E+01 | 2.619E+02 | 7.291E-06 | 3.177E-05 | 1.19E-01 | 3.450E+00 | 3.314E+00 | 2.474E+01 | 8.171E-04 | -3.543E-03 | 7.190E-03 |
| 3 | 1.69E-02 | 3.654E+01 | 3.640E+01 | 2.618E+02 | 7.296E-06 | 3.179E-05 | 1.78E-01 | 3.463E+00 | 3.326E+00 | 2.483E+01 | 8.112E-04 | -3.488E-03 | 1.078E-02 |
| 4 | 2.25E-02 | 3.652E+01 | 3.638E+01 | 2.617E+02 | 7.303E-06 | 3.182E-05 | 2.37E-01 | 3.481E+00 | 3.344E+00 | 2.496E+01 | 8.030E-04 | -3.414E-03 | 1.437E-02 |
| 5 | 2.82E-02 | 3.650E+01 | 3.636E+01 | 2.615E+02 | 7.312E-06 | 3.186E-05 | 2.94E-01 | 3.503E+00 | 3.367E+00 | 2.512E+01 | 7.926E-04 | -3.321E-03 | 1.796E-02 |
| 6 | 3.38E-02 | 3.647E+01 | 3.633E+01 | 2.613E+02 | 7.323E-06 | 3.190E-05 | 3.49E-01 | 3.531E+00 | 3.394E+00 | 2.532E+01 | 7.802E-04 | -3.211E-03 | 2.154E-02 |
| 7 | 3.95E-02 | 3.644E+01 | 3.630E+01 | 2.611E+02 | 7.336E-06 | 3.195E-05 | 4.04E-01 | 3.564E+00 | 3.427E+00 | 2.555E+01 | 7.660E-04 | -3.087E-03 | 2.511E-02 |
| 8 | 4.51E-02 | 3.640E+01 | 3.626E+01 | 2.608E+02 | 7.351E-06 | 3.201E-05 | 4.56E-01 | 3.602E+00 | 3.465E+00 | 2.582E+01 | 7.500E-04 | -2.949E-03 | 2.867E-02 |
| 9 | 5.08E-02 | 3.636E+01 | 3.622E+01 | 2.605E+02 | 7.369E-06 | 3.208E-05 | 5.07E-01 | 3.644E+00 | 3.507E+00 | 2.613E+01 | 7.326E-04 | -2.801E-03 | 3.223E-02 |
| 10 | 5.65E-02 | 3.631E+01 | 3.617E+01 | 2.601E+02 | 7.388E-06 | 3.215E-05 | 5.55E-01 | 3.692E+00 | 3.555E+00 | 2.647E+01 | 7.138E-04 | -2.646E-03 | 3.578E-02 |
| 15 | 8.49E-02 | 3.600E+01 | 3.586E+01 | 2.579E+02 | 7.517E-06 | 3.266E-05 | 7.63E-01 | 4.005E+00 | 3.868E+00 | 2.871E+01 | 6.067E-04 | -1.823E-03 | 5.333E-02 |
| 20 | 1.14E-01 | 3.556E+01 | 3.542E+01 | 2.548E+02 | 7.702E-06 | 3.337E-05 | 9.09E-01 | 4.440E+00 | 4.302E+00 | 3.182E+01 | 4.938E-04 | -1.084E-03 | 7.047E-02 |
| 25 | 1.43E-01 | 3.501E+01 | 3.487E+01 | 2.508E+02 | 7.947E-06 | 3.432E-05 | 9.99E-01 | 4.993E+00 | 4.855E+00 | 3.579E+01 | 3.905E-04 | -5.343E-04 | 8.707E-02 |
| 30 | 1.72E-01 | 3.434E+01 | 3.420E+01 | 2.461E+02 | 8.259E-06 | 3.551E-05 | 1.04E+00 | 5.660E+00 | 5.522E+00 | 4.056E+01 | 3.039E-04 | -1.781E-04 | 1.030E-01 |
| 35 | 2.02E-01 | 3.357E+01 | 3.343E+01 | 2.405E+02 | 8.645E-06 | 3.698E-05 | 1.05E+00 | 6.436E+00 | 6.298E+00 | 4.613E+01 | 2.350E-04 | 2.813E-05 | 1.182E-01 |
| 40 | 2.32E-01 | 3.269E+01 | 3.255E+01 | 2.342E+02 | 9.116E-06 | 3.875E-05 | 1.04E+00 | 7.316E+00 | 7.177E+00 | 5.243E+01 | 1.819E-04 | 1.343E-04 | 1.324E-01 |
| 45 | 2.63E-01 | 3.171E+01 | 3.157E+01 | 2.272E+02 | 9.686E-06 | 4.087E-05 | 1.01E+00 | 8.292E+00 | 8.153E+00 | 5.942E+01 | 1.416E-04 | 1.800E-04 | 1.457E-01 |
| 50 | 2.95E-01 | 3.064E+01 | 3.051E+01 | 2.196E+02 | 1.037E-05 | 4.339E-05 | 9.66E-01 | 9.357E+00 | 9.218E+00 | 6.705E+01 | 1.112E-04 | 1.919E-04 | 1.578E-01 |
| 55 | 3.28E-01 | 2.950E+01 | 2.936E+01 | 2.114E+02 | 1.119E-05 | 4.636E-05 | 9.21E-01 | 1.050E+01 | 1.036E+01 | 7.526E+01 | 8.828E-05 | 1.864E-04 | 1.688E-01 |
| 60 | 3.61E-01 | 2.828E+01 | 2.814E+01 | 2.026E+02 | 1.218E-05 | 4.985E-05 | 8.72E-01 | 1.172E+01 | 1.158E+01 | 8.399E+01 | 7.088E-05 | 1.729E-04 | 1.784E-01 |
| 65 | 3.96E-01 | 2.700E+01 | 2.686E+01 | 1.934E+02 | 1.336E-05 | 5.395E-05 | 8.23E-01 | 1.300E+01 | 1.286E+01 | 9.317E+01 | 5.760E-05 | 1.565E-04 | 1.867E-01 |
| 70 | 4.32E-01 | 2.566E+01 | 2.553E+01 | 1.839E+02 | 1.479E-05 | 5.876E-05 | 7.74E-01 | 1.434E+01 | 1.420E+01 | 1.027E+02 | 4.738E-05 | 1.400E-04 | 1.936E-01 |
| 75 | 4.70E-01 | 2.429E+01 | 2.415E+01 | 1.740E+02 | 1.651E-05 | 6.441E-05 | 7.26E-01 | 1.572E+01 | 1.558E+01 | 1.126E+02 | 3.943E-05 | 1.245E-04 | 1.990E-01 |
| 80 | 5.08E-01 | 2.288E+01 | 2.274E+01 | 1.639E+02 | 1.861E-05 | 7.103E-05 | 6.79E-01 | 1.713E+01 | 1.699E+01 | 1.227E+02 | 3.321E-05 | 1.106E-04 | 2.029E-01 |
| 85 | 5.48E-01 | 2.144E+01 | 2.131E+01 | 1.536E+02 | 2.118E-05 | 7.879E-05 | 6.34E-01 | 1.856E+01 | 1.842E+01 | 1.330E+02 | 2.828E-05 | 9.841E-05 | 2.052E-01 |
| 90 | 5.90E-01 | 2.000E+01 | 1.986E+01 | 1.433E+02 | 2.435E-05 | 8.785E-05 | 5.90E-01 | 2.000E+01 | 1.986E+01 | 1.433E+02 | 2.435E-05 | 8.785E-05 | 2.060E-01 |
| 95 | 6.34E-01 | 1.856E+01 | 1.842E+01 | 1.330E+02 | 2.828E-05 | 9.841E-05 | 5.48E-01 | 2.144E+01 | 2.131E+01 | 1.536E+02 | 2.118E-05 | 7.879E-05 | 2.052E-01 |
| 100 | 6.79E-01 | 1.713E+01 | 1.699E+01 | 1.227E+02 | 3.321E-05 | 1.106E-04 | 5.08E-01 | 2.288E+01 | 2.274E+01 | 1.639E+02 | 1.861E-05 | 7.103E-05 | 2.029E-01 |
| 105 | 7.26E-01 | 1.572E+01 | 1.558E+01 | 1.126E+02 | 3.943E-05 | 1.245E-04 | 4.70E-01 | 2.429E+01 | 2.415E+01 | 1.740E+02 | 1.651E-05 | 6.441E-05 | 1.990E-01 |
| 110 | 7.74E-01 | 1.434E+01 | 1.420E+01 | 1.027E+02 | 4.738E-05 | 1.400E-04 | 4.32E-01 | 2.566E+01 | 2.553E+01 | 1.839E+02 | 1.479E-05 | 5.876E-05 | 1.936E-01 |
| 115 | 8.23E-01 | 1.300E+01 | 1.286E+01 | 9.317E+01 | 5.760E-05 | 1.565E-04 | 3.96E-01 | 2.703E+01 | 2.686E+01 | 1.934E+02 | 1.336E-05 | 5.395E-05 | 1.867E-01 |
| 120 | 8.72E-01 | 1.172E+01 | 1.158E+01 | 8.399E+01 | 7.088E-05 | 1.729E-04 | 3.61E-01 | 2.828E+01 | 2.814E+01 | 2.026E+02 | 1.218E-05 | 4.985E-05 | 1.784E-01 |
| 125 | 9.21E-01 | 1.050E+01 | 1.036E+01 | 7.526E+01 | 8.828E-05 | 1.864E-04 | 3.28E-01 | 2.950E+01 | 2.936E+01 | 2.114E+02 | 1.119E-05 | 4.636E-05 | 1.688E-01 |
| 130 | 9.66E-01 | 9.357E+00 | 9.218E+00 | 6.705E+01 | 1.112E-04 | 1.919E-04 | 2.95E-01 | 3.064E+01 | 3.051E+01 | 2.196E+02 | 1.037E-05 | 4.339E-05 | 1.578E-01 |
| 135 | 1.01E+00 | 8.292E+00 | 8.153E+00 | 5.942E+01 | 1.416E-04 | 1.800E-04 | 2.63E-01 | 3.171E+01 | 3.157E+01 | 2.272E+02 | 9.686E-06 | 4.087E-05 | 1.457E-01 |
| 140 | 1.04E+00 | 7.316E+00 | 7.177E+00 | 5.243E+01 | 1.819E-04 | 1.343E-04 | 2.32E-01 | 3.269E+01 | 3.255E+01 | 2.342E+02 | 9.116E-06 | 3.875E-05 | 1.324E-01 |
| 145 | 1.05E+00 | 6.436E+00 | 6.298E+00 | 4.613E+01 | 2.350E-04 | 2.813E-05 | 2.02E-01 | 3.357E+01 | 3.343E+01 | 2.405E+02 | 8.645E-06 | 3.698E-05 | 1.182E-01 |
| 150 | 1.04E+00 | 5.660E+00 | 5.522E+00 | 4.056E+01 | 3.039E-04 | -1.781E-04 | 1.72E-01 | 3.434E+01 | 3.420E+01 | 2.461E+02 | 8.259E-06 | 3.551E-05 | 1.030E-01 |
| 155 | 9.99E-01 | 4.993E+00 | 4.855E+00 | 3.579E+01 | 3.905E-04 | -5.343E-04 | 1.43E-01 | 3.501E+01 | 3.487E+01 | 2.508E+02 | 7.947E-06 | 3.432E-05 | 8.707E-02 |
| 160 | 9.09E-01 | 4.440E+00 | 4.302E+00 | 3.182E+01 | 4.938E-04 | -1.084E-03 | 1.14E-01 | 3.556E+01 | 3.542E+01 | 2.548E+02 | 7.702E-06 | 3.337E-05 | 7.047E-02 |
| 165 | 7.63E-01 | 4.005E+00 | 3.868E+00 | 2.871E+01 | 6.067E-04 | -1.823E-03 | 8.49E-02 | 3.600E+01 | 3.586E+01 | 2.579E+02 | 7.517E-06 | 3.266E-05 | 5.333E-02 |
| 170 | 5.55E-01 | 3.692E+00 | 3.555E+00 | 2.647E+01 | 7.138E-04 | -2.646E-03 | 5.65E-02 | 3.631E+01 | 3.617E+01 | 2.601E+02 | 7.388E-06 | 3.215E-05 | 3.578E-02 |
| 175 | 2.94E-01 | 3.503E+00 | 3.367E+00 | 2.512E+01 | 7.926E-04 | -3.321E-03 | 2.82E-02 | 3.650E+01 | 3.636E+01 | 2.615E+02 | 7.312E-06 | 3.186E-05 | 1.796E-02 |
| 180 | 0. | 3.440E+00 | 3.304E+00 | 2.467E+01 | 8.219E-04 | -3.587E-03 | 0. | 3.656E+01 | 3.642E+01 | 2.619E+02 | 7.287E-06 | 3.176E-05 | 0. |

K ZERO (1) => PI PLUS (2) + PI MINUS (3) AT 50 GEV/C P1 LAB

M1 = 4.97710E-01 M2 = 1.39569E-01 M3 = 1.39569E-01
P2CM= 2.06032E-01
E2CM= 2.48855E-01 E3CM= 2.48855E-01

1-V1LAB= 4.954E-05 GCM = 1.00465E+02 S = 2.47715E-01

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 4.570E+01 | 4.556E+01 | 3.274E+02 | 4.664E-06 | 2.033E-05 | 0. | 4.301E+00 | 4.164E+00 | 3.083E+01 | 5.261E-04 | -2.295E-03 | 0. |
| 1 | 4.51E-03 | 4.570E+01 | 4.556E+01 | 3.274E+02 | 4.664E-06 | 2.033E-05 | 4.79E-02 | 4.304E+00 | 4.167E+00 | 3.085E+01 | 5.253E-04 | -2.288E-03 | 3.596E-03 |
| 2 | 9.02E-03 | 4.569E+01 | 4.555E+01 | 3.273E+02 | 4.666E-06 | 2.034E-05 | 9.55E-02 | 4.314E+00 | 4.176E+00 | 3.092E+01 | 5.230E-04 | -2.267E-03 | 7.190E-03 |
| 3 | 1.35E-02 | 4.567E+01 | 4.553E+01 | 3.272E+02 | 4.669E-06 | 2.035E-05 | 1.43E-01 | 4.329E+00 | 4.192E+00 | 3.104E+01 | 5.192E-04 | -2.232E-03 | 1.078E-02 |
| 4 | 1.80E-02 | 4.565E+01 | 4.551E+01 | 3.271E+02 | 4.674E-06 | 2.037E-05 | 1.89E-01 | 4.351E+00 | 4.214E+00 | 3.119E+01 | 5.140E-04 | -2.185F-03 | 1.437E-02 |
| 5 | 2.26E-02 | 4.562E+01 | 4.548E+01 | 3.269E+02 | 4.680E-06 | 2.039E-05 | 2.35E-01 | 4.380E+00 | 4.242E+00 | 3.140E+01 | 5.074E-04 | -2.125E-03 | 1.796E-02 |
| 6 | 2.71E-02 | 4.559E+01 | 4.545E+01 | 3.266E+02 | 4.687E-06 | 2.042E-05 | 2.80E-01 | 4.414E+00 | 4.277E+00 | 3.164E+01 | 4.994E-04 | -2.055F-03 | 2.154E-02 |
| 7 | 3.16E-02 | 4.554E+01 | 4.541E+01 | 3.263E+02 | 4.695E-06 | 2.045E-05 | 3.23E-01 | 4.455E+00 | 4.318E+00 | 3.194E+01 | 4.903E-04 | -1.975E-03 | 2.511E-02 |
| 8 | 3.61E-02 | 4.550E+01 | 4.536E+01 | 3.260E+02 | 4.705E-06 | 2.049E-05 | 3.65E-01 | 4.502E+00 | 4.365E+00 | 3.228E+01 | 4.801E-04 | -1.887E-03 | 2.867E-02 |
| 9 | 4.06E-02 | 4.544E+01 | 4.530E+01 | 3.256E+02 | 4.716E-06 | 2.053E-05 | 4.05E-01 | 4.556E+00 | 4.418E+00 | 3.266E+01 | 4.689E-04 | -1.793F-03 | 3.223E-02 |
| 10 | 4.52E-02 | 4.538E+01 | 4.525E+01 | 3.252E+02 | 4.729E-06 | 2.058E-05 | 4.44E-01 | 4.616E+00 | 4.478E+00 | 3.309E+01 | 4.569E-04 | -1.693E-03 | 3.578E-02 |
| 15 | 6.79E-02 | 4.499E+01 | 4.485E+01 | 3.224E+02 | 4.811E-06 | 2.090E-05 | 6.10E-01 | 5.007E+00 | 4.869E+00 | 3.589E+01 | 3.883E-04 | -1.167E-03 | 5.333E-02 |
| 20 | 9.08E-02 | 4.445E+01 | 4.431E+01 | 3.185E+02 | 4.929E-06 | 2.136E-05 | 7.28E-01 | 5.550E+00 | 5.412E+00 | 3.978E+01 | 3.161E-04 | -6.937E-04 | 7.047E-02 |
| 25 | 1.14E-01 | 4.376E+01 | 4.362E+01 | 3.135E+02 | 5.086E-06 | 2.196E-05 | 7.99E-01 | 6.241E+00 | 6.103E+00 | 4.473E+01 | 2.500E-04 | -3.420E-04 | 8.707E-02 |
| 30 | 1.38E-01 | 4.293E+01 | 4.279E+01 | 3.076E+02 | 5.286E-06 | 2.273E-05 | 8.34E-01 | 7.075E+00 | 6.937E+00 | 5.070E+01 | 1.945E-04 | -1.141E-04 | 1.030E-01 |
| 35 | 1.61E-01 | 4.196E+01 | 4.182E+01 | 3.006E+02 | 5.533E-06 | 2.367E-05 | 8.42E-01 | 8.045E+00 | 7.907E+00 | 5.765E+01 | 1.504E-04 | 1.796E-05 | 1.182E-01 |
| 40 | 1.86E-01 | 4.086E+01 | 4.072E+01 | 2.927E+02 | 5.835E-06 | 2.480E-05 | 8.30E-01 | 9.145E+00 | 9.006E+00 | 6.553E+01 | 1.165E-04 | 8.593E-05 | 1.324E-01 |
| 45 | 2.11E-01 | 3.964E+01 | 3.950E+01 | 2.840E+02 | 6.199E-06 | 2.616E-05 | 8.05E-01 | 1.036E+01 | 1.023E+01 | 7.427E+01 | 9.065E-05 | 1.152E-04 | 1.457E-01 |
| 50 | 2.36E-01 | 3.831E+01 | 3.817E+01 | 2.745E+02 | 6.638E-06 | 2.777E-05 | 7.73E-01 | 1.170E+01 | 1.156E+01 | 8.381E+01 | 7.119E-05 | 1.228E-04 | 1.578E-01 |
| 55 | 2.62E-01 | 3.687E+01 | 3.673E+01 | 2.642E+02 | 7.164E-06 | 2.967E-05 | 7.37E-01 | 1.313E+01 | 1.299E+01 | 9.407E+01 | 5.650E-05 | 1.193F-04 | 1.688E-01 |
| 60 | 2.89E-01 | 3.535E+01 | 3.521E+01 | 2.533E+02 | 7.794E-06 | 3.190E-05 | 6.98E-01 | 1.465E+01 | 1.451E+01 | 1.050E+02 | 4.537E-05 | 1.107E-04 | 1.784E-01 |
| 65 | 3.17E-01 | 3.375E+01 | 3.361E+01 | 2.418E+02 | 8.551E-06 | 3.453E-05 | 6.58E-01 | 1.625E+01 | 1.611E+01 | 1.165E+02 | 3.687E-05 | 1.002E-04 | 1.867E-01 |
| 70 | 3.46E-01 | 3.208E+01 | 3.194E+01 | 2.299E+02 | 9.464E-06 | 3.761E-05 | 6.19E-01 | 1.792E+01 | 1.778E+01 | 1.284E+02 | 3.032F-05 | 8.959E-05 | 1.936E-01 |
| 75 | 3.76E-01 | 3.036E+01 | 3.022E+01 | 2.175E+02 | 1.057E-05 | 4.122E-05 | 5.80E-01 | 1.964E+01 | 1.950E+01 | 1.407E+02 | 2.524E-05 | 7.968E-05 | 1.990E-01 |
| 80 | 4.07E-01 | 2.860E+01 | 2.846E+01 | 2.049E+02 | 1.191E-05 | 4.546E-05 | 5.43E-01 | 2.141E+01 | 2.127E+01 | 1.534E+02 | 2.125E-05 | 7.079E-05 | 2.029E-01 |
| 85 | 4.39E-01 | 2.680E+01 | 2.667E+01 | 1.921E+02 | 1.356E-05 | 5.043E-05 | 5.07E-01 | 2.320E+01 | 2.306E+01 | 1.662E+02 | 1.810E-05 | 6.298E-05 | 2.052E-01 |
| 90 | 4.72E-01 | 2.500E+01 | 2.486E+01 | 1.791E+02 | 1.558E-05 | 5.623E-05 | 4.72E-01 | 2.500E+01 | 2.486E+01 | 1.791E+02 | 1.558E-05 | 5.623E-05 | 2.060E-01 |
| 95 | 5.07E-01 | 2.320E+01 | 2.306E+01 | 1.662E+02 | 1.810E-05 | 6.298E-05 | 4.39E-01 | 2.680E+01 | 2.667E+01 | 1.921E+02 | 1.356E-05 | 5.043E-05 | 2.052E-01 |
| 100 | 5.43E-01 | 2.141E+01 | 2.127E+01 | 1.534E+02 | 2.125E-05 | 7.079E-05 | 4.07E-01 | 2.860E+01 | 2.846E+01 | 2.049E+02 | 1.191E-05 | 4.546E-05 | 2.029E-01 |
| 105 | 5.80E-01 | 1.964E+01 | 1.950E+01 | 1.407E+02 | 2.524E-05 | 7.968E-05 | 3.76E-01 | 3.036E+01 | 3.022E+01 | 2.175E+02 | 1.057E-05 | 4.122E-05 | 1.990E-01 |
| 110 | 6.19E-01 | 1.792E+01 | 1.778E+01 | 1.284E+02 | 3.032E-05 | 8.959E-05 | 3.46E-01 | 3.208E+01 | 3.194E+01 | 2.299E+02 | 9.464E-06 | 3.761E-05 | 1.936E-01 |
| 115 | 6.58E-01 | 1.625E+01 | 1.611E+01 | 1.165E+02 | 3.687E-05 | 1.002E-04 | 3.17E-01 | 3.375E+01 | 3.361E+01 | 2.418E+02 | 8.551E-06 | 3.453E-05 | 1.867E-01 |
| 120 | 6.98E-01 | 1.465E+01 | 1.451E+01 | 1.050E+02 | 4.537E-05 | 1.107E-04 | 2.89E-01 | 3.535E+01 | 3.521E+01 | 2.533E+02 | 7.794E-06 | 3.190E-05 | 1.784E-01 |
| 125 | 7.37E-01 | 1.313E+01 | 1.299E+01 | 9.407E+01 | 5.650E-05 | 1.193E-04 | 2.62E-01 | 3.687E+01 | 3.673E+01 | 2.642E+02 | 7.164E-06 | 2.967E-05 | 1.688E-01 |
| 130 | 7.73E-01 | 1.170E+01 | 1.156E+01 | 8.381E+01 | 7.119E-05 | 1.228E-04 | 2.36E-01 | 3.831E+01 | 3.817E+01 | 2.745E+02 | 6.638E-06 | 2.777F-05 | 1.578E-01 |
| 135 | 8.05E-01 | 1.036E+01 | 1.023E+01 | 7.427E+01 | 9.065E-05 | 1.152E-04 | 2.11E-01 | 3.964E+01 | 3.950E+01 | 2.840E+02 | 6.199E-06 | 2.616E-05 | 1.457E-01 |
| 140 | 8.30E-01 | 9.145E+00 | 9.006E+00 | 6.553E+01 | 1.165E-04 | 8.593E-05 | 1.86E-01 | 4.086E+01 | 4.072E+01 | 2.927E+02 | 5.835E-06 | 2.480F-05 | 1.324E-01 |
| 145 | 8.42E-01 | 8.045E+00 | 7.907E+00 | 5.765E+01 | 1.504E-04 | 1.796E-05 | 1.61E-01 | 4.196E+01 | 4.182E+01 | 3.006E+02 | 5.533E-06 | 2.367E-05 | 1.182E-01 |
| 150 | 8.34E-01 | 7.075E+00 | 6.937E+00 | 5.070E+01 | 1.945E-04 | -1.141E-04 | 1.38E-01 | 4.293E+01 | 4.279E+01 | 3.076E+02 | 5.286E-06 | 2.273E-05 | 1.030E-01 |
| 155 | 7.99E-01 | 6.241E+00 | 6.103E+00 | 4.473E+01 | 2.500E-04 | -3.420E-04 | 1.14E-01 | 4.376E+01 | 4.362E+01 | 3.135E+02 | 5.086F-06 | 2.196E-05 | 8.707E-02 |
| 160 | 7.28E-01 | 5.550E+00 | 5.412E+00 | 3.978E+01 | 3.161E-04 | -6.937E-04 | 9.08E-02 | 4.445E+01 | 4.431E+01 | 3.185E+02 | 4.929E-06 | 2.136E-05 | 7.047E-02 |
| 165 | 6.10E-01 | 5.007E+00 | 4.869E+00 | 3.589E+01 | 3.883E-04 | -1.167E-03 | 6.79E-02 | 4.499E+01 | 4.485E+01 | 3.224E+02 | 4.811E-06 | 2.090F-05 | 5.333E-02 |
| 170 | 4.44E-01 | 4.616E+00 | 4.478E+00 | 3.309E+01 | 4.569E-04 | -1.693E-03 | 4.52E-02 | 4.538E+01 | 4.525E+01 | 3.252E+02 | 4.729E-06 | 2.058E-05 | 3.578E-02 |
| 175 | 2.35E-01 | 4.380E+00 | 4.242E+00 | 3.140E+01 | 5.074E-04 | -2.125E-03 | 2.26E-02 | 4.562E+01 | 4.548E+01 | 3.269E+02 | 4.680E-06 | 2.039E-05 | 1.796E-02 |
| 180 | 0. | 4.301E+00 | 4.164E+00 | 3.083E+01 | 5.261E-04 | -2.295E-03 | 0. | 4.570E+01 | 4.556E+01 | 3.274E+02 | 4.664E-06 | 2.033E-05 | 0. |

K ZERO => PI PLUS + PI MINUS AT 60 GEV/C
(1) (2) (3) P1 LAB

M1 = 4.97710E-01 M2 = 1.39569E-01 M3 = 1.39569E-01
P2CM= 2.06032E-01
E2CM= 2.48855E-01 E3CM= 2.48855E-01

1-V1LAB= 3.440E-05 GCM = 1.20556E+02 S = 2.47715E-01

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 5.484E+01 | 5.470E+01 | 3.929E+02 | 3.239E-06 | 1.412E-05 | 0. | 5.161E+00 | 5.024E+00 | 3.700E+01 | 3.654E-04 | -1.593E-03 | 0. |
| 1 | 3.76E-03 | 5.483E+01 | 5.470E+01 | 3.929E+02 | 3.239E-06 | 1.412E-05 | 3.99E-02 | 5.165E+00 | 5.028E+00 | 3.702E+01 | 3.649E-04 | -1.588E-03 | 3.596E-03 |
| 2 | 7.51E-03 | 5.482E+01 | 5.468E+01 | 3.928E+02 | 3.241E-06 | 1.412E-05 | 7.96E-02 | 5.177E+00 | 5.039E+00 | 3.710E+01 | 3.633E-04 | -1.574E-03 | 7.190E-03 |
| 3 | 1.13E-02 | 5.480E+01 | 5.467E+01 | 3.927E+02 | 3.243E-06 | 1.413E-05 | 1.19E-01 | 5.196E+00 | 5.058E+00 | 3.724E+01 | 3.606E-04 | -1.550E-03 | 1.078E-02 |
| 4 | 1.50E-02 | 5.478E+01 | 5.464E+01 | 3.925E+02 | 3.246E-06 | 1.414E-05 | 1.58E-01 | 5.222E+00 | 5.084E+00 | 3.743E+01 | 3.570E-04 | -1.517E-03 | 1.437E-02 |
| 5 | 1.88E-02 | 5.474E+01 | 5.460E+01 | 3.922E+02 | 3.250E-06 | 1.416E-05 | 1.96E-01 | 5.256E+00 | 5.118E+00 | 3.767E+01 | 3.524E-04 | -1.476E-03 | 1.796E-02 |
| 6 | 2.26E-02 | 5.470E+01 | 5.456E+01 | 3.919E+02 | 3.255E-06 | 1.418E-05 | 2.33E-01 | 5.298E+00 | 5.160E+00 | 3.797E+01 | 3.469E-04 | -1.427E-03 | 2.154E-02 |
| 7 | 2.63E-02 | 5.465E+01 | 5.451E+01 | 3.916E+02 | 3.261E-06 | 1.420E-05 | 2.69E-01 | 5.347E+00 | 5.209E+00 | 3.832E+01 | 3.405E-04 | -1.371E-03 | 2.511E-02 |
| 8 | 3.01E-02 | 5.460E+01 | 5.446E+01 | 3.912E+02 | 3.267E-06 | 1.423E-05 | 3.04E-01 | 5.403E+00 | 5.266E+00 | 3.873E+01 | 3.334E-04 | -1.310E-03 | 2.867E-02 |
| 9 | 3.39E-02 | 5.453E+01 | 5.439E+01 | 3.907E+02 | 3.275E-06 | 1.426E-05 | 3.38E-01 | 5.467E+00 | 5.330E+00 | 3.919E+01 | 3.257E-04 | -1.245E-03 | 3.223E-02 |
| 10 | 3.76E-02 | 5.446E+01 | 5.432E+01 | 3.902E+02 | 3.284E-06 | 1.429E-05 | 3.70E-01 | 5.539E+00 | 5.401E+00 | 3.970E+01 | 3.173E-04 | -1.175E-03 | 3.578E-02 |
| 15 | 5.66E-02 | 5.399E+01 | 5.385E+01 | 3.869E+02 | 3.341E-06 | 1.451E-05 | 5.09E-01 | 6.008E+00 | 5.870E+00 | 4.306E+01 | 2.697E-04 | -8.102E-04 | 5.333E-02 |
| 20 | 7.57E-02 | 5.334E+01 | 5.320E+01 | 3.822E+02 | 3.423E-06 | 1.483E-05 | 6.06E-01 | 6.660E+00 | 6.522E+00 | 4.773E+01 | 2.195E-04 | -4.818E-04 | 7.047E-02 |
| 25 | 9.50E-02 | 5.251E+01 | 5.237E+01 | 3.762E+02 | 3.532E-06 | 1.525E-05 | 6.66E-01 | 7.489E+00 | 7.351E+00 | 5.367E+01 | 1.736E-04 | -2.376E-04 | 8.707E-02 |
| 30 | 1.15E-01 | 5.151E+01 | 5.137E+01 | 3.691E+02 | 3.671E-06 | 1.578E-05 | 6.95E-01 | 8.490E+00 | 8.351E+00 | 6.084E+01 | 1.351E-04 | -7.924E-05 | 1.030E-01 |
| 35 | 1.34E-01 | 5.035E+01 | 5.021E+01 | 3.607E+02 | 3.842E-06 | 1.644E-05 | 7.01E-01 | 9.654E+00 | 9.516E+00 | 6.918E+01 | 1.045E-04 | 1.245E-05 | 1.182E-01 |
| 40 | 1.55E-01 | 4.903E+01 | 4.889E+01 | 3.513E+02 | 4.052E-06 | 1.722E-05 | 6.92E-01 | 1.097E+01 | 1.083E+01 | 7.863E+01 | 8.087E-05 | 5.966E-05 | 1.324E-01 |
| 45 | 1.75E-01 | 4.756E+01 | 4.742E+01 | 3.408E+02 | 4.305E-06 | 1.817E-05 | 6.71E-01 | 1.244E+01 | 1.230E+01 | 8.912E+01 | 6.296E-05 | 7.999E-05 | 1.457E-01 |
| 50 | 1.97E-01 | 4.597E+01 | 4.583E+01 | 3.293E+02 | 4.610E-06 | 1.928E-05 | 6.44E-01 | 1.404E+01 | 1.390E+01 | 1.006E+02 | 4.944E-05 | 8.529E-05 | 1.578E-01 |
| 55 | 2.19E-01 | 4.425E+01 | 4.411E+01 | 3.170E+02 | 4.975E-06 | 2.060E-05 | 6.14E-01 | 1.575E+01 | 1.562E+01 | 1.129E+02 | 3.924E-05 | 8.285E-05 | 1.688E-01 |
| 60 | 2.41E-01 | 4.242E+01 | 4.228E+01 | 3.039E+02 | 5.413E-06 | 2.216E-05 | 5.81E-01 | 1.758E+01 | 1.744E+01 | 1.260E+02 | 3.151E-05 | 7.685E-05 | 1.784E-01 |
| 65 | 2.64E-01 | 4.050E+01 | 4.036E+01 | 2.902E+02 | 5.939E-06 | 2.398E-05 | 5.49E-01 | 1.950E+01 | 1.936E+01 | 1.397E+02 | 2.560E-05 | 6.957E-05 | 1.867E-01 |
| 70 | 2.88E-01 | 3.850E+01 | 3.836E+01 | 2.758E+02 | 6.572E-06 | 2.612E-05 | 5.16E-01 | 2.151E+01 | 2.137E+01 | 1.541E+02 | 2.106E-05 | 6.222E-05 | 1.936E-01 |
| 75 | 3.13E-01 | 3.643E+01 | 3.629E+01 | 2.610E+02 | 7.339E-06 | 2.863E-05 | 4.84E-01 | 2.357E+01 | 2.343E+01 | 1.689E+02 | 1.753E-05 | 5.534E-05 | 1.990E-01 |
| 80 | 3.39E-01 | 3.431E+01 | 3.417E+01 | 2.459E+02 | 8.272E-06 | 3.157E-05 | 4.53E-01 | 2.569E+01 | 2.555E+01 | 1.841E+02 | 1.476E-05 | 4.916E-05 | 2.029E-01 |
| 85 | 3.66E-01 | 3.217E+01 | 3.203E+01 | 2.305E+02 | 9.414E-06 | 3.502E-05 | 4.22E-01 | 2.784E+01 | 2.770E+01 | 1.994E+02 | 1.257E-05 | 4.374E-05 | 2.052E-01 |
| 90 | 3.93E-01 | 3.000E+01 | 2.986E+01 | 2.150E+02 | 1.082E-05 | 3.905E-05 | 3.93E-01 | 3.000E+01 | 2.986E+01 | 2.150E+02 | 1.082E-05 | 3.905E-05 | 2.060E-01 |
| 95 | 4.22E-01 | 2.784E+01 | 2.770E+01 | 1.994E+02 | 1.257E-05 | 4.374E-05 | 3.66E-01 | 3.217E+01 | 3.203E+01 | 2.305E+02 | 9.414E-06 | 3.502E-05 | 2.052E-01 |
| 100 | 4.53E-01 | 2.569E+01 | 2.555E+01 | 1.841E+02 | 1.476E-05 | 4.916E-05 | 3.39E-01 | 3.431E+01 | 3.417E+01 | 2.459E+02 | 8.272E-06 | 3.157E-05 | 2.029E-01 |
| 105 | 4.84E-01 | 2.357E+01 | 2.343E+01 | 1.689E+02 | 1.753E-05 | 5.534E-05 | 3.13E-01 | 3.643E+01 | 3.629E+01 | 2.610E+02 | 7.339E-06 | 2.863E-05 | 1.990E-01 |
| 110 | 5.16E-01 | 2.151E+01 | 2.137E+01 | 1.541E+02 | 2.106E-05 | 6.222E-05 | 2.88E-01 | 3.850E+01 | 3.836E+01 | 2.758E+02 | 6.572E-06 | 2.612E-05 | 1.936E-01 |
| 115 | 5.49E-01 | 1.950E+01 | 1.936E+01 | 1.397E+02 | 2.560E-05 | 6.957E-05 | 2.64E-01 | 4.050E+01 | 4.036E+01 | 2.902E+02 | 5.939E-06 | 2.398E-05 | 1.867E-01 |
| 120 | 5.81E-01 | 1.758E+01 | 1.744E+01 | 1.260E+02 | 3.151E-05 | 7.685E-05 | 2.41E-01 | 4.242E+01 | 4.228E+01 | 3.039E+02 | 5.413E-06 | 2.216E-05 | 1.784E-01 |
| 125 | 6.14E-01 | 1.575E+01 | 1.562E+01 | 1.129E+02 | 3.924E-05 | 8.285E-05 | 2.19E-01 | 4.425E+01 | 4.411E+01 | 3.170E+02 | 4.975E-06 | 2.060E-05 | 1.688E-01 |
| 130 | 6.44E-01 | 1.404E+01 | 1.390E+01 | 1.006E+02 | 4.944E-05 | 8.529E-05 | 1.97E-01 | 4.597E+01 | 4.583E+01 | 3.293E+02 | 4.610E-06 | 1.928E-05 | 1.578E-01 |
| 135 | 6.71E-01 | 1.244E+01 | 1.230E+01 | 8.912E+01 | 6.296E-05 | 7.999E-05 | 1.75E-01 | 4.756E+01 | 4.742E+01 | 3.408E+02 | 4.305E-06 | 1.817E-05 | 1.457E-01 |
| 140 | 6.92E-01 | 1.097E+01 | 1.083E+01 | 7.863E+01 | 8.087E-05 | 5.966E-05 | 1.55E-01 | 4.903E+01 | 4.889E+01 | 3.513E+02 | 4.052E-06 | 1.722E-05 | 1.324E-01 |
| 145 | 7.01E-01 | 9.654E+00 | 9.516E+00 | 6.918E+01 | 1.045E-04 | 1.245E-05 | 1.34E-01 | 5.035E+01 | 5.021E+01 | 3.607E+02 | 3.842E-06 | 1.644E-05 | 1.182E-01 |
| 150 | 6.95E-01 | 8.490E+00 | 8.351E+00 | 6.084E+01 | 1.351E-04 | -7.924E-05 | 1.15E-01 | 5.151E+01 | 5.137E+01 | 3.691E+02 | 3.671E-06 | 1.578E-05 | 1.030E-01 |
| 155 | 6.66E-01 | 7.489E+00 | 7.351E+00 | 5.367E+01 | 1.736E-04 | -2.376E-04 | 9.50E-02 | 5.251E+01 | 5.237E+01 | 3.762E+02 | 3.532E-06 | 1.525E-05 | 8.707E-02 |
| 160 | 6.06E-01 | 6.660E+00 | 6.522E+00 | 4.773E+01 | 2.195E-04 | -4.818E-04 | 7.57E-02 | 5.334E+01 | 5.320E+01 | 3.822E+02 | 3.423E-06 | 1.483E-05 | 7.047E-02 |
| 165 | 5.09E-01 | 6.008E+00 | 5.870E+00 | 4.306E+01 | 2.697E-04 | -8.102E-04 | 5.66E-02 | 5.399E+01 | 5.385E+01 | 3.869E+02 | 3.341E-06 | 1.451E-05 | 5.333E-02 |
| 170 | 3.70E-01 | 5.539E+00 | 5.401E+00 | 3.970E+01 | 3.173E-04 | -1.175E-03 | 3.76E-02 | 5.446E+01 | 5.432E+01 | 3.902E+02 | 3.284E-06 | 1.429E-05 | 3.578E-02 |
| 175 | 1.96E-01 | 5.256E+00 | 5.118E+00 | 3.767E+01 | 3.524E-04 | -1.476E-03 | 1.88E-02 | 5.474E+01 | 5.460E+01 | 3.922E+02 | 3.250E-06 | 1.416E-05 | 1.796E-02 |
| 180 | 0. | 5.161E+00 | 5.024E+00 | 3.700E+01 | 3.654E-04 | -1.593E-03 | 0. | 5.484E+01 | 5.470E+01 | 3.929E+02 | 3.239E-06 | 1.412E-05 | 0. |

K ZERO (1) => PI PLUS (2) + PI MINUS (3) AT 70 GEV/C P1 LAB

M1 = 4.97710E-01 M2 = 1.39569E-01 M3 = 1.39569E-01
P2CM= 2.06032E-01
E2CM= 2.48855E-01 E3CM= 2.48855E-01

1-V1LAB= 2.528E-05 GCM = 1.40648E+02 S = 2.47715E-01

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 6.398E+01 | 6.384E+01 | 4.584E+02 | 2.379E-06 | 1.037E-05 | 0. | 6.022E+00 | 5.884E+00 | 4.316E+01 | 2.685E-04 | -1.171E-03 | 0. |
| 1 | 3.22E-03 | 6.397E+01 | 6.383E+01 | 4.584E+02 | 2.380E-06 | 1.037E-05 | 3.42E-02 | 6.026E+00 | 5.888E+00 | 4.319E+01 | 2.681E-04 | -1.167E-03 | 3.596E-03 |
| 2 | 6.44E-03 | 6.396E+01 | 6.382E+01 | 4.583E+02 | 2.381E-06 | 1.038E-05 | 6.82E-02 | 6.040E+00 | 5.902E+00 | 4.329E+01 | 2.669E-04 | -1.156E-03 | 7.190E-03 |
| 3 | 9.66E-03 | 6.394E+01 | 6.380E+01 | 4.581E+02 | 2.382E-06 | 1.038E-05 | 1.02E-01 | 6.062E+00 | 5.924E+00 | 4.344E+01 | 2.650E-04 | -1.139E-03 | 1.078E-02 |
| 4 | 1.29E-02 | 6.391E+01 | 6.377E+01 | 4.579E+02 | 2.385E-06 | 1.039E-05 | 1.35E-01 | 6.093E+00 | 5.955E+00 | 4.366E+01 | 2.623E-04 | -1.114E-03 | 1.437E-02 |
| 5 | 1.61E-02 | 6.387E+01 | 6.373E+01 | 4.576E+02 | 2.388E-06 | 1.040E-05 | 1.68E-01 | 6.132E+00 | 5.994E+00 | 4.395E+01 | 2.589E-04 | -1.084E-03 | 1.796E-02 |
| 6 | 1.93E-02 | 6.382E+01 | 6.368E+01 | 4.573E+02 | 2.391E-06 | 1.042E-05 | 2.00E-01 | 6.181E+00 | 6.043E+00 | 4.430E+01 | 2.549E-04 | -1.048E-03 | 2.154E-02 |
| 7 | 2.26E-02 | 6.376E+01 | 6.362E+01 | 4.569E+02 | 2.396E-06 | 1.043E-05 | 2.31E-01 | 6.238E+00 | 6.100E+00 | 4.471E+01 | 2.502E-04 | -1.007E-03 | 2.511E-02 |
| 8 | 2.58E-02 | 6.370E+01 | 6.356E+01 | 4.564E+02 | 2.401E-06 | 1.045E-05 | 2.61E-01 | 6.304E+00 | 6.166E+00 | 4.518E+01 | 2.450E-04 | -9.626E-04 | 2.867E-02 |
| 9 | 2.90E-02 | 6.362E+01 | 6.348E+01 | 4.558E+02 | 2.406E-06 | 1.048E-05 | 2.90E-01 | 6.379E+00 | 6.241E+00 | 4.571E+01 | 2.393E-04 | -9.144E-04 | 3.223E-02 |
| 10 | 3.23E-02 | 6.354E+01 | 6.340E+01 | 4.552E+02 | 2.413E-06 | 1.050E-05 | 3.17E-01 | 6.462E+00 | 6.324E+00 | 4.631E+01 | 2.331E-04 | -8.636E-04 | 3.578E-02 |
| 15 | 4.85E-02 | 6.299E+01 | 6.285E+01 | 4.513E+02 | 2.455E-06 | 1.066E-05 | 4.36E-01 | 7.010E+00 | 6.871E+00 | 5.023E+01 | 1.982E-04 | -5.952E-04 | 5.333E-02 |
| 20 | 6.49E-02 | 6.223E+01 | 6.209E+01 | 4.459E+02 | 2.515E-06 | 1.090E-05 | 5.20E-01 | 7.770E+00 | 7.632E+00 | 5.568E+01 | 1.613E-04 | -3.539E-04 | 7.047E-02 |
| 25 | 8.14E-02 | 6.126E+01 | 6.112E+01 | 4.389E+02 | 2.595E-06 | 1.121E-05 | 5.71E-01 | 8.737E+00 | 8.599E+00 | 6.261E+01 | 1.276E-04 | -1.745E-04 | 8.707E-02 |
| 30 | 9.82E-02 | 6.010E+01 | 5.996E+01 | 4.306E+02 | 2.697E-06 | 1.160E-05 | 5.96E-01 | 9.905E+00 | 9.766E+00 | 7.097E+01 | 9.926E-05 | -5.823E-05 | 1.030E-01 |
| 35 | 1.15E-01 | 5.874E+01 | 5.860E+01 | 4.209E+02 | 2.823E-06 | 1.208E-05 | 6.01E-01 | 1.126E+01 | 1.112E+01 | 8.071E+01 | 7.677E-05 | 9.140E-06 | 1.182E-01 |
| 40 | 1.33E-01 | 5.720E+01 | 5.706E+01 | 4.098E+02 | 2.977E-06 | 1.266E-05 | 5.93E-01 | 1.280E+01 | 1.266E+01 | 9.173E+01 | 5.942E-05 | 4.383E-05 | 1.324E-01 |
| 45 | 1.50E-01 | 5.549E+01 | 5.535E+01 | 3.976E+02 | 3.163E-06 | 1.335E-05 | 5.75E-01 | 1.451E+01 | 1.437E+01 | 1.040E+02 | 4.626E-05 | 5.876E-05 | 1.457E-01 |
| 50 | 1.69E-01 | 5.363E+01 | 5.349E+01 | 3.842E+02 | 3.367E-06 | 1.417E-05 | 5.52E-01 | 1.637E+01 | 1.624E+01 | 1.173E+02 | 3.633E-05 | 6.266E-05 | 1.578E-01 |
| 55 | 1.87E-01 | 5.162E+01 | 5.148E+01 | 3.699E+02 | 3.655E-06 | 1.514E-05 | 5.26E-01 | 1.838E+01 | 1.824E+01 | 1.317E+02 | 2.883E-05 | 6.087E-05 | 1.688E-01 |
| 60 | 2.07E-01 | 4.949E+01 | 4.935E+01 | 3.546E+02 | 3.977E-06 | 1.628E-05 | 4.98E-01 | 2.051E+01 | 2.037E+01 | 1.470E+02 | 2.315E-05 | 5.646E-05 | 1.784E-01 |
| 65 | 2.26E-01 | 4.725E+01 | 4.711E+01 | 3.385E+02 | 4.363E-06 | 1.762E-05 | 4.70E-01 | 2.275E+01 | 2.261E+01 | 1.630E+02 | 1.881E-05 | 5.112E-05 | 1.867E-01 |
| 70 | 2.47E-01 | 4.491E+01 | 4.477E+01 | 3.218E+02 | 4.829E-06 | 1.919E-05 | 4.42E-01 | 2.509E+01 | 2.495E+01 | 1.798E+02 | 1.547E-05 | 4.571E-05 | 1.936E-01 |
| 75 | 2.68E-01 | 4.250E+01 | 4.236E+01 | 3.045E+02 | 5.392E-06 | 2.103E-05 | 4.15E-01 | 2.750E+01 | 2.736E+01 | 1.970E+02 | 1.288E-05 | 4.066E-05 | 1.990E-01 |
| 80 | 2.90E-01 | 4.003E+01 | 3.989E+01 | 2.868E+02 | 6.077E-06 | 2.319E-05 | 3.88E-01 | 2.997E+01 | 2.983E+01 | 2.147E+02 | 1.084E-05 | 3.612E-05 | 2.029E-01 |
| 85 | 3.13E-01 | 3.753E+01 | 3.739E+01 | 2.689E+02 | 6.916E-06 | 2.573E-05 | 3.62E-01 | 3.248E+01 | 3.234E+01 | 2.327E+02 | 9.235E-06 | 3.214E-05 | 2.052E-01 |
| 90 | 3.37E-01 | 3.500E+01 | 3.486E+01 | 2.508E+02 | 7.950E-06 | 2.869E-05 | 3.37E-01 | 3.500E+01 | 3.486E+01 | 2.508E+02 | 7.950E-06 | 2.869E-05 | 2.060E-01 |
| 95 | 3.62E-01 | 3.248E+01 | 3.234E+01 | 2.327E+02 | 9.235E-06 | 3.214E-05 | 3.13E-01 | 3.753E+01 | 3.739E+01 | 2.689E+02 | 6.916E-06 | 2.573E-05 | 2.052E-01 |
| 100 | 3.88E-01 | 2.997E+01 | 2.983E+01 | 2.147E+02 | 1.084E-05 | 3.612E-05 | 2.90E-01 | 4.003E+01 | 3.989E+01 | 2.868E+02 | 6.077E-06 | 2.319E-05 | 2.029E-01 |
| 105 | 4.15E-01 | 2.750E+01 | 2.736E+01 | 1.970E+02 | 1.288E-05 | 4.066E-05 | 2.68E-01 | 4.250E+01 | 4.236E+01 | 3.045E+02 | 5.392E-06 | 2.103E-05 | 1.990E-01 |
| 110 | 4.42E-01 | 2.509E+01 | 2.495E+01 | 1.798E+02 | 1.547E-05 | 4.571E-05 | 2.47E-01 | 4.491E+01 | 4.477E+01 | 3.218E+02 | 4.829E-06 | 1.919E-05 | 1.936E-01 |
| 115 | 4.70E-01 | 2.275E+01 | 2.261E+01 | 1.630E+02 | 1.881E-05 | 5.112E-05 | 2.26E-01 | 4.725E+01 | 4.711E+01 | 3.385E+02 | 4.363E-06 | 1.762E-05 | 1.867E-01 |
| 120 | 4.98E-01 | 2.051E+01 | 2.037E+01 | 1.470E+02 | 2.315E-05 | 5.646E-05 | 2.07E-01 | 4.949E+01 | 4.935E+01 | 3.546E+02 | 3.977E-06 | 1.628E-05 | 1.784E-01 |
| 125 | 5.26E-01 | 1.838E+01 | 1.824E+01 | 1.317E+02 | 2.883E-05 | 6.087E-05 | 1.87E-01 | 5.162E+01 | 5.148E+01 | 3.699E+02 | 3.655E-06 | 1.514E-05 | 1.688E-01 |
| 130 | 5.52E-01 | 1.637E+01 | 1.624E+01 | 1.173E+02 | 3.633E-05 | 6.266E-05 | 1.69E-01 | 5.363E+01 | 5.349E+01 | 3.842E+02 | 3.387E-06 | 1.417E-05 | 1.578E-01 |
| 135 | 5.75E-01 | 1.451E+01 | 1.437E+01 | 1.040E+02 | 4.626E-05 | 5.876E-05 | 1.50E-01 | 5.549E+01 | 5.535E+01 | 3.976E+02 | 3.163E-06 | 1.335E-05 | 1.457E-01 |
| 140 | 5.93E-01 | 1.280E+01 | 1.266E+01 | 9.173E+01 | 5.942E-05 | 4.383E-05 | 1.33E-01 | 5.720E+01 | 5.706E+01 | 4.098E+02 | 2.977E-06 | 1.266E-05 | 1.324E-01 |
| 145 | 6.01E-01 | 1.126E+01 | 1.112E+01 | 8.071E+01 | 7.677E-05 | 9.140E-06 | 1.15E-01 | 5.874E+01 | 5.860E+01 | 4.209E+02 | 2.823E-06 | 1.208E-05 | 1.182E-01 |
| 150 | 5.96E-01 | 9.905E+00 | 9.766E+00 | 7.097E+01 | 9.926E-05 | -5.823E-05 | 9.82E-02 | 6.010E+01 | 5.996E+01 | 4.306E+02 | 2.697E-06 | 1.160E-05 | 1.030E-01 |
| 155 | 5.71E-01 | 8.737E+00 | 8.599E+00 | 6.261E+01 | 1.276E-04 | -1.745E-04 | 8.14E-02 | 6.126E+01 | 6.112E+01 | 4.389E+02 | 2.595E-06 | 1.121E-05 | 8.707E-02 |
| 160 | 5.20E-01 | 7.770E+00 | 7.632E+00 | 5.568E+01 | 1.613E-04 | -3.539E-04 | 6.49E-02 | 6.223E+01 | 6.209E+01 | 4.459E+02 | 2.515E-06 | 1.090E-05 | 7.047E-02 |
| 165 | 4.36E-01 | 7.010E+00 | 6.871E+00 | 5.023E+01 | 1.982E-04 | -5.952E-04 | 4.85E-02 | 6.299E+01 | 6.285E+01 | 4.513E+02 | 2.455E-06 | 1.066E-05 | 5.333E-02 |
| 170 | 3.17E-01 | 6.462E+00 | 6.324E+00 | 4.631E+01 | 2.331E-04 | -8.636E-04 | 3.23E-02 | 6.354E+01 | 6.340E+01 | 4.552E+02 | 2.413E-06 | 1.050E-05 | 3.578E-02 |
| 175 | 1.68E-01 | 6.132E+00 | 5.994E+00 | 4.395E+01 | 2.589E-04 | -1.084E-03 | 1.61E-02 | 6.387E+01 | 6.373E+01 | 4.576E+02 | 2.388E-06 | 1.040E-05 | 1.796E-02 |
| 180 | 0. | 6.022E+00 | 5.884E+00 | 4.316E+01 | 2.685E-04 | -1.171E-03 | 0. | 6.398E+01 | 6.384E+01 | 4.584E+02 | 2.379E-06 | 1.037E-05 | 0. |

K ZERO (1) => PI PLUS (2) + PI MINUS (3) AT 80 GEV/C P1 LAB

M1 = 4.97710E-01 M2 = 1.39569E-01 M3 = 1.39569E-01
P2CM= 2.06032E-01
E2CM= 2.48855E-01 E3CM= 2.48855E-01

1-V1LAB= 1.935E-05 GCM = 1.60739E+02 S = 2.47715E-01

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 7.312E+01 | 7.298E+01 | 5.239E+02 | 1.822E-06 | 7.940E-06 | 0. | 6.882E+00 | 6.744E+00 | 4.932E+01 | 2.056E-04 | -8.961E-04 | 0. |
| 1 | 2.82E-03 | 7.311E+01 | 7.297E+01 | 5.238E+02 | 1.822E-06 | 7.941E-06 | 2.99E-02 | 6.888E+00 | 6.749E+00 | 4.936E+01 | 2.053E-04 | -8.934E-04 | 3.596E-03 |
| 2 | 5.64E-03 | 7.310E+01 | 7.296E+01 | 5.237E+02 | 1.823E-06 | 7.944E-06 | 5.97E-02 | 6.903E+00 | 6.765E+00 | 4.947E+01 | 2.044E-04 | -8.852E-04 | 7.190E-03 |
| 3 | 8.45E-03 | 7.307E+01 | 7.293E+01 | 5.236E+02 | 1.824E-06 | 7.949E-06 | 8.92E-02 | 6.928E+00 | 6.790E+00 | 4.965E+01 | 2.029E-04 | -8.716E-04 | 1.078E-02 |
| 4 | 1.13E-02 | 7.304E+01 | 7.290E+01 | 5.233E+02 | 1.826E-06 | 7.956E-06 | 1.18E-01 | 6.963E+00 | 6.825E+00 | 4.990E+01 | 2.008E-04 | -8.531E-04 | 1.437E-02 |
| 5 | 1.41E-02 | 7.299E+01 | 7.285E+01 | 5.230E+02 | 1.828E-06 | 7.965E-06 | 1.47E-01 | 7.009E+00 | 6.870E+00 | 5.023E+01 | 1.982E-04 | -8.299E-04 | 1.796E-02 |
| 6 | 1.69E-02 | 7.294E+01 | 7.280E+01 | 5.226E+02 | 1.831E-06 | 7.976E-06 | 1.75E-01 | 7.064E+00 | 6.926E+00 | 5.062E+01 | 1.951F-04 | -8.025E-04 | 2.154E-02 |
| 7 | 1.97E-02 | 7.287E+01 | 7.273E+01 | 5.221E+02 | 1.834E-06 | 7.988E-06 | 2.02E-01 | 7.129E+00 | 6.991E+00 | 5.109E+01 | 1.916E-04 | -7.713E-04 | 2.511F-02 |
| 8 | 2.26E-02 | 7.280E+01 | 7.266E+01 | 5.216E+02 | 1.838E-06 | 8.003E-06 | 2.28E-01 | 7.205E+00 | 7.067E+00 | 5.163E+01 | 1.876E-04 | -7.370E-04 | 2.867E-02 |
| 9 | 2.54E-02 | 7.271E+01 | 7.257E+01 | 5.210E+02 | 1.842E-06 | 8.020E-06 | 2.53E-01 | 7.290E+00 | 7.152E+00 | 5.224E+01 | 1.832E-04 | -7.001E-04 | 3.223E-02 |
| 10 | 2.82E-02 | 7.261E+01 | 7.247E+01 | 5.203E+02 | 1.847E-06 | 8.039E-06 | 2.78E-01 | 7.386E+00 | 7.247E+00 | 5.293E+01 | 1.785E-04 | -6.611E-04 | 3.578E-02 |
| 15 | 4.24E-02 | 7.199E+01 | 7.185E+01 | 5.158E+02 | 1.879E-06 | 8.164E-06 | 3.81E-01 | 8.011E+00 | 7.873E+00 | 5.741E+01 | 1.517E-04 | -4.557E-04 | 5.333E-02 |
| 20 | 5.68E-02 | 7.112E+01 | 7.098E+01 | 5.096E+02 | 1.926E-06 | 8.343E-06 | 4.55E-01 | 8.880E+00 | 8.742E+00 | 6.363E+01 | 1.235E-04 | -2.710E-04 | 7.047E-02 |
| 25 | 7.13E-02 | 7.001E+01 | 6.988E+01 | 5.017E+02 | 1.987E-06 | 8.580E-06 | 5.00E-01 | 9.986E+00 | 9.847E+00 | 7.155E+01 | 9.766E-05 | -1.336E-04 | 8.707E-02 |
| 30 | 8.59E-02 | 6.868E+01 | 6.854E+01 | 4.921E+02 | 2.065E-06 | 8.878E-06 | 5.21E-01 | 1.132E+01 | 1.118E+01 | 8.111E+01 | 7.600E-05 | -4.459E-05 | 1.030E-01 |
| 35 | 1.01E-01 | 6.713E+01 | 6.699E+01 | 4.810E+02 | 2.161E-06 | 9.245E-06 | 5.26E-01 | 1.287E+01 | 1.273E+01 | 9.223E+01 | 5.878E-05 | 6.994F-06 | 1.182E-01 |
| 40 | 1.16E-01 | 6.537E+01 | 6.523E+01 | 4.684E+02 | 2.279E-06 | 9.689E-06 | 5.19E-01 | 1.463E+01 | 1.449E+01 | 1.048E+02 | 4.549E-05 | 3.355E-05 | 1.324E-01 |
| 45 | 1.32E-01 | 6.342E+01 | 6.328E+01 | 4.544E+02 | 2.422E-06 | 1.022E-05 | 5.03E-01 | 1.658E+01 | 1.644E+01 | 1.188E+02 | 3.542E-05 | 4.499E-05 | 1.457E-01 |
| 50 | 1.48E-01 | 6.129E+01 | 6.115E+01 | 4.391E+02 | 2.593E-06 | 1.085E-05 | 4.83E-01 | 1.871E+01 | 1.857E+01 | 1.341E+02 | 2.781E-05 | 4.797E-05 | 1.578E-01 |
| 55 | 1.64E-01 | 5.900E+01 | 5.886E+01 | 4.227E+02 | 2.798E-06 | 1.159E-05 | 4.60E-01 | 2.101E+01 | 2.087E+01 | 1.505E+02 | 2.207E-05 | 4.660E-05 | 1.688E-01 |
| 60 | 1.81E-01 | 5.656E+01 | 5.642E+01 | 4.052E+02 | 3.045E-06 | 1.246E-05 | 4.36E-01 | 2.344E+01 | 2.330E+01 | 1.680E+02 | 1.772E-05 | 4.323E-05 | 1.784E-01 |
| 65 | 1.98E-01 | 5.400E+01 | 5.386E+01 | 3.869E+02 | 3.341E-06 | 1.349E-05 | 4.11E-01 | 2.600E+01 | 2.587E+01 | 1.863E+02 | 1.440E-05 | 3.914E-05 | 1.867E-01 |
| 70 | 2.16E-01 | 5.133E+01 | 5.119E+01 | 3.678E+02 | 3.697E-06 | 1.469E-05 | 3.87E-01 | 2.867E+01 | 2.853E+01 | 2.054E+02 | 1.185E-05 | 3.500E-05 | 1.936E-01 |
| 75 | 2.35E-01 | 4.857E+01 | 4.843E+01 | 3.480E+02 | 4.128E-06 | 1.610E-05 | 3.63E-01 | 3.143E+01 | 3.129E+01 | 2.252E+02 | 9.860E-06 | 3.113E-05 | 1.990E-01 |
| 80 | 2.54E-01 | 4.575E+01 | 4.561E+01 | 3.278E+02 | 4.653E-06 | 1.776E-05 | 3.39E-01 | 3.425E+01 | 3.411E+01 | 2.454E+02 | 8.303E-06 | 2.765E-05 | 2.029E-01 |
| 85 | 2.74E-01 | 4.289E+01 | 4.275E+01 | 3.073E+02 | 5.295E-06 | 1.970E-05 | 3.17E-01 | 3.711E+01 | 3.697E+01 | 2.659E+02 | 7.071E-06 | 2.460E-05 | 2.052E-01 |
| 90 | 2.95E-01 | 4.000E+01 | 3.986E+01 | 2.866E+02 | 6.087E-06 | 2.197E-05 | 2.95E-01 | 4.000E+01 | 3.986E+01 | 2.866E+02 | 6.087E-06 | 2.197E-05 | 2.060E-01 |
| 95 | 3.17E-01 | 3.711E+01 | 3.697E+01 | 2.659E+02 | 7.071E-06 | 2.460E-05 | 2.74E-01 | 4.289E+01 | 4.275E+01 | 3.073E+02 | 5.295E-06 | 1.970E-05 | 2.052E-01 |
| 100 | 3.39E-01 | 3.425E+01 | 3.411E+01 | 2.454E+02 | 8.303E-06 | 2.765E-05 | 2.54E-01 | 4.575E+01 | 4.561E+01 | 3.278E+02 | 4.653E-06 | 1.776E-05 | 2.029E-01 |
| 105 | 3.63E-01 | 3.143E+01 | 3.129E+01 | 2.252E+02 | 9.860E-06 | 3.113E-05 | 2.35E-01 | 4.857E+01 | 4.843E+01 | 3.480E+02 | 4.128E-06 | 1.610E-05 | 1.990E-01 |
| 110 | 3.87E-01 | 2.867E+01 | 2.853E+01 | 2.054E+02 | 1.185E-05 | 3.500E-05 | 2.16E-01 | 5.133E+01 | 5.119E+01 | 3.678E+02 | 3.697E-06 | 1.469E-05 | 1.936E-01 |
| 115 | 4.11E-01 | 2.600E+01 | 2.587E+01 | 1.863E+02 | 1.440E-05 | 3.914E-05 | 1.98E-01 | 5.400E+01 | 5.386E+01 | 3.869E+02 | 3.341E-06 | 1.349E-05 | 1.867E-01 |
| 120 | 4.36E-01 | 2.344E+01 | 2.330E+01 | 1.680E+02 | 1.772E-05 | 4.323E-05 | 1.81E-01 | 5.656E+01 | 5.642E+01 | 4.052E+02 | 3.045E-06 | 1.246E-05 | 1.784E-01 |
| 125 | 4.60E-01 | 2.101E+01 | 2.087E+01 | 1.505E+02 | 2.207E-05 | 4.660E-05 | 1.64E-01 | 5.900E+01 | 5.886E+01 | 4.227E+02 | 2.798E-06 | 1.159E-05 | 1.688E-01 |
| 130 | 4.83E-01 | 1.871E+01 | 1.857E+01 | 1.341E+02 | 2.781E-05 | 4.797E-05 | 1.48E-01 | 6.129E+01 | 6.115E+01 | 4.391E+02 | 2.593E-06 | 1.085E-05 | 1.578E-01 |
| 135 | 5.03E-01 | 1.658E+01 | 1.644E+01 | 1.188E+02 | 3.542E-05 | 4.499E-05 | 1.32E-01 | 6.342E+01 | 6.328E+01 | 4.544E+02 | 2.422E-06 | 1.022E-05 | 1.457E-01 |
| 140 | 5.19E-01 | 1.463E+01 | 1.449E+01 | 1.048E+02 | 4.549E-05 | 3.355E-05 | 1.16E-01 | 6.537E+01 | 6.523E+01 | 4.684E+02 | 2.279E-06 | 9.689E-06 | 1.324E-01 |
| 145 | 5.26E-01 | 1.287E+01 | 1.273E+01 | 9.223E+01 | 5.878E-05 | 6.994E-06 | 1.01E-01 | 6.713E+01 | 6.699E+01 | 4.810E+02 | 2.161E-06 | 9.245E-06 | 1.182E-01 |
| 150 | 5.21E-01 | 1.132E+01 | 1.118E+01 | 8.111E+01 | 7.600E-05 | -4.459E-05 | 8.59E-02 | 6.868E+01 | 6.854E+01 | 4.921E+02 | 2.065E-06 | 8.878E-06 | 1.030E-01 |
| 155 | 5.00E-01 | 9.986E+00 | 9.847E+00 | 7.155E+01 | 9.766E-05 | -1.336E-04 | 7.13E-02 | 7.001E+01 | 6.988E+01 | 5.017E+02 | 1.987E-06 | 8.580E-06 | 8.707E-02 |
| 160 | 4.55E-01 | 8.880E+00 | 8.742E+00 | 6.363E+01 | 1.235E-04 | -2.710E-04 | 5.68E-02 | 7.112E+01 | 7.098E+01 | 5.096E+02 | 1.926E-06 | 8.343E-06 | 7.047E-02 |
| 165 | 3.81E-01 | 8.011E+00 | 7.873E+00 | 5.741E+01 | 1.517E-04 | -4.557E-04 | 4.24E-02 | 7.199E+01 | 7.185E+01 | 5.158E+02 | 1.879E-06 | 8.164E-06 | 5.333E-02 |
| 170 | 2.78E-01 | 7.386E+00 | 7.247E+00 | 5.293E+01 | 1.785E-04 | -6.611E-04 | 2.82E-02 | 7.261E+01 | 7.247E+01 | 5.203E+02 | 1.847E-06 | 8.039E-06 | 3.578E-02 |
| 175 | 1.47E-01 | 7.009E+00 | 6.870E+00 | 5.023E+01 | 1.982E-04 | -8.299E-04 | 1.41E-02 | 7.299E+01 | 7.285E+01 | 5.230E+02 | 1.828E-06 | 7.965E-06 | 1.796E-02 |
| 180 | 0. | 6.882E+00 | 6.744E+00 | 4.932E+01 | 2.056E-04 | -8.961E-04 | 0. | 7.312E+01 | 7.298E+01 | 5.239E+02 | 1.822E-06 | 7.940F-06 | 0. |

K ZERO (1) => PI PLUS (2) + PI MINUS (3) AT 90 GEV/C P1 LAB

M1 = 4.97710E-01 M2 = 1.39569E-01 M3 = 1.39569E-01
P2CM= 2.06032E-01
E2CM= 2.48855E-01 E3CM= 2.48855E-01

1-V1LAB= 1.529E-05 GCM = 1.80831E+02 S = 2.47715E-01

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 8.226E+01 | 8.212E+01 | 5.894E+02 | 1.439E-06 | 6.274E-06 | 0. | 7.743E+00 | 7.605E+00 | 5.549E+01 | 1.624E-04 | -7.080E-04 | 0. |
| 1 | 2.50E-03 | 8.225E+01 | 8.211E+01 | 5.893E+02 | 1.440E-06 | 6.274E-06 | 2.66E-02 | 7.749E+00 | 7.610E+00 | 5.553E+01 | 1.622E-04 | -7.059E-04 | 3.596E-03 |
| 2 | 5.01E-03 | 8.223E+01 | 8.209E+01 | 5.892E+02 | 1.440E-06 | 6.277E-06 | 5.31E-02 | 7.766E+00 | 7.627E+00 | 5.565E+01 | 1.615E-04 | -6.994E-04 | 7.190E-03 |
| 3 | 7.52E-03 | 8.221E+01 | 8.207E+01 | 5.890E+02 | 1.441E-06 | 6.281E-06 | 7.93E-02 | 7.794E+00 | 7.656E+00 | 5.585E+01 | 1.603E-04 | -6.887E-04 | 1.078E-02 |
| 4 | 1.00E-02 | 8.217E+01 | 8.203E+01 | 5.887E+02 | 1.443E-06 | 6.286E-06 | 1.05E-01 | 7.834E+00 | 7.695E+00 | 5.614E+01 | 1.587E-04 | -6.740E-04 | 1.437E-02 |
| 5 | 1.25E-02 | 8.212E+01 | 8.198E+01 | 5.884E+02 | 1.444E-06 | 6.293E-06 | 1.30E-01 | 7.885E+00 | 7.746E+00 | 5.650E+01 | 1.566E-04 | -6.557E-04 | 1.796E-02 |
| 6 | 1.50E-02 | 8.205E+01 | 8.191E+01 | 5.879E+02 | 1.447E-06 | 6.302E-06 | 1.55E-01 | 7.947E+00 | 7.809E+00 | 5.695E+01 | 1.542E-04 | -6.340E-04 | 2.154E-02 |
| 7 | 1.75E-02 | 8.198E+01 | 8.184E+01 | 5.874E+02 | 1.449E-06 | 6.312E-06 | 1.79E-01 | 8.021E+00 | 7.882E+00 | 5.748E+01 | 1.514E-04 | -6.094E-04 | 2.511E-02 |
| 8 | 2.01E-02 | 8.189E+01 | 8.176E+01 | 5.868E+02 | 1.452E-06 | 6.324E-06 | 2.03E-01 | 8.106E+00 | 7.967E+00 | 5.808E+01 | 1.482E-04 | -5.823E-04 | 2.867E-02 |
| 9 | 2.26E-02 | 8.180E+01 | 8.166E+01 | 5.861E+02 | 1.456E-06 | 6.337E-06 | 2.25E-01 | 8.202E+00 | 8.063E+00 | 5.877E+01 | 1.448E-04 | -5.531E-04 | 3.223E-02 |
| 10 | 2.51E-02 | 8.169E+01 | 8.155E+01 | 5.853E+02 | 1.459E-06 | 6.352E-06 | 2.47E-01 | 8.309E+00 | 8.171E+00 | 5.954E+01 | 1.410E-04 | -5.224E-04 | 3.578E-02 |
| 15 | 3.77E-02 | 8.099E+01 | 8.085E+01 | 5.803E+02 | 1.485E-06 | 6.451E-06 | 3.39E-01 | 9.013E+00 | 8.874E+00 | 6.458E+01 | 1.199E-04 | -3.601E-04 | 5.333E-02 |
| 20 | 5.05E-02 | 8.001E+01 | 7.987E+01 | 5.733E+02 | 1.521E-06 | 6.592E-06 | 4.04E-01 | 9.990E+00 | 9.851E+00 | 7.159E+01 | 9.758E-05 | -2.141E-04 | 7.047E-02 |
| 25 | 6.33E-02 | 7.877E+01 | 7.863E+01 | 5.644E+02 | 1.570E-06 | 6.779E-06 | 4.44E-01 | 1.123E+01 | 1.110E+01 | 8.050E+01 | 7.717E-05 | -1.056E-04 | 8.707E-02 |
| 30 | 7.64E-02 | 7.727E+01 | 7.713E+01 | 5.536E+02 | 1.631E-06 | 7.015E-06 | 4.63E-01 | 1.273E+01 | 1.260E+01 | 9.125E+01 | 6.005E-05 | -3.523E-05 | 1.030E-01 |
| 35 | 8.97E-02 | 7.552E+01 | 7.538E+01 | 5.411E+02 | 1.708E-06 | 7.305E-06 | 4.68E-01 | 1.448E+01 | 1.434E+01 | 1.038E+02 | 4.644E-05 | 5.524E-06 | 1.182E-01 |
| 40 | 1.03E-01 | 7.354E+01 | 7.340E+01 | 5.269E+02 | 1.801E-06 | 7.656E-06 | 4.61E-01 | 1.646E+01 | 1.632E+01 | 1.179E+02 | 3.595E-05 | 2.651E-05 | 1.324E-01 |
| 45 | 1.17E-01 | 7.134E+01 | 7.121E+01 | 5.112E+02 | 1.913E-06 | 8.075E-06 | 4.47E-01 | 1.866E+01 | 1.852E+01 | 1.337E+02 | 2.798E-05 | 3.555E-05 | 1.457E-01 |
| 50 | 1.31E-01 | 6.895E+01 | 6.881E+01 | 4.940E+02 | 2.049E-06 | 8.571E-06 | 4.30E-01 | 2.105E+01 | 2.091E+01 | 1.508E+02 | 2.198E-05 | 3.791E-05 | 1.578E-01 |
| 55 | 1.46E-01 | 6.637E+01 | 6.623E+01 | 4.755E+02 | 2.211E-06 | 9.157E-06 | 4.09E-01 | 2.363E+01 | 2.349E+01 | 1.693E+02 | 1.744E-05 | 3.682E-05 | 1.688E-01 |
| 60 | 1.61E-01 | 6.363E+01 | 6.349E+01 | 4.559E+02 | 2.406E-06 | 9.847E-06 | 3.88E-01 | 2.637E+01 | 2.623E+01 | 1.890E+02 | 1.400E-05 | 3.415E-05 | 1.784E-01 |
| 65 | 1.76E-01 | 6.075E+01 | 6.061E+01 | 4.352E+02 | 2.639E-06 | 1.066E-05 | 3.66E-01 | 2.926E+01 | 2.912E+01 | 2.096E+02 | 1.138E-05 | 3.092E-05 | 1.867E-01 |
| 70 | 1.92E-01 | 5.774E+01 | 5.760E+01 | 4.137E+02 | 2.921E-06 | 1.161E-05 | 3.44E-01 | 3.226E+01 | 3.212E+01 | 2.311E+02 | 9.360E-06 | 2.765E-05 | 1.936E-01 |
| 75 | 2.09E-01 | 5.464E+01 | 5.450E+01 | 3.915E+02 | 3.262E-06 | 1.272E-05 | 3.22E-01 | 3.536E+01 | 3.522E+01 | 2.533E+02 | 7.791E-06 | 2.459E-05 | 1.990E-01 |
| 80 | 2.26E-01 | 5.147E+01 | 5.133E+01 | 3.688E+02 | 3.677E-06 | 1.403E-05 | 3.02E-01 | 3.853E+01 | 3.839E+01 | 2.761E+02 | 6.560E-06 | 2.185E-05 | 2.029E-01 |
| 85 | 2.44E-01 | 4.825E+01 | 4.811E+01 | 3.457E+02 | 4.184E-06 | 1.556E-05 | 2.82E-01 | 4.175E+01 | 4.161E+01 | 2.992E+02 | 5.587E-06 | 1.944E-05 | 2.052E-01 |
| 90 | 2.62E-01 | 4.500E+01 | 4.486E+01 | 3.224E+02 | 4.810E-06 | 1.736E-05 | 2.62E-01 | 4.500E+01 | 4.486E+01 | 3.224E+02 | 4.810E-06 | 1.736E-05 | 2.060E-01 |
| 95 | 2.82E-01 | 4.175E+01 | 4.161E+01 | 2.992E+02 | 5.587E-06 | 1.944E-05 | 2.44E-01 | 4.825E+01 | 4.811E+01 | 3.457E+02 | 4.184E-06 | 1.556E-05 | 2.052E-01 |
| 100 | 3.02E-01 | 3.853E+01 | 3.839E+01 | 2.761E+02 | 6.560E-06 | 2.185E-05 | 2.26E-01 | 5.147E+01 | 5.133E+01 | 3.688E+02 | 3.677E-06 | 1.403E-05 | 2.029E-01 |
| 105 | 3.22E-01 | 3.536E+01 | 3.522E+01 | 2.533E+02 | 7.791E-06 | 2.459E-05 | 2.09E-01 | 5.464E+01 | 5.450E+01 | 3.915E+02 | 3.262E-06 | 1.272E-05 | 1.990E-01 |
| 110 | 3.44E-01 | 3.226E+01 | 3.212E+01 | 2.311E+02 | 9.360E-06 | 2.765E-05 | 1.92E-01 | 5.774E+01 | 5.760E+01 | 4.137E+02 | 2.921E-06 | 1.161E-05 | 1.976E-01 |
| 115 | 3.66E-01 | 2.926E+01 | 2.912E+01 | 2.096E+02 | 1.138E-05 | 3.092E-05 | 1.76E-01 | 6.075E+01 | 6.061E+01 | 4.352E+02 | 2.639E-06 | 1.066E-05 | 1.867E-01 |
| 120 | 3.88E-01 | 2.637E+01 | 2.623E+01 | 1.890E+02 | 1.400E-05 | 3.415E-05 | 1.61E-01 | 6.363E+01 | 6.349E+01 | 4.559E+02 | 2.406E-06 | 9.847E-06 | 1.784E-01 |
| 125 | 4.09E-01 | 2.363E+01 | 2.349E+01 | 1.693E+02 | 1.744E-05 | 3.682E-05 | 1.46E-01 | 6.637E+01 | 6.623E+01 | 4.755E+02 | 2.211E-06 | 9.157E-06 | 1.688E-01 |
| 130 | 4.30E-01 | 2.105E+01 | 2.091E+01 | 1.508E+02 | 2.198E-05 | 3.791E-05 | 1.31E-01 | 6.895E+01 | 6.881E+01 | 4.940E+02 | 2.049E-06 | 8.571E-06 | 1.578E-01 |
| 135 | 4.47E-01 | 1.866E+01 | 1.852E+01 | 1.337E+02 | 2.798E-05 | 3.555E-05 | 1.17E-01 | 7.134E+01 | 7.121E+01 | 5.112E+02 | 1.913E-06 | 8.075E-06 | 1.457E-01 |
| 140 | 4.61E-01 | 1.646E+01 | 1.632E+01 | 1.179E+02 | 3.595E-05 | 2.651E-05 | 1.03E-01 | 7.354E+01 | 7.340E+01 | 5.269E+02 | 1.801E-06 | 7.656E-06 | 1.324E-01 |
| 145 | 4.68E-01 | 1.448E+01 | 1.434E+01 | 1.038E+02 | 4.644E-05 | 5.524E-06 | 8.97E-02 | 7.552E+01 | 7.538E+01 | 5.411E+02 | 1.708E-06 | 7.305E-06 | 1.182E-01 |
| 150 | 4.63E-01 | 1.273E+01 | 1.260E+01 | 9.125E+01 | 6.005E-05 | -3.523E-05 | 7.64E-02 | 7.727E+01 | 7.713E+01 | 5.536E+02 | 1.631E-06 | 7.015E-06 | 1.030E-01 |
| 155 | 4.44E-01 | 1.123E+01 | 1.110E+01 | 8.050E+01 | 7.717E-05 | -1.056E-04 | 6.33E-02 | 7.877E+01 | 7.863E+01 | 5.644E+02 | 1.570E-06 | 6.779E-06 | 8.707E-02 |
| 160 | 4.04E-01 | 9.990E+00 | 9.851E+00 | 7.159E+01 | 9.758E-05 | -2.141E-04 | 5.05E-02 | 8.001E+01 | 7.987E+01 | 5.733E+02 | 1.521E-06 | 6.592E-06 | 7.047E-02 |
| 165 | 3.39E-01 | 9.013E+00 | 8.874E+00 | 6.458E+01 | 1.199E-04 | -3.601E-04 | 3.77E-02 | 8.099E+01 | 8.085E+01 | 5.803E+02 | 1.485E-06 | 6.451E-06 | 5.333E-02 |
| 170 | 2.47E-01 | 8.309E+00 | 8.171E+00 | 5.954E+01 | 1.410E-04 | -5.224E-04 | 2.51E-02 | 8.169E+01 | 8.155E+01 | 5.853E+02 | 1.459E-06 | 6.352E-06 | 3.578E-02 |
| 175 | 1.30E-01 | 7.885E+00 | 7.746E+00 | 5.650E+01 | 1.566E-04 | -6.557E-04 | 1.25E-02 | 8.212E+01 | 8.198E+01 | 5.884E+02 | 1.444E-06 | 6.293E-06 | 1.796E-02 |
| 180 | 0. | 7.743E+00 | 7.605E+00 | 5.549E+01 | 1.624E-04 | -7.080E-04 | 0. | 8.226E+01 | 8.212E+01 | 5.894E+02 | 1.439E-06 | 6.274E-06 | 0. |

K ZERO (1) => PI PLUS (2) + PI MINUS (3) AT 100 GEV/C P1 LAB

M1 = 4.97710E-01 M2 = 1.39569E-01 M3 = 1.39569E-01
P2CM= 2.06032E-01
E2CM= 2.48855E-01 E3CM= 2.48855E-01

1-V1LAB= 1.239E-05 GCM = 2.00923E+02 S = 2.47715E-01

| Θ2 CM | Θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | Θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 9.140E+01 | 9.126E+01 | 6.549E+02 | 1.166E-06 | 5.082E-06 | 0. | 8.603E+00 | 8.465E+00 | 6.165E+01 | 1.316E-04 | -5.735E-04 | 0. |
| 1 | 2.25E-03 | 9.139E+01 | 9.125E+01 | 6.548E+02 | 1.166E-06 | 5.082E-06 | 2.39E-02 | 8.610E+00 | 8.471E+00 | 6.170E+01 | 1.314E-04 | -5.717E-04 | 3.596E-03 |
| 2 | 4.51E-03 | 9.137E+01 | 9.123E+01 | 6.547E+02 | 1.167E-06 | 5.084E-06 | 4.77E-02 | 8.629E+00 | 8.490E+00 | 6.183E+01 | 1.308E-04 | -5.665E-04 | 7.190E-03 |
| 3 | 6.76E-03 | 9.134E+01 | 9.120E+01 | 6.544E+02 | 1.167E-06 | 5.087E-06 | 7.13E-02 | 8.660E+00 | 8.522E+00 | 6.206E+01 | 1.298E-04 | -5.578E-04 | 1.078E-02 |
| 4 | 9.02E-03 | 9.130E+01 | 9.116E+01 | 6.541E+02 | 1.169E-06 | 5.092E-06 | 9.46E-02 | 8.704E+00 | 8.566E+00 | 6.237E+01 | 1.285E-04 | -5.460E-04 | 1.437E-02 |
| 5 | 1.13E-02 | 9.124E+01 | 9.110E+01 | 6.537E+02 | 1.170E-06 | 5.097E-06 | 1.17E-01 | 8.761E+00 | 8.622E+00 | 6.278E+01 | 1.269E-04 | -5.311E-04 | 1.796E-02 |
| 6 | 1.35E-02 | 9.117E+01 | 9.103E+01 | 6.532E+02 | 1.172E-06 | 5.104E-06 | 1.40E-01 | 8.830E+00 | 8.692E+00 | 6.328E+01 | 1.249E-04 | -5.135E-04 | 2.154E-02 |
| 7 | 1.58E-02 | 9.109E+01 | 9.095E+01 | 6.526E+02 | 1.174E-06 | 5.113E-06 | 1.61E-01 | 8.912E+00 | 8.774E+00 | 6.386E+01 | 1.226E-04 | -4.936E-04 | 2.511E-02 |
| 8 | 1.81E-02 | 9.099E+01 | 9.085E+01 | 6.520E+02 | 1.176E-06 | 5.122E-06 | 1.82E-01 | 9.006E+00 | 8.868E+00 | 6.454E+01 | 1.201E-04 | -4.716E-04 | 2.867E-02 |
| 9 | 2.03E-02 | 9.089E+01 | 9.075E+01 | 6.512E+02 | 1.179E-06 | 5.133E-06 | 2.03E-01 | 9.113E+00 | 8.975E+00 | 6.530E+01 | 1.173E-04 | -4.480E-04 | 3.223E-02 |
| 10 | 2.26E-02 | 9.077E+01 | 9.063E+01 | 6.503E+02 | 1.182E-06 | 5.145E-06 | 2.22E-01 | 9.232E+00 | 9.094E+00 | 6.616E+01 | 1.142E-04 | -4.231E-04 | 3.578E-02 |
| 15 | 3.40E-02 | 8.999E+01 | 8.985E+01 | 6.447E+02 | 1.203E-06 | 5.225E-06 | 3.05E-01 | 1.001E+01 | 9.876E+00 | 7.176E+01 | 9.711E-05 | -2.917E-04 | 5.333E-02 |
| 20 | 4.54E-02 | 8.890E+01 | 8.876E+01 | 6.370E+02 | 1.232E-06 | 5.340E-06 | 3.64E-01 | 1.110E+01 | 1.096E+01 | 7.954E+01 | 7.904E-05 | -1.734E-04 | 7.047E-02 |
| 25 | 5.70E-02 | 8.752E+01 | 8.738E+01 | 6.271E+02 | 1.272E-06 | 5.491E-06 | 4.00E-01 | 1.248E+01 | 1.234E+01 | 8.944E+01 | 6.251E-05 | -8.554E-05 | 8.707E-02 |
| 30 | 6.88E-02 | 8.585E+01 | 8.571E+01 | 6.151E+02 | 1.321E-06 | 5.682E-06 | 4.17E-01 | 1.415E+01 | 1.401E+01 | 1.014E+02 | 4.864E-05 | -2.854E-05 | 1.030E-01 |
| 35 | 8.07E-02 | 8.391E+01 | 8.377E+01 | 6.012E+02 | 1.383E-06 | 5.917E-06 | 4.21E-01 | 1.609E+01 | 1.595E+01 | 1.153E+02 | 3.762E-05 | 4.473E-06 | 1.182E-01 |
| 40 | 9.29E-02 | 8.171E+01 | 8.157E+01 | 5.855E+02 | 1.459E-06 | 6.201E-06 | 4.15E-01 | 1.829E+01 | 1.815E+01 | 1.310E+02 | 2.912E-05 | 2.147E-05 | 1.324E-01 |
| 45 | 1.05E-01 | 7.927E+01 | 7.913E+01 | 5.680E+02 | 1.550E-06 | 6.540E-06 | 4.03E-01 | 2.073E+01 | 2.059E+01 | 1.485E+02 | 2.267E-05 | 2.879E-05 | 1.457E-01 |
| 50 | 1.18E-01 | 7.661E+01 | 7.647E+01 | 5.489E+02 | 1.660E-06 | 6.943E-06 | 3.87E-01 | 2.339E+01 | 2.325E+01 | 1.676E+02 | 1.780E-05 | 3.070E-05 | 1.578E-01 |
| 55 | 1.31E-01 | 7.374E+01 | 7.360E+01 | 5.284E+02 | 1.791E-06 | 7.417E-06 | 3.68E-01 | 2.626E+01 | 2.612E+01 | 1.881E+02 | 1.413E-05 | 2.982E-05 | 1.688E-01 |
| 60 | 1.45E-01 | 7.070E+01 | 7.056E+01 | 5.066E+02 | 1.949E-06 | 7.976E-06 | 3.49E-01 | 2.930E+01 | 2.916E+01 | 2.100E+02 | 1.134E-05 | 2.766E-05 | 1.784E-01 |
| 65 | 1.59E-01 | 6.750E+01 | 6.736E+01 | 4.836E+02 | 2.138E-06 | 8.632E-06 | 3.29E-01 | 3.251E+01 | 3.237E+01 | 2.329E+02 | 9.218E-06 | 2.505E-05 | 1.867E-01 |
| 70 | 1.73E-01 | 6.416E+01 | 6.402E+01 | 4.597E+02 | 2.366E-06 | 9.402E-06 | 3.09E-01 | 3.584E+01 | 3.570E+01 | 2.568E+02 | 7.582E-06 | 2.240E-05 | 1.936E-01 |
| 75 | 1.88E-01 | 6.071E+01 | 6.058E+01 | 4.350E+02 | 2.642E-06 | 1.031E-05 | 2.90E-01 | 3.929E+01 | 3.915E+01 | 2.815E+02 | 6.310E-06 | 1.992E-05 | 1.990E-01 |
| 80 | 2.03E-01 | 5.719E+01 | 5.705E+01 | 4.098E+02 | 2.978E-06 | 1.137E-05 | 2.72E-01 | 4.281E+01 | 4.267E+01 | 3.067E+02 | 5.314E-06 | 1.770E-05 | 2.029E-01 |
| 85 | 2.19E-01 | 5.361E+01 | 5.347E+01 | 3.841E+02 | 3.389E-06 | 1.261E-05 | 2.53E-01 | 4.639E+01 | 4.625E+01 | 3.324E+02 | 4.525E-06 | 1.575E-05 | 2.052E-01 |
| 90 | 2.36E-01 | 5.000E+01 | 4.986E+01 | 3.583E+02 | 3.896E-06 | 1.406E-05 | 2.36E-01 | 5.003E+01 | 4.986E+01 | 3.583E+02 | 3.896E-06 | 1.406E-05 | 2.060E-01 |
| 95 | 2.53E-01 | 4.639E+01 | 4.625E+01 | 3.324E+02 | 4.525E-06 | 1.575E-05 | 2.19E-01 | 5.361E+01 | 5.347E+01 | 3.841E+02 | 3.389E-06 | 1.261E-05 | 2.052E-01 |
| 100 | 2.72E-01 | 4.281E+01 | 4.267E+01 | 3.067E+02 | 5.314E-06 | 1.770E-05 | 2.03E-01 | 5.719E+01 | 5.705E+01 | 4.098E+02 | 2.978E-06 | 1.137E-05 | 2.029E-01 |
| 105 | 2.90E-01 | 3.929E+01 | 3.915E+01 | 2.815E+02 | 6.310E-06 | 1.992E-05 | 1.88E-01 | 6.071E+01 | 6.058E+01 | 4.350E+02 | 2.642E-06 | 1.031E-05 | 1.990E-01 |
| 110 | 3.09E-01 | 3.584E+01 | 3.570E+01 | 2.568E+02 | 7.582E-06 | 2.240E-05 | 1.73E-01 | 6.416E+01 | 6.402E+01 | 4.597E+02 | 2.366E-06 | 9.402E-06 | 1.936E-01 |
| 115 | 3.29E-01 | 3.251E+01 | 3.237E+01 | 2.329E+02 | 9.218E-06 | 2.505E-05 | 1.59E-01 | 6.750E+01 | 6.736E+01 | 4.836E+02 | 2.138E-06 | 8.632E-06 | 1.867E-01 |
| 120 | 3.49E-01 | 2.930E+01 | 2.916E+01 | 2.100E+02 | 1.134E-05 | 2.766E-05 | 1.45E-01 | 7.070E+01 | 7.056E+01 | 5.066E+02 | 1.949E-06 | 7.976E-06 | 1.784E-01 |
| 125 | 3.68E-01 | 2.626E+01 | 2.612E+01 | 1.881E+02 | 1.413E-05 | 2.982E-05 | 1.31E-01 | 7.374E+01 | 7.360E+01 | 5.284E+02 | 1.791E-06 | 7.417E-06 | 1.688E-01 |
| 130 | 3.87E-01 | 2.339E+01 | 2.325E+01 | 1.676E+02 | 1.780E-05 | 3.070E-05 | 1.18E-01 | 7.661E+01 | 7.647E+01 | 5.489E+02 | 1.660E-06 | 6.943E-06 | 1.578E-01 |
| 135 | 4.03E-01 | 2.073E+01 | 2.059E+01 | 1.485E+02 | 2.267E-05 | 2.879E-05 | 1.05E-01 | 7.927E+01 | 7.913E+01 | 5.680E+02 | 1.550E-06 | 6.540E-06 | 1.457E-01 |
| 140 | 4.15E-01 | 1.829E+01 | 1.815E+01 | 1.310E+02 | 2.912E-05 | 2.147E-05 | 9.29E-02 | 8.171E+01 | 8.157E+01 | 5.855E+02 | 1.459E-06 | 6.201E-06 | 1.324E-01 |
| 145 | 4.21E-01 | 1.609E+01 | 1.595E+01 | 1.153E+02 | 3.762E-05 | 4.473E-06 | 8.07E-02 | 8.391E+01 | 8.377E+01 | 6.012E+02 | 1.383E-06 | 5.917E-06 | 1.182E-01 |
| 150 | 4.17E-01 | 1.415E+01 | 1.401E+01 | 1.014E+02 | 4.864E-05 | -2.854E-05 | 6.88E-02 | 8.585E+01 | 8.571E+01 | 6.151E+02 | 1.321E-06 | 5.682E-06 | 1.030E-01 |
| 155 | 4.00E-01 | 1.248E+01 | 1.234E+01 | 8.944E+01 | 6.251E-05 | -8.554E-05 | 5.70E-02 | 8.752E+01 | 8.738E+01 | 6.271E+02 | 1.272E-06 | 5.491E-06 | 8.707E-02 |
| 160 | 3.64E-01 | 1.110E+01 | 1.096E+01 | 7.954E+01 | 7.904E-05 | -1.734E-04 | 4.54E-02 | 8.890E+01 | 8.876E+01 | 6.370E+02 | 1.232E-06 | 5.340E-06 | 7.047E-02 |
| 165 | 3.05E-01 | 1.001E+01 | 9.876E+00 | 7.176E+01 | 9.711E-05 | -2.917E-04 | 3.40E-02 | 8.999E+01 | 8.985E+01 | 6.447E+02 | 1.203E-06 | 5.225E-06 | 5.333E-02 |
| 170 | 2.22E-01 | 9.232E+00 | 9.094E+00 | 6.616E+01 | 1.142E-04 | -4.231E-04 | 2.26E-02 | 9.077E+01 | 9.063E+01 | 6.503E+02 | 1.182E-06 | 5.145E-06 | 3.578E-02 |
| 175 | 1.17E-01 | 8.761E+00 | 8.622E+00 | 6.278E+01 | 1.269E-04 | -5.311E-04 | 1.13E-02 | 9.124E+01 | 9.110E+01 | 6.537E+02 | 1.170E-06 | 5.097E-06 | 1.796E-02 |
| 180 | 0. | 8.603E+00 | 8.465E+00 | 6.165E+01 | 1.316E-04 | -5.735E-04 | 0. | 9.140E+01 | 9.126E+01 | 6.549E+02 | 1.166E-06 | 5.082E-06 | 0. |

K ZERO (1) => PI PLUS (2) + PI MINUS (3) AT 125 GEV/C θ1 LAB

M1 = 4.97710E-01 M2 = 1.39569E-01 M3 = 1.39569E-01
P2CM= 2.06032E-01
E2CM= 2.48855E-01 E3CM= 2.48855E-01

1-V1LAB= 7.927E-06 GCM = 2.51152E+02 S = 2.47715E-01

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.142E+02 | 1.141E+02 | 8.186E+02 | 7.462E-07 | 3.252E-06 | 0. | 1.075E+01 | 1.062E+01 | 7.706E+01 | 8.420E-05 | -3.670E-04 | 0. |
| 1 | 1.80E-03 | 1.142E+02 | 1.141E+02 | 8.185E+02 | 7.463E-07 | 3.253E-06 | 1.91E-02 | 1.076E+01 | 1.062E+01 | 7.712E+01 | 8.408E-05 | -3.659E-04 | 3.596E-03 |
| 2 | 3.61E-03 | 1.142E+02 | 1.141E+02 | 8.183E+02 | 7.466E-07 | 3.254E-06 | 3.82E-02 | 1.079E+01 | 1.065E+01 | 7.729E+01 | 8.371E-05 | -3.625E-04 | 7.190E-03 |
| 3 | 5.41E-03 | 1.142E+02 | 1.140E+02 | 8.181E+02 | 7.471E-07 | 3.256E-06 | 5.71E-02 | 1.083E+01 | 1.069E+01 | 7.757E+01 | 8.310E-05 | -3.570E-04 | 1.078E-02 |
| 4 | 7.22E-03 | 1.141E+02 | 1.140E+02 | 8.177E+02 | 7.479E-07 | 3.259E-06 | 7.57E-02 | 1.088E+01 | 1.074E+01 | 7.796E+01 | 8.226E-05 | -3.494E-04 | 1.437E-02 |
| 5 | 9.02E-03 | 1.140E+02 | 1.139E+02 | 8.172E+02 | 7.488E-07 | 3.262E-06 | 9.39E-02 | 1.095E+01 | 1.081E+01 | 7.847E+01 | 8.120E-05 | -3.399E-04 | 1.796E-02 |
| 6 | 1.08E-02 | 1.140E+02 | 1.138E+02 | 8.165E+02 | 7.499E-07 | 3.267E-06 | 1.12E-01 | 1.104E+01 | 1.090E+01 | 7.909E+01 | 7.993E-05 | -3.287E-04 | 2.154E-02 |
| 7 | 1.26E-02 | 1.139E+02 | 1.137E+02 | 8.158E+02 | 7.513E-07 | 3.272E-06 | 1.29E-01 | 1.114E+01 | 1.100E+01 | 7.983E+01 | 7.847E-05 | -3.159E-04 | 2.511E-02 |
| 8 | 1.44E-02 | 1.137E+02 | 1.136E+02 | 8.150E+02 | 7.528E-07 | 3.278E-06 | 1.46E-01 | 1.126E+01 | 1.112E+01 | 8.067E+01 | 7.684E-05 | -3.018E-04 | 2.867E-02 |
| 9 | 1.63E-02 | 1.136E+02 | 1.135E+02 | 8.140E+02 | 7.546E-07 | 3.285E-06 | 1.62E-01 | 1.139E+01 | 1.125E+01 | 8.163E+01 | 7.505E-05 | -2.867E-04 | 3.223E-02 |
| 10 | 1.81E-02 | 1.135E+02 | 1.133E+02 | 8.129E+02 | 7.566E-07 | 3.293E-06 | 1.78E-01 | 1.154E+01 | 1.140E+01 | 8.269E+01 | 7.312E-05 | -2.708E-04 | 3.578E-02 |
| 15 | 2.72E-02 | 1.125E+02 | 1.123E+02 | 8.059E+02 | 7.698E-07 | 3.344E-06 | 2.44E-01 | 1.252E+01 | 1.238E+01 | 8.969E+01 | 6.215E-05 | -1.867E-04 | 5.333E-02 |
| 20 | 3.63E-02 | 1.111E+02 | 1.110E+02 | 7.962E+02 | 7.887E-07 | 3.417E-06 | 2.91E-01 | 1.388E+01 | 1.374E+01 | 9.942E+01 | 5.059E-05 | -1.110E-04 | 7.047E-02 |
| 25 | 4.56E-02 | 1.094E+02 | 1.093E+02 | 7.838E+02 | 8.138E-07 | 3.514E-06 | 3.20E-01 | 1.560E+01 | 1.546E+01 | 1.118E+02 | 4.000E-05 | -5.474E-05 | 8.707E-02 |
| 30 | 5.50E-02 | 1.073E+02 | 1.072E+02 | 7.689E+02 | 8.457E-07 | 3.637E-06 | 3.34E-01 | 1.769E+01 | 1.755E+01 | 1.267E+02 | 3.113E-05 | -1.827E-05 | 1.030E-01 |
| 35 | 6.46E-02 | 1.049E+02 | 1.047E+02 | 7.515E+02 | 8.853E-07 | 3.787E-06 | 3.37E-01 | 2.011E+01 | 1.997E+01 | 1.441E+02 | 2.408E-05 | 2.862E-06 | 1.182E-01 |
| 40 | 7.43E-02 | 1.021E+02 | 1.020E+02 | 7.318E+02 | 9.336E-07 | 3.969E-06 | 3.32E-01 | 2.286E+01 | 2.272E+01 | 1.638E+02 | 1.864F-05 | 1.374E-05 | 1.324E-01 |
| 45 | 8.42E-02 | 9.909E+01 | 9.895E+01 | 7.100E+02 | 9.919E-07 | 4.186E-06 | 3.22E-01 | 2.591E+01 | 2.577E+01 | 1.857E+02 | 1.451E-05 | 1.843E-05 | 1.457E-01 |
| 50 | 9.44E-02 | 9.576E+01 | 9.562E+01 | 6.861E+02 | 1.062E-06 | 4.443E-06 | 3.09E-01 | 2.924E+01 | 2.910E+01 | 2.095E+02 | 1.139E-05 | 1.965E-05 | 1.578E-01 |
| 55 | 1.05E-01 | 9.218E+01 | 9.204E+01 | 6.605E+02 | 1.146E-06 | 4.747E-06 | 2.95E-01 | 3.282E+01 | 3.268E+01 | 2.352E+02 | 9.042E-06 | 1.909E-05 | 1.688E-01 |
| 60 | 1.16E-01 | 8.837E+01 | 8.823E+01 | 6.332E+02 | 1.247E-06 | 5.105E-06 | 2.79E-01 | 3.663E+01 | 3.649E+01 | 2.624E+02 | 7.260E-06 | 1.771E-05 | 1.784E-01 |
| 65 | 1.27E-01 | 8.437E+01 | 8.423E+01 | 6.045E+02 | 1.368E-06 | 5.525E-06 | 2.63E-01 | 4.063E+01 | 4.049E+01 | 2.911E+02 | 5.899E-06 | 1.603E-05 | 1.867E-01 |
| 70 | 1.38E-01 | 8.020E+01 | 8.006E+01 | 5.746E+02 | 1.514E-06 | 6.018E-06 | 2.48E-01 | 4.480E+01 | 4.466E+01 | 3.210E+02 | 4.852E-06 | 1.434E-05 | 1.936E-01 |
| 75 | 1.50E-01 | 7.589E+01 | 7.575E+01 | 5.438E+02 | 1.691E-06 | 6.596E-06 | 2.32E-01 | 4.911E+01 | 4.897E+01 | 3.519E+02 | 4.039E-06 | 1.275E-05 | 1.990E-01 |
| 80 | 1.63E-01 | 7.149E+01 | 7.135E+01 | 5.122E+02 | 1.906E-06 | 7.274E-06 | 2.17E-01 | 5.351E+01 | 5.338E+01 | 3.834E+02 | 3.401F-06 | 1.133F-05 | 2.029E-01 |
| 85 | 1.75E-01 | 6.701E+01 | 6.687E+01 | 4.801E+02 | 2.169E-06 | 8.068E-06 | 2.03E-01 | 5.799E+01 | 5.785E+01 | 4.155E+02 | 2.896E-06 | 1.008E-05 | 2.052E-01 |
| 90 | 1.89E-01 | 6.250E+01 | 6.236E+01 | 4.478E+02 | 2.493E-06 | 8.997E-06 | 1.89E-01 | 6.250E+01 | 6.236E+01 | 4.478E+02 | 2.493E-06 | 8.997E-06 | 2.060E-01 |
| 95 | 2.03E-01 | 5.799E+01 | 5.785E+01 | 4.155E+02 | 2.896E-06 | 1.008E-05 | 1.75E-01 | 6.701E+01 | 6.687E+01 | 4.801E+02 | 2.169E-06 | 8.068E-06 | 2.052E-01 |
| 100 | 2.17E-01 | 5.351E+01 | 5.338E+01 | 3.834E+02 | 3.401E-06 | 1.133E-05 | 1.63E-01 | 7.149E+01 | 7.135E+01 | 5.122E+02 | 1.906E-06 | 7.274E-06 | 2.029E-01 |
| 105 | 2.32E-01 | 4.911E+01 | 4.897E+01 | 3.519E+02 | 4.039E-06 | 1.275E-05 | 1.50E-01 | 7.589E+01 | 7.575E+01 | 5.438E+02 | 1.691E-06 | 6.596E-06 | 1.990E-01 |
| 110 | 2.48E-01 | 4.480E+01 | 4.466E+01 | 3.210E+02 | 4.852E-06 | 1.434E-05 | 1.38E-01 | 8.020E+01 | 8.006E+01 | 5.746E+02 | 1.514E-06 | 6.018E-06 | 1.936E-01 |
| 115 | 2.63E-01 | 4.063E+01 | 4.049E+01 | 2.911E+02 | 5.899E-06 | 1.603E-05 | 1.27E-01 | 8.437E+01 | 8.423E+01 | 6.045E+02 | 1.368E-06 | 5.525E-06 | 1.867E-01 |
| 120 | 2.79E-01 | 3.663E+01 | 3.649E+01 | 2.624E+02 | 7.260E-06 | 1.771E-05 | 1.16E-01 | 8.837E+01 | 8.823E+01 | 6.332E+02 | 1.247E-06 | 5.105E-06 | 1.784E-01 |
| 125 | 2.95E-01 | 3.282E+01 | 3.268E+01 | 2.352E+02 | 9.042E-06 | 1.909E-05 | 1.05E-01 | 9.218E+01 | 9.204E+01 | 6.605E+02 | 1.146E-06 | 4.747E-06 | 1.688E-01 |
| 130 | 3.09E-01 | 2.924E+01 | 2.910E+01 | 2.095E+02 | 1.139E-05 | 1.965E-05 | 9.44E-02 | 9.576E+01 | 9.562E+01 | 6.861E+02 | 1.062E-06 | 4.443F-06 | 1.578E-01 |
| 135 | 3.22E-01 | 2.591E+01 | 2.577E+01 | 1.857E+02 | 1.451E-05 | 1.843E-05 | 8.42E-02 | 9.909E+01 | 9.895E+01 | 7.100E+02 | 9.919E-07 | 4.186E-06 | 1.457E-01 |
| 140 | 3.32E-01 | 2.286E+01 | 2.272E+01 | 1.638E+02 | 1.864E-05 | 1.374E-05 | 7.43E-02 | 1.021E+02 | 1.020E+02 | 7.318E+02 | 9.336E-07 | 3.969E-06 | 1.324E-01 |
| 145 | 3.37E-01 | 2.011E+01 | 1.997E+01 | 1.441E+02 | 2.408E-05 | 2.862E-06 | 6.46E-02 | 1.049E+02 | 1.047E+02 | 7.515E+02 | 8.853E-07 | 3.787E-06 | 1.182E-01 |
| 150 | 3.34E-01 | 1.769E+01 | 1.755E+01 | 1.267E+02 | 3.113E-05 | -1.827E-05 | 5.50E-02 | 1.073E+02 | 1.072E+02 | 7.689E+02 | 8.457E-07 | 3.637E-06 | 1.030E-01 |
| 155 | 3.20E-01 | 1.560E+01 | 1.546E+01 | 1.118E+02 | 4.000E-05 | -5.474E-05 | 4.56E-02 | 1.094E+02 | 1.093E+02 | 7.838E+02 | 8.138E-07 | 3.514E-06 | 8.707E-02 |
| 160 | 2.91E-01 | 1.388E+01 | 1.374E+01 | 9.942E+01 | 5.059E-05 | -1.110E-04 | 3.63E-02 | 1.111E+02 | 1.110E+02 | 7.962E+02 | 7.887E-07 | 3.417E-06 | 7.047E-02 |
| 165 | 2.44E-01 | 1.252E+01 | 1.238E+01 | 8.969E+01 | 6.215E-05 | -1.867E-04 | 2.72E-02 | 1.125E+02 | 1.123E+02 | 8.059E+02 | 7.698E-07 | 3.344E-06 | 5.333E-02 |
| 170 | 1.78E-01 | 1.154E+01 | 1.140E+01 | 8.269E+01 | 7.312E-05 | -2.708E-04 | 1.81E-02 | 1.135E+02 | 1.133E+02 | 8.129E+02 | 7.566E-07 | 3.293E-06 | 3.578E-02 |
| 175 | 9.39E-02 | 1.095E+01 | 1.081E+01 | 7.847E+01 | 8.120E-05 | -3.399E-04 | 9.02E-03 | 1.140E+02 | 1.139E+02 | 8.172E+02 | 7.488E-07 | 3.262E-06 | 1.796E-02 |
| 180 | 0. | 1.075E+01 | 1.062E+01 | 7.706E+01 | 8.420E-05 | -3.670E-04 | 0. | 1.142E+02 | 1.141E+02 | 8.186E+02 | 7.462E-07 | 3.252E-06 | 0. |

K ZERO (1) => PI PLUS (2) + PI MINUS (3) AT 150 GEV/C P1 LAB

M1 = 4.97710E-01 M2 = 1.39569E-01 M3 = 1.39569E-01
P2CM= 2.06032E-01
E2CM= 2.48855E-01 E3CM= 2.48855E-01

1-V1LAB= 5.505E-06 GCM = 3.01382E+02 S = 2.47715E-01

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.371E+02 | 1.370E+02 | 9.823E+02 | 5.182E-07 | 2.259E-06 | 0. | 1.291E+01 | 1.277E+01 | 9.247E+01 | 5.847E-05 | -2.549E-04 | 0. |
| 1 | 1.50E-03 | 1.371E+02 | 1.369E+02 | 9.822E+02 | 5.183E-07 | 2.259E-06 | 1.60E-02 | 1.291E+01 | 1.278E+01 | 9.254E+01 | 5.839E-05 | -2.541E-04 | 3.596E-03 |
| 2 | 3.01E-03 | 1.371E+02 | 1.369E+02 | 9.820E+02 | 5.185E-07 | 2.260E-06 | 3.18E-02 | 1.294E+01 | 1.280E+01 | 9.274E+01 | 5.813E-05 | -2.517E-04 | 7.190E-03 |
| 3 | 4.51E-03 | 1.370E+02 | 1.369E+02 | 9.817E+02 | 5.189E-07 | 2.261E-06 | 4.76E-02 | 1.299E+01 | 1.285E+01 | 9.308E+01 | 5.771E-05 | -2.479E-04 | 1.078E-02 |
| 4 | 6.01E-03 | 1.369E+02 | 1.368E+02 | 9.812E+02 | 5.194E-07 | 2.263E-06 | 6.31E-02 | 1.306E+01 | 1.292E+01 | 9.356E+01 | 5.713E-05 | -2.426E-04 | 1.437E-02 |
| 5 | 7.52E-03 | 1.369E+02 | 1.367E+02 | 9.806E+02 | 5.200E-07 | 2.266E-06 | 7.83E-02 | 1.314E+01 | 1.300E+01 | 9.417E+01 | 5.639E-05 | -2.360E-04 | 1.796E-02 |
| 6 | 9.02E-03 | 1.368E+02 | 1.366E+02 | 9.798E+02 | 5.208E-07 | 2.269E-06 | 9.32E-02 | 1.325E+01 | 1.311E+01 | 9.491E+01 | 5.551E-05 | -2.282E-04 | 2.154E-02 |
| 7 | 1.05E-02 | 1.366E+02 | 1.365E+02 | 9.790E+02 | 5.217E-07 | 2.272E-06 | 1.08E-01 | 1.337E+01 | 1.323E+01 | 9.579E+01 | 5.449E-05 | -2.194E-04 | 2.511E-02 |
| 8 | 1.20E-02 | 1.365E+02 | 1.364E+02 | 9.779E+02 | 5.228E-07 | 2.277E-06 | 1.22E-01 | 1.351E+01 | 1.337E+01 | 9.680E+01 | 5.336E-05 | -2.096E-04 | 2.867E-02 |
| 9 | 1.35E-02 | 1.363E+02 | 1.362E+02 | 9.768E+02 | 5.240E-07 | 2.281E-06 | 1.35E-01 | 1.367E+01 | 1.353E+01 | 9.795E+01 | 5.212E-05 | -1.991E-04 | 3.223E-02 |
| 10 | 1.51E-02 | 1.362E+02 | 1.360E+02 | 9.755E+02 | 5.254E-07 | 2.287E-06 | 1.48E-01 | 1.385E+01 | 1.371E+01 | 9.923E+01 | 5.078E-05 | -1.880E-04 | 3.578E-02 |
| 15 | 2.26E-02 | 1.350E+02 | 1.348E+02 | 9.671E+02 | 5.346E-07 | 2.322E-06 | 2.03E-01 | 1.502E+01 | 1.488E+01 | 1.076E+02 | 4.316E-05 | -1.296E-04 | 5.333E-02 |
| 20 | 3.03E-02 | 1.333E+02 | 1.332E+02 | 9.554E+02 | 5.477E-07 | 2.373E-06 | 2.42E-01 | 1.665E+01 | 1.651E+01 | 1.193E+02 | 3.513E-05 | -7.708E-05 | 7.047E-02 |
| 25 | 3.80E-02 | 1.313E+02 | 1.311E+02 | 9.406E+02 | 5.652E-07 | 2.440E-06 | 2.66E-01 | 1.872E+01 | 1.858E+01 | 1.342E+02 | 2.778E-05 | -3.802E-05 | 8.707E-02 |
| 30 | 4.58E-02 | 1.288E+02 | 1.286E+02 | 9.227E+02 | 5.873E-07 | 2.525E-06 | 2.78E-01 | 2.122E+01 | 2.109E+01 | 1.521E+02 | 2.162E-05 | -1.269E-05 | 1.030E-01 |
| 35 | 5.38E-02 | 1.259E+02 | 1.257E+02 | 9.018E+02 | 6.148E-07 | 2.630E-06 | 2.81E-01 | 2.414E+01 | 2.400E+01 | 1.729E+02 | 1.672E-05 | 1.987E-06 | 1.182E-01 |
| 40 | 6.19E-02 | 1.226E+02 | 1.224E+02 | 8.782E+02 | 6.483E-07 | 2.756E-06 | 2.77E-01 | 2.743E+01 | 2.729E+01 | 1.966E+02 | 1.294E-05 | 9.543E-06 | 1.324E-01 |
| 45 | 7.02E-02 | 1.189E+02 | 1.188E+02 | 8.520E+02 | 6.889E-07 | 2.907E-06 | 2.68E-01 | 3.109E+01 | 3.095E+01 | 2.228E+02 | 1.007E-05 | 1.280E-05 | 1.457E-01 |
| 50 | 7.87E-02 | 1.149E+02 | 1.148E+02 | 8.233E+02 | 7.376E-07 | 3.086E-06 | 2.58E-01 | 3.509E+01 | 3.495E+01 | 2.514E+02 | 7.911E-06 | 1.365E-05 | 1.578E-01 |
| 55 | 8.74E-02 | 1.106E+02 | 1.105E+02 | 7.926E+02 | 7.960E-07 | 3.297E-06 | 2.46E-01 | 3.938E+01 | 3.925E+01 | 2.822E+02 | 6.279E-06 | 1.326E-05 | 1.688E-01 |
| 60 | 9.64E-02 | 1.060E+02 | 1.059E+02 | 7.598E+02 | 8.661E-07 | 3.545E-06 | 2.33E-01 | 4.395E+01 | 4.381E+01 | 3.149E+02 | 5.042E-06 | 1.230E-05 | 1.784E-01 |
| 65 | 1.06E-01 | 1.012E+02 | 1.011E+02 | 7.254E+02 | 9.502E-07 | 3.837E-06 | 2.19E-01 | 4.876E+01 | 4.862E+01 | 3.493E+02 | 4.097E-06 | 1.113E-05 | 1.867E-01 |
| 70 | 1.15E-01 | 9.624E+01 | 9.610E+01 | 6.895E+02 | 1.052E-06 | 4.179E-06 | 2.06E-01 | 5.376E+01 | 5.362E+01 | 3.852E+02 | 3.370E-06 | 9.955E-06 | 1.936E-01 |
| 75 | 1.25E-01 | 9.107E+01 | 9.093E+01 | 6.525E+02 | 1.174E-06 | 4.581E-06 | 1.93E-01 | 5.893E+01 | 5.879E+01 | 4.222E+02 | 2.805E-06 | 8.854E-06 | 1.990E-01 |
| 80 | 1.36E-01 | 8.578E+01 | 8.564E+01 | 6.146E+02 | 1.324E-06 | 5.051E-06 | 1.81E-01 | 6.422E+01 | 6.408E+01 | 4.601E+02 | 2.362E-06 | 7.866E-06 | 2.029E-01 |
| 85 | 1.46E-01 | 8.041E+01 | 8.027E+01 | 5.761E+02 | 1.506E-06 | 5.603E-06 | 1.69E-01 | 6.959E+01 | 6.945E+01 | 4.986E+02 | 2.011E-06 | 6.999E-06 | 2.052E-01 |
| 90 | 1.57E-01 | 7.500E+01 | 7.486E+01 | 5.374E+02 | 1.731E-06 | 6.248E-06 | 1.57E-01 | 7.500E+01 | 7.486E+01 | 5.374E+02 | 1.731E-06 | 6.248E-06 | 2.060E-01 |
| 95 | 1.69E-01 | 6.959E+01 | 6.945E+01 | 4.986E+02 | 2.011E-06 | 6.999E-06 | 1.46E-01 | 8.041E+01 | 8.027E+01 | 5.761E+02 | 1.506E-06 | 5.603E-06 | 2.052E-01 |
| 100 | 1.81E-01 | 6.422E+01 | 6.408E+01 | 4.601E+02 | 2.362E-06 | 7.866E-06 | 1.36E-01 | 8.578E+01 | 8.564E+01 | 6.146E+02 | 1.324E-06 | 5.051E-06 | 2.029E-01 |
| 105 | 1.93E-01 | 5.893E+01 | 5.879E+01 | 4.222E+02 | 2.805E-06 | 8.854E-06 | 1.25E-01 | 9.107E+01 | 9.093E+01 | 6.525E+02 | 1.174E-06 | 4.581E-06 | 1.990E-01 |
| 110 | 2.06E-01 | 5.376E+01 | 5.362E+01 | 3.852E+02 | 3.370E-06 | 9.955E-06 | 1.15E-01 | 9.624E+01 | 9.610E+01 | 6.895E+02 | 1.052E-06 | 4.179E-06 | 1.936E-01 |
| 115 | 2.19E-01 | 4.876E+01 | 4.862E+01 | 3.493E+02 | 4.097E-06 | 1.113E-05 | 1.06E-01 | 1.012E+02 | 1.011E+02 | 7.254E+02 | 9.502E-07 | 3.837E-06 | 1.867E-01 |
| 120 | 2.33E-01 | 4.395E+01 | 4.381E+01 | 3.149E+02 | 5.042E-06 | 1.230E-05 | 9.64E-02 | 1.060E+02 | 1.059E+02 | 7.598E+02 | 8.661E-07 | 3.545E-06 | 1.784E-01 |
| 125 | 2.46E-01 | 3.938E+01 | 3.925E+01 | 2.822E+02 | 6.279E-06 | 1.326E-05 | 8.74E-02 | 1.106E+02 | 1.105E+02 | 7.926E+02 | 7.960E-07 | 3.297E-06 | 1.688E-01 |
| 130 | 2.58E-01 | 3.509E+01 | 3.495E+01 | 2.514E+02 | 7.911E-06 | 1.365E-05 | 7.87E-02 | 1.149E+02 | 1.148E+02 | 8.233E+02 | 7.376E-07 | 3.086E-06 | 1.578E-01 |
| 135 | 2.68E-01 | 3.109E+01 | 3.095E+01 | 2.228E+02 | 1.007E-05 | 1.280E-05 | 7.02E-02 | 1.189E+02 | 1.188E+02 | 8.520E+02 | 6.889E-07 | 2.907E-06 | 1.457E-01 |
| 140 | 2.77E-01 | 2.743E+01 | 2.729E+01 | 1.966E+02 | 1.294E-05 | 9.543E-06 | 6.19E-02 | 1.226E+02 | 1.224E+02 | 8.782E+02 | 6.483E-07 | 2.756E-06 | 1.324E-01 |
| 145 | 2.81E-01 | 2.414E+01 | 2.400E+01 | 1.729E+02 | 1.672E-05 | 1.987E-06 | 5.38E-02 | 1.259E+02 | 1.257E+02 | 9.018E+02 | 6.148E-07 | 2.630E-06 | 1.182E-01 |
| 150 | 2.78E-01 | 2.122E+01 | 2.109E+01 | 1.521E+02 | 2.162E-05 | -1.269E-05 | 4.58E-02 | 1.288E+02 | 1.286E+02 | 9.227E+02 | 5.873E-07 | 2.525E-06 | 1.030E-01 |
| 155 | 2.66E-01 | 1.872E+01 | 1.858E+01 | 1.342E+02 | 2.778E-05 | -3.802E-05 | 3.80E-02 | 1.313E+02 | 1.311E+02 | 9.406E+02 | 5.652E-07 | 2.440E-06 | 8.707E-02 |
| 160 | 2.42E-01 | 1.665E+01 | 1.651E+01 | 1.193E+02 | 3.513E-05 | -7.708E-05 | 3.03E-02 | 1.333E+02 | 1.332E+02 | 9.554E+02 | 5.477E-07 | 2.373E-06 | 7.047E-02 |
| 165 | 2.03E-01 | 1.502E+01 | 1.488E+01 | 1.076E+02 | 4.316E-05 | -1.296E-04 | 2.26E-02 | 1.350E+02 | 1.348E+02 | 9.671E+02 | 5.346E-07 | 2.322E-06 | 5.333E-02 |
| 170 | 1.48E-01 | 1.385E+01 | 1.371E+01 | 9.923E+01 | 5.078E-05 | -1.880E-04 | 1.51E-02 | 1.362E+02 | 1.360E+02 | 9.755E+02 | 5.254E-07 | 2.287E-06 | 3.578E-02 |
| 175 | 7.83E-02 | 1.314E+01 | 1.300E+01 | 9.417E+01 | 5.639E-05 | -2.360E-04 | 7.52E-03 | 1.369E+02 | 1.367E+02 | 9.806E+02 | 5.200E-07 | 2.266E-06 | 1.796E-02 |
| 180 | 0. | 1.291E+01 | 1.277E+01 | 9.247E+01 | 5.847E-05 | -2.549E-04 | 0. | 1.371E+02 | 1.370E+02 | 9.823E+02 | 5.182E-07 | 2.259E-06 | 0. |

K ZERO (1) => PI PLUS (2) + PI MINUS (3) AT 175 GEV/C P1 LAB

M1 = 4.97710E-01 M2 = 1.39569E-01 M3 = 1.39569E-01
P2CM= 2.06032E-01
E2CM= 2.48855E-01 E3CM= 2.48855E-01

1-V1LAB= 4.044E-06 GCM = 3.51612E+02 S = 2.47715E-01

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.599E+02 | 1.598E+02 | 1.146E+03 | 3.807E-07 | 1.659E-06 | 0. | 1.506E+01 | 1.492E+01 | 1.079E+02 | 4.296E-05 | -1.872E-04 | 0. |
| 1 | 1.29E-03 | 1.599E+02 | 1.598E+02 | 1.146E+03 | 3.808E-07 | 1.660E-06 | 1.37E-02 | 1.507E+01 | 1.493E+01 | 1.080E+02 | 4.290E-05 | -1.867E-04 | 3.596E-03 |
| 2 | 2.58E-03 | 1.599E+02 | 1.598E+02 | 1.146E+03 | 3.809E-07 | 1.660E-06 | 2.73E-02 | 1.510E+01 | 1.496E+01 | 1.082E+02 | 4.271E-05 | -1.850E-04 | 7.190E-03 |
| 3 | 3.87E-03 | 1.598E+02 | 1.597E+02 | 1.145E+03 | 3.812E-07 | 1.661E-06 | 4.08E-02 | 1.516E+01 | 1.502E+01 | 1.086E+02 | 4.240E-05 | -1.821E-04 | 1.078E-02 |
| 4 | 5.15E-03 | 1.598E+02 | 1.596E+02 | 1.145E+03 | 3.816E-07 | 1.663E-06 | 5.41E-02 | 1.523E+01 | 1.509E+01 | 1.091F+02 | 4.197E-05 | -1.783F-04 | 1.437E-02 |
| 5 | 6.44E-03 | 1.597E+02 | 1.595E+02 | 1.144E+03 | 3.820E-07 | 1.664E-06 | 6.71E-02 | 1.533E+01 | 1.519E+01 | 1.099E+02 | 4.143E-05 | -1.734E-04 | 1.796E-02 |
| 6 | 7.73E-03 | 1.595E+02 | 1.594E+02 | 1.143E+03 | 3.826E-07 | 1.667E-06 | 7.98E-02 | 1.545E+01 | 1.531E+01 | 1.107E+02 | 4.078E-05 | -1.677E-04 | 2.154E-02 |
| 7 | 9.03E-03 | 1.594E+02 | 1.593E+02 | 1.142E+03 | 3.833E-07 | 1.669E-06 | 9.22E-02 | 1.560E+01 | 1.546E+01 | 1.118E+02 | 4.004E-05 | -1.612E-04 | 2.511E-02 |
| 8 | 1.03E-02 | 1.592E+02 | 1.591E+02 | 1.141E+03 | 3.841E-07 | 1.673E-06 | 1.04E-01 | 1.576E+01 | 1.562E+01 | 1.129E+02 | 3.920E-05 | -1.540E-04 | 2.867F-02 |
| 9 | 1.16E-02 | 1.591E+02 | 1.589E+02 | 1.140E+03 | 3.850E-07 | 1.676E-06 | 1.16E-01 | 1.595E+01 | 1.581E+01 | 1.143F+02 | 3.829E-05 | -1.463E-04 | 3.223E-02 |
| 10 | 1.29E-02 | 1.588E+02 | 1.587E+02 | 1.138E+03 | 3.860E-07 | 1.680E-06 | 1.27E-01 | 1.616E+01 | 1.602E+01 | 1.158E+02 | 3.731E-05 | -1.382E-04 | 3.578E-02 |
| 15 | 1.94E-02 | 1.575E+02 | 1.573E+02 | 1.128E+03 | 3.928E-07 | 1.706E-06 | 1.74E-01 | 1.753E+01 | 1.739E+01 | 1.256E+02 | 3.171E-05 | -9.523E-05 | 5.333E-02 |
| 20 | 2.60E-02 | 1.556E+02 | 1.554E+02 | 1.115E+03 | 4.024E-07 | 1.744E-06 | 2.08E-01 | 1.943E+01 | 1.929E+01 | 1.392E+02 | 2.581E-05 | -5.663E-05 | 7.047E-02 |
| 25 | 3.26E-02 | 1.532E+02 | 1.530E+02 | 1.097E+03 | 4.152E-07 | 1.793E-06 | 2.28E-01 | 2.184E+01 | 2.171E+01 | 1.565E+02 | 2.041E-05 | -2.793E-05 | 8.707E-02 |
| 30 | 3.93E-02 | 1.502E+02 | 1.501E+02 | 1.076E+03 | 4.315E-07 | 1.855E-06 | 2.38E-01 | 2.476E+01 | 2.462E+01 | 1.774E+02 | 1.588E-05 | -9.320E-06 | 1.030E-01 |
| 35 | 4.61E-02 | 1.468E+02 | 1.467E+02 | 1.052E+03 | 4.517E-07 | 1.932E-06 | 2.40E-01 | 2.816E+01 | 2.802E+01 | 2.018E+02 | 1.228E-05 | 1.460E-06 | 1.182E-01 |
| 40 | 5.31E-02 | 1.430E+02 | 1.429E+02 | 1.025E+03 | 4.763E-07 | 2.025E-06 | 2.37E-01 | 3.201E+01 | 3.187E+01 | 2.293E+02 | 9.508E-06 | 7.011E-06 | 1.324E-01 |
| 45 | 6.02E-02 | 1.387E+02 | 1.386E+02 | 9.940E+02 | 5.061E-07 | 2.136E-06 | 2.30E-01 | 3.628E+01 | 3.614E+01 | 2.599E+02 | 7.402E-06 | 9.401E-06 | 1.457E-01 |
| 50 | 6.75E-02 | 1.341E+02 | 1.339E+02 | 9.606E+02 | 5.419E-07 | 2.267E-06 | 2.21E-01 | 4.093E+01 | 4.080E+01 | 2.933E+02 | 5.812E-06 | 1.003E-05 | 1.578E-01 |
| 55 | 7.49E-02 | 1.291E+02 | 1.289E+02 | 9.246E+02 | 5.848E-07 | 2.422E-06 | 2.10E-01 | 4.595E+01 | 4.581E+01 | 3.292E+02 | 4.613E-06 | 9.739E-06 | 1.688E-01 |
| 60 | 8.26E-02 | 1.237E+02 | 1.236E+02 | 8.865E+02 | 6.363E-07 | 2.604E-06 | 1.99E-01 | 5.128E+01 | 5.114E+01 | 3.674E+02 | 3.704E-06 | 9.033E-06 | 1.784E-01 |
| 65 | 9.06E-02 | 1.181E+02 | 1.180E+02 | 8.463E+02 | 6.981E-07 | 2.819E-06 | 1.88E-01 | 5.688E+01 | 5.674E+01 | 4.076E+02 | 3.010E-06 | 8.179E-06 | 1.867E-01 |
| 70 | 9.88E-02 | 1.123E+02 | 1.121E+02 | 8.045E+02 | 7.726E-07 | 3.070E-06 | 1.77E-01 | 6.272E+01 | 6.258E+01 | 4.494E+02 | 2.476E-06 | 7.314E-06 | 1.936E-01 |
| 75 | 1.07E-01 | 1.062E+02 | 1.061E+02 | 7.613E+02 | 8.628E-07 | 3.365E-06 | 1.66E-01 | 6.875E+01 | 6.861E+01 | 4.926E+02 | 2.061F-06 | 6.505E-06 | 1.990E-01 |
| 80 | 1.16E-01 | 1.001E+02 | 9.994E+01 | 7.171E+02 | 9.724E-07 | 3.711E-06 | 1.55E-01 | 7.492E+01 | 7.478E+01 | 5.368E+02 | 1.735E-06 | 5.779E-06 | 2.029E-01 |
| 85 | 1.25E-01 | 9.381E+01 | 9.367E+01 | 6.722E+02 | 1.107E-06 | 4.117E-06 | 1.45E-01 | 8.119E+01 | 8.105E+01 | 5.817E+02 | 1.478F-06 | 5.142E-06 | 2.052E-01 |
| 90 | 1.35E-01 | 8.750E+01 | 8.736E+01 | 6.269E+02 | 1.272E-06 | 4.590E-06 | 1.35E-01 | 8.750E+01 | 8.736E+01 | 6.269E+02 | 1.272E-06 | 4.590E-06 | 2.060E-01 |
| 95 | 1.45E-01 | 8.119E+01 | 8.105E+01 | 5.817E+02 | 1.478E-06 | 5.142E-06 | 1.25E-01 | 9.381F+01 | 9.367E+01 | 6.722E+02 | 1.107E-06 | 4.117E-06 | 2.052E-01 |
| 100 | 1.55E-01 | 7.492E+01 | 7.478E+01 | 5.368E+02 | 1.735E-06 | 5.779E-06 | 1.16E-01 | 1.001E+02 | 9.994E+01 | 7.171E+02 | 9.724E-07 | 3.711E-06 | 2.029E-01 |
| 105 | 1.66E-01 | 6.875E+01 | 6.861E+01 | 4.926E+02 | 2.061E-06 | 6.505E-06 | 1.07E-01 | 1.062E+02 | 1.061E+02 | 7.613E+02 | 8.628E-07 | 3.365E-06 | 1.990E-01 |
| 110 | 1.77E-01 | 6.272E+01 | 6.258E+01 | 4.494E+02 | 2.476E-06 | 7.314E-06 | 9.88E-02 | 1.123E+02 | 1.121E+02 | 8.045E+02 | 7.726E-07 | 3.070E-06 | 1.976E-01 |
| 115 | 1.88E-01 | 5.688E+01 | 5.674E+01 | 4.076E+02 | 3.010E-06 | 8.179E-06 | 9.06E-02 | 1.181E+02 | 1.180E+02 | 8.463E+02 | 6.981E-07 | 2.819E-06 | 1.867E-01 |
| 120 | 1.99E-01 | 5.128E+01 | 5.114E+01 | 3.674E+02 | 3.704E-06 | 9.033E-06 | 8.26E-02 | 1.237E+02 | 1.236E+02 | 8.865E+02 | 6.363E-07 | 2.604E-06 | 1.784E-01 |
| 125 | 2.10E-01 | 4.595E+01 | 4.581E+01 | 3.292E+02 | 4.613E-06 | 9.739E-06 | 7.49E-02 | 1.291E+02 | 1.289E+02 | 9.246F+02 | 5.848E-07 | 2.422E-06 | 1.688E-01 |
| 130 | 2.21E-01 | 4.093E+01 | 4.080E+01 | 2.933E+02 | 5.812E-06 | 1.003E-05 | 6.75E-02 | 1.341E+02 | 1.339E+02 | 9.606E+02 | 5.419E-07 | 2.267E-06 | 1.578E-01 |
| 135 | 2.30E-01 | 3.628E+01 | 3.614E+01 | 2.599E+02 | 7.402E-06 | 9.401E-06 | 6.02E-02 | 1.387E+02 | 1.386E+02 | 9.940E+02 | 5.061E-07 | 2.136E-06 | 1.457E-01 |
| 140 | 2.37E-01 | 3.201E+01 | 3.187E+01 | 2.293E+02 | 9.508E-06 | 7.011E-06 | 5.31E-02 | 1.430E+02 | 1.429E+02 | 1.025E+03 | 4.763E-07 | 2.025E-06 | 1.324F-01 |
| 145 | 2.40E-01 | 2.816E+01 | 2.802E+01 | 2.018E+02 | 1.228E-05 | 1.460E-06 | 4.61E-02 | 1.468E+02 | 1.467E+02 | 1.052E+03 | 4.517E-07 | 1.932E-06 | 1.182F-01 |
| 150 | 2.38E-01 | 2.476E+01 | 2.462E+01 | 1.774E+02 | 1.588E-05 | -9.320E-06 | 3.93E-02 | 1.502E+02 | 1.501E+02 | 1.076E+03 | 4.315E-07 | 1.855F-06 | 1.030E-01 |
| 155 | 2.28E-01 | 2.184E+01 | 2.171E+01 | 1.565E+02 | 2.041E-05 | -2.793E-05 | 3.26E-02 | 1.532E+02 | 1.530E+02 | 1.097E+03 | 4.152E-07 | 1.793E-06 | 8.707E-02 |
| 160 | 2.08E-01 | 1.943E+01 | 1.929E+01 | 1.392E+02 | 2.581E-05 | -5.663E-05 | 2.60E-02 | 1.556E+02 | 1.554E+02 | 1.115E+03 | 4.024E-07 | 1.744E-06 | 7.047E-02 |
| 165 | 1.74E-01 | 1.753E+01 | 1.739E+01 | 1.256E+02 | 3.171E-05 | -9.523E-05 | 1.94E-02 | 1.575E+02 | 1.573E+02 | 1.128E+03 | 3.928E-07 | 1.706E-06 | 5.333E-02 |
| 170 | 1.27E-01 | 1.616E+01 | 1.602E+01 | 1.158E+02 | 3.731E-05 | -1.382E-04 | 1.29E-02 | 1.588E+02 | 1.587E+02 | 1.138E+03 | 3.860E-07 | 1.680E-06 | 3.578F-02 |
| 175 | 6.71E-02 | 1.533E+01 | 1.519E+01 | 1.099E+02 | 4.143E-05 | -1.734E-04 | 6.44E-03 | 1.597E+02 | 1.595E+02 | 1.144E+03 | 3.820E-07 | 1.664F-06 | 1.796E-02 |
| 180 | 0. | 1.506E+01 | 1.492E+01 | 1.079E+02 | 4.296E-05 | -1.872E-04 | 0. | 1.599E+02 | 1.598E+02 | 1.146E+03 | 3.807E-07 | 1.659E-06 | 0. |

K ZERO (1) => PI PLUS (2) + PI MINUS (3) AT 200 GEV/C P1 LAB

M1 = 4.97710E-01 M2 = 1.39569E-01 M3 = 1.39569E-01
P2CM= 2.06032E-01
E2CM= 2.48855E-01 E3CM= 2.48855E-01

1-V1LAB= 3.096E-06 GCM = 4.01842E+02 S = 2.47715E-01

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.828E+02 | 1.827E+02 | 1.310E+03 | 2.915E-07 | 1.270E-06 | 0. | 1.721E+01 | 1.707E+01 | 1.233E+02 | 3.289E-05 | -1.434E-04 | 0. |
| 1 | 1.13E-03 | 1.828E+02 | 1.826E+02 | 1.310E+03 | 2.915E-07 | 1.271E-06 | 1.20E-02 | 1.722E+01 | 1.708E+01 | 1.234E+02 | 3.284E-05 | -1.429E-04 | 3.596E-03 |
| 2 | 2.25E-03 | 1.827E+02 | 1.826E+02 | 1.309E+03 | 2.917E-07 | 1.271E-06 | 2.39E-02 | 1.726E+01 | 1.712E+01 | 1.237E+02 | 3.270E-05 | -1.416E-04 | 7.190E-03 |
| 3 | 3.38E-03 | 1.827E+02 | 1.825E+02 | 1.309E+03 | 2.919E-07 | 1.272E-06 | 3.57E-02 | 1.732E+01 | 1.718E+01 | 1.241E+02 | 3.246E-05 | -1.394E-04 | 1.078E-02 |
| 4 | 4.51E-03 | 1.826E+02 | 1.825E+02 | 1.308E+03 | 2.921E-07 | 1.273E-06 | 4.73E-02 | 1.741E+01 | 1.727E+01 | 1.247E+02 | 3.213E-05 | -1.365E-04 | 1.437E-02 |
| 5 | 5.64E-03 | 1.825E+02 | 1.823E+02 | 1.307E+03 | 2.925E-07 | 1.274E-06 | 5.87E-02 | 1.752E+01 | 1.738E+01 | 1.256E+02 | 3.172E-05 | -1.328E-04 | 1.796E-02 |
| 6 | 6.77E-03 | 1.823E+02 | 1.822E+02 | 1.306E+03 | 2.929E-07 | 1.276E-06 | 6.99E-02 | 1.766E+01 | 1.752E+01 | 1.265E+02 | 3.122E-05 | -1.284E-04 | 2.154E-02 |
| 7 | 7.90E-03 | 1.822E+02 | 1.820E+02 | 1.305E+03 | 2.935E-07 | 1.278E-06 | 8.07E-02 | 1.782E+01 | 1.769E+01 | 1.277E+02 | 3.065E-05 | -1.234E-04 | 2.511E-02 |
| 8 | 9.03E-03 | 1.820E+02 | 1.818E+02 | 1.304E+03 | 2.941E-07 | 1.281E-06 | 9.12E-02 | 1.801E+01 | 1.787E+01 | 1.291E+02 | 3.002E-05 | -1.179E-04 | 2.867E-02 |
| 9 | 1.02E-02 | 1.818E+02 | 1.816E+02 | 1.302E+03 | 2.948E-07 | 1.283E-06 | 1.01E-01 | 1.823E+01 | 1.809E+01 | 1.306E+02 | 2.932E-05 | -1.120E-04 | 3.223E-02 |
| 10 | 1.13E-02 | 1.815E+02 | 1.814E+02 | 1.301E+03 | 2.955E-07 | 1.286E-06 | 1.11E-01 | 1.847E+01 | 1.833E+01 | 1.323E+02 | 2.856E-05 | -1.058E-04 | 3.578E-02 |
| 15 | 1.70E-02 | 1.800E+02 | 1.798E+02 | 1.289E+03 | 3.007E-07 | 1.306E-06 | 1.53E-01 | 2.003E+01 | 1.989E+01 | 1.435E+02 | 2.428E-05 | -7.291E-05 | 5.333E-02 |
| 20 | 2.27E-02 | 1.778E+02 | 1.777E+02 | 1.274E+03 | 3.081E-07 | 1.335E-06 | 1.82E-01 | 2.220E+01 | 2.206E+01 | 1.591E+02 | 1.976E-05 | -4.336E-05 | 7.047E-02 |
| 25 | 2.85E-02 | 1.750E+02 | 1.749E+02 | 1.254E+03 | 3.179E-07 | 1.373E-06 | 2.00E-01 | 2.496E+01 | 2.483E+01 | 1.789E+02 | 1.563E-05 | -2.139E-05 | 8.707E-02 |
| 30 | 3.44E-02 | 1.717E+02 | 1.716E+02 | 1.230E+03 | 3.304E-07 | 1.421E-06 | 2.09E-01 | 2.830E+01 | 2.816E+01 | 2.028E+02 | 1.216E-05 | -7.136E-06 | 1.030E-01 |
| 35 | 4.03E-02 | 1.678E+02 | 1.677E+02 | 1.202E+03 | 3.458E-07 | 1.479E-06 | 2.10E-01 | 3.218E+01 | 3.204E+01 | 2.306E+02 | 9.405E-06 | 1.117E-06 | 1.182E-01 |
| 40 | 4.64E-02 | 1.634E+02 | 1.633E+02 | 1.171E+03 | 3.647E-07 | 1.550E-06 | 2.07E-01 | 3.658E+01 | 3.644E+01 | 2.621E+02 | 7.280E-06 | 5.368E-06 | 1.324E-01 |
| 45 | 5.26E-02 | 1.585E+02 | 1.584E+02 | 1.136E+03 | 3.875E-07 | 1.635E-06 | 2.01E-01 | 4.146E+01 | 4.132E+01 | 2.970E+02 | 5.667E-06 | 7.198E-06 | 1.457E-01 |
| 50 | 5.90E-02 | 1.532E+02 | 1.531E+02 | 1.098E+03 | 4.149E-07 | 1.736E-06 | 1.93E-01 | 4.678E+01 | 4.664E+01 | 3.352E+02 | 4.450E-06 | 7.676E-06 | 1.578E-01 |
| 55 | 6.56E-02 | 1.475E+02 | 1.473E+02 | 1.057E+03 | 4.477E-07 | 1.854E-06 | 1.84E-01 | 5.251E+01 | 5.237E+01 | 3.762E+02 | 3.532E-06 | 7.456E-06 | 1.688E-01 |
| 60 | 7.23E-02 | 1.414E+02 | 1.413E+02 | 1.013E+03 | 4.872E-07 | 1.994E-06 | 1.74E-01 | 5.860E+01 | 5.846E+01 | 4.199E+02 | 2.836E-06 | 6.916E-06 | 1.784E-01 |
| 65 | 7.93E-02 | 1.350E+02 | 1.349E+02 | 9.672E+02 | 5.345E-07 | 2.158E-06 | 1.65E-01 | 6.501E+01 | 6.487E+01 | 4.658E+02 | 2.304E-06 | 6.262E-06 | 1.867E-01 |
| 70 | 8.64E-02 | 1.283E+02 | 1.282E+02 | 9.194E+02 | 5.915E-07 | 2.351E-06 | 1.55E-01 | 7.168E+01 | 7.154E+01 | 5.136E+02 | 1.895E-06 | 5.600E-06 | 1.936E-01 |
| 75 | 9.39E-02 | 1.214E+02 | 1.213E+02 | 8.700E+02 | 6.605E-07 | 2.577E-06 | 1.45E-01 | 7.857E+01 | 7.843E+01 | 5.630E+02 | 1.578E-06 | 4.980E-06 | 1.990E-01 |
| 80 | 1.02E-01 | 1.144E+02 | 1.142E+02 | 8.195E+02 | 7.445E-07 | 2.841E-06 | 1.36E-01 | 8.562E+01 | 8.548E+01 | 6.135E+02 | 1.328E-06 | 4.424E-06 | 2.029E-01 |
| 85 | 1.10E-01 | 1.072E+02 | 1.071E+02 | 7.682E+02 | 8.473E-07 | 3.152E-06 | 1.27E-01 | 9.278E+01 | 9.264E+01 | 6.648E+02 | 1.131E-06 | 3.937E-06 | 2.052E-01 |
| 90 | 1.18E-01 | 1.000E+02 | 9.986E+01 | 7.165E+02 | 9.740E-07 | 3.514E-06 | 1.18E-01 | 1.000E+02 | 9.986E+01 | 7.165E+02 | 9.740E-07 | 3.514E-06 | 2.060E-01 |
| 95 | 1.27E-01 | 9.278E+01 | 9.264E+01 | 6.648E+02 | 1.131E-06 | 3.937E-06 | 1.10E-01 | 1.072E+02 | 1.071E+02 | 7.682E+02 | 8.473E-07 | 3.152E-06 | 2.052E-01 |
| 100 | 1.36E-01 | 8.562E+01 | 8.548E+01 | 6.135E+02 | 1.328E-06 | 4.424E-06 | 1.02E-01 | 1.144E+02 | 1.142E+02 | 8.195E+02 | 7.445E-07 | 2.841E-06 | 2.029E-01 |
| 105 | 1.45E-01 | 7.857E+01 | 7.843E+01 | 5.630E+02 | 1.578E-06 | 4.980E-06 | 9.39E-02 | 1.214E+02 | 1.213E+02 | 8.700E+02 | 6.605E-07 | 2.577E-06 | 1.990E-01 |
| 110 | 1.55E-01 | 7.168E+01 | 7.154E+01 | 5.136E+02 | 1.895E-06 | 5.600E-06 | 8.64E-02 | 1.283E+02 | 1.282E+02 | 9.194E+02 | 5.915E-07 | 2.351E-06 | 1.936E-01 |
| 115 | 1.65E-01 | 6.501E+01 | 6.487E+01 | 4.658E+02 | 2.304E-06 | 6.262E-06 | 7.93E-02 | 1.350E+02 | 1.349E+02 | 9.672E+02 | 5.345E-07 | 2.158E-06 | 1.867E-01 |
| 120 | 1.74E-01 | 5.860E+01 | 5.846E+01 | 4.199E+02 | 2.836E-06 | 6.916E-06 | 7.23E-02 | 1.414E+02 | 1.413E+02 | 1.013E+03 | 4.872E-07 | 1.994E-06 | 1.784E-01 |
| 125 | 1.84E-01 | 5.251E+01 | 5.237E+01 | 3.762E+02 | 3.532E-06 | 7.456E-06 | 6.56E-02 | 1.475E+02 | 1.473E+02 | 1.057E+03 | 4.477E-07 | 1.854E-06 | 1.688E-01 |
| 130 | 1.93E-01 | 4.678E+01 | 4.664E+01 | 3.352E+02 | 4.450E-06 | 7.676E-06 | 5.90E-02 | 1.532E+02 | 1.531E+02 | 1.098E+03 | 4.149E-07 | 1.736E-06 | 1.578E-01 |
| 135 | 2.01E-01 | 4.146E+01 | 4.132E+01 | 2.970E+02 | 5.667E-06 | 7.198E-06 | 5.26E-02 | 1.585E+02 | 1.584E+02 | 1.136E+03 | 3.875E-07 | 1.635E-06 | 1.457E-01 |
| 140 | 2.07E-01 | 3.658E+01 | 3.644E+01 | 2.621E+02 | 7.280E-06 | 5.368E-06 | 4.64E-02 | 1.634E+02 | 1.633E+02 | 1.171E+03 | 3.647E-07 | 1.550E-06 | 1.324E-01 |
| 145 | 2.10E-01 | 3.218E+01 | 3.204E+01 | 2.306E+02 | 9.405E-06 | 1.117E-06 | 4.03E-02 | 1.678E+02 | 1.677E+02 | 1.202E+03 | 3.458E-07 | 1.479E-06 | 1.182E-01 |
| 150 | 2.09E-01 | 2.830E+01 | 2.816E+01 | 2.028E+02 | 1.216E-05 | -7.136E-06 | 3.44E-02 | 1.717E+02 | 1.716E+02 | 1.230E+03 | 3.304E-07 | 1.421E-06 | 1.030E-01 |
| 155 | 2.00E-01 | 2.496E+01 | 2.483E+01 | 1.789E+02 | 1.563E-05 | -2.139E-05 | 2.85E-02 | 1.750E+02 | 1.749E+02 | 1.254E+03 | 3.179E-07 | 1.373E-06 | 8.707E-02 |
| 160 | 1.82E-01 | 2.220E+01 | 2.206E+01 | 1.591E+02 | 1.976E-05 | -4.336E-05 | 2.27E-02 | 1.778E+02 | 1.777E+02 | 1.274E+03 | 3.081E-07 | 1.335E-06 | 7.047E-02 |
| 165 | 1.53E-01 | 2.003E+01 | 1.989E+01 | 1.435E+02 | 2.428E-05 | -7.291E-05 | 1.70E-02 | 1.800E+02 | 1.798E+02 | 1.289E+03 | 3.007E-07 | 1.306E-06 | 5.333E-02 |
| 170 | 1.11E-01 | 1.847E+01 | 1.833E+01 | 1.323E+02 | 2.856E-05 | -1.058E-04 | 1.13E-02 | 1.815E+02 | 1.814E+02 | 1.301E+03 | 2.955E-07 | 1.286E-06 | 3.578E-02 |
| 175 | 5.87E-02 | 1.752E+01 | 1.738E+01 | 1.256E+02 | 3.172E-05 | -1.328E-04 | 5.64E-03 | 1.825E+02 | 1.823E+02 | 1.307E+03 | 2.925E-07 | 1.274E-06 | 1.796E-02 |
| 180 | 0. | 1.721E+01 | 1.707E+01 | 1.233E+02 | 3.289E-05 | -1.434E-04 | 0. | 1.828E+02 | 1.827E+02 | 1.310E+03 | 2.915E-07 | 1.270E-06 | 0. |

K ZERO (1) => PI PLUS (2) + PI MINUS (3) AT 225 GEV/C P1 LAB

M1 = 4.97710E-01 M2 = 1.39569E-01 M3 = 1.39569E-01
P2CM= 2.06032E-01
E2CM= 2.48855E-01 E3CM= 2.48855E-01

1-V1LAB= 2.447E-06 GCM = 4.52072E+02 S = 2.47715E-01

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.056E+02 | 2.055E+02 | 1.473E+03 | 2.303E-07 | 1.004E-06 | 0. | 1.936E+01 | 1.922E+01 | 1.387E+02 | 2.599E-05 | -1.133E-04 | 0. |
| 1 | 1.00E-03 | 2.056E+02 | 2.055E+02 | 1.473E+03 | 2.303E-07 | 1.004E-06 | 1.06E-02 | 1.937E+01 | 1.923E+01 | 1.388E+02 | 2.595E-05 | -1.129E-04 | 3.596E-03 |
| 2 | 2.00E-03 | 2.056E+02 | 2.054E+02 | 1.473E+03 | 2.304E-07 | 1.004E-06 | 2.12E-02 | 1.942E+01 | 1.928E+01 | 1.391E+02 | 2.584E-05 | -1.119E-04 | 7.190E-03 |
| 3 | 3.01E-03 | 2.055E+02 | 2.054E+02 | 1.472E+03 | 2.306E-07 | 1.005E-06 | 3.17E-02 | 1.949E+01 | 1.935E+01 | 1.396E+02 | 2.565E-05 | -1.102E-04 | 1.078E-02 |
| 4 | 4.01E-03 | 2.054E+02 | 2.053E+02 | 1.472E+03 | 2.308E-07 | 1.006E-06 | 4.20E-02 | 1.959E+01 | 1.945E+01 | 1.403E+02 | 2.539E-05 | -1.078E-04 | 1.437E-02 |
| 5 | 5.01E-03 | 2.053E+02 | 2.051E+02 | 1.471E+03 | 2.311E-07 | 1.007E-06 | 5.22E-02 | 1.971E+01 | 1.957E+01 | 1.412E+02 | 2.506E-05 | -1.049E-04 | 1.796E-02 |
| 6 | 6.02E-03 | 2.051E+02 | 2.050E+02 | 1.470E+03 | 2.315E-07 | 1.008E-06 | 6.21E-02 | 1.987E+01 | 1.973E+01 | 1.424E+02 | 2.467E-05 | -1.014E-04 | 2.154E-02 |
| 7 | 7.02E-03 | 2.049E+02 | 2.048E+02 | 1.468E+03 | 2.319E-07 | 1.010E-06 | 7.17E-02 | 2.005E+01 | 1.991E+01 | 1.437E+02 | 2.422E-05 | -9.750E-05 | 2.511E-02 |
| 8 | 8.02E-03 | 2.047E+02 | 2.046E+02 | 1.467E+03 | 2.324E-07 | 1.012E-06 | 8.11E-02 | 2.027E+01 | 2.013E+01 | 1.452E+02 | 2.372E-05 | -9.316E-05 | 2.867E-02 |
| 9 | 9.03E-03 | 2.045E+02 | 2.044E+02 | 1.465E+03 | 2.329E-07 | 1.014E-06 | 9.01E-02 | 2.051E+01 | 2.037E+01 | 1.469E+02 | 2.316E-05 | -8.849E-05 | 3.223E-02 |
| 10 | 1.00E-02 | 2.042E+02 | 2.041E+02 | 1.463E+03 | 2.335E-07 | 1.016E-06 | 9.87E-02 | 2.077E+01 | 2.063E+01 | 1.488E+02 | 2.257E-05 | -8.357E-05 | 3.578E-02 |
| 15 | 1.51E-02 | 2.025E+02 | 2.023E+02 | 1.451E+03 | 2.376E-07 | 1.032E-06 | 1.36E-01 | 2.253E+01 | 2.239E+01 | 1.614E+02 | 1.918E-05 | -5.761E-05 | 5.333E-02 |
| 20 | 2.02E-02 | 2.000E+02 | 1.999E+02 | 1.433E+03 | 2.434E-07 | 1.055E-06 | 1.62E-01 | 2.498E+01 | 2.484E+01 | 1.790E+02 | 1.561E-05 | -3.426E-05 | 7.047E-02 |
| 25 | 2.53E-02 | 1.969E+02 | 1.968E+02 | 1.411E+03 | 2.512E-07 | 1.085E-06 | 1.78E-01 | 2.809E+01 | 2.795E+01 | 2.012E+02 | 1.235E-05 | -1.690E-05 | 8.707E-02 |
| 30 | 3.06E-02 | 1.932E+02 | 1.930E+02 | 1.384E+03 | 2.610E-07 | 1.122E-06 | 1.85E-01 | 3.184E+01 | 3.170E+01 | 2.281E+02 | 9.609E-06 | -5.638E-06 | 1.030E-01 |
| 35 | 3.59E-02 | 1.888E+02 | 1.887E+02 | 1.353E+03 | 2.732E-07 | 1.169E-06 | 1.87E-01 | 3.620E+01 | 3.606E+01 | 2.594E+02 | 7.431E-06 | 8.828E-07 | 1.182E-01 |
| 40 | 4.13E-02 | 1.839E+02 | 1.837E+02 | 1.317E+03 | 2.881E-07 | 1.225E-06 | 1.84E-01 | 4.115E+01 | 4.101E+01 | 2.948E+02 | 5.752E-06 | 4.241E-06 | 1.324E-01 |
| 45 | 4.68E-02 | 1.784E+02 | 1.782E+02 | 1.278E+03 | 3.062E-07 | 1.292E-06 | 1.79E-01 | 4.664E+01 | 4.650E+01 | 3.342E+02 | 4.478E-06 | 5.687E-06 | 1.457E-01 |
| 50 | 5.25E-02 | 1.724E+02 | 1.722E+02 | 1.235E+03 | 3.278E-07 | 1.371E-06 | 1.72E-01 | 5.263E+01 | 5.249E+01 | 3.771E+02 | 3.516E-06 | 6.065E-06 | 1.578E-01 |
| 55 | 5.83E-02 | 1.659E+02 | 1.658E+02 | 1.189E+03 | 3.538E-07 | 1.465E-06 | 1.64E-01 | 5.908E+01 | 5.894E+01 | 4.233E+02 | 2.791E-06 | 5.891E-06 | 1.688E-01 |
| 60 | 6.43E-02 | 1.591E+02 | 1.589E+02 | 1.140E+03 | 3.849E-07 | 1.576E-06 | 1.55E-01 | 6.593E+01 | 6.579E+01 | 4.724E+02 | 2.241E-06 | 5.465E-06 | 1.784E-01 |
| 65 | 7.04E-02 | 1.519E+02 | 1.517E+02 | 1.088E+03 | 4.223E-07 | 1.705E-06 | 1.46E-01 | 7.314E+01 | 7.300E+01 | 5.240E+02 | 1.821E-06 | 4.948E-06 | 1.867E-01 |
| 70 | 7.68E-02 | 1.444E+02 | 1.442E+02 | 1.034E+03 | 4.674E-07 | 1.857E-06 | 1.38E-01 | 8.064E+01 | 8.050E+01 | 5.778E+02 | 1.498E-06 | 4.424E-06 | 1.936E-01 |
| 75 | 8.35E-02 | 1.366E+02 | 1.365E+02 | 9.788E+02 | 5.219E-07 | 2.036E-06 | 1.29E-01 | 8.839E+01 | 8.825E+01 | 6.333E+02 | 1.247E-06 | 3.935E-06 | 1.999E-01 |
| 80 | 9.03E-02 | 1.287E+02 | 1.285E+02 | 9.219E+02 | 5.883E-07 | 2.245E-06 | 1.21E-01 | 9.633E+01 | 9.619E+01 | 6.902E+02 | 1.050E-06 | 3.496E-06 | 2.029E-01 |
| 85 | 9.75E-02 | 1.206E+02 | 1.205E+02 | 8.642E+02 | 6.695E-07 | 2.490E-06 | 1.13E-01 | 1.044E+02 | 1.042E+02 | 7.479E+02 | 8.939E-07 | 3.110E-06 | 2.052E-01 |
| 90 | 1.05E-01 | 1.125E+02 | 1.124E+02 | 8.061E+02 | 7.696E-07 | 2.777E-06 | 1.05E-01 | 1.125E+02 | 1.124E+02 | 8.061E+02 | 7.696E-07 | 2.777E-06 | 2.060E-01 |
| 95 | 1.13E-01 | 1.044E+02 | 1.042E+02 | 7.479E+02 | 8.939E-07 | 3.110E-06 | 9.75E-02 | 1.206E+02 | 1.205E+02 | 8.642E+02 | 6.695E-07 | 2.490E-06 | 2.052E-01 |
| 100 | 1.21E-01 | 9.633E+01 | 9.619E+01 | 6.902E+02 | 1.050E-06 | 3.496E-06 | 9.03E-02 | 1.287E+02 | 1.285E+02 | 9.219E+02 | 5.883E-07 | 2.245E-06 | 2.029E-01 |
| 105 | 1.29E-01 | 8.839E+01 | 8.825E+01 | 6.333E+02 | 1.247E-06 | 3.935E-06 | 8.35E-02 | 1.366E+02 | 1.365E+02 | 9.788E+02 | 5.219E-07 | 2.036E-06 | 1.990E-01 |
| 110 | 1.38E-01 | 8.064E+01 | 8.050E+01 | 5.778E+02 | 1.498E-06 | 4.424E-06 | 7.68E-02 | 1.444E+02 | 1.442E+02 | 1.034E+03 | 4.674E-07 | 1.857E-06 | 1.936E-01 |
| 115 | 1.46E-01 | 7.314E+01 | 7.300E+01 | 5.240E+02 | 1.821E-06 | 4.948E-06 | 7.04E-02 | 1.519E+02 | 1.517E+02 | 1.088E+03 | 4.223E-07 | 1.705E-06 | 1.867E-01 |
| 120 | 1.55E-01 | 6.593E+01 | 6.579E+01 | 4.724E+02 | 2.241E-06 | 5.465E-06 | 6.43E-02 | 1.591E+02 | 1.589E+02 | 1.140E+03 | 3.849E-07 | 1.576E-06 | 1.784E-01 |
| 125 | 1.64E-01 | 5.908E+01 | 5.894E+01 | 4.233E+02 | 2.791E-06 | 5.891E-06 | 5.83E-02 | 1.659E+02 | 1.658E+02 | 1.189E+03 | 3.538E-07 | 1.465E-06 | 1.688E-01 |
| 130 | 1.72E-01 | 5.263E+01 | 5.249E+01 | 3.771E+02 | 3.516E-06 | 6.065E-06 | 5.25E-02 | 1.724E+02 | 1.722E+02 | 1.235E+03 | 3.278E-07 | 1.371E-06 | 1.578E-01 |
| 135 | 1.79E-01 | 4.664E+01 | 4.650E+01 | 3.342E+02 | 4.478E-06 | 5.687E-06 | 4.68E-02 | 1.784E+02 | 1.782E+02 | 1.278E+03 | 3.062E-07 | 1.292E-06 | 1.457E-01 |
| 140 | 1.84E-01 | 4.115E+01 | 4.101E+01 | 2.948E+02 | 5.752E-06 | 4.241E-06 | 4.13E-02 | 1.839E+02 | 1.837E+02 | 1.317E+03 | 2.881E-07 | 1.225E-06 | 1.324E-01 |
| 145 | 1.87E-01 | 3.620E+01 | 3.606E+01 | 2.594E+02 | 7.431E-06 | 8.828E-07 | 3.59E-02 | 1.888E+02 | 1.887E+02 | 1.353E+03 | 2.732E-07 | 1.169E-06 | 1.182E-01 |
| 150 | 1.85E-01 | 3.184E+01 | 3.170E+01 | 2.281E+02 | 9.609E-06 | -5.638E-06 | 3.06E-02 | 1.932E+02 | 1.930E+02 | 1.384E+03 | 2.610E-07 | 1.122E-06 | 1.030E-01 |
| 155 | 1.78E-01 | 2.809E+01 | 2.795E+01 | 2.012E+02 | 1.235E-05 | -1.690E-05 | 2.53E-02 | 1.969E+02 | 1.968E+02 | 1.411E+03 | 2.512E-07 | 1.085E-06 | 8.707E-02 |
| 160 | 1.62E-01 | 2.498E+01 | 2.484E+01 | 1.790E+02 | 1.561E-05 | -3.426E-05 | 2.02E-02 | 2.000E+02 | 1.999E+02 | 1.433E+03 | 2.434E-07 | 1.055E-06 | 7.047E-02 |
| 165 | 1.36E-01 | 2.253E+01 | 2.239E+01 | 1.614E+02 | 1.918E-05 | -5.761E-05 | 1.51E-02 | 2.025E+02 | 2.023E+02 | 1.451E+03 | 2.376E-07 | 1.032E-06 | 5.333E-02 |
| 170 | 9.87E-02 | 2.077E+01 | 2.063E+01 | 1.488E+02 | 2.257E-05 | -8.357E-05 | 1.00E-02 | 2.042E+02 | 2.041E+02 | 1.463E+03 | 2.335E-07 | 1.016E-06 | 3.578E-02 |
| 175 | 5.22E-02 | 1.971E+01 | 1.957E+01 | 1.412E+02 | 2.506E-05 | -1.049E-04 | 5.01E-03 | 2.053E+02 | 2.051E+02 | 1.471E+03 | 2.311E-07 | 1.007E-06 | 1.796E-02 |
| 180 | 0. | 1.936E+01 | 1.922E+01 | 1.387E+02 | 2.599E-05 | -1.133E-04 | 0. | 2.056E+02 | 2.055E+02 | 1.473E+03 | 2.303E-07 | 1.004E-06 | 0. |

K ZERO (1) => PI PLUS (2) + PI MINUS (3) AT 250 GEV/C P1 LAB

M1 = 4.97710E-01 M2 = 1.39569E-01 M3 = 1.39569E-01
P2CM= 2.06032E-01
E2CM= 2.48855E-01 E3CM= 2.48855E-01

1-V1LAB= 1.982E-06 GCM = 5.02302E+02 S = 2.47715E-01

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.285E+02 | 2.284E+02 | 1.637E+03 | 1.866E-07 | 8.131E-07 | 0. | 2.151E+01 | 2.137E+01 | 1.541E+02 | 2.105E-05 | -9.175E-05 | 0. |
| 1 | 9.02E-04 | 2.285E+02 | 2.283E+02 | 1.637E+03 | 1.866E-07 | 8.132E-07 | 9.57E-03 | 2.153E+01 | 2.139E+01 | 1.542E+02 | 2.102E-05 | -9.147E-05 | 3.596E-03 |
| 2 | 1.80E-03 | 2.284E+02 | 2.283E+02 | 1.637E+03 | 1.867E-07 | 8.135E-07 | 1.91E-02 | 2.157E+01 | 2.143E+01 | 1.546E+02 | 2.093E-05 | -9.063E-05 | 7.190E-03 |
| 3 | 2.71E-03 | 2.283E+02 | 2.282E+02 | 1.636E+03 | 1.868E-07 | 8.140E-07 | 2.85E-02 | 2.165E+01 | 2.151E+01 | 1.551E+02 | 2.078E-05 | -8.924E-05 | 1.078E-02 |
| 4 | 3.61E-03 | 2.282E+02 | 2.281E+02 | 1.635E+03 | 1.870E-07 | 8.147E-07 | 3.78E-02 | 2.176E+01 | 2.162E+01 | 1.559E+02 | 2.057E-05 | -8.734E-05 | 1.437E-02 |
| 5 | 4.51E-03 | 2.281E+02 | 2.280E+02 | 1.634E+03 | 1.872E-07 | 8.156E-07 | 4.70E-02 | 2.190E+01 | 2.176E+01 | 1.569E+02 | 2.030E-05 | -8.497E-05 | 1.796E-02 |
| 6 | 5.41E-03 | 2.279E+02 | 2.278E+02 | 1.633E+03 | 1.875E-07 | 8.167E-07 | 5.59E-02 | 2.208E+01 | 2.194E+01 | 1.582E+02 | 1.998E-05 | -8.216E-05 | 2.154E-02 |
| 7 | 6.32E-03 | 2.277E+02 | 2.276E+02 | 1.632E+03 | 1.878E-07 | 8.180E-07 | 6.46E-02 | 2.228E+01 | 2.214E+01 | 1.596E+02 | 1.962E-05 | -7.897E-05 | 2.511E-02 |
| 8 | 7.22E-03 | 2.275E+02 | 2.273E+02 | 1.630E+03 | 1.882E-07 | 8.195E-07 | 7.30E-02 | 2.252E+01 | 2.238E+01 | 1.613E+02 | 1.921E-05 | -7.546E-05 | 2.867E-02 |
| 9 | 8.13E-03 | 2.272E+02 | 2.271E+02 | 1.628E+03 | 1.887E-07 | 8.213E-07 | 8.11E-02 | 2.278E+01 | 2.264E+01 | 1.632E+02 | 1.876E-05 | -7.168E-05 | 3.223E-02 |
| 10 | 9.03E-03 | 2.269E+02 | 2.268E+02 | 1.626E+03 | 1.892E-07 | 8.232E-07 | 8.88E-02 | 2.308E+01 | 2.294E+01 | 1.654E+02 | 1.828E-05 | -6.769E-05 | 3.578E-02 |
| 15 | 1.36E-02 | 2.250E+02 | 2.248E+02 | 1.612E+03 | 1.925E-07 | 8.360E-07 | 1.22E-01 | 2.504E+01 | 2.490E+01 | 1.794E+02 | 1.554E-05 | -4.666E-05 | 5.333E-02 |
| 20 | 1.82E-02 | 2.222E+02 | 2.221E+02 | 1.592E+03 | 1.972E-07 | 8.544E-07 | 1.45E-01 | 2.775E+01 | 2.761E+01 | 1.988E+02 | 1.265E-05 | -2.775E-05 | 7.047E-02 |
| 25 | 2.28E-02 | 2.188E+02 | 2.187E+02 | 1.568E+03 | 2.035E-07 | 8.786E-07 | 1.60E-01 | 3.121E+01 | 3.107E+01 | 2.236E+02 | 1.000E-05 | -1.369E-05 | 8.707E-02 |
| 30 | 2.75E-02 | 2.146E+02 | 2.145E+02 | 1.538E+03 | 2.114E-07 | 9.092E-07 | 1.67E-01 | 3.537E+01 | 3.524E+01 | 2.535E+02 | 7.783E-06 | -4.567E-06 | 1.030E-01 |
| 35 | 3.23E-02 | 2.098E+02 | 2.096E+02 | 1.503E+03 | 2.213E-07 | 9.468E-07 | 1.68E-01 | 4.023E+01 | 4.009E+01 | 2.882E+02 | 6.019E-06 | 7.150E-07 | 1.182E-01 |
| 40 | 3.71E-02 | 2.043E+02 | 2.041E+02 | 1.464E+03 | 2.334E-07 | 9.922E-07 | 1.66E-01 | 4.572E+01 | 4.558E+01 | 3.276E+02 | 4.659E-06 | 3.435E-06 | 1.324E-01 |
| 45 | 4.21E-02 | 1.982E+02 | 1.980E+02 | 1.420E+03 | 2.480E-07 | 1.046E-06 | 1.61E-01 | 5.182E+01 | 5.168E+01 | 3.713E+02 | 3.627E-06 | 4.607E-06 | 1.457E-01 |
| 50 | 4.72E-02 | 1.915E+02 | 1.914E+02 | 1.372E+03 | 2.655E-07 | 1.111E-06 | 1.55E-01 | 5.848E+01 | 5.834E+01 | 4.190E+02 | 2.848E-06 | 4.912E-06 | 1.578E-01 |
| 55 | 5.25E-02 | 1.844E+02 | 1.842E+02 | 1.321E+03 | 2.866E-07 | 1.197E-06 | 1.47E-01 | 6.564E+01 | 6.550E+01 | 4.703E+02 | 2.260E-06 | 4.772E-06 | 1.688E-01 |
| 60 | 5.78E-02 | 1.767E+02 | 1.766E+02 | 1.266E+03 | 3.118E-07 | 1.276E-06 | 1.40E-01 | 7.326E+01 | 7.312E+01 | 5.249E+02 | 1.815E-06 | 4.426E-06 | 1.784E-01 |
| 65 | 6.34E-02 | 1.687E+02 | 1.686E+02 | 1.209E+03 | 3.421E-07 | 1.381E-06 | 1.32E-01 | 8.126E+01 | 8.112E+01 | 5.822E+02 | 1.475E-06 | 4.008E-06 | 1.867E-01 |
| 70 | 6.92E-02 | 1.604E+02 | 1.603E+02 | 1.149E+03 | 3.786E-07 | 1.504E-06 | 1.24E-01 | 8.960E+01 | 8.946E+01 | 6.420E+02 | 1.213E-06 | 3.584E-06 | 1.936E-01 |
| 75 | 7.51E-02 | 1.518E+02 | 1.516E+02 | 1.088E+03 | 4.228E-07 | 1.649E-06 | 1.16E-01 | 9.821E+01 | 9.808E+01 | 7.037E+02 | 1.011E-06 | 3.187E-06 | 1.990E-01 |
| 80 | 8.13E-02 | 1.430E+02 | 1.428E+02 | 1.024E+03 | 4.765E-07 | 1.819E-06 | 1.09E-01 | 1.070E+02 | 1.069E+02 | 7.669E+02 | 8.502E-07 | 2.832E-06 | 2.029E-01 |
| 85 | 8.77E-02 | 1.340E+02 | 1.339E+02 | 9.602E+02 | 5.423E-07 | 2.017E-06 | 1.01E-01 | 1.160E+02 | 1.158E+02 | 8.310E+02 | 7.241E-07 | 2.519E-06 | 2.052E-01 |
| 90 | 9.44E-02 | 1.250E+02 | 1.249E+02 | 8.956E+02 | 6.233E-07 | 2.249E-06 | 9.44E-02 | 1.250E+02 | 1.249E+02 | 8.956E+02 | 6.233E-07 | 2.249E-06 | 2.060E-01 |
| 95 | 1.01E-01 | 1.160E+02 | 1.158E+02 | 8.310E+02 | 7.241E-07 | 2.519E-06 | 8.77E-02 | 1.340E+02 | 1.339E+02 | 9.602E+02 | 5.423E-07 | 2.017E-06 | 2.052E-01 |
| 100 | 1.09E-01 | 1.070E+02 | 1.069E+02 | 7.669E+02 | 8.502E-07 | 2.832E-06 | 8.13E-02 | 1.430E+02 | 1.428E+02 | 1.024E+03 | 4.765E-07 | 1.819E-06 | 2.029E-01 |
| 105 | 1.16E-01 | 9.821E+01 | 9.808E+01 | 7.037E+02 | 1.010E-06 | 3.187E-06 | 7.51E-02 | 1.518E+02 | 1.516E+02 | 1.088E+03 | 4.228E-07 | 1.649E-06 | 1.990E-01 |
| 110 | 1.24E-01 | 8.960E+01 | 8.946E+01 | 6.420E+02 | 1.213E-06 | 3.584E-06 | 6.92E-02 | 1.604E+02 | 1.603E+02 | 1.149E+03 | 3.786E-07 | 1.504E-06 | 1.936E-01 |
| 115 | 1.32E-01 | 8.126E+01 | 8.112E+01 | 5.822E+02 | 1.475E-06 | 4.008E-06 | 6.34E-02 | 1.687E+02 | 1.686E+02 | 1.209E+03 | 3.421E-07 | 1.381E-06 | 1.867E-01 |
| 120 | 1.40E-01 | 7.326E+01 | 7.312E+01 | 5.249E+02 | 1.815E-06 | 4.426E-06 | 5.78E-02 | 1.767E+02 | 1.766E+02 | 1.266E+03 | 3.118E-07 | 1.276E-06 | 1.784E-01 |
| 125 | 1.47E-01 | 6.564E+01 | 6.550E+01 | 4.703E+02 | 2.260E-06 | 4.772E-06 | 5.25E-02 | 1.844E+02 | 1.842E+02 | 1.321E+03 | 2.866E-07 | 1.187E-06 | 1.688E-01 |
| 130 | 1.55E-01 | 5.848E+01 | 5.834E+01 | 4.190E+02 | 2.848E-06 | 4.912E-06 | 4.72E-02 | 1.915E+02 | 1.914E+02 | 1.372E+03 | 2.655E-07 | 1.111E-06 | 1.578E-01 |
| 135 | 1.61E-01 | 5.182E+01 | 5.168E+01 | 3.713E+02 | 3.627E-06 | 4.607E-06 | 4.21E-02 | 1.982E+02 | 1.980E+02 | 1.420E+03 | 2.480E-07 | 1.046E-06 | 1.457E-01 |
| 140 | 1.66E-01 | 4.572E+01 | 4.558E+01 | 3.276E+02 | 4.659E-06 | 3.435E-06 | 3.71E-02 | 2.043E+02 | 2.041E+02 | 1.464E+03 | 2.334E-07 | 9.922E-07 | 1.324E-01 |
| 145 | 1.68E-01 | 4.023E+01 | 4.009E+01 | 2.882E+02 | 6.019E-06 | 7.150E-07 | 3.23E-02 | 2.098E+02 | 2.096E+02 | 1.503E+03 | 2.213E-07 | 9.468E-07 | 1.182E-01 |
| 150 | 1.67E-01 | 3.537E+01 | 3.524E+01 | 2.535E+02 | 7.783E-06 | -4.567E-06 | 2.75E-02 | 2.146E+02 | 2.145E+02 | 1.538E+03 | 2.114E-07 | 9.092E-07 | 1.030E-01 |
| 155 | 1.60E-01 | 3.121E+01 | 3.107E+01 | 2.236E+02 | 1.000E-05 | -1.369E-05 | 2.28E-02 | 2.188E+02 | 2.187E+02 | 1.568E+03 | 2.035E-07 | 8.786E-07 | 8.707E-02 |
| 160 | 1.45E-01 | 2.775E+01 | 2.761E+01 | 1.988E+02 | 1.265E-05 | -2.775E-05 | 1.82E-02 | 2.222E+02 | 2.221E+02 | 1.592E+03 | 1.972E-07 | 8.544E-07 | 7.047E-02 |
| 165 | 1.22E-01 | 2.504E+01 | 2.490E+01 | 1.794E+02 | 1.554E-05 | -4.666E-05 | 1.36E-02 | 2.250E+02 | 2.248E+02 | 1.612E+03 | 1.925E-07 | 8.360E-07 | 5.333E-02 |
| 170 | 8.88E-02 | 2.308E+01 | 2.294E+01 | 1.654E+02 | 1.828E-05 | -6.769E-05 | 9.03E-03 | 2.269E+02 | 2.268E+02 | 1.626E+03 | 1.892E-07 | 8.232E-07 | 3.578E-02 |
| 175 | 4.70E-02 | 2.190E+01 | 2.176E+01 | 1.569E+02 | 2.030E-05 | -8.497E-05 | 4.51E-03 | 2.281E+02 | 2.280E+02 | 1.634E+03 | 1.872E-07 | 8.156E-07 | 1.796E-02 |
| 180 | 0. | 2.151E+01 | 2.137E+01 | 1.541E+02 | 2.105E-05 | -9.175E-05 | 0. | 2.285E+02 | 2.284E+02 | 1.637E+03 | 1.866E-07 | 8.131E-07 | 0. |

K ZERO (1) => PI PLUS (2) + PI MINUS (3) AT 275 GEV/C P1 LAB

M1 = 4.97710E-01 M2 = 1.39569E-01 M3 = 1.39569E-01
P2CM= 2.06032E-01
E2CM= 2.48855E-01 E3CM= 2.48855E-01

1-V1LAB= 1.638E-06 GCM = 5.52531E+02 S = 2.47715E-01

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.513E+02 | 2.512E+02 | 1.801E+03 | 1.542E-07 | 6.720E-07 | 0. | 2.366E+01 | 2.352E+01 | 1.695E+02 | 1.740E-05 | -7.583E-05 | 0. |
| 1 | 8.20E-04 | 2.513E+02 | 2.512E+02 | 1.801E+03 | 1.542E-07 | 6.721E-07 | 8.70E-03 | 2.368E+01 | 2.354E+01 | 1.697E+02 | 1.737E-05 | -7.559E-05 | 3.596E-03 |
| 2 | 1.64E-03 | 2.513E+02 | 2.511E+02 | 1.800E+03 | 1.543E-07 | 6.723E-07 | 1.74E-02 | 2.373E+01 | 2.359E+01 | 1.700E+02 | 1.730E-05 | -7.490E-05 | 7.190E-03 |
| 3 | 2.46E-03 | 2.512E+02 | 2.510E+02 | 1.800E+03 | 1.544E-07 | 6.727E-07 | 2.59E-02 | 2.382E+01 | 2.368E+01 | 1.706E+02 | 1.717E-05 | -7.375E-05 | 1.078E-02 |
| 4 | 3.28E-03 | 2.511E+02 | 2.509E+02 | 1.799E+03 | 1.545E-07 | 6.733E-07 | 3.44E-02 | 2.394E+01 | 2.380E+01 | 1.715E+02 | 1.700F-05 | -7.218E-05 | 1.437F-02 |
| 5 | 4.10E-03 | 2.509E+02 | 2.508E+02 | 1.798E+03 | 1.547E-07 | 6.741E-07 | 4.27E-02 | 2.409E+01 | 2.395E+01 | 1.726E+02 | 1.678E-05 | -7.022E-05 | 1.796E-02 |
| 6 | 4.92E-03 | 2.507E+02 | 2.506E+02 | 1.796E+03 | 1.549E-07 | 6.750E-07 | 5.08E-02 | 2.428E+01 | 2.415E+01 | 1.740E+02 | 1.652F-05 | -6.790E-05 | 2.154E-02 |
| 7 | 5.74E-03 | 2.505E+02 | 2.504E+02 | 1.795E+03 | 1.552E-07 | 6.761E-07 | 5.87E-02 | 2.451E+01 | 2.437E+01 | 1.756E+02 | 1.621E-05 | -6.526E-05 | 2.511E-02 |
| 8 | 6.57E-03 | 2.502E+02 | 2.501E+02 | 1.793E+03 | 1.555E-07 | 6.773E-07 | 6.63E-02 | 2.477E+01 | 2.463E+01 | 1.775E+02 | 1.588E-05 | -6.236E-05 | 2.867E-02 |
| 9 | 7.39E-03 | 2.499E+02 | 2.498E+02 | 1.791E+03 | 1.559E-07 | 6.787E-07 | 7.37E-02 | 2.506E+01 | 2.492E+01 | 1.796E+02 | 1.551E-05 | -5.924F-05 | 3.223E-02 |
| 10 | 8.21E-03 | 2.496E+02 | 2.495E+02 | 1.788E+03 | 1.563E-07 | 6.803E-07 | 8.07E-02 | 2.539E+01 | 2.525E+01 | 1.819E+02 | 1.511E-05 | -5.595E-05 | 3.578E-02 |
| 15 | 1.23E-02 | 2.475E+02 | 2.473E+02 | 1.773E+03 | 1.591E-07 | 6.909E-07 | 1.11E-01 | 2.754E+01 | 2.740E+01 | 1.973E+02 | 1.284E-05 | -3.856E-05 | 5.333E-02 |
| 20 | 1.65E-02 | 2.445E+02 | 2.443E+02 | 1.752E+03 | 1.630E-07 | 7.061E-07 | 1.32E-01 | 3.053E+01 | 3.039E+01 | 2.187E+02 | 1.045E-05 | -2.293E-05 | 7.047E-02 |
| 25 | 2.07E-02 | 2.407E+02 | 2.405E+02 | 1.724E+03 | 1.681E-07 | 7.261E-07 | 1.45E-01 | 3.433E+01 | 3.419E+01 | 2.459E+02 | 8.266E-06 | -1.131E-05 | 8.707F-02 |
| 30 | 2.50E-02 | 2.361E+02 | 2.359E+02 | 1.692E+03 | 1.747E-07 | 7.514E-07 | 1.52E-01 | 3.891E+01 | 3.877E+01 | 2.788E+02 | 6.432E-06 | -3.775E-06 | 1.030E-01 |
| 35 | 2.93E-02 | 2.308E+02 | 2.306E+02 | 1.653E+03 | 1.829E-07 | 7.824E-07 | 1.53E-01 | 4.425E+01 | 4.411E+01 | 3.170E+02 | 4.974E-06 | 5.909E-07 | 1.182E-01 |
| 40 | 3.38E-02 | 2.247E+02 | 2.246E+02 | 1.610E+03 | 1.929E-07 | 8.200E-07 | 1.51E-01 | 5.029E+01 | 5.015E+01 | 3.604E+02 | 3.850E-06 | 2.839E-06 | 1.324E-01 |
| 45 | 3.83E-02 | 2.180E+02 | 2.179E+02 | 1.562E+03 | 2.049E-07 | 8.649E-07 | 1.46E-01 | 5.700E+01 | 5.686E+01 | 4.084E+02 | 2.997E-06 | 3.807E-06 | 1.457E-01 |
| 50 | 4.29E-02 | 2.107E+02 | 2.105E+02 | 1.509E+03 | 2.194E-07 | 9.180E-07 | 1.41E-01 | 6.433E+01 | 6.419E+01 | 4.609E+02 | 2.354E-06 | 4.060E-06 | 1.578E-01 |
| 55 | 4.77E-02 | 2.028E+02 | 2.027E+02 | 1.453E+03 | 2.368E-07 | 9.808E-07 | 1.34E-01 | 7.220E+01 | 7.207E+01 | 5.173E+02 | 1.868E-06 | 3.944E-06 | 1.688E-01 |
| 60 | 5.26E-02 | 1.944E+02 | 1.943E+02 | 1.393E+03 | 2.577E-07 | 1.055E-06 | 1.27E-01 | 8.058E+01 | 8.044E+01 | 5.774E+02 | 1.500E-06 | 3.658E-06 | 1.784E-01 |
| 65 | 5.76E-02 | 1.856E+02 | 1.855E+02 | 1.330E+03 | 2.827E-07 | 1.141E-06 | 1.20E-01 | 8.939E+01 | 8.925E+01 | 6.405E+02 | 1.219E-06 | 3.312E-06 | 1.867E-01 |
| 70 | 6.29E-02 | 1.764E+02 | 1.763E+02 | 1.264E+03 | 3.129E-07 | 1.243E-06 | 1.13E-01 | 9.856E+01 | 9.843E+01 | 7.062E+02 | 1.003E-06 | 2.962E-06 | 1.936E-01 |
| 75 | 6.83E-02 | 1.670E+02 | 1.668E+02 | 1.196E+03 | 3.494E-07 | 1.363E-06 | 1.06E-01 | 1.080E+02 | 1.079E+02 | 7.741E+02 | 8.345E-07 | 2.634E-06 | 1.990E-01 |
| 80 | 7.39E-02 | 1.573E+02 | 1.571E+02 | 1.127E+03 | 3.938E-07 | 1.503E-06 | 9.87E-02 | 1.177E+02 | 1.176E+02 | 8.435E+02 | 7.027E-07 | 2.340E-06 | 2.029E-01 |
| 85 | 7.98E-02 | 1.474E+02 | 1.473E+02 | 1.056E+03 | 4.481E-07 | 1.667E-06 | 9.22E-02 | 1.276E+02 | 1.274E+02 | 9.141E+02 | 5.984E-07 | 2.082E-06 | 2.052E-01 |
| 90 | 8.59E-02 | 1.375E+02 | 1.374E+02 | 9.852E+02 | 5.152E-07 | 1.859E-06 | 8.59E-02 | 1.375E+02 | 1.374E+02 | 9.852E+02 | 5.152E-07 | 1.859E-06 | 2.060E-01 |
| 95 | 9.22E-02 | 1.276E+02 | 1.274E+02 | 9.141E+02 | 5.984E-07 | 2.082E-06 | 7.98E-02 | 1.474E+02 | 1.473E+02 | 1.056E+03 | 4.481E-07 | 1.667E-06 | 2.052E-01 |
| 100 | 9.87E-02 | 1.177E+02 | 1.176E+02 | 8.435E+02 | 7.027E-07 | 2.340E-06 | 7.39E-02 | 1.573E+02 | 1.571E+02 | 1.127E+03 | 3.938E-07 | 1.503E-06 | 2.029E-01 |
| 105 | 1.06E-01 | 1.080E+02 | 1.079E+02 | 7.741E+02 | 8.345E-07 | 2.634E-06 | 6.83E-02 | 1.670E+02 | 1.668E+02 | 1.196E+03 | 3.494E-07 | 1.363E-06 | 1.990E-01 |
| 110 | 1.13E-01 | 9.856E+01 | 9.843E+01 | 7.062E+02 | 1.003E-06 | 2.962E-06 | 6.29E-02 | 1.764E+02 | 1.763E+02 | 1.264E+03 | 3.129E-07 | 1.243E-06 | 1.936E-01 |
| 115 | 1.20E-01 | 8.939E+01 | 8.925E+01 | 6.405E+02 | 1.219E-06 | 3.312E-06 | 5.76E-02 | 1.856E+02 | 1.855E+02 | 1.330E+03 | 2.827E-07 | 1.141E-06 | 1.867E-01 |
| 120 | 1.27E-01 | 8.058E+01 | 8.044E+01 | 5.774E+02 | 1.500E-06 | 3.658E-06 | 5.26E-02 | 1.944E+02 | 1.943E+02 | 1.393E+03 | 2.577E-07 | 1.055E-06 | 1.784E-01 |
| 125 | 1.34E-01 | 7.220E+01 | 7.207E+01 | 5.173E+02 | 1.868E-06 | 3.944E-06 | 4.77E-02 | 2.028E+02 | 2.027E+02 | 1.453E+03 | 2.368E-07 | 9.808E-07 | 1.688E-01 |
| 130 | 1.41E-01 | 6.433E+01 | 6.419E+01 | 4.609E+02 | 2.354E-06 | 4.060E-06 | 4.29E-02 | 2.107E+02 | 2.105E+02 | 1.509E+03 | 2.194E-07 | 9.180E-07 | 1.578E-01 |
| 135 | 1.46E-01 | 5.700E+01 | 5.686E+01 | 4.084E+02 | 2.997E-06 | 3.807E-06 | 3.83E-02 | 2.180E+02 | 2.179E+02 | 1.562E+03 | 2.049E-07 | 8.649E-07 | 1.457E-01 |
| 140 | 1.51E-01 | 5.029E+01 | 5.015E+01 | 3.604E+02 | 3.850E-06 | 2.839E-06 | 3.38E-02 | 2.247E+02 | 2.246E+02 | 1.610E+03 | 1.929E-07 | 8.200E-07 | 1.324E-01 |
| 145 | 1.53E-01 | 4.425E+01 | 4.411E+01 | 3.170E+02 | 4.974E-06 | 5.909E-07 | 2.93E-02 | 2.308E+02 | 2.306E+02 | 1.653E+03 | 1.829E-07 | 7.824E-07 | 1.182E-01 |
| 150 | 1.52E-01 | 3.891E+01 | 3.877E+01 | 2.788E+02 | 6.432E-06 | -3.775E-06 | 2.50E-02 | 2.361E+02 | 2.359E+02 | 1.692E+03 | 1.747E-07 | 7.514E-07 | 1.030E-01 |
| 155 | 1.45E-01 | 3.433E+01 | 3.419E+01 | 2.459E+02 | 8.266E-06 | -1.131E-05 | 2.07E-02 | 2.407E+02 | 2.405E+02 | 1.724E+03 | 1.681E-07 | 7.261E-07 | 8.707E-02 |
| 160 | 1.32E-01 | 3.053E+01 | 3.039E+01 | 2.187E+02 | 1.045E-05 | -2.293E-05 | 1.65E-02 | 2.445E+02 | 2.443E+02 | 1.752E+03 | 1.630E-07 | 7.061E-07 | 7.047E-02 |
| 165 | 1.11E-01 | 2.754E+01 | 2.740E+01 | 1.973E+02 | 1.284E-05 | -3.856E-05 | 1.23E-02 | 2.475E+02 | 2.473E+02 | 1.773E+03 | 1.591E-07 | 6.909E-07 | 5.333E-02 |
| 170 | 8.07E-02 | 2.539E+01 | 2.525E+01 | 1.819E+02 | 1.511E-05 | -5.595E-05 | 8.21E-03 | 2.496E+02 | 2.495E+02 | 1.788E+03 | 1.563E-07 | 6.803E-07 | 3.578E-02 |
| 175 | 4.27E-02 | 2.409E+01 | 2.395E+01 | 1.726E+02 | 1.678E-05 | -7.022E-05 | 4.10E-03 | 2.509E+02 | 2.508E+02 | 1.798E+03 | 1.547E-07 | 6.741E-07 | 1.796F-02 |
| 180 | 0. | 2.366E+01 | 2.352E+01 | 1.695E+02 | 1.740E-05 | -7.583E-05 | 0. | 2.513E+02 | 2.512E+02 | 1.801E+03 | 1.542E-07 | 6.720E-07 | 0. |

K ZERO (1) => PI PLUS (2) + PI MINUS (3) AT 300 GEV/C P1 LAB

M1 = 4.97710E-01 M2 = 1.39569E-01 M3 = 1.39569E-01
P2CM= 2.06032E-01
E2CM= 2.48855E-01 E3CM= 2.48855E-01

1-V1LAB= 1.376E-06 GCM = 6.02761E+02 S = 2.47715E-01

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.742E+02 | 2.740E+02 | 1.965E+03 | 1.296E-07 | 5.646E-07 | 0. | 2.581E+01 | 2.567E+01 | 1.849E+02 | 1.462E-05 | -6.371E-05 | 0. |
| 1 | 7.51E-04 | 2.742E+02 | 2.740E+02 | 1.964E+03 | 1.296E-07 | 5.647E-07 | 7.98E-03 | 2.583E+01 | 2.569E+01 | 1.851E+02 | 1.460E-05 | -6.352E-05 | 3.596E-03 |
| 2 | 1.50E-03 | 2.741E+02 | 2.740E+02 | 1.964E+03 | 1.296E-07 | 5.649E-07 | 1.59E-02 | 2.589E+01 | 2.575E+01 | 1.855E+02 | 1.453E-05 | -6.293E-05 | 7.190E-03 |
| 3 | 2.25E-03 | 2.740E+02 | 2.739E+02 | 1.963E+03 | 1.297E-07 | 5.653E-07 | 2.38E-02 | 2.598E+01 | 2.584E+01 | 1.862E+02 | 1.443E-05 | -6.197E-05 | 1.078E-02 |
| 4 | 3.01E-03 | 2.739E+02 | 2.737E+02 | 1.962E+03 | 1.298E-07 | 5.658E-07 | 3.15E-02 | 2.611E+01 | 2.597E+01 | 1.871E+02 | 1.428E-05 | -6.066E-05 | 1.437E-02 |
| 5 | 3.76E-03 | 2.737E+02 | 2.736E+02 | 1.961E+03 | 1.300E-07 | 5.664E-07 | 3.91E-02 | 2.628E+01 | 2.614E+01 | 1.883E+02 | 1.410E-05 | -5.901E-05 | 1.796E-02 |
| 6 | 4.51E-03 | 2.735E+02 | 2.734E+02 | 1.960E+03 | 1.302E-07 | 5.672E-07 | 4.66E-02 | 2.649E+01 | 2.635E+01 | 1.898E+02 | 1.388E-05 | -5.706E-05 | 2.154E-02 |
| 7 | 5.26E-03 | 2.733E+02 | 2.731E+02 | 1.958E+03 | 1.304E-07 | 5.681E-07 | 5.38E-02 | 2.674E+01 | 2.660E+01 | 1.916E+02 | 1.362E-05 | -5.484E-05 | 2.511E-02 |
| 8 | 6.02E-03 | 2.730E+02 | 2.728E+02 | 1.956E+03 | 1.307E-07 | 5.691E-07 | 6.08E-02 | 2.702E+01 | 2.688E+01 | 1.936E+02 | 1.334E-05 | -5.240E-05 | 2.867E-02 |
| 9 | 6.77E-03 | 2.727E+02 | 2.725E+02 | 1.954E+03 | 1.310E-07 | 5.703E-07 | 6.75E-02 | 2.734E+01 | 2.720E+01 | 1.959E+02 | 1.303E-05 | -4.978E-05 | 3.223E-02 |
| 10 | 7.53E-03 | 2.723E+02 | 2.722E+02 | 1.951E+03 | 1.314E-07 | 5.717E-07 | 7.40E-02 | 2.770E+01 | 2.756E+01 | 1.985E+02 | 1.269E-05 | -4.701E-05 | 3.578E-02 |
| 15 | 1.13E-02 | 2.700E+02 | 2.698E+02 | 1.934E+03 | 1.336E-07 | 5.806E-07 | 1.02E-01 | 3.004E+01 | 2.990E+01 | 2.153E+02 | 1.079E-05 | -3.240E-05 | 5.333E-02 |
| 20 | 1.51E-02 | 2.667E+02 | 2.666E+02 | 1.911E+03 | 1.369E-07 | 5.933E-07 | 1.21E-01 | 3.330E+01 | 3.316E+01 | 2.386E+02 | 8.783E-06 | -1.927E-05 | 7.047E-02 |
| 25 | 1.90E-02 | 2.626E+02 | 2.624E+02 | 1.881E+03 | 1.413E-07 | 6.101E-07 | 1.33E-01 | 3.745E+01 | 3.731E+01 | 2.683E+02 | 6.946E-06 | -9.505E-06 | 8.707E-02 |
| 30 | 2.29E-02 | 2.576E+02 | 2.574E+02 | 1.845E+03 | 1.468E-07 | 6.314E-07 | 1.39E-01 | 4.245E+01 | 4.231E+01 | 3.042E+02 | 5.405E-06 | -3.172E-06 | 1.030E-01 |
| 35 | 2.69E-02 | 2.517E+02 | 2.516E+02 | 1.804E+03 | 1.537E-07 | 6.575E-07 | 1.40E-01 | 4.827E+01 | 4.813E+01 | 3.459E+02 | 4.180E-06 | 4.965E-07 | 1.182E-01 |
| 40 | 3.10E-02 | 2.451E+02 | 2.450E+02 | 1.756E+03 | 1.621E-07 | 6.890E-07 | 1.38E-01 | 5.487E+01 | 5.473E+01 | 3.931E+02 | 3.235E-06 | 2.386E-06 | 1.324E-01 |
| 45 | 3.51E-02 | 2.378E+02 | 2.377E+02 | 1.704E+03 | 1.722E-07 | 7.267E-07 | 1.34E-01 | 6.219E+01 | 6.205E+01 | 4.456E+02 | 2.519E-06 | 3.199E-06 | 1.457E-01 |
| 50 | 3.93E-02 | 2.298E+02 | 2.297E+02 | 1.647E+03 | 1.844E-07 | 7.714E-07 | 1.29E-01 | 7.017E+01 | 7.003E+01 | 5.028E+02 | 1.978E-06 | 3.411E-06 | 1.578E-01 |
| 55 | 4.37E-02 | 2.212E+02 | 2.211E+02 | 1.585E+03 | 1.990E-07 | 8.242E-07 | 1.23E-01 | 7.877E+01 | 7.863E+01 | 5.644E+02 | 1.570E-06 | 3.314E-06 | 1.688E-01 |
| 60 | 4.82E-02 | 2.121E+02 | 2.120E+02 | 1.520E+03 | 2.165E-07 | 8.862E-07 | 1.16E-01 | 8.791E+01 | 8.777E+01 | 6.298E+02 | 1.260E-06 | 3.074E-06 | 1.784E-01 |
| 65 | 5.28E-02 | 2.025E+02 | 2.023E+02 | 1.451E+03 | 2.376E-07 | 9.591E-07 | 1.10E-01 | 9.752E+01 | 9.738E+01 | 6.987E+02 | 1.024E-06 | 2.783E-06 | 1.867E-01 |
| 70 | 5.76E-02 | 1.925E+02 | 1.923E+02 | 1.379E+03 | 2.629E-07 | 1.045E-06 | 1.03E-01 | 1.075E+02 | 1.074E+02 | 7.704E+02 | 8.424E-07 | 2.489E-06 | 1.936E-01 |
| 75 | 6.26E-02 | 1.821E+02 | 1.820E+02 | 1.305E+03 | 2.936E-07 | 1.145E-06 | 9.67E-02 | 1.179E+02 | 1.177E+02 | 8.444E+02 | 7.012E-07 | 2.213E-06 | 1.990E-01 |
| 80 | 6.78E-02 | 1.716E+02 | 1.714E+02 | 1.229E+03 | 3.309E-07 | 1.263E-06 | 9.05E-02 | 1.284E+02 | 1.283E+02 | 9.202E+02 | 5.904E-07 | 1.966E-06 | 2.029E-01 |
| 85 | 7.31E-02 | 1.608E+02 | 1.607E+02 | 1.152E+03 | 3.766E-07 | 1.401E-06 | 8.45E-02 | 1.392E+02 | 1.390E+02 | 9.972E+02 | 5.028E-07 | 1.750E-06 | 2.052E-01 |
| 90 | 7.87E-02 | 1.500E+02 | 1.499E+02 | 1.075E+03 | 4.329E-07 | 1.562E-06 | 7.87E-02 | 1.500E+02 | 1.499E+02 | 1.075E+03 | 4.329E-07 | 1.562E-06 | 2.060E-01 |
| 95 | 8.45E-02 | 1.392E+02 | 1.390E+02 | 9.972E+02 | 5.028E-07 | 1.750E-06 | 7.31E-02 | 1.608E+02 | 1.607E+02 | 1.152E+03 | 3.766E-07 | 1.401E-06 | 2.052E-01 |
| 100 | 9.05E-02 | 1.284E+02 | 1.283E+02 | 9.202E+02 | 5.904E-07 | 1.966E-06 | 6.78E-02 | 1.716E+02 | 1.714E+02 | 1.229E+03 | 3.309E-07 | 1.263E-06 | 2.029E-01 |
| 105 | 9.67E-02 | 1.179E+02 | 1.177E+02 | 8.444E+02 | 7.012E-07 | 2.213E-06 | 6.26E-02 | 1.821E+02 | 1.820E+02 | 1.305E+03 | 2.936E-07 | 1.145E-06 | 1.990E-01 |
| 110 | 1.03E-01 | 1.075E+02 | 1.074E+02 | 7.704E+02 | 8.424E-07 | 2.489E-06 | 5.76E-02 | 1.925E+02 | 1.923E+02 | 1.379E+03 | 2.629E-07 | 1.045E-06 | 1.936E-01 |
| 115 | 1.10E-01 | 9.752E+01 | 9.738E+01 | 6.987E+02 | 1.024E-06 | 2.783E-06 | 5.28E-02 | 2.025E+02 | 2.023E+02 | 1.451E+03 | 2.376E-07 | 9.591E-07 | 1.867E-01 |
| 120 | 1.16E-01 | 8.791E+01 | 8.777E+01 | 6.298E+02 | 1.260E-06 | 3.074E-06 | 4.82E-02 | 2.121E+02 | 2.120E+02 | 1.520E+03 | 2.165E-07 | 8.862E-07 | 1.784E-01 |
| 125 | 1.23E-01 | 7.877E+01 | 7.863E+01 | 5.644E+02 | 1.570E-06 | 3.314E-06 | 4.37E-02 | 2.212E+02 | 2.211E+02 | 1.585E+03 | 1.990E-07 | 8.242E-07 | 1.688E-01 |
| 130 | 1.29E-01 | 7.017E+01 | 7.003E+01 | 5.028E+02 | 1.978E-06 | 3.411E-06 | 3.93E-02 | 2.298E+02 | 2.297E+02 | 1.647E+03 | 1.844E-07 | 7.714E-07 | 1.578E-01 |
| 135 | 1.34E-01 | 6.219E+01 | 6.205E+01 | 4.456E+02 | 2.519E-06 | 3.199E-06 | 3.51E-02 | 2.378E+02 | 2.377E+02 | 1.704E+03 | 1.722E-07 | 7.267E-07 | 1.457E-01 |
| 140 | 1.38E-01 | 5.487E+01 | 5.473E+01 | 3.931E+02 | 3.235E-06 | 2.386E-06 | 3.10E-02 | 2.451E+02 | 2.450E+02 | 1.756E+03 | 1.621E-07 | 6.890E-07 | 1.324E-01 |
| 145 | 1.40E-01 | 4.827E+01 | 4.813E+01 | 3.459E+02 | 4.180E-06 | 4.965E-07 | 2.69E-02 | 2.517E+02 | 2.516E+02 | 1.804E+03 | 1.537E-07 | 6.575E-07 | 1.182E-01 |
| 150 | 1.39E-01 | 4.245E+01 | 4.231E+01 | 3.042E+02 | 5.405E-06 | -3.172E-06 | 2.29E-02 | 2.576E+02 | 2.574E+02 | 1.845E+03 | 1.468E-07 | 6.314E-07 | 1.030E-01 |
| 155 | 1.33E-01 | 3.745E+01 | 3.731E+01 | 2.683E+02 | 6.946E-06 | -9.505E-06 | 1.90E-02 | 2.626E+02 | 2.624E+02 | 1.881E+03 | 1.413E-07 | 6.101E-07 | 8.707E-02 |
| 160 | 1.21E-01 | 3.330E+01 | 3.316E+01 | 2.386E+02 | 8.783E-06 | -1.927E-05 | 1.51E-02 | 2.667E+02 | 2.666E+02 | 1.911E+03 | 1.369E-07 | 5.933E-07 | 7.047E-02 |
| 165 | 1.02E-01 | 3.004E+01 | 2.990E+01 | 2.153E+02 | 1.079E-05 | -3.240E-05 | 1.13E-02 | 2.700E+02 | 2.698E+02 | 1.934E+03 | 1.336E-07 | 5.806E-07 | 5.333E-02 |
| 170 | 7.40E-02 | 2.770E+01 | 2.756E+01 | 1.985E+02 | 1.269E-05 | -4.701E-05 | 7.53E-03 | 2.723E+02 | 2.722E+02 | 1.951E+03 | 1.314E-07 | 5.717E-07 | 3.578E-02 |
| 175 | 3.91E-02 | 2.628E+01 | 2.614E+01 | 1.883E+02 | 1.410E-05 | -5.901E-05 | 3.76E-03 | 2.737E+02 | 2.736E+02 | 1.961E+03 | 1.300E-07 | 5.664E-07 | 1.796E-02 |
| 180 | 0. | 2.581E+01 | 2.567E+01 | 1.849E+02 | 1.462E-05 | -6.371E-05 | 0. | 2.742E+02 | 2.740E+02 | 1.965E+03 | 1.296E-07 | 5.646E-07 | 0. |

K ZERO (1) => PI PLUS (2) + PI MINUS (3) AT 350 GEV/C P1 LAB

M1 = 4.97710E-01 M2 = 1.39569E-01 M3 = 1.39569E-01
P2CM= 2.06032E-01
E2CM= 2.48855E-01 E3CM= 2.48855E-01

1-V1LAB= 1.011E-06 GCM = 7.03221E+02 S = 2.47715E-01

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 3.199E+02 | 3.197E+02 | 2.292E+03 | 9.518E-08 | 4.148E-07 | 0. | 3.011E+01 | 2.997E+01 | 2.158E+02 | 1.074E-05 | -4.681E-05 | 0. |
| 1 | 6.44E-04 | 3.199E+02 | 3.197E+02 | 2.292E+03 | 9.520E-08 | 4.149E-07 | 6.84E-03 | 3.014E+01 | 3.000E+01 | 2.159E+02 | 1.072E-05 | -4.667E-05 | 3.596E-03 |
| 2 | 1.29E-03 | 3.198E+02 | 3.197E+02 | 2.291E+03 | 9.523E-08 | 4.150E-07 | 1.36E-02 | 3.020E+01 | 3.006E+01 | 2.164E+02 | 1.068E-05 | -4.624E-05 | 7.190E-03 |
| 3 | 1.93E-03 | 3.197E+02 | 3.195E+02 | 2.291E+03 | 9.530E-08 | 4.153E-07 | 2.04E-02 | 3.031E+01 | 3.017E+01 | 2.172E+02 | 1.060E-05 | -4.553E-05 | 1.078E-02 |
| 4 | 2.58E-03 | 3.195E+02 | 3.194E+02 | 2.289E+03 | 9.539E-08 | 4.157E-07 | 2.70E-02 | 3.047E+01 | 3.033E+01 | 2.183E+02 | 1.049E-05 | -4.456E-05 | 1.437E-02 |
| 5 | 3.22E-03 | 3.193E+02 | 3.192E+02 | 2.288E+03 | 9.551E-08 | 4.161E-07 | 3.36E-02 | 3.066E+01 | 3.053E+01 | 2.197E+02 | 1.036E-05 | -4.335E-05 | 1.796E-02 |
| 6 | 3.87E-03 | 3.191E+02 | 3.190E+02 | 2.286E+03 | 9.566E-08 | 4.167E-07 | 3.99E-02 | 3.091E+01 | 3.077E+01 | 2.215E+02 | 1.020E-05 | -4.192E-05 | 2.154E-02 |
| 7 | 4.51E-03 | 3.188E+02 | 3.187E+02 | 2.284E+03 | 9.583E-08 | 4.174E-07 | 4.61E-02 | 3.119E+01 | 3.105E+01 | 2.235E+02 | 1.001E-05 | -4.029E-05 | 2.511E-02 |
| 8 | 5.16E-03 | 3.185E+02 | 3.183E+02 | 2.282E+03 | 9.603E-08 | 4.181E-07 | 5.21E-02 | 3.152E+01 | 3.138E+01 | 2.259E+02 | 9.801E-06 | -3.850E-05 | 2.867E-02 |
| 9 | 5.81E-03 | 3.181E+02 | 3.180E+02 | 2.279E+03 | 9.625E-08 | 4.190E-07 | 5.79E-02 | 3.190E+01 | 3.176E+01 | 2.285E+02 | 9.573E-06 | -3.657E-05 | 3.223E-02 |
| 10 | 6.45E-03 | 3.177E+02 | 3.175E+02 | 2.276E+03 | 9.651E-08 | 4.200E-07 | 6.34E-02 | 3.231E+01 | 3.218E+01 | 2.315E+02 | 9.327E-06 | -3.454E-05 | 3.578E-02 |
| 15 | 9.70E-03 | 3.149E+02 | 3.148E+02 | 2.257E+03 | 9.819E-08 | 4.266E-07 | 8.72E-02 | 3.505E+01 | 3.491E+01 | 2.511E+02 | 7.928E-06 | -2.381E-05 | 5.333E-02 |
| 20 | 1.30E-02 | 3.111E+02 | 3.110E+02 | 2.229E+03 | 1.006E-07 | 4.359E-07 | 1.04E-01 | 3.885E+01 | 3.871E+01 | 2.784E+02 | 6.453E-06 | -1.416E-05 | 7.047E-02 |
| 25 | 1.63E-02 | 3.063E+02 | 3.062E+02 | 2.195E+03 | 1.038E-07 | 4.483E-07 | 1.14E-01 | 4.369E+01 | 4.355E+01 | 3.130E+02 | 5.103E-06 | -6.983E-06 | 8.707E-02 |
| 30 | 1.96E-02 | 3.005E+02 | 3.003E+02 | 2.153E+03 | 1.079E-07 | 4.639E-07 | 1.19E-01 | 4.952E+01 | 4.939E+01 | 3.548E+02 | 3.971E-06 | -2.330E-06 | 1.030E-01 |
| 35 | 2.31E-02 | 2.937E+02 | 2.935E+02 | 2.104E+03 | 1.129E-07 | 4.830E-07 | 1.20E-01 | 5.632E+01 | 5.618E+01 | 4.035E+02 | 3.071E-06 | 3.648E-07 | 1.182E-01 |
| 40 | 2.65E-02 | 2.860E+02 | 2.858E+02 | 2.049E+03 | 1.191E-07 | 5.062E-07 | 1.19E-01 | 6.411E+01 | 6.387E+01 | 4.586E+02 | 2.377E-06 | 1.753E-06 | 1.324E-01 |
| 45 | 3.01E-02 | 2.775E+02 | 2.773E+02 | 1.988E+03 | 1.265E-07 | 5.339E-07 | 1.15E-01 | 7.255E+01 | 7.241E+01 | 5.198E+02 | 1.850E-06 | 2.350E-06 | 1.457E-01 |
| 50 | 3.37E-02 | 2.681E+02 | 2.680E+02 | 1.921E+03 | 1.355E-07 | 5.668E-07 | 1.10E-01 | 8.187E+01 | 8.173E+01 | 5.866E+02 | 1.453E-06 | 2.506E-06 | 1.578E-01 |
| 55 | 3.75E-02 | 2.581E+02 | 2.580E+02 | 1.849E+03 | 1.462E-07 | 6.055E-07 | 1.05E-01 | 9.190E+01 | 9.176E+01 | 6.584E+02 | 1.153E-06 | 2.435E-06 | 1.688E-01 |
| 60 | 4.13E-02 | 2.474E+02 | 2.473E+02 | 1.773E+03 | 1.591E-07 | 6.511E-07 | 9.97E-02 | 1.026E+02 | 1.024E+02 | 7.348E+02 | 9.260E-07 | 2.258E-06 | 1.784E-01 |
| 65 | 4.53E-02 | 2.362E+02 | 2.361E+02 | 1.693E+03 | 1.745E-07 | 7.047E-07 | 9.40E-02 | 1.138E+02 | 1.136E+02 | 8.151E+02 | 7.525E-07 | 2.045E-06 | 1.867E-01 |
| 70 | 4.94E-02 | 2.246E+02 | 2.244E+02 | 1.609E+03 | 1.932E-07 | 7.676E-07 | 8.84E-02 | 1.254E+02 | 1.253E+02 | 8.988E+02 | 6.189E-07 | 1.828E-06 | 1.936E-01 |
| 75 | 5.37E-02 | 2.125E+02 | 2.124E+02 | 1.523E+03 | 2.157E-07 | 8.413E-07 | 8.29E-02 | 1.375E+02 | 1.374E+02 | 9.852E+02 | 5.152E-07 | 1.626E-06 | 1.990E-01 |
| 80 | 5.81E-02 | 2.002E+02 | 2.000E+02 | 1.434E+03 | 2.431E-07 | 9.278E-07 | 7.76E-02 | 1.498E+02 | 1.497E+02 | 1.074E+03 | 4.338E-07 | 1.445E-06 | 2.029E-01 |
| 85 | 6.27E-02 | 1.876E+02 | 1.875E+02 | 1.344E+03 | 2.767E-07 | 1.029E-06 | 7.24E-02 | 1.624E+02 | 1.622E+02 | 1.163E+03 | 3.694E-07 | 1.285E-06 | 2.052E-01 |
| 90 | 6.75E-02 | 1.750E+02 | 1.749E+02 | 1.254E+03 | 3.180E-07 | 1.148E-06 | 6.75E-02 | 1.750E+02 | 1.749E+02 | 1.254E+03 | 3.180E-07 | 1.148E-06 | 2.060E-01 |
| 95 | 7.24E-02 | 1.624E+02 | 1.622E+02 | 1.163E+03 | 3.694E-07 | 1.285E-06 | 6.27E-02 | 1.876E+02 | 1.875E+02 | 1.344E+03 | 2.767E-07 | 1.029E-06 | 2.052E-01 |
| 100 | 7.76E-02 | 1.498E+02 | 1.497E+02 | 1.074E+03 | 4.338E-07 | 1.445E-06 | 5.81E-02 | 2.002E+02 | 2.000E+02 | 1.434E+03 | 2.431E-07 | 9.278E-07 | 2.029E-01 |
| 105 | 8.29E-02 | 1.375E+02 | 1.374E+02 | 9.852E+02 | 5.152E-07 | 1.626E-06 | 5.37E-02 | 2.125E+02 | 2.124E+02 | 1.523E+03 | 2.157E-07 | 8.413E-07 | 1.990E-01 |
| 110 | 8.84E-02 | 1.254E+02 | 1.253E+02 | 8.988E+02 | 6.189E-07 | 1.828E-06 | 4.94E-02 | 2.246E+02 | 2.244E+02 | 1.609E+03 | 1.932E-07 | 7.676E-07 | 1.936E-01 |
| 115 | 9.40E-02 | 1.138E+02 | 1.136E+02 | 8.151E+02 | 7.525E-07 | 2.045E-06 | 4.53E-02 | 2.362E+02 | 2.361E+02 | 1.693E+03 | 1.745E-07 | 7.047E-07 | 1.867E-01 |
| 120 | 9.97E-02 | 1.026E+02 | 1.024E+02 | 7.348E+02 | 9.260E-07 | 2.258E-06 | 4.13E-02 | 2.474E+02 | 2.473E+02 | 1.773E+03 | 1.591E-07 | 6.511E-07 | 1.784E-01 |
| 125 | 1.05E-01 | 9.190E+01 | 9.176E+01 | 6.584E+02 | 1.153E-06 | 2.435E-06 | 3.75E-02 | 2.581E+02 | 2.580E+02 | 1.849E+03 | 1.462E-07 | 6.055E-07 | 1.688E-01 |
| 130 | 1.10E-01 | 8.187E+01 | 8.173E+01 | 5.866E+02 | 1.453E-06 | 2.506E-06 | 3.37E-02 | 2.681E+02 | 2.680E+02 | 1.921E+03 | 1.355E-07 | 5.668E-07 | 1.578E-01 |
| 135 | 1.15E-01 | 7.255E+01 | 7.241E+01 | 5.198E+02 | 1.850E-06 | 2.350E-06 | 3.01E-02 | 2.775E+02 | 2.773E+02 | 1.988E+03 | 1.265E-07 | 5.339E-07 | 1.457E-01 |
| 140 | 1.19E-01 | 6.401E+01 | 6.387E+01 | 4.586E+02 | 2.377E-06 | 1.753E-06 | 2.65E-02 | 2.860E+02 | 2.858E+02 | 2.049E+03 | 1.191E-07 | 5.062E-07 | 1.324E-01 |
| 145 | 1.23E-01 | 5.632E+01 | 5.618E+01 | 4.035E+02 | 3.071E-06 | 3.648E-07 | 2.31E-02 | 2.937E+02 | 2.935E+02 | 2.104E+03 | 1.129E-07 | 4.830E-07 | 1.182E-01 |
| 150 | 1.19E-01 | 4.952E+01 | 4.939E+01 | 3.548E+02 | 3.971E-06 | -2.330E-06 | 1.96E-02 | 3.005E+02 | 3.003E+02 | 2.153E+03 | 1.079E-07 | 4.639E-07 | 1.030E-01 |
| 155 | 1.14E-01 | 4.369E+01 | 4.355E+01 | 3.130E+02 | 5.103E-06 | -6.983E-06 | 1.63E-02 | 3.063E+02 | 3.062E+02 | 2.195E+03 | 1.038E-07 | 4.483E-07 | 8.707E-02 |
| 160 | 1.04E-01 | 3.885E+01 | 3.871E+01 | 2.784E+02 | 6.453E-06 | -1.416E-05 | 1.30E-02 | 3.111E+02 | 3.110E+02 | 2.229E+03 | 1.006E-07 | 4.359E-07 | 7.047E-02 |
| 165 | 8.72E-02 | 3.505E+01 | 3.491E+01 | 2.511E+02 | 7.928E-06 | -2.381E-05 | 9.70E-03 | 3.149E+02 | 3.148E+02 | 2.257E+03 | 9.819E-08 | 4.266E-07 | 5.333E-02 |
| 170 | 6.34E-02 | 3.231E+01 | 3.218E+01 | 2.315E+02 | 9.327E-06 | -3.454E-05 | 6.45E-03 | 3.177E+02 | 3.175E+02 | 2.276E+03 | 9.651E-08 | 4.200E-07 | 3.578E-02 |
| 175 | 3.36E-02 | 3.066E+01 | 3.053E+01 | 2.197E+02 | 1.036E-05 | -4.335E-05 | 3.22E-03 | 3.193E+02 | 3.192E+02 | 2.288E+03 | 9.551E-08 | 4.161E-07 | 1.796E-02 |
| 180 | 0. | 3.011E+01 | 2.997E+01 | 2.158E+02 | 1.074E-05 | -4.681E-05 | 0. | 3.199E+02 | 3.197E+02 | 2.292E+03 | 9.518E-08 | 4.148E-07 | 0. |

K ZERO (1) => PI PLUS (2) + PI MINUS (3) AT 400 GEV/C P1 LAB

M1 = 4.97710E-01 M2 = 1.39569E-01 M3 = 1.39569E-01
P2CM= 2.06032E-01
E2CM= 2.48855E-01 E3CM= 2.48855E-01

1-V1LAB= 7.741E-07 GCM = 8.03681E+02 S = 2.47715E-01

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 3.656E+02 | 3.654E+02 | 2.619E+03 | 7.287E-08 | 3.176E-07 | 0. | 3.442E+01 | 3.428E+01 | 2.466E+02 | 8.223E-06 | -3.584E-05 | 0. |
| 1 | 5.64E-04 | 3.656E+02 | 3.654E+02 | 2.619E+03 | 7.288E-08 | 3.177E-07 | 5.98E-03 | 3.444E+01 | 3.430E+01 | 2.468E+02 | 8.211E-06 | -3.573E-05 | 3.596E-03 |
| 2 | 1.13E-03 | 3.655E+02 | 3.653E+02 | 2.619E+03 | 7.291E-08 | 3.178E-07 | 1.19E-02 | 3.452E+01 | 3.438E+01 | 2.473E+02 | 8.175E-06 | -3.540E-05 | 7.190E-03 |
| 3 | 1.69E-03 | 3.654E+02 | 3.652E+02 | 2.618E+03 | 7.296E-08 | 3.180E-07 | 1.78E-02 | 3.464E+01 | 3.450E+01 | 2.482E+02 | 8.116E-06 | -3.486E-05 | 1.078E-02 |
| 4 | 2.25E-03 | 3.652E+02 | 3.650E+02 | 2.616E+03 | 7.303E-08 | 3.182E-07 | 2.36E-02 | 3.482E+01 | 3.468E+01 | 2.495E+02 | 8.034E-06 | -3.412E-05 | 1.437E-02 |
| 5 | 2.82E-03 | 3.650E+02 | 3.648E+02 | 2.615E+03 | 7.313E-08 | 3.186E-07 | 2.94E-02 | 3.505E+01 | 3.491E+01 | 2.511E+02 | 7.930E-06 | -3.319E-05 | 1.796E-02 |
| 6 | 3.38E-03 | 3.647E+02 | 3.645E+02 | 2.613E+03 | 7.324E-08 | 3.190E-07 | 3.49E-02 | 3.532E+01 | 3.518E+01 | 2.531E+02 | 7.806E-06 | -3.209E-05 | 2.154E-02 |
| 7 | 3.95E-03 | 3.644E+02 | 3.642E+02 | 2.611E+03 | 7.337E-08 | 3.195E-07 | 4.04E-02 | 3.565E+01 | 3.551E+01 | 2.554E+02 | 7.664E-06 | -3.085E-05 | 2.511E-02 |
| 8 | 4.51E-03 | 3.640E+02 | 3.638E+02 | 2.608E+03 | 7.352E-08 | 3.201E-07 | 4.56E-02 | 3.603E+01 | 3.589E+01 | 2.581E+02 | 7.504E-06 | -2.948E-05 | 2.867E-02 |
| 9 | 5.08E-03 | 3.635E+02 | 3.634E+02 | 2.605E+03 | 7.369E-08 | 3.208E-07 | 5.07E-02 | 3.645E+01 | 3.631E+01 | 2.612E+02 | 7.329E-06 | -2.800F-05 | 3.223E-02 |
| 10 | 5.65E-03 | 3.631E+02 | 3.629E+02 | 2.601E+03 | 7.389E-08 | 3.216E-07 | 5.55E-02 | 3.693E+01 | 3.679E+01 | 2.646E+02 | 7.141E-06 | -2.644E-05 | 3.578E-02 |
| 15 | 8.49E-03 | 3.599E+02 | 3.598E+02 | 2.579E+03 | 7.518E-08 | 3.266E-07 | 7.63E-02 | 4.006E+01 | 3.992E+01 | 2.870E+02 | 6.070E-06 | -1.823E-05 | 5.333E-02 |
| 20 | 1.14E-02 | 3.556E+02 | 3.555E+02 | 2.548E+03 | 7.702E-08 | 3.337E-07 | 9.09E-02 | 4.440E+01 | 4.426E+01 | 3.181E+02 | 4.940E-06 | -1.084F-05 | 7.047E-02 |
| 25 | 1.43E-02 | 3.501E+02 | 3.499E+02 | 2.508E+03 | 7.948E-08 | 3.432E-07 | 9.99E-02 | 4.993E+01 | 4.979E+01 | 3.577E+02 | 3.907E-06 | -5.346E-06 | 8.707E-02 |
| 30 | 1.72E-02 | 3.434E+02 | 3.433E+02 | 2.460E+03 | 8.259E-08 | 3.551E-07 | 1.04E-01 | 5.660E+01 | 5.646E+01 | 4.055E+02 | 3.040E-06 | -1.784E-06 | 1.030E-01 |
| 35 | 2.02E-02 | 3.356E+02 | 3.355E+02 | 2.405E+03 | 8.646E-08 | 3.698E-07 | 1.05E-01 | 6.436E+01 | 6.422E+01 | 4.611E+02 | 2.351E-06 | 2.793E-07 | 1.182E-01 |
| 40 | 2.32E-02 | 3.268E+02 | 3.267E+02 | 2.342E+03 | 9.117E-08 | 3.876E-07 | 1.04E-01 | 7.316F+01 | 7.302E+01 | 5.242E+02 | 1.820E-06 | 1.342E-06 | 1.324E-01 |
| 45 | 2.63E-02 | 3.171E+02 | 3.169E+02 | 2.272E+03 | 9.687E-08 | 4.088E-07 | 1.01E-01 | 8.291E+01 | 8.277E+01 | 5.941E+02 | 1.417E-06 | 1.799E-06 | 1.457E-01 |
| 50 | 2.95E-02 | 3.064E+02 | 3.063E+02 | 2.196E+03 | 1.037E-07 | 4.339E-07 | 9.66E-02 | 9.356E+01 | 9.343F+01 | 6.704E+02 | 1.113E-06 | 1.919E-06 | 1.578E-01 |
| 55 | 3.28E-02 | 2.950E+02 | 2.948E+02 | 2.113E+03 | 1.119E-07 | 4.636E-07 | 9.21E-02 | 1.050E+02 | 1.049E+02 | 7.525E+02 | 8.830E-07 | 1.864E-06 | 1.688E-01 |
| 60 | 3.62E-02 | 2.828E+02 | 2.827E+02 | 2.026E+03 | 1.218E-07 | 4.985E-07 | 8.72E-02 | 1.172E+02 | 1.171E+02 | 8.398E+02 | 7.090E-07 | 1.729E-06 | 1.784E-01 |
| 65 | 3.96E-02 | 2.700E+02 | 2.698E+02 | 1.934E+03 | 1.336E-07 | 5.395E-07 | 8.23E-02 | 1.300E+02 | 1.299E+02 | 9.316E+02 | 5.761E-07 | 1.565E-06 | 1.867E-01 |
| 70 | 4.32E-02 | 2.566E+02 | 2.565E+02 | 1.839E+03 | 1.479E-07 | 5.877E-07 | 7.74E-02 | 1.434E+02 | 1.432E+02 | 1.027E+03 | 4.739E-07 | 1.400F-06 | 1.936E-01 |
| 75 | 4.70E-02 | 2.429E+02 | 2.427E+02 | 1.740E+03 | 1.651E-07 | 6.441E-07 | 7.26E-02 | 1.571E+02 | 1.570E+02 | 1.126E+03 | 3.944E-07 | 1.245E-06 | 1.990E-01 |
| 80 | 5.08E-02 | 2.288E+02 | 2.286E+02 | 1.639E+03 | 1.861E-07 | 7.104E-07 | 6.79E-02 | 1.712E+02 | 1.711E+02 | 1.227E+03 | 3.321E-07 | 1.106F-06 | 2.029E-01 |
| 85 | 5.48E-02 | 2.144E+02 | 2.143E+02 | 1.536E+03 | 2.118E-07 | 7.879E-07 | 6.34E-02 | 1.856E+02 | 1.854E+02 | 1.330E+03 | 2.828F-07 | 9.842E-07 | 2.052E-01 |
| 90 | 5.90E-02 | 2.000E+02 | 1.999E+02 | 1.433E+03 | 2.435E-07 | 8.786E-07 | 5.90E-02 | 2.000E+02 | 1.999E+02 | 1.433E+03 | 2.435E-07 | 8.786E-07 | 2.060E-01 |
| 95 | 6.34E-02 | 1.856E+02 | 1.854E+02 | 1.330E+03 | 2.828E-07 | 9.842E-07 | 5.48E-02 | 2.144E+02 | 2.143E+02 | 1.536E+03 | 2.118E-07 | 7.879E-07 | 2.052E-01 |
| 100 | 6.79E-02 | 1.712E+02 | 1.711E+02 | 1.227E+03 | 3.321E-07 | 1.106E-06 | 5.08E-02 | 2.288E+02 | 2.286E+02 | 1.639E+03 | 1.861E-07 | 7.104E-07 | 2.029E-01 |
| 105 | 7.26E-02 | 1.571E+02 | 1.570E+02 | 1.126E+03 | 3.944E-07 | 1.245E-06 | 4.70E-02 | 2.429E+02 | 2.427E+02 | 1.740E+03 | 1.651E-07 | 6.441E-07 | 1.990E-01 |
| 110 | 7.74E-02 | 1.434E+02 | 1.432E+02 | 1.027E+03 | 4.739E-07 | 1.400E-06 | 4.32E-02 | 2.566E+02 | 2.565E+02 | 1.839E+03 | 1.479F-07 | 5.877E-07 | 1.936E-01 |
| 115 | 8.23E-02 | 1.300E+02 | 1.299E+02 | 9.316E+02 | 5.761E-07 | 1.565E-06 | 3.96E-02 | 2.700E+02 | 2.698E+02 | 1.934E+03 | 1.336E-07 | 5.395E-07 | 1.867E-01 |
| 120 | 8.72E-02 | 1.172E+02 | 1.171E+02 | 8.398E+02 | 7.090E-07 | 1.729E-06 | 3.62E-02 | 2.828E+02 | 2.827E+02 | 2.026E+03 | 1.218E-07 | 4.985E-07 | 1.784E-01 |
| 125 | 9.21E-02 | 1.050E+02 | 1.049E+02 | 7.525E+02 | 8.830E-07 | 1.864E-06 | 3.28E-02 | 2.950E+02 | 2.948E+02 | 2.113E+03 | 1.119E-07 | 4.636E-07 | 1.688E-01 |
| 130 | 9.66E-02 | 9.356E+01 | 9.343E+01 | 6.704E+02 | 1.113E-06 | 1.919E-06 | 2.95E-02 | 3.064E+02 | 3.063E+02 | 2.196E+03 | 1.037E-07 | 4.339E-07 | 1.578E-01 |
| 135 | 1.01E-01 | 8.291E+01 | 8.277E+01 | 5.941E+02 | 1.417E-06 | 1.799E-06 | 2.63E-02 | 3.171E+02 | 3.169E+02 | 2.272E+03 | 9.687E-08 | 4.088E-07 | 1.457E-01 |
| 140 | 1.04E-01 | 7.316E+01 | 7.302E+01 | 5.242E+02 | 1.820E-06 | 1.342E-06 | 2.32E-02 | 3.268E+02 | 3.267E+02 | 2.342E+03 | 9.117E-08 | 3.876E-07 | 1.324E-01 |
| 145 | 1.05E-01 | 6.436E+01 | 6.422E+01 | 4.611E+02 | 2.351E-06 | 2.793E-07 | 2.02E-02 | 3.356E+02 | 3.355E+02 | 2.405E+03 | 8.646E-08 | 3.698E-07 | 1.182E-01 |
| 150 | 1.04E-01 | 5.660E+01 | 5.646E+01 | 4.055E+02 | 3.040E-06 | -1.784E-06 | 1.72E-02 | 3.434E+02 | 3.433E+02 | 2.460E+03 | 8.259E-08 | 3.551E-07 | 1.030E-01 |
| 155 | 9.99E-02 | 4.993E+01 | 4.979E+01 | 3.577E+02 | 3.907E-06 | -5.346E-06 | 1.43E-02 | 3.501E+02 | 3.499E+02 | 2.508E+03 | 7.948E-08 | 3.432E-07 | 8.707E-02 |
| 160 | 9.09E-02 | 4.440E+01 | 4.426E+01 | 3.181E+02 | 4.940E-06 | -1.084E-05 | 1.14E-02 | 3.556E+02 | 3.555E+02 | 2.548E+03 | 7.702E-08 | 3.337E-07 | 7.047E-02 |
| 165 | 7.63E-02 | 4.006E+01 | 3.992E+01 | 2.870E+02 | 6.070E-06 | -1.823E-05 | 8.49E-03 | 3.599E+02 | 3.598E+02 | 2.579E+03 | 7.518E-08 | 3.266E-07 | 5.333E-02 |
| 170 | 5.55E-02 | 3.693E+01 | 3.679E+01 | 2.646E+02 | 7.141E-06 | -2.644E-05 | 5.65E-03 | 3.631E+02 | 3.629E+02 | 2.601E+03 | 7.389E-08 | 3.216E-07 | 3.578E-02 |
| 175 | 2.94E-02 | 3.505E+01 | 3.491E+01 | 2.511E+02 | 7.930E-06 | -3.319E-05 | 2.82E-03 | 3.650E+02 | 3.648E+02 | 2.615E+03 | 7.313E-08 | 3.186E-07 | 1.796E-02 |
| 180 | 0. | 3.442E+01 | 3.428E+01 | 2.466E+02 | 8.223E-06 | -3.584E-05 | 0. | 3.656E+02 | 3.654E+02 | 2.619E+03 | 7.287E-08 | 3.176E-07 | 0. |

K ZERO (1) => PI PLUS (2) + PI MINUS (3) AT 450 GEV/C P1 LAB

M1 = 4.97710E-01 M2 = 1.39569E-01 M3 = 1.39569E-01
P2CM= 2.06032E-01
E2CM= 2.48855E-01 E3CM= 2.48855E-01

1-V1LAB= 6.116E-07 GCM = 9.04142E+02 S = 2.47715E-01

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 4.113E+02 | 4.111E+02 | 2.947E+03 | 5.758E-08 | 2.510E-07 | 0. | 3.872E+01 | 3.858E+01 | 2.774E+02 | 6.497E-06 | -2.832E-05 | 0. |
| 1 | 5.01E-04 | 4.113E+02 | 4.111E+02 | 2.947E+03 | 5.759E-08 | 2.510E-07 | 5.32E-03 | 3.875E+01 | 3.861E+01 | 2.776E+02 | 6.488E-06 | -2.823E-05 | 3.596E-03 |
| 2 | 1.00E-03 | 4.112E+02 | 4.110E+02 | 2.946E+03 | 5.761E-08 | 2.511E-07 | 1.06E-02 | 3.883E+01 | 3.869E+01 | 2.782E+02 | 6.459E-06 | -2.797E-05 | 7.190E-03 |
| 3 | 1.50E-03 | 4.110E+02 | 4.109E+02 | 2.945E+03 | 5.765E-08 | 2.512E-07 | 1.59E-02 | 3.897E+01 | 3.883E+01 | 2.792E+02 | 6.412E-06 | -2.754E-05 | 1.078E-02 |
| 4 | 2.00E-03 | 4.108E+02 | 4.107E+02 | 2.944E+03 | 5.771E-08 | 2.514E-07 | 2.10E-02 | 3.917E+01 | 3.903E+01 | 2.807E+02 | 6.348E-06 | -2.696E-05 | 1.437E-02 |
| 5 | 2.51E-03 | 4.106E+02 | 4.104E+02 | 2.942E+03 | 5.778E-08 | 2.517E-07 | 2.61E-02 | 3.943E+01 | 3.929E+01 | 2.825E+02 | 6.266E-06 | -2.622E-05 | 1.796E-02 |
| 6 | 3.01E-03 | 4.103E+02 | 4.101E+02 | 2.939E+03 | 5.787E-08 | 2.521E-07 | 3.11E-02 | 3.974E+01 | 3.960E+01 | 2.847E+02 | 6.168E-06 | -2.536E-05 | 2.154E-02 |
| 7 | 3.51E-03 | 4.099E+02 | 4.098E+02 | 2.937E+03 | 5.797E-08 | 2.525E-07 | 3.59E-02 | 4.011E+01 | 3.997E+01 | 2.874E+02 | 6.055E-06 | -2.437E-05 | 2.511E-02 |
| 8 | 4.01E-03 | 4.095E+02 | 4.093E+02 | 2.934E+03 | 5.809E-08 | 2.529E-07 | 4.05E-02 | 4.053E+01 | 4.039E+01 | 2.904E+02 | 5.929E-06 | -2.329E-05 | 2.867E-02 |
| 9 | 4.52E-03 | 4.090E+02 | 4.088E+02 | 2.930E+03 | 5.823E-08 | 2.535E-07 | 4.50E-02 | 4.101E+01 | 4.087E+01 | 2.938E+02 | 5.791E-06 | -2.212E-05 | 3.223E-02 |
| 10 | 5.02E-03 | 4.085E+02 | 4.083E+02 | 2.927E+03 | 5.838E-08 | 2.541E-07 | 4.93E-02 | 4.155E+01 | 4.141E+01 | 2.977E+02 | 5.642E-06 | -2.089E-05 | 3.578E-02 |
| 15 | 7.55E-03 | 4.049E+02 | 4.048E+02 | 2.901E+03 | 5.940E-08 | 2.580E-07 | 6.78E-02 | 4.506E+01 | 4.493E+01 | 3.229E+02 | 4.796E-06 | -1.440E-05 | 5.333E-02 |
| 20 | 1.01E-02 | 4.000E+02 | 3.999E+02 | 2.866E+03 | 6.086E-08 | 2.637E-07 | 8.08E-02 | 4.995E+01 | 4.981E+01 | 3.579E+02 | 3.903E-06 | -8.565E-06 | 7.047E-02 |
| 25 | 1.27E-02 | 3.938E+02 | 3.937E+02 | 2.822E+03 | 6.280E-08 | 2.712E-07 | 8.88E-02 | 5.617E+01 | 5.603E+01 | 4.025E+02 | 3.087E-06 | -4.224E-06 | 8.707E-02 |
| 30 | 1.53E-02 | 3.863E+02 | 3.862E+02 | 2.768E+03 | 6.526E-08 | 2.806E-07 | 9.27E-02 | 6.367E+01 | 6.354E+01 | 4.562E+02 | 2.402E-06 | -1.410E-06 | 1.030E-01 |
| 35 | 1.79E-02 | 3.776E+02 | 3.775E+02 | 2.705E+03 | 6.831E-08 | 2.922E-07 | 9.35E-02 | 7.241E+01 | 7.227E+01 | 5.188E+02 | 1.858E-06 | 2.207E-07 | 1.182E-01 |
| 40 | 2.06E-02 | 3.677E+02 | 3.676E+02 | 2.635E+03 | 7.204E-08 | 3.062E-07 | 9.22E-02 | 8.230E+01 | 8.216E+01 | 5.897E+02 | 1.438E-06 | 1.060E-06 | 1.324E-01 |
| 45 | 2.34E-02 | 3.567E+02 | 3.566E+02 | 2.556E+03 | 7.654E-08 | 3.230E-07 | 8.95E-02 | 9.328E+01 | 9.314E+01 | 6.683E+02 | 1.119E-06 | 1.422E-06 | 1.457E-01 |
| 50 | 2.62E-02 | 3.447E+02 | 3.446E+02 | 2.470E+03 | 8.195E-08 | 3.429E-07 | 8.59E-02 | 1.053E+02 | 1.051E+02 | 7.542E+02 | 8.791E-07 | 1.516E-06 | 1.578E-01 |
| 55 | 2.91E-02 | 3.318E+02 | 3.317E+02 | 2.378E+03 | 8.844E-08 | 3.663E-07 | 8.18E-02 | 1.182E+02 | 1.180E+02 | 8.466E+02 | 6.977E-07 | 1.473E-06 | 1.688E-01 |
| 60 | 3.21E-02 | 3.181E+02 | 3.180E+02 | 2.279E+03 | 9.623E-08 | 3.939E-07 | 7.75E-02 | 1.319E+02 | 1.317E+02 | 9.448E+02 | 5.602E-07 | 1.366E-06 | 1.784E-01 |
| 65 | 3.52E-02 | 3.037E+02 | 3.036E+02 | 2.176E+03 | 1.056E-07 | 4.263E-07 | 7.31E-02 | 1.463E+02 | 1.461E+02 | 1.048E+03 | 4.552E-07 | 1.237E-06 | 1.867E-01 |
| 70 | 3.84E-02 | 2.887E+02 | 2.886E+02 | 2.069E+03 | 1.168E-07 | 4.643E-07 | 6.88E-02 | 1.613E+02 | 1.611E+02 | 1.156E+03 | 3.744E-07 | 1.106E-06 | 1.936E-01 |
| 75 | 4.17E-02 | 2.732E+02 | 2.731E+02 | 1.958E+03 | 1.305E-07 | 5.089E-07 | 6.45E-02 | 1.768E+02 | 1.766E+02 | 1.267E+03 | 3.116E-07 | 9.838E-07 | 1.990E-01 |
| 80 | 4.52E-02 | 2.573E+02 | 2.572E+02 | 1.844E+03 | 1.471E-07 | 5.613E-07 | 6.03E-02 | 1.927E+02 | 1.925E+02 | 1.380E+03 | 2.624E-07 | 8.740E-07 | 2.029E-01 |
| 85 | 4.87E-02 | 2.412E+02 | 2.411E+02 | 1.728E+03 | 1.674E-07 | 6.226E-07 | 5.63E-02 | 2.088E+02 | 2.086E+02 | 1.496E+03 | 2.235E-07 | 7.776E-07 | 2.052E-01 |
| 90 | 5.25E-02 | 2.250E+02 | 2.249E+02 | 1.612E+03 | 1.924E-07 | 6.942E-07 | 5.25E-02 | 2.250E+02 | 2.249E+02 | 1.612E+03 | 1.924E-07 | 6.942E-07 | 2.060E-01 |
| 95 | 5.63E-02 | 2.088E+02 | 2.086E+02 | 1.496E+03 | 2.235E-07 | 7.776E-07 | 4.87E-02 | 2.412E+02 | 2.411E+02 | 1.728E+03 | 1.674E-07 | 6.226E-07 | 2.052E-01 |
| 100 | 6.03E-02 | 1.927E+02 | 1.925E+02 | 1.380E+03 | 2.624E-07 | 8.740E-07 | 4.52E-02 | 2.573E+02 | 2.572E+02 | 1.844E+03 | 1.471E-07 | 5.613E-07 | 2.029E-01 |
| 105 | 6.45E-02 | 1.768E+02 | 1.766E+02 | 1.267E+03 | 3.116E-07 | 9.838E-07 | 4.17E-02 | 2.732E+02 | 2.731E+02 | 1.958E+03 | 1.305E-07 | 5.089E-07 | 1.990E-01 |
| 110 | 6.88E-02 | 1.613E+02 | 1.611E+02 | 1.156E+03 | 3.744E-07 | 1.106E-06 | 3.84E-02 | 2.887E+02 | 2.886E+02 | 2.069E+03 | 1.168E-07 | 4.643E-07 | 1.936E-01 |
| 115 | 7.31E-02 | 1.463E+02 | 1.461E+02 | 1.048E+03 | 4.552E-07 | 1.237E-06 | 3.52E-02 | 3.037E+02 | 3.036E+02 | 2.176E+03 | 1.056E-07 | 4.263E-07 | 1.867E-01 |
| 120 | 7.75E-02 | 1.319E+02 | 1.317E+02 | 9.448E+02 | 5.602E-07 | 1.366E-06 | 3.21E-02 | 3.181E+02 | 3.180E+02 | 2.279E+03 | 9.623E-08 | 3.939E-07 | 1.784E-01 |
| 125 | 8.18E-02 | 1.182E+02 | 1.180E+02 | 8.466E+02 | 6.977E-07 | 1.473E-06 | 2.91E-02 | 3.318E+02 | 3.317E+02 | 2.378E+03 | 8.844E-08 | 3.663E-07 | 1.688E-01 |
| 130 | 8.59E-02 | 1.053E+02 | 1.051E+02 | 7.542E+02 | 8.791E-07 | 1.516E-06 | 2.62E-02 | 3.447E+02 | 3.446E+02 | 2.470E+03 | 8.195E-08 | 3.429E-07 | 1.578E-01 |
| 135 | 8.95E-02 | 9.328E+01 | 9.314E+01 | 6.683E+02 | 1.119E-06 | 1.422E-06 | 2.34E-02 | 3.567E+02 | 3.566E+02 | 2.556E+03 | 7.654E-08 | 3.230E-07 | 1.457E-01 |
| 140 | 9.22E-02 | 8.230E+01 | 8.216E+01 | 5.897E+02 | 1.438E-06 | 1.060E-06 | 2.06E-02 | 3.677E+02 | 3.676E+02 | 2.635E+03 | 7.204E-08 | 3.062E-07 | 1.324E-01 |
| 145 | 9.35E-02 | 7.241E+01 | 7.227E+01 | 5.188E+02 | 1.858E-06 | 2.207E-07 | 1.79E-02 | 3.776E+02 | 3.775E+02 | 2.705E+03 | 6.831E-08 | 2.922E-07 | 1.182E-01 |
| 150 | 9.27E-02 | 6.367E+01 | 6.354E+01 | 4.562E+02 | 2.402E-06 | -1.410E-06 | 1.53E-02 | 3.863E+02 | 3.862E+02 | 2.768E+03 | 6.526E-08 | 2.806E-07 | 1.030E-01 |
| 155 | 8.68E-02 | 5.617E+01 | 5.603E+01 | 4.025E+02 | 3.087E-06 | -4.224E-06 | 1.27E-02 | 3.938E+02 | 3.937E+02 | 2.822E+03 | 6.280E-08 | 2.712E-07 | 8.707E-02 |
| 160 | 8.08E-02 | 4.995E+01 | 4.981E+01 | 3.579E+02 | 3.903E-06 | -8.565E-06 | 1.01E-02 | 4.000E+02 | 3.999E+02 | 2.866E+03 | 6.086E-08 | 2.637E-07 | 7.047E-02 |
| 165 | 6.78E-02 | 4.506E+01 | 4.493E+01 | 3.229E+02 | 4.796E-06 | -1.440E-05 | 7.55E-03 | 4.049E+02 | 4.048E+02 | 2.901E+03 | 5.940E-08 | 2.580E-07 | 5.333E-02 |
| 170 | 4.93E-02 | 4.155E+01 | 4.141E+01 | 2.977E+02 | 5.642E-06 | -2.089E-05 | 5.02E-03 | 4.085E+02 | 4.083E+02 | 2.927E+03 | 5.838E-08 | 2.541E-07 | 3.578E-02 |
| 175 | 2.61E-02 | 3.943E+01 | 3.929E+01 | 2.825E+02 | 6.266E-06 | -2.622E-05 | 2.51E-03 | 4.106E+02 | 4.104E+02 | 2.942E+03 | 5.778E-08 | 2.517E-07 | 1.796E-02 |
| 180 | 0. | 3.872E+01 | 3.858E+01 | 2.774E+02 | 6.497E-06 | -2.832E-05 | 0. | 4.113E+02 | 4.111E+02 | 2.947E+03 | 5.758E-08 | 2.510E-07 | 0. |

K ZERO (1) => PI PLUS (2) + PI MINUS (3) AT 500 GEV/C P1 LAB

M1 = 4.97710E-01 M2 = 1.39569E-01 M3 = 1.39569E-01
P2CM= 2.06032E-01
E2CM= 2.48855E-01 E3CM= 2.48855E-01

1-V1LAB= 4.954E-07 GCM = 1.00460E+03 S = 2.47715E-01

| Θ2 CM | Θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | Θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 4.570E+02 | 4.568E+02 | 3.274E+03 | 4.664E-08 | 2.033E-07 | 0. | 4.302E+01 | 4.288E+01 | 3.082E+02 | 5.263E-06 | -2.294E-05 | 0. |
| 1 | 4.51E-04 | 4.569E+02 | 4.568E+02 | 3.274E+03 | 4.665E-08 | 2.033E-07 | 4.79E-03 | 4.305E+01 | 4.291E+01 | 3.085E+02 | 5.255E-06 | -2.287E-05 | 3.596E-03 |
| 2 | 9.02E-04 | 4.569E+02 | 4.567E+02 | 3.273E+03 | 4.666E-08 | 2.034E-07 | 9.55E-03 | 4.315E+01 | 4.301E+01 | 3.091E+02 | 5.232E-06 | -2.266E-05 | 7.190E-03 |
| 3 | 1.35E-03 | 4.567E+02 | 4.566E+02 | 3.272E+03 | 4.670E-08 | 2.035E-07 | 1.43E-02 | 4.330E+01 | 4.316E+01 | 3.103E+02 | 5.194E-06 | -2.231E-05 | 1.078E-02 |
| 4 | 1.80E-03 | 4.565E+02 | 4.563E+02 | 3.271E+03 | 4.674E-08 | 2.037E-07 | 1.89E-02 | 4.352E+01 | 4.338E+01 | 3.118E+02 | 5.142E-06 | -2.184E-05 | 1.437E-02 |
| 5 | 2.26E-03 | 4.562E+02 | 4.561E+02 | 3.269E+03 | 4.680E-08 | 2.039E-07 | 2.35E-02 | 4.381E+01 | 4.367E+01 | 3.139E+02 | 5.075E-06 | -2.124E-05 | 1.796E-02 |
| 6 | 2.71E-03 | 4.558E+02 | 4.557E+02 | 3.266E+03 | 4.687E-08 | 2.042E-07 | 2.79E-02 | 4.415E+01 | 4.401E+01 | 3.164E+02 | 4.996E-06 | -2.054E-05 | 2.154E-02 |
| 7 | 3.16E-03 | 4.554E+02 | 4.553E+02 | 3.263E+03 | 4.696E-08 | 2.045E-07 | 3.23E-02 | 4.456E+01 | 4.442E+01 | 3.193E+02 | 4.905E-06 | -1.974E-05 | 2.511E-02 |
| 8 | 3.61E-03 | 4.550E+02 | 4.548E+02 | 3.260E+03 | 4.705E-08 | 2.049E-07 | 3.65E-02 | 4.503E+01 | 4.489E+01 | 3.227E+02 | 4.802E-06 | -1.886E-05 | 2.867E-02 |
| 9 | 4.06E-03 | 4.544E+02 | 4.543E+02 | 3.256E+03 | 4.716E-08 | 2.053E-07 | 4.05E-02 | 4.557E+01 | 4.543E+01 | 3.265E+02 | 4.691E-06 | -1.792E-05 | 3.223E-02 |
| 10 | 4.52E-03 | 4.538E+02 | 4.537E+02 | 3.252E+03 | 4.729E-08 | 2.058E-07 | 4.44E-02 | 4.616E+01 | 4.602E+01 | 3.308E+02 | 4.570E-06 | -1.692E-05 | 3.578E-02 |
| 15 | 6.79E-03 | 4.499E+02 | 4.498E+02 | 3.224E+03 | 4.811E-08 | 2.090E-07 | 6.10E-02 | 5.007E+01 | 4.993E+01 | 3.588E+02 | 3.885E-06 | -1.167E-05 | 5.333E-02 |
| 20 | 9.08E-03 | 4.445E+02 | 4.444E+02 | 3.185E+03 | 4.930E-08 | 2.136E-07 | 7.27E-02 | 5.550E+01 | 5.536E+01 | 3.977E+02 | 3.162E-06 | -6.938E-06 | 7.047E-02 |
| 25 | 1.14E-02 | 4.376E+02 | 4.374E+02 | 3.135E+03 | 5.086E-08 | 2.196E-07 | 7.99E-02 | 6.241E+01 | 6.227E+01 | 4.472E+02 | 2.500E-06 | -3.422E-06 | 8.707E-02 |
| 30 | 1.38E-02 | 4.293E+02 | 4.291E+02 | 3.076E+03 | 5.286E-08 | 2.273E-07 | 8.34E-02 | 7.075E+01 | 7.061E+01 | 5.069E+02 | 1.946E-06 | -1.142E-06 | 1.030E-01 |
| 35 | 1.61E-02 | 4.195E+02 | 4.194E+02 | 3.006E+03 | 5.533E-08 | 2.367E-07 | 8.42E-02 | 8.045E+01 | 8.031E+01 | 5.764E+02 | 1.505E-06 | 1.787E-07 | 1.182E-01 |
| 40 | 1.86E-02 | 4.086E+02 | 4.084E+02 | 2.927E+03 | 5.835E-08 | 2.480E-07 | 8.30E-02 | 9.144E+01 | 9.130E+01 | 6.552E+02 | 1.165E-06 | 8.588E-07 | 1.324E-01 |
| 45 | 2.11E-02 | 3.964E+02 | 3.962E+02 | 2.840E+03 | 6.200E-08 | 2.616E-07 | 8.05E-02 | 1.036E+02 | 1.035E+02 | 7.426E+02 | 9.067E-07 | 1.152E-06 | 1.457E-01 |
| 50 | 2.36E-02 | 3.830E+02 | 3.829E+02 | 2.744E+03 | 6.638E-08 | 2.777E-07 | 7.73E-02 | 1.170E+02 | 1.168E+02 | 8.380E+02 | 7.120E-07 | 1.228E-06 | 1.578E-01 |
| 55 | 2.62E-02 | 3.687E+02 | 3.686E+02 | 2.642E+03 | 7.164E-08 | 2.967E-07 | 7.37E-02 | 1.313E+02 | 1.311E+02 | 9.406E+02 | 5.651E-07 | 1.193E-06 | 1.688E-01 |
| 60 | 2.89E-02 | 3.535E+02 | 3.534E+02 | 2.533E+03 | 7.795E-08 | 3.190E-07 | 6.98E-02 | 1.465E+02 | 1.464E+02 | 1.050E+03 | 4.537E-07 | 1.107E-06 | 1.784E-01 |
| 65 | 3.17E-02 | 3.375E+02 | 3.373E+02 | 2.418E+03 | 8.552E-08 | 3.453E-07 | 6.58E-02 | 1.625E+02 | 1.624E+02 | 1.164E+03 | 3.687E-07 | 1.002E-06 | 1.867E-01 |
| 70 | 3.46E-02 | 3.208E+02 | 3.207E+02 | 2.298E+03 | 9.465E-08 | 3.761E-07 | 6.19E-02 | 1.792E+02 | 1.791E+02 | 1.284E+03 | 3.033E-07 | 8.959E-07 | 1.936E-01 |
| 75 | 3.76E-02 | 3.036E+02 | 3.034E+02 | 2.175E+03 | 1.057E-07 | 4.122E-07 | 5.80E-02 | 1.964E+02 | 1.963E+02 | 1.407E+03 | 2.524E-07 | 7.969E-07 | 1.990E-01 |
| 80 | 4.07E-02 | 2.859E+02 | 2.858E+02 | 2.049E+03 | 1.191E-07 | 4.546E-07 | 5.43E-02 | 2.141E+02 | 2.139E+02 | 1.534E+03 | 2.126E-07 | 7.079E-07 | 2.029E-01 |
| 85 | 4.39E-02 | 2.680E+02 | 2.679E+02 | 1.920E+03 | 1.356E-07 | 5.043E-07 | 5.07E-02 | 2.320E+02 | 2.318E+02 | 1.662E+03 | 1.810E-07 | 6.299E-07 | 2.052E-01 |
| 90 | 4.72E-02 | 2.500E+02 | 2.499E+02 | 1.791E+03 | 1.558E-07 | 5.623E-07 | 4.72E-02 | 2.500E+02 | 2.499E+02 | 1.791E+03 | 1.558E-07 | 5.623E-07 | 2.060E-01 |
| 95 | 5.07E-02 | 2.320E+02 | 2.318E+02 | 1.662E+03 | 1.810E-07 | 6.299E-07 | 4.39E-02 | 2.680E+02 | 2.679E+02 | 1.920E+03 | 1.356E-07 | 5.043E-07 | 2.052E-01 |
| 100 | 5.43E-02 | 2.141E+02 | 2.139E+02 | 1.534E+03 | 2.126E-07 | 7.079E-07 | 4.07E-02 | 2.859E+02 | 2.858E+02 | 2.049E+03 | 1.191E-07 | 4.546E-07 | 2.029E-01 |
| 105 | 5.80E-02 | 1.964E+02 | 1.963E+02 | 1.407E+03 | 2.524E-07 | 7.969E-07 | 3.76E-02 | 3.036E+02 | 3.034E+02 | 2.175E+03 | 1.057E-07 | 4.122E-07 | 1.990E-01 |
| 110 | 6.19E-02 | 1.792E+02 | 1.791E+02 | 1.284E+03 | 3.033E-07 | 8.959E-07 | 3.46E-02 | 3.208E+02 | 3.207E+02 | 2.298E+03 | 9.465E-08 | 3.761E-07 | 1.936E-01 |
| 115 | 6.58E-02 | 1.625E+02 | 1.624E+02 | 1.164E+03 | 3.687E-07 | 1.002E-06 | 3.17E-02 | 3.375E+02 | 3.373E+02 | 2.418E+03 | 8.552E-08 | 3.453E-07 | 1.867E-01 |
| 120 | 6.98E-02 | 1.465E+02 | 1.464E+02 | 1.050E+03 | 4.537E-07 | 1.107E-06 | 2.89E-02 | 3.535E+02 | 3.534E+02 | 2.533E+03 | 7.795E-08 | 3.190E-07 | 1.784E-01 |
| 125 | 7.37E-02 | 1.313E+02 | 1.311E+02 | 9.406E+02 | 5.651E-07 | 1.193E-06 | 2.62E-02 | 3.687E+02 | 3.686E+02 | 2.642E+03 | 7.164E-08 | 2.967E-07 | 1.688E-01 |
| 130 | 7.73E-02 | 1.170E+02 | 1.168E+02 | 8.380E+02 | 7.120E-07 | 1.228E-06 | 2.36E-02 | 3.830E+02 | 3.829E+02 | 2.744E+03 | 6.638E-08 | 2.777E-07 | 1.578E-01 |
| 135 | 8.05E-02 | 1.036E+02 | 1.035E+02 | 7.426E+02 | 9.067E-07 | 1.152E-06 | 2.11E-02 | 3.964E+02 | 3.962E+02 | 2.840E+03 | 6.200E-08 | 2.616E-07 | 1.457E-01 |
| 140 | 8.30E-02 | 9.144E+01 | 9.130E+01 | 6.552E+02 | 1.165E-06 | 8.588E-07 | 1.86E-02 | 4.086E+02 | 4.084E+02 | 2.927E+03 | 5.835E-08 | 2.480E-07 | 1.324E-01 |
| 145 | 8.42E-02 | 8.045E+01 | 8.031E+01 | 5.764E+02 | 1.505E-06 | 1.787E-07 | 1.61E-02 | 4.195E+02 | 4.194E+02 | 3.006E+03 | 5.533E-08 | 2.367E-07 | 1.182E-01 |
| 150 | 8.34E-02 | 7.075E+01 | 7.061E+01 | 5.069E+02 | 1.946E-06 | -1.142E-06 | 1.38E-02 | 4.293E+02 | 4.291E+02 | 3.076E+03 | 5.286E-08 | 2.273E-07 | 1.030E-01 |
| 155 | 7.99E-02 | 6.241E+01 | 6.227E+01 | 4.472E+02 | 2.500E-06 | -3.422E-06 | 1.14E-02 | 4.376F+02 | 4.374E+02 | 3.135E+03 | 5.086E-08 | 2.196E-07 | 8.707E-02 |
| 160 | 7.27E-02 | 5.550E+01 | 5.536E+01 | 3.977E+02 | 3.162E-06 | -6.938E-06 | 9.08E-03 | 4.445E+02 | 4.444E+02 | 3.185E+03 | 4.930E-08 | 2.136E-07 | 7.047E-02 |
| 165 | 6.10E-02 | 5.007E+01 | 4.993E+01 | 3.588E+02 | 3.885E-06 | -1.167E-05 | 6.79E-03 | 4.499E+02 | 4.498E+02 | 3.224E+03 | 4.811E-08 | 2.090E-07 | 5.333E-02 |
| 170 | 4.44E-02 | 4.616E+01 | 4.602E+01 | 3.308E+02 | 4.570E-06 | -1.692E-05 | 4.52E-03 | 4.538E+02 | 4.537E+02 | 3.252E+03 | 4.729E-08 | 2.058E-07 | 3.578E-02 |
| 175 | 2.35E-02 | 4.381E+01 | 4.367E+01 | 3.139E+02 | 5.075E-06 | -2.124E-05 | 2.26E-03 | 4.562E+02 | 4.561E+02 | 3.269E+03 | 4.680E-08 | 2.039E-07 | 1.796E-02 |
| 180 | 0. | 4.302E+01 | 4.288E+01 | 3.082E+02 | 5.263E-06 | -2.294E-05 | 0. | 4.570E+02 | 4.568E+02 | 3.274E+03 | 4.664E-08 | 2.033E-07 | 0. |

K ZERO (1) => PI PLUS (2) + PI MINUS (3) AT 750 GEV/C P1 LAB

M1 = 4.97710E-01 M2 = 1.39569E-01 M3 = 1.39569E-01
P2CM= 2.06032E-01
E2CM= 2.48855E-01 E3CM= 2.48855E-01

1-V1LAB= 2.202E-07 GCM = 1.50690E+03 S = 2.47715E-01

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 6.855E+02 | 6.853E+02 | 4.911E+03 | 2.073E-08 | 9.034E-08 | 0. | 6.453E+01 | 6.439E+01 | 4.623E+02 | 2.339E-06 | -1.019E-05 | 0. |
| 1 | 3.01E-04 | 6.854E+02 | 6.853E+02 | 4.911E+03 | 2.073E-08 | 9.035E-08 | 3.19E-03 | 6.458E+01 | 6.444E+01 | 4.627E+02 | 2.336E-06 | -1.016E-05 | 3.596E-03 |
| 2 | 6.01E-04 | 6.853E+02 | 6.851E+02 | 4.910E+03 | 2.074E-08 | 9.039E-08 | 6.37E-03 | 6.472E+01 | 6.458E+01 | 4.637E+02 | 2.325E-06 | -1.007E-05 | 7.190E-03 |
| 3 | 9.02E-04 | 6.850E+02 | 6.849E+02 | 4.908E+03 | 2.075E-08 | 9.044E-08 | 9.51E-03 | 6.495E+01 | 6.482E+01 | 4.654E+02 | 2.308E-06 | -9.916E-06 | 1.078E-02 |
| 4 | 1.20E-03 | 6.847E+02 | 6.846E+02 | 4.906E+03 | 2.077E-08 | 9.052E-08 | 1.26E-02 | 6.529E+01 | 6.515E+01 | 4.678E+02 | 2.285E-06 | -9.705E-06 | 1.437E-02 |
| 5 | 1.50E-03 | 6.843E+02 | 6.841E+02 | 4.903E+03 | 2.080E-08 | 9.062E-08 | 1.57E-02 | 6.571E+01 | 6.557E+01 | 4.708E+02 | 2.256E-06 | -9.441E-06 | 1.796E-02 |
| 6 | 1.80E-03 | 6.838E+02 | 6.836E+02 | 4.899E+03 | 2.083E-08 | 9.075E-08 | 1.86E-02 | 6.623E+01 | 6.609E+01 | 4.749E+02 | 2.220E-06 | -9.129E-06 | 2.154E-02 |
| 7 | 2.11E-03 | 6.832E+02 | 6.830E+02 | 4.895E+03 | 2.087E-08 | 9.089E-08 | 2.15E-02 | 6.684E+01 | 6.670E+01 | 4.789E+02 | 2.180E-06 | -8.774E-06 | 2.511E-02 |
| 8 | 2.41E-03 | 6.824E+02 | 6.823E+02 | 4.890E+03 | 2.091E-08 | 9.106E-08 | 2.43E-02 | 6.755E+01 | 6.741E+01 | 4.840E+02 | 2.134E-06 | -8.384E-06 | 2.867E-02 |
| 9 | 2.71E-03 | 6.816E+02 | 6.815E+02 | 4.884E+03 | 2.096E-08 | 9.125E-08 | 2.70E-02 | 6.835E+01 | 6.821E+01 | 4.897E+02 | 2.085E-06 | -7.964E-06 | 3.223E-02 |
| 10 | 3.01E-03 | 6.808E+02 | 6.806E+02 | 4.878E+03 | 2.102E-08 | 9.147E-08 | 2.96E-02 | 6.925E+01 | 6.911E+01 | 4.961E+02 | 2.031E-06 | -7.521E-06 | 3.578E-02 |
| 15 | 4.53E-03 | 6.749E+02 | 6.748E+02 | 4.836E+03 | 2.138E-08 | 9.289E-08 | 4.07E-02 | 7.511E+01 | 7.497E+01 | 5.381E+02 | 1.727E-06 | -5.185E-06 | 5.333E-02 |
| 20 | 6.06E-03 | 6.667E+02 | 6.666E+02 | 4.777E+03 | 2.191E-08 | 9.493E-08 | 4.85E-02 | 8.325E+01 | 8.311E+01 | 5.965E+02 | 1.405E-06 | -3.083E-06 | 7.047E-02 |
| 25 | 7.60E-03 | 6.564E+02 | 6.562E+02 | 4.703E+03 | 2.261E-08 | 9.762E-08 | 5.33E-02 | 9.362E+01 | 9.348E+01 | 6.708E+02 | 1.111E-06 | -1.521E-06 | 8.707E-02 |
| 30 | 9.17E-03 | 6.439E+02 | 6.437E+02 | 4.613E+03 | 2.349E-08 | 1.010E-07 | 5.56E-02 | 1.061E+02 | 1.060E+02 | 7.604E+02 | 8.648E-07 | -5.075E-07 | 1.030E-01 |
| 35 | 1.08E-02 | 6.293E+02 | 6.292E+02 | 4.509E+03 | 2.459E-08 | 1.052E-07 | 5.61E-02 | 1.207E+02 | 1.205E+02 | 8.646E+02 | 6.688E-07 | 7.943E-08 | 1.182E-01 |
| 40 | 1.24E-02 | 6.128E+02 | 6.127E+02 | 4.391E+03 | 2.593E-08 | 1.102E-07 | 5.53E-02 | 1.372E+02 | 1.370E+02 | 9.828E+02 | 5.177E-07 | 3.817E-07 | 1.324E-01 |
| 45 | 1.40E-02 | 5.945E+02 | 5.944E+02 | 4.260E+03 | 2.755E-08 | 1.163E-07 | 5.37E-02 | 1.555E+02 | 1.553E+02 | 1.114E+03 | 4.030E-07 | 5.118E-07 | 1.457E-01 |
| 50 | 1.57E-02 | 5.746E+02 | 5.744E+02 | 4.117E+03 | 2.950E-08 | 1.234E-07 | 5.15E-02 | 1.754E+02 | 1.753E+02 | 1.257E+03 | 3.165E-07 | 5.458E-07 | 1.578E-01 |
| 55 | 1.75E-02 | 5.531E+02 | 5.529E+02 | 3.963E+03 | 3.184E-08 | 1.319E-07 | 4.91E-02 | 1.969E+02 | 1.968E+02 | 1.411E+03 | 2.512E-07 | 5.302E-07 | 1.688E-01 |
| 60 | 1.93E-02 | 5.302E+02 | 5.301E+02 | 3.799E+03 | 3.464E-08 | 1.418E-07 | 4.65E-02 | 2.198E+02 | 2.196E+02 | 1.575E+03 | 2.017E-07 | 4.918E-07 | 1.784E-01 |
| 65 | 2.11E-02 | 5.062E+02 | 5.061E+02 | 3.627E+03 | 3.801E-08 | 1.535E-07 | 4.39E-02 | 2.438E+02 | 2.436E+02 | 1.747E+03 | 1.639E-07 | 4.453E-07 | 1.867E-01 |
| 70 | 2.31E-02 | 4.812E+02 | 4.810E+02 | 3.448E+03 | 4.206E-08 | 1.672E-07 | 4.13E-02 | 2.688E+02 | 2.687E+02 | 1.926E+03 | 1.348E-07 | 3.982E-07 | 1.936E-01 |
| 75 | 2.50E-02 | 4.554E+02 | 4.552E+02 | 3.263E+03 | 4.697E-08 | 1.832E-07 | 3.87E-02 | 2.946E+02 | 2.945E+02 | 2.111E+03 | 1.122E-07 | 3.542E-07 | 1.990E-01 |
| 80 | 2.71E-02 | 4.289E+02 | 4.288E+02 | 3.073E+03 | 5.294E-08 | 2.021E-07 | 3.62E-02 | 3.211E+02 | 3.209E+02 | 2.301E+03 | 9.447E-08 | 3.146E-07 | 2.029E-01 |
| 85 | 2.92E-02 | 4.021E+02 | 4.019E+02 | 2.881E+03 | 6.025E-08 | 2.241E-07 | 3.38E-02 | 3.479E+02 | 3.478E+02 | 2.493E+03 | 8.045E-08 | 2.799E-07 | 2.052E-01 |
| 90 | 3.15E-02 | 3.750E+02 | 3.749E+02 | 2.687E+03 | 6.926E-08 | 2.499E-07 | 3.15E-02 | 3.750E+02 | 3.749E+02 | 2.687E+03 | 6.926E-08 | 2.499E-07 | 2.060E-01 |
| 95 | 3.38E-02 | 3.479E+02 | 3.478E+02 | 2.493E+03 | 8.045E-08 | 2.799E-07 | 2.92E-02 | 4.021E+02 | 4.019E+02 | 2.881E+03 | 6.025E-08 | 2.241E-07 | 2.052E-01 |
| 100 | 3.62E-02 | 3.211E+02 | 3.209E+02 | 2.301E+03 | 9.447E-08 | 3.146E-07 | 2.71E-02 | 4.289E+02 | 4.288E+02 | 3.073E+03 | 5.294E-08 | 2.021E-07 | 2.029E-01 |
| 105 | 3.87E-02 | 2.946E+02 | 2.945E+02 | 2.111E+03 | 1.122E-07 | 3.542E-07 | 2.50E-02 | 4.554E+02 | 4.552E+02 | 3.263E+03 | 4.697E-08 | 1.832E-07 | 1.990E-01 |
| 110 | 4.13E-02 | 2.688E+02 | 2.687E+02 | 1.926E+03 | 1.348E-07 | 3.982E-07 | 2.31E-02 | 4.812E+02 | 4.810E+02 | 3.448E+03 | 4.206E-08 | 1.672E-07 | 1.936E-01 |
| 115 | 4.39E-02 | 2.438E+02 | 2.436E+02 | 1.747E+03 | 1.639E-07 | 4.453E-07 | 2.11E-02 | 5.062E+02 | 5.061E+02 | 3.627E+03 | 3.801E-08 | 1.535E-07 | 1.867E-01 |
| 120 | 4.65E-02 | 2.198E+02 | 2.196E+02 | 1.575E+03 | 2.017E-07 | 4.918E-07 | 1.93E-02 | 5.302E+02 | 5.301E+02 | 3.799E+03 | 3.464E-08 | 1.418E-07 | 1.784E-01 |
| 125 | 4.91E-02 | 1.969E+02 | 1.968E+02 | 1.411E+03 | 2.512E-07 | 5.302E-07 | 1.75E-02 | 5.531E+02 | 5.529E+02 | 3.963E+03 | 3.184E-08 | 1.319E-07 | 1.688E-01 |
| 130 | 5.15E-02 | 1.754E+02 | 1.753E+02 | 1.257E+03 | 3.165E-07 | 5.458E-07 | 1.57E-02 | 5.746E+02 | 5.744E+02 | 4.117E+03 | 2.950E-08 | 1.234E-07 | 1.578E-01 |
| 135 | 5.37E-02 | 1.555E+02 | 1.553E+02 | 1.114E+03 | 4.030E-07 | 5.118E-07 | 1.40E-02 | 5.945E+02 | 5.944E+02 | 4.260E+03 | 2.755E-08 | 1.163E-07 | 1.457E-01 |
| 140 | 5.53E-02 | 1.372E+02 | 1.370E+02 | 9.828E+02 | 5.177E-07 | 3.817E-07 | 1.24E-02 | 6.128E+02 | 6.127E+02 | 4.391E+03 | 2.593E-08 | 1.102E-07 | 1.324E-01 |
| 145 | 5.61E-02 | 1.207E+02 | 1.205E+02 | 8.646E+02 | 6.688E-07 | 7.943E-08 | 1.08E-02 | 6.293E+02 | 6.292E+02 | 4.509E+03 | 2.459E-08 | 1.052E-07 | 1.182E-01 |
| 150 | 5.56E-02 | 1.061E+02 | 1.060E+02 | 7.604E+02 | 8.648E-07 | -5.075E-07 | 9.17E-03 | 6.439E+02 | 6.437E+02 | 4.613E+03 | 2.349E-08 | 1.010E-07 | 1.030E-01 |
| 155 | 5.33E-02 | 9.362E+01 | 9.348E+01 | 6.708E+02 | 1.111E-06 | -1.521E-06 | 7.60E-03 | 6.564E+02 | 6.562E+02 | 4.703E+03 | 2.261E-08 | 9.762E-08 | 8.707E-02 |
| 160 | 4.85E-02 | 8.325E+01 | 8.311E+01 | 5.965E+02 | 1.405E-06 | -3.083E-06 | 6.06E-03 | 6.667E+02 | 6.666E+02 | 4.777E+03 | 2.191E-08 | 9.493E-08 | 7.047E-02 |
| 165 | 4.07E-02 | 7.511E+01 | 7.497E+01 | 5.381E+02 | 1.727E-06 | -5.185E-06 | 4.53E-03 | 6.749E+02 | 6.748E+02 | 4.836E+03 | 2.138E-08 | 9.289E-08 | 5.333E-02 |
| 170 | 2.96E-02 | 6.925E+01 | 6.911E+01 | 4.961E+02 | 2.031E-06 | -7.521E-06 | 3.01E-03 | 6.808E+02 | 6.806E+02 | 4.878E+03 | 2.102E-08 | 9.147E-08 | 3.578E-02 |
| 175 | 1.57E-02 | 6.571E+01 | 6.557E+01 | 4.708E+02 | 2.256E-06 | -9.441E-06 | 1.50E-03 | 6.843E+02 | 6.841E+02 | 4.903E+03 | 2.080E-08 | 9.062E-08 | 1.796E-02 |
| 180 | 0. | 6.453E+01 | 6.439E+01 | 4.623E+02 | 2.339E-06 | -1.019E-05 | 0. | 6.855E+02 | 6.853E+02 | 4.911E+03 | 2.073E-08 | 9.034E-08 | 0. |

K ZERO (1) => PI PLUS (2) + PI MINUS (3) AT 1000 GEV/C P1 LAB

M1 = 4.97710E-01 M2 = 1.39569E-01 M3 = 1.39569E-01
P2CM= 2.06032E-01
E2CM= 2.48855E-01 E3CM= 2.48855E-01

1-V1LAB= 1.239E-07 GCM = 2.00920E+03 S = 2.47715E-01

| 02 CM | 02 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | 03 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 9.140E+02 | 9.138E+02 | 6.548E+03 | 1.166E-08 | 5.082E-08 | 0. | 8.604E+01 | 8.590E+01 | 6.165E+02 | 1.316E-06 | -5.734E-06 | 0. |
| 1 | 2.25E-04 | 9.139E+02 | 9.138E+02 | 6.548E+03 | 1.166E-08 | 5.082E-08 | 2.39E-03 | 8.610E+01 | 8.596E+01 | 6.169E+02 | 1.314E-06 | -5.717E-06 | 3.596E-03 |
| 2 | 4.51E-04 | 9.137E+02 | 9.136E+02 | 6.547E+03 | 1.167E-08 | 5.084E-08 | 4.77E-03 | 8.629E+01 | 8.615E+01 | 6.183E+02 | 1.308E-06 | -5.664E-06 | 7.190E-03 |
| 3 | 6.76E-04 | 9.134E+02 | 9.133E+02 | 6.544E+03 | 1.167E-08 | 5.087E-08 | 7.13E-03 | 8.661E+01 | 8.647E+01 | 6.205E+02 | 1.299E-06 | -5.578E-06 | 1.078E-02 |
| 4 | 9.02E-04 | 9.130E+02 | 9.128E+02 | 6.541E+03 | 1.169E-08 | 5.092E-08 | 9.46E-03 | 8.705E+01 | 8.691E+01 | 6.237E+02 | 1.285E-06 | -5.459E-06 | 1.437E-02 |
| 5 | 1.13E-03 | 9.124E+02 | 9.122E+02 | 6.537E+03 | 1.170E-08 | 5.098E-08 | 1.17E-02 | 8.761E+01 | 8.747E+01 | 6.278E+02 | 1.269E-06 | -5.310E-06 | 1.796E-02 |
| 6 | 1.35E-03 | 9.117E+02 | 9.116E+02 | 6.532E+03 | 1.172E-08 | 5.104E-08 | 1.40E-02 | 8.831E+01 | 8.817E+01 | 6.327E+02 | 1.249E-06 | -5.135E-06 | 2.154E-02 |
| 7 | 1.58E-03 | 9.109E+02 | 9.107E+02 | 6.526E+03 | 1.174E-08 | 5.113E-08 | 1.61E-02 | 8.912E+01 | 8.899E+01 | 6.386E+02 | 1.226E-06 | -4.936E-06 | 2.511E-02 |
| 8 | 1.81E-03 | 9.099E+02 | 9.098E+02 | 6.520E+03 | 1.176E-08 | 5.122E-08 | 1.82E-02 | 9.007E+01 | 8.993E+01 | 6.453E+02 | 1.201E-06 | -4.716E-06 | 2.867E-02 |
| 9 | 2.03E-03 | 9.089E+02 | 9.087E+02 | 6.512E+03 | 1.179E-08 | 5.133E-08 | 2.03E-02 | 9.114E+01 | 9.100E+01 | 6.530E+02 | 1.173E-06 | -4.480E-06 | 3.223E-02 |
| 10 | 2.26E-03 | 9.077E+02 | 9.075E+02 | 6.503E+03 | 1.182E-08 | 5.145E-08 | 2.22E-02 | 9.233E+01 | 9.219E+01 | 6.615E+02 | 1.143E-06 | -4.231E-06 | 3.578E-02 |
| 15 | 3.40E-03 | 8.999E+02 | 8.997E+02 | 6.447E+03 | 1.203E-08 | 5.225E-08 | 3.05E-02 | 1.001E+02 | 1.000E+02 | 7.175E+02 | 9.712E-07 | -2.916E-06 | 5.333E-02 |
| 20 | 4.54E-03 | 8.890E+02 | 8.889E+02 | 6.370E+03 | 1.232E-08 | 5.340E-08 | 3.64E-02 | 1.110E+02 | 1.109E+02 | 7.953E+02 | 7.904E-07 | -1.734E-06 | 7.047E-02 |
| 25 | 5.70E-03 | 8.752E+02 | 8.750E+02 | 6.271E+03 | 1.272E-08 | 5.491E-08 | 4.00E-02 | 1.248E+02 | 1.247E+02 | 8.944E+02 | 6.251E-07 | -8.554E-07 | 8.707E-02 |
| 30 | 6.88E-03 | 8.585E+02 | 8.584E+02 | 6.151E+03 | 1.321E-08 | 5.682E-08 | 4.17E-02 | 1.415E+02 | 1.414E+02 | 1.014E+03 | 4.864E-07 | -2.855E-07 | 1.030E-01 |
| 35 | 8.07E-03 | 8.391E+02 | 8.390E+02 | 6.012E+03 | 1.383E-08 | 5.917E-08 | 4.21E-02 | 1.609E+02 | 1.608E+02 | 1.153E+03 | 3.762E-07 | 4.468E-08 | 1.182E-01 |
| 40 | 9.29E-03 | 8.171E+02 | 8.170E+02 | 5.855E+03 | 1.459E-08 | 6.201E-08 | 4.15E-02 | 1.829E+02 | 1.827E+02 | 1.310E+03 | 2.912E-07 | 2.147E-07 | 1.324E-01 |
| 45 | 1.05E-02 | 7.927E+02 | 7.926E+02 | 5.680E+03 | 1.550E-08 | 6.540E-08 | 4.03E-02 | 2.073E+02 | 2.071E+02 | 1.485E+03 | 2.267E-07 | 2.879E-07 | 1.457E-01 |
| 50 | 1.18E-02 | 7.661E+02 | 7.659E+02 | 5.489E+03 | 1.660E-08 | 6.943E-08 | 3.87E-02 | 2.339E+02 | 2.338E+02 | 1.676E+03 | 1.780E-07 | 3.070E-07 | 1.578E-01 |
| 55 | 1.31E-02 | 7.374E+02 | 7.373E+02 | 5.284E+03 | 1.791E-08 | 7.417E-08 | 3.68E-02 | 2.626E+02 | 2.624E+02 | 1.881E+03 | 1.413E-07 | 2.982E-07 | 1.688E-01 |
| 60 | 1.45E-02 | 7.070E+02 | 7.068E+02 | 5.065E+03 | 1.949E-08 | 7.976E-08 | 3.49E-02 | 2.930E+02 | 2.929E+02 | 2.099E+03 | 1.134E-07 | 2.766E-07 | 1.784E-01 |
| 65 | 1.59E-02 | 6.749E+02 | 6.748E+02 | 4.836E+03 | 2.138E-08 | 8.632E-08 | 3.29E-02 | 3.251E+02 | 3.249E+02 | 2.329E+03 | 9.218E-08 | 2.505E-07 | 1.867E-01 |
| 70 | 1.73E-02 | 6.416E+02 | 6.414E+02 | 4.597E+03 | 2.366E-08 | 9.403E-08 | 3.09E-02 | 3.584E+02 | 3.583E+02 | 2.568E+03 | 7.582E-08 | 2.240E-07 | 1.936E-01 |
| 75 | 1.88E-02 | 6.071E+02 | 6.070E+02 | 4.350E+03 | 2.642E-08 | 1.031E-07 | 2.90E-02 | 3.929E+02 | 3.927E+02 | 2.815E+03 | 6.311E-08 | 1.992E-07 | 1.990E-01 |
| 80 | 2.03E-02 | 5.719E+02 | 5.717E+02 | 4.098E+03 | 2.978E-08 | 1.137E-07 | 2.72E-02 | 4.281E+02 | 4.280E+02 | 3.067E+03 | 5.314E-08 | 1.770E-07 | 2.029E-01 |
| 85 | 2.19E-02 | 5.361E+02 | 5.359E+02 | 3.841E+03 | 3.389E-08 | 1.261E-07 | 2.53E-02 | 4.639E+02 | 4.638E+02 | 3.324E+03 | 4.525E-08 | 1.575E-07 | 2.052E-01 |
| 90 | 2.36E-02 | 5.000E+02 | 4.999E+02 | 3.582E+03 | 3.896E-08 | 1.406E-07 | 2.36E-02 | 5.000E+02 | 4.999E+02 | 3.582E+03 | 3.896E-08 | 1.406E-07 | 2.060E-01 |
| 95 | 2.53E-02 | 4.639E+02 | 4.638E+02 | 3.324E+03 | 4.525E-08 | 1.575E-07 | 2.19E-02 | 5.361E+02 | 5.359E+02 | 3.841E+03 | 3.389E-08 | 1.261E-07 | 2.052E-01 |
| 100 | 2.72E-02 | 4.281E+02 | 4.280E+02 | 3.067E+03 | 5.314E-08 | 1.770E-07 | 2.03E-02 | 5.719E+02 | 5.717E+02 | 4.098E+03 | 2.978E-08 | 1.137E-07 | 2.029E-01 |
| 105 | 2.90E-02 | 3.929E+02 | 3.927E+02 | 2.815E+03 | 6.311E-08 | 1.992E-07 | 1.88E-02 | 6.071E+02 | 6.070E+02 | 4.350E+03 | 2.642E-08 | 1.031E-07 | 1.990E-01 |
| 110 | 3.09E-02 | 3.584E+02 | 3.583E+02 | 2.568E+03 | 7.582E-08 | 2.240E-07 | 1.73E-02 | 6.416E+02 | 6.414E+02 | 4.597E+03 | 2.366E-08 | 9.403E-08 | 1.936E-01 |
| 115 | 3.29E-02 | 3.251E+02 | 3.249E+02 | 2.329E+03 | 9.218E-08 | 2.505E-07 | 1.59E-02 | 6.749E+02 | 6.748E+02 | 4.836E+03 | 2.138E-08 | 8.632E-08 | 1.867E-01 |
| 120 | 3.49E-02 | 2.930E+02 | 2.929E+02 | 2.099E+03 | 1.134E-07 | 2.766E-07 | 1.45E-02 | 7.070E+02 | 7.068E+02 | 5.065E+03 | 1.949E-08 | 7.976E-08 | 1.784E-01 |
| 125 | 3.68E-02 | 2.626E+02 | 2.624E+02 | 1.881E+03 | 1.413E-07 | 2.982E-07 | 1.31E-02 | 7.374E+02 | 7.373E+02 | 5.284E+03 | 1.791E-08 | 7.417E-08 | 1.688E-01 |
| 130 | 3.87E-02 | 2.339E+02 | 2.338E+02 | 1.676E+03 | 1.780E-07 | 3.070E-07 | 1.18E-02 | 7.661E+02 | 7.659E+02 | 5.489E+03 | 1.660E-08 | 6.943E-08 | 1.578E-01 |
| 135 | 4.03E-02 | 2.073E+02 | 2.071E+02 | 1.485E+03 | 2.267E-07 | 2.879E-07 | 1.05E-02 | 7.927E+02 | 7.926E+02 | 5.680E+03 | 1.550E-08 | 6.540E-08 | 1.457E-01 |
| 140 | 4.15E-02 | 1.829E+02 | 1.827E+02 | 1.310E+03 | 2.912E-07 | 2.147E-07 | 9.29E-03 | 8.171E+02 | 8.170E+02 | 5.855E+03 | 1.459E-08 | 6.201E-08 | 1.324E-01 |
| 145 | 4.21E-02 | 1.609E+02 | 1.608E+02 | 1.153E+03 | 3.762E-07 | 4.468E-08 | 8.07E-03 | 8.391E+02 | 8.390E+02 | 6.012E+03 | 1.383E-08 | 5.917E-08 | 1.182E-01 |
| 150 | 4.17E-02 | 1.415E+02 | 1.414E+02 | 1.014E+03 | 4.864E-07 | -2.855E-07 | 6.88E-03 | 8.585E+02 | 8.584E+02 | 6.151E+03 | 1.321E-08 | 5.682E-08 | 1.030E-01 |
| 155 | 4.00E-02 | 1.248E+02 | 1.247E+02 | 8.944E+02 | 6.251E-07 | -8.554E-07 | 5.70E-03 | 8.752E+02 | 8.750E+02 | 6.271E+03 | 1.272E-08 | 5.491E-08 | 8.707E-02 |
| 160 | 3.64E-02 | 1.110E+02 | 1.109E+02 | 7.953E+02 | 7.904E-07 | -1.734E-06 | 4.54E-03 | 8.890E+02 | 8.889E+02 | 6.370E+03 | 1.232E-08 | 5.340E-08 | 7.047E-02 |
| 165 | 3.05E-02 | 1.001E+02 | 1.000E+02 | 7.175E+02 | 9.712E-07 | -2.916E-06 | 3.40E-03 | 8.999E+02 | 8.997E+02 | 6.447E+03 | 1.203E-08 | 5.225E-08 | 5.333E-02 |
| 170 | 2.22E-02 | 9.233E+01 | 9.219E+01 | 6.615E+02 | 1.143E-06 | -4.231E-06 | 2.26E-03 | 9.077E+02 | 9.075E+02 | 6.503E+03 | 1.182E-08 | 5.145E-08 | 3.578E-02 |
| 175 | 1.17E-02 | 8.761E+01 | 8.747E+01 | 6.278E+02 | 1.269E-06 | -5.310E-06 | 1.13E-03 | 9.124E+02 | 9.122E+02 | 6.537E+03 | 1.170E-08 | 5.098E-08 | 1.796E-02 |
| 180 | 0. | 8.604E+01 | 8.590E+01 | 6.165E+02 | 1.316E-06 | -5.734E-06 | 0. | 9.140E+02 | 9.138E+02 | 6.548E+03 | 1.166E-08 | 5.082E-08 | 0. |

LAMBDA => PROTON + PI MINUS AT 10 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.11559E+00 M2 = 9.38259E-01 M3 = 1.39569E-01
P2CM= 1.00466E-01
E2CM= 9.43623E-01 E3CM= 1.71967E-01

1-V1LAB= 6.165E-03 GCM = 9.01947E+00 S = 1.24454E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 9.365E+00 | 8.473E+00 | 1.003E+01 | 4.982E-03 | 1.151E-04 | 0. | 6.353E-01 | 5.109E-01 | 4.661E+00 | 2.329E-02 | -2.500E-02 | 0. |
| 1 | 1.07E-02 | 9.365E+00 | 8.473E+00 | 1.003E+01 | 4.982E-03 | 1.151E-04 | 1.58E-01 | 6.355E-01 | 5.111E-01 | 4.662E+00 | 2.328E-02 | -2.498E-02 | 1.753E-03 |
| 2 | 2.15E-02 | 9.364E+00 | 8.473E+00 | 1.003E+01 | 4.982E-03 | 1.151E-04 | 3.16E-01 | 6.359E-01 | 5.115E-01 | 4.665E+00 | 2.325E-02 | -2.490E-02 | 3.506E-03 |
| 3 | 3.22E-02 | 9.363E+00 | 8.472E+00 | 1.003E+01 | 4.983E-03 | 1.150E-04 | 4.73E-01 | 6.366E-01 | 5.122E-01 | 4.670E+00 | 2.320E-02 | -2.477E-02 | 5.258E-03 |
| 4 | 4.29E-02 | 9.362E+00 | 8.471E+00 | 1.003E+01 | 4.984E-03 | 1.149E-04 | 6.30E-01 | 6.376E-01 | 5.131E-01 | 4.676E+00 | 2.313E-02 | -2.459E-02 | 7.008E-03 |
| 5 | 5.36E-02 | 9.361E+00 | 8.470E+00 | 1.003E+01 | 4.985E-03 | 1.148E-04 | 7.85E-01 | 6.389E-01 | 5.144E-01 | 4.685E+00 | 2.304E-02 | -2.437E-02 | 8.756E-03 |
| 6 | 6.43E-02 | 9.360E+00 | 8.468E+00 | 1.003E+01 | 4.987E-03 | 1.147E-04 | 9.40E-01 | 6.404E-01 | 5.159E-01 | 4.696E+00 | 2.294E-02 | -2.409E-02 | 1.050E-02 |
| 7 | 7.50E-02 | 9.358E+00 | 8.467E+00 | 1.002E+01 | 4.989E-03 | 1.146E-04 | 1.09E+00 | 6.422E-01 | 5.176E-01 | 4.709E+00 | 2.281E-02 | -2.377E-02 | 1.224E-02 |
| 8 | 8.56E-02 | 9.356E+00 | 8.465E+00 | 1.002E+01 | 4.991E-03 | 1.144E-04 | 1.24E+00 | 6.443E-01 | 5.197E-01 | 4.724E+00 | 2.267E-02 | -2.341E-02 | 1.398E-02 |
| 9 | 9.63E-02 | 9.354E+00 | 8.462E+00 | 1.002E+01 | 4.993E-03 | 1.142E-04 | 1.39E+00 | 6.467E-01 | 5.220E-01 | 4.740E+00 | 2.251E-02 | -2.300E-02 | 1.572E-02 |
| 10 | 1.07E-01 | 9.351E+00 | 8.460E+00 | 1.002E+01 | 4.996E-03 | 1.140E-04 | 1.54E+00 | 6.493E-01 | 5.246E-01 | 4.759E+00 | 2.233E-02 | -2.256E-02 | 1.745E-02 |
| 15 | 1.60E-01 | 9.334E+00 | 8.443E+00 | 9.998E+00 | 5.014E-03 | 1.127E-04 | 2.24E+00 | 6.667E-01 | 5.416E-01 | 4.881E+00 | 2.122E-02 | -1.985E-02 | 2.600E-02 |
| 20 | 2.11E-01 | 9.310E+00 | 8.419E+00 | 9.973E+00 | 5.040E-03 | 1.107E-04 | 2.85E+00 | 6.908E-01 | 5.652E-01 | 5.050E+00 | 1.980E-02 | -1.660E-02 | 3.436E-02 |
| 25 | 2.62E-01 | 9.280E+00 | 8.389E+00 | 9.941E+00 | 5.072E-03 | 1.083E-04 | 3.37E+00 | 7.215E-01 | 5.957E-01 | 5.265E+00 | 1.820E-02 | -1.319E-02 | 4.246E-02 |
| 30 | 3.11E-01 | 9.243E+00 | 8.353E+00 | 9.902E+00 | 5.112E-03 | 1.052E-04 | 3.80E+00 | 7.584E-01 | 6.316E-01 | 5.525E+00 | 1.651E-02 | -9.922E-03 | 5.023E-02 |
| 35 | 3.59E-01 | 9.201E+00 | 8.310E+00 | 9.857E+00 | 5.159E-03 | 1.015E-04 | 4.12E+00 | 8.013E-01 | 6.738E-01 | 5.828E+00 | 1.483E-02 | -6.995E-03 | 5.762E-02 |
| 40 | 4.04E-01 | 9.153E+00 | 8.263E+00 | 9.806E+00 | 5.213E-03 | 9.722E-05 | 4.36E+00 | 8.498E-01 | 7.216E-01 | 6.170E+00 | 1.322E-02 | -4.518E-03 | 6.458E-02 |
| 45 | 4.47E-01 | 9.100E+00 | 8.210E+00 | 9.750E+00 | 5.274E-03 | 9.226E-05 | 4.51E+00 | 9.035E-01 | 7.747E-01 | 6.551E+00 | 1.172E-02 | -2.516E-03 | 7.104E-02 |
| 50 | 4.88E-01 | 9.041E+00 | 8.152E+00 | 9.688E+00 | 5.342E-03 | 8.663E-05 | 4.59E+00 | 9.621E-01 | 8.326E-01 | 6.966E+00 | 1.036E-02 | -9.600E-04 | 7.696E-02 |
| 55 | 5.25E-01 | 8.979E+00 | 8.089E+00 | 9.622E+00 | 5.416E-03 | 8.029E-05 | 4.60E+00 | 1.025E+00 | 8.949E-01 | 7.412E+00 | 9.142E-03 | 2.060E-04 | 8.230E-02 |
| 60 | 5.59E-01 | 8.912E+00 | 8.023E+00 | 9.551E+00 | 5.496E-03 | 7.323E-05 | 4.57E+00 | 1.092E+00 | 9.612E-01 | 7.887E+00 | 8.071E-03 | 1.050E-03 | 8.701E-02 |
| 65 | 5.90E-01 | 8.842E+00 | 7.953E+00 | 9.477E+00 | 5.583E-03 | 6.543E-05 | 4.49E+00 | 1.162E+00 | 1.031E+00 | 8.386E+00 | 7.135E-03 | 1.638E-03 | 9.105E-02 |
| 70 | 6.17E-01 | 8.769E+00 | 7.881E+00 | 9.399E+00 | 5.676E-03 | 5.687E-05 | 4.38E+00 | 1.235E+00 | 1.103E+00 | 8.906E+00 | 6.323E-03 | 2.030E-03 | 9.441E-02 |
| 75 | 6.40E-01 | 8.694E+00 | 7.806E+00 | 9.319E+00 | 5.774E-03 | 4.755E-05 | 4.25E+00 | 1.311E+00 | 1.178E+00 | 9.443E+00 | 5.623E-03 | 2.274E-03 | 9.704E-02 |
| 80 | 6.58E-01 | 8.616E+00 | 7.729E+00 | 9.238E+00 | 5.877E-03 | 3.747E-05 | 4.09E+00 | 1.388E+00 | 1.255E+00 | 9.993E+00 | 5.020E-03 | 2.412E-03 | 9.894E-02 |
| 85 | 6.72E-01 | 8.538E+00 | 7.651E+00 | 9.155E+00 | 5.984E-03 | 2.665E-05 | 3.91E+00 | 1.466E+00 | 1.333E+00 | 1.055E+01 | 4.502E-03 | 2.473E-03 | 1.001E-01 |
| 90 | 6.80E-01 | 8.459E+00 | 7.573E+00 | 9.071E+00 | 6.095E-03 | 1.511E-05 | 3.73E+00 | 1.545E+00 | 1.411E+00 | 1.111E+01 | 4.057E-03 | 2.481E-03 | 1.005E-01 |
| 95 | 6.84E-01 | 8.380E+00 | 7.494E+00 | 8.987E+00 | 6.209E-03 | 2.897E-06 | 3.53E+00 | 1.624E+00 | 1.490E+00 | 1.168E+01 | 3.675E-03 | 2.454E-03 | 1.001E-01 |
| 100 | 6.83E-01 | 8.302E+00 | 7.416E+00 | 8.904E+00 | 6.326E-03 | -9.926E-06 | 3.33E+00 | 1.702E+00 | 1.568E+00 | 1.223E+01 | 3.346E-03 | 2.404E-03 | 9.894E-02 |
| 105 | 6.76E-01 | 8.225E+00 | 7.340E+00 | 8.823E+00 | 6.444E-03 | -2.328E-05 | 3.13E+00 | 1.779E+00 | 1.645E+00 | 1.278E+01 | 3.064E-03 | 2.341E-03 | 9.704E-02 |
| 110 | 6.64E-01 | 8.149E+00 | 7.265E+00 | 8.743E+00 | 6.563E-03 | -3.706E-05 | 2.92E+00 | 1.854E+00 | 1.719E+00 | 1.332E+01 | 2.822E-03 | 2.271E-03 | 9.441E-02 |
| 115 | 6.46E-01 | 8.076E+00 | 7.192E+00 | 8.665E+00 | 6.681E-03 | -5.113E-05 | 2.71E+00 | 1.927E+00 | 1.792E+00 | 1.384E+01 | 2.614E-03 | 2.198E-03 | 9.105E-02 |
| 120 | 6.23E-01 | 8.006E+00 | 7.122E+00 | 8.591E+00 | 6.797E-03 | -6.537E-05 | 2.50E+00 | 1.996E+00 | 1.862E+00 | 1.434E+01 | 2.435E-03 | 2.127E-03 | 8.701E-02 |
| 125 | 5.94E-01 | 7.939E+00 | 7.056E+00 | 8.521E+00 | 6.911E-03 | -7.958E-05 | 2.29E+00 | 2.063E+00 | 1.928E+00 | 1.481E+01 | 2.281E-03 | 2.058E-03 | 8.230E-02 |
| 130 | 5.60E-01 | 7.876E+00 | 6.994E+00 | 8.454E+00 | 7.020E-03 | -9.359E-05 | 2.08E+00 | 2.125E+00 | 1.990E+00 | 1.526E+01 | 2.149E-03 | 1.994E-03 | 7.696E-02 |
| 135 | 5.21E-01 | 7.818E+00 | 6.936E+00 | 8.392E+00 | 7.124E-03 | -1.072E-04 | 1.86E+00 | 2.183E+00 | 2.048E+00 | 1.568E+01 | 2.037E-03 | 1.936E-03 | 7.104E-02 |
| 140 | 4.77E-01 | 7.765E+00 | 6.883E+00 | 8.336E+00 | 7.222E-03 | -1.202E-04 | 1.65E+00 | 2.237E+00 | 2.101E+00 | 1.606E+01 | 1.941E-03 | 1.883E-03 | 6.458E-02 |
| 145 | 4.28E-01 | 7.716E+00 | 6.835E+00 | 8.285E+00 | 7.311E-03 | -1.323E-04 | 1.45E+00 | 2.284E+00 | 2.149E+00 | 1.640E+01 | 1.861E-03 | 1.836E-03 | 5.762E-02 |
| 150 | 3.75E-01 | 7.674E+00 | 6.793E+00 | 8.240E+00 | 7.392E-03 | -1.434E-04 | 1.24E+00 | 2.327E+00 | 2.191E+00 | 1.670E+01 | 1.794E-03 | 1.796E-03 | 5.023E-02 |
| 155 | 3.19E-01 | 7.637E+00 | 6.757E+00 | 8.201E+00 | 7.462E-03 | -1.532E-04 | 1.03E+00 | 2.363E+00 | 2.228E+00 | 1.696E+01 | 1.740E-03 | 1.762E-03 | 4.246E-02 |
| 160 | 2.59E-01 | 7.607E+00 | 6.726E+00 | 8.169E+00 | 7.521E-03 | -1.615E-04 | 8.23E-01 | 2.393E+00 | 2.258E+00 | 1.718E+01 | 1.696E-03 | 1.734E-03 | 3.436E-02 |
| 165 | 1.96E-01 | 7.583E+00 | 6.703E+00 | 8.144E+00 | 7.567E-03 | -1.681E-04 | 6.16E-01 | 2.417E+00 | 2.281E+00 | 1.735E+01 | 1.663E-03 | 1.712E-03 | 2.600E-02 |
| 170 | 1.32E-01 | 7.566E+00 | 6.686E+00 | 8.126E+00 | 7.601E-03 | -1.730E-04 | 4.11E-01 | 2.434E+00 | 2.298E+00 | 1.747E+01 | 1.640E-03 | 1.697E-03 | 1.745E-02 |
| 175 | 6.64E-02 | 7.556E+00 | 6.676E+00 | 8.115E+00 | 7.622E-03 | -1.760E-04 | 2.05E-01 | 2.444E+00 | 2.309E+00 | 1.754E+01 | 1.626E-03 | 1.688E-03 | 8.756E-03 |
| 180 | 0. | 7.552E+00 | 6.672E+00 | 8.111E+00 | 7.629E-03 | -1.770E-04 | 0. | 2.448E+00 | 2.312E+00 | 1.757E+01 | 1.622E-03 | 1.685E-03 | 0. |

LAMBDA => PROTON + PI MINUS AT 20 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.11559E+00 M2 = 9.38259E-01 M3 = 1.39569E-01
P2CM= 1.00466E-01
E2CM= 9.43623E-01 E3CM= 1.71967E-01

1-V1LAB= 1.552E-03 GCM = 1.79556E+01 S = 1.24454E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.872E+01 | 1.781E+01 | 1.998E+01 | 1.254E-03 | 2.880E-05 | 0. | 1.279E+00 | 1.147E+00 | 9.219E+00 | 5.901E-03 | -6.169E-03 | 0. |
| 1 | 5.37E-03 | 1.872E+01 | 1.781E+01 | 1.998E+01 | 1.254E-03 | 2.880E-05 | 7.85E-02 | 1.279E+00 | 1.147E+00 | 9.221E+00 | 5.898E-03 | -6.163E-03 | 1.753E-03 |
| 2 | 1.07E-02 | 1.872E+01 | 1.781E+01 | 1.998E+01 | 1.254E-03 | 2.879E-05 | 1.57E-01 | 1.280E+00 | 1.148E+00 | 9.227E+00 | 5.891E-03 | -6.145E-03 | 3.506E-03 |
| 3 | 1.61E-02 | 1.872E+01 | 1.780E+01 | 1.998E+01 | 1.254E-03 | 2.877E-05 | 2.35E-01 | 1.282E+00 | 1.150E+00 | 9.236E+00 | 5.878E-03 | -6.113E-03 | 5.258E-03 |
| 4 | 2.15E-02 | 1.872E+01 | 1.780E+01 | 1.997E+01 | 1.254E-03 | 2.876E-05 | 3.13E-01 | 1.283E+00 | 1.151E+00 | 9.250E+00 | 5.861E-03 | -6.070E-03 | 7.008E-03 |
| 5 | 2.68E-02 | 1.871E+01 | 1.780E+01 | 1.997E+01 | 1.254E-03 | 2.873E-05 | 3.90E-01 | 1.286E+00 | 1.154E+00 | 9.268E+00 | 5.838E-03 | -6.015E-03 | 8.756E-03 |
| 6 | 3.22E-02 | 1.871E+01 | 1.780E+01 | 1.997E+01 | 1.255E-03 | 2.870E-05 | 4.67E-01 | 1.289E+00 | 1.157E+00 | 9.290E+00 | 5.811E-03 | -5.948E-03 | 1.050E-02 |
| 7 | 3.75E-02 | 1.871E+01 | 1.779E+01 | 1.996E+01 | 1.255E-03 | 2.867E-05 | 5.43E-01 | 1.293E+00 | 1.161E+00 | 9.315E+00 | 5.779E-03 | -5.871E-03 | 1.224E-02 |
| 8 | 4.28E-02 | 1.870E+01 | 1.779E+01 | 1.996E+01 | 1.256E-03 | 2.863E-05 | 6.18E-01 | 1.297E+00 | 1.165E+00 | 9.344E+00 | 5.743E-03 | -5.782E-03 | 1.398E-02 |
| 9 | 4.82E-02 | 1.870E+01 | 1.778E+01 | 1.995E+01 | 1.257E-03 | 2.858E-05 | 6.92E-01 | 1.301E+00 | 1.169E+00 | 9.378E+00 | 5.702E-03 | -5.684E-03 | 1.572E-02 |
| 10 | 5.35E-02 | 1.869E+01 | 1.778E+01 | 1.995E+01 | 1.257E-03 | 2.853E-05 | 7.65E-01 | 1.307E+00 | 1.174E+00 | 9.415E+00 | 5.657E-03 | -5.576E-03 | 1.745E-02 |
| 15 | 7.98E-02 | 1.866E+01 | 1.774E+01 | 1.991E+01 | 1.262E-03 | 2.819E-05 | 1.11E+00 | 1.341E+00 | 1.208E+00 | 9.659E+00 | 5.374E-03 | -4.916E-03 | 2.600E-02 |
| 20 | 1.06E-01 | 1.861E+01 | 1.770E+01 | 1.986E+01 | 1.268E-03 | 2.771E-05 | 1.42E+00 | 1.388E+00 | 1.256E+00 | 9.997E+00 | 5.016E-03 | -4.124E-03 | 3.436E-02 |
| 25 | 1.31E-01 | 1.855E+01 | 1.764E+01 | 1.980E+01 | 1.276E-03 | 2.709E-05 | 1.68E+00 | 1.449E+00 | 1.316E+00 | 1.043E+01 | 4.609E-03 | -3.287E-03 | 4.246E-02 |
| 30 | 1.56E-01 | 1.848E+01 | 1.756E+01 | 1.972E+01 | 1.286E-03 | 2.632E-05 | 1.89E+00 | 1.522E+00 | 1.388E+00 | 1.095E+01 | 4.181E-03 | -2.481E-03 | 5.023E-02 |
| 35 | 1.79E-01 | 1.839E+01 | 1.748E+01 | 1.963E+01 | 1.298E-03 | 2.540E-05 | 2.06E+00 | 1.606E+00 | 1.473E+00 | 1.155E+01 | 3.753E-03 | -1.757E-03 | 5.762E-02 |
| 40 | 2.02E-01 | 1.830E+01 | 1.738E+01 | 1.953E+01 | 1.312E-03 | 2.432E-05 | 2.17E+00 | 1.702E+00 | 1.568E+00 | 1.224E+01 | 3.344E-03 | -1.141E-03 | 6.458E-02 |
| 45 | 2.24E-01 | 1.819E+01 | 1.728E+01 | 1.942E+01 | 1.327E-03 | 2.308E-05 | 2.25E+00 | 1.809E+00 | 1.675E+00 | 1.300E+01 | 2.964E-03 | -6.414E-04 | 7.104E-02 |
| 50 | 2.44E-01 | 1.808E+01 | 1.716E+01 | 1.929E+01 | 1.344E-03 | 2.166E-05 | 2.29E+00 | 1.925E+00 | 1.790E+00 | 1.383E+01 | 2.618E-03 | -2.516E-04 | 7.696E-02 |
| 55 | 2.63E-01 | 1.795E+01 | 1.704E+01 | 1.916E+01 | 1.363E-03 | 2.008E-05 | 2.30E+00 | 2.050E+00 | 1.915E+00 | 1.472E+01 | 2.310E-03 | 4.170F-05 | 8.230E-02 |
| 60 | 2.80E-01 | 1.782E+01 | 1.691E+01 | 1.902E+01 | 1.383E-03 | 1.831E-05 | 2.28E+00 | 2.183E+00 | 2.048E+00 | 1.567E+01 | 2.038E-03 | 2.547E-04 | 8.701E-02 |
| 65 | 2.95E-01 | 1.768E+01 | 1.677E+01 | 1.887E+01 | 1.405E-03 | 1.635E-05 | 2.25E+00 | 2.322E+00 | 2.187E+00 | 1.667E+01 | 1.801E-03 | 4.037E-04 | 9.105E-02 |
| 70 | 3.08E-01 | 1.753E+01 | 1.662E+01 | 1.871E+01 | 1.429E-03 | 1.421E-05 | 2.19E+00 | 2.468E+00 | 2.332E+00 | 1.771E+01 | 1.595E-03 | 5.033E-04 | 9.441E-02 |
| 75 | 3.20E-01 | 1.738E+01 | 1.647E+01 | 1.856E+01 | 1.453E-03 | 1.188E-05 | 2.12E+00 | 2.618E+00 | 2.482E+00 | 1.878E+01 | 1.418E-03 | 5.659E-04 | 9.704E-02 |
| 80 | 3.29E-01 | 1.723E+01 | 1.632E+01 | 1.839E+01 | 1.479E-03 | 9.355E-06 | 2.05E+00 | 2.772E+00 | 2.635E+00 | 1.988E+01 | 1.266E-03 | 6.015E-04 | 9.894E-02 |
| 85 | 3.36E-01 | 1.707E+01 | 1.616E+01 | 1.823E+01 | 1.506E-03 | 6.647E-06 | 1.96E+00 | 2.927E+00 | 2.791E+00 | 2.100E+01 | 1.135E-03 | 6.176E-04 | 1.001E-01 |
| 90 | 3.40E-01 | 1.692E+01 | 1.601E+01 | 1.806E+01 | 1.534E-03 | 3.761E-06 | 1.87E+00 | 3.085E+00 | 2.948E+00 | 2.212E+01 | 1.022E-03 | 6.204E-04 | 1.005E-01 |
| 95 | 3.42E-01 | 1.676E+01 | 1.585E+01 | 1.789E+01 | 1.563E-03 | 7.064E-07 | 1.77E+00 | 3.242E+00 | 3.105E+00 | 2.325E+01 | 9.255E-04 | 6.141E-04 | 1.001E-01 |
| 100 | 3.41E-01 | 1.660E+01 | 1.569E+01 | 1.772E+01 | 1.593E-03 | -2.500E-06 | 1.67E+00 | 3.398E+00 | 3.261E+00 | 2.436E+01 | 8.426E-04 | 6.020E-04 | 9.894E-02 |
| 105 | 3.38E-01 | 1.645E+01 | 1.554E+01 | 1.756E+01 | 1.623E-03 | -5.837E-06 | 1.57E+00 | 3.551E+00 | 3.414E+00 | 2.546E+01 | 7.714E-04 | 5.864E-04 | 9.704E-02 |
| 110 | 3.32E-01 | 1.630E+01 | 1.539E+01 | 1.740E+01 | 1.653E-03 | -9.280E-06 | 1.46E+00 | 3.701E+00 | 3.564E+00 | 2.654E+01 | 7.102E-04 | 5.690E-04 | 9.441E-02 |
| 115 | 3.23E-01 | 1.615E+01 | 1.524E+01 | 1.725E+01 | 1.682E-03 | -1.280E-05 | 1.36E+00 | 3.846E+00 | 3.709E+00 | 2.758E+01 | 6.577E-04 | 5.510E-04 | 9.105E-02 |
| 120 | 3.11E-01 | 1.602E+01 | 1.510E+01 | 1.710E+01 | 1.712E-03 | -1.635E-05 | 1.25E+00 | 3.986E+00 | 3.849E+00 | 2.858E+01 | 6.125E-04 | 5.332E-04 | 8.701E-02 |
| 125 | 2.97E-01 | 1.588E+01 | 1.497E+01 | 1.696E+01 | 1.740E-03 | -1.990E-05 | 1.14E+00 | 4.118E+00 | 3.981E+00 | 2.953E+01 | 5.737E-04 | 5.161E-04 | 8.230E-02 |
| 130 | 2.80E-01 | 1.576E+01 | 1.485E+01 | 1.682E+01 | 1.768E-03 | -2.340E-05 | 1.04E+00 | 4.243E+00 | 4.106E+00 | 3.042E+01 | 5.405E-04 | 5.001E-04 | 7.696E-02 |
| 135 | 2.60E-01 | 1.564E+01 | 1.473E+01 | 1.670E+01 | 1.794E-03 | -2.679E-05 | 9.34E-01 | 4.359E+00 | 4.222E+00 | 3.125E+01 | 5.122E-04 | 4.855E-04 | 7.104E-02 |
| 140 | 2.38E-01 | 1.554E+01 | 1.463E+01 | 1.659E+01 | 1.819E-03 | -3.003E-05 | 8.29E-01 | 4.465E+00 | 4.328E+00 | 3.201E+01 | 4.881E-04 | 4.722E-04 | 6.458E-02 |
| 145 | 2.14E-01 | 1.544E+01 | 1.453E+01 | 1.649E+01 | 1.841E-03 | -3.306E-05 | 7.24E-01 | 4.561E+00 | 4.424E+00 | 3.269E+01 | 4.679E-04 | 4.605E-04 | 5.762E-02 |
| 150 | 1.87E-01 | 1.535E+01 | 1.445E+01 | 1.640E+01 | 1.862E-03 | -3.582E-05 | 6.20E-01 | 4.645E+00 | 4.508E+00 | 3.330E+01 | 4.510E-04 | 4.504E-04 | 5.023E-02 |
| 155 | 1.59E-01 | 1.528E+01 | 1.437E+01 | 1.632E+01 | 1.879E-03 | -3.826E-05 | 5.16E-01 | 4.718E+00 | 4.581E+00 | 3.382E+01 | 4.373E-04 | 4.419E-04 | 4.246E-02 |
| 160 | 1.29E-01 | 1.522E+01 | 1.431E+01 | 1.625E+01 | 1.894E-03 | -4.033E-05 | 4.12E-01 | 4.778E+00 | 4.641E+00 | 3.425E+01 | 4.263E-04 | 4.349E-04 | 3.436E-02 |
| 165 | 9.82E-02 | 1.517E+01 | 1.427E+01 | 1.620E+01 | 1.906E-03 | -4.199E-05 | 3.09E-01 | 4.826E+00 | 4.688E+00 | 3.459E+01 | 4.180E-04 | 4.295E-04 | 2.600E-02 |
| 170 | 6.60E-02 | 1.514E+01 | 1.423E+01 | 1.617E+01 | 1.915E-03 | -4.320E-05 | 2.06E-01 | 4.860E+00 | 4.722E+00 | 3.483E+01 | 4.122E-04 | 4.257E-04 | 1.745E-02 |
| 175 | 3.32E-02 | 1.512E+01 | 1.421E+01 | 1.615E+01 | 1.920E-03 | -4.394E-05 | 1.03E-01 | 4.880E+00 | 4.742E+00 | 3.498E+01 | 4.087E-04 | 4.234E-04 | 8.756E-03 |
| 180 | 0. | 1.511E+01 | 1.420E+01 | 1.614E+01 | 1.922E-03 | -4.419E-05 | 0. | 4.887E+00 | 4.749E+00 | 3.503E+01 | 4.076E-04 | 4.226E-04 | 0. |

LAMBDA (1) => PROTON (2) + PI MINUS (3) AT 30 GEV/C P1 LAB

M1 = 1.11559E+00 M2 = 9.38259E-01 M3 = 1.39569E-01
P2CM= 1.00466E-01
E2CM= 9.43623E-01 E3CM= 1.71967E-01

1-V1LAB= 6.907E-04 GCM = 2.69102E+01 S = 1.24454E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.808E+01 | 2.716E+01 | 2.994E+01 | 5.578E-04 | 1.280E-05 | 0. | 1.921E+00 | 1.786E+00 | 1.380E+01 | 2.629E-03 | -2.735E-03 | 0. |
| 1 | 3.58E-03 | 2.808E+01 | 2.716E+01 | 2.994E+01 | 5.578E-04 | 1.280E-05 | 5.23E-02 | 1.921E+00 | 1.787E+00 | 1.380E+01 | 2.628E-03 | -2.733E-03 | 1.753E-03 |
| 2 | 7.15E-03 | 2.808E+01 | 2.715E+01 | 2.994E+01 | 5.579E-04 | 1.280E-05 | 1.04E-01 | 1.923E+00 | 1.788E+00 | 1.381E+01 | 2.625E-03 | -2.724E-03 | 3.506E-03 |
| 3 | 1.07E-02 | 2.808E+01 | 2.715E+01 | 2.994E+01 | 5.580E-04 | 1.279E-05 | 1.57E-01 | 1.925E+00 | 1.790E+00 | 1.383E+01 | 2.619E-03 | -2.711E-03 | 5.258E-03 |
| 4 | 1.43E-02 | 2.807E+01 | 2.715E+01 | 2.994E+01 | 5.581E-04 | 1.278E-05 | 2.08E-01 | 1.928E+00 | 1.793E+00 | 1.385E+01 | 2.611E-03 | -2.691E-03 | 7.008E-03 |
| 5 | 1.79E-02 | 2.807E+01 | 2.715E+01 | 2.993E+01 | 5.582E-04 | 1.277E-05 | 2.60E-01 | 1.931E+00 | 1.797E+00 | 1.387E+01 | 2.601E-03 | -2.667E-03 | 8.756E-03 |
| 6 | 2.14E-02 | 2.806E+01 | 2.714E+01 | 2.993E+01 | 5.584E-04 | 1.276E-05 | 3.11E-01 | 1.936E+00 | 1.801E+00 | 1.391E+01 | 2.589E-03 | -2.638E-03 | 1.050E-02 |
| 7 | 2.50E-02 | 2.806E+01 | 2.714E+01 | 2.992E+01 | 5.586E-04 | 1.274E-05 | 3.61E-01 | 1.941E+00 | 1.807E+00 | 1.394E+01 | 2.575E-03 | -2.603E-03 | 1.224E-02 |
| 8 | 2.86E-02 | 2.805E+01 | 2.713E+01 | 2.992E+01 | 5.589E-04 | 1.272E-05 | 4.11E-01 | 1.947E+00 | 1.813E+00 | 1.399E+01 | 2.559E-03 | -2.564E-03 | 1.398E-02 |
| 9 | 3.21E-02 | 2.805E+01 | 2.712E+01 | 2.991E+01 | 5.591E-04 | 1.270E-05 | 4.61E-01 | 1.954E+00 | 1.820E+00 | 1.404E+01 | 2.540E-03 | -2.521E-03 | 1.572E-02 |
| 10 | 3.57E-02 | 2.804E+01 | 2.712E+01 | 2.990E+01 | 5.594E-04 | 1.268E-05 | 5.09E-01 | 1.962E+00 | 1.827E+00 | 1.409E+01 | 2.520E-03 | -2.473E-03 | 1.745E-02 |
| 15 | 5.32E-02 | 2.799E+01 | 2.706E+01 | 2.985E+01 | 5.615E-04 | 1.253E-05 | 7.40E-01 | 2.013E+00 | 1.878E+00 | 1.446E+01 | 2.394E-03 | -2.181E-03 | 2.600E-02 |
| 20 | 7.05E-02 | 2.792E+01 | 2.699E+01 | 2.977E+01 | 5.643E-04 | 1.232E-05 | 9.45E-01 | 2.084E+00 | 1.949E+00 | 1.497E+01 | 2.235E-03 | -1.830E-03 | 3.436E-02 |
| 25 | 8.74E-02 | 2.783E+01 | 2.690E+01 | 2.967E+01 | 5.680E-04 | 1.204E-05 | 1.12E+00 | 2.175E+00 | 2.040E+00 | 1.561E+01 | 2.053E-03 | -1.460E-03 | 4.246E-02 |
| 30 | 1.04E-01 | 2.772E+01 | 2.679E+01 | 2.956E+01 | 5.725E-04 | 1.170E-05 | 1.26E+00 | 2.284E+00 | 2.148E+00 | 1.639E+01 | 1.862E-03 | -1.103E-03 | 5.023E-02 |
| 35 | 1.20E-01 | 2.759E+01 | 2.667E+01 | 2.942E+01 | 5.777E-04 | 1.129E-05 | 1.37E+00 | 2.411E+00 | 2.275E+00 | 1.730E+01 | 1.672E-03 | -7.815E-04 | 5.762E-02 |
| 40 | 1.35E-01 | 2.745E+01 | 2.652E+01 | 2.927E+01 | 5.838E-04 | 1.081E-05 | 1.45E+00 | 2.554E+00 | 2.418E+00 | 1.833E+01 | 1.490E-03 | -5.082E-04 | 6.458E-02 |
| 45 | 1.49E-01 | 2.729E+01 | 2.637E+01 | 2.910E+01 | 5.906E-04 | 1.026E-05 | 1.50E+00 | 2.714E+00 | 2.578E+00 | 1.947E+01 | 1.320E-03 | -2.861E-04 | 7.104E-02 |
| 50 | 1.63E-01 | 2.711E+01 | 2.619E+01 | 2.891E+01 | 5.982E-04 | 9.629E-06 | 1.53E+00 | 2.888E+00 | 2.751E+00 | 2.071E+01 | 1.166E-03 | -1.128E-04 | 7.696E-02 |
| 55 | 1.75E-01 | 2.693E+01 | 2.600E+01 | 2.872E+01 | 6.065E-04 | 8.923E-06 | 1.53E+00 | 3.075E+00 | 2.938E+00 | 2.205E+01 | 1.029E-03 | 1.773E-05 | 8.230E-02 |
| 60 | 1.87E-01 | 2.673E+01 | 2.581E+01 | 2.850E+01 | 6.156E-04 | 8.137E-06 | 1.52E+00 | 3.274E+00 | 3.137E+00 | 2.348E+01 | 9.075E-04 | 1.126E-04 | 8.701E-02 |
| 65 | 1.97E-01 | 2.652E+01 | 2.560E+01 | 2.828E+01 | 6.253E-04 | 7.268E-06 | 1.50E+00 | 3.483E+00 | 3.346E+00 | 2.498E+01 | 8.018E-04 | 1.789E-04 | 9.105E-02 |
| 70 | 2.06E-01 | 2.630E+01 | 2.538E+01 | 2.805E+01 | 6.357E-04 | 6.315E-06 | 1.46E+00 | 3.701E+00 | 3.564E+00 | 2.654E+01 | 7.103E-04 | 2.234E-04 | 9.441E-02 |
| 75 | 2.13E-01 | 2.608E+01 | 2.515E+01 | 2.781E+01 | 6.467E-04 | 5.278E-06 | 1.42E+00 | 3.926E+00 | 3.789E+00 | 2.815E+01 | 6.313E-04 | 2.513E-04 | 9.704E-02 |
| 80 | 2.19E-01 | 2.585E+01 | 2.492E+01 | 2.756E+01 | 6.583E-04 | 4.157E-06 | 1.36E+00 | 4.156E+00 | 4.019E+00 | 2.980E+01 | 5.634E-04 | 2.672E-04 | 9.894E-02 |
| 85 | 2.24E-01 | 2.561E+01 | 2.469E+01 | 2.731E+01 | 6.704E-04 | 2.953E-06 | 1.31E+00 | 4.390E+00 | 4.253E+00 | 3.147E+01 | 5.050E-04 | 2.745E-04 | 1.001F-01 |
| 90 | 2.27E-01 | 2.538E+01 | 2.445E+01 | 2.706E+01 | 6.829E-04 | 1.670E-06 | 1.24E+00 | 4.626E+00 | 4.488E+00 | 3.316E+01 | 4.549E-04 | 2.757E-04 | 1.005E-01 |
| 95 | 2.28E-01 | 2.514E+01 | 2.422E+01 | 2.681E+01 | 6.957E-04 | 3.125E-07 | 1.18E+00 | 4.861E+00 | 4.724E+00 | 3.484E+01 | 4.119E-04 | 2.730E-04 | 1.001E-01 |
| 100 | 2.28E-01 | 2.491E+01 | 2.399E+01 | 2.656E+01 | 7.088E-04 | -1.112E-06 | 1.11E+00 | 5.095E+00 | 4.957E+00 | 3.652E+01 | 3.750E-04 | 2.676E-04 | 9.894E-02 |
| 105 | 2.25E-01 | 2.468E+01 | 2.376E+01 | 2.632E+01 | 7.221E-04 | -2.596E-06 | 1.04E+00 | 5.325E+00 | 5.187E+00 | 3.817E+01 | 3.433E-04 | 2.607E-04 | 9.704E-02 |
| 110 | 2.21E-01 | 2.445E+01 | 2.353E+01 | 2.608E+01 | 7.354E-04 | -4.126E-06 | 9.75E-01 | 5.550E+00 | 5.412E+00 | 3.978E+01 | 3.161E-04 | 2.530E-04 | 9.441E-02 |
| 115 | 2.15E-01 | 2.423E+01 | 2.331E+01 | 2.585E+01 | 7.487E-04 | -5.689E-06 | 9.05E-01 | 5.768E+00 | 5.630E+00 | 4.134E+01 | 2.926E-04 | 2.450E-04 | 9.105E-02 |
| 120 | 2.08E-01 | 2.402E+01 | 2.310E+01 | 2.562E+01 | 7.618E-04 | -7.268E-06 | 8.34E-01 | 5.977E+00 | 5.839E+00 | 4.284E+01 | 2.725E-04 | 2.371E-04 | 8.701F-02 |
| 125 | 1.98E-01 | 2.382E+01 | 2.291E+01 | 2.541E+01 | 7.745E-04 | -8.845E-06 | 7.64E-01 | 6.176E+00 | 6.038E+00 | 4.426E+01 | 2.553E-04 | 2.295E-04 | 8.230E-02 |
| 130 | 1.87E-01 | 2.364E+01 | 2.272E+01 | 2.521E+01 | 7.868E-04 | -1.040E-05 | 6.93E-01 | 6.363E+00 | 6.225E+00 | 4.560E+01 | 2.405E-04 | 2.224E-04 | 7.696E-02 |
| 135 | 1.73E-01 | 2.346E+01 | 2.254E+01 | 2.503E+01 | 7.985E-04 | -1.191E-05 | 6.23E-01 | 6.537E+00 | 6.398E+00 | 4.684E+01 | 2.279E-04 | 2.159E-04 | 7.104E-02 |
| 140 | 1.59E-01 | 2.330E+01 | 2.239E+01 | 2.486E+01 | 8.095E-04 | -1.335E-05 | 5.53E-01 | 6.696E+00 | 6.558E+00 | 4.799E+01 | 2.172E-04 | 2.100E-04 | 6.458E-02 |
| 145 | 1.43E-01 | 2.316E+01 | 2.224E+01 | 2.471E+01 | 8.195E-04 | -1.469E-05 | 4.83E-01 | 6.839E+00 | 6.701E+00 | 4.901E+01 | 2.082F-04 | 2.048E-04 | 5.762E-02 |
| 150 | 1.25E-01 | 2.303E+01 | 2.212E+01 | 2.457E+01 | 8.286E-04 | -1.592E-05 | 4.13E-01 | 6.966E+00 | 6.828E+00 | 4.992E+01 | 2.007E-04 | 2.003E-04 | 5.023E-02 |
| 155 | 1.06E-01 | 2.293E+01 | 2.201E+01 | 2.445E+01 | 8.364E-04 | -1.700E-05 | 3.44E-01 | 7.075E+00 | 6.937E+00 | 5.070E+01 | 1.945E-04 | 1.965E-04 | 4.246E-02 |
| 160 | 8.62E-02 | 2.284E+01 | 2.192E+01 | 2.436E+01 | 8.431E-04 | -1.792E-05 | 2.75E-01 | 7.165E+00 | 7.027E+00 | 5.135E+01 | 1.897E-04 | 1.934E-04 | 3.436E-02 |
| 165 | 6.54E-02 | 2.276E+01 | 2.185E+01 | 2.428E+01 | 8.483E-04 | -1.866E-05 | 2.06E-01 | 7.236E+00 | 7.098E+00 | 5.185E+01 | 1.860E-04 | 1.910E-04 | 2.600F-02 |
| 170 | 4.40E-02 | 2.271E+01 | 2.179E+01 | 2.423E+01 | 8.521E-04 | -1.920E-05 | 1.37E-01 | 7.287E+00 | 7.149E+00 | 5.222E+01 | 1.834E-04 | 1.893E-04 | 1.745F-02 |
| 175 | 2.21E-02 | 2.268E+01 | 2.176E+01 | 2.420E+01 | 8.544E-04 | -1.953E-05 | 6.86E-02 | 7.318E+00 | 7.180E+00 | 5.244F+01 | 1.818E-04 | 1.883E-04 | 8.756E-03 |
| 180 | 0. | 2.267E+01 | 2.175E+01 | 2.418E+01 | 8.552E-04 | -1.964E-05 | 0. | 7.328E+00 | 7.190E+00 | 5.251E+01 | 1.813F-04 | 1.880E-04 | 0. |

LAMBDA (1) => PROTON (2) + PI MINUS (3) AT 40 GEV/C P1 LAB

M1 = 1.11559E+00 M2 = 9.38259E-01 M3 = 1.39569E-01
P2CM= 1.00466E-01
E2CM= 9.43623E-01 E3CM= 1.71967E-01

1-V1LAB= 3.887E-04 GCM = 3.58694E+01 S = 1.24454E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 3.744E+01 | 3.651E+01 | 3.991E+01 | 3.139E-04 | 7.201E-06 | 0. | 2.562E+00 | 2.427E+00 | 1.839E+01 | 1.480E-03 | -1.537E-03 | 0. |
| 1 | 2.68E-03 | 3.744E+01 | 3.651E+01 | 3.991E+01 | 3.139E-04 | 7.201E-06 | 3.92E-02 | 2.563E+00 | 2.427E+00 | 1.839E+01 | 1.480E-03 | -1.536E-03 | 1.753E-03 |
| 2 | 5.37E-03 | 3.744E+01 | 3.651E+01 | 3.991E+01 | 3.139E-04 | 7.199E-06 | 7.83E-02 | 2.565E+00 | 2.429E+00 | 1.840E+01 | 1.478E-03 | -1.531E-03 | 3.506E-03 |
| 3 | 8.05E-03 | 3.743E+01 | 3.651E+01 | 3.991E+01 | 3.140E-04 | 7.195E-06 | 1.17E-01 | 2.567E+00 | 2.431E+00 | 1.842E+01 | 1.474E-03 | -1.523E-03 | 5.258E-03 |
| 4 | 1.07E-02 | 3.743E+01 | 3.650E+01 | 3.990E+01 | 3.140E-04 | 7.191E-06 | 1.56E-01 | 2.571E+00 | 2.435E+00 | 1.845E+01 | 1.470E-03 | -1.513E-03 | 7.008E-03 |
| 5 | 1.34E-02 | 3.742E+01 | 3.650E+01 | 3.990E+01 | 3.141E-04 | 7.185E-06 | 1.95E-01 | 2.576E+00 | 2.440E+00 | 1.848E+01 | 1.464E-03 | -1.499E-03 | 8.756E-03 |
| 6 | 1.61E-02 | 3.742E+01 | 3.649E+01 | 3.989E+01 | 3.142E-04 | 7.177E-06 | 2.33E-01 | 2.582E+00 | 2.446E+00 | 1.853E+01 | 1.458E-03 | -1.482E-03 | 1.050E-02 |
| 7 | 1.88E-02 | 3.741E+01 | 3.648E+01 | 3.989E+01 | 3.144E-04 | 7.168E-06 | 2.71E-01 | 2.589E+00 | 2.453E+00 | 1.858E+01 | 1.450E-03 | -1.463E-03 | 1.224E-02 |
| 8 | 2.14E-02 | 3.740E+01 | 3.648E+01 | 3.988E+01 | 3.145E-04 | 7.158E-06 | 3.08E-01 | 2.597E+00 | 2.462E+00 | 1.864E+01 | 1.441E-03 | -1.441E-03 | 1.398E-02 |
| 9 | 2.41E-02 | 3.739E+01 | 3.647E+01 | 3.987E+01 | 3.146E-04 | 7.147E-06 | 3.45E-01 | 2.607E+00 | 2.471E+00 | 1.870E+01 | 1.430E-03 | -1.417E-03 | 1.572E-02 |
| 10 | 2.67E-02 | 3.738E+01 | 3.646E+01 | 3.986E+01 | 3.148E-04 | 7.134E-06 | 3.82E-01 | 2.617E+00 | 2.481E+00 | 1.878E+01 | 1.419E-03 | -1.390E-03 | 1.745E-02 |
| 15 | 3.99E-02 | 3.731E+01 | 3.639E+01 | 3.978E+01 | 3.160E-04 | 7.049E-06 | 5.55E-01 | 2.685E+00 | 2.549E+00 | 1.927E+01 | 1.348E-03 | -1.226E-03 | 2.600E-02 |
| 20 | 5.29E-02 | 3.722E+01 | 3.629E+01 | 3.968E+01 | 3.176E-04 | 6.929E-06 | 7.08E-01 | 2.780E+00 | 2.644E+00 | 1.994E+01 | 1.258E-03 | -1.029E-03 | 3.436E-02 |
| 25 | 6.56E-02 | 3.710E+01 | 3.617E+01 | 3.955E+01 | 3.196E-04 | 6.773E-06 | 8.39E-01 | 2.900E+00 | 2.764E+00 | 2.080E+01 | 1.156E-03 | -8.211E-04 | 4.246E-02 |
| 30 | 7.79E-02 | 3.695E+01 | 3.603E+01 | 3.940E+01 | 3.222E-04 | 6.581E-06 | 9.45E-01 | 3.046E+00 | 2.909E+00 | 2.184E+01 | 1.048E-03 | -6.204E-04 | 5.023E-02 |
| 35 | 8.98E-02 | 3.679E+01 | 3.586E+01 | 3.922E+01 | 3.251E-04 | 6.350E-06 | 1.03E+00 | 3.215E+00 | 3.078E+00 | 2.305E+01 | 9.412E-04 | -4.398E-04 | 5.762E-02 |
| 40 | 1.01E-01 | 3.659E+01 | 3.567E+01 | 3.902E+01 | 3.285E-04 | 6.080E-06 | 1.09E+00 | 3.406E+00 | 3.269E+00 | 2.442E+01 | 8.385E-04 | -2.860E-04 | 6.458E-02 |
| 45 | 1.12E-01 | 3.638E+01 | 3.546E+01 | 3.879E+01 | 3.324E-04 | 5.770E-06 | 1.12E+00 | 3.619E+00 | 3.482E+00 | 2.595E+01 | 7.430E-04 | -1.611E-04 | 7.104E-02 |
| 50 | 1.22E-01 | 3.615E+01 | 3.522E+01 | 3.854E+01 | 3.366E-04 | 5.416E-06 | 1.15E+00 | 3.850E+00 | 3.713E+00 | 2.761E+01 | 6.563E-04 | -6.361E-05 | 7.696E-02 |
| 55 | 1.31E-01 | 3.590E+01 | 3.498E+01 | 3.828E+01 | 3.413E-04 | 5.019E-06 | 1.15E+00 | 4.100E+00 | 3.963E+00 | 2.939E+01 | 5.789E-04 | 9.811E-06 | 8.230E-02 |
| 60 | 1.40E-01 | 3.564E+01 | 3.471E+01 | 3.799E+01 | 3.464E-04 | 4.577E-06 | 1.14E+00 | 4.365E+00 | 4.228E+00 | 3.129E+01 | 5.108E-04 | 6.319E-05 | 8.701E-02 |
| 65 | 1.48E-01 | 3.536E+01 | 3.443E+01 | 3.770E+01 | 3.519E-04 | 4.088E-06 | 1.12E+00 | 4.644E+00 | 4.506E+00 | 3.329E+01 | 4.513E-04 | 1.006E-04 | 9.105E-02 |
| 70 | 1.54E-01 | 3.507E+01 | 3.414E+01 | 3.739E+01 | 3.578E-04 | 3.552E-06 | 1.10E+00 | 4.934E+00 | 4.797E+00 | 3.537E+01 | 3.998E-04 | 1.256E-04 | 9.441E-02 |
| 75 | 1.60E-01 | 3.477E+01 | 3.384E+01 | 3.707E+01 | 3.640E-04 | 2.969E-06 | 1.06E+00 | 5.234E+00 | 5.096E+00 | 3.752E+01 | 3.553E-04 | 1.413E-04 | 9.704E-02 |
| 80 | 1.65E-01 | 3.446E+01 | 3.353E+01 | 3.674E+01 | 3.705E-04 | 2.338E-06 | 1.02E+00 | 5.541E+00 | 5.403E+00 | 3.971E+01 | 3.171E-04 | 1.503E-04 | 9.894E-02 |
| 85 | 1.68E-01 | 3.415E+01 | 3.322E+01 | 3.641E+01 | 3.773E-04 | 1.661E-06 | 9.80E-01 | 5.853E+00 | 5.715E+00 | 4.195E+01 | 2.842E-04 | 1.544E-04 | 1.001E-01 |
| 90 | 1.70E-01 | 3.383E+01 | 3.291E+01 | 3.607E+01 | 3.843E-04 | 9.391F-07 | 9.33E-01 | 6.167E+00 | 6.029E+00 | 4.420E+01 | 2.560E-04 | 1.551E-04 | 1.005E-01 |
| 95 | 1.71E-01 | 3.352E+01 | 3.259E+01 | 3.574E+01 | 3.915E-04 | 1.755E-07 | 8.85E-01 | 6.481E+00 | 6.343E+00 | 4.645E+01 | 2.318F-04 | 1.536E-04 | 1.001E-01 |
| 100 | 1.71E-01 | 3.321E+01 | 3.228E+01 | 3.541E+01 | 3.989E-04 | -6.261E-07 | 8.35E-01 | 6.792E+00 | 6.654E+00 | 4.868E+01 | 2.110E-04 | 1.505E-04 | 9.894E-02 |
| 105 | 1.69E-01 | 3.290E+01 | 3.198E+01 | 3.508E+01 | 4.064E-04 | -1.460E-06 | 7.83E-01 | 7.099E+00 | 6.961E+00 | 5.088E+01 | 1.932E-04 | 1.467E-04 | 9.704E-02 |
| 110 | 1.66E-01 | 3.260E+01 | 3.168E+01 | 3.476E+01 | 4.139E-04 | -2.321E-06 | 7.31E-01 | 7.399E+00 | 7.261F+00 | 5.302E+01 | 1.779E-04 | 1.423E-04 | 9.441E-02 |
| 115 | 1.61E-01 | 3.231E+01 | 3.139E+01 | 3.445E+01 | 4.213E-04 | -3.200E-06 | 6.78E-01 | 7.689E+00 | 7.551E+00 | 5.510E+01 | 1.647E-04 | 1.378E-04 | 9.105E-02 |
| 120 | 1.56E-01 | 3.203E+01 | 3.111E+01 | 3.415E+01 | 4.287E-04 | -4.088E-06 | 6.26E-01 | 7.968E+00 | 7.830E+00 | 5.713E+01 | 1.534E-04 | 1.334E-04 | 8.701E-02 |
| 125 | 1.48E-01 | 3.177E+01 | 3.084E+01 | 3.387E+01 | 4.359E-04 | -4.975E-06 | 5.73E-01 | 8.233E+00 | 8.095E+00 | 5.900E+01 | 1.436E-04 | 1.291E-04 | 8.230E-02 |
| 130 | 1.40E-01 | 3.152E+01 | 3.059E+01 | 3.361E+01 | 4.428E-04 | -5.849E-06 | 5.20E-01 | 8.483E+00 | 8.344E+00 | 6.079E+01 | 1.353E-04 | 1.251E-04 | 7.696E-02 |
| 135 | 1.30E-01 | 3.129E+01 | 3.036E+01 | 3.336E+01 | 4.494E-04 | -6.698E-06 | 4.67E-01 | 8.714E+00 | 8.576E+00 | 6.245E+01 | 1.282E-04 | 1.215E-04 | 7.104E-02 |
| 140 | 1.19E-01 | 3.107E+01 | 3.015E+01 | 3.313E+01 | 4.556E-04 | -7.507E-06 | 4.14E-01 | 8.927E+00 | 8.788E+00 | 6.397E+01 | 1.222E-04 | 1.182E-04 | 6.458E-02 |
| 145 | 1.07E-01 | 3.088E+01 | 2.996E+01 | 3.293E+01 | 4.612E-04 | -8.263E-06 | 3.62E-01 | 9.118E+00 | 8.980E+00 | 6.534E+01 | 1.171E-04 | 1.152E-04 | 5.762E-02 |
| 150 | 9.37E-02 | 3.071E+01 | 2.979E+01 | 3.275E+01 | 4.663E-04 | -8.953E-06 | 3.10E-01 | 9.287E+00 | 9.148E+00 | 6.655E+01 | 1.129F-04 | 1.127E-04 | 5.023E-02 |
| 155 | 7.96E-02 | 3.057E+01 | 2.964E+01 | 3.259E+01 | 4.707E-04 | -9.562E-06 | 2.58E-01 | 9.432F+00 | 9.294E+00 | 6.759E+01 | 1.095E-04 | 1.106E-04 | 4.246E-02 |
| 160 | 6.47E-02 | 3.045E+01 | 2.952E+01 | 3.247E+01 | 4.745E-04 | -1.008E-05 | 2.06E-01 | 9.552E+00 | 9.414E+00 | 6.845E+01 | 1.067E-04 | 1.088E-04 | 3.436E-02 |
| 165 | 4.91E-02 | 3.035E+01 | 2.943E+01 | 3.237E+01 | 4.774E-04 | -1.049E-05 | 1.54E-01 | 9.647E+00 | 9.508E+00 | 6.913E+01 | 1.046E-04 | 1.075E-04 | 2.600E-02 |
| 170 | 3.30E-02 | 3.029E+01 | 2.936E+01 | 3.229E+01 | 4.796E-04 | -1.080E-05 | 1.03E-01 | 9.715E+00 | 9.576E+00 | 6.961E+01 | 1.032E-04 | 1.065F-04 | 1.745E-02 |
| 175 | 1.66E-02 | 3.024E+01 | 2.932E+01 | 3.225E+01 | 4.809E-04 | -1.098E-05 | 5.14E-02 | 9.756E+00 | 9.617E+00 | 6.991E+01 | 1.023E-04 | 1.059E-04 | 8.756E-03 |
| 180 | 0. | 3.023E+01 | 2.931E+01 | 3.224E+01 | 4.813E-04 | -1.104E-05 | 0. | 9.770E+00 | 9.631E+00 | 7.001E+01 | 1.020F-04 | 1.057E-04 | 0. |

LAMBDA (1) => PROTON (2) + PI MINUS (3) AT 50 GEV/C P1 LAB

M1 = 1.11559E+00 M2 = 9.38259E-01 M3 = 1.39569E-01
P2CM= 1.00466E-01
E2CM= 9.43623E-01 E3CM= 1.71967E-01

1-V1LAB= 2.488E-04 GCM = 4.48305E+01 S = 1.24454E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 4.680E+01 | 4.587E+01 | 4.989E+01 | 2.009E-04 | 4.609E-06 | 0. | 3.204E+00 | 3.067E+00 | 2.297E+01 | 9.477E-04 | -9.835E-04 | 0. |
| 1 | 2.15E-03 | 4.680E+01 | 4.587E+01 | 4.989E+01 | 2.009E-04 | 4.609E-06 | 3.14E-02 | 3.204E+00 | 3.068E+00 | 2.298E+01 | 9.473E-04 | -9.825E-04 | 1.753E-03 |
| 2 | 4.29E-03 | 4.679E+01 | 4.586E+01 | 4.988E+01 | 2.010E-04 | 4.607E-06 | 6.27E-02 | 3.206E+00 | 3.070E+00 | 2.299E+01 | 9.461E-04 | -9.795E-04 | 3.506E-03 |
| 3 | 6.44E-03 | 4.679E+01 | 4.586E+01 | 4.988E+01 | 2.010E-04 | 4.605E-06 | 9.39E-02 | 3.210E+00 | 3.073E+00 | 2.302E+01 | 9.441E-04 | -9.746E-04 | 5.258E-03 |
| 4 | 8.58E-03 | 4.679E+01 | 4.586E+01 | 4.987E+01 | 2.010E-04 | 4.602E-06 | 1.25E-01 | 3.215E+00 | 3.078E+00 | 2.305E+01 | 9.412E-04 | -9.677E-04 | 7.008E-03 |
| 5 | 1.07E-02 | 4.678E+01 | 4.585E+01 | 4.987E+01 | 2.011E-04 | 4.598E-06 | 1.56E-01 | 3.221E+00 | 3.084E+00 | 2.310E+01 | 9.376E-04 | -9.590E-04 | 8.756E-03 |
| 6 | 1.29E-02 | 4.677E+01 | 4.584E+01 | 4.986E+01 | 2.011E-04 | 4.593E-06 | 1.86E-01 | 3.228E+00 | 3.092E+00 | 2.315E+01 | 9.333E-04 | -9.484E-04 | 1.050E-02 |
| 7 | 1.50E-02 | 4.676E+01 | 4.583E+01 | 4.985E+01 | 2.012E-04 | 4.588E-06 | 2.17E-01 | 3.237E+00 | 3.101E+00 | 2.322E+01 | 9.282E-04 | -9.361E-04 | 1.224E-02 |
| 8 | 1.71E-02 | 4.675E+01 | 4.582E+01 | 4.984E+01 | 2.013E-04 | 4.581E-06 | 2.47E-01 | 3.247E+00 | 3.111E+00 | 2.329E+01 | 9.223E-04 | -9.221E-04 | 1.398E-02 |
| 9 | 1.93E-02 | 4.674E+01 | 4.581E+01 | 4.983E+01 | 2.014E-04 | 4.574E-06 | 2.76E-01 | 3.259E+00 | 3.122E+00 | 2.337E+01 | 9.157E-04 | -9.064E-04 | 1.572E-02 |
| 10 | 2.14E-02 | 4.673E+01 | 4.580E+01 | 4.981E+01 | 2.015E-04 | 4.566E-06 | 3.05E-01 | 3.272E+00 | 3.135E+00 | 2.347E+01 | 9.085E-04 | -8.893E-04 | 1.745E-02 |
| 15 | 3.19E-02 | 4.664E+01 | 4.571E+01 | 4.972E+01 | 2.023E-04 | 4.511E-06 | 4.44E-01 | 3.357E+00 | 3.220E+00 | 2.407E+01 | 8.631E-04 | -7.845E-04 | 2.600E-02 |
| 20 | 4.23E-02 | 4.652E+01 | 4.560E+01 | 4.960E+01 | 2.033E-04 | 4.435E-06 | 5.67E-01 | 3.475E+00 | 3.339E+00 | 2.492E+01 | 8.054E-04 | -6.586E-04 | 3.436E-02 |
| 25 | 5.25E-02 | 4.637E+01 | 4.545E+01 | 4.944E+01 | 2.046E-04 | 4.335E-06 | 6.71E-01 | 3.626E+00 | 3.489E+00 | 2.600E+01 | 7.401E-04 | -5.255E-04 | 4.246E-02 |
| 30 | 6.23E-02 | 4.619E+01 | 4.526E+01 | 4.924E+01 | 2.062E-04 | 4.212E-06 | 7.56E-01 | 3.807E+00 | 3.670E+00 | 2.730E+01 | 6.712E-04 | -3.970E-04 | 5.023E-02 |
| 35 | 7.18E-02 | 4.598E+01 | 4.505E+01 | 4.902E+01 | 2.081E-04 | 4.064E-06 | 8.22E-01 | 4.018E+00 | 3.881E+00 | 2.881E+01 | 6.026E-04 | -2.815E-04 | 5.762E-02 |
| 40 | 8.09E-02 | 4.574E+01 | 4.481E+01 | 4.876E+01 | 2.103E-04 | 3.891E-06 | 8.69E-01 | 4.258E+00 | 4.120E+00 | 3.052E+01 | 5.368E-04 | -1.831E-04 | 6.458E-02 |
| 45 | 8.95E-02 | 4.548E+01 | 4.455E+01 | 4.848E+01 | 2.128E-04 | 3.693E-06 | 9.00E-01 | 4.523F+00 | 4.386E+00 | 3.242E+01 | 4.757E-04 | -1.032E-04 | 7.104E-02 |
| 50 | 9.76E-02 | 4.519E+01 | 4.426E+01 | 4.817E+01 | 2.155E-04 | 3.466E-06 | 9.16E-01 | 4.813E+00 | 4.675E+00 | 3.450E+01 | 4.202E-04 | -4.077E-05 | 7.696E-02 |
| 55 | 1.05E-01 | 4.488E+01 | 4.395E+01 | 4.784E+01 | 2.185E-04 | 3.212E-06 | 9.20E-01 | 5.125E+00 | 4.987E+00 | 3.673E+01 | 3.706E-04 | 6.232E-06 | 8.230E-02 |
| 60 | 1.12E-01 | 4.454E+01 | 4.362E+01 | 4.749E+01 | 2.218E-04 | 2.929E-06 | 9.14E-01 | 5.456E+00 | 5.318E+00 | 3.911E+01 | 3.270E-04 | 4.040E-05 | 8.701E-02 |
| 65 | 1.18E-01 | 4.420E+01 | 4.327E+01 | 4.711E+01 | 2.253E-04 | 2.616E-06 | 8.99E-01 | 5.805E+00 | 5.667E+00 | 4.160E+01 | 2.889E-04 | 6.433E-05 | 9.105E-02 |
| 70 | 1.23E-01 | 4.383E+01 | 4.290E+01 | 4.673E+01 | 2.290E-04 | 2.273E-06 | 8.77E-01 | 6.168E+00 | 6.030E+00 | 4.420E+01 | 2.559E-04 | 8.035F-05 | 9.441E-02 |
| 75 | 1.28E-01 | 4.346E+01 | 4.253E+01 | 4.633E+01 | 2.330E-04 | 1.900E-06 | 8.50E-01 | 6.542E+00 | 6.404E+00 | 4.689E+01 | 2.275E-04 | 9.043E-05 | 9.704E-02 |
| 80 | 1.32E-01 | 4.307E+01 | 4.215E+01 | 4.592E+01 | 2.371E-04 | 1.496E-06 | 8.19E-01 | 6.926E+00 | 6.788E+00 | 4.963E+01 | 2.030F-04 | 9.617E-05 | 9.894E-02 |
| 85 | 1.34E-01 | 4.269E+01 | 4.176E+01 | 4.551E+01 | 2.415E-04 | 1.063E-06 | 7.84E-01 | 7.316E+00 | 7.177E+00 | 5.243E+01 | 1.819E-04 | 9.879E-05 | 1.001E-01 |
| 90 | 1.36E-01 | 4.229E+01 | 4.136E+01 | 4.509E+01 | 2.460E-04 | 6.009E-07 | 7.47E-01 | 7.708E+00 | 7.570E+00 | 5.524E+01 | 1.639E-04 | 9.926E-05 | 1.005E-01 |
| 95 | 1.37E-01 | 4.190E+01 | 4.097E+01 | 4.467E+01 | 2.506E-04 | 1.122E-07 | 7.08E-01 | 8.101E+00 | 7.962E+00 | 5.805E+01 | 1.484E-04 | 9.828E-05 | 1.001E-01 |
| 100 | 1.37E-01 | 4.151E+01 | 4.058E+01 | 4.425E+01 | 2.553E-04 | -4.008E-07 | 6.68E-01 | 8.490E+00 | 8.352F+00 | 6.084E+01 | 1.351E-04 | 9.636E-05 | 9.894E-02 |
| 105 | 1.35E-01 | 4.113E+01 | 4.020E+01 | 4.384E+01 | 2.601E-04 | -9.347E-07 | 6.27E-01 | 8.874F+00 | 8.735E+00 | 6.359E+01 | 1.237E-04 | 9.388E-05 | 9.704E-02 |
| 110 | 1.33E-01 | 4.075E+01 | 3.982E+01 | 4.345E+01 | 2.649E-04 | -1.486E-06 | 5.85E-01 | 9.248E+00 | 9.110E+00 | 6.627E+01 | 1.139E-04 | 9.110E-05 | 9.441E-02 |
| 115 | 1.29E-01 | 4.039E+01 | 3.946E+01 | 4.306E+01 | 2.697E-04 | -2.048E-06 | 5.43E-01 | 9.611E+00 | 9.473E+00 | 6.887E+01 | 1.054F-04 | 8.823E-05 | 9.105E-02 |
| 120 | 1.25E-01 | 4.004E+01 | 3.911E+01 | 4.269E+01 | 2.744E-04 | -2.617E-06 | 5.01E-01 | 9.960E+00 | 9.821E+00 | 7.137E+01 | 9.817E-05 | 8.538E-05 | 8.701E-02 |
| 125 | 1.19E-01 | 3.971E+01 | 3.878E+01 | 4.233E+01 | 2.790E-04 | -3.184E-06 | 4.58E-01 | 1.029E+01 | 1.015E+01 | 7.374E+01 | 9.195E-05 | 8.265E-05 | 8.230E-02 |
| 130 | 1.12E-01 | 3.940E+01 | 3.847E+01 | 4.200E+01 | 2.835E-04 | -3.744E-06 | 4.16E-01 | 1.060E+01 | 1.046E+01 | 7.597E+01 | 8.663E-05 | 8.009E-05 | 7.696E-02 |
| 135 | 1.04E-01 | 3.911E+01 | 3.818E+01 | 4.169E+01 | 2.877E-04 | -4.286E-06 | 3.74E-01 | 1.089E+01 | 1.075E+01 | 7.805E+01 | 8.208E-05 | 7.774E-05 | 7.104E-02 |
| 140 | 9.53E-02 | 3.884E+01 | 3.792E+01 | 4.141E+01 | 2.916E-04 | -4.804E-06 | 3.32E-01 | 1.116E+01 | 1.102E+01 | 7.995E+01 | 7.822E-05 | 7.563E-05 | 6.458E-02 |
| 145 | 8.55E-02 | 3.860E+01 | 3.768E+01 | 4.116E+01 | 2.952E-04 | -5.288E-06 | 2.90E-01 | 1.140E+01 | 1.126E+01 | 8.166E+01 | 7.497F-05 | 7.375F-05 | 5.762E-02 |
| 150 | 7.50E-02 | 3.839E+01 | 3.747E+01 | 4.093E+01 | 2.985E-04 | -5.730E-06 | 2.48E-01 | 1.161E+01 | 1.147E+01 | 8.318E+01 | 7.227E-05 | 7.214E-05 | 5.023E-02 |
| 155 | 6.37E-02 | 3.821E+01 | 3.728E+01 | 4.074E+01 | 3.013E-04 | -6.120E-06 | 2.06E-01 | 1.179E+01 | 1.165E+01 | 8.448E+01 | 7.007E-05 | 7.077E-05 | 4.246E-02 |
| 160 | 5.17E-02 | 3.806E+01 | 3.713E+01 | 4.058E+01 | 3.037E-04 | -6.451E-06 | 1.65E-01 | 1.194E+01 | 1.180E+01 | 8.555E+01 | 6.831E-05 | 6.966E-05 | 3.436E-02 |
| 165 | 3.93E-02 | 3.794E+01 | 3.702E+01 | 4.045E+01 | 3.056E-04 | -6.717E-06 | 1.24E-01 | 1.206E+01 | 1.192E+01 | 8.640E+01 | 6.698E-05 | 6.879E-05 | 2.600E-02 |
| 170 | 2.64E-02 | 3.786E+01 | 3.693E+01 | 4.036E+01 | 3.070E-04 | -6.910E-06 | 8.23E-02 | 1.214E+01 | 1.200E+01 | 8.701E+01 | 6.605E-05 | 6.818E-05 | 1.745E-02 |
| 175 | 1.33E-02 | 3.781E+01 | 3.688E+01 | 4.031E+01 | 3.078E-04 | -7.029E-06 | 4.11E-02 | 1.219E+01 | 1.206E+01 | 8.738E+01 | 6.549E-05 | 6.781F-05 | 8.756E-03 |
| 180 | 0. | 3.779E+01 | 3.686E+01 | 4.029E+01 | 3.081E-04 | -7.068E-06 | 0. | 1.221E+01 | 1.207E+01 | 8.750E+01 | 6.531E-05 | 6.769F-05 | 0. |

LAMBDA => PROTON + PI MINUS AT 60 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.11559E+00 M2 = 9.38259E-01 M3 = 1.39569E-01
P2CM= 1.00466E-01
E2CM= 9.43623E-01 E3CM= 1.71967E-01

1-V1LAB= 1.728E-04 GCM = 5.37925E+01 S = 1.24454E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 5.616E+01 | 5.522E+01 | 5.986E+01 | 1.396E-04 | 3.201E-06 | 0. | 3.845E+00 | 3.708E+00 | 2.756E+01 | 6.583E-04 | -6.828E-04 | 0. |
| 1 | 1.79E-03 | 5.615E+01 | 5.522E+01 | 5.986E+01 | 1.396E-04 | 3.200E-06 | 2.61E-02 | 3.845E+00 | 3.708E+00 | 2.757E+01 | 6.580E-04 | -6.821E-04 | 1.753E-03 |
| 2 | 3.58E-03 | 5.615E+01 | 5.522E+01 | 5.986E+01 | 1.396E-04 | 3.200E-06 | 5.22E-02 | 3.848E+00 | 3.711E+00 | 2.759E+01 | 6.571E-04 | -6.801E-04 | 3.506E-03 |
| 3 | 5.37E-03 | 5.615E+01 | 5.522E+01 | 5.985E+01 | 1.396E-04 | 3.198E-06 | 7.82E-02 | 3.852E+00 | 3.715E+00 | 2.762E+01 | 6.557E-04 | -6.767E-04 | 5.258E-03 |
| 4 | 7.15E-03 | 5.614E+01 | 5.521E+01 | 5.984E+01 | 1.396E-04 | 3.196E-06 | 1.04E-01 | 3.858E+00 | 3.721E+00 | 2.766E+01 | 6.538E-04 | -6.719E-04 | 7.008E-03 |
| 5 | 8.94E-03 | 5.613E+01 | 5.520E+01 | 5.984E+01 | 1.397E-04 | 3.193E-06 | 1.30E-01 | 3.865E+00 | 3.728E+00 | 2.771E+01 | 6.513E-04 | -6.658E-04 | 8.756E-03 |
| 6 | 1.07E-02 | 5.613E+01 | 5.520E+01 | 5.983E+01 | 1.397E-04 | 3.190E-06 | 1.55E-01 | 3.874E+00 | 3.737E+00 | 2.778E+01 | 6.482E-04 | -6.585E-04 | 1.050E-02 |
| 7 | 1.25E-02 | 5.612E+01 | 5.518E+01 | 5.982E+01 | 1.398E-04 | 3.186E-06 | 1.81E-01 | 3.885E+00 | 3.748E+00 | 2.785E+01 | 6.447E-04 | -6.499E-04 | 1.224E-02 |
| 8 | 1.43E-02 | 5.610E+01 | 5.517E+01 | 5.980E+01 | 1.398E-04 | 3.182E-06 | 2.06E-01 | 3.897E+00 | 3.760E+00 | 2.794E+01 | 6.406E-04 | -6.402E-04 | 1.398E-02 |
| 9 | 1.61E-02 | 5.609E+01 | 5.516E+01 | 5.979E+01 | 1.399E-04 | 3.176E-06 | 2.30E-01 | 3.911E+00 | 3.774E+00 | 2.804E+01 | 6.361E-04 | -6.294E-04 | 1.572E-02 |
| 10 | 1.78E-02 | 5.607E+01 | 5.514E+01 | 5.977E+01 | 1.400E-04 | 3.171E-06 | 2.55E-01 | 3.927E+00 | 3.790E+00 | 2.815E+01 | 6.310E-04 | -6.175E-04 | 1.745E-02 |
| 15 | 2.66E-02 | 5.597E+01 | 5.504E+01 | 5.966E+01 | 1.405E-04 | 3.133E-06 | 3.70E-01 | 4.029E+00 | 3.892E+00 | 2.888E+01 | 5.995E-04 | -5.447E-04 | 2.600E-02 |
| 20 | 3.53E-02 | 5.583E+01 | 5.490E+01 | 5.951E+01 | 1.412E-04 | 3.080E-06 | 4.72E-01 | 4.171E+00 | 4.033E+00 | 2.990E+01 | 5.594E-04 | -4.573E-04 | 3.436E-02 |
| 25 | 4.37E-02 | 5.565E+01 | 5.472E+01 | 5.932E+01 | 1.421E-04 | 3.010E-06 | 5.59E-01 | 4.351E+00 | 4.214E+00 | 3.119E+01 | 5.140E-04 | -3.649E-04 | 4.246E-02 |
| 30 | 5.19E-02 | 5.543E+01 | 5.450E+01 | 5.909E+01 | 1.432E-04 | 2.925E-06 | 6.30E-01 | 4.569E+00 | 4.432E+00 | 3.275E+01 | 4.662E-04 | -2.757E-04 | 5.023E-02 |
| 35 | 5.98E-02 | 5.518E+01 | 5.425E+01 | 5.882E+01 | 1.445E-04 | 2.822E-06 | 6.85E-01 | 4.822E+00 | 4.685E+00 | 3.457E+01 | 4.186F-04 | -1.955E-04 | 5.762E-02 |
| 40 | 6.74E-02 | 5.489E+01 | 5.396E+01 | 5.851E+01 | 1.461E-04 | 2.702E-06 | 7.24E-01 | 5.109E+00 | 4.972E+00 | 3.662E+01 | 3.729E-04 | -1.272E-04 | 6.458E-02 |
| 45 | 7.46E-02 | 5.457E+01 | 5.364E+01 | 5.817E+01 | 1.478E-04 | 2.564E-06 | 7.50E-01 | 5.428E+00 | 5.290E+00 | 3.890E+01 | 3.304E-04 | -7.168E-05 | 7.104E-02 |
| 50 | 8.13E-02 | 5.422E+01 | 5.329E+01 | 5.780E+01 | 1.497E-04 | 2.407E-06 | 7.63E-01 | 5.776E+00 | 5.638E+00 | 4.139E+01 | 2.918E-04 | -2.833E-05 | 7.696E-02 |
| 55 | 8.76E-02 | 5.385E+01 | 5.292E+01 | 5.740E+01 | 1.518E-04 | 2.231E-06 | 7.67E-01 | 6.150E+00 | 6.012E+00 | 4.407E+01 | 2.574E-04 | 4.310E-06 | 8.230E-02 |
| 60 | 9.33E-02 | 5.345E+01 | 5.252E+01 | 5.698E+01 | 1.540E-04 | 2.034E-06 | 7.61E-01 | 6.547E+00 | 6.409E+00 | 4.692E+01 | 2.271E-04 | 2.804E-05 | 8.701E-02 |
| 65 | 9.84E-02 | 5.304E+01 | 5.211E+01 | 5.653E+01 | 1.565E-04 | 1.817E-06 | 7.49E-01 | 6.966E+00 | 6.827E+00 | 4.992E+01 | 2.007E-04 | 4.466E-05 | 9.105E-02 |
| 70 | 1.03E-01 | 5.260E+01 | 5.167E+01 | 5.607E+01 | 1.591E-04 | 1.579E-06 | 7.31E-01 | 7.401E+00 | 7.263E+00 | 5.304E+01 | 1.778F-04 | 5.579E-05 | 9.441E-02 |
| 75 | 1.07E-01 | 5.215E+01 | 5.122E+01 | 5.559E+01 | 1.618E-04 | 1.319E-06 | 7.08E-01 | 7.851E+00 | 7.712E+00 | 5.626E+01 | 1.580E-04 | 6.280E-05 | 9.704E-02 |
| 80 | 1.10E-01 | 5.169E+01 | 5.076E+01 | 5.510E+01 | 1.647E-04 | 1.039E-06 | 6.82E-01 | 8.311E+00 | 8.173E+00 | 5.956E+01 | 1.410E-04 | 6.678E-05 | 9.894E-02 |
| 85 | 1.12E-01 | 5.122E+01 | 5.029E+01 | 5.460E+01 | 1.677E-04 | 7.381E-07 | 6.53E-01 | 8.779E+00 | 8.640E+00 | 6.291E+01 | 1.264E-04 | 6.861E-05 | 1.001E-01 |
| 90 | 1.13E-01 | 5.075E+01 | 4.982E+01 | 5.410E+01 | 1.708E-04 | 4.173E-07 | 6.22E-01 | 9.250E+00 | 9.111E+00 | 6.628E+01 | 1.138E-04 | 6.893E-05 | 1.005E-01 |
| 95 | 1.14E-01 | 5.028E+01 | 4.935E+01 | 5.360E+01 | 1.741E-04 | 7.790E-08 | 5.90E-01 | 9.720E+00 | 9.582E+00 | 6.965E+01 | 1.031E-04 | 6.825E-05 | 1.001E-01 |
| 100 | 1.14E-01 | 4.981E+01 | 4.888E+01 | 5.310E+01 | 1.773E-04 | -2.783E-07 | 5.56E-01 | 1.019E+01 | 1.005E+01 | 7.300E+01 | 9.382E-05 | 6.691E-05 | 9.894E-02 |
| 105 | 1.13E-01 | 4.935E+01 | 4.842E+01 | 5.261E+01 | 1.807E-04 | -6.492E-07 | 5.22E-01 | 1.065E+01 | 1.051E+01 | 7.630E+01 | 8.589E-05 | 6.519E-05 | 9.704E-02 |
| 110 | 1.11E-01 | 4.890E+01 | 4.797E+01 | 5.213E+01 | 1.840E-04 | -1.032E-06 | 4.87E-01 | 1.110E+01 | 1.096E+01 | 7.952E+01 | 7.907E-05 | 6.327E-05 | 9.441E-02 |
| 115 | 1.08E-01 | 4.847E+01 | 4.754E+01 | 5.167E+01 | 1.873E-04 | -1.422E-06 | 4.52E-01 | 1.153E+01 | 1.139E+01 | 8.264E+01 | 7.321E-05 | 6.127E-05 | 9.105E-02 |
| 120 | 1.04E-01 | 4.805E+01 | 4.712E+01 | 5.122E+01 | 1.906E-04 | -1.817E-06 | 4.17E-01 | 1.195E+01 | 1.181E+01 | 8.564E+01 | 6.818E-05 | 5.930E-05 | 8.701E-02 |
| 125 | 9.90E-02 | 4.765E+01 | 4.672E+01 | 5.080E+01 | 1.938E-04 | -2.211E-06 | 3.82E-01 | 1.235E+01 | 1.221E+01 | 8.849E+01 | 6.386E-05 | 5.740E-05 | 8.230E-02 |
| 130 | 9.33E-02 | 4.728E+01 | 4.635E+01 | 5.040E+01 | 1.969E-04 | -2.600E-06 | 3.47E-01 | 1.272E+01 | 1.258E+01 | 9.116E+01 | 6.016E-05 | 5.562E-05 | 7.696E-02 |
| 135 | 8.67E-02 | 4.693E+01 | 4.600E+01 | 5.003E+01 | 1.998E-04 | -2.977E-06 | 3.11E-01 | 1.307E+01 | 1.293E+01 | 9.365E+01 | 5.701E-05 | 5.399E-05 | 7.104E-02 |
| 140 | 7.94E-02 | 4.661E+01 | 4.568E+01 | 4.969E+01 | 2.025E-04 | -3.336E-06 | 2.76E-01 | 1.339E+01 | 1.325E+01 | 9.594E+01 | 5.433E-05 | 5.252E-05 | 6.458E-02 |
| 145 | 7.13E-02 | 4.632E+01 | 4.540E+01 | 4.938E+01 | 2.051E-04 | -3.672E-06 | 2.41E-01 | 1.368E+01 | 1.354E+01 | 9.799E+01 | 5.207E-05 | 5.122E-05 | 5.762E-02 |
| 150 | 6.25E-02 | 4.607E+01 | 4.514E+01 | 4.911E+01 | 2.073E-04 | -3.979E-06 | 2.07E-01 | 1.393E+01 | 1.379E+01 | 9.981E+01 | 5.019E-05 | 5.010E-05 | 5.023E-02 |
| 155 | 5.31E-02 | 4.585E+01 | 4.492E+01 | 4.888E+01 | 2.093E-04 | -4.250E-06 | 1.72E-01 | 1.415E+01 | 1.401E+01 | 1.014E+02 | 4.866E-05 | 4.915E-05 | 4.246E-02 |
| 160 | 4.31E-02 | 4.567E+01 | 4.474E+01 | 4.869E+01 | 2.109E-04 | -4.480E-06 | 1.37E-01 | 1.433E+01 | 1.419E+01 | 1.027E+02 | 4.744E-05 | 4.837E-05 | 3.436E-02 |
| 165 | 3.27E-02 | 4.553E+01 | 4.460E+01 | 4.854E+01 | 2.123E-04 | -4.664E-06 | 1.03E-01 | 1.447E+01 | 1.433E+01 | 1.037E+02 | 4.652E-05 | 4.777E-05 | 2.600E-02 |
| 170 | 2.20E-02 | 4.543E+01 | 4.450E+01 | 4.843E+01 | 2.132E-04 | -4.799E-06 | 6.86E-02 | 1.457E+01 | 1.443E+01 | 1.044E+02 | 4.587E-05 | 4.735E-05 | 1.745E-02 |
| 175 | 1.11E-02 | 4.537E+01 | 4.444E+01 | 4.836E+01 | 2.138E-04 | -4.881E-06 | 3.43E-02 | 1.463E+01 | 1.449E+01 | 1.048E+02 | 4.549E-05 | 4.709E-05 | 8.756E-03 |
| 180 | 0. | 4.535E+01 | 4.442E+01 | 4.834E+01 | 2.140E-04 | -4.908E-06 | 0. | 1.465E+01 | 1.451E+01 | 1.050E+02 | 4.536E-05 | 4.701E-05 | 0. |

LAMBDA (1) => PROTON (2) + PI MINUS (3) AT 70 GEV/C P1 LAB

M1 = 1.11559E+00 M2 = 9.38259E-01 M3 = 1.39569E-01
P2CM= 1.00466E-01
E2CM= 9.43623E-01 E3CM= 1.71967E-01

1-V1LAB= 1.270E-04 GCM = 6.27550E+01 S = 1.24454E+00

| Θ2 CM | Θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | Θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 6.551E+01 | 6.458E+01 | 6.983E+01 | 1.025E-04 | 2.352E-06 | 0. | 4.486E+00 | 4.348E+00 | 3.216E+01 | 4.837E-04 | -5.016E-04 | 0. |
| 1 | 1.53E-03 | 6.551E+01 | 6.458E+01 | 6.983E+01 | 1.025E-04 | 2.351E-06 | 2.24E-02 | 4.487E+00 | 4.349E+00 | 3.216E+01 | 4.835E-04 | -5.011E-04 | 1.753E-03 |
| 2 | 3.07E-03 | 6.551E+01 | 6.458E+01 | 6.983E+01 | 1.025E-04 | 2.351E-06 | 4.47E-02 | 4.490E+00 | 4.352E+00 | 3.218E+01 | 4.829E-04 | -4.996E-04 | 3.506E-03 |
| 3 | 4.60E-03 | 6.551E+01 | 6.457E+01 | 6.982E+01 | 1.026E-04 | 2.350E-06 | 6.70E-02 | 4.494E+00 | 4.357E+00 | 3.222E+01 | 4.818E-04 | -4.971E-04 | 5.258E-03 |
| 4 | 6.13E-03 | 6.550E+01 | 6.457E+01 | 6.982E+01 | 1.026E-04 | 2.348E-06 | 8.92E-02 | 4.501E+00 | 4.364E+00 | 3.227E+01 | 4.804E-04 | -4.936E-04 | 7.008E-03 |
| 5 | 7.66E-03 | 6.549E+01 | 6.456E+01 | 6.981E+01 | 1.026E-04 | 2.346E-06 | 1.11E-01 | 4.510E+00 | 4.372E+00 | 3.233E+01 | 4.786E-04 | -4.891E-04 | 8.756E-03 |
| 6 | 9.19E-03 | 6.548E+01 | 6.455E+01 | 6.980E+01 | 1.026E-04 | 2.344E-06 | 1.33E-01 | 4.520E+00 | 4.383E+00 | 3.240E+01 | 4.763E-04 | -4.837E-04 | 1.050E-02 |
| 7 | 1.07E-02 | 6.547E+01 | 6.454E+01 | 6.978E+01 | 1.027E-04 | 2.341E-06 | 1.55E-01 | 4.533E+00 | 4.395E+00 | 3.249E+01 | 4.737E-04 | -4.774E-04 | 1.224E-02 |
| 8 | 1.22E-02 | 6.545E+01 | 6.452E+01 | 6.977E+01 | 1.027E-04 | 2.337E-06 | 1.76E-01 | 4.547E+00 | 4.410E+00 | 3.260E+01 | 4.707E-04 | -4.703E-04 | 1.398E-02 |
| 9 | 1.38E-02 | 6.544E+01 | 6.451E+01 | 6.975E+01 | 1.028E-04 | 2.334E-06 | 1.97E-01 | 4.563E+00 | 4.426E+00 | 3.271E+01 | 4.674E-04 | -4.623E-04 | 1.572E-02 |
| 10 | 1.53E-02 | 6.542E+01 | 6.449E+01 | 6.973E+01 | 1.028E-04 | 2.330E-06 | 2.18E-01 | 4.582E+00 | 4.444E+00 | 3.284E+01 | 4.637E-04 | -4.536E-04 | 1.745E-02 |
| 15 | 2.28E-02 | 6.530E+01 | 6.437E+01 | 6.960E+01 | 1.032E-04 | 2.302E-06 | 3.17E-01 | 4.701E+00 | 4.563E+00 | 3.369E+01 | 4.405E-04 | -4.002E-04 | 2.600E-02 |
| 20 | 3.02E-02 | 6.513E+01 | 6.420E+01 | 6.943E+01 | 1.037E-04 | 2.263E-06 | 4.05E-01 | 4.866E+00 | 4.729E+00 | 3.488E+01 | 4.111E-04 | -3.359E-04 | 3.436E-02 |
| 25 | 3.75E-02 | 6.492E+01 | 6.399E+01 | 6.920E+01 | 1.044E-04 | 2.212E-06 | 4.79E-01 | 5.077E+00 | 4.939E+00 | 3.639E+01 | 3.777E-04 | -2.681E-04 | 4.246E-02 |
| 30 | 4.45E-02 | 6.467E+01 | 6.374E+01 | 6.893E+01 | 1.052E-04 | 2.149E-06 | 5.40E-01 | 5.331E+00 | 5.193E+00 | 3.821E+01 | 3.426E-04 | -2.026E-04 | 5.023E-02 |
| 35 | 5.13E-02 | 6.437E+01 | 6.344E+01 | 6.862E+01 | 1.062E-04 | 2.074E-06 | 5.87E-01 | 5.626E+00 | 5.488E+00 | 4.032E+01 | 3.075E-04 | -1.436E-04 | 5.762E-02 |
| 40 | 5.78E-02 | 6.404E+01 | 6.311E+01 | 6.826E+01 | 1.073E-04 | 1.985E-06 | 6.21E-01 | 5.961E+00 | 5.823E+00 | 4.272E+01 | 2.740E-04 | -9.345E-05 | 6.458E-02 |
| 45 | 6.39E-02 | 6.367E+01 | 6.274E+01 | 6.786E+01 | 1.086E-04 | 1.884E-06 | 6.43E-01 | 6.333E+00 | 6.195E+00 | 4.538E+01 | 2.428E-04 | -5.267E-05 | 7.104E-02 |
| 50 | 6.97E-02 | 6.326E+01 | 6.233E+01 | 6.743E+01 | 1.100E-04 | 1.769E-06 | 6.54E-01 | 6.738E+00 | 6.600E+00 | 4.829E+01 | 2.144E-04 | -2.082E-05 | 7.696E-02 |
| 55 | 7.51E-02 | 6.283E+01 | 6.189E+01 | 6.697E+01 | 1.115E-04 | 1.639E-06 | 6.57E-01 | 7.175E+00 | 7.036E+00 | 5.142E+01 | 1.892E-04 | 3.159E-06 | 8.230E-02 |
| 60 | 7.99E-02 | 6.236E+01 | 6.143E+01 | 6.647E+01 | 1.132E-04 | 1.494E-06 | 6.53E-01 | 7.639E+00 | 7.500E+00 | 5.474E+01 | 1.669E-04 | 2.060E-05 | 8.701E-02 |
| 65 | 8.43E-02 | 6.187E+01 | 6.094E+01 | 6.595E+01 | 1.150E-04 | 1.335E-06 | 6.42E-01 | 8.126E+00 | 7.988E+00 | 5.823E+01 | 1.475E-04 | 3.281E-05 | 9.105E-02 |
| 70 | 8.81E-02 | 6.137E+01 | 6.043E+01 | 6.541E+01 | 1.169E-04 | 1.160E-06 | 6.26E-01 | 8.635E+00 | 8.496E+00 | 6.187E+01 | 1.306E-04 | 4.099E-05 | 9.441E-02 |
| 75 | 9.14E-02 | 6.084E+01 | 5.991E+01 | 6.485E+01 | 1.189E-04 | 9.693E-07 | 6.07E-01 | 9.159E+00 | 9.021E+00 | 6.563E+01 | 1.161E-04 | 4.613E-05 | 9.704E-02 |
| 80 | 9.40E-02 | 6.030E+01 | 5.937E+01 | 6.428E+01 | 1.210E-04 | 7.634E-07 | 5.85E-01 | 9.696E+00 | 9.558E+00 | 6.948E+01 | 1.036E-04 | 4.906E-05 | 9.894E-02 |
| 85 | 9.60E-02 | 5.976E+01 | 5.883E+01 | 6.370E+01 | 1.232E-04 | 5.423E-07 | 5.60E-01 | 1.024E+01 | 1.010E+01 | 7.339E+01 | 9.285E-05 | 5.040E-05 | 1.001E-01 |
| 90 | 9.72E-02 | 5.921E+01 | 5.828E+01 | 6.311E+01 | 1.255E-04 | 3.066E-07 | 5.33E-01 | 1.079E+01 | 1.065E+01 | 7.732E+01 | 8.363E-05 | 5.064E-05 | 1.005E-01 |
| 95 | 9.78E-02 | 5.866E+01 | 5.773E+01 | 6.253E+01 | 1.279E-04 | 5.722E-08 | 5.06E-01 | 1.134E+01 | 1.120E+01 | 8.126E+01 | 7.573E-05 | 5.014E-05 | 1.001E-01 |
| 100 | 9.75E-02 | 5.811E+01 | 5.718E+01 | 6.195E+01 | 1.303E-04 | -2.045E-07 | 4.77E-01 | 1.189E+01 | 1.175E+01 | 8.517E+01 | 6.894E-05 | 4.916E-05 | 9.894E-02 |
| 105 | 9.66E-02 | 5.758E+01 | 5.665E+01 | 6.137E+01 | 1.327E-04 | -4.769E-07 | 4.48E-01 | 1.242E+01 | 1.228E+01 | 8.901E+01 | 6.311E-05 | 4.790E-05 | 9.704E-02 |
| 110 | 9.48E-02 | 5.705E+01 | 5.612E+01 | 6.082E+01 | 1.352E-04 | -7.580E-07 | 4.18E-01 | 1.295E+01 | 1.281E+01 | 9.277E+01 | 5.810E-05 | 4.648E-05 | 9.441E-02 |
| 115 | 9.23E-02 | 5.655E+01 | 5.561E+01 | 6.027E+01 | 1.376E-04 | -1.045E-06 | 3.88E-01 | 1.346E+01 | 1.332E+01 | 9.641E+01 | 5.379E-05 | 4.502E-05 | 9.105E-02 |
| 120 | 8.89E-02 | 5.606E+01 | 5.513E+01 | 5.975E+01 | 1.400E-04 | -1.335E-06 | 3.58E-01 | 1.394E+01 | 1.380E+01 | 9.991E+01 | 5.010E-05 | 4.357E-05 | 8.701E-02 |
| 125 | 8.48E-02 | 5.559E+01 | 5.466E+01 | 5.926E+01 | 1.424E-04 | -1.625E-06 | 3.27E-01 | 1.441E+01 | 1.427E+01 | 1.032E+02 | 4.692E-05 | 4.217E-05 | 8.230E-02 |
| 130 | 7.99E-02 | 5.516E+01 | 5.423E+01 | 5.880E+01 | 1.447E-04 | -1.910E-06 | 2.97E-01 | 1.484E+01 | 1.470E+01 | 1.064E+02 | 4.420E-05 | 4.087E-05 | 7.696E-02 |
| 135 | 7.43E-02 | 5.475E+01 | 5.382E+01 | 5.836E+01 | 1.468E-04 | -2.187E-06 | 2.67E-01 | 1.525E+01 | 1.511E+01 | 1.093E+02 | 4.188E-05 | 3.967E-05 | 7.104E-02 |
| 140 | 6.80E-02 | 5.438E+01 | 5.345E+01 | 5.797E+01 | 1.488E-04 | -2.451E-06 | 2.37E-01 | 1.562E+01 | 1.548E+01 | 1.119E+02 | 3.992E-05 | 3.859E-05 | 6.458E-02 |
| 145 | 6.11E-02 | 5.405E+01 | 5.311E+01 | 5.761E+01 | 1.507E-04 | -2.698E-06 | 2.07E-01 | 1.596E+01 | 1.582E+01 | 1.143E+02 | 3.826E-05 | 3.763E-05 | 5.762E-02 |
| 150 | 5.35E-02 | 5.375E+01 | 5.282E+01 | 5.730E+01 | 1.523E-04 | -2.923E-06 | 1.77E-01 | 1.625E+01 | 1.611E+01 | 1.164E+02 | 3.688E-05 | 3.681E-05 | 5.023E-02 |
| 155 | 4.55E-02 | 5.350E+01 | 5.257E+01 | 5.702E+01 | 1.538E-04 | -3.122E-06 | 1.47E-01 | 1.650E+01 | 1.637E+01 | 1.183E+02 | 3.575E-05 | 3.611E-05 | 4.246E-02 |
| 160 | 3.69E-02 | 5.329E+01 | 5.236E+01 | 5.680E+01 | 1.550E-04 | -3.291E-06 | 1.18E-01 | 1.671E+01 | 1.658E+01 | 1.198E+02 | 3.486E-05 | 3.554E-05 | 3.436E-02 |
| 165 | 2.80E-02 | 5.312E+01 | 5.219E+01 | 5.662E+01 | 1.560E-04 | -3.427E-06 | 8.83E-02 | 1.688E+01 | 1.674E+01 | 1.210E+02 | 3.418E-05 | 3.510E-05 | 2.600E-02 |
| 170 | 1.89E-02 | 5.300E+01 | 5.207E+01 | 5.650E+01 | 1.567E-04 | -3.526E-06 | 5.88E-02 | 1.700E+01 | 1.686E+01 | 1.218E+02 | 3.370E-05 | 3.479E-05 | 1.745E-02 |
| 175 | 9.48E-03 | 5.293E+01 | 5.200E+01 | 5.642E+01 | 1.571E-04 | -3.586E-06 | 2.94E-02 | 1.707E+01 | 1.693E+01 | 1.223E+02 | 3.342E-05 | 3.460E-05 | 8.756E-03 |
| 180 | 0. | 5.290E+01 | 5.197E+01 | 5.640E+01 | 1.572E-04 | -3.606E-06 | 0. | 1.710E+01 | 1.696E+01 | 1.225E+02 | 3.333E-05 | 3.454E-05 | 0. |

LAMBOA => PROTON + PI MINUS AT 80 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.11559E+00 M2 = 9.38259E-01 M3 = 1.39569E-01
P2CM= 1.00466E-01
E2CM= 9.43623E-01 E3CM= 1.71967E-01

1-V1LAB= 9.722E-05 GCM = 7.17179E+01 S = 1.24454E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 7.487E+01 | 7.394E+01 | 7.981E+01 | 7.851E-05 | 1.800E-06 | 0. | 5.127E+00 | 4.989E+00 | 3.675E+01 | 3.704E-04 | -3.840E-04 | 0. |
| 1 | 1.34E-03 | 7.487E+01 | 7.394E+01 | 7.981E+01 | 7.851E-05 | 1.800E-06 | 1.96E-02 | 5.128E+00 | 4.990E+00 | 3.675E+01 | 3.702E-04 | -3.836E-04 | 1.753E-03 |
| 2 | 2.68E-03 | 7.487E+01 | 7.394E+01 | 7.980E+01 | 7.852E-05 | 1.800E-06 | 3.92E-02 | 5.131E+00 | 4.993E+00 | 3.678E+01 | 3.697E-04 | -3.825E-04 | 3.506E-03 |
| 3 | 4.02E-03 | 7.486E+01 | 7.393E+01 | 7.980E+01 | 7.853E-05 | 1.799E-06 | 5.86E-02 | 5.137E+00 | 4.999E+00 | 3.682E+01 | 3.689E-04 | -3.805E-04 | 5.258E-03 |
| 4 | 5.36E-03 | 7.486E+01 | 7.392E+01 | 7.979E+01 | 7.854E-05 | 1.798E-06 | 7.81E-02 | 5.144E+00 | 5.007E+00 | 3.687E+01 | 3.678E-04 | -3.779E-04 | 7.008E-03 |
| 5 | 6.70E-03 | 7.485E+01 | 7.391E+01 | 7.978E+01 | 7.857E-05 | 1.796E-06 | 9.73E-02 | 5.154E+00 | 5.017E+00 | 3.694E+01 | 3.664E-04 | -3.745E-04 | 8.756E-03 |
| 6 | 8.04E-03 | 7.483E+01 | 7.390E+01 | 7.976E+01 | 7.859E-05 | 1.794E-06 | 1.16E-01 | 5.166E+00 | 5.029E+00 | 3.703E+01 | 3.647E-04 | -3.703E-04 | 1.050E-02 |
| 7 | 9.38E-03 | 7.482E+01 | 7.389E+01 | 7.975E+01 | 7.862E-05 | 1.792E-06 | 1.35E-01 | 5.180E+00 | 5.043E+00 | 3.713E+01 | 3.627E-04 | -3.655E-04 | 1.224E-02 |
| 8 | 1.07E-02 | 7.480E+01 | 7.387E+01 | 7.973E+01 | 7.865E-05 | 1.790E-06 | 1.54E-01 | 5.197E+00 | 5.059E+00 | 3.725E+01 | 3.604E-04 | -3.600E-04 | 1.398E-02 |
| 9 | 1.20E-02 | 7.478E+01 | 7.385E+01 | 7.971E+01 | 7.869E-05 | 1.787E-06 | 1.73E-01 | 5.215E+00 | 5.078E+00 | 3.738E+01 | 3.579E-04 | -3.539E-04 | 1.572E-02 |
| 10 | 1.34E-02 | 7.476E+01 | 7.383E+01 | 7.969E+01 | 7.874E-05 | 1.784E-06 | 1.91E-01 | 5.236E+00 | 5.099E+00 | 3.753E+01 | 3.550E-04 | -3.473E-04 | 1.745E-02 |
| 15 | 2.00E-02 | 7.463E+01 | 7.370E+01 | 7.954E+01 | 7.902E-05 | 1.762E-06 | 2.77E-01 | 5.372E+00 | 5.235E+00 | 3.851E+01 | 3.373E-04 | -3.064E-04 | 2.600E-02 |
| 20 | 2.64E-02 | 7.444E+01 | 7.351E+01 | 7.934E+01 | 7.943E-05 | 1.732E-06 | 3.54E-01 | 5.561E+00 | 5.424E+00 | 3.986E+01 | 3.148E-04 | -2.572E-04 | 3.436E-02 |
| 25 | 3.28E-02 | 7.420E+01 | 7.327E+01 | 7.909E+01 | 7.994E-05 | 1.693E-06 | 4.19E-01 | 5.802E+00 | 5.664E+00 | 4.158E+01 | 2.892E-04 | -2.052E-04 | 4.246E-02 |
| 30 | 3.89E-02 | 7.391E+01 | 7.298E+01 | 7.878E+01 | 8.057E-05 | 1.645E-06 | 4.72E-01 | 6.092E+00 | 5.954E+00 | 4.366E+01 | 2.623E-04 | -1.551E-04 | 5.023E-02 |
| 35 | 4.49E-02 | 7.357E+01 | 7.264E+01 | 7.842E+01 | 8.131E-05 | 1.588E-06 | 5.13E-01 | 6.430E+00 | 6.292E+00 | 4.608E+01 | 2.355E-04 | -1.100E-04 | 5.762E-02 |
| 40 | 5.06E-02 | 7.319E+01 | 7.226E+01 | 7.801E+01 | 8.217E-05 | 1.520E-06 | 5.43E-01 | 6.813E+00 | 6.675E+00 | 4.882E+01 | 2.098E-04 | -7.155E-05 | 6.458E-02 |
| 45 | 5.59E-02 | 7.276E+01 | 7.183E+01 | 7.756E+01 | 8.313E-05 | 1.442E-06 | 5.62E-01 | 7.237E+00 | 7.099E+00 | 5.187E+01 | 1.859E-04 | -4.033E-05 | 7.104E-02 |
| 50 | 6.10E-02 | 7.230E+01 | 7.137E+01 | 7.706E+01 | 8.420E-05 | 1.354E-06 | 5.73E-01 | 7.701E+00 | 7.563E+00 | 5.519E+01 | 1.642E-04 | -1.595E-05 | 7.696E-02 |
| 55 | 6.57E-02 | 7.180E+01 | 7.087E+01 | 7.653E+01 | 8.537E-05 | 1.255E-06 | 5.75E-01 | 8.200E+00 | 8.061E+00 | 5.876E+01 | 1.448E-04 | 2.414E-06 | 8.230E-02 |
| 60 | 6.99E-02 | 7.127E+01 | 7.034E+01 | 7.597E+01 | 8.664E-05 | 1.144E-06 | 5.71E-01 | 8.730E+00 | 8.591E+00 | 6.256E+01 | 1.278E-04 | 1.577E-05 | 8.701E-02 |
| 65 | 7.38E-02 | 7.071E+01 | 6.978E+01 | 7.537E+01 | 8.802E-05 | 1.022E-06 | 5.62E-01 | 9.287E+00 | 9.149E+00 | 6.655E+01 | 1.129E-04 | 2.512E-05 | 9.105E-02 |
| 70 | 7.71E-02 | 7.013E+01 | 6.920E+01 | 7.475E+01 | 8.948E-05 | 8.880E-07 | 5.48E-01 | 9.868E+00 | 9.729E+00 | 7.071E+01 | 1.000E-04 | 3.138E-05 | 9.441E-02 |
| 75 | 8.00E-02 | 6.953E+01 | 6.860E+01 | 7.412E+01 | 9.103E-05 | 7.422E-07 | 5.31E-01 | 1.047E+01 | 1.033E+01 | 7.501E+01 | 8.888E-05 | 3.532E-05 | 9.704E-02 |
| 80 | 8.23E-02 | 6.892E+01 | 6.799E+01 | 7.346E+01 | 9.266E-05 | 5.845E-07 | 5.12E-01 | 1.108E+01 | 1.094E+01 | 7.940E+01 | 7.931E-05 | 3.756E-05 | 9.894E-02 |
| 85 | 8.40E-02 | 6.830E+01 | 6.736E+01 | 7.280E+01 | 9.435E-05 | 4.152E-07 | 4.90E-01 | 1.170E+01 | 1.157E+01 | 8.387E+01 | 7.109E-05 | 3.859E-05 | 1.001E-01 |
| 90 | 8.51E-02 | 6.767E+01 | 6.674E+01 | 7.213E+01 | 9.611E-05 | 2.347E-07 | 4.67E-01 | 1.233E+01 | 1.219E+01 | 8.837E+01 | 6.403E-05 | 3.877E-05 | 1.005E-01 |
| 95 | 8.55E-02 | 6.704E+01 | 6.611E+01 | 7.146E+01 | 9.792E-05 | 4.380E-08 | 4.42E-01 | 1.296E+01 | 1.282E+01 | 9.286E+01 | 5.798E-05 | 3.839E-05 | 1.001E-01 |
| 100 | 8.54E-02 | 6.642E+01 | 6.549E+01 | 7.079E+01 | 9.977E-05 | -1.566E-07 | 4.17E-01 | 1.358E+01 | 1.344E+01 | 9.733E+01 | 5.278E-05 | 3.764E-05 | 9.894E-02 |
| 105 | 8.45E-02 | 6.580E+01 | 6.487E+01 | 7.014E+01 | 1.016E-04 | -3.652E-07 | 3.92E-01 | 1.420E+01 | 1.406E+01 | 1.017E+02 | 4.832E-05 | 3.667E-05 | 9.704E-02 |
| 110 | 8.30E-02 | 6.520E+01 | 6.427E+01 | 6.950E+01 | 1.035E-04 | -5.803E-07 | 3.66E-01 | 1.480E+01 | 1.466E+01 | 1.060E+02 | 4.448E-05 | 3.559E-05 | 9.441E-02 |
| 115 | 8.07E-02 | 6.462E+01 | 6.369E+01 | 6.888E+01 | 1.054E-04 | -8.001E-07 | 3.39E-01 | 1.538E+01 | 1.524E+01 | 1.102E+02 | 4.119E-05 | 3.447E-05 | 9.105E-02 |
| 120 | 7.78E-02 | 6.407E+01 | 6.313E+01 | 6.829E+01 | 1.072E-04 | -1.022E-06 | 3.13E-01 | 1.593E+01 | 1.580E+01 | 1.142E+02 | 3.836E-05 | 3.336E-05 | 8.701E-02 |
| 125 | 7.42E-02 | 6.354E+01 | 6.260E+01 | 6.772E+01 | 1.090E-04 | -1.244E-06 | 2.86E-01 | 1.646E+01 | 1.633E+01 | 1.180E+02 | 3.593E-05 | 3.229E-05 | 8.230E-02 |
| 130 | 7.00E-02 | 6.304E+01 | 6.211E+01 | 6.719E+01 | 1.108E-04 | -1.462E-06 | 2.60E-01 | 1.696E+01 | 1.682E+01 | 1.215E+02 | 3.384E-05 | 3.129E-05 | 7.696E-02 |
| 135 | 6.50E-02 | 6.257E+01 | 6.164E+01 | 6.670E+01 | 1.124E-04 | -1.674E-06 | 2.34E-01 | 1.743E+01 | 1.729E+01 | 1.249E+02 | 3.207E-05 | 3.037E-05 | 7.104E-02 |
| 140 | 5.95E-02 | 6.215E+01 | 6.122E+01 | 6.625E+01 | 1.139E-04 | -1.877E-06 | 2.07E-01 | 1.785E+01 | 1.771E+01 | 1.279E+02 | 3.056E-05 | 2.954E-05 | 6.458E-02 |
| 145 | 5.35E-02 | 6.177E+01 | 6.083E+01 | 6.584E+01 | 1.154E-04 | -2.066E-06 | 1.81E-01 | 1.823E+01 | 1.810E+01 | 1.307E+02 | 2.929E-05 | 2.881E-05 | 5.762E-02 |
| 150 | 4.69E-02 | 6.143E+01 | 6.050E+01 | 6.548E+01 | 1.166E-04 | -2.238E-06 | 1.55E-01 | 1.857E+01 | 1.843E+01 | 1.331E+02 | 2.824E-05 | 2.818E-05 | 5.023E-02 |
| 155 | 3.98E-02 | 6.114E+01 | 6.021E+01 | 6.517E+01 | 1.177E-04 | -2.390E-06 | 1.29E-01 | 1.886E+01 | 1.872E+01 | 1.351E+02 | 2.737E-05 | 2.765E-05 | 4.246E-02 |
| 160 | 3.23E-02 | 6.090E+01 | 5.997E+01 | 6.491E+01 | 1.187E-04 | -2.520E-06 | 1.03E-01 | 1.910E+01 | 1.896E+01 | 1.369E+02 | 2.669E-05 | 2.721E-05 | 3.436E-02 |
| 165 | 2.45E-02 | 6.071E+01 | 5.978E+01 | 6.471E+01 | 1.194E-04 | -2.624E-06 | 7.72E-02 | 1.929E+01 | 1.915E+01 | 1.382E+02 | 2.617E-05 | 2.687E-05 | 2.600E-02 |
| 170 | 1.65E-02 | 6.057E+01 | 5.964E+01 | 6.457E+01 | 1.199E-04 | -2.699E-06 | 5.15E-02 | 1.943E+01 | 1.929E+01 | 1.392E+02 | 2.580E-05 | 2.663E-05 | 1.745E-02 |
| 175 | 8.29E-03 | 6.049E+01 | 5.956E+01 | 6.448E+01 | 1.203E-04 | -2.745E-06 | 2.57E-02 | 1.951E+01 | 1.937E+01 | 1.398E+02 | 2.559E-05 | 2.649E-05 | 8.756E-03 |
| 180 | 0. | 6.046E+01 | 5.953E+01 | 6.445E+01 | 1.204E-04 | -2.761E-06 | 0. | 1.954E+01 | 1.940E+01 | 1.400E+02 | 2.552E-05 | 2.644E-05 | 0. |

LAMBDA => PROTON + PI MINUS AT 90 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.11559E+00 M2 = 9.38259E-01 M3 = 1.39569E-01
P2CM= 1.00466E-01
E2CM= 9.43623E-01 E3CM= 1.71967E-01

1-V1LAB= 7.681E-05 GCM = 8.06810E+01 S = 1.24454E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 8.423E+01 | 8.330E+01 | 8.978E+01 | 6.203E-05 | 1.423E-06 | 0. | 5.768E+00 | 5.630E+00 | 4.134E+01 | 2.926E-04 | -3.034E-04 | 0. |
| 1 | 1.19E-03 | 8.423E+01 | 8.330E+01 | 8.978E+01 | 6.203E-05 | 1.422E-06 | 1.74E-02 | 5.769E+00 | 5.631E+00 | 4.135E+01 | 2.925E-04 | -3.031E-04 | 1.753E-03 |
| 2 | 2.39E-03 | 8.423E+01 | 8.329E+01 | 8.978E+01 | 6.204E-05 | 1.422E-06 | 3.48E-02 | 5.773E+00 | 5.635E+00 | 4.137E+01 | 2.921E-04 | -3.022E-04 | 3.506E-03 |
| 3 | 3.58E-03 | 8.422E+01 | 8.329E+01 | 8.977E+01 | 6.205E-05 | 1.421E-06 | 5.21E-02 | 5.779E+00 | 5.641E+00 | 4.142E+01 | 2.915E-04 | -3.007E-04 | 5.258E-03 |
| 4 | 4.77E-03 | 8.421E+01 | 8.328E+01 | 8.976E+01 | 6.206E-05 | 1.420E-06 | 6.94E-02 | 5.788E+00 | 5.650E+00 | 4.148E+01 | 2.907E-04 | -2.985E-04 | 7.008E-03 |
| 5 | 5.96E-03 | 8.420E+01 | 8.327E+01 | 8.975E+01 | 6.208E-05 | 1.419E-06 | 8.65E-02 | 5.799E+00 | 5.661E+00 | 4.156E+01 | 2.895E-04 | -2.959E-04 | 8.756E-03 |
| 6 | 7.15E-03 | 8.419E+01 | 8.325E+01 | 8.973E+01 | 6.210E-05 | 1.418E-06 | 1.04E-01 | 5.812E+00 | 5.674E+00 | 4.166E+01 | 2.882E-04 | -2.926E-04 | 1.050E-02 |
| 7 | 8.33E-03 | 8.417E+01 | 8.324E+01 | 8.972E+01 | 6.212E-05 | 1.416E-06 | 1.20E-01 | 5.828E+00 | 5.690E+00 | 4.177E+01 | 2.866E-04 | -2.888E-04 | 1.224E-02 |
| 8 | 9.52E-03 | 8.415E+01 | 8.322E+01 | 8.970E+01 | 6.215E-05 | 1.414E-06 | 1.37E-01 | 5.847E+00 | 5.709E+00 | 4.190E+01 | 2.848E-04 | -2.845E-04 | 1.398E-02 |
| 9 | 1.07E-02 | 8.413E+01 | 8.320E+01 | 8.967E+01 | 6.218E-05 | 1.412E-06 | 1.53E-01 | 5.868E+00 | 5.730E+00 | 4.205E+01 | 2.828E-04 | -2.796E-04 | 1.572E-02 |
| 10 | 1.19E-02 | 8.411E+01 | 8.318E+01 | 8.965E+01 | 6.221E-05 | 1.409E-06 | 1.70E-01 | 5.891E+00 | 5.753E+00 | 4.222E+01 | 2.805E-04 | -2.744E-04 | 1.745E-02 |
| 15 | 1.77E-02 | 8.396E+01 | 8.302E+01 | 8.949E+01 | 6.244E-05 | 1.392E-06 | 2.46E-01 | 6.044E+00 | 5.906E+00 | 4.332E+01 | 2.665E-04 | -2.421E-04 | 2.600E-02 |
| 20 | 2.35E-02 | 8.374E+01 | 8.281E+01 | 8.926E+01 | 6.276E-05 | 1.369E-06 | 3.15E-01 | 6.257E+00 | 6.119E+00 | 4.484E+01 | 2.487E-04 | -2.032E-04 | 3.436E-02 |
| 25 | 2.91E-02 | 8.347E+01 | 8.254E+01 | 8.897E+01 | 6.317E-05 | 1.338E-06 | 3.73E-01 | 6.527E+00 | 6.389E+00 | 4.678E+01 | 2.285E-04 | -1.622E-04 | 4.246E-02 |
| 30 | 3.46E-02 | 8.315E+01 | 8.221E+01 | 8.862E+01 | 6.366E-05 | 1.300E-06 | 4.20E-01 | 6.854E+00 | 6.716E+00 | 4.912E+01 | 2.073E-04 | -1.225E-04 | 5.023E-02 |
| 35 | 3.99E-02 | 8.277E+01 | 8.183E+01 | 8.822E+01 | 6.425E-05 | 1.254E-06 | 4.56E-01 | 7.234E+00 | 7.096E+00 | 5.184E+01 | 1.861E-04 | -8.689E-05 | 5.762E-02 |
| 40 | 4.49E-02 | 8.234E+01 | 8.140E+01 | 8.776E+01 | 6.492E-05 | 1.201E-06 | 4.83E-01 | 7.664E+00 | 7.526E+00 | 5.492E+01 | 1.658E-04 | -5.654E-05 | 6.458E-02 |
| 45 | 4.97E-02 | 8.186E+01 | 8.093E+01 | 8.725E+01 | 6.568E-05 | 1.140E-06 | 5.00E-01 | 8.142E+00 | 8.004E+00 | 5.835E+01 | 1.469E-04 | -3.187E-05 | 7.104E-02 |
| 50 | 5.42E-02 | 8.134E+01 | 8.040E+01 | 8.669E+01 | 6.653E-05 | 1.070E-06 | 5.09E-01 | 8.664E+00 | 8.525E+00 | 6.208E+01 | 1.297E-04 | -1.260E-05 | 7.696E-02 |
| 55 | 5.84E-02 | 8.078E+01 | 7.984E+01 | 8.610E+01 | 6.745E-05 | 9.914E-07 | 5.11E-01 | 9.225E+00 | 9.086E+00 | 6.610E+01 | 1.144E-04 | 1.905E-06 | 8.230E-02 |
| 60 | 6.22E-02 | 8.018E+01 | 7.925E+01 | 8.546E+01 | 6.846E-05 | 9.041E-07 | 5.08E-01 | 9.821E+00 | 9.682E+00 | 7.037E+01 | 1.010E-04 | 1.246E-05 | 8.701E-02 |
| 65 | 6.56E-02 | 7.955E+01 | 7.862E+01 | 8.479E+01 | 6.954E-05 | 8.075E-07 | 4.99E-01 | 1.045E+01 | 1.031E+01 | 7.487E+01 | 8.921E-05 | 1.984E-05 | 9.105E-02 |
| 70 | 6.86E-02 | 7.890E+01 | 7.797E+01 | 8.410E+01 | 7.070E-05 | 7.016E-07 | 4.87E-01 | 1.110E+01 | 1.096E+01 | 7.955E+01 | 7.902E-05 | 2.479E-05 | 9.441E-02 |
| 75 | 7.11E-02 | 7.822E+01 | 7.729E+01 | 8.338E+01 | 7.193E-05 | 5.864E-07 | 4.72E-01 | 1.178E+01 | 1.164E+01 | 8.438E+01 | 7.023E-05 | 2.791E-05 | 9.704E-02 |
| 80 | 7.31E-02 | 7.753E+01 | 7.660E+01 | 8.264E+01 | 7.321E-05 | 4.618E-07 | 4.55E-01 | 1.247E+01 | 1.233E+01 | 8.933E+01 | 6.267E-05 | 2.968E-05 | 9.894E-02 |
| 85 | 7.46E-02 | 7.683E+01 | 7.590E+01 | 8.190E+01 | 7.455E-05 | 3.280E-07 | 4.36E-01 | 1.317E+01 | 1.303E+01 | 9.435E+01 | 5.617E-05 | 3.049E-05 | 1.001E-01 |
| 90 | 7.56E-02 | 7.613E+01 | 7.519E+01 | 8.114E+01 | 7.594E-05 | 1.854E-07 | 4.15E-01 | 1.387E+01 | 1.373E+01 | 9.941E+01 | 5.060E-05 | 3.064E-05 | 1.005E-01 |
| 95 | 7.60E-02 | 7.542E+01 | 7.449E+01 | 8.039E+01 | 7.737E-05 | 3.460E-08 | 3.93E-01 | 1.458E+01 | 1.444E+01 | 1.045E+02 | 4.581E-05 | 3.033E-05 | 1.001E-01 |
| 100 | 7.59E-02 | 7.472E+01 | 7.379E+01 | 7.964E+01 | 7.883E-05 | -1.237E-07 | 3.71E-01 | 1.528E+01 | 1.514E+01 | 1.095E+02 | 4.171E-05 | 2.974E-05 | 9.894E-02 |
| 105 | 7.51E-02 | 7.403E+01 | 7.310E+01 | 7.891E+01 | 8.031E-05 | -2.885E-07 | 3.48E-01 | 1.597E+01 | 1.583E+01 | 1.144E+02 | 3.818E-05 | 2.898E-05 | 9.704E-02 |
| 110 | 7.37E-02 | 7.335E+01 | 7.242E+01 | 7.819E+01 | 8.179E-05 | -4.585E-07 | 3.25E-01 | 1.665E+01 | 1.651E+01 | 1.193E+02 | 3.515E-05 | 2.812E-05 | 9.441E-02 |
| 115 | 7.18E-02 | 7.270E+01 | 7.177E+01 | 7.749E+01 | 8.327E-05 | -6.322E-07 | 3.02E-01 | 1.730E+01 | 1.716E+01 | 1.240E+02 | 3.254E-05 | 2.723E-05 | 9.105E-02 |
| 120 | 6.92E-02 | 7.207E+01 | 7.114E+01 | 7.682E+01 | 8.472E-05 | -8.076E-07 | 2.78E-01 | 1.793E+01 | 1.779E+01 | 1.284E+02 | 3.031E-05 | 2.636E-05 | 8.701E-02 |
| 125 | 6.60E-02 | 7.148E+01 | 7.055E+01 | 7.619E+01 | 8.614E-05 | -9.828E-07 | 2.55E-01 | 1.852E+01 | 1.838E+01 | 1.327E+02 | 2.839E-05 | 2.551E-05 | 8.230E-02 |
| 130 | 6.22E-02 | 7.092E+01 | 6.998E+01 | 7.559E+01 | 8.751E-05 | -1.155E-06 | 2.31E-01 | 1.908E+01 | 1.894E+01 | 1.367E+02 | 2.674E-05 | 2.472E-05 | 7.696E-02 |
| 135 | 5.78E-02 | 7.040E+01 | 6.946E+01 | 7.503E+01 | 8.881E-05 | -1.323E-06 | 2.08E-01 | 1.961E+01 | 1.947E+01 | 1.405E+02 | 2.534E-05 | 2.400E-05 | 7.104E-02 |
| 140 | 5.29E-02 | 6.992E+01 | 6.899E+01 | 7.452E+01 | 9.003E-05 | -1.483E-06 | 1.84E-01 | 2.008E+01 | 1.994E+01 | 1.439E+02 | 2.415E-05 | 2.334E-05 | 6.458E-02 |
| 145 | 4.75E-02 | 6.949E+01 | 6.855E+01 | 7.407E+01 | 9.115E-05 | -1.632E-06 | 1.61E-01 | 2.051E+01 | 2.037E+01 | 1.470E+02 | 2.315E-05 | 2.277E-05 | 5.762E-02 |
| 150 | 4.16E-02 | 6.911E+01 | 6.817E+01 | 7.366E+01 | 9.215E-05 | -1.768E-06 | 1.38E-01 | 2.089E+01 | 2.075E+01 | 1.497E+02 | 2.231E-05 | 2.227E-05 | 5.023E-02 |
| 155 | 3.54E-02 | 6.878E+01 | 6.785E+01 | 7.331E+01 | 9.303E-05 | -1.889E-06 | 1.15E-01 | 2.122E+01 | 2.108E+01 | 1.520E+02 | 2.163E-05 | 2.184E-05 | 4.246E-02 |
| 160 | 2.87E-02 | 6.851E+01 | 6.758E+01 | 7.302E+01 | 9.377E-05 | -1.991E-06 | 9.16E-02 | 2.149E+01 | 2.135E+01 | 1.540E+02 | 2.109E-05 | 2.150E-05 | 3.436E-02 |
| 165 | 2.18E-02 | 6.830E+01 | 6.737E+01 | 7.280E+01 | 9.435E-05 | -2.073E-06 | 6.86E-02 | 2.170E+01 | 2.156E+01 | 1.555E+02 | 2.068E-05 | 2.123E-05 | 2.600E-02 |
| 170 | 1.47E-02 | 6.814E+01 | 6.721E+01 | 7.264E+01 | 9.478E-05 | -2.133E-06 | 4.57E-02 | 2.186E+01 | 2.172E+01 | 1.566E+02 | 2.039E-05 | 2.105E-05 | 1.745E-02 |
| 175 | 7.37E-03 | 6.805E+01 | 6.712E+01 | 7.254E+01 | 9.503E-05 | -2.169E-06 | 2.29E-02 | 2.195E+01 | 2.181E+01 | 1.573E+02 | 2.022E-05 | 2.093E-05 | 8.756E-03 |
| 180 | 0. | 6.802E+01 | 6.709E+01 | 7.250E+01 | 9.512E-05 | -2.181E-06 | 0. | 2.198E+01 | 2.184E+01 | 1.575E+02 | 2.016E-05 | 2.089E-05 | 0. |

LAMBDA (1) => PROTON (2) + PI MINUS (3) AT 100 GEV/C P1 LAB

M1 = 1.11559E+00 M2 = 9.38259E-01 M3 = 1.39569E-01
P2CM= 1.00466E-01
E2CM= 9.43623E-01 E3CM= 1.71967E-01

1-V1LAB= 6.222E-05 GCM = 8.96442E+01 S = 1.24454E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 9.359E+01 | 9.266E+01 | 9.975E+01 | 5.025E-05 | 1.152E-06 | 0. | 6.409E+00 | 6.271E+00 | 4.593E+01 | 2.371E-04 | -2.457E-04 | 0. |
| 1 | 1.07E-03 | 9.359E+01 | 9.266E+01 | 9.975E+01 | 5.025E-05 | 1.152E-06 | 1.57E-02 | 6.410E+00 | 6.272E+00 | 4.594E+01 | 2.370E-04 | -2.455E-04 | 1.753E-03 |
| 2 | 2.15E-03 | 9.359E+01 | 9.265E+01 | 9.975E+01 | 5.025E-05 | 1.152E-06 | 3.13E-02 | 6.414E+00 | 6.276E+00 | 4.597E+01 | 2.366E-04 | -2.448E-04 | 3.506E-03 |
| 3 | 3.22E-03 | 9.358E+01 | 9.265E+01 | 9.974E+01 | 5.026E-05 | 1.151E-06 | 4.69E-02 | 6.421E+00 | 6.283E+00 | 4.602E+01 | 2.361E-04 | -2.435E-04 | 5.258E-03 |
| 4 | 4.29E-03 | 9.357E+01 | 9.264E+01 | 9.973E+01 | 5.027E-05 | 1.151E-06 | 6.24E-02 | 6.431E+00 | 6.293E+00 | 4.609E+01 | 2.354E-04 | -2.418E-04 | 7.008E-03 |
| 5 | 5.36E-03 | 9.356E+01 | 9.262E+01 | 9.972E+01 | 5.028E-05 | 1.150E-06 | 7.79E-02 | 6.443E+00 | 6.305E+00 | 4.617E+01 | 2.345E-04 | -2.396E-04 | 8.756E-03 |
| 6 | 6.43E-03 | 9.354E+01 | 9.261E+01 | 9.970E+01 | 5.030E-05 | 1.148E-06 | 9.32E-02 | 6.458E+00 | 6.320E+00 | 4.628E+01 | 2.334E-04 | -2.370E-04 | 1.050E-02 |
| 7 | 7.50E-03 | 9.352E+01 | 9.259E+01 | 9.968E+01 | 5.032E-05 | 1.147E-06 | 1.08E-01 | 6.476E+00 | 6.338E+00 | 4.641E+01 | 2.322E-04 | -2.339E-04 | 1.224E-02 |
| 8 | 8.57E-03 | 9.350E+01 | 9.257E+01 | 9.966E+01 | 5.034E-05 | 1.145E-06 | 1.23E-01 | 6.496E+00 | 6.358E+00 | 4.656E+01 | 2.307E-04 | -2.304E-04 | 1.398E-02 |
| 9 | 9.63E-03 | 9.348E+01 | 9.255E+01 | 9.964E+01 | 5.037E-05 | 1.144E-06 | 1.38E-01 | 6.520E+00 | 6.382E+00 | 4.672E+01 | 2.291E-04 | -2.265E-04 | 1.572E-02 |
| 10 | 1.07E-02 | 9.345E+01 | 9.252E+01 | 9.961E+01 | 5.039E-05 | 1.141E-06 | 1.53E-01 | 6.546E+00 | 6.408E+00 | 4.691E+01 | 2.272E-04 | -2.222E-04 | 1.745E-02 |
| 15 | 1.60E-02 | 9.328E+01 | 9.235E+01 | 9.943E+01 | 5.058E-05 | 1.128E-06 | 2.22E-01 | 6.716E+00 | 6.578E+00 | 4.813E+01 | 2.159E-04 | -1.961F-04 | 2.600E-02 |
| 20 | 2.12E-02 | 9.305E+01 | 9.211E+01 | 9.918E+01 | 5.084E-05 | 1.109E-06 | 2.83E-01 | 6.952E+00 | 6.814E+00 | 4.982E+01 | 2.015E-04 | -1.646E-04 | 3.436E-02 |
| 25 | 2.62E-02 | 9.275E+01 | 9.181E+01 | 9.886E+01 | 5.117E-05 | 1.084E-06 | 3.35E-01 | 7.253E+00 | 7.114E+00 | 5.197E+01 | 1.851E-04 | -1.313E-04 | 4.246E-02 |
| 30 | 3.12E-02 | 9.238E+01 | 9.145E+01 | 9.847E+01 | 5.157E-05 | 1.053E-06 | 3.78E-01 | 7.616E+00 | 7.477E+00 | 5.457E+01 | 1.679E-04 | -9.926E-05 | 5.023E-02 |
| 35 | 3.59E-02 | 9.196E+01 | 9.103E+01 | 9.802E+01 | 5.204E-05 | 1.016E-06 | 4.11E-01 | 8.038E+00 | 7.899E+00 | 5.760E+01 | 1.507E-04 | -7.038E-05 | 5.762E-02 |
| 40 | 4.04E-02 | 9.148E+01 | 9.055E+01 | 9.751E+01 | 5.259E-05 | 9.729E-07 | 4.34E-01 | 8.516E+00 | 8.378E+00 | 6.103E+01 | 1.343E-04 | -4.580F-05 | 6.458E-02 |
| 45 | 4.48E-02 | 9.095E+01 | 9.002E+01 | 9.694E+01 | 5.320E-05 | 9.231E-07 | 4.50E-01 | 9.047E+00 | 8.908E+00 | 6.483E+01 | 1.190E-04 | -2.582E-05 | 7.104E-02 |
| 50 | 4.88E-02 | 9.037E+01 | 8.944E+01 | 9.633E+01 | 5.389E-05 | 8.666E-07 | 4.58E-01 | 9.626E+00 | 9.488E+00 | 6.898E+01 | 1.051E-04 | -1.021E-05 | 7.696E-02 |
| 55 | 5.25E-02 | 8.975E+01 | 8.882E+01 | 9.566E+01 | 5.464E-05 | 8.031E-07 | 4.60E-01 | 1.025E+01 | 1.011E+01 | 7.344E+01 | 9.270E-05 | 1.542E-06 | 8.230E-02 |
| 60 | 5.60E-02 | 8.909E+01 | 8.815E+01 | 9.496E+01 | 5.545E-05 | 7.323E-07 | 4.57E-01 | 1.091E+01 | 1.077E+01 | 7.819E+01 | 8.178E-05 | 1.009E-05 | 8.701E-02 |
| 65 | 5.90E-02 | 8.839E+01 | 8.746E+01 | 9.421E+01 | 5.633E-05 | 6.541E-07 | 4.49E-01 | 1.161E+01 | 1.147E+01 | 8.318E+01 | 7.226E-05 | 1.607E-05 | 9.105E-02 |
| 70 | 6.17E-02 | 8.767E+01 | 8.673E+01 | 9.344E+01 | 5.727E-05 | 5.683E-07 | 4.39E-01 | 1.233E+01 | 1.220E+01 | 8.839E+01 | 6.401E-05 | 2.008E-05 | 9.441E-02 |
| 75 | 6.40E-02 | 8.692E+01 | 8.598E+01 | 9.264E+01 | 5.826E-05 | 4.750E-07 | 4.25E-01 | 1.308E+01 | 1.295E+01 | 9.375E+01 | 5.689E-05 | 2.260E-05 | 9.704E-02 |
| 80 | 6.58E-02 | 8.615E+01 | 8.522E+01 | 9.182E+01 | 5.930E-05 | 3.740E-07 | 4.09E-01 | 1.385E+01 | 1.371E+01 | 9.925F+01 | 5.076E-05 | 2.404E-05 | 9.894E-02 |
| 85 | 6.72E-02 | 8.537E+01 | 8.444E+01 | 9.099E+01 | 6.039E-05 | 2.657E-07 | 3.92E-01 | 1.463E+01 | 1.449E+01 | 1.048E+02 | 4.550E-05 | 2.470E-05 | 1.001E-01 |
| 90 | 6.81E-02 | 8.459E+01 | 8.365E+01 | 9.016E+01 | 6.152E-05 | 1.502E-07 | 3.73E-01 | 1.542E+01 | 1.528E+01 | 1.105E+02 | 4.098E-05 | 2.482E-05 | 1.005E-01 |
| 95 | 6.84E-02 | 8.380E+01 | 8.287E+01 | 8.932E+01 | 6.267E-05 | 2.803E-08 | 3.54E-01 | 1.620E+01 | 1.606E+01 | 1.161E+02 | 3.711E-05 | 2.457E-05 | 1.001E-01 |
| 100 | 6.83E-02 | 8.302E+01 | 8.209E+01 | 8.849E+01 | 6.386E-05 | -1.002E-07 | 3.34E-01 | 1.698E+01 | 1.684E+01 | 1.217E+02 | 3.378E-05 | 2.409E-05 | 9.894E-02 |
| 105 | 6.76E-02 | 8.225E+01 | 8.132E+01 | 8.767E+01 | 6.505E-05 | -2.337E-07 | 3.13E-01 | 1.775E+01 | 1.761E+01 | 1.272E+02 | 3.093E-05 | 2.347E-05 | 9.704E-02 |
| 110 | 6.64E-02 | 8.150E+01 | 8.057E+01 | 8.687E+01 | 6.625E-05 | -3.714E-07 | 2.92E-01 | 1.850E+01 | 1.836E+01 | 1.325E+02 | 2.847E-05 | 2.278E-05 | 9.441E-02 |
| 115 | 6.46E-02 | 8.078E+01 | 7.985E+01 | 8.610E+01 | 6.745E-05 | -5.121E-07 | 2.71E-01 | 1.922E+01 | 1.908E+01 | 1.377E+02 | 2.636E-05 | 2.206E-05 | 9.105E-02 |
| 120 | 6.22E-02 | 8.008E+01 | 7.915E+01 | 8.536E+01 | 6.863E-05 | -6.542E-07 | 2.50E-01 | 1.992E+01 | 1.978E+01 | 1.427E+02 | 2.455E-05 | 2.135F-05 | 8.701E-02 |
| 125 | 5.94E-02 | 7.942E+01 | 7.849E+01 | 8.465E+01 | 6.978E-05 | -7.961E-07 | 2.29E-01 | 2.058E+01 | 2.044E+01 | 1.475E+02 | 2.299E-05 | 2.066E-05 | 8.230E-02 |
| 130 | 5.60E-02 | 7.880E+01 | 7.786E+01 | 8.399E+01 | 7.089E-05 | -9.359E-07 | 2.08E-01 | 2.120E+01 | 2.107E+01 | 1.519F+02 | 2.166E-05 | 2.003E-05 | 7.696E-02 |
| 135 | 5.20E-02 | 7.822E+01 | 7.728E+01 | 8.337E+01 | 7.194E-05 | -1.072E-06 | 1.87E-01 | 2.178E+01 | 2.164E+01 | 1.561E+02 | 2.053E-05 | 1.944F-05 | 7.104E-02 |
| 140 | 4.76E-02 | 7.769E+01 | 7.675E+01 | 8.280E+01 | 7.293E-05 | -1.201E-06 | 1.66E-01 | 2.231E+01 | 2.218E+01 | 1.599E+02 | 1.956E-05 | 1.891E-05 | 6.458E-02 |
| 145 | 4.28E-02 | 7.721E+01 | 7.628E+01 | 8.229E+01 | 7.383E-05 | -1.322E-06 | 1.45E-01 | 2.279E+01 | 2.265E+01 | 1.633E+02 | 1.875E-05 | 1.844E-05 | 5.762E-02 |
| 150 | 3.75E-02 | 7.679E+01 | 7.585E+01 | 8.184E+01 | 7.465E-05 | -1.432E-06 | 1.24E-01 | 2.321E+01 | 2.308E+01 | 1.663E+02 | 1.807E-05 | 1.804F-05 | 5.023E-02 |
| 155 | 3.18E-02 | 7.642E+01 | 7.549E+01 | 8.146E+01 | 7.536E-05 | -1.530E-06 | 1.03E-01 | 2.358E+01 | 2.344E+01 | 1.689E+02 | 1.752E-05 | 1.769E-05 | 4.246E-02 |
| 160 | 2.59E-02 | 7.612E+01 | 7.519E+01 | 8.114E+01 | 7.595E-05 | -1.613E-06 | 8.25E-02 | 2.388E+01 | 2.374E+01 | 1.711F+02 | 1.708E-05 | 1.742E-05 | 3.436E-02 |
| 165 | 1.96E-02 | 7.589E+01 | 7.495E+01 | 8.089E+01 | 7.643E-05 | -1.679E-06 | 6.18E-02 | 2.411E+01 | 2.398E+01 | 1.728E+02 | 1.675E-05 | 1.720E-05 | 2.600E-02 |
| 170 | 1.32E-02 | 7.572E+01 | 7.478E+01 | 8.070E+01 | 7.677E-05 | -1.728E-06 | 4.12E-02 | 2.428E+01 | 2.415E+01 | 1.740E+02 | 1.652E-05 | 1.705F-05 | 1.745E-02 |
| 175 | 6.63E-03 | 7.561E+01 | 7.468E+01 | 8.060E+01 | 7.698E-05 | -1.757E-06 | 2.06E-02 | 2.439E+01 | 2.425E+01 | 1.747E+02 | 1.638E-05 | 1.695E-05 | 8.756E-03 |
| 180 | 0. | 7.558E+01 | 7.465E+01 | 8.056E+01 | 7.705E-05 | -1.767E-06 | 0. | 2.442E+01 | 2.428E+01 | 1.750E+02 | 1.633E-05 | 1.692E-05 | 0. |

LAMBDA => PROTON + PI MINUS AT 125 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.11559E+00 M2 = 9.38259E-01 M3 = 1.39569E-01
P2CM= 1.00466E-01
E2CM= 9.43623E-01 E3CM= 1.71967E-01

1-V1LAB= 3.982E-05 GCM = 1.12053E+02 S = 1.24454E+00

| Θ2 CM | Θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | Θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.170E+02 | 1.161E+02 | 1.247E+02 | 3.216E-05 | 7.375E-07 | 0. | 8.011E+00 | 7.873E+00 | 5.741E+01 | 1.517E-04 | -1.573E-04 | 0. |
| 1 | 8.59E-04 | 1.170E+02 | 1.161E+02 | 1.247E+02 | 3.216E-05 | 7.374E-07 | 1.25E-02 | 8.013E+00 | 7.875E+00 | 5.742E+01 | 1.517E-04 | -1.571E-04 | 1.753E-03 |
| 2 | 1.72E-03 | 1.170E+02 | 1.160E+02 | 1.247E+02 | 3.216E-05 | 7.372E-07 | 2.51E-02 | 8.018E+00 | 7.880E+00 | 5.746E+01 | 1.515E-04 | -1.566E-04 | 3.506E-03 |
| 3 | 2.58E-03 | 1.170E+02 | 1.160E+02 | 1.247E+02 | 3.217E-05 | 7.369E-07 | 3.75E-02 | 8.027E+00 | 7.888E+00 | 5.752E+01 | 1.511E-04 | -1.558E-04 | 5.258E-03 |
| 4 | 3.43E-03 | 1.170E+02 | 1.160E+02 | 1.247E+02 | 3.217E-05 | 7.364E-07 | 5.00E-02 | 8.039E+00 | 7.900E+00 | 5.760E+01 | 1.507E-04 | -1.548E-04 | 7.008E-03 |
| 5 | 4.29E-03 | 1.169E+02 | 1.160E+02 | 1.246E+02 | 3.218E-05 | 7.357E-07 | 6.23E-02 | 8.054E+00 | 7.916E+00 | 5.772E+01 | 1.501E-04 | -1.534E-04 | 8.756E-03 |
| 6 | 5.15E-03 | 1.169E+02 | 1.160E+02 | 1.246E+02 | 3.219E-05 | 7.350E-07 | 7.45E-02 | 8.073E+00 | 7.935E+00 | 5.785E+01 | 1.494E-04 | -1.517E-04 | 1.050E-02 |
| 7 | 6.00E-03 | 1.169E+02 | 1.160E+02 | 1.246E+02 | 3.221E-05 | 7.341E-07 | 8.67E-02 | 8.095E+00 | 7.957E+00 | 5.801E+01 | 1.486E-04 | -1.497E-04 | 1.224E-02 |
| 8 | 6.85E-03 | 1.169E+02 | 1.159E+02 | 1.246E+02 | 3.222E-05 | 7.330E-07 | 9.87E-02 | 8.121E+00 | 7.982E+00 | 5.819E+01 | 1.477E-04 | -1.475E-04 | 1.398E-02 |
| 9 | 7.71E-03 | 1.169E+02 | 1.159E+02 | 1.245E+02 | 3.224E-05 | 7.319E-07 | 1.10E-01 | 8.150E+00 | 8.011E+00 | 5.840E+01 | 1.466E-04 | -1.450E-04 | 1.572E-02 |
| 10 | 8.56E-03 | 1.168E+02 | 1.159E+02 | 1.245E+02 | 3.225E-05 | 7.305E-07 | 1.22E-01 | 8.182E+00 | 8.044E+00 | 5.863E+01 | 1.454E-04 | -1.422E-04 | 1.745E-02 |
| 15 | 1.28E-02 | 1.166E+02 | 1.157E+02 | 1.243E+02 | 3.237E-05 | 7.218E-07 | 1.77E-01 | 8.395E+00 | 8.256E+00 | 6.016E+01 | 1.382E-04 | -1.255E-04 | 2.600E-02 |
| 20 | 1.69E-02 | 1.163E+02 | 1.154E+02 | 1.240E+02 | 3.254E-05 | 7.096E-07 | 2.27E-01 | 8.690E+00 | 8.552E+00 | 6.227E+01 | 1.289E-04 | -1.053E-04 | 3.436E-02 |
| 25 | 2.10E-02 | 1.159E+02 | 1.150E+02 | 1.236E+02 | 3.275E-05 | 6.936E-07 | 2.68E-01 | 9.066E+00 | 8.928E+00 | 6.497E+01 | 1.185E-04 | -8.406E-05 | 4.246E-02 |
| 30 | 2.49E-02 | 1.155E+02 | 1.145E+02 | 1.231E+02 | 3.300E-05 | 6.739E-07 | 3.02E-01 | 9.520E+00 | 9.381E+00 | 6.821E+01 | 1.075E-04 | -6.353E-05 | 5.023E-02 |
| 35 | 2.87E-02 | 1.150E+02 | 1.140E+02 | 1.225E+02 | 3.331E-05 | 6.503E-07 | 3.29E-01 | 1.005E+01 | 9.909E+00 | 7.199E+01 | 9.647E-05 | -4.505E-05 | 5.762E-02 |
| 40 | 3.24E-02 | 1.144E+02 | 1.134E+02 | 1.219E+02 | 3.366E-05 | 6.227E-07 | 3.48E-01 | 1.065E+01 | 1.051E+01 | 7.628E+01 | 8.594E-05 | -2.931E-05 | 6.458E-02 |
| 45 | 3.58E-02 | 1.137E+02 | 1.128E+02 | 1.212E+02 | 3.405E-05 | 5.908E-07 | 3.60E-01 | 1.131E+01 | 1.117E+01 | 8.103E+01 | 7.615E-05 | -1.652E-05 | 7.104E-02 |
| 50 | 3.90E-02 | 1.130E+02 | 1.120E+02 | 1.204E+02 | 3.449E-05 | 5.546E-07 | 3.66E-01 | 1.203E+01 | 1.189E+01 | 8.622E+01 | 6.726E-05 | -6.536E-06 | 7.696E-02 |
| 55 | 4.20E-02 | 1.122E+02 | 1.113E+02 | 1.196E+02 | 3.497E-05 | 5.140E-07 | 3.68E-01 | 1.281E+01 | 1.267E+01 | 9.180E+01 | 5.933E-05 | 9.858E-07 | 8.230E-02 |
| 60 | 4.48E-02 | 1.114E+02 | 1.104E+02 | 1.187E+02 | 3.549E-05 | 4.687E-07 | 3.65E-01 | 1.364E+01 | 1.350E+01 | 9.774E+01 | 5.234E-05 | 6.455E-06 | 8.701E-02 |
| 65 | 4.72E-02 | 1.105E+02 | 1.096E+02 | 1.178E+02 | 3.605E-05 | 4.186E-07 | 3.60E-01 | 1.451E+01 | 1.437E+01 | 1.040E+02 | 4.625E-05 | 1.029E-05 | 9.105E-02 |
| 70 | 4.94E-02 | 1.096E+02 | 1.086E+02 | 1.168E+02 | 3.665E-05 | 3.637E-07 | 3.51E-01 | 1.542E+01 | 1.528E+01 | 1.105E+02 | 4.097E-05 | 1.285E-05 | 9.441E-02 |
| 75 | 5.12E-02 | 1.086E+02 | 1.077E+02 | 1.158E+02 | 3.729E-05 | 3.040E-07 | 3.40E-01 | 1.636E+01 | 1.622E+01 | 1.172E+02 | 3.641E-05 | 1.447E-05 | 9.704E-02 |
| 80 | 5.26E-02 | 1.077E+02 | 1.068E+02 | 1.148E+02 | 3.796E-05 | 2.394E-07 | 3.27E-01 | 1.731E+01 | 1.718E+01 | 1.241E+02 | 3.249E-05 | 1.538E-05 | 9.894E-02 |
| 85 | 5.37E-02 | 1.067E+02 | 1.058E+02 | 1.137E+02 | 3.865E-05 | 1.700E-07 | 3.14E-01 | 1.829E+01 | 1.815E+01 | 1.310E+02 | 2.912E-05 | 1.581E-05 | 1.001E-01 |
| 90 | 5.44E-02 | 1.057E+02 | 1.048E+02 | 1.127E+02 | 3.937E-05 | 9.613E-08 | 2.99E-01 | 1.927E+01 | 1.913E+01 | 1.381E+02 | 2.623E-05 | 1.588E-05 | 1.005E-01 |
| 95 | 5.47E-02 | 1.048E+02 | 1.038E+02 | 1.116E+02 | 4.011E-05 | 1.793E-08 | 2.83E-01 | 2.025E+01 | 2.011E+01 | 1.451E+02 | 2.375E-05 | 1.572E-05 | 1.001E-01 |
| 100 | 5.46E-02 | 1.038E+02 | 1.028E+02 | 1.106E+02 | 4.087E-05 | -6.414E-08 | 2.67E-01 | 2.122E+01 | 2.108E+01 | 1.521E+02 | 2.162E-05 | 1.542E-05 | 9.894E-02 |
| 105 | 5.41E-02 | 1.028E+02 | 1.019E+02 | 1.096E+02 | 4.163E-05 | -1.496E-07 | 2.51E-01 | 2.218E+01 | 2.204E+01 | 1.589E+02 | 1.979E-05 | 1.502E-05 | 9.704E-02 |
| 110 | 5.31E-02 | 1.019E+02 | 1.009E+02 | 1.086E+02 | 4.240E-05 | -2.377E-07 | 2.34E-01 | 2.312E+01 | 2.298E+01 | 1.656E+02 | 1.822E-05 | 1.458E-05 | 9.441E-02 |
| 115 | 5.17E-02 | 1.010E+02 | 1.000E+02 | 1.076E+02 | 4.317E-05 | -3.277E-07 | 2.17E-01 | 2.403E+01 | 2.389E+01 | 1.722E+02 | 1.687E-05 | 1.412E-05 | 9.105E-02 |
| 120 | 4.98E-02 | 1.001E+02 | 9.917E+01 | 1.067E+02 | 4.392E-05 | -4.187E-07 | 2.00E-01 | 2.490E+01 | 2.476E+01 | 1.784E+02 | 1.571E-05 | 1.366E-05 | 8.701E-02 |
| 125 | 4.75E-02 | 9.927E+01 | 9.834E+01 | 1.058E+02 | 4.466E-05 | -5.095E-07 | 1.83E-01 | 2.573E+01 | 2.559E+01 | 1.843E+02 | 1.472E-05 | 1.323E-05 | 8.230E-02 |
| 130 | 4.48E-02 | 9.850E+01 | 9.756E+01 | 1.050E+02 | 4.537E-05 | -5.990E-07 | 1.66E-01 | 2.650E+01 | 2.637E+01 | 1.899E+02 | 1.386E-05 | 1.282E-05 | 7.696E-02 |
| 135 | 4.16E-02 | 9.777E+01 | 9.684E+01 | 1.042E+02 | 4.604E-05 | -6.858E-07 | 1.49E-01 | 2.723E+01 | 2.709E+01 | 1.951E+02 | 1.314E-05 | 1.244E-05 | 7.104E-02 |
| 140 | 3.81E-02 | 9.711E+01 | 9.617E+01 | 1.035E+02 | 4.667E-05 | -7.687E-07 | 1.33E-01 | 2.789E+01 | 2.775E+01 | 1.998E+02 | 1.252E-05 | 1.210E-05 | 6.458E-02 |
| 145 | 3.42E-02 | 9.651E+01 | 9.558E+01 | 1.029E+02 | 4.725E-05 | -8.461E-07 | 1.16E-01 | 2.849E+01 | 2.835E+01 | 2.041E+02 | 1.200E-05 | 1.180E-05 | 5.762E-02 |
| 150 | 3.00E-02 | 9.598E+01 | 9.505E+01 | 1.023E+02 | 4.778E-05 | -9.167E-07 | 9.92E-02 | 2.902E+01 | 2.888E+01 | 2.079E+02 | 1.157E-05 | 1.154E-05 | 5.023E-02 |
| 155 | 2.55E-02 | 9.553E+01 | 9.459E+01 | 1.018E+02 | 4.823E-05 | -9.791E-07 | 8.25E-02 | 2.947E+01 | 2.933E+01 | 2.112E+02 | 1.121E-05 | 1.132E-05 | 4.246E-02 |
| 160 | 2.07E-02 | 9.515E+01 | 9.422E+01 | 1.014E+02 | 4.861E-05 | -1.032E-06 | 6.60E-02 | 2.985E+01 | 2.971E+01 | 2.139E+02 | 1.093E-05 | 1.115E-05 | 3.436E-02 |
| 165 | 1.57E-02 | 9.486E+01 | 9.392E+01 | 1.011E+02 | 4.891E-05 | -1.075E-06 | 4.94E-02 | 3.014E+01 | 3.000E+01 | 2.160E+02 | 1.072E-05 | 1.101E-05 | 2.600E-02 |
| 170 | 1.06E-02 | 9.464E+01 | 9.371E+01 | 1.009E+02 | 4.913E-05 | -1.106E-06 | 3.29E-02 | 3.036E+01 | 3.022E+01 | 2.175E+02 | 1.057E-05 | 1.091E-05 | 1.745E-02 |
| 175 | 5.31E-03 | 9.452E+01 | 9.358E+01 | 1.007E+02 | 4.927E-05 | -1.125E-06 | 1.65E-02 | 3.048E+01 | 3.034E+01 | 2.184E+02 | 1.048E-05 | 1.085E-05 | 8.756E-03 |
| 180 | 0. | 9.447E+01 | 9.354E+01 | 1.007E+02 | 4.931E-05 | -1.131E-06 | 0. | 3.053E+01 | 3.039E+01 | 2.187E+02 | 1.045E-05 | 1.083E-05 | 0. |

LAMBDA (1) => PROTON (2) + PI MINUS (3) AT 150 GEV/C P1 LAB

M1 = 1.11559E+00 M2 = 9.38259E-01 M3 = 1.39569E-01
P2CM= 1.00466E-01
E2CM= 9.43623E-01 E3CM= 1.71967E-01

1-V1LAB= 2.766E-05 GCM = 1.34462E+02 S = 1.24454E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.404E+02 | 1.395E+02 | 1.496E+02 | 2.233E-05 | 5.121E-07 | 0. | 9.614E+00 | 9.475E+00 | 6.889E+01 | 1.054E-04 | -1.092E-04 | 0. |
| 1 | 7.16E-04 | 1.404E+02 | 1.394E+02 | 1.496E+02 | 2.233E-05 | 5.121E-07 | 1.04E-02 | 9.616E+00 | 9.477E+00 | 6.890E+01 | 1.053E-04 | -1.091E-04 | 1.753E-03 |
| 2 | 1.43E-03 | 1.404E+02 | 1.394E+02 | 1.496E+02 | 2.234E-05 | 5.119E-07 | 2.09E-02 | 9.622E+00 | 9.483E+00 | 6.895E+01 | 1.052E-04 | -1.088E-04 | 3.506E-03 |
| 3 | 2.15E-03 | 1.404E+02 | 1.394E+02 | 1.496E+02 | 2.234E-05 | 5.117E-07 | 3.13E-02 | 9.632E+00 | 9.494E+00 | 6.902E+01 | 1.050E-04 | -1.082E-04 | 5.258E-03 |
| 4 | 2.86E-03 | 1.404E+02 | 1.394E+02 | 1.496E+02 | 2.234E-05 | 5.114E-07 | 4.16E-02 | 9.647E+00 | 9.508E+00 | 6.912E+01 | 1.046E-04 | -1.075E-04 | 7.008E-03 |
| 5 | 3.57E-03 | 1.403E+02 | 1.394E+02 | 1.496E+02 | 2.235E-05 | 5.109E-07 | 5.19E-02 | 9.665E+00 | 9.526E+00 | 6.926E+01 | 1.042E-04 | -1.065E-04 | 8.756E-03 |
| 6 | 4.29E-03 | 1.403E+02 | 1.394E+02 | 1.495E+02 | 2.236E-05 | 5.104E-07 | 6.21E-02 | 9.688E+00 | 9.549E+00 | 6.942E+01 | 1.038E-04 | -1.053E-04 | 1.050E-02 |
| 7 | 5.00E-03 | 1.403E+02 | 1.394E+02 | 1.495E+02 | 2.237E-05 | 5.098E-07 | 7.22E-02 | 9.714E+00 | 9.576E+00 | 6.961E+01 | 1.032E-04 | -1.040E-04 | 1.224E-02 |
| 8 | 5.71E-03 | 1.403E+02 | 1.393E+02 | 1.495E+02 | 2.238E-05 | 5.091E-07 | 8.22E-02 | 9.745E+00 | 9.607E+00 | 6.983E+01 | 1.025E-04 | -1.024E-04 | 1.398E-02 |
| 9 | 6.42E-03 | 1.402E+02 | 1.393E+02 | 1.495E+02 | 2.239E-05 | 5.082E-07 | 9.21E-02 | 9.780E+00 | 9.641E+00 | 7.008E+01 | 1.018E-04 | -1.007E-04 | 1.572E-02 |
| 10 | 7.13E-03 | 1.402E+02 | 1.392E+02 | 1.494E+02 | 2.240E-05 | 5.073E-07 | 1.02E-01 | 9.819E+00 | 9.680E+00 | 7.036E+01 | 1.010E-04 | -9.876E-05 | 1.745E-02 |
| 15 | 1.06E-02 | 1.399E+02 | 1.390E+02 | 1.491E+02 | 2.248E-05 | 5.013E-07 | 1.48E-01 | 1.007E+01 | 9.935E+00 | 7.219E+01 | 9.596E-05 | -8.713E-05 | 2.600E-02 |
| 20 | 1.41E-02 | 1.396E+02 | 1.386E+02 | 1.488E+02 | 2.259E-05 | 4.928E-07 | 1.89E-01 | 1.043E+01 | 1.029E+01 | 7.473E+01 | 8.955E-05 | -7.315E-05 | 3.436E-02 |
| 25 | 1.75E-02 | 1.391E+02 | 1.382E+02 | 1.483E+02 | 2.274E-05 | 4.817E-07 | 2.24E-01 | 1.088E+01 | 1.074E+01 | 7.796E+01 | 8.228E-05 | -5.837E-05 | 4.246E-02 |
| 30 | 2.08E-02 | 1.386E+02 | 1.376E+02 | 1.477E+02 | 2.292E-05 | 4.680E-07 | 2.52E-01 | 1.142E+01 | 1.128E+01 | 8.186E+01 | 7.463E-05 | -4.412E-05 | 5.023E-02 |
| 35 | 2.39E-02 | 1.379E+02 | 1.370E+02 | 1.470E+02 | 2.313E-05 | 4.516E-07 | 2.74E-01 | 1.206E+01 | 1.192E+01 | 8.639E+01 | 6.699E-05 | -3.128E-05 | 5.762E-02 |
| 40 | 2.70E-02 | 1.372E+02 | 1.363E+02 | 1.463E+02 | 2.337E-05 | 4.324E-07 | 2.90E-01 | 1.277E+01 | 1.264E+01 | 9.153E+01 | 5.968E-05 | -2.036E-05 | 6.458E-02 |
| 45 | 2.98E-02 | 1.364E+02 | 1.355E+02 | 1.454E+02 | 2.365E-05 | 4.103E-07 | 3.00E-01 | 1.357E+01 | 1.343E+01 | 9.724E+01 | 5.288E-05 | -1.148E-05 | 7.104E-02 |
| 50 | 3.25E-02 | 1.356E+02 | 1.346E+02 | 1.445E+02 | 2.395E-05 | 3.852E-07 | 3.05E-01 | 1.444E+01 | 1.430E+01 | 1.035E+02 | 4.671E-05 | -4.540E-06 | 7.696E-02 |
| 55 | 3.50E-02 | 1.346E+02 | 1.337E+02 | 1.435E+02 | 2.429E-05 | 3.569E-07 | 3.07E-01 | 1.537E+01 | 1.524E+01 | 1.102E+02 | 4.120E-05 | 6.841E-07 | 8.230E-02 |
| 60 | 3.73E-02 | 1.336E+02 | 1.327E+02 | 1.424E+02 | 2.465E-05 | 3.255E-07 | 3.05E-01 | 1.637E+01 | 1.623E+01 | 1.173E+02 | 3.635E-05 | 4.483E-06 | 8.701E-02 |
| 65 | 3.93E-02 | 1.326E+02 | 1.317E+02 | 1.413E+02 | 2.504E-05 | 2.907E-07 | 3.00E-01 | 1.741E+01 | 1.727E+01 | 1.248E+02 | 3.212E-05 | 7.143E-06 | 9.105E-02 |
| 70 | 4.11E-02 | 1.315E+02 | 1.306E+02 | 1.402E+02 | 2.545E-05 | 2.526E-07 | 2.92E-01 | 1.850E+01 | 1.836E+01 | 1.326E+02 | 2.845E-05 | 8.924E-06 | 9.441E-02 |
| 75 | 4.26E-02 | 1.304E+02 | 1.294E+02 | 1.390E+02 | 2.590E-05 | 2.111E-07 | 2.83E-01 | 1.963E+01 | 1.949E+01 | 1.406E+02 | 2.528E-05 | 1.005E-05 | 9.704E-02 |
| 80 | 4.39E-02 | 1.292E+02 | 1.283E+02 | 1.377E+02 | 2.636E-05 | 1.662E-07 | 2.73E-01 | 2.078E+01 | 2.064E+01 | 1.489E+02 | 2.256E-05 | 1.068E-05 | 9.894E-02 |
| 85 | 4.48E-02 | 1.281E+02 | 1.271E+02 | 1.365E+02 | 2.684E-05 | 1.181E-07 | 2.61E-01 | 2.195E+01 | 2.181E+01 | 1.572E+02 | 2.022E-05 | 1.098E-05 | 1.001E-01 |
| 90 | 4.54E-02 | 1.269E+02 | 1.259E+02 | 1.352E+02 | 2.734E-05 | 6.676E-08 | 2.49E-01 | 2.312E+01 | 2.298E+01 | 1.657E+02 | 1.822E-05 | 1.103E-05 | 1.005E-01 |
| 95 | 4.56E-02 | 1.257E+02 | 1.248E+02 | 1.340E+02 | 2.786E-05 | 1.245E-08 | 2.36E-01 | 2.430E+01 | 2.416E+01 | 1.741E+02 | 1.649E-05 | 1.092E-05 | 1.001E-01 |
| 100 | 4.55E-02 | 1.245E+02 | 1.236E+02 | 1.327E+02 | 2.838E-05 | -4.455E-08 | 2.23E-01 | 2.547E+01 | 2.533E+01 | 1.825E+02 | 1.502E-05 | 1.071E-05 | 9.894E-02 |
| 105 | 4.51E-02 | 1.234E+02 | 1.224E+02 | 1.315E+02 | 2.891E-05 | -1.039E-07 | 2.09E-01 | 2.662E+01 | 2.648E+01 | 1.907E+02 | 1.375E-05 | 1.043E-05 | 9.704E-02 |
| 110 | 4.42E-02 | 1.223E+02 | 1.213E+02 | 1.303E+02 | 2.945E-05 | -1.651E-07 | 1.95E-01 | 2.774E+01 | 2.760E+01 | 1.988E+02 | 1.265E-05 | 1.012E-05 | 9.441E-02 |
| 115 | 4.31E-02 | 1.212E+02 | 1.202E+02 | 1.291E+02 | 2.998E-05 | -2.276E-07 | 1.81E-01 | 2.883E+01 | 2.869E+01 | 2.066E+02 | 1.172E-05 | 9.804E-06 | 9.105E-02 |
| 120 | 4.15E-02 | 1.201E+02 | 1.192E+02 | 1.280E+02 | 3.050E-05 | -2.907E-07 | 1.67E-01 | 2.988E+01 | 2.974E+01 | 2.141E+02 | 1.091E-05 | 9.488E-06 | 8.701E-02 |
| 125 | 3.96E-02 | 1.191E+02 | 1.182E+02 | 1.270E+02 | 3.101E-05 | -3.538E-07 | 1.53E-01 | 3.087E+01 | 3.073E+01 | 2.212E+02 | 1.022E-05 | 9.185E-06 | 8.230E-02 |
| 130 | 3.73E-02 | 1.182E+02 | 1.173E+02 | 1.260E+02 | 3.151E-05 | -4.160E-07 | 1.39E-01 | 3.181E+01 | 3.167E+01 | 2.279E+02 | 9.628E-06 | 8.900E-06 | 7.696E-02 |
| 135 | 3.47E-02 | 1.173E+02 | 1.164E+02 | 1.250E+02 | 3.197E-05 | -4.763E-07 | 1.25E-01 | 3.267E+01 | 3.254E+01 | 2.341E+02 | 9.123E-06 | 8.639E-06 | 7.104E-02 |
| 140 | 3.18E-02 | 1.165E+02 | 1.156E+02 | 1.242E+02 | 3.241E-05 | -5.338E-07 | 1.11E-01 | 3.347E+01 | 3.333E+01 | 2.398E+02 | 8.694E-06 | 8.404E-06 | 6.458E-02 |
| 145 | 2.85E-02 | 1.158E+02 | 1.149E+02 | 1.234E+02 | 3.282E-05 | -5.876E-07 | 9.66E-02 | 3.419E+01 | 3.405E+01 | 2.458E+02 | 8.333E-06 | 8.196E-06 | 5.762E-02 |
| 150 | 2.50E-02 | 1.152E+02 | 1.142E+02 | 1.228E+02 | 3.318E-05 | -6.366E-07 | 8.27E-02 | 3.482E+01 | 3.468E+01 | 2.495E+02 | 8.032E-06 | 8.016E-06 | 5.023E-02 |
| 155 | 2.12E-02 | 1.146E+02 | 1.137E+02 | 1.222E+02 | 3.349E-05 | -6.799E-07 | 6.88E-02 | 3.537E+01 | 3.523E+01 | 2.534E+02 | 7.787E-06 | 7.864E-06 | 4.246E-02 |
| 160 | 1.72E-02 | 1.142E+02 | 1.132E+02 | 1.217E+02 | 3.376E-05 | -7.168E-07 | 5.50E-02 | 3.582E+01 | 3.568E+01 | 2.566E+02 | 7.592E-06 | 7.741E-06 | 3.436E-02 |
| 165 | 1.31E-02 | 1.138E+02 | 1.129E+02 | 1.213E+02 | 3.397E-05 | -7.462E-07 | 4.12E-02 | 3.617E+01 | 3.603E+01 | 2.592E+02 | 7.444E-06 | 7.645E-06 | 2.600E-02 |
| 170 | 8.80E-03 | 1.136E+02 | 1.126E+02 | 1.211E+02 | 3.412E-05 | -7.678E-07 | 2.74E-02 | 3.643E+01 | 3.629E+01 | 2.610E+02 | 7.340E-06 | 7.576E-06 | 1.745E-02 |
| 175 | 4.42E-03 | 1.134E+02 | 1.125E+02 | 1.209E+02 | 3.421E-05 | -7.809E-07 | 1.37E-02 | 3.658E+01 | 3.644E+01 | 2.621E+02 | 7.279E-06 | 7.536E-06 | 8.756E-03 |
| 180 | 0. | 1.134E+02 | 1.124E+02 | 1.208E+02 | 3.425E-05 | -7.853E-07 | 0. | 3.663E+01 | 3.649E+01 | 2.625E+02 | 7.258E-06 | 7.522E-06 | 0. |

LAMBDA => PROTON + PI MINUS AT 175 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.11559E+00 M2 = 9.38259E-01 M3 = 1.39569E-01
P2CM= 1.00466E-01
E2CM= 9.43623E-01 E3CM= 1.71967E-01

1-V1LAB= 2.032E-05 GCM = 1.56871E+02 S = 1.24454E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.638E+02 | 1.628E+02 | 1.746E+02 | 1.641E-05 | 3.763E-07 | 0. | 1.122E+01 | 1.108E+01 | 8.037E+01 | 7.741E-05 | -8.023E-05 | 0. |
| 1 | 6.13E-04 | 1.638E+02 | 1.628E+02 | 1.746E+02 | 1.641E-05 | 3.762E-07 | 8.95E-03 | 1.122E+01 | 1.108E+01 | 8.039E+01 | 7.738E-05 | -8.015E-05 | 1.753E-03 |
| 2 | 1.23E-03 | 1.638E+02 | 1.628E+02 | 1.746E+02 | 1.641E-05 | 3.761E-07 | 1.79E-02 | 1.123E+01 | 1.109E+01 | 8.044E+01 | 7.728E-05 | -7.991E-05 | 3.506E-03 |
| 3 | 1.84E-03 | 1.638E+02 | 1.628E+02 | 1.745E+02 | 1.641E-05 | 3.759E-07 | 2.68E-02 | 1.124E+01 | 1.110E+01 | 8.052E+01 | 7.712E-05 | -7.951E-05 | 5.258E-03 |
| 4 | 2.45E-03 | 1.637E+02 | 1.628E+02 | 1.745E+02 | 1.642E-05 | 3.757E-07 | 3.57E-02 | 1.125E+01 | 1.112E+01 | 8.064E+01 | 7.689E-05 | -7.895E-05 | 7.008E-03 |
| 5 | 3.06E-03 | 1.637E+02 | 1.628E+02 | 1.745E+02 | 1.642E-05 | 3.754E-07 | 4.45E-02 | 1.128E+01 | 1.114E+01 | 8.080E+01 | 7.659E-05 | -7.824E-05 | 8.756E-03 |
| 6 | 3.68E-03 | 1.637E+02 | 1.628E+02 | 1.745E+02 | 1.643E-05 | 3.750E-07 | 5.32E-02 | 1.130E+01 | 1.116E+01 | 8.099E+01 | 7.624E-05 | -7.738E-05 | 1.050E-02 |
| 7 | 4.29E-03 | 1.637E+02 | 1.627E+02 | 1.744E+02 | 1.643E-05 | 3.745E-07 | 6.19E-02 | 1.133E+01 | 1.119E+01 | 8.121E+01 | 7.582E-05 | -7.637E-05 | 1.224E-02 |
| 8 | 4.90E-03 | 1.636E+02 | 1.627E+02 | 1.744E+02 | 1.644E-05 | 3.740E-07 | 7.05E-02 | 1.137E+01 | 1.123E+01 | 8.147E+01 | 7.534E-05 | -7.523E-05 | 1.398E-02 |
| 9 | 5.50E-03 | 1.636E+02 | 1.627E+02 | 1.744E+02 | 1.645E-05 | 3.734E-07 | 7.89E-02 | 1.141E+01 | 1.127E+01 | 8.176E+01 | 7.480E-05 | -7.395E-05 | 1.572E-02 |
| 10 | 6.11E-03 | 1.635E+02 | 1.626E+02 | 1.743E+02 | 1.646E-05 | 3.727E-07 | 8.73E-02 | 1.146E+01 | 1.132E+01 | 8.208E+01 | 7.421E-05 | -7.256E-05 | 1.745E-02 |
| 15 | 9.13E-03 | 1.632E+02 | 1.623E+02 | 1.740E+02 | 1.652E-05 | 3.683E-07 | 1.27E-01 | 1.175E+01 | 1.161E+01 | 8.422E+01 | 7.050E-05 | -6.402E-05 | 2.600E-02 |
| 20 | 1.21E-02 | 1.628E+02 | 1.619E+02 | 1.736E+02 | 1.660E-05 | 3.620E-07 | 1.62E-01 | 1.217E+01 | 1.203E+01 | 8.718E+01 | 6.579E-05 | -5.374E-05 | 3.436E-02 |
| 25 | 1.50E-02 | 1.623E+02 | 1.614E+02 | 1.730E+02 | 1.671E-05 | 3.539E-07 | 1.92E-01 | 1.269E+01 | 1.255E+01 | 9.095E+01 | 6.045E-05 | -4.289E-05 | 4.246E-02 |
| 30 | 1.78E-02 | 1.617E+02 | 1.607E+02 | 1.723E+02 | 1.684E-05 | 3.438E-07 | 2.16E-01 | 1.333E+01 | 1.319E+01 | 9.550E+01 | 5.483E-05 | -3.241E-05 | 5.023E-02 |
| 35 | 2.05E-02 | 1.609E+02 | 1.600E+02 | 1.715E+02 | 1.699E-05 | 3.318E-07 | 2.35E-01 | 1.407E+01 | 1.393E+01 | 1.008E+02 | 4.922E-05 | -2.298E-05 | 5.762E-02 |
| 40 | 2.31E-02 | 1.601E+02 | 1.592E+02 | 1.706E+02 | 1.717E-05 | 3.177E-07 | 2.48E-01 | 1.490E+01 | 1.476E+01 | 1.068E+02 | 4.385E-05 | -1.496E-05 | 6.458E-02 |
| 45 | 2.56E-02 | 1.592E+02 | 1.582E+02 | 1.696E+02 | 1.737E-05 | 3.014E-07 | 2.57E-01 | 1.583E+01 | 1.569E+01 | 1.134E+02 | 3.885E-05 | -8.431E-06 | 7.104E-02 |
| 50 | 2.79E-02 | 1.582E+02 | 1.572E+02 | 1.686E+02 | 1.760E-05 | 2.830E-07 | 2.62E-01 | 1.685E+01 | 1.671E+01 | 1.207E+02 | 3.432E-05 | -3.335E-06 | 7.696E-02 |
| 55 | 3.00E-02 | 1.571E+02 | 1.561E+02 | 1.674E+02 | 1.784E-05 | 2.622E-07 | 2.63E-01 | 1.794E+01 | 1.780E+01 | 1.285E+02 | 3.027E-05 | 5.024E-07 | 8.230E-02 |
| 60 | 3.20E-02 | 1.559E+02 | 1.550E+02 | 1.662E+02 | 1.811E-05 | 2.391E-07 | 2.61E-01 | 1.910E+01 | 1.896E+01 | 1.368E+02 | 2.671E-05 | 3.293E-06 | 8.701E-02 |
| 65 | 3.37E-02 | 1.547E+02 | 1.537E+02 | 1.649E+02 | 1.840E-05 | 2.136E-07 | 2.57E-01 | 2.032E+01 | 2.018E+01 | 1.456E+02 | 2.360E-05 | 5.248E-06 | 9.105E-02 |
| 70 | 3.53E-02 | 1.534E+02 | 1.525E+02 | 1.635E+02 | 1.870E-05 | 1.856E-07 | 2.51E-01 | 2.159E+01 | 2.145E+01 | 1.547E+02 | 2.090E-05 | 6.557E-06 | 9.441E-02 |
| 75 | 3.66E-02 | 1.521E+02 | 1.512E+02 | 1.621E+02 | 1.903E-05 | 1.551E-07 | 2.43E-01 | 2.290E+01 | 2.276E+01 | 1.641E+02 | 1.858E-05 | 7.381E-06 | 9.704E-02 |
| 80 | 3.76E-02 | 1.508E+02 | 1.498E+02 | 1.607E+02 | 1.937E-05 | 1.221E-07 | 2.34E-01 | 2.424E+01 | 2.410E+01 | 1.737E+02 | 1.658E-05 | 7.849E-06 | 9.894E-02 |
| 85 | 3.84E-02 | 1.494E+02 | 1.485E+02 | 1.592E+02 | 1.972E-05 | 8.676E-08 | 2.24E-01 | 2.560E+01 | 2.546E+01 | 1.834E+02 | 1.486E-05 | 8.064E-06 | 1.001E-01 |
| 90 | 3.89E-02 | 1.480E+02 | 1.471E+02 | 1.578E+02 | 2.009E-05 | 4.905E-08 | 2.13E-01 | 2.698E+01 | 2.684E+01 | 1.933E+02 | 1.338E-05 | 8.103E-06 | 1.005E-01 |
| 95 | 3.91E-02 | 1.467E+02 | 1.457E+02 | 1.563E+02 | 2.047E-05 | 9.150E-09 | 2.02E-01 | 2.835E+01 | 2.821E+01 | 2.031E+02 | 1.212E-05 | 8.023E-06 | 1.001E-01 |
| 100 | 3.90E-02 | 1.453E+02 | 1.444E+02 | 1.549E+02 | 2.085E-05 | -3.273E-08 | 1.91E-01 | 2.971E+01 | 2.957E+01 | 2.129E+02 | 1.103E-05 | 7.866E-06 | 9.894E-02 |
| 105 | 3.86E-02 | 1.439E+02 | 1.430E+02 | 1.534E+02 | 2.124E-05 | -7.632E-08 | 1.79E-01 | 3.106E+01 | 3.092E+01 | 2.225E+02 | 1.010E-05 | 7.664E-06 | 9.704E-02 |
| 110 | 3.79E-02 | 1.426E+02 | 1.417E+02 | 1.520E+02 | 2.164E-05 | -1.213E-07 | 1.67E-01 | 3.237E+01 | 3.223E+01 | 2.319E+02 | 9.297E-06 | 7.438E-06 | 9.441E-02 |
| 115 | 3.69E-02 | 1.414E+02 | 1.404E+02 | 1.507E+02 | 2.203E-05 | -1.672E-07 | 1.55E-01 | 3.364E+01 | 3.350E+01 | 2.410E+02 | 8.608E-06 | 7.203E-06 | 9.105E-02 |
| 120 | 3.56E-02 | 1.401E+02 | 1.392E+02 | 1.494E+02 | 2.241E-05 | -2.136E-07 | 1.43E-01 | 3.486E+01 | 3.472E+01 | 2.497E+02 | 8.016E-06 | 6.971E-06 | 8.701E-02 |
| 125 | 3.39E-02 | 1.390E+02 | 1.380E+02 | 1.481E+02 | 2.279E-05 | -2.599E-07 | 1.31E-01 | 3.602E+01 | 3.588E+01 | 2.581E+02 | 7.509E-06 | 6.748E-06 | 8.230E-02 |
| 130 | 3.20E-02 | 1.379E+02 | 1.370E+02 | 1.470E+02 | 2.315E-05 | -3.056E-07 | 1.19E-01 | 3.711E+01 | 3.697E+01 | 2.659E+02 | 7.074E-06 | 6.539E-06 | 7.696E-02 |
| 135 | 2.97E-02 | 1.369E+02 | 1.359E+02 | 1.459E+02 | 2.349E-05 | -3.499E-07 | 1.07E-01 | 3.812E+01 | 3.798E+01 | 2.731E+02 | 6.702E-06 | 6.347E-06 | 7.104E-02 |
| 140 | 2.72E-02 | 1.360E+02 | 1.350E+02 | 1.449E+02 | 2.381E-05 | -3.922E-07 | 9.48E-02 | 3.905E+01 | 3.891E+01 | 2.798E+02 | 6.387E-06 | 6.174E-06 | 6.458E-02 |
| 145 | 2.44E-02 | 1.351E+02 | 1.342E+02 | 1.440E+02 | 2.411E-05 | -4.317E-07 | 8.28E-02 | 3.989E+01 | 3.975E+01 | 2.858E+02 | 6.122E-06 | 6.022E-06 | 5.762E-02 |
| 150 | 2.14E-02 | 1.344E+02 | 1.334E+02 | 1.432E+02 | 2.438E-05 | -4.677E-07 | 7.08E-02 | 4.062E+01 | 4.049E+01 | 2.911E+02 | 5.901E-06 | 5.890E-06 | 5.023E-02 |
| 155 | 1.82E-02 | 1.337E+02 | 1.328E+02 | 1.425E+02 | 2.461E-05 | -4.996E-07 | 5.90E-02 | 4.126E+01 | 4.112E+01 | 2.956E+02 | 5.721E-06 | 5.778E-06 | 4.246E-02 |
| 160 | 1.48E-02 | 1.332E+02 | 1.323E+02 | 1.420E+02 | 2.480E-05 | -5.266E-07 | 4.71E-02 | 4.179E+01 | 4.165E+01 | 2.994E+02 | 5.578E-06 | 5.687E-06 | 3.436E-02 |
| 165 | 1.12E-02 | 1.328E+02 | 1.319E+02 | 1.415E+02 | 2.496E-05 | -5.483E-07 | 3.53E-02 | 4.220E+01 | 4.206E+01 | 3.024E+02 | 5.469E-06 | 5.617E-06 | 2.600E-02 |
| 170 | 7.54E-03 | 1.325E+02 | 1.316E+02 | 1.412E+02 | 2.507E-05 | -5.641E-07 | 2.35E-02 | 4.250E+01 | 4.236E+01 | 3.045E+02 | 5.393E-06 | 5.566E-06 | 1.745E-02 |
| 175 | 3.79E-03 | 1.323E+02 | 1.314E+02 | 1.410E+02 | 2.514E-05 | -5.737E-07 | 1.18E-02 | 4.268E+01 | 4.254E+01 | 3.058E+02 | 5.348E-06 | 5.536E-06 | 8.756E-03 |
| 180 | 0. | 1.323E+02 | 1.313E+02 | 1.410E+02 | 2.516E-05 | -5.770E-07 | 0. | 4.274E+01 | 4.260E+01 | 3.062E+02 | 5.333E-06 | 5.526E-06 | 0. |

LAMBDA => PROTON + PI MINUS AT 200 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.11559E+00 M2 = 9.38259E-01 M3 = 1.39569E-01
P2CM= 1.00466E-01
E2CM= 9.43623E-01 E3CM= 1.71967E-01

1-V1LAB= 1.556E-05 GCM = 1.79280E+02 S = 1.24454E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.872E+02 | 1.862E+02 | 1.995E+02 | 1.256E-05 | 2.881E-07 | 0. | 1.282E+01 | 1.268E+01 | 9.185E+01 | 5.927E-05 | -6.143E-05 | 0. |
| 1 | 5.37E-04 | 1.872E+02 | 1.862E+02 | 1.995E+02 | 1.256E-05 | 2.880E-07 | 7.84E-03 | 1.282E+01 | 1.268E+01 | 9.187E+01 | 5.925E-05 | -6.137E-05 | 1.753E-03 |
| 2 | 1.07E-03 | 1.872E+02 | 1.862E+02 | 1.995E+02 | 1.256E-05 | 2.880E-07 | 1.57E-02 | 1.283E+01 | 1.269E+01 | 9.193E+01 | 5.917E-05 | -6.118E-05 | 3.506E-03 |
| 3 | 1.61E-03 | 1.872E+02 | 1.862E+02 | 1.995E+02 | 1.257E-05 | 2.878E-07 | 2.35E-02 | 1.284E+01 | 1.270E+01 | 9.202E+01 | 5.904E-05 | -6.087E-05 | 5.258E-03 |
| 4 | 2.15E-03 | 1.871E+02 | 1.862E+02 | 1.995E+02 | 1.257E-05 | 2.876E-07 | 3.12E-02 | 1.286E+01 | 1.272E+01 | 9.216E+01 | 5.887E-05 | -6.045E-05 | 7.008E-03 |
| 5 | 2.68E-03 | 1.871E+02 | 1.862E+02 | 1.994E+02 | 1.257E-05 | 2.874E-07 | 3.89E-02 | 1.289E+01 | 1.275E+01 | 9.234E+01 | 5.864E-05 | -5.990E-05 | 8.756E-03 |
| 6 | 3.22E-03 | 1.871E+02 | 1.861E+02 | 1.994E+02 | 1.258E-05 | 2.871E-07 | 4.66E-02 | 1.292E+01 | 1.278E+01 | 9.256E+01 | 5.837E-05 | -5.924E-05 | 1.050E-02 |
| 7 | 3.75E-03 | 1.870E+02 | 1.861E+02 | 1.994E+02 | 1.258E-05 | 2.868E-07 | 5.42E-02 | 1.295E+01 | 1.281E+01 | 9.281E+01 | 5.805E-05 | -5.847E-05 | 1.224E-02 |
| 8 | 4.28E-03 | 1.870E+02 | 1.861E+02 | 1.993E+02 | 1.259E-05 | 2.863E-07 | 6.17E-02 | 1.299E+01 | 1.285E+01 | 9.310E+01 | 5.768E-05 | -5.760E-05 | 1.398E-02 |
| 9 | 4.82E-03 | 1.870E+02 | 1.860E+02 | 1.993E+02 | 1.259E-05 | 2.859E-07 | 6.91E-02 | 1.304E+01 | 1.290E+01 | 9.344E+01 | 5.727E-05 | -5.662E-05 | 1.572E-02 |
| 10 | 5.35E-03 | 1.869E+02 | 1.860E+02 | 1.992E+02 | 1.260E-05 | 2.854E-07 | 7.63E-02 | 1.309E+01 | 1.295E+01 | 9.381E+01 | 5.682E-05 | -5.555E-05 | 1.745E-02 |
| 15 | 7.99E-03 | 1.866E+02 | 1.856E+02 | 1.988E+02 | 1.265E-05 | 2.820E-07 | 1.11E-01 | 1.343E+01 | 1.329E+01 | 9.625E+01 | 5.398E-05 | -4.901E-05 | 2.600E-02 |
| 20 | 1.06E-02 | 1.861E+02 | 1.852E+02 | 1.983E+02 | 1.271E-05 | 2.772E-07 | 1.42E-01 | 1.390E+01 | 1.377E+01 | 9.963E+01 | 5.037E-05 | -4.115E-05 | 3.436E-02 |
| 25 | 1.31E-02 | 1.855E+02 | 1.846E+02 | 1.977E+02 | 1.279E-05 | 2.709E-07 | 1.68E-01 | 1.451E+01 | 1.437E+01 | 1.039E+02 | 4.628E-05 | -3.283E-05 | 4.246E-02 |
| 30 | 1.56E-02 | 1.848E+02 | 1.838E+02 | 1.969E+02 | 1.289E-05 | 2.632E-07 | 1.89E-01 | 1.523E+01 | 1.509E+01 | 1.091E+02 | 4.198E-05 | -2.482E-05 | 5.023E-02 |
| 35 | 1.80E-02 | 1.839E+02 | 1.830E+02 | 1.960E+02 | 1.301E-05 | 2.540E-07 | 2.05E-01 | 1.608E+01 | 1.594E+01 | 1.152E+02 | 3.769E-05 | -1.760E-05 | 5.762E-02 |
| 40 | 2.02E-02 | 1.830E+02 | 1.820E+02 | 1.950E+02 | 1.315E-05 | 2.432E-07 | 2.17E-01 | 1.703E+01 | 1.689E+01 | 1.220E+02 | 3.357E-05 | -1.145E-05 | 6.458E-02 |
| 45 | 2.24E-02 | 1.819E+02 | 1.810E+02 | 1.939E+02 | 1.330E-05 | 2.308E-07 | 2.25E-01 | 1.809E+01 | 1.795E+01 | 1.296E+02 | 2.975E-05 | -6.455E-06 | 7.104E-02 |
| 50 | 2.44E-02 | 1.807E+02 | 1.798E+02 | 1.926E+02 | 1.347E-05 | 2.167E-07 | 2.29E-01 | 1.925E+01 | 1.911E+01 | 1.379E+02 | 2.628E-05 | -2.554E-06 | 7.696E-02 |
| 55 | 2.63E-02 | 1.795E+02 | 1.786E+02 | 1.913E+02 | 1.366E-05 | 2.008E-07 | 2.30E-01 | 2.050E+01 | 2.036E+01 | 1.469E+02 | 2.318E-05 | 3.846E-07 | 8.230E-02 |
| 60 | 2.80E-02 | 1.782E+02 | 1.772E+02 | 1.899E+02 | 1.386E-05 | 1.831E-07 | 2.28E-01 | 2.182E+01 | 2.169E+01 | 1.564E+02 | 2.045E-05 | 2.521E-06 | 8.701E-02 |
| 65 | 2.95E-02 | 1.768E+02 | 1.758E+02 | 1.884E+02 | 1.408E-05 | 1.635E-07 | 2.25E-01 | 2.322E+01 | 2.308E+01 | 1.664E+02 | 1.807E-05 | 4.018E-06 | 9.105E-02 |
| 70 | 3.09E-02 | 1.753E+02 | 1.744E+02 | 1.869E+02 | 1.432E-05 | 1.421E-07 | 2.19E-01 | 2.467E+01 | 2.453E+01 | 1.768E+02 | 1.600E-05 | 5.020E-06 | 9.441E-02 |
| 75 | 3.20E-02 | 1.738E+02 | 1.729E+02 | 1.853E+02 | 1.457E-05 | 1.187E-07 | 2.12E-01 | 2.617E+01 | 2.603E+01 | 1.875E+02 | 1.422E-05 | 5.651E-06 | 9.704E-02 |
| 80 | 3.29E-02 | 1.723E+02 | 1.714E+02 | 1.836E+02 | 1.483E-05 | 9.351E-08 | 2.05E-01 | 2.770E+01 | 2.756E+01 | 1.985E+02 | 1.269E-05 | 6.010E-06 | 9.894E-02 |
| 85 | 3.36E-02 | 1.707E+02 | 1.698E+02 | 1.820E+02 | 1.510E-05 | 6.642E-08 | 1.96E-01 | 2.926E+01 | 2.912E+01 | 2.096E+02 | 1.138E-05 | 6.174E-06 | 1.001E-01 |
| 90 | 3.40E-02 | 1.692E+02 | 1.682E+02 | 1.803E+02 | 1.538E-05 | 3.755E-08 | 1.87E-01 | 3.083E+01 | 3.069E+01 | 2.209E+02 | 1.025E-05 | 6.204E-06 | 1.005E-01 |
| 95 | 3.42E-02 | 1.676E+02 | 1.667E+02 | 1.786E+02 | 1.567E-05 | 7.005E-09 | 1.77E-01 | 3.240E+01 | 3.226E+01 | 2.321E+02 | 9.278E-06 | 6.143E-06 | 1.001E-01 |
| 100 | 3.41E-02 | 1.660E+02 | 1.651E+02 | 1.770E+02 | 1.596E-05 | -2.506E-08 | 1.67E-01 | 3.396E+01 | 3.382E+01 | 2.433E+02 | 8.446E-06 | 6.023E-06 | 9.894E-02 |
| 105 | 3.38E-02 | 1.645E+02 | 1.636E+02 | 1.753E+02 | 1.626E-05 | -5.843E-08 | 1.57E-01 | 3.549E+01 | 3.535E+01 | 2.543E+02 | 7.732E-06 | 5.868E-06 | 9.704E-02 |
| 110 | 3.32E-02 | 1.630E+02 | 1.621E+02 | 1.737E+02 | 1.656E-05 | -9.285E-08 | 1.46E-01 | 3.699E+01 | 3.685E+01 | 2.650E+02 | 7.118E-06 | 5.695E-06 | 9.441E-02 |
| 115 | 3.23E-02 | 1.616E+02 | 1.606E+02 | 1.722E+02 | 1.686E-05 | -1.280E-07 | 1.36E-01 | 3.844E+01 | 3.830E+01 | 2.754E+02 | 6.591E-06 | 5.515E-06 | 9.105E-02 |
| 120 | 3.11E-02 | 1.602E+02 | 1.592E+02 | 1.707E+02 | 1.716E-05 | -1.635E-07 | 1.25E-01 | 3.984E+01 | 3.970E+01 | 2.854E+02 | 6.138E-06 | 5.337E-06 | 8.701E-02 |
| 125 | 2.97E-02 | 1.588E+02 | 1.579E+02 | 1.693E+02 | 1.745E-05 | -1.990E-07 | 1.15E-01 | 4.116E+01 | 4.102E+01 | 2.949E+02 | 5.749E-06 | 5.166E-06 | 8.230E-02 |
| 130 | 2.80E-02 | 1.576E+02 | 1.567E+02 | 1.680E+02 | 1.772E-05 | -2.340E-07 | 1.04E-01 | 4.241E+01 | 4.227E+01 | 3.038E+02 | 5.416E-06 | 5.006E-06 | 7.696E-02 |
| 135 | 2.60E-02 | 1.564E+02 | 1.555E+02 | 1.667E+02 | 1.799E-05 | -2.679E-07 | 9.34E-02 | 4.357E+01 | 4.343E+01 | 3.121E+02 | 5.132E-06 | 4.860E-06 | 7.104E-02 |
| 140 | 2.38E-02 | 1.554E+02 | 1.544E+02 | 1.656E+02 | 1.823E-05 | -3.003E-07 | 8.29E-02 | 4.463E+01 | 4.449E+01 | 3.198E+02 | 4.890E-06 | 4.727E-06 | 6.458E-02 |
| 145 | 2.14E-02 | 1.544E+02 | 1.535E+02 | 1.646E+02 | 1.846E-05 | -3.305E-07 | 7.24E-02 | 4.558E+01 | 4.544E+01 | 3.266E+02 | 4.687E-06 | 4.610E-06 | 5.762E-02 |
| 150 | 1.87E-02 | 1.536E+02 | 1.526E+02 | 1.637E+02 | 1.866E-05 | -3.581E-07 | 6.20E-02 | 4.643E+01 | 4.629E+01 | 3.327E+02 | 4.518E-06 | 4.509E-06 | 5.023E-02 |
| 155 | 1.59E-02 | 1.528E+02 | 1.519E+02 | 1.629E+02 | 1.884E-05 | -3.825E-07 | 5.16E-02 | 4.715E+01 | 4.701E+01 | 3.379E+02 | 4.380E-06 | 4.424E-06 | 4.246E-02 |
| 160 | 1.29E-02 | 1.522E+02 | 1.513E+02 | 1.623E+02 | 1.899E-05 | -4.032E-07 | 4.12E-02 | 4.776E+01 | 4.762E+01 | 3.422E+02 | 4.271E-06 | 4.354E-06 | 3.436E-02 |
| 165 | 9.82E-03 | 1.518E+02 | 1.508E+02 | 1.618E+02 | 1.911E-05 | -4.198E-07 | 3.09E-02 | 4.823E+01 | 4.809E+01 | 3.455E+02 | 4.187E-06 | 4.300E-06 | 2.600E-02 |
| 170 | 6.60E-03 | 1.514E+02 | 1.505E+02 | 1.614E+02 | 1.919E-05 | -4.319E-07 | 2.06E-02 | 4.857E+01 | 4.843E+01 | 3.480E+02 | 4.129E-06 | 4.262E-06 | 1.745E-02 |
| 175 | 3.32E-03 | 1.512E+02 | 1.503E+02 | 1.612E+02 | 1.925E-05 | -4.393E-07 | 1.03E-02 | 4.877E+01 | 4.863E+01 | 3.495E+02 | 4.094E-06 | 4.239E-06 | 8.756E-03 |
| 180 | 0. | 1.512E+02 | 1.502E+02 | 1.611E+02 | 1.926E-05 | -4.417E-07 | 0. | 4.884E+01 | 4.870E+01 | 3.499E+02 | 4.083E-06 | 4.231E-06 | 0. |

LAMBDA (1) => PROTON (2) + PI MINUS (3) AT 225 GEV/C P1 LAB

M1 = 1.11559E+00 M2 = 9.38259E-01 M3 = 1.39569E-01
P2CM= 1.00466E-01
E2CM= 9.43623E-01 E3CM= 1.71967E-01

1-V1LAB= 1.229E-05 GCM = 2.01689E+02 S = 1.24454E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.106E+02 | 2.096E+02 | 2.244E+02 | 9.926E-06 | 2.276E-07 | 0. | 1.442E+01 | 1.428E+01 | 1.033E+02 | 4.683E-05 | -4.854E-05 | 0. |
| 1 | 4.77E-04 | 2.106E+02 | 2.096E+02 | 2.244E+02 | 9.926E-06 | 2.276E-07 | 6.96E-03 | 1.442E+01 | 1.428E+01 | 1.034E+02 | 4.681E-05 | -4.849E-05 | 1.753E-03 |
| 2 | 9.54E-04 | 2.106E+02 | 2.096E+02 | 2.244E+02 | 9.927E-06 | 2.275E-07 | 1.39E-02 | 1.443E+01 | 1.429E+01 | 1.034E+02 | 4.675E-05 | -4.834E-05 | 3.506E-03 |
| 3 | 1.43E-03 | 2.106E+02 | 2.096E+02 | 2.244E+02 | 9.929E-06 | 2.274E-07 | 2.09E-02 | 1.445E+01 | 1.431E+01 | 1.035E+02 | 4.665E-05 | -4.810E-05 | 5.258E-03 |
| 4 | 1.91E-03 | 2.105E+02 | 2.096E+02 | 2.244E+02 | 9.931E-06 | 2.273E-07 | 2.77E-02 | 1.447E+01 | 1.433E+01 | 1.037E+02 | 4.651E-05 | -4.776E-05 | 7.008E-03 |
| 5 | 2.38E-03 | 2.105E+02 | 2.096E+02 | 2.244E+02 | 9.933E-06 | 2.271E-07 | 3.46E-02 | 1.450E+01 | 1.436E+01 | 1.039E+02 | 4.634E-05 | -4.733E-05 | 8.756E-03 |
| 6 | 2.86E-03 | 2.105E+02 | 2.095E+02 | 2.243E+02 | 9.937E-06 | 2.268E-07 | 4.14E-02 | 1.453E+01 | 1.439E+01 | 1.041E+02 | 4.612E-05 | -4.681E-05 | 1.050E-02 |
| 7 | 3.33E-03 | 2.104E+02 | 2.095E+02 | 2.243E+02 | 9.940E-06 | 2.266E-07 | 4.81E-02 | 1.457E+01 | 1.443E+01 | 1.044E+02 | 4.587E-05 | -4.620E-05 | 1.224E-02 |
| 8 | 3.81E-03 | 2.104E+02 | 2.094E+02 | 2.242E+02 | 9.945E-06 | 2.262E-07 | 5.48E-02 | 1.462E+01 | 1.448E+01 | 1.047E+02 | 4.558E-05 | -4.551E-05 | 1.398E-02 |
| 9 | 4.28E-03 | 2.103E+02 | 2.094E+02 | 2.242E+02 | 9.950E-06 | 2.259E-07 | 6.14E-02 | 1.467E+01 | 1.453E+01 | 1.051E+02 | 4.525E-05 | -4.474E-05 | 1.572E-02 |
| 10 | 4.75E-03 | 2.103E+02 | 2.093E+02 | 2.241E+02 | 9.955E-06 | 2.255E-07 | 6.79E-02 | 1.473E+01 | 1.459E+01 | 1.055E+02 | 4.489E-05 | -4.389E-05 | 1.745E-02 |
| 15 | 7.10E-03 | 2.099E+02 | 2.090E+02 | 2.237E+02 | 9.991E-06 | 2.228E-07 | 9.86E-02 | 1.511E+01 | 1.497E+01 | 1.083E+02 | 4.265E-05 | -3.872E-05 | 2.600E-02 |
| 20 | 9.40E-03 | 2.094E+02 | 2.084E+02 | 2.231E+02 | 1.004E-05 | 2.190E-07 | 1.26E-01 | 1.564E+01 | 1.550E+01 | 1.121E+02 | 3.980E-05 | -3.251E-05 | 3.436E-02 |
| 25 | 1.17E-02 | 2.087E+02 | 2.077E+02 | 2.224E+02 | 1.011E-05 | 2.141E-07 | 1.49E-01 | 1.632E+01 | 1.618E+01 | 1.169E+02 | 3.657E-05 | -2.594E-05 | 4.246E-02 |
| 30 | 1.38E-02 | 2.079E+02 | 2.069E+02 | 2.215E+02 | 1.019E-05 | 2.080E-07 | 1.68E-01 | 1.714E+01 | 1.700E+01 | 1.228E+02 | 3.317E-05 | -1.961E-05 | 5.023E-02 |
| 35 | 1.60E-02 | 2.069E+02 | 2.060E+02 | 2.205E+02 | 1.028E-05 | 2.007E-07 | 1.83E-01 | 1.809E+01 | 1.795E+01 | 1.296E+02 | 2.978E-05 | -1.390E-05 | 5.762E-02 |
| 40 | 1.80E-02 | 2.058E+02 | 2.049E+02 | 2.194E+02 | 1.039E-05 | 1.922E-07 | 1.93E-01 | 1.916E+01 | 1.902E+01 | 1.373E+02 | 2.653E-05 | -9.047E-06 | 6.458E-02 |
| 45 | 1.99E-02 | 2.046E+02 | 2.037E+02 | 2.181E+02 | 1.051E-05 | 1.824E-07 | 2.00E-01 | 2.036E+01 | 2.022E+01 | 1.459E+02 | 2.350E-05 | -5.100E-06 | 7.104E-02 |
| 50 | 2.17E-02 | 2.033E+02 | 2.024E+02 | 2.167E+02 | 1.065E-05 | 1.712E-07 | 2.04E-01 | 2.166E+01 | 2.152E+01 | 1.552E+02 | 2.076E-05 | -2.018E-06 | 7.696E-02 |
| 55 | 2.33E-02 | 2.019E+02 | 2.010E+02 | 2.152E+02 | 1.079E-05 | 1.586E-07 | 2.04E-01 | 2.306E+01 | 2.292E+01 | 1.652E+02 | 1.831E-05 | 3.038E-07 | 8.230E-02 |
| 60 | 2.49E-02 | 2.004E+02 | 1.995E+02 | 2.136E+02 | 1.095E-05 | 1.446E-07 | 2.03E-01 | 2.455E+01 | 2.441E+01 | 1.759E+02 | 1.616E-05 | 1.992E-06 | 8.701E-02 |
| 65 | 2.62E-02 | 1.989E+02 | 1.979E+02 | 2.120E+02 | 1.113E-05 | 1.292E-07 | 2.00E-01 | 2.612E+01 | 2.598E+01 | 1.872E+02 | 1.428E-05 | 3.174E-06 | 9.105E-02 |
| 70 | 2.74E-02 | 1.972E+02 | 1.963E+02 | 2.102E+02 | 1.131E-05 | 1.123E-07 | 1.95E-01 | 2.775E+01 | 2.761E+01 | 1.989E+02 | 1.264E-05 | 3.966E-06 | 9.441E-02 |
| 75 | 2.84E-02 | 1.956E+02 | 1.946E+02 | 2.084E+02 | 1.151E-05 | 9.382E-08 | 1.89E-01 | 2.944E+01 | 2.930E+01 | 2.109E+02 | 1.124E-05 | 4.465E-06 | 9.704E-02 |
| 80 | 2.92E-02 | 1.938E+02 | 1.929E+02 | 2.066E+02 | 1.172E-05 | 7.388E-08 | 1.82E-01 | 3.117E+01 | 3.103E+01 | 2.233E+02 | 1.003E-05 | 4.748E-06 | 9.894E-02 |
| 85 | 2.99E-02 | 1.921E+02 | 1.911E+02 | 2.047E+02 | 1.193E-05 | 5.248E-08 | 1.74E-01 | 3.292E+01 | 3.278E+01 | 2.359E+02 | 8.988E-06 | 4.878E-06 | 1.001E-01 |
| 90 | 3.02E-02 | 1.903E+02 | 1.894E+02 | 2.028E+02 | 1.215E-05 | 2.967E-08 | 1.66E-01 | 3.468E+01 | 3.454E+01 | 2.485E+02 | 8.096E-06 | 4.902E-06 | 1.005E-01 |
| 95 | 3.04E-02 | 1.886E+02 | 1.876E+02 | 2.010E+02 | 1.238E-05 | 5.535E-09 | 1.57E-01 | 3.645E+01 | 3.631E+01 | 2.612E+02 | 7.331E-06 | 4.853E-06 | 1.001E-01 |
| 100 | 3.03E-02 | 1.868E+02 | 1.859E+02 | 1.991E+02 | 1.261E-05 | -1.980E-08 | 1.48E-01 | 3.820E+01 | 3.806E+01 | 2.737E+02 | 6.674E-06 | 4.759E-06 | 9.894E-02 |
| 105 | 3.00E-02 | 1.851E+02 | 1.841E+02 | 1.973E+02 | 1.285E-05 | -4.617E-08 | 1.39E-01 | 3.993E+01 | 3.979E+01 | 2.861E+02 | 6.109E-06 | 4.636E-06 | 9.704E-02 |
| 110 | 2.95E-02 | 1.834E+02 | 1.825E+02 | 1.955E+02 | 1.309E-05 | -7.337E-08 | 1.30E-01 | 4.161E+01 | 4.147E+01 | 2.982E+02 | 5.624E-06 | 4.499E-06 | 9.441E-02 |
| 115 | 2.87E-02 | 1.818E+02 | 1.808E+02 | 1.937E+02 | 1.332E-05 | -1.011E-07 | 1.21E-01 | 4.325E+01 | 4.311E+01 | 3.099E+02 | 5.207E-06 | 4.358E-06 | 9.105E-02 |
| 120 | 2.77E-02 | 1.802E+02 | 1.792E+02 | 1.920E+02 | 1.356E-05 | -1.292E-07 | 1.11E-01 | 4.482E+01 | 4.468E+01 | 3.211E+02 | 4.849E-06 | 4.217E-06 | 8.701E-02 |
| 125 | 2.64E-02 | 1.787E+02 | 1.778E+02 | 1.905E+02 | 1.378E-05 | -1.573E-07 | 1.02E-01 | 4.631E+01 | 4.617E+01 | 3.318E+02 | 4.542E-06 | 4.082E-06 | 8.230E-02 |
| 130 | 2.49E-02 | 1.773E+02 | 1.764E+02 | 1.890E+02 | 1.400E-05 | -1.849E-07 | 9.24E-02 | 4.771E+01 | 4.757E+01 | 3.418E+02 | 4.279E-06 | 3.956E-06 | 7.696E-02 |
| 135 | 2.31E-02 | 1.760E+02 | 1.751E+02 | 1.876E+02 | 1.421E-05 | -2.117E-07 | 8.30E-02 | 4.901E+01 | 4.887E+01 | 3.512E+02 | 4.055E-06 | 3.840E-06 | 7.104E-02 |
| 140 | 2.12E-02 | 1.748E+02 | 1.739E+02 | 1.863E+02 | 1.441E-05 | -2.372E-07 | 7.37E-02 | 5.021E+01 | 5.007E+01 | 3.597E+02 | 3.864E-06 | 3.735E-06 | 6.458E-02 |
| 145 | 1.90E-02 | 1.737E+02 | 1.728E+02 | 1.852E+02 | 1.459E-05 | -2.611E-07 | 6.44E-02 | 5.128E+01 | 5.114E+01 | 3.674E+02 | 3.704E-06 | 3.643E-06 | 5.762E-02 |
| 150 | 1.67E-02 | 1.728E+02 | 1.718E+02 | 1.841E+02 | 1.475E-05 | -2.829E-07 | 5.51E-02 | 5.223E+01 | 5.209E+01 | 3.742E+02 | 3.570E-06 | 3.563E-06 | 5.023E-02 |
| 155 | 1.41E-02 | 1.720E+02 | 1.710E+02 | 1.833E+02 | 1.489E-05 | -3.022E-07 | 4.59E-02 | 5.305E+01 | 5.291E+01 | 3.801E+02 | 3.461E-06 | 3.495E-06 | 4.246E-02 |
| 160 | 1.15E-02 | 1.713E+02 | 1.703E+02 | 1.825E+02 | 1.500E-05 | -3.186E-07 | 3.66E-02 | 5.372E+01 | 5.359E+01 | 3.849E+02 | 3.374E-06 | 3.440E-06 | 3.436E-02 |
| 165 | 8.73E-03 | 1.707E+02 | 1.698E+02 | 1.820E+02 | 1.510E-05 | -3.317E-07 | 2.75E-02 | 5.426E+01 | 5.412E+01 | 3.887E+02 | 3.309E-06 | 3.398E-06 | 2.600E-02 |
| 170 | 5.87E-03 | 1.704E+02 | 1.694E+02 | 1.816E+02 | 1.517E-05 | -3.412E-07 | 1.83E-02 | 5.464E+01 | 5.450E+01 | 3.915E+02 | 3.262E-06 | 3.367E-06 | 1.745E-02 |
| 175 | 2.95E-03 | 1.701E+02 | 1.692E+02 | 1.813E+02 | 1.521E-05 | -3.471E-07 | 9.14E-03 | 5.487E+01 | 5.473E+01 | 3.931E+02 | 3.235E-06 | 3.349E-06 | 8.756E-03 |
| 180 | 0. | 1.701E+02 | 1.691E+02 | 1.812E+02 | 1.522E-05 | -3.490E-07 | 0. | 5.495E+01 | 5.481E+01 | 3.937E+02 | 3.226E-06 | 3.343E-06 | 0. |

LAMBDA => PROTON + PI MINUS AT 250 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.11559E+00 M2 = 9.38259E-01 M3 = 1.39569E-01
P2CM= 1.00466E-01
E2CM= 9.43623E-01 E3CM= 1.71967E-01

1-V1LAB= 9.956E-06 GCM = 2.24099E+02 S = 1.24454E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.340E+02 | 2.330E+02 | 2.494E+02 | 8.040E-06 | 1.844E-07 | 0. | 1.602E+01 | 1.588E+01 | 1.148E+02 | 3.793E-05 | -3.931E-05 | 0. |
| 1 | 4.29E-04 | 2.340E+02 | 2.330E+02 | 2.494E+02 | 8.040E-06 | 1.844E-07 | 6.27E-03 | 1.603E+01 | 1.589E+01 | 1.148E+02 | 3.792E-05 | -3.927E-05 | 1.753E-03 |
| 2 | 8.59E-04 | 2.340E+02 | 2.330E+02 | 2.494E+02 | 8.041E-06 | 1.843E-07 | 1.25E-02 | 1.604E+01 | 1.590E+01 | 1.149E+02 | 3.787E-05 | -3.916E-05 | 3.506E-03 |
| 3 | 1.29E-03 | 2.339E+02 | 2.330E+02 | 2.493E+02 | 8.042E-06 | 1.842E-07 | 1.88E-02 | 1.605E+01 | 1.591E+01 | 1.150E+02 | 3.779E-05 | -3.896E-05 | 5.258E-03 |
| 4 | 1.72E-03 | 2.339E+02 | 2.330E+02 | 2.493E+02 | 8.044E-06 | 1.841E-07 | 2.50E-02 | 1.608E+01 | 1.594E+01 | 1.152E+02 | 3.768E-05 | -3.868E-05 | 7.008E-03 |
| 5 | 2.14E-03 | 2.339E+02 | 2.330E+02 | 2.493E+02 | 8.046E-06 | 1.839E-07 | 3.11E-02 | 1.611E+01 | 1.597E+01 | 1.154E+02 | 3.753E-05 | -3.834E-05 | 8.756E-03 |
| 6 | 2.57E-03 | 2.339E+02 | 2.329E+02 | 2.492E+02 | 8.049E-06 | 1.837E-07 | 3.73E-02 | 1.615E+01 | 1.601E+01 | 1.157E+02 | 3.736E-05 | -3.791E-05 | 1.050E-02 |
| 7 | 3.00E-03 | 2.338E+02 | 2.329E+02 | 2.492E+02 | 8.052E-06 | 1.835E-07 | 4.33E-02 | 1.619E+01 | 1.605E+01 | 1.160E+02 | 3.715E-05 | -3.742E-05 | 1.224E-02 |
| 8 | 3.43E-03 | 2.338E+02 | 2.328E+02 | 2.491E+02 | 8.055E-06 | 1.833E-07 | 4.93E-02 | 1.624E+01 | 1.610E+01 | 1.164E+02 | 3.692E-05 | -3.686E-05 | 1.398E-02 |
| 9 | 3.85E-03 | 2.337E+02 | 2.328E+02 | 2.491E+02 | 8.059E-06 | 1.830E-07 | 5.52E-02 | 1.630E+01 | 1.616E+01 | 1.168E+02 | 3.665E-05 | -3.624E-05 | 1.572E-02 |
| 10 | 4.28E-03 | 2.336E+02 | 2.327E+02 | 2.490E+02 | 8.064E-06 | 1.826E-07 | 6.11E-02 | 1.637E+01 | 1.623E+01 | 1.173E+02 | 3.636E-05 | -3.555E-05 | 1.745E-02 |
| 15 | 6.39E-03 | 2.332E+02 | 2.323E+02 | 2.486E+02 | 8.093E-06 | 1.805E-07 | 8.87E-02 | 1.679E+01 | 1.665E+01 | 1.203E+02 | 3.455E-05 | -3.137E-05 | 2.600E-02 |
| 20 | 8.46E-03 | 2.326E+02 | 2.317E+02 | 2.479E+02 | 8.134E-06 | 1.774E-07 | 1.13E-01 | 1.738E+01 | 1.724E+01 | 1.245E+02 | 3.224E-05 | -2.633E-05 | 3.436E-02 |
| 25 | 1.05E-02 | 2.319E+02 | 2.309E+02 | 2.471E+02 | 8.187E-06 | 1.734E-07 | 1.34E-01 | 1.813E+01 | 1.799E+01 | 1.299E+02 | 2.962E-05 | -2.101E-05 | 4.246E-02 |
| 30 | 1.25E-02 | 2.310E+02 | 2.300E+02 | 2.462E+02 | 8.252E-06 | 1.685E-07 | 1.51E-01 | 1.904E+01 | 1.890E+01 | 1.364E+02 | 2.687E-05 | -1.588E-05 | 5.023E-02 |
| 35 | 1.44E-02 | 2.299E+02 | 2.290E+02 | 2.450E+02 | 8.327E-06 | 1.626E-07 | 1.64E-01 | 2.009E+01 | 1.996E+01 | 1.440E+02 | 2.412E-05 | -1.126E-05 | 5.762E-02 |
| 40 | 1.62E-02 | 2.287E+02 | 2.278E+02 | 2.438E+02 | 8.415E-06 | 1.557E-07 | 1.74E-01 | 2.129E+01 | 2.115E+01 | 1.525E+02 | 2.149E-05 | -7.328E-06 | 6.458E-02 |
| 45 | 1.79E-02 | 2.274E+02 | 2.264E+02 | 2.423E+02 | 8.513E-06 | 1.477E-07 | 1.80E-01 | 2.262E+01 | 2.248E+01 | 1.621E+02 | 1.904E-05 | -4.131E-06 | 7.104E-02 |
| 50 | 1.95E-02 | 2.259E+02 | 2.250E+02 | 2.408E+02 | 8.623E-06 | 1.387E-07 | 1.83E-01 | 2.407E+01 | 2.393E+01 | 1.724E+02 | 1.682E-05 | -1.635E-06 | 7.696E-02 |
| 55 | 2.10E-02 | 2.244E+02 | 2.234E+02 | 2.391E+02 | 8.743E-06 | 1.285E-07 | 1.84E-01 | 2.562E+01 | 2.548E+01 | 1.836E+02 | 1.483E-05 | 2.460E-07 | 8.230E-02 |
| 60 | 2.24E-02 | 2.227E+02 | 2.218E+02 | 2.374E+02 | 8.873E-06 | 1.172E-07 | 1.83E-01 | 2.728E+01 | 2.714E+01 | 1.955E+02 | 1.309E-05 | 1.614E-06 | 8.701E-02 |
| 65 | 2.36E-02 | 2.210E+02 | 2.200E+02 | 2.355E+02 | 9.014E-06 | 1.047E-07 | 1.80E-01 | 2.902E+01 | 2.888E+01 | 2.079E+02 | 1.156E-05 | 2.571E-06 | 9.105E-02 |
| 70 | 2.47E-02 | 2.192E+02 | 2.182E+02 | 2.336E+02 | 9.164E-06 | 9.093E-08 | 1.75E-01 | 3.084E+01 | 3.070E+01 | 2.209E+02 | 1.024E-05 | 3.213E-06 | 9.441E-02 |
| 75 | 2.56E-02 | 2.173E+02 | 2.164E+02 | 2.316E+02 | 9.322E-06 | 7.600E-08 | 1.70E-01 | 3.271E+01 | 3.257E+01 | 2.344E+02 | 9.103E-06 | 3.616E-06 | 9.704E-02 |
| 80 | 2.63E-02 | 2.154E+02 | 2.144E+02 | 2.295E+02 | 9.489E-06 | 5.985E-08 | 1.64E-01 | 3.463E+01 | 3.449E+01 | 2.481E+02 | 8.122E-06 | 3.846E-06 | 9.894E-02 |
| 85 | 2.69E-02 | 2.134E+02 | 2.125E+02 | 2.275E+02 | 9.663E-06 | 4.251E-08 | 1.57E-01 | 3.658E+01 | 3.644E+01 | 2.621E+02 | 7.281E-06 | 3.952E-06 | 1.001E-01 |
| 90 | 2.72E-02 | 2.115E+02 | 2.105E+02 | 2.254E+02 | 9.843E-06 | 2.403E-08 | 1.49E-01 | 3.854E+01 | 3.840E+01 | 2.761E+02 | 6.558E-06 | 3.970E-06 | 1.005E-01 |
| 95 | 2.74E-02 | 2.095E+02 | 2.086E+02 | 2.233E+02 | 1.003E-05 | 4.483E-09 | 1.42E-01 | 4.050E+01 | 4.036E+01 | 2.902E+02 | 5.938E-06 | 3.931E-06 | 1.001E-01 |
| 100 | 2.73E-02 | 2.076E+02 | 2.066E+02 | 2.212E+02 | 1.022E-05 | -1.604E-08 | 1.34E-01 | 4.245E+01 | 4.231E+01 | 3.041E+02 | 5.406E-06 | 3.855E-06 | 9.894E-02 |
| 105 | 2.70E-02 | 2.056E+02 | 2.047E+02 | 2.192E+02 | 1.041E-05 | -3.740E-08 | 1.25E-01 | 4.436E+01 | 4.423E+01 | 3.179E+02 | 4.948E-06 | 3.755E-06 | 9.704E-02 |
| 110 | 2.65E-02 | 2.038E+02 | 2.028E+02 | 2.172E+02 | 1.060E-05 | -5.943E-08 | 1.17E-01 | 4.624E+01 | 4.610E+01 | 3.313E+02 | 4.556E-06 | 3.645E-06 | 9.441E-02 |
| 115 | 2.58E-02 | 2.019E+02 | 2.010E+02 | 2.152E+02 | 1.079E-05 | -8.193E-08 | 1.09E-01 | 4.805E+01 | 4.791E+01 | 3.443E+02 | 4.218E-06 | 3.530E-06 | 9.105E-02 |
| 120 | 2.49E-02 | 2.002E+02 | 1.993E+02 | 2.134E+02 | 1.098E-05 | -1.047E-07 | 1.00E-01 | 4.979E+01 | 4.966E+01 | 3.568E+02 | 3.928E-06 | 3.416E-06 | 8.701E-02 |
| 125 | 2.37E-02 | 1.985E+02 | 1.976E+02 | 2.116E+02 | 1.117E-05 | -1.274E-07 | 9.16E-02 | 5.145E+01 | 5.131E+01 | 3.686E+02 | 3.679E-06 | 3.306E-06 | 8.230E-02 |
| 130 | 2.24E-02 | 1.970E+02 | 1.961E+02 | 2.100E+02 | 1.134E-05 | -1.497E-07 | 8.32E-02 | 5.301E+01 | 5.287E+01 | 3.798E+02 | 3.466E-06 | 3.204E-06 | 7.696E-02 |
| 135 | 2.08E-02 | 1.955E+02 | 1.946E+02 | 2.084E+02 | 1.151E-05 | -1.715E-07 | 7.47E-02 | 5.446E+01 | 5.432E+01 | 3.902E+02 | 3.284E-06 | 3.110E-06 | 7.104E-02 |
| 140 | 1.91E-02 | 1.942E+02 | 1.933E+02 | 2.070E+02 | 1.167E-05 | -1.922E-07 | 6.63E-02 | 5.578E+01 | 5.564E+01 | 3.997E+02 | 3.130E-06 | 3.026E-06 | 6.458E-02 |
| 145 | 1.71E-02 | 1.930E+02 | 1.921E+02 | 2.057E+02 | 1.181E-05 | -2.115E-07 | 5.79E-02 | 5.698E+01 | 5.684E+01 | 4.083E+02 | 3.000E-06 | 2.951E-06 | 5.762E-02 |
| 150 | 1.50E-02 | 1.920E+02 | 1.910E+02 | 2.046E+02 | 1.194E-05 | -2.292E-07 | 4.96E-02 | 5.814E+01 | 5.790E+01 | 4.158E+02 | 2.892E-06 | 2.886E-06 | 5.023E-02 |
| 155 | 1.27E-02 | 1.911E+02 | 1.901E+02 | 2.036E+02 | 1.206E-05 | -2.448E-07 | 4.13E-02 | 5.894E+01 | 5.880E+01 | 4.223E+02 | 2.803E-06 | 2.831E-06 | 4.246E-02 |
| 160 | 1.03E-02 | 1.903E+02 | 1.894E+02 | 2.028E+02 | 1.215E-05 | -2.580E-07 | 3.30E-02 | 5.969E+01 | 5.955E+01 | 4.277E+02 | 2.733E-06 | 2.787E-06 | 3.436E-02 |
| 165 | 7.85E-03 | 1.897E+02 | 1.888E+02 | 2.022E+02 | 1.223E-05 | -2.686E-07 | 2.47E-02 | 6.028E+01 | 6.014E+01 | 4.319E+02 | 2.680E-06 | 2.752E-06 | 2.600E-02 |
| 170 | 5.28E-03 | 1.893E+02 | 1.884E+02 | 2.017E+02 | 1.228E-05 | -2.764E-07 | 1.65E-02 | 6.071E+01 | 6.057E+01 | 4.350E+02 | 2.643E-06 | 2.728E-06 | 1.745E-02 |
| 175 | 2.65E-03 | 1.890E+02 | 1.881E+02 | 2.015E+02 | 1.232E-05 | -2.811E-07 | 8.23E-03 | 6.097E+01 | 6.083E+01 | 4.368E+02 | 2.620E-06 | 2.713E-06 | 8.756E-03 |
| 180 | 0. | 1.889E+02 | 1.880E+02 | 2.014E+02 | 1.233E-05 | -2.827E-07 | 0. | 6.105E+01 | 6.091E+01 | 4.374E+02 | 2.613E-06 | 2.708E-06 | 0. |

LAMBDA (1) => PROTON (2) + PI MINUS (3) AT 275 GEV/C P1 LAB

M1 = 1.11559E+00 M2 = 9.38259E-01 M3 = 1.39569E-01
P2CM= 1.00466E-01
E2CM= 9.43623E-01 E3CM= 1.71967E-01

1-V1LAB= 8.228E-06 GCM = 2.46508E+02 S = 1.24454E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.574E+02 | 2.564E+02 | 2.743E+02 | 6.645E-06 | 1.524E-07 | 0. | 1.763E+01 | 1.749E+01 | 1.263E+02 | 3.135E-05 | -3.249E-05 | 0. |
| 1 | 3.90E-04 | 2.574E+02 | 2.564E+02 | 2.743E+02 | 6.645E-06 | 1.524E-07 | 5.70E-03 | 1.763E+01 | 1.749E+01 | 1.263E+02 | 3.134E-05 | -3.246E-05 | 1.753E-03 |
| 2 | 7.81E-04 | 2.574E+02 | 2.564E+02 | 2.743E+02 | 6.646E-06 | 1.523E-07 | 1.14E-02 | 1.764E+01 | 1.750E+01 | 1.264E+02 | 3.130E-05 | -3.236E-05 | 3.506E-03 |
| 3 | 1.17E-03 | 2.573E+02 | 2.564E+02 | 2.743E+02 | 6.647E-06 | 1.522E-07 | 1.71E-02 | 1.766E+01 | 1.752E+01 | 1.265E+02 | 3.123E-05 | -3.220E-05 | 5.258E-03 |
| 4 | 1.56E-03 | 2.573E+02 | 2.564E+02 | 2.742E+02 | 6.648E-06 | 1.521E-07 | 2.27E-02 | 1.769E+01 | 1.755E+01 | 1.267E+02 | 3.114E-05 | -3.197E-05 | 7.008E-03 |
| 5 | 1.95E-03 | 2.573E+02 | 2.563E+02 | 2.742E+02 | 6.650E-06 | 1.520E-07 | 2.83E-02 | 1.772E+01 | 1.758E+01 | 1.270E+02 | 3.102E-05 | -3.168E-05 | 8.756E-03 |
| 6 | 2.34E-03 | 2.572E+02 | 2.563E+02 | 2.742E+02 | 6.652E-06 | 1.519E-07 | 3.39E-02 | 1.776E+01 | 1.762E+01 | 1.273E+02 | 3.087E-05 | -3.133E-05 | 1.050E-02 |
| 7 | 2.73E-03 | 2.572E+02 | 2.563E+02 | 2.741E+02 | 6.654E-06 | 1.517E-07 | 3.94E-02 | 1.781E+01 | 1.767E+01 | 1.276E+02 | 3.070E-05 | -3.093E-05 | 1.224E-02 |
| 8 | 3.12E-03 | 2.571E+02 | 2.562E+02 | 2.741E+02 | 6.657E-06 | 1.515E-07 | 4.48E-02 | 1.787E+01 | 1.773E+01 | 1.280E+02 | 3.051E-05 | -3.046E-05 | 1.398E-02 |
| 9 | 3.50E-03 | 2.571E+02 | 2.561E+02 | 2.740E+02 | 6.661E-06 | 1.512E-07 | 5.02E-02 | 1.793E+01 | 1.779E+01 | 1.285E+02 | 3.029E-05 | -2.995E-05 | 1.572E-02 |
| 10 | 3.89E-03 | 2.570E+02 | 2.561E+02 | 2.739E+02 | 6.664E-06 | 1.509E-07 | 5.55E-02 | 1.800E+01 | 1.786E+01 | 1.290E+02 | 3.005E-05 | -2.938E-05 | 1.745E-02 |
| 15 | 5.81E-03 | 2.565E+02 | 2.556E+02 | 2.734E+02 | 6.689E-06 | 1.491E-07 | 8.07E-02 | 1.847E+01 | 1.833E+01 | 1.323E+02 | 2.855E-05 | -2.592E-05 | 2.600E-02 |
| 20 | 7.69E-03 | 2.559E+02 | 2.549E+02 | 2.727E+02 | 6.723E-06 | 1.466E-07 | 1.03E-01 | 1.912E+01 | 1.898E+01 | 1.370E+02 | 2.664E-05 | -2.176E-05 | 3.436E-02 |
| 25 | 9.54E-03 | 2.551E+02 | 2.541E+02 | 2.718E+02 | 6.766E-06 | 1.433E-07 | 1.22E-01 | 1.995E+01 | 1.981E+01 | 1.429E+02 | 2.448E-05 | -1.737E-05 | 4.246E-02 |
| 30 | 1.13E-02 | 2.541E+02 | 2.531E+02 | 2.708E+02 | 6.819E-06 | 1.392E-07 | 1.37E-01 | 2.094E+01 | 2.080E+01 | 1.501E+02 | 2.220E-05 | -1.313E-05 | 5.023E-02 |
| 35 | 1.31E-02 | 2.529E+02 | 2.520E+02 | 2.695E+02 | 6.882E-06 | 1.344E-07 | 1.49E-01 | 2.210E+01 | 2.197E+01 | 1.584E+02 | 1.993E-05 | -9.307E-06 | 5.762E-02 |
| 40 | 1.47E-02 | 2.516E+02 | 2.506E+02 | 2.681E+02 | 6.954E-06 | 1.286E-07 | 1.58E-01 | 2.342E+01 | 2.328E+01 | 1.678E+02 | 1.776E-05 | -6.057E-06 | 6.458E-02 |
| 45 | 1.63E-02 | 2.501E+02 | 2.492E+02 | 2.666E+02 | 7.036E-06 | 1.221E-07 | 1.64E-01 | 2.488E+01 | 2.474E+01 | 1.783E+02 | 1.573E-05 | -3.414E-06 | 7.104E-02 |
| 50 | 1.77E-02 | 2.485E+02 | 2.476E+02 | 2.649E+02 | 7.126E-06 | 1.146E-07 | 1.67E-01 | 2.647E+01 | 2.633E+01 | 1.897E+02 | 1.390E-05 | -1.351E-06 | 7.696E-02 |
| 55 | 1.91E-02 | 2.468E+02 | 2.459E+02 | 2.631E+02 | 7.226E-06 | 1.062E-07 | 1.67E-01 | 2.819E+01 | 2.805E+01 | 2.020E+02 | 1.226E-05 | 2.033E-07 | 8.230E-02 |
| 60 | 2.03E-02 | 2.450E+02 | 2.441E+02 | 2.611E+02 | 7.333E-06 | 9.683E-08 | 1.66E-01 | 3.001E+01 | 2.987E+01 | 2.150E+02 | 1.082E-05 | 1.333E-06 | 8.701E-02 |
| 65 | 2.15E-02 | 2.431E+02 | 2.421E+02 | 2.591E+02 | 7.450E-06 | 8.649E-08 | 1.63E-01 | 3.192E+01 | 3.179E+01 | 2.287E+02 | 9.556E-06 | 2.125E-06 | 9.105E-02 |
| 70 | 2.24E-02 | 2.411E+02 | 2.401E+02 | 2.569E+02 | 7.573E-06 | 7.515E-08 | 1.59E-01 | 3.392E+01 | 3.378E+01 | 2.430E+02 | 8.465E-06 | 2.655E-06 | 9.441E-02 |
| 75 | 2.33E-02 | 2.390E+02 | 2.381E+02 | 2.547E+02 | 7.705E-06 | 6.281E-08 | 1.55E-01 | 3.598E+01 | 3.584E+01 | 2.578E+02 | 7.523E-06 | 2.989E-06 | 9.704E-02 |
| 80 | 2.39E-02 | 2.369E+02 | 2.360E+02 | 2.525E+02 | 7.842E-06 | 4.946E-08 | 1.49E-01 | 3.809E+01 | 3.795E+01 | 2.729E+02 | 6.713E-06 | 3.179E-06 | 9.894E-02 |
| 85 | 2.44E-02 | 2.348E+02 | 2.338E+02 | 2.502E+02 | 7.986E-06 | 3.513E-08 | 1.43E-01 | 4.023E+01 | 4.009E+01 | 2.883E+02 | 6.017E-06 | 3.266E-06 | 1.001E-01 |
| 90 | 2.47E-02 | 2.326E+02 | 2.317E+02 | 2.479E+02 | 8.135E-06 | 1.986E-08 | 1.36E-01 | 4.239E+01 | 4.225E+01 | 3.037E+02 | 5.420E-06 | 3.261E-06 | 1.005E-01 |
| 95 | 2.49E-02 | 2.305E+02 | 2.295E+02 | 2.456E+02 | 8.288E-06 | 3.705E-09 | 1.29E-01 | 4.455E+01 | 4.441E+01 | 3.192E+02 | 4.907E-06 | 3.249E-06 | 1.001E-01 |
| 100 | 2.48E-02 | 2.283E+02 | 2.274E+02 | 2.433E+02 | 8.444E-06 | -1.325E-08 | 1.21E-01 | 4.669E+01 | 4.655E+01 | 3.345E+02 | 4.468E-06 | 3.186E-06 | 9.894E-02 |
| 105 | 2.46E-02 | 2.262E+02 | 2.253E+02 | 2.411E+02 | 8.603E-06 | -3.091E-08 | 1.14E-01 | 4.880E+01 | 4.866E+01 | 3.497E+02 | 4.090E-06 | 3.104E-06 | 9.704E-02 |
| 110 | 2.41E-02 | 2.241E+02 | 2.232E+02 | 2.389E+02 | 8.761E-06 | -4.911E-08 | 1.06E-01 | 5.086E+01 | 5.072E+01 | 3.644E+02 | 3.765E-06 | 3.012E-06 | 9.441E-02 |
| 115 | 2.35E-02 | 2.221E+02 | 2.212E+02 | 2.368E+02 | 8.920E-06 | -6.771E-08 | 9.87E-02 | 5.286E+01 | 5.272E+01 | 3.787E+02 | 3.486E-06 | 2.917E-06 | 9.105E-02 |
| 120 | 2.26E-02 | 2.202E+02 | 2.193E+02 | 2.347E+02 | 9.076E-06 | -8.650E-08 | 9.10E-02 | 5.477E+01 | 5.463E+01 | 3.925E+02 | 3.246E-06 | 2.823E-06 | 8.701E-02 |
| 125 | 2.16E-02 | 2.184E+02 | 2.175E+02 | 2.328E+02 | 9.228E-06 | -1.053E-07 | 8.33E-02 | 5.660E+01 | 5.646E+01 | 4.055E+02 | 3.041E-06 | 2.733E-06 | 8.230E-02 |
| 130 | 2.03E-02 | 2.167E+02 | 2.158E+02 | 2.310E+02 | 9.374E-06 | -1.238E-07 | 7.56E-02 | 5.831E+01 | 5.817E+01 | 4.178E+02 | 2.865E-06 | 2.648E-06 | 7.696E-02 |
| 135 | 1.89E-02 | 2.151E+02 | 2.142E+02 | 2.293E+02 | 9.514E-06 | -1.417E-07 | 6.79E-02 | 5.990E+01 | 5.976E+01 | 4.292E+02 | 2.714E-06 | 2.570E-06 | 7.104E-02 |
| 140 | 1.73E-02 | 2.136E+02 | 2.127E+02 | 2.277E+02 | 9.644E-06 | -1.588E-07 | 6.03E-02 | 6.136E+01 | 6.122E+01 | 4.397E+02 | 2.587E-06 | 2.500E-06 | 6.458E-02 |
| 145 | 1.56E-02 | 2.123E+02 | 2.114E+02 | 2.263E+02 | 9.764E-06 | -1.748E-07 | 5.27E-02 | 6.268E+01 | 6.254E+01 | 4.491E+02 | 2.479E-06 | 2.439E-06 | 5.762E-02 |
| 150 | 1.36E-02 | 2.112E+02 | 2.102E+02 | 2.251E+02 | 9.871E-06 | -1.894E-07 | 4.51E-02 | 6.384E+01 | 6.370E+01 | 4.574E+02 | 2.390E-06 | 2.385E-06 | 5.023E-02 |
| 155 | 1.16E-02 | 2.102E+02 | 2.092E+02 | 2.240E+02 | 9.965E-06 | -2.023E-07 | 3.75E-02 | 6.484E+01 | 6.470E+01 | 4.645E+02 | 2.317E-06 | 2.340E-06 | 4.246E-02 |
| 160 | 9.40E-03 | 2.093E+02 | 2.084E+02 | 2.231E+02 | 1.004E-05 | -2.132E-07 | 3.00E-02 | 6.566E+01 | 6.552E+01 | 4.705E+02 | 2.259E-06 | 2.303E-06 | 3.436E-02 |
| 165 | 7.14E-03 | 2.087E+02 | 2.078E+02 | 2.224E+02 | 1.011E-05 | -2.220E-07 | 2.25E-02 | 6.631E+01 | 6.617E+01 | 4.751E+02 | 2.215E-06 | 2.275E-06 | 2.600E-02 |
| 170 | 4.80E-03 | 2.082E+02 | 2.073E+02 | 2.219E+02 | 1.015E-05 | -2.284E-07 | 1.50E-02 | 6.678F+01 | 6.664E+01 | 4.785E+02 | 2.184E-06 | 2.254E-06 | 1.745E-02 |
| 175 | 2.41E-03 | 2.079E+02 | 2.070E+02 | 2.216E+02 | 1.018E-05 | -2.323E-07 | 7.48E-03 | 6.706E+01 | 6.692E+01 | 4.805E+02 | 2.166E-06 | 2.242E-06 | 8.756E-03 |
| 180 | 0. | 2.078E+02 | 2.069E+02 | 2.215E+02 | 1.019E-05 | -2.336E-07 | 0. | 6.716E+01 | 6.702E+01 | 4.812E+02 | 2.160E-06 | 2.238E-06 | 0. |

LAMBDA => PROTON + PI MINUS AT 300 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.11559E+00 M2 = 9.38259E-01 M3 = 1.39569E-01
P2CM= 1.00466E-01
E2CM= 9.43623E-01 E3CM= 1.71967E-01

1-V1LAB= 6.914E-06 GCM = 2.68918E+02 S = 1.24454E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.808E+02 | 2.798E+02 | 2.992E+02 | 5.583E-06 | 1.280E-07 | 0. | 1.923E+01 | 1.909E+01 | 1.378E+02 | 2.634E-05 | -2.730E-05 | 0. |
| 1 | 3.58E-04 | 2.808E+02 | 2.798E+02 | 2.992E+02 | 5.584E-06 | 1.280E-07 | 5.22E-03 | 1.923E+01 | 1.909E+01 | 1.378E+02 | 2.633E-05 | -2.727E-05 | 1.753E-03 |
| 2 | 7.16E-04 | 2.808E+02 | 2.798E+02 | 2.992E+02 | 5.584E-06 | 1.280E-07 | 1.04E-02 | 1.924E+01 | 1.911E+01 | 1.379E+02 | 2.630E-05 | -2.719E-05 | 3.506E-03 |
| 3 | 1.07E-03 | 2.807E+02 | 2.798E+02 | 2.992E+02 | 5.585E-06 | 1.279E-07 | 1.56E-02 | 1.926E+01 | 1.913E+01 | 1.380E+02 | 2.624E-05 | -2.705E-05 | 5.258F-03 |
| 4 | 1.43E-03 | 2.807E+02 | 2.798E+02 | 2.992E+02 | 5.586E-06 | 1.278E-07 | 2.08E-02 | 1.929E+01 | 1.915E+01 | 1.382E+02 | 2.616E-05 | -2.686E-05 | 7.008E-03 |
| 5 | 1.79E-03 | 2.807E+02 | 2.797E+02 | 2.991E+02 | 5.588E-06 | 1.277E-07 | 2.60E-02 | 1.933E+01 | 1.919E+01 | 1.385E+02 | 2.606E-05 | -2.662E-05 | 8.756E-03 |
| 6 | 2.14E-03 | 2.806E+02 | 2.797E+02 | 2.991E+02 | 5.589E-06 | 1.276E-07 | 3.11E-02 | 1.938E+01 | 1.924E+01 | 1.388E+02 | 2.594E-05 | -2.633E-05 | 1.050E-02 |
| 7 | 2.50E-03 | 2.806E+02 | 2.796E+02 | 2.990E+02 | 5.591E-06 | 1.274E-07 | 3.61E-02 | 1.943E+01 | 1.929E+01 | 1.392E+02 | 2.580E-05 | -2.599E-05 | 1.224E-02 |
| 8 | 2.86E-03 | 2.805E+02 | 2.796E+02 | 2.990E+02 | 5.594E-06 | 1.273E-07 | 4.11E-02 | 1.949E+01 | 1.935E+01 | 1.397E+02 | 2.564E-05 | -2.560E-05 | 1.398E-02 |
| 9 | 3.21E-03 | 2.804E+02 | 2.795E+02 | 2.989E+02 | 5.597E-06 | 1.271E-07 | 4.60E-02 | 1.956E+01 | 1.942E+01 | 1.402E+02 | 2.546E-05 | -2.516E-05 | 1.572E-02 |
| 10 | 3.57E-03 | 2.804E+02 | 2.794E+02 | 2.988E+02 | 5.600E-06 | 1.268E-07 | 5.09E-02 | 1.964E+01 | 1.950E+01 | 1.407E+02 | 2.525E-05 | -2.469E-05 | 1.745E-02 |
| 15 | 5.32E-03 | 2.799E+02 | 2.789E+02 | 2.983E+02 | 5.620E-06 | 1.253E-07 | 7.39E-02 | 2.015E+01 | 2.001E+01 | 1.444E+02 | 2.399E-05 | -2.178E-05 | 2.600E-02 |
| 20 | 7.05E-03 | 2.791E+02 | 2.782E+02 | 2.975E+02 | 5.649E-06 | 1.232E-07 | 9.44E-02 | 2.086E+01 | 2.072E+01 | 1.494E+02 | 2.239E-05 | -1.829E-05 | 3.436E-02 |
| 25 | 8.74E-03 | 2.782E+02 | 2.773E+02 | 2.966E+02 | 5.686E-06 | 1.204E-07 | 1.12E-01 | 2.176E+01 | 2.162E+01 | 1.559E+02 | 2.057E-05 | -1.459E-05 | 4.246E-02 |
| 30 | 1.04E-02 | 2.772E+02 | 2.762E+02 | 2.954E+02 | 5.730E-06 | 1.170E-07 | 1.26E-01 | 2.285E+01 | 2.271F+01 | 1.637E+02 | 1.866E-05 | -1.103E-05 | 5.023E-02 |
| 35 | 1.20E-02 | 2.759E+02 | 2.749E+02 | 2.940E+02 | 5.783E-06 | 1.129E-07 | 1.37E-01 | 2.411E+01 | 2.397E+01 | 1.728E+02 | 1.675E-05 | -7.821E-06 | 5.762E-02 |
| 40 | 1.35E-02 | 2.745E+02 | 2.735E+02 | 2.925E+02 | 5.844E-06 | 1.081E-07 | 1.45E-01 | 2.555E+01 | 2.541E+01 | 1.831E+02 | 1.492E-05 | -5.089E-06 | 6.458E-02 |
| 45 | 1.49E-02 | 2.729E+02 | 2.719E+02 | 2.908E+02 | 5.912E-06 | 1.026E-07 | 1.50E-01 | 2.714E+01 | 2.700E+01 | 1.945E+02 | 1.322E-05 | -2.869E-06 | 7.104E-02 |
| 50 | 1.63E-02 | 2.711E+02 | 2.702E+02 | 2.890E+02 | 5.988E-06 | 9.629E-08 | 1.53E-01 | 2.888E+01 | 2.874E+01 | 2.069E+02 | 1.168E-05 | -1.135E-06 | 7.696E-02 |
| 55 | 1.75E-02 | 2.693E+02 | 2.683E+02 | 2.870E+02 | 6.071E-06 | 8.923E-08 | 1.53E-01 | 3.075E+01 | 3.061E+01 | 2.203E+02 | 1.030E-05 | 1.708F-07 | 8.230E-02 |
| 60 | 1.87E-02 | 2.673E+02 | 2.663E+02 | 2.849E+02 | 6.162E-06 | 8.137E-08 | 1.52E-01 | 3.274E+01 | 3.260E+01 | 2.346E+02 | 9.088E-06 | 1.120E-06 | 8.701E-02 |
| 65 | 1.97E-02 | 2.652E+02 | 2.642E+02 | 2.826E+02 | 6.260E-06 | 7.268E-08 | 1.50E-01 | 3.483E+01 | 3.469E+01 | 2.495E+02 | 8.030E-06 | 1.786E-06 | 9.105E-02 |
| 70 | 2.06E-02 | 2.630E+02 | 2.621E+02 | 2.803E+02 | 6.364E-06 | 6.315E-08 | 1.46E-01 | 3.700E+01 | 3.687E+01 | 2.651E+02 | 7.113E-06 | 2.231E-06 | 9.441E-02 |
| 75 | 2.13E-02 | 2.607E+02 | 2.598E+02 | 2.779E+02 | 6.474E-06 | 5.277E-08 | 1.42E-01 | 3.925E+01 | 3.911E+01 | 2.812E+02 | 6.321E-06 | 2.511E-06 | 9.704E-02 |
| 80 | 2.19E-02 | 2.584E+02 | 2.575E+02 | 2.755E+02 | 6.590E-06 | 4.156E-08 | 1.36E-01 | 4.155E+01 | 4.141E+01 | 2.977E+02 | 5.641E-06 | 2.671E-06 | 9.894E-02 |
| 85 | 2.24E-02 | 2.561E+02 | 2.552E+02 | 2.730E+02 | 6.711E-06 | 2.952E-08 | 1.31E-01 | 4.389E+01 | 4.375E+01 | 3.145E+02 | 5.056E-06 | 2.744E-06 | 1.001E-01 |
| 90 | 2.27E-02 | 2.538E+02 | 2.528E+02 | 2.705E+02 | 6.836E-06 | 1.669E-08 | 1.24E-01 | 4.624E+01 | 4.611E+01 | 3.313E+02 | 4.554E-06 | 2.757E-06 | 1.005E-01 |
| 95 | 2.28E-02 | 2.514E+02 | 2.505E+02 | 2.679E+02 | 6.964E-06 | 3.113E-09 | 1.18E-01 | 4.860E+01 | 4.846E+01 | 3.482E+02 | 4.124E-06 | 2.730E-06 | 1.001E-01 |
| 100 | 2.28E-02 | 2.491E+02 | 2.481E+02 | 2.655E+02 | 7.096E-06 | -1.114E-08 | 1.11E-01 | 5.094E+01 | 5.080E+01 | 3.650E+02 | 3.754E-06 | 2.677E-06 | 9.894E-02 |
| 105 | 2.25E-02 | 2.468E+02 | 2.458E+02 | 2.630E+02 | 7.229E-06 | -2.597E-08 | 1.04E-01 | 5.324E+01 | 5.310E+01 | 3.814E+02 | 3.436E-06 | 2.608E-06 | 9.704E-02 |
| 110 | 2.21E-02 | 2.445E+02 | 2.436E+02 | 2.606E+02 | 7.362E-06 | -4.127E-08 | 9.75E-02 | 5.549E+01 | 5.535E+01 | 3.975F+02 | 3.164E-06 | 2.531E-06 | 9.441E-02 |
| 115 | 2.15E-02 | 2.423E+02 | 2.414E+02 | 2.583E+02 | 7.495E-06 | -5.690E-08 | 9.05E-02 | 5.766E+01 | 5.752E+01 | 4.132E+02 | 2.929E-06 | 2.451E-06 | 9.105E-02 |
| 120 | 2.07E-02 | 2.402E+02 | 2.393E+02 | 2.561E+02 | 7.626E-06 | -7.269E-08 | 8.34E-02 | 5.975E+01 | 5.961E+01 | 4.281E+02 | 2.728E-06 | 2.372E-06 | 8.701E-02 |
| 125 | 1.98E-02 | 2.383E+02 | 2.373E+02 | 2.539E+02 | 7.754E-06 | -8.845E-08 | 7.64E-02 | 6.174E+01 | 6.160E+01 | 4.424E+02 | 2.555E-06 | 2.296E-06 | 8.230E-02 |
| 130 | 1.87E-02 | 2.364E+02 | 2.355E+02 | 2.519E+02 | 7.877E-06 | -1.040E-07 | 6.93E-02 | 6.361E+01 | 6.347E+01 | 4.558E+02 | 2.407E-06 | 2.225E-06 | 7.696E-02 |
| 135 | 1.73E-02 | 2.347E+02 | 2.337E+02 | 2.501E+02 | 7.994E-06 | -1.191E-07 | 6.23E-02 | 6.535E+01 | 6.521E+01 | 4.682E+02 | 2.281E-06 | 2.160E-06 | 7.104E-02 |
| 140 | 1.59E-02 | 2.331E+02 | 2.321E+02 | 2.484E+02 | 8.104E-06 | -1.334E-07 | 5.53E-02 | 6.694E+01 | 6.680E+01 | 4.796E+02 | 2.174E-06 | 2.101E-06 | 6.458E-02 |
| 145 | 1.43E-02 | 2.316E+02 | 2.307E+02 | 2.469E+02 | 8.204E-06 | -1.469E-07 | 4.83E-02 | 6.838E+01 | 6.824E+01 | 4.899E+02 | 2.083E-06 | 2.049E-06 | 5.762E-02 |
| 150 | 1.25E-02 | 2.304E+02 | 2.294E+02 | 2.455E+02 | 8.295E-06 | -1.591E-07 | 4.13E-02 | 6.964E+01 | 6.950E+01 | 4.990E+02 | 2.008E-06 | 2.004E-06 | 5.023E-02 |
| 155 | 1.06E-02 | 2.293E+02 | 2.283E+02 | 2.444E+02 | 8.374E-06 | -1.700E-07 | 3.44E-02 | 7.073E+01 | 7.059E+01 | 5.068E+02 | 1.947E-06 | 1.966E-06 | 4.246E-02 |
| 160 | 8.62E-03 | 2.284E+02 | 2.274E+02 | 2.434E+02 | 8.440E-06 | -1.792E-07 | 2.75E-02 | 7.163E+01 | 7.149E+01 | 5.132E+02 | 1.898E-06 | 1.935E-06 | 3.436E-02 |
| 165 | 6.54E-03 | 2.277E+02 | 2.267E+02 | 2.426E+02 | 8.493E-06 | -1.866E-07 | 2.06E-02 | 7.234E+01 | 7.220E+01 | 5.183E+02 | 1.861E-06 | 1.911E-06 | 2.600E-02 |
| 170 | 4.40E-03 | 2.271E+02 | 2.262E+02 | 2.421E+02 | 8.531E-06 | -1.919E-07 | 1.37E-02 | 7.285E+01 | 7.271E+01 | 5.220E+02 | 1.835E-06 | 1.894E-06 | 1.745E-02 |
| 175 | 2.21E-03 | 2.268E+02 | 2.259E+02 | 2.418E+02 | 8.554E-06 | -1.952E-07 | 6.86E-03 | 7.316E+01 | 7.302E+01 | 5.242E+02 | 1.820E-06 | 1.884E-06 | 8.756E-03 |
| 180 | 0. | 2.267E+02 | 2.258E+02 | 2.417E+02 | 8.562E-06 | -1.963E-07 | 0. | 7.326E+01 | 7.312E+01 | 5.249E+02 | 1.815E-06 | 1.881E-06 | 0. |

LAMBDA (1) => PROTON (2) + PI MINUS (3) AT 350 GEV/C P1 LAB

M1 = 1.11559E+00 M2 = 9.38259E-01 M3 = 1.39569E-01
P2CM= 1.00466E-01
E2CM= 9.43623E-01 E3CM= 1.71967E-01

1-V1LAB= 5.080E-06 GCM = 3.13737E+02 S = 1.24454E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 3.276E+02 | 3.266E+02 | 3.491E+02 | 4.102E-06 | 9.407E-08 | 0. | 2.243E+01 | 2.229E+01 | 1.607E+02 | 1.935E-05 | -2.006E-05 | 0. |
| 1 | 3.07E-04 | 3.276E+02 | 3.266E+02 | 3.491E+02 | 4.102E-06 | 9.406E-08 | 4.48E-03 | 2.244E+01 | 2.230E+01 | 1.608E+02 | 1.935E-05 | -2.004E-05 | 1.753E-03 |
| 2 | 6.13E-04 | 3.275E+02 | 3.266E+02 | 3.491E+02 | 4.103E-06 | 9.403E-08 | 8.95E-03 | 2.245E+01 | 2.231E+01 | 1.609E+02 | 1.932E-05 | -1.998E-05 | 3.506E-03 |
| 3 | 9.20E-04 | 3.275E+02 | 3.266E+02 | 3.491E+02 | 4.103E-06 | 9.399E-08 | 1.34E-02 | 2.248E+01 | 2.234E+01 | 1.610E+02 | 1.928E-05 | -1.988E-05 | 5.258E-03 |
| 4 | 1.23E-03 | 3.275E+02 | 3.266E+02 | 3.490E+02 | 4.104E-06 | 9.392E-08 | 1.78E-02 | 2.251E+01 | 2.237E+01 | 1.613E+02 | 1.922E-05 | -1.974E-05 | 7.008E-03 |
| 5 | 1.53E-03 | 3.274E+02 | 3.265E+02 | 3.490E+02 | 4.105E-06 | 9.385E-08 | 2.22E-02 | 2.255E+01 | 2.241E+01 | 1.616E+02 | 1.915E-05 | -1.956E-05 | 8.756E-03 |
| 6 | 1.84E-03 | 3.274E+02 | 3.265E+02 | 3.489E+02 | 4.106E-06 | 9.375E-08 | 2.66E-02 | 2.261E+01 | 2.247E+01 | 1.620E+02 | 1.906E-05 | -1.934E-05 | 1.050E-02 |
| 7 | 2.14E-03 | 3.273E+02 | 3.264E+02 | 3.489E+02 | 4.108E-06 | 9.363E-08 | 3.09E-02 | 2.267E+01 | 2.253E+01 | 1.624E+02 | 1.896E-05 | -1.909E-05 | 1.224E-02 |
| 8 | 2.45E-03 | 3.273E+02 | 3.263E+02 | 3.488E+02 | 4.110E-06 | 9.350E-08 | 3.52E-02 | 2.274E+01 | 2.260E+01 | 1.629E+02 | 1.884E-05 | -1.881E-05 | 1.398E-02 |
| 9 | 2.75E-03 | 3.272E+02 | 3.262E+02 | 3.487E+02 | 4.112E-06 | 9.335E-08 | 3.95E-02 | 2.282E+01 | 2.268E+01 | 1.635E+02 | 1.870E-05 | -1.849E-05 | 1.572E-02 |
| 10 | 3.06E-03 | 3.271E+02 | 3.262E+02 | 3.486E+02 | 4.114E-06 | 9.318E-08 | 4.36E-02 | 2.291E+01 | 2.277E+01 | 1.642E+02 | 1.855E-05 | -1.814E-05 | 1.745E-02 |
| 15 | 4.56E-03 | 3.265E+02 | 3.256E+02 | 3.480E+02 | 4.129E-06 | 9.207E-08 | 6.34E-02 | 2.351E+01 | 2.337E+01 | 1.684E+02 | 1.763E-05 | -1.600E-05 | 2.600E-02 |
| 20 | 6.05E-03 | 3.257E+02 | 3.247E+02 | 3.471E+02 | 4.150E-06 | 9.051E-08 | 8.09E-02 | 2.433E+01 | 2.419E+01 | 1.743E+02 | 1.645E-05 | -1.344E-05 | 3.436E-02 |
| 25 | 7.49E-03 | 3.246E+02 | 3.237E+02 | 3.460E+02 | 4.177E-06 | 8.847E-08 | 9.58E-02 | 2.539E+01 | 2.525E+01 | 1.819E+02 | 1.511E-05 | -1.072E-05 | 4.246E-02 |
| 30 | 8.90E-03 | 3.233E+02 | 3.224E+02 | 3.446E+02 | 4.210E-06 | 8.596E-08 | 1.08E-01 | 2.666E+01 | 2.652E+01 | 1.910E+02 | 1.371E-05 | -8.103E-06 | 5.023E-02 |
| 35 | 1.03E-02 | 3.219E+02 | 3.209E+02 | 3.430E+02 | 4.249E-06 | 8.295E-08 | 1.17E-01 | 2.813E+01 | 2.799E+01 | 2.016E+02 | 1.231E-05 | -5.746E-06 | 5.762E-02 |
| 40 | 1.16E-02 | 3.202E+02 | 3.193E+02 | 3.413E+02 | 4.293E-06 | 7.942E-08 | 1.24E-01 | 2.981E+01 | 2.967E+01 | 2.136E+02 | 1.096E-05 | -3.739E-06 | 6.458E-02 |
| 45 | 1.28E-02 | 3.183E+02 | 3.174E+02 | 3.393E+02 | 4.344E-06 | 7.536E-08 | 1.29E-01 | 3.166E+01 | 3.153E+01 | 2.269E+02 | 9.714E-06 | -2.108E-06 | 7.104E-02 |
| 50 | 1.39E-02 | 3.163E+02 | 3.154E+02 | 3.371E+02 | 4.399E-06 | 7.074E-08 | 1.31E-01 | 3.369E+01 | 3.355E+01 | 2.414E+02 | 8.580E-06 | -8.340E-07 | 7.696E-02 |
| 55 | 1.50E-02 | 3.141E+02 | 3.132E+02 | 3.348E+02 | 4.461E-06 | 6.556E-08 | 1.31E-01 | 3.587E+01 | 3.573E+01 | 2.570E+02 | 7.568E-06 | 1.255E-07 | 8.230E-02 |
| 60 | 1.60E-02 | 3.118E+02 | 3.109E+02 | 3.323E+02 | 4.527E-06 | 5.978E-08 | 1.31E-01 | 3.819E+01 | 3.805E+01 | 2.736E+02 | 6.677E-06 | 8.232E-07 | 8.701E-02 |
| 65 | 1.69E-02 | 3.094E+02 | 3.084E+02 | 3.297E+02 | 4.599E-06 | 5.339E-08 | 1.28E-01 | 4.063E+01 | 4.049E+01 | 2.911E+02 | 5.900E-06 | 1.312E-06 | 9.105E-02 |
| 70 | 1.76E-02 | 3.068E+02 | 3.059E+02 | 3.270E+02 | 4.675E-06 | 4.639E-08 | 1.25E-01 | 4.317E+01 | 4.303E+01 | 3.093E+02 | 5.226E-06 | 1.639E-06 | 9.441E-02 |
| 75 | 1.83E-02 | 3.042E+02 | 3.033E+02 | 3.242E+02 | 4.756E-06 | 3.877E-08 | 1.21E-01 | 4.579E+01 | 4.566E+01 | 3.281E+02 | 4.644E-06 | 1.845E-06 | 9.704E-02 |
| 80 | 1.88E-02 | 3.015E+02 | 3.006E+02 | 3.214E+02 | 4.841E-06 | 3.053E-08 | 1.17E-01 | 4.848E+01 | 4.834E+01 | 3.473E+02 | 4.144E-06 | 1.962E-06 | 9.894E-02 |
| 85 | 1.92E-02 | 2.988E+02 | 2.979E+02 | 3.185E+02 | 4.930E-06 | 2.169E-08 | 1.12E-01 | 5.121E+01 | 5.107E+01 | 3.669E+02 | 3.715E-06 | 2.016F-06 | 1.001E-01 |
| 90 | 1.94E-02 | 2.960E+02 | 2.951E+02 | 3.155E+02 | 5.022E-06 | 1.226E-08 | 1.07E-01 | 5.395E+01 | 5.381E+01 | 3.866E+02 | 3.346F-06 | 2.026E-06 | 1.005E-01 |
| 95 | 1.96E-02 | 2.933E+02 | 2.924E+02 | 3.126E+02 | 5.117E-06 | 2.287E-09 | 1.01E-01 | 5.670E+01 | 5.656E+01 | 4.062E+02 | 3.030E-06 | 2.006E-06 | 1.001E-01 |
| 100 | 1.95E-02 | 2.906E+02 | 2.896E+02 | 3.097E+02 | 5.213E-06 | -8.182E-09 | 9.54E-02 | 5.943E+01 | 5.929E+01 | 4.258E+02 | 2.758E-06 | 1.967E-06 | 9.894E-02 |
| 105 | 1.93E-02 | 2.879E+02 | 2.870E+02 | 3.068E+02 | 5.311E-06 | -1.908E-08 | 8.95E-02 | 6.211E+01 | 6.197E+01 | 4.450E+02 | 2.525E-06 | 1.916E-06 | 9.704E-02 |
| 110 | 1.90E-02 | 2.853E+02 | 2.843E+02 | 3.040E+02 | 5.409E-06 | -3.032E-08 | 8.36E-02 | 6.473E+01 | 6.459E+01 | 4.638E+02 | 2.324E-06 | 1.859E-06 | 9.441E-02 |
| 115 | 1.85E-02 | 2.827E+02 | 2.818E+02 | 3.013E+02 | 5.507E-06 | -4.180E-08 | 7.75E-02 | 6.727E+01 | 6.713E+01 | 4.820E+02 | 2.152E-06 | 1.801E-06 | 9.105E-02 |
| 120 | 1.78E-02 | 2.803E+02 | 2.794E+02 | 2.987E+02 | 5.603E-06 | -5.340E-08 | 7.15E-02 | 6.971E+01 | 6.957E+01 | 4.995E+02 | 2.004E-06 | 1.743E-06 | 8.701E-02 |
| 125 | 1.70E-02 | 2.780E+02 | 2.770E+02 | 2.963E+02 | 5.697E-06 | -6.499E-08 | 6.55E-02 | 7.203E+01 | 7.189E+01 | 5.161E+02 | 1.877E-06 | 1.687E-06 | 8.230E-02 |
| 130 | 1.60E-02 | 2.758E+02 | 2.749E+02 | 2.939E+02 | 5.787E-06 | -7.640E-08 | 5.94E-02 | 7.421E+01 | 7.407E+01 | 5.317E+02 | 1.768E-06 | 1.635E-06 | 7.696E-02 |
| 135 | 1.49E-02 | 2.738E+02 | 2.728E+02 | 2.918E+02 | 5.873E-06 | -8.748E-08 | 5.34E-02 | 7.624E+01 | 7.610E+01 | 5.463E+02 | 1.676E-06 | 1.587E-06 | 7.104E-02 |
| 140 | 1.36E-02 | 2.719E+02 | 2.710E+02 | 2.898E+02 | 5.954E-06 | -9.804E-08 | 4.74E-02 | 7.810E+01 | 7.796E+01 | 5.596E+02 | 1.597E-06 | 1.544E-06 | 6.458E-02 |
| 145 | 1.22E-02 | 2.702E+02 | 2.693E+02 | 2.880E+02 | 6.028E-06 | -1.079E-07 | 4.14E-02 | 7.977E+01 | 7.963E+01 | 5.716E+02 | 1.531E-06 | 1.505E-06 | 5.762E-02 |
| 150 | 1.07E-02 | 2.688E+02 | 2.678E+02 | 2.864E+02 | 6.094E-06 | -1.169E-07 | 3.54E-02 | 8.125E+01 | 8.111E+01 | 5.821E+02 | 1.475E-06 | 1.472E-06 | 5.023E-02 |
| 155 | 9.09E-03 | 2.675E+02 | 2.665E+02 | 2.851E+02 | 6.152E-06 | -1.249E-07 | 2.95E-02 | 8.252E+01 | 8.238E+01 | 5.912E+02 | 1.430E-06 | 1.445E-06 | 4.246E-02 |
| 160 | 7.39E-03 | 2.664E+02 | 2.655E+02 | 2.840E+02 | 6.201E-06 | -1.316E-07 | 2.36E-02 | 8.357E+01 | 8.343E+01 | 5.988E+02 | 1.395E-06 | 1.422E-06 | 3.436E-02 |
| 165 | 5.61E-03 | 2.656E+02 | 2.647E+02 | 2.831E+02 | 6.239E-06 | -1.371E-07 | 1.77E-02 | 8.440E+01 | 8.426E+01 | 6.047E+02 | 1.367E-06 | 1.404E-06 | 2.600E-02 |
| 170 | 3.77E-03 | 2.650E+02 | 2.641E+02 | 2.824E+02 | 6.268E-06 | -1.410E-07 | 1.18E-02 | 8.499E+01 | 8.485E+01 | 6.090E+02 | 1.348E-06 | 1.392E-06 | 1.745E-02 |
| 175 | 1.90E-03 | 2.646E+02 | 2.637E+02 | 2.821E+02 | 6.285E-06 | -1.434E-07 | 5.88E-03 | 8.535E+01 | 8.521E+01 | 6.115E+02 | 1.337E-06 | 1.384E-06 | 8.756E-03 |
| 180 | 0. | 2.645E+02 | 2.636E+02 | 2.819E+02 | 6.290E-06 | -1.442E-07 | 0. | 8.547E+01 | 8.533E+01 | 6.124E+02 | 1.333E-06 | 1.382E-06 | 0. |

LAMBDA => PROTON + PI MINUS AT 400 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.11559E+00 M2 = 9.38259E-01 M3 = 1.39569E-01
P2CM= 1.00466E-01
E2CM= 9.43623E-01 E3CM= 1.71967E-01

1-V1LAB= 3.889E-06 GCM = 3.58556E+02 S = 1.24454E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 3.744E+02 | 3.734E+02 | 3.990E+02 | 3.141E-06 | 7.202E-08 | 0. | 2.564E+01 | 2.550E+01 | 1.837E+02 | 1.482E-05 | -1.536E-05 | 0. |
| 1 | 2.68E-04 | 3.744E+02 | 3.734E+02 | 3.990E+02 | 3.141E-06 | 7.201E-08 | 3.92E-03 | 2.564E+01 | 2.550E+01 | 1.837E+02 | 1.481E-05 | -1.534E-05 | 1.753E-03 |
| 2 | 5.37E-04 | 3.743E+02 | 3.734E+02 | 3.990E+02 | 3.141E-06 | 7.199E-08 | 7.83E-03 | 2.566E+01 | 2.552E+01 | 1.838E+02 | 1.479E-05 | -1.529E-05 | 3.506E-03 |
| 3 | 8.05E-04 | 3.743E+02 | 3.734E+02 | 3.989E+02 | 3.142E-06 | 7.196E-08 | 1.17E-02 | 2.569E+01 | 2.555E+01 | 1.840E+02 | 1.476E-05 | -1.522E-05 | 5.258E-03 |
| 4 | 1.07E-03 | 3.743E+02 | 3.733E+02 | 3.989E+02 | 3.142E-06 | 7.191E-08 | 1.56E-02 | 2.572E+01 | 2.559E+01 | 1.843E+02 | 1.472E-05 | -1.511E-05 | 7.008E-03 |
| 5 | 1.34E-03 | 3.742E+02 | 3.733E+02 | 3.989E+02 | 3.143E-06 | 7.185E-08 | 1.95E-02 | 2.577E+01 | 2.564E+01 | 1.847E+02 | 1.466E-05 | -1.497E-05 | 8.756E-03 |
| 6 | 1.61E-03 | 3.742E+02 | 3.732E+02 | 3.988E+02 | 3.144E-06 | 7.178E-08 | 2.33E-02 | 2.583E+01 | 2.570E+01 | 1.851E+02 | 1.459E-05 | -1.481E-05 | 1.050E-02 |
| 7 | 1.88E-03 | 3.741E+02 | 3.732E+02 | 3.987E+02 | 3.145E-06 | 7.169E-08 | 2.71E-02 | 2.591E+01 | 2.577E+01 | 1.856E+02 | 1.451E-05 | -1.462E-05 | 1.224E-02 |
| 8 | 2.14E-03 | 3.740E+02 | 3.731E+02 | 3.986E+02 | 3.147E-06 | 7.159E-08 | 3.08E-02 | 2.599E+01 | 2.585E+01 | 1.862E+02 | 1.442E-05 | -1.440E-05 | 1.398E-02 |
| 9 | 2.41E-03 | 3.739E+02 | 3.730E+02 | 3.985E+02 | 3.148E-06 | 7.147E-08 | 3.45E-02 | 2.608E+01 | 2.594E+01 | 1.869E+02 | 1.432E-05 | -1.415E-05 | 1.572E-02 |
| 10 | 2.67E-03 | 3.738E+02 | 3.729E+02 | 3.984E+02 | 3.150E-06 | 7.134E-08 | 3.82E-02 | 2.618E+01 | 2.605E+01 | 1.876E+02 | 1.421E-05 | -1.389E-05 | 1.745E-02 |
| 15 | 3.99E-03 | 3.731E+02 | 3.722E+02 | 3.977E+02 | 3.161E-06 | 7.049E-08 | 5.55E-02 | 2.686E+01 | 2.673E+01 | 1.925E+02 | 1.350E-05 | -1.225E-05 | 2.600E-02 |
| 20 | 5.29E-03 | 3.722E+02 | 3.713E+02 | 3.967E+02 | 3.177E-06 | 6.929E-08 | 7.08E-02 | 2.781E+01 | 2.767E+01 | 1.993E+02 | 1.259E-05 | -1.029E-05 | 3.436E-02 |
| 25 | 6.56E-03 | 3.710E+02 | 3.701E+02 | 3.954E+02 | 3.198E-06 | 6.774E-08 | 8.39E-02 | 2.901E+01 | 2.887E+01 | 2.079E+02 | 1.157E-05 | -8.209E-06 | 4.246E-02 |
| 30 | 7.79E-03 | 3.695E+02 | 3.686E+02 | 3.939E+02 | 3.223E-06 | 6.581E-08 | 9.45E-02 | 3.046E+01 | 3.032E+01 | 2.183E+02 | 1.050E-05 | -6.204E-06 | 5.023E-02 |
| 35 | 8.98E-03 | 3.678E+02 | 3.669E+02 | 3.921E+02 | 3.253E-06 | 6.351E-08 | 1.03E-01 | 3.215E+01 | 3.201E+01 | 2.304E+02 | 9.422E-06 | -4.399E-06 | 5.762E-02 |
| 40 | 1.01E-02 | 3.659E+02 | 3.650E+02 | 3.900E+02 | 3.287E-06 | 6.061E-08 | 1.09E-01 | 3.406E+01 | 3.393E+01 | 2.441E+02 | 8.393E-06 | -2.863E-06 | 6.458E-02 |
| 45 | 1.12E-02 | 3.638E+02 | 3.629E+02 | 3.878E+02 | 3.326E-06 | 5.770E-08 | 1.12E-01 | 3.619E+01 | 3.605E+01 | 2.593E+02 | 7.437E-06 | -1.614E-06 | 7.104E-02 |
| 50 | 1.22E-02 | 3.615E+02 | 3.606E+02 | 3.853E+02 | 3.368E-06 | 5.416E-08 | 1.15E-01 | 3.850E+01 | 3.837E+01 | 2.759E+02 | 6.569E-06 | -6.385E-07 | 7.696E-02 |
| 55 | 1.31E-02 | 3.590E+02 | 3.581E+02 | 3.826E+02 | 3.415E-06 | 5.019E-08 | 1.15E-01 | 4.100E+01 | 4.086E+01 | 2.938E+02 | 5.794E-06 | 9.608E-08 | 8.230E-02 |
| 60 | 1.40E-02 | 3.564E+02 | 3.554E+02 | 3.798E+02 | 3.466E-06 | 4.577E-08 | 1.14E-01 | 4.365E+01 | 4.351E+01 | 3.127E+02 | 5.112E-06 | 6.303E-07 | 8.701E-02 |
| 65 | 1.48E-02 | 3.536E+02 | 3.526E+02 | 3.768E+02 | 3.521E-06 | 4.088E-08 | 1.12E-01 | 4.644E+01 | 4.630E+01 | 3.327E+02 | 4.517E-06 | 1.004E-06 | 9.105E-02 |
| 70 | 1.54E-02 | 3.507E+02 | 3.497E+02 | 3.737E+02 | 3.580E-06 | 3.552E-08 | 1.10E-01 | 4.934E+01 | 4.920E+01 | 3.535E+02 | 4.001E-06 | 1.255E-06 | 9.441E-02 |
| 75 | 1.60E-02 | 3.477E+02 | 3.467E+02 | 3.705E+02 | 3.642E-06 | 2.969E-08 | 1.06E-01 | 5.234E+01 | 5.220E+01 | 3.750E+02 | 3.556E-06 | 1.413E-06 | 9.704E-02 |
| 80 | 1.65E-02 | 3.446E+02 | 3.437E+02 | 3.673E+02 | 3.707E-06 | 2.338E-08 | 1.02E-01 | 5.540E+01 | 5.527E+01 | 3.970E+02 | 3.173E-06 | 1.502E-06 | 9.894E-02 |
| 85 | 1.68E-02 | 3.415E+02 | 3.405E+02 | 3.640E+02 | 3.775E-06 | 1.661E-08 | 9.80E-02 | 5.852E+01 | 5.838E+01 | 4.193E+02 | 2.844E-06 | 1.544E-06 | 1.001E-01 |
| 90 | 1.70E-02 | 3.383E+02 | 3.374E+02 | 3.606E+02 | 3.845E-06 | 9.387E-09 | 9.34E-02 | 6.166E+01 | 6.152E+01 | 4.418E+02 | 2.562E-06 | 1.551E-06 | 1.005E-01 |
| 95 | 1.71E-02 | 3.352E+02 | 3.343E+02 | 3.573E+02 | 3.917E-06 | 1.751E-09 | 8.85E-02 | 6.480E+01 | 6.466E+01 | 4.643E+02 | 2.320E-06 | 1.536E-06 | 1.001E-01 |
| 100 | 1.71E-02 | 3.321E+02 | 3.311E+02 | 3.539E+02 | 3.991E-06 | -6.264E-09 | 8.35E-02 | 6.792E+01 | 6.778E+01 | 4.866E+02 | 2.112E-06 | 1.506E-06 | 9.894E-02 |
| 105 | 1.69E-02 | 3.290E+02 | 3.281E+02 | 3.507E+02 | 4.066E-06 | -1.461E-08 | 7.83E-02 | 7.098E+01 | 7.084E+01 | 5.086E+02 | 1.933E-06 | 1.467E-06 | 9.704E-02 |
| 110 | 1.66E-02 | 3.260E+02 | 3.251E+02 | 3.475E+02 | 4.141E-06 | -2.321E-08 | 7.31E-02 | 7.398E+01 | 7.384E+01 | 5.301E+02 | 1.780E-06 | 1.424E-06 | 9.441E-02 |
| 115 | 1.61E-02 | 3.231E+02 | 3.222E+02 | 3.444E+02 | 4.216E-06 | -3.200E-08 | 6.79E-02 | 7.688E+01 | 7.674E+01 | 5.509E+02 | 1.648E-06 | 1.379E-06 | 9.105E-02 |
| 120 | 1.56E-02 | 3.203E+02 | 3.194E+02 | 3.414E+02 | 4.290E-06 | -4.089E-08 | 6.26E-02 | 7.967E+01 | 7.953E+01 | 5.708E+02 | 1.534E-06 | 1.334E-06 | 8.701E-02 |
| 125 | 1.48E-02 | 3.177E+02 | 3.167E+02 | 3.386E+02 | 4.362E-06 | -4.976E-08 | 5.73E-02 | 8.232E+01 | 8.218E+01 | 5.898E+02 | 1.437E-06 | 1.292E-06 | 8.230E-02 |
| 130 | 1.40E-02 | 3.152E+02 | 3.142E+02 | 3.359E+02 | 4.431E-06 | -5.849E-08 | 5.20E-02 | 8.481E+01 | 8.468E+01 | 6.077E+02 | 1.354E-06 | 1.252E-06 | 7.696E-02 |
| 135 | 1.30E-02 | 3.129E+02 | 3.119E+02 | 3.335E+02 | 4.497E-06 | -6.698E-08 | 4.67E-02 | 8.713E+01 | 8.699E+01 | 6.243E+02 | 1.283E-06 | 1.215E-06 | 7.104E-02 |
| 140 | 1.19E-02 | 3.107E+02 | 3.098E+02 | 3.312E+02 | 4.558E-06 | -7.507E-08 | 4.15E-02 | 8.925E+01 | 8.912E+01 | 6.395E+02 | 1.223E-06 | 1.182E-06 | 6.458E-02 |
| 145 | 1.07E-02 | 3.088E+02 | 3.079E+02 | 3.292E+02 | 4.615E-06 | -8.263E-08 | 3.62E-02 | 9.117E+01 | 9.103E+01 | 6.532E+02 | 1.172E-06 | 1.153E-06 | 5.762E-02 |
| 150 | 9.37E-03 | 3.071E+02 | 3.062E+02 | 3.274E+02 | 4.666E-06 | -8.952E-08 | 3.10E-02 | 9.286E+01 | 9.272E+01 | 6.653E+02 | 1.130E-06 | 1.127E-06 | 5.023E-02 |
| 155 | 7.96E-03 | 3.057E+02 | 3.048E+02 | 3.258E+02 | 4.710E-06 | -9.562E-08 | 2.58E-02 | 9.431E+01 | 9.417E+01 | 6.757E+02 | 1.095E-06 | 1.106E-06 | 4.246E-02 |
| 160 | 6.47E-03 | 3.045E+02 | 3.036E+02 | 3.245E+02 | 4.748E-06 | -1.008E-07 | 2.06E-02 | 9.551E+01 | 9.537E+01 | 6.843E+02 | 1.068E-06 | 1.089E-06 | 3.436E-02 |
| 165 | 4.91E-03 | 3.035E+02 | 3.026E+02 | 3.235E+02 | 4.777E-06 | -1.049E-07 | 1.54E-02 | 9.645E+01 | 9.632E+01 | 6.911E+02 | 1.047E-06 | 1.075E-06 | 2.600E-02 |
| 170 | 3.30E-03 | 3.029E+02 | 3.019E+02 | 3.228E+02 | 4.799E-06 | -1.080E-07 | 1.03E-02 | 9.713E+01 | 9.700E+01 | 6.960E+02 | 1.032E-06 | 1.065E-06 | 1.745E-02 |
| 175 | 1.66E-03 | 3.025E+02 | 3.015E+02 | 3.224E+02 | 4.812E-06 | -1.098E-07 | 5.14E-03 | 9.755E+01 | 9.741E+01 | 6.989E+02 | 1.024E-06 | 1.060E-06 | 8.756E-03 |
| 180 | 0. | 3.023E+02 | 3.014E+02 | 3.222E+02 | 4.816E-06 | -1.104E-07 | 0. | 9.768E+01 | 9.754E+01 | 6.999E+02 | 1.021E-06 | 1.058E-06 | 0. |

LAMBDA (1) => PROTON (2) + PI MINUS (3) AT 450 GEV/C P1 LAB

M1 = 1.11559E+00 M2 = 9.38259E-01 M3 = 1.39569E-01
P2CM= 1.00466E-01
E2CM= 9.43623E-01 E3CM= 1.71967E-01

1-V1LAB= 3.073E-06 GCM = 4.03375E+02 S = 1.24454E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 4.212E+02 | 4.202E+02 | 4.489E+02 | 2.482E-06 | 5.690E-08 | 0. | 2.884E+01 | 2.870E+01 | 2.067E+02 | 1.171E-05 | -1.213E-05 | 0. |
| 1 | 2.39E-04 | 4.212E+02 | 4.202E+02 | 4.489E+02 | 2.482E-06 | 5.690E-08 | 3.48E-03 | 2.885E+01 | 2.871E+01 | 2.067E+02 | 1.170E-05 | -1.212E-05 | 1.753E-03 |
| 2 | 4.77E-04 | 4.211E+02 | 4.202E+02 | 4.488E+02 | 2.482E-06 | 5.688E-08 | 6.96E-03 | 2.887E+01 | 2.873E+01 | 2.068E+02 | 1.169E-05 | -1.208E-05 | 3.506E-03 |
| 3 | 7.15E-04 | 4.211E+02 | 4.202E+02 | 4.488E+02 | 2.482E-06 | 5.686E-08 | 1.04E-02 | 2.890E+01 | 2.876E+01 | 2.071E+02 | 1.166E-05 | -1.202E-05 | 5.258E-03 |
| 4 | 9.54E-04 | 4.211E+02 | 4.201E+02 | 4.488E+02 | 2.483E-06 | 5.682E-08 | 1.39E-02 | 2.894E+01 | 2.880E+01 | 2.074E+02 | 1.163E-05 | -1.194E-05 | 7.008E-03 |
| 5 | 1.19E-03 | 4.210E+02 | 4.201E+02 | 4.487E+02 | 2.483E-06 | 5.677E-08 | 1.73E-02 | 2.900E+01 | 2.886E+01 | 2.078E+02 | 1.158E-05 | -1.183E-05 | 8.756E-03 |
| 6 | 1.43E-03 | 4.209E+02 | 4.200E+02 | 4.486E+02 | 2.484E-06 | 5.671E-08 | 2.07E-02 | 2.906E+01 | 2.892E+01 | 2.082E+02 | 1.153E-05 | -1.170E-05 | 1.050E-02 |
| 7 | 1.67E-03 | 4.209E+02 | 4.199E+02 | 4.486E+02 | 2.485E-06 | 5.664E-08 | 2.41E-02 | 2.914E+01 | 2.900E+01 | 2.088E+02 | 1.147E-05 | -1.155E-05 | 1.224E-02 |
| 8 | 1.90E-03 | 4.208E+02 | 4.198E+02 | 4.485E+02 | 2.486E-06 | 5.656E-08 | 2.74E-02 | 2.924E+01 | 2.910E+01 | 2.095E+02 | 1.139E-05 | -1.138E-05 | 1.398E-02 |
| 9 | 2.14E-03 | 4.207E+02 | 4.197E+02 | 4.483E+02 | 2.487E-06 | 5.647E-08 | 3.07E-02 | 2.934E+01 | 2.920E+01 | 2.102E+02 | 1.131E-05 | -1.118E-05 | 1.572E-02 |
| 10 | 2.38E-03 | 4.205E+02 | 4.196E+02 | 4.482E+02 | 2.489E-06 | 5.637E-08 | 3.39E-02 | 2.946E+01 | 2.932E+01 | 2.111E+02 | 1.122E-05 | -1.097E-05 | 1.745E-02 |
| 15 | 3.55E-03 | 4.198E+02 | 4.188E+02 | 4.474E+02 | 2.498E-06 | 5.570E-08 | 4.93E-02 | 3.022E+01 | 3.008E+01 | 2.165E+02 | 1.066E-05 | -9.681E-06 | 2.600E-02 |
| 20 | 4.70E-03 | 4.187E+02 | 4.178E+02 | 4.463E+02 | 2.511E-06 | 5.475E-08 | 6.29E-02 | 3.129E+01 | 3.115E+01 | 2.242E+02 | 9.950E-06 | -8.128E-06 | 3.436E-02 |
| 25 | 5.83E-03 | 4.174E+02 | 4.164E+02 | 4.448E+02 | 2.527E-06 | 5.352E-08 | 7.45E-02 | 3.264E+01 | 3.250E+01 | 2.339E+02 | 9.143E-06 | -6.486E-06 | 4.246E-02 |
| 30 | 6.92E-03 | 4.157E+02 | 4.148E+02 | 4.431E+02 | 2.547E-06 | 5.200E-08 | 8.40E-02 | 3.427E+01 | 3.413E+01 | 2.456E+02 | 8.292E-06 | -4.902E-06 | 5.023E-02 |
| 35 | 7.98E-03 | 4.138E+02 | 4.129E+02 | 4.411E+02 | 2.570E-06 | 5.018E-08 | 9.13E-02 | 3.617E+01 | 3.603E+01 | 2.592E+02 | 7.444E-06 | -3.476E-06 | 5.762E-02 |
| 40 | 8.99E-03 | 4.117E+02 | 4.107E+02 | 4.388E+02 | 2.597E-06 | 4.804E-08 | 9.65E-02 | 3.832E+01 | 3.818E+01 | 2.746E+02 | 6.632E-06 | -2.262E-06 | 6.458E-02 |
| 45 | 9.94E-03 | 4.093E+02 | 4.084E+02 | 4.362E+02 | 2.628E-06 | 4.559E-08 | 1.00E-01 | 4.071E+01 | 4.057E+01 | 2.917E+02 | 5.876E-06 | -1.275E-06 | 7.104E-02 |
| 50 | 1.08E-02 | 4.067E+02 | 4.057E+02 | 4.334E+02 | 2.661E-06 | 4.280E-08 | 1.02E-01 | 4.332E+01 | 4.318E+01 | 3.104E+02 | 5.190E-06 | -5.045E-07 | 7.696E-02 |
| 55 | 1.17E-02 | 4.039E+02 | 4.029E+02 | 4.305E+02 | 2.698E-06 | 3.966E-08 | 1.02E-01 | 4.612E+01 | 4.598E+01 | 3.305E+02 | 4.578E-06 | 7.591E-08 | 8.230E-02 |
| 60 | 1.24E-02 | 4.009E+02 | 4.000E+02 | 4.273E+02 | 2.739E-06 | 3.616E-08 | 1.02E-01 | 4.910E+01 | 4.897E+01 | 3.518E+02 | 4.039E-06 | 4.980E-07 | 8.701E-02 |
| 65 | 1.31E-02 | 3.978E+02 | 3.968E+02 | 4.239E+02 | 2.782E-06 | 3.230E-08 | 9.99E-02 | 5.224E+01 | 5.210E+01 | 3.743E+02 | 3.569E-06 | 7.936E-07 | 9.105E-02 |
| 70 | 1.37E-02 | 3.945E+02 | 3.936E+02 | 4.205E+02 | 2.828E-06 | 2.807E-08 | 9.74E-02 | 5.551E+01 | 5.537E+01 | 3.977E+02 | 3.161E-06 | 9.916E-07 | 9.441E-02 |
| 75 | 1.42E-02 | 3.911E+02 | 3.902E+02 | 4.169E+02 | 2.877E-06 | 2.346E-08 | 9.44E-02 | 5.888E+01 | 5.874E+01 | 4.219E+02 | 2.810E-06 | 1.116E-06 | 9.704E-02 |
| 80 | 1.46E-02 | 3.877E+02 | 3.867E+02 | 4.132E+02 | 2.929E-06 | 1.847E-08 | 9.09E-02 | 6.233E+01 | 6.219E+01 | 4.466E+02 | 2.507E-06 | 1.187E-06 | 9.894E-02 |
| 85 | 1.49E-02 | 3.842E+02 | 3.832E+02 | 4.094E+02 | 2.982E-06 | 1.312E-08 | 8.71E-02 | 6.584E+01 | 6.570E+01 | 4.717E+02 | 2.247E-06 | 1.220E-06 | 1.001E-01 |
| 90 | 1.51E-02 | 3.806E+02 | 3.797E+02 | 4.057E+02 | 3.038E-06 | 7.417E-09 | 8.30E-02 | 6.937E+01 | 6.923E+01 | 4.970E+02 | 2.024E-06 | 1.225E-06 | 1.005E-01 |
| 95 | 1.52E-02 | 3.771E+02 | 3.762E+02 | 4.019E+02 | 3.095E-06 | 1.384E-09 | 7.87E-02 | 7.290E+01 | 7.276E+01 | 5.223E+02 | 1.833E-06 | 1.213E-06 | 1.001E-01 |
| 100 | 1.52E-02 | 3.736E+02 | 3.727E+02 | 3.982E+02 | 3.154E-06 | -4.950E-09 | 7.42E-02 | 7.640E+01 | 7.626E+01 | 5.474E+02 | 1.668E-06 | 1.190E-06 | 9.894E-02 |
| 105 | 1.50E-02 | 3.701E+02 | 3.692E+02 | 3.945E+02 | 3.213E-06 | -1.154E-08 | 6.96E-02 | 7.986E+01 | 7.972E+01 | 5.722E+02 | 1.527E-06 | 1.159E-06 | 9.704E-02 |
| 110 | 1.47E-02 | 3.668E+02 | 3.658E+02 | 3.909E+02 | 3.272E-06 | -1.834E-08 | 6.50E-02 | 8.323E+01 | 8.309E+01 | 5.963E+02 | 1.406E-06 | 1.125E-06 | 9.441E-02 |
| 115 | 1.44E-02 | 3.635E+02 | 3.626E+02 | 3.874E+02 | 3.331E-06 | -2.529E-08 | 6.03E-02 | 8.649E+01 | 8.635E+01 | 6.197E+02 | 1.302E-06 | 1.089E-06 | 9.105E-02 |
| 120 | 1.38E-02 | 3.604E+02 | 3.594E+02 | 3.841E+02 | 3.389E-06 | -3.231E-08 | 5.56E-02 | 8.963E+01 | 8.949E+01 | 6.422E+02 | 1.212E-06 | 1.054E-06 | 8.701E-02 |
| 125 | 1.32E-02 | 3.574E+02 | 3.565E+02 | 3.809E+02 | 3.446E-06 | -3.931E-08 | 5.09E-02 | 9.261E+01 | 9.247E+01 | 6.636E+02 | 1.136E-06 | 1.021E-06 | 8.230E-02 |
| 130 | 1.24E-02 | 3.546E+02 | 3.536E+02 | 3.779E+02 | 3.501E-06 | -4.622E-08 | 4.62E-02 | 9.542E+01 | 9.528E+01 | 6.837E+02 | 1.070E-06 | 9.889E-07 | 7.696E-02 |
| 135 | 1.16E-02 | 3.520E+02 | 3.510E+02 | 3.751E+02 | 3.553E-06 | -5.292E-08 | 4.15E-02 | 9.802E+01 | 9.788E+01 | 7.023E+02 | 1.014E-06 | 9.599E-07 | 7.104E-02 |
| 140 | 1.06E-02 | 3.496E+02 | 3.487E+02 | 3.726E+02 | 3.602E-06 | -5.931E-08 | 3.68E-02 | 1.004E+02 | 1.003E+02 | 7.194E+02 | 9.660E-07 | 9.338E-07 | 6.458E-02 |
| 145 | 9.50E-03 | 3.474E+02 | 3.465E+02 | 3.703E+02 | 3.646E-06 | -6.528E-08 | 3.22E-02 | 1.026E+02 | 1.024E+02 | 7.349E+02 | 9.259E-07 | 9.107E-07 | 5.762E-02 |
| 150 | 8.33E-03 | 3.455E+02 | 3.446E+02 | 3.683E+02 | 3.687E-06 | -7.073E-08 | 2.76E-02 | 1.045E+02 | 1.043E+02 | 7.485E+02 | 8.925E-07 | 8.907E-07 | 5.023E-02 |
| 155 | 7.07E-03 | 3.439E+02 | 3.430E+02 | 3.665E+02 | 3.722E-06 | -7.555E-08 | 2.29E-02 | 1.061E+02 | 1.060E+02 | 7.602E+02 | 8.653E-07 | 8.738E-07 | 4.246E-02 |
| 160 | 5.75E-03 | 3.426E+02 | 3.416E+02 | 3.651E+02 | 3.751E-06 | -7.964E-08 | 1.83E-02 | 1.074E+02 | 1.073E+02 | 7.699E+02 | 8.436E-07 | 8.601E-07 | 3.436E-02 |
| 165 | 4.36E-03 | 3.415E+02 | 3.406E+02 | 3.640E+02 | 3.775E-06 | -8.292E-08 | 1.37E-02 | 1.085E+02 | 1.084E+02 | 7.775E+02 | 8.272E-07 | 8.494E-07 | 2.600E-02 |
| 170 | 2.93E-03 | 3.407E+02 | 3.398E+02 | 3.631E+02 | 3.791E-06 | -8.531E-08 | 9.15E-03 | 1.093E+02 | 1.091E+02 | 7.830E+02 | 8.156E-07 | 8.418E-07 | 1.745E-02 |
| 175 | 1.47E-03 | 3.403E+02 | 3.393E+02 | 3.627E+02 | 3.802E-06 | -8.677E-08 | 4.57E-03 | 1.097E+02 | 1.096E+02 | 7.863E+02 | 8.088E-07 | 8.373E-07 | 8.756E-03 |
| 180 | 0. | 3.401E+02 | 3.392E+02 | 3.625E+02 | 3.805E-06 | -8.726E-08 | 0. | 1.099E+02 | 1.098E+02 | 7.874E+02 | 8.065E-07 | 8.358E-07 | 0. |

LAMBDA (1) => PROTON (2) + PI MINUS (3) AT 500 GEV/C P1 LAB

M1 = 1.11559E+00 M2 = 9.38259E-01 M3 = 1.39569E-01
P2CM= 1.00466E-01
E2CM= 9.43623E-01 E3CM= 1.71967E-01

1-V1LAB= 2.489E-06 GCM = 4.48194E+02 S = 1.24454E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 4.680E+02 | 4.670E+02 | 4.987E+02 | 2.010E-06 | 4.609E-08 | 0. | 3.205E+01 | 3.191E+01 | 2.296E+02 | 9.484E-06 | -9.828E-06 | 0. |
| 1 | 2.15E-04 | 4.679E+02 | 4.670E+02 | 4.987E+02 | 2.010E-06 | 4.609E-08 | 3.13E-03 | 3.205E+01 | 3.191E+01 | 2.297E+02 | 9.480E-06 | -9.818E-06 | 1.753E-03 |
| 2 | 4.29E-04 | 4.679E+02 | 4.670E+02 | 4.987E+02 | 2.010E-06 | 4.608E-08 | 6.26E-03 | 3.207E+01 | 3.193E+01 | 2.298E+02 | 9.468E-06 | -9.789E-06 | 3.506E-03 |
| 3 | 6.44E-04 | 4.679E+02 | 4.670E+02 | 4.987E+02 | 2.011E-06 | 4.605E-08 | 9.38E-03 | 3.211E+01 | 3.197E+01 | 2.301E+02 | 9.447E-06 | -9.739E-06 | 5.258E-03 |
| 4 | 8.58E-04 | 4.678E+02 | 4.669E+02 | 4.986E+02 | 2.011E-06 | 4.602E-08 | 1.25E-02 | 3.216E+01 | 3.202E+01 | 2.304E+02 | 9.419E-06 | -9.671E-06 | 7.008E-03 |
| 5 | 1.07E-03 | 4.678E+02 | 4.668E+02 | 4.986E+02 | 2.012E-06 | 4.598E-08 | 1.56E-02 | 3.222E+01 | 3.208E+01 | 2.308E+02 | 9.383E-06 | -9.584E-06 | 8.756E-03 |
| 6 | 1.29E-03 | 4.677E+02 | 4.668E+02 | 4.985E+02 | 2.012E-06 | 4.594E-08 | 1.86E-02 | 3.229E+01 | 3.215E+01 | 2.314E+02 | 9.339E-06 | -9.478E-06 | 1.050E-02 |
| 7 | 1.50E-03 | 4.676E+02 | 4.667E+02 | 4.984E+02 | 2.013E-06 | 4.588E-08 | 2.17E-02 | 3.238E+01 | 3.224E+01 | 2.320E+02 | 9.288E-06 | -9.355E-06 | 1.224E-02 |
| 8 | 1.71E-03 | 4.675E+02 | 4.666E+02 | 4.983E+02 | 2.014E-06 | 4.582E-08 | 2.47E-02 | 3.248E+01 | 3.235E+01 | 2.328E+02 | 9.230E-06 | -9.215E-06 | 1.398E-02 |
| 9 | 1.93E-03 | 4.674E+02 | 4.665E+02 | 4.982E+02 | 2.015E-06 | 4.574E-08 | 2.76E-02 | 3.260E+01 | 3.246E+01 | 2.336E+02 | 9.164E-06 | -9.059E-06 | 1.572E-02 |
| 10 | 2.14E-03 | 4.673E+02 | 4.663E+02 | 4.980E+02 | 2.016E-06 | 4.566E-08 | 3.05E-02 | 3.273E+01 | 3.259E+01 | 2.345E+02 | 9.091E-06 | -8.888E-06 | 1.745E-02 |
| 15 | 3.19E-03 | 4.664E+02 | 4.655E+02 | 4.971E+02 | 2.023E-06 | 4.512E-08 | 4.44E-02 | 3.358E+01 | 3.344E+01 | 2.406E+02 | 8.637E-06 | -7.842E-06 | 2.600E-02 |
| 20 | 4.23E-03 | 4.652E+02 | 4.643E+02 | 4.959E+02 | 2.034E-06 | 4.435E-08 | 5.66E-02 | 3.476E+01 | 3.462E+01 | 2.491E+02 | 8.060E-06 | -6.583E-06 | 3.476E-02 |
| 25 | 5.25E-03 | 4.637E+02 | 4.628E+02 | 4.943E+02 | 2.047E-06 | 4.335E-08 | 6.71E-02 | 3.627E+01 | 3.613E+01 | 2.598E+02 | 7.406E-06 | -5.254E-06 | 4.246E-02 |
| 30 | 6.23E-03 | 4.619E+02 | 4.610E+02 | 4.923E+02 | 2.063E-06 | 4.212E-08 | 7.56E-02 | 3.808E+01 | 3.794E+01 | 2.728E+02 | 6.717E-06 | -3.970E-06 | 5.023E-02 |
| 35 | 7.18E-03 | 4.598E+02 | 4.589E+02 | 4.901E+02 | 2.082E-06 | 4.064E-08 | 8.22E-02 | 4.019E+01 | 4.005E+01 | 2.880E+02 | 6.030E-06 | -2.815E-06 | 5.762E-02 |
| 40 | 8.09E-03 | 4.574E+02 | 4.565E+02 | 4.875E+02 | 2.104E-06 | 3.892E-08 | 8.69E-02 | 4.258E+01 | 4.244E+01 | 3.051E+02 | 5.372E-06 | -1.832E-06 | 6.458E-02 |
| 45 | 8.95E-03 | 4.548E+02 | 4.538E+02 | 4.847E+02 | 2.128E-06 | 3.693E-08 | 9.00E-02 | 4.524E+01 | 4.510E+01 | 3.241E+02 | 4.760E-06 | -1.033E-06 | 7.104E-02 |
| 50 | 9.76E-03 | 4.519E+02 | 4.509E+02 | 4.816E+02 | 2.156E-06 | 3.466E-08 | 9.16E-02 | 4.813E+01 | 4.799E+01 | 3.449E+02 | 4.204E-06 | -4.087E-07 | 7.696E-02 |
| 55 | 1.05E-02 | 4.488E+02 | 4.478E+02 | 4.783E+02 | 2.186E-06 | 3.212E-08 | 9.20E-02 | 5.125E+01 | 5.111E+01 | 3.672E+02 | 3.708E-06 | 6.149E-08 | 8.230E-02 |
| 60 | 1.12E-02 | 4.454E+02 | 4.445E+02 | 4.748E+02 | 2.218E-06 | 2.929E-08 | 9.14E-02 | 5.456E+01 | 5.442E+01 | 3.909E+02 | 3.272E-06 | 4.034E-07 | 8.701E-02 |
| 65 | 1.18E-02 | 4.420E+02 | 4.410E+02 | 4.710E+02 | 2.254E-06 | 2.616E-08 | 8.99E-02 | 5.805E+01 | 5.791E+01 | 4.159E+02 | 2.891E-06 | 6.428E-07 | 9.105E-02 |
| 70 | 1.23E-02 | 4.383E+02 | 4.374E+02 | 4.672E+02 | 2.291E-06 | 2.273E-08 | 8.77E-02 | 6.167E+01 | 6.153E+01 | 4.419E+02 | 2.561E-06 | 8.032E-07 | 9.441E-02 |
| 75 | 1.28E-02 | 4.346E+02 | 4.336E+02 | 4.632E+02 | 2.331E-06 | 1.900E-08 | 8.50E-02 | 6.542E+01 | 6.528E+01 | 4.687E+02 | 2.276E-06 | 9.841E-07 | 9.704E-02 |
| 80 | 1.32E-02 | 4.307E+02 | 4.298E+02 | 4.591E+02 | 2.372E-06 | 1.496E-08 | 8.19E-02 | 6.926E+01 | 6.912E+01 | 4.962E+02 | 2.031E-06 | 9.615E-07 | 9.894E-02 |
| 85 | 1.34E-02 | 4.268E+02 | 4.259E+02 | 4.549E+02 | 2.416E-06 | 1.063E-08 | 7.84E-02 | 7.315E+01 | 7.301E+01 | 5.241E+02 | 1.820E-06 | 9.879E-07 | 1.001E-01 |
| 90 | 1.36E-02 | 4.229E+02 | 4.220E+02 | 4.508E+02 | 2.461E-06 | 6.008E-09 | 7.47E-02 | 7.707E+01 | 7.694E+01 | 5.522E+02 | 1.640E-06 | 9.926E-07 | 1.005E-01 |
| 95 | 1.37E-02 | 4.190E+02 | 4.181E+02 | 4.466E+02 | 2.507E-06 | 1.121E-09 | 7.08E-02 | 8.100E+01 | 8.086E+01 | 5.804E+02 | 1.485E-06 | 9.828E-07 | 1.001E-01 |
| 100 | 1.37E-02 | 4.151E+02 | 4.142E+02 | 4.424E+02 | 2.554E-06 | -4.009E-09 | 6.68E-02 | 8.489E+01 | 8.475E+01 | 6.083E+02 | 1.351E-06 | 9.636E-07 | 9.894E-02 |
| 105 | 1.35E-02 | 4.113E+02 | 4.103E+02 | 4.383E+02 | 2.602E-06 | -9.349E-09 | 6.27E-02 | 8.873E+01 | 8.859E+01 | 6.357E+02 | 1.237E-06 | 9.389E-07 | 9.704E-02 |
| 110 | 1.33E-02 | 4.075E+02 | 4.066E+02 | 4.343E+02 | 2.650E-06 | -1.486E-08 | 5.85E-02 | 9.248E+01 | 9.234E+01 | 6.626E+02 | 1.139E-06 | 9.112E-07 | 9.441E-02 |
| 115 | 1.29E-02 | 4.039E+02 | 4.030E+02 | 4.305E+02 | 2.698E-06 | -2.048E-08 | 5.43E-02 | 9.610E+01 | 9.596E+01 | 6.886E+02 | 1.055E-06 | 8.824E-07 | 9.105E-02 |
| 120 | 1.24E-02 | 4.004E+02 | 3.995E+02 | 4.268E+02 | 2.745E-06 | -2.617E-08 | 5.01E-02 | 9.959E+01 | 9.945E+01 | 7.135E+02 | 9.820E-07 | 8.539E-07 | 8.701E-02 |
| 125 | 1.19E-02 | 3.971E+02 | 3.962E+02 | 4.232E+02 | 2.791E-06 | -3.184E-08 | 4.58E-02 | 1.029E+02 | 1.028E+02 | 7.373E+02 | 9.198E-07 | 8.266E-07 | 8.230E-02 |
| 130 | 1.12E-02 | 3.940E+02 | 3.930E+02 | 4.199E+02 | 2.836E-06 | -3.744E-08 | 4.16E-02 | 1.060E+02 | 1.059E+02 | 7.596E+02 | 8.665E-07 | 8.016E-07 | 7.696E-02 |
| 135 | 1.04E-02 | 3.911E+02 | 3.901E+02 | 4.168E+02 | 2.878E-06 | -4.286E-08 | 3.74E-02 | 1.089E+02 | 1.088E+02 | 7.804E+02 | 8.211E-07 | 7.775E-07 | 7.104E-02 |
| 140 | 9.53E-03 | 3.884E+02 | 3.875E+02 | 4.140E+02 | 2.917E-06 | -4.804E-08 | 3.32E-02 | 1.116E+02 | 1.114E+02 | 7.994E+02 | 7.825E-07 | 7.564E-07 | 6.458E-02 |
| 145 | 8.55E-03 | 3.860E+02 | 3.851E+02 | 4.114E+02 | 2.954E-06 | -5.288E-08 | 2.90E-02 | 1.140E+02 | 1.138E+02 | 8.165E+02 | 7.500E-07 | 7.377E-07 | 5.762E-02 |
| 150 | 7.50E-03 | 3.839E+02 | 3.830E+02 | 4.092E+02 | 2.986E-06 | -5.729E-08 | 2.48E-02 | 1.161F+02 | 1.159E+02 | 8.316E+02 | 7.229E-07 | 7.215E-07 | 5.023E-02 |
| 155 | 6.37E-03 | 3.821E+02 | 3.812E+02 | 4.073E+02 | 3.015E-06 | -6.119E-08 | 2.06E-02 | 1.179E+02 | 1.177E+02 | 8.446E+02 | 7.009E-07 | 7.078E-07 | 4.246E-02 |
| 160 | 5.17E-03 | 3.806E+02 | 3.797E+02 | 4.057E+02 | 3.038E-06 | -6.451E-08 | 1.65E-02 | 1.194E+02 | 1.192E+02 | 8.554E+02 | 6.833E-07 | 6.967E-07 | 3.436E-02 |
| 165 | 3.93E-03 | 3.794E+02 | 3.785E+02 | 4.044E+02 | 3.057E-06 | -6.716E-08 | 1.24E-02 | 1.206E+02 | 1.204E+02 | 8.639E+02 | 6.700E-07 | 6.880E-07 | 2.600E-02 |
| 170 | 2.64E-03 | 3.786E+02 | 3.776E+02 | 4.035E+02 | 3.071E-06 | -6.910E-08 | 8.23E-03 | 1.214E+02 | 1.213E+02 | 8.700E+02 | 6.607E-07 | 6.819E-07 | 1.745E-02 |
| 175 | 1.33E-03 | 3.781E+02 | 3.771E+02 | 4.029E+02 | 3.079E-06 | -7.028E-08 | 4.11E-03 | 1.219E+02 | 1.218E+02 | 8.736E+02 | 6.551E-07 | 6.782E-07 | 8.756E-03 |
| 180 | 0. | 3.779E+02 | 3.770E+02 | 4.028E+02 | 3.082E-06 | -7.068E-08 | 0. | 1.221E+02 | 1.220E+02 | 8.749E+02 | 6.533E-07 | 6.770E-07 | 0. |

LAMBDA (1) => PROTON (2) + PI MINUS (3) AT 750 GEV/C P1 LAB

M1 = 1.11559E+00 M2 = 9.38259E-01 M3 = 1.39569E-01
P2CM= 1.00466E-01
E2CM= 9.43623E-01 E3CM= 1.71967E-01

1-V1LAB= 1.106E-06 GCM = 6.72291E+02 S = 1.24454E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 7.019E+02 | 7.010E+02 | 7.481E+02 | 8.934E-07 | 2.049E-08 | 0. | 4.807E+01 | 4.793E+01 | 3.444E+02 | 4.215E-06 | -4.368E-06 | 0. |
| 1 | 1.43E-04 | 7.019E+02 | 7.010E+02 | 7.481E+02 | 8.934E-07 | 2.048E-08 | 2.09E-03 | 4.808E+01 | 4.794E+01 | 3.445E+02 | 4.213E-06 | -4.364E-06 | 1.753E-03 |
| 2 | 2.86E-04 | 7.019E+02 | 7.010E+02 | 7.481E+02 | 8.935E-07 | 2.048E-08 | 4.18E-03 | 4.811E+01 | 4.797E+01 | 3.447E+02 | 4.208E-06 | -4.350E-06 | 3.506E-03 |
| 3 | 4.29E-04 | 7.018E+02 | 7.009E+02 | 7.480E+02 | 8.936E-07 | 2.047E-08 | 6.26E-03 | 4.816E+01 | 4.802E+01 | 3.451E+02 | 4.199E-06 | -4.329E-06 | 5.258E-03 |
| 4 | 5.72E-04 | 7.018E+02 | 7.008E+02 | 7.479E+02 | 8.938E-07 | 2.045E-08 | 8.32E-03 | 4.823E+01 | 4.810E+01 | 3.456E+02 | 4.186E-06 | -4.298E-06 | 7.008E-03 |
| 5 | 7.15E-04 | 7.017E+02 | 7.007E+02 | 7.478E+02 | 8.940E-07 | 2.044E-08 | 1.04E-02 | 4.833E+01 | 4.819E+01 | 3.463E+02 | 4.170E-06 | -4.259E-06 | 8.756E-03 |
| 6 | 8.58E-04 | 7.016E+02 | 7.006E+02 | 7.477E+02 | 8.943E-07 | 2.042E-08 | 1.24E-02 | 4.844E+01 | 4.830E+01 | 3.471E+02 | 4.151E-06 | -4.212E-06 | 1.050E-02 |
| 7 | 1.00E-03 | 7.014E+02 | 7.005E+02 | 7.476E+02 | 8.946E-07 | 2.039E-08 | 1.44E-02 | 4.857E+01 | 4.843E+01 | 3.480E+02 | 4.128E-06 | -4.158E-06 | 1.224E-02 |
| 8 | 1.14E-03 | 7.013E+02 | 7.003E+02 | 7.474E+02 | 8.950E-07 | 2.036E-08 | 1.64E-02 | 4.873E+01 | 4.859E+01 | 3.491E+02 | 4.102E-06 | -4.096E-06 | 1.398E-02 |
| 9 | 1.28E-03 | 7.011E+02 | 7.002E+02 | 7.472E+02 | 8.955E-07 | 2.033E-08 | 1.84E-02 | 4.890E+01 | 4.876E+01 | 3.504E+02 | 4.073E-06 | -4.026E-06 | 1.572E-02 |
| 10 | 1.43E-03 | 7.009E+02 | 7.000E+02 | 7.470E+02 | 8.960E-07 | 2.029E-08 | 2.04E-02 | 4.910E+01 | 4.896E+01 | 3.518E+02 | 4.041E-06 | -3.950E-06 | 1.745E-02 |
| 15 | 2.13E-03 | 6.996E+02 | 6.987E+02 | 7.457E+02 | 8.992E-07 | 2.005E-08 | 2.96E-02 | 5.037E+01 | 5.023E+01 | 3.609E+02 | 3.839E-06 | -3.485E-06 | 2.600E-02 |
| 20 | 2.82E-03 | 6.979E+02 | 6.969E+02 | 7.438E+02 | 9.038E-07 | 1.971E-08 | 3.78E-02 | 5.214E+01 | 5.200E+01 | 3.736E+02 | 3.582E-06 | -2.926E-06 | 3.436E-02 |
| 25 | 3.50E-03 | 6.956E+02 | 6.947E+02 | 7.414E+02 | 9.097E-07 | 1.927E-08 | 4.47E-02 | 5.440E+01 | 5.426E+01 | 3.898E+02 | 3.291E-06 | -2.335E-06 | 4.246E-02 |
| 30 | 4.15E-03 | 6.929E+02 | 6.919E+02 | 7.385E+02 | 9.168E-07 | 1.872E-08 | 5.04E-02 | 5.712E+01 | 5.698E+01 | 4.093E+02 | 2.985E-06 | -1.765E-06 | 5.023E-02 |
| 35 | 4.79E-03 | 6.897E+02 | 6.886E+02 | 7.351E+02 | 9.253E-07 | 1.806E-08 | 5.48E-02 | 6.028E+01 | 6.015E+01 | 4.319E+02 | 2.680E-06 | -1.251E-06 | 5.762E-02 |
| 40 | 5.39E-03 | 6.861E+02 | 6.852E+02 | 7.313E+02 | 9.350E-07 | 1.730E-08 | 5.79E-02 | 6.387E+01 | 6.373E+01 | 4.576E+02 | 2.387E-06 | -8.143E-07 | 6.458E-02 |
| 45 | 5.97E-03 | 6.821E+02 | 6.812E+02 | 7.270E+02 | 9.459E-07 | 1.641E-08 | 6.00E-02 | 6.785E+01 | 6.771E+01 | 4.862E+02 | 2.116E-06 | -4.591E-07 | 7.104E-02 |
| 50 | 6.51E-03 | 6.778E+02 | 6.769E+02 | 7.224E+02 | 9.581E-07 | 1.541E-08 | 6.11E-02 | 7.220E+01 | 7.206E+01 | 5.173E+02 | 1.869E-06 | -1.816E-07 | 7.696E-02 |
| 55 | 7.00E-03 | 6.731E+02 | 6.722E+02 | 7.174E+02 | 9.714E-07 | 1.428E-08 | 6.13E-02 | 7.687E+01 | 7.673E+01 | 5.508E+02 | 1.648E-06 | 2.733E-08 | 8.230E-02 |
| 60 | 7.46E-03 | 6.682E+02 | 6.672E+02 | 7.121E+02 | 9.860E-07 | 1.302E-08 | 6.09E-02 | 8.184E+01 | 8.170E+01 | 5.864E+02 | 1.454E-06 | 1.793E-07 | 8.701E-02 |
| 65 | 7.87E-03 | 6.629E+02 | 6.628E+02 | 7.066E+02 | 1.002E-06 | 1.163E-08 | 5.99E-02 | 8.707E+01 | 8.693E+01 | 6.238E+02 | 1.285E-06 | 2.857E-07 | 9.105E-02 |
| 70 | 8.23E-03 | 6.575E+02 | 6.566E+02 | 7.008E+02 | 1.018E-06 | 1.010E-08 | 5.85E-02 | 9.251E+01 | 9.237E+01 | 6.628E+02 | 1.138E-06 | 3.570E-07 | 9.441E-02 |
| 75 | 8.53E-03 | 6.519E+02 | 6.509E+02 | 6.948E+02 | 1.036E-06 | 8.444E-09 | 5.67E-02 | 9.813E+01 | 9.799E+01 | 7.031E+02 | 1.011E-06 | 4.018E-07 | 9.704E-02 |
| 80 | 8.77E-03 | 6.461E+02 | 6.452E+02 | 6.886E+02 | 1.054E-06 | 6.650E-09 | 5.46E-02 | 1.039E+02 | 1.037E+02 | 7.443E+02 | 9.025E-07 | 4.273E-07 | 9.894E-02 |
| 85 | 8.96E-03 | 6.403E+02 | 6.393E+02 | 6.824E+02 | 1.074E-06 | 4.723E-09 | 5.23E-02 | 1.097E+02 | 1.096E+02 | 7.862E+02 | 8.090E-07 | 4.391E-07 | 1.001E-01 |
| 90 | 9.07E-03 | 6.344E+02 | 6.335E+02 | 6.761E+02 | 1.094E-06 | 2.670E-09 | 4.98E-02 | 1.156E+02 | 1.155E+02 | 8.284E+02 | 7.287E-07 | 4.412E-07 | 1.005E-01 |
| 95 | 9.12E-03 | 6.285E+02 | 6.276E+02 | 6.699E+02 | 1.114E-06 | 4.981E-10 | 4.72E-02 | 1.215E+02 | 1.214E+02 | 8.705E+02 | 6.598E-07 | 4.368E-07 | 1.001E-01 |
| 100 | 9.10E-03 | 6.227E+02 | 6.217E+02 | 6.636E+02 | 1.135E-06 | -1.782E-09 | 4.45E-02 | 1.273E+02 | 1.272E+02 | 9.124E+02 | 6.006E-07 | 4.283E-07 | 9.894E-02 |
| 105 | 9.01E-03 | 6.169E+02 | 6.160E+02 | 6.575E+02 | 1.157E-06 | -4.155E-09 | 4.18E-02 | 1.331E+02 | 1.330E+02 | 9.536E+02 | 5.498E-07 | 4.173E-07 | 9.704E-02 |
| 110 | 8.85E-03 | 6.113E+02 | 6.103E+02 | 6.515E+02 | 1.178E-06 | -6.603E-09 | 3.90E-02 | 1.387E+02 | 1.386E+02 | 9.939E+02 | 5.062E-07 | 4.050E-07 | 9.441E-02 |
| 115 | 8.61E-03 | 6.058E+02 | 6.049E+02 | 6.457E+02 | 1.199E-06 | -9.103E-09 | 3.62E-02 | 1.442E+02 | 1.440E+02 | 1.033E+03 | 4.687E-07 | 3.922E-07 | 9.105E-02 |
| 120 | 8.30E-03 | 6.006E+02 | 5.997E+02 | 6.401E+02 | 1.220E-06 | -1.163E-08 | 3.34E-02 | 1.494E+02 | 1.492E+02 | 1.070E+03 | 4.365E-07 | 3.795E-07 | 8.701E-02 |
| 125 | 7.92E-03 | 5.956E+02 | 5.947E+02 | 6.348E+02 | 1.241E-06 | -1.415E-08 | 3.05E-02 | 1.544E+02 | 1.542E+02 | 1.106E+03 | 4.088E-07 | 3.674E-07 | 8.230E-02 |
| 130 | 7.46E-03 | 5.910E+02 | 5.900E+02 | 6.299E+02 | 1.260E-06 | -1.664E-08 | 2.77E-02 | 1.590E+02 | 1.589E+02 | 1.139E+03 | 3.851E-07 | 3.560E-07 | 7.696E-02 |
| 135 | 6.94E-03 | 5.866E+02 | 5.857E+02 | 6.252E+02 | 1.279E-06 | -1.905E-08 | 2.49E-02 | 1.634E+02 | 1.632E+02 | 1.171E+03 | 3.649E-07 | 3.456E-07 | 7.104E-02 |
| 140 | 6.35E-03 | 5.826E+02 | 5.817E+02 | 6.210E+02 | 1.297E-06 | -2.135E-08 | 2.21E-02 | 1.674E+02 | 1.672E+02 | 1.199E+03 | 3.478E-07 | 3.362E-07 | 6.458E-02 |
| 145 | 5.70E-03 | 5.791E+02 | 5.781E+02 | 6.172E+02 | 1.313E-06 | -2.350E-08 | 1.93E-02 | 1.709E+02 | 1.708E+02 | 1.225E+03 | 3.333E-07 | 3.279E-07 | 5.762E-02 |
| 150 | 5.00E-03 | 5.759E+02 | 5.750E+02 | 6.138E+02 | 1.327E-06 | -2.546E-08 | 1.65E-02 | 1.741E+02 | 1.740E+02 | 1.247E+03 | 3.213E-07 | 3.207E-07 | 5.023E-02 |
| 155 | 4.24E-03 | 5.732E+02 | 5.722E+02 | 6.109E+02 | 1.340E-06 | -2.720E-08 | 1.38E-02 | 1.768E+02 | 1.767E+02 | 1.267E+03 | 3.115E-07 | 3.146E-07 | 4.246E-02 |
| 160 | 3.45E-03 | 5.709E+02 | 5.700E+02 | 6.085E+02 | 1.350E-06 | -2.867E-08 | 1.10E-02 | 1.791E+02 | 1.789E+02 | 1.283E+03 | 3.037E-07 | 3.096E-07 | 3.436E-02 |
| 165 | 2.62E-03 | 5.691E+02 | 5.682E+02 | 6.066E+02 | 1.359E-06 | -2.985E-08 | 8.24E-03 | 1.809E+02 | 1.807E+02 | 1.296E+03 | 2.978E-07 | 3.058E-07 | 2.600E-02 |
| 170 | 1.76E-03 | 5.679E+02 | 5.669E+02 | 6.052E+02 | 1.365E-06 | -3.071E-08 | 5.49E-03 | 1.821E+02 | 1.820E+02 | 1.305E+03 | 2.936E-07 | 3.031E-07 | 1.745E-02 |
| 175 | 8.85E-04 | 5.671E+02 | 5.662E+02 | 6.044E+02 | 1.369E-06 | -3.124E-08 | 2.74E-03 | 1.829E+02 | 1.828E+02 | 1.310E+03 | 2.912E-07 | 3.014E-07 | 8.756E-03 |
| 180 | 0. | 5.668E+02 | 5.659E+02 | 6.041E+02 | 1.370E-06 | -3.141E-08 | 0. | 1.832E+02 | 1.830E+02 | 1.312E+03 | 2.903E-07 | 3.009E-07 | 0. |

LAMBDA (1) => PROTON (2) + PI MINUS (3) AT 1000 GEV/C P1 LAB

M1 = 1.11559E+00 M2 = 9.38259E-01 M3 = 1.39569E-01
P2CM= 1.00466E-01
E2CM= 9.43623E-01 E3CM= 1.71967E-01

1-V1LAB= 6.223E-07 GCM = 8.96387E+02 S = 1.24454E+00

| 02 CM | 02 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | 03 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 9.359E+02 | 9.350E+02 | 9.975E+02 | 5.025E-07 | 1.152E-08 | 0. | 6.409E+01 | 6.395E+01 | 4.592E+02 | 2.371E-06 | -2.457E-06 | 0. |
| 1 | 1.07E-04 | 9.359E+02 | 9.350E+02 | 9.975E+02 | 5.025E-07 | 1.152E-08 | 1.57E-03 | 6.411E+01 | 6.397E+01 | 4.593E+02 | 2.370E-06 | -2.455E-06 | 1.753E-03 |
| 2 | 2.15E-04 | 9.359E+02 | 9.349E+02 | 9.974E+02 | 5.026E-07 | 1.152E-08 | 3.13E-03 | 6.415E+01 | 6.401E+01 | 4.596E+02 | 2.367E-06 | -2.447E-06 | 3.506E-03 |
| 3 | 3.22E-04 | 9.358E+02 | 9.348E+02 | 9.974E+02 | 5.026E-07 | 1.151E-08 | 4.69E-03 | 6.422E+01 | 6.408E+01 | 4.601E+02 | 2.362E-06 | -2.435E-06 | 5.258E-03 |
| 4 | 4.29E-04 | 9.357E+02 | 9.347E+02 | 9.973E+02 | 5.028E-07 | 1.151E-08 | 6.24E-03 | 6.431E+01 | 6.417E+01 | 4.608E+02 | 2.355E-06 | -2.418E-06 | 7.008E-03 |
| 5 | 5.36E-04 | 9.356E+02 | 9.346E+02 | 9.971E+02 | 5.029E-07 | 1.150E-08 | 7.79E-03 | 6.444E+01 | 6.430E+01 | 4.617E+02 | 2.346E-06 | -2.396E-06 | 8.756E-03 |
| 6 | 6.43E-04 | 9.354E+02 | 9.345E+02 | 9.970E+02 | 5.030E-07 | 1.148E-08 | 9.32E-03 | 6.459E+01 | 6.445E+01 | 4.628E+02 | 2.335E-06 | -2.370E-06 | 1.050E-02 |
| 7 | 7.50E-04 | 9.352E+02 | 9.343E+02 | 9.968E+02 | 5.032E-07 | 1.147E-08 | 1.08E-02 | 6.476E+01 | 6.463E+01 | 4.640E+02 | 2.322E-06 | -2.339E-06 | 1.224E-02 |
| 8 | 8.57E-04 | 9.350E+02 | 9.341E+02 | 9.966E+02 | 5.035E-07 | 1.145E-08 | 1.23E-02 | 6.497E+01 | 6.483E+01 | 4.655E+02 | 2.307E-06 | -2.304E-06 | 1.398E-02 |
| 9 | 9.63E-04 | 9.348E+02 | 9.339E+02 | 9.963E+02 | 5.037E-07 | 1.144E-08 | 1.38E-02 | 6.520E+01 | 6.506E+01 | 4.672E+02 | 2.291E-06 | -2.265E-06 | 1.572E-02 |
| 10 | 1.07E-03 | 9.345E+02 | 9.336E+02 | 9.960E+02 | 5.040E-07 | 1.141E-08 | 1.53E-02 | 6.546E+01 | 6.532E+01 | 4.690E+02 | 2.273E-06 | -2.222E-06 | 1.745E-02 |
| 15 | 1.60E-03 | 9.328E+02 | 9.319E+02 | 9.942E+02 | 5.058E-07 | 1.128E-08 | 2.22E-02 | 6.716E+01 | 6.702E+01 | 4.812E+02 | 2.159E-06 | -1.960E-06 | 2.600E-02 |
| 20 | 2.12E-03 | 9.305E+02 | 9.295E+02 | 9.917E+02 | 5.084E-07 | 1.109E-08 | 2.83E-02 | 6.952E+01 | 6.938E+01 | 4.981E+02 | 2.015E-06 | -1.646E-06 | 3.436E-02 |
| 25 | 2.62E-03 | 9.275E+02 | 9.265E+02 | 9.885E+02 | 5.117E-07 | 1.084E-08 | 3.35E-02 | 7.253E+01 | 7.239E+01 | 5.197E+02 | 1.851E-06 | -1.313E-06 | 4.246E-02 |
| 30 | 3.12E-03 | 9.238E+02 | 9.229E+02 | 9.846E+02 | 5.157E-07 | 1.053E-08 | 3.78E-02 | 7.616E+01 | 7.602E+01 | 5.457E+02 | 1.679E-06 | -9.926E-07 | 5.023E-02 |
| 35 | 3.59E-03 | 9.196E+02 | 9.187E+02 | 9.801E+02 | 5.205E-07 | 1.016E-08 | 4.11E-02 | 8.038E+01 | 8.024E+01 | 5.759E+02 | 1.507E-06 | -7.039E-07 | 5.762E-02 |
| 40 | 4.04E-03 | 9.148E+02 | 9.139E+02 | 9.750E+02 | 5.259E-07 | 9.729E-09 | 4.34E-02 | 8.516E+01 | 8.502E+01 | 6.102E+02 | 1.343E-06 | -4.580E-07 | 6.458E-02 |
| 45 | 4.48E-03 | 9.095E+02 | 9.086E+02 | 9.694E+02 | 5.321E-07 | 9.232E-09 | 4.50E-02 | 9.047E+01 | 9.033E+01 | 6.482E+02 | 1.199E-06 | -2.582E-07 | 7.104E-02 |
| 50 | 4.88E-03 | 9.037E+02 | 9.028E+02 | 9.632E+02 | 5.389E-07 | 8.666E-09 | 4.58E-02 | 9.626E+01 | 9.612E+01 | 6.897E+02 | 1.051E-06 | -1.022E-07 | 7.696E-02 |
| 55 | 5.25E-03 | 8.975E+02 | 8.966E+02 | 9.566E+02 | 5.464E-07 | 8.031E-09 | 4.60E-02 | 1.025E+02 | 1.024E+02 | 7.344E+02 | 9.271E-07 | 1.537E-08 | 8.230E-02 |
| 60 | 5.60E-03 | 8.909E+02 | 8.899E+02 | 9.495E+02 | 5.546E-07 | 7.323E-09 | 4.57E-02 | 1.091E+02 | 1.090E+02 | 7.818E+02 | 8.180E-07 | 1.008E-07 | 8.701E-02 |
| 65 | 5.90E-03 | 8.839E+02 | 8.830E+02 | 9.421E+02 | 5.634E-07 | 6.541E-09 | 4.49E-02 | 1.161E+02 | 1.160E+02 | 8.318E+02 | 7.227E-07 | 1.607E-07 | 9.105E-02 |
| 70 | 6.17E-03 | 8.767E+02 | 8.757E+02 | 9.343E+02 | 5.727E-07 | 5.683E-09 | 4.39E-02 | 1.233E+02 | 1.232E+02 | 8.838E+02 | 6.401E-07 | 2.008E-07 | 9.441E-02 |
| 75 | 6.40E-03 | 8.692E+02 | 8.682E+02 | 9.264E+02 | 5.827E-07 | 4.750E-09 | 4.25E-02 | 1.308E+02 | 1.307E+02 | 9.375E+02 | 5.689E-07 | 2.260E-07 | 9.704E-02 |
| 80 | 6.58E-03 | 8.615E+02 | 8.606E+02 | 9.182E+02 | 5.931E-07 | 3.740E-09 | 4.09E-02 | 1.385E+02 | 1.384E+02 | 9.924E+02 | 5.077E-07 | 2.404E-07 | 9.894E-02 |
| 85 | 6.72E-03 | 8.537E+02 | 8.528E+02 | 9.099E+02 | 6.040E-07 | 2.657E-09 | 3.92E-02 | 1.463E+02 | 1.462E+02 | 1.048E+03 | 4.550E-07 | 2.470E-07 | 1.001E-01 |
| 90 | 6.81E-03 | 8.459E+02 | 8.449E+02 | 9.015E+02 | 6.152E-07 | 1.502E-09 | 3.73E-02 | 1.541E+02 | 1.540E+02 | 1.104E+03 | 4.099E-07 | 2.482E-07 | 1.005E-01 |
| 95 | 6.84E-03 | 8.380E+02 | 8.371E+02 | 8.931E+02 | 6.268E-07 | 2.802E-10 | 3.54E-02 | 1.620E+02 | 1.619E+02 | 1.161E+03 | 3.711E-07 | 2.457E-07 | 1.001E-01 |
| 100 | 6.83E-03 | 8.302E+02 | 8.293E+02 | 8.848E+02 | 6.386E-07 | -1.002E-09 | 3.34E-02 | 1.698E+02 | 1.696E+02 | 1.217E+03 | 3.379E-07 | 2.409E-07 | 9.894E-02 |
| 105 | 6.76E-03 | 8.225E+02 | 8.216E+02 | 8.767E+02 | 6.506E-07 | -2.337E-09 | 3.13E-02 | 1.775E+02 | 1.773E+02 | 1.271E+03 | 3.093E-07 | 2.347E-07 | 9.704E-02 |
| 110 | 6.64E-03 | 8.150E+02 | 8.141E+02 | 8.687E+02 | 6.626E-07 | -3.714E-09 | 2.92E-02 | 1.850E+02 | 1.848E+02 | 1.325E+03 | 2.847E-07 | 2.278E-07 | 9.441E-02 |
| 115 | 6.46E-03 | 8.078E+02 | 8.069E+02 | 8.609E+02 | 6.746E-07 | -5.121E-09 | 2.71E-02 | 1.922E+02 | 1.921E+02 | 1.377E+03 | 2.636E-07 | 2.206E-07 | 9.105E-02 |
| 120 | 6.22E-03 | 8.008E+02 | 7.999E+02 | 8.535E+02 | 6.863E-07 | -6.542E-09 | 2.50E-02 | 1.992E+02 | 1.990E+02 | 1.427E+03 | 2.455E-07 | 2.135E-07 | 8.701E-02 |
| 125 | 5.94E-03 | 7.942E+02 | 7.933E+02 | 8.465E+02 | 6.978E-07 | -7.961E-09 | 2.29E-02 | 2.058E+02 | 2.057E+02 | 1.475E+03 | 2.300E-07 | 2.067E-07 | 8.230E-02 |
| 130 | 5.60E-03 | 7.880E+02 | 7.870E+02 | 8.398E+02 | 7.089E-07 | -9.359E-09 | 2.08E-02 | 2.120E+02 | 2.119E+02 | 1.519E+03 | 2.166E-07 | 2.003E-07 | 7.696E-02 |
| 135 | 5.20E-03 | 7.822E+02 | 7.812E+02 | 8.336E+02 | 7.195E-07 | -1.072E-08 | 1.87E-02 | 2.178E+02 | 2.177E+02 | 1.561E+03 | 2.053E-07 | 1.944E-07 | 7.104E-02 |
| 140 | 4.76E-03 | 7.769E+02 | 7.759E+02 | 8.280E+02 | 7.293E-07 | -1.201E-08 | 1.66E-02 | 2.231E+02 | 2.230E+02 | 1.599E+03 | 1.956E-07 | 1.891E-07 | 6.458E-02 |
| 145 | 4.28E-03 | 7.721E+02 | 7.711E+02 | 8.229E+02 | 7.384E-07 | -1.322E-08 | 1.45E-02 | 2.279E+02 | 2.278E+02 | 1.633E+03 | 1.875E-07 | 1.844E-07 | 5.762E-02 |
| 150 | 3.75E-03 | 7.679E+02 | 7.669E+02 | 8.184E+02 | 7.465E-07 | -1.432E-08 | 1.24E-02 | 2.321E+02 | 2.320E+02 | 1.663E+03 | 1.807E-07 | 1.804E-07 | 5.023E-02 |
| 155 | 3.18E-03 | 7.642E+02 | 7.633E+02 | 8.145E+02 | 7.536E-07 | -1.530E-08 | 1.03E-02 | 2.358E+02 | 2.356E+02 | 1.689E+03 | 1.752E-07 | 1.770E-07 | 4.246E-02 |
| 160 | 2.59E-03 | 7.612E+02 | 7.603E+02 | 8.113E+02 | 7.596E-07 | -1.613E-08 | 8.25E-03 | 2.388E+02 | 2.386E+02 | 1.711E+03 | 1.708E-07 | 1.742E-07 | 3.436E-02 |
| 165 | 1.96E-03 | 7.589E+02 | 7.579E+02 | 8.088E+02 | 7.643E-07 | -1.679E-08 | 6.18E-03 | 2.411E+02 | 2.410E+02 | 1.728E+03 | 1.675E-07 | 1.720E-07 | 2.600E-02 |
| 170 | 1.32E-03 | 7.572E+02 | 7.562E+02 | 8.070E+02 | 7.678E-07 | -1.728E-08 | 4.12E-03 | 2.428E+02 | 2.427E+02 | 1.740E+03 | 1.652E-07 | 1.705E-07 | 1.745E-02 |
| 175 | 6.63E-04 | 7.561E+02 | 7.552E+02 | 8.059E+02 | 7.699E-07 | -1.757E-08 | 2.06E-03 | 2.439E+02 | 2.437E+02 | 1.747E+03 | 1.638E-07 | 1.696E-07 | 8.756E-03 |
| 180 | 0. | 7.558E+02 | 7.549E+02 | 8.055E+02 | 7.706E-07 | -1.767E-08 | 0. | 2.442E+02 | 2.441E+02 | 1.750E+03 | 1.633E-07 | 1.692E-07 | 0. |

DELTA(1236) => NEUTRON + PI PLUS AT 10 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.23600E+00 M2 = 9.39553E-01 M3 = 1.39569E-01
P2CM= 2.29699E-01
E2CM= 9.67223E-01 E3CM= 2.68777E-01

1-V1LAB= 7.552E-03 GCM = 8.15218E+00 S = 1.52770E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 9.698E+00 | 8.804E+00 | 1.037E+01 | 4.660E-03 | 5.610E-04 | 0. | 3.020E-01 | 1.931E-01 | 2.384E+00 | 9.224E-02 | -5.784E-01 | 0. |
| 1 | 2.37E-02 | 9.698E+00 | 8.804E+00 | 1.037E+01 | 4.660E-03 | 5.610E-04 | 7.60E-01 | 3.023E-01 | 1.934E-01 | 2.386E+00 | 9.207E-02 | -5.760E-01 | 4.009E-03 |
| 2 | 4.74E-02 | 9.697E+00 | 8.803E+00 | 1.037E+01 | 4.661E-03 | 5.609E-04 | 1.51E+00 | 3.033E-01 | 1.943E-01 | 2.392E+00 | 9.158E-02 | -5.688E-01 | 8.016E-03 |
| 3 | 7.10E-02 | 9.695E+00 | 8.801E+00 | 1.037E+01 | 4.663E-03 | 5.608E-04 | 2.26E+00 | 3.048E-01 | 1.957E-01 | 2.402E+00 | 9.077E-02 | -5.570E-01 | 1.202E-02 |
| 4 | 9.47E-02 | 9.693E+00 | 8.799E+00 | 1.037E+01 | 4.665E-03 | 5.607E-04 | 2.99E+00 | 3.070E-01 | 1.977E-01 | 2.416E+00 | 8.966E-02 | -5.411E-01 | 1.602E-02 |
| 5 | 1.18E-01 | 9.691E+00 | 8.797E+00 | 1.036E+01 | 4.667E-03 | 5.605E-04 | 3.71E+00 | 3.098E-01 | 2.002E-01 | 2.435E+00 | 8.825E-02 | -5.213E-01 | 2.002E-02 |
| 6 | 1.42E-01 | 9.688E+00 | 8.794E+00 | 1.036E+01 | 4.670E-03 | 5.603E-04 | 4.40E+00 | 3.132E-01 | 2.033E-01 | 2.457E+00 | 8.659E-02 | -4.982E-01 | 2.401E-02 |
| 7 | 1.66E-01 | 9.684E+00 | 8.790E+00 | 1.036E+01 | 4.674E-03 | 5.600E-04 | 5.06E+00 | 3.172E-01 | 2.070E-01 | 2.483E+00 | 8.468E-02 | -4.724E-01 | 2.799E-02 |
| 8 | 1.89E-01 | 9.680E+00 | 8.786E+00 | 1.035E+01 | 4.678E-03 | 5.597E-04 | 5.70E+00 | 3.218E-01 | 2.112E-01 | 2.513E+00 | 8.255E-02 | -4.445E-01 | 3.197E-02 |
| 9 | 2.13E-01 | 9.675E+00 | 8.781E+00 | 1.035E+01 | 4.682E-03 | 5.594E-04 | 6.31E+00 | 3.271E-01 | 2.160E-01 | 2.548E+00 | 8.025E-02 | -4.151E-01 | 3.593E-02 |
| 10 | 2.36E-01 | 9.670E+00 | 8.776E+00 | 1.034E+01 | 4.687E-03 | 5.590E-04 | 6.88E+00 | 3.329E-01 | 2.214E-01 | 2.586E+00 | 7.778E-02 | -3.848E-01 | 3.989E-02 |
| 15 | 3.54E-01 | 9.634E+00 | 8.741E+00 | 1.030E+01 | 4.722E-03 | 5.564E-04 | 9.23E+00 | 3.706E-01 | 2.565E-01 | 2.838E+00 | 6.416E-02 | -2.362E-01 | 5.945E-02 |
| 20 | 4.70E-01 | 9.585E+00 | 8.692E+00 | 1.025E+01 | 4.770E-03 | 5.527E-04 | 1.07E+01 | 4.223E-01 | 3.052E-01 | 3.187E+00 | 5.051E-02 | -1.197E-01 | 7.856E-02 |
| 25 | 5.84E-01 | 9.523E+00 | 8.630E+00 | 1.018E+01 | 4.832E-03 | 5.477E-04 | 1.15E+01 | 4.872E-01 | 3.673E-01 | 3.631E+00 | 3.866E-02 | -4.483E-02 | 9.707E-02 |
| 30 | 6.97E-01 | 9.448E+00 | 8.555E+00 | 1.011E+01 | 4.908E-03 | 5.412E-04 | 1.17E+01 | 5.647E-01 | 4.421E-01 | 4.168E+00 | 2.921E-02 | -3.131E-03 | 1.148E-01 |
| 35 | 8.06E-01 | 9.360E+00 | 8.468E+00 | 1.001E+01 | 5.000E-03 | 5.329E-04 | 1.16E+01 | 6.541E-01 | 5.292E-01 | 4.792E+00 | 2.202E-02 | 1.720E-02 | 1.317E-01 |
| 40 | 9.13E-01 | 9.261E+00 | 8.369E+00 | 9.907E+00 | 5.107E-03 | 5.226E-04 | 1.13E+01 | 7.547E-01 | 6.279E-01 | 5.499E+00 | 1.667E-02 | 2.537E-02 | 1.476E-01 |
| 45 | 1.02E+00 | 9.151E+00 | 8.260E+00 | 9.791E+00 | 5.230E-03 | 5.099E-04 | 1.08E+01 | 8.659E-01 | 7.375E-01 | 6.284E+00 | 1.274E-02 | 2.722E-02 | 1.624E-01 |
| 50 | 1.12E+00 | 9.031E+00 | 8.140E+00 | 9.664E+00 | 5.368E-03 | 4.945E-04 | 1.03E+01 | 9.867E-01 | 8.570E-01 | 7.140E+00 | 9.856E-03 | 2.607E-02 | 1.760E-01 |
| 55 | 1.21E+00 | 8.901E+00 | 8.011E+00 | 9.527E+00 | 5.524E-03 | 4.758E-04 | 9.70E+00 | 1.116E+00 | 9.856E-01 | 8.062E+00 | 7.723E-03 | 2.370E-02 | 1.882E-01 |
| 60 | 1.30E+00 | 8.764E+00 | 7.875E+00 | 9.381E+00 | 5.698E-03 | 4.535E-04 | 9.13E+00 | 1.254E+00 | 1.122E+00 | 9.042E+00 | 6.135E-03 | 2.100E-02 | 1.989E-01 |
| 65 | 1.38E+00 | 8.619E+00 | 7.731E+00 | 9.228E+00 | 5.889E-03 | 4.268E-04 | 8.56E+00 | 1.399E+00 | 1.266E+00 | 1.007E+01 | 4.941E-03 | 1.838E-02 | 2.082E-01 |
| 70 | 1.46E+00 | 8.469E+00 | 7.581E+00 | 9.069E+00 | 6.098E-03 | 3.952E-04 | 8.01E+00 | 1.549E+00 | 1.416E+00 | 1.115E+01 | 4.033E-03 | 1.602E-02 | 2.158E-01 |
| 75 | 1.53E+00 | 8.313E+00 | 7.426E+00 | 8.904E+00 | 6.326E-03 | 3.580E-04 | 7.48E+00 | 1.704E+00 | 1.571E+00 | 1.225E+01 | 3.336E-03 | 1.396E-02 | 2.219E-01 |
| 80 | 1.59E+00 | 8.154E+00 | 7.268E+00 | 8.736E+00 | 6.574E-03 | 3.145E-04 | 6.97E+00 | 1.863E+00 | 1.729E+00 | 1.339E+01 | 2.794E-03 | 1.219E-02 | 2.262E-01 |
| 85 | 1.64E+00 | 7.992E+00 | 7.107E+00 | 8.565E+00 | 6.840E-03 | 2.640E-04 | 6.49E+00 | 2.024E+00 | 1.890E+00 | 1.454E+01 | 2.368E-03 | 1.070E-02 | 2.288E-01 |
| 90 | 1.68E+00 | 7.829E+00 | 6.945E+00 | 8.392E+00 | 7.125E-03 | 2.059E-04 | 6.03E+00 | 2.187E+00 | 2.052E+00 | 1.570E+01 | 2.031E-03 | 9.449E-03 | 2.297E-01 |
| 95 | 1.71E+00 | 7.666E+00 | 6.783E+00 | 8.220E+00 | 7.428E-03 | 1.394E-04 | 5.59E+00 | 2.349E+00 | 2.214E+00 | 1.686E+01 | 1.761E-03 | 8.395E-03 | 2.288E-01 |
| 100 | 1.73E+00 | 7.504E+00 | 6.623E+00 | 8.049E+00 | 7.748E-03 | 6.415E-05 | 5.17E+00 | 2.510E+00 | 2.374E+00 | 1.801E+01 | 1.542E-03 | 7.508E-03 | 2.262E-01 |
| 105 | 1.73E+00 | 7.344E+00 | 6.464E+00 | 7.880E+00 | 8.084E-03 | -2.036E-05 | 4.77E+00 | 2.668E+00 | 2.533E+00 | 1.915E+01 | 1.365E-03 | 6.762E-03 | 2.219E-01 |
| 110 | 1.72E+00 | 7.188E+00 | 6.310E+00 | 7.716E+00 | 8.434E-03 | -1.142E-04 | 4.38E+00 | 2.823E+00 | 2.687E+00 | 2.025E+01 | 1.220E-03 | 6.134E-03 | 2.158E-01 |
| 115 | 1.70E+00 | 7.037E+00 | 6.160E+00 | 7.556E+00 | 8.796E-03 | -2.172E-04 | 4.01E+00 | 2.973E+00 | 2.837E+00 | 2.133E+01 | 1.100E-03 | 5.604E-03 | 2.082E-01 |
| 120 | 1.65E+00 | 6.892E+00 | 6.016E+00 | 7.403E+00 | 9.165E-03 | -3.288E-04 | 3.66E+00 | 3.117E+00 | 2.981E+00 | 2.236E+01 | 1.001E-03 | 5.156E-03 | 1.989E-01 |
| 125 | 1.60E+00 | 6.754E+00 | 5.879E+00 | 7.258E+00 | 9.538E-03 | -4.480E-04 | 3.31E+00 | 3.254E+00 | 3.117E+00 | 2.334E+01 | 9.185E-04 | 4.777E-03 | 1.882E-01 |
| 130 | 1.52E+00 | 6.624E+00 | 5.751E+00 | 7.121E+00 | 9.910E-03 | -5.732E-04 | 2.98E+00 | 3.383E+00 | 3.246E+00 | 2.426E+01 | 8.500E-04 | 4.457E-03 | 1.760E-01 |
| 135 | 1.43E+00 | 6.503E+00 | 5.631E+00 | 6.994E+00 | 1.028E-02 | -7.022E-04 | 2.66E+00 | 3.502E+00 | 3.366E+00 | 2.511E+01 | 7.930E-04 | 4.188E-03 | 1.624E-01 |
| 140 | 1.32E+00 | 6.393E+00 | 5.522E+00 | 6.877E+00 | 1.063E-02 | -8.325E-04 | 2.34E+00 | 3.612E+00 | 3.475E+00 | 2.590E+01 | 7.457E-04 | 3.962E-03 | 1.476E-01 |
| 145 | 1.20E+00 | 6.293E+00 | 5.423E+00 | 6.772E+00 | 1.096E-02 | -9.607E-04 | 2.03E+00 | 3.711E+00 | 3.574E+00 | 2.661E+01 | 7.066E-04 | 3.773E-03 | 1.317E-01 |
| 150 | 1.06E+00 | 6.205E+00 | 5.336E+00 | 6.679E+00 | 1.127E-02 | -1.083E-03 | 1.73E+00 | 3.798E+00 | 3.661E+00 | 2.723E+01 | 6.745E-04 | 3.617E-03 | 1.148E-01 |
| 155 | 9.08E-01 | 6.129E+00 | 5.261E+00 | 6.600E+00 | 1.155E-02 | -1.196E-03 | 1.44E+00 | 3.873E+00 | 3.736E+00 | 2.777E+01 | 6.487E-04 | 3.491E-03 | 9.707E-02 |
| 160 | 7.42E-01 | 6.066E+00 | 5.199E+00 | 6.534E+00 | 1.176E-02 | -1.295E-03 | 1.14E+00 | 3.935E+00 | 3.798E+00 | 2.821E+01 | 6.284E-04 | 3.391E-03 | 7.856E-02 |
| 165 | 5.66E-01 | 6.017E+00 | 5.150E+00 | 6.482E+00 | 1.197E-02 | -1.377E-03 | 8.55E-01 | 3.984E+00 | 3.847E+00 | 2.856E+01 | 6.131E-04 | 3.316E-03 | 5.945E-02 |
| 170 | 3.82E-01 | 5.981E+00 | 5.115E+00 | 6.444E+00 | 1.211E-02 | -1.438E-03 | 5.69E-01 | 4.019E+00 | 3.882E+00 | 2.881E+01 | 6.025E-04 | 3.263E-03 | 3.989E-02 |
| 175 | 1.92E-01 | 5.960E+00 | 5.094E+00 | 6.422E+00 | 1.220E-02 | -1.476E-03 | 2.84E-01 | 4.040E+00 | 3.903E+00 | 2.896E+01 | 5.962E-04 | 3.232E-03 | 2.002E-02 |
| 180 | 0. | 5.953E+00 | 5.087E+00 | 6.414E+00 | 1.223E-02 | -1.489E-03 | 0. | 4.047E+00 | 3.910E+00 | 2.901E+01 | 5.941E-04 | 3.221E-03 | 0. |

DELTA(1236) => NEUTRON + PI PLUS AT 20 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.23600E+00 M2 = 9.39553E-01 M3 = 1.39569E-01
P2CM= 2.29699E-01
E2CM= 9.67223E-01 E3CM= 2.68777E-01

1-V1LAB= 1.904E-03 GCM = 1.62121E+01 S = 1.52770E+0

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.937E+01 | 1.846E+01 | 2.065E+01 | 1.174E-03 | 1.406E-04 | 0. | 6.252E-01 | 5.011E-01 | 4.590E+00 | 2.402E-02 | -1.350E-01 | 0. |
| 1 | 1.19E-02 | 1.937E+01 | 1.846E+01 | 2.064E+01 | 1.174E-03 | 1.405E-04 | 3.67E-01 | 6.258E-01 | 5.016E-01 | 4.594E+00 | 2.398E-02 | -1.344E-01 | 4.009E-03 |
| 2 | 2.37E-02 | 1.937E+01 | 1.846E+01 | 2.064E+01 | 1.174E-03 | 1.405E-04 | 7.32E-01 | 6.276E-01 | 5.033E-01 | 4.606E+00 | 2.385E-02 | -1.329E-01 | 8.016E-03 |
| 3 | 3.56E-02 | 1.937E+01 | 1.845E+01 | 2.064E+01 | 1.174E-03 | 1.405E-04 | 1.09E+00 | 6.305E-01 | 5.062E-01 | 4.627E+00 | 2.364E-02 | -1.304E-01 | 1.202E-02 |
| 4 | 4.74E-02 | 1.937E+01 | 1.845E+01 | 2.064E+01 | 1.175E-03 | 1.405E-04 | 1.45E+00 | 6.345E-01 | 5.101E-01 | 4.655E+00 | 2.335E-02 | -1.269E-01 | 1.602E-02 |
| 5 | 5.92E-02 | 1.936E+01 | 1.844E+01 | 2.063E+01 | 1.175E-03 | 1.404E-04 | 1.79E+00 | 6.397E-01 | 5.152E-01 | 4.691E+00 | 2.298E-02 | -1.227E-01 | 2.002E-02 |
| 6 | 7.11E-02 | 1.935E+01 | 1.844E+01 | 2.062E+01 | 1.176E-03 | 1.404E-04 | 2.13E+00 | 6.461E-01 | 5.214E-01 | 4.736E+00 | 2.255E-02 | -1.177E-01 | 2.401E-02 |
| 7 | 8.29E-02 | 1.935E+01 | 1.843E+01 | 2.062E+01 | 1.177E-03 | 1.403E-04 | 2.45E+00 | 6.536E-01 | 5.288E-01 | 4.789E+00 | 2.205E-02 | -1.120E-01 | 2.799E-02 |
| 8 | 9.47E-02 | 1.934E+01 | 1.842E+01 | 2.061E+01 | 1.178E-03 | 1.402E-04 | 2.77E+00 | 6.623E-01 | 5.372E-01 | 4.849E+00 | 2.149E-02 | -1.059E-01 | 3.197E-02 |
| 9 | 1.07E-01 | 1.933E+01 | 1.841E+01 | 2.060E+01 | 1.179E-03 | 1.401E-04 | 3.06E+00 | 6.720E-01 | 5.468E-01 | 4.918E+00 | 2.089E-02 | -9.938E-02 | 3.593E-02 |
| 10 | 1.18E-01 | 1.932E+01 | 1.840E+01 | 2.059E+01 | 1.181E-03 | 1.401E-04 | 3.35E+00 | 6.830E-01 | 5.575E-01 | 4.995E+00 | 2.025E-02 | -9.260E-02 | 3.989E-02 |
| 15 | 1.77E-01 | 1.925E+01 | 1.833E+01 | 2.051E+01 | 1.189E-03 | 1.394E-04 | 4.52E+00 | 7.545E-01 | 6.277E-01 | 5.497E+00 | 1.668E-02 | -5.861E-02 | 5.945E-02 |
| 20 | 2.35E-01 | 1.915E+01 | 1.823E+01 | 2.041E+01 | 1.201E-03 | 1.385E-04 | 5.28E+00 | 8.534E-01 | 7.252E-01 | 6.196E+00 | 1.311E-02 | -3.081E-02 | 7.856E-02 |
| 25 | 2.92E-01 | 1.903E+01 | 1.811E+01 | 2.027E+01 | 1.217E-03 | 1.372E-04 | 5.69E+00 | 9.790E-01 | 8.493E-01 | 7.085E+00 | 1.001E-02 | -1.225E-02 | 9.707E-02 |
| 30 | 3.49E-01 | 1.888E+01 | 1.796E+01 | 2.012E+01 | 1.236E-03 | 1.355E-04 | 5.83E+00 | 1.131E+00 | 9.990E-01 | 8.158E+00 | 7.541E-03 | -1.556E-03 | 1.148E-01 |
| 35 | 4.04E-01 | 1.870E+01 | 1.779E+01 | 1.993E+01 | 1.260E-03 | 1.335E-04 | 5.79E+00 | 1.305E+00 | 1.173E+00 | 9.406E+00 | 5.667E-03 | 3.826E-03 | 1.317E-01 |
| 40 | 4.57E-01 | 1.850E+01 | 1.759E+01 | 1.972E+01 | 1.287E-03 | 1.309E-04 | 5.63E+00 | 1.504E+00 | 1.371E+00 | 1.082E+01 | 4.280E-03 | 6.087E-03 | 1.476E-01 |
| 45 | 5.09E-01 | 1.828E+01 | 1.737E+01 | 1.949E+01 | 1.318E-03 | 1.277E-04 | 5.41E+00 | 1.724E+00 | 1.590E+00 | 1.239E+01 | 3.262E-03 | 6.683E-03 | 1.624E-01 |
| 50 | 5.59E-01 | 1.805E+01 | 1.713E+01 | 1.923E+01 | 1.353E-03 | 1.238E-04 | 5.14E+00 | 1.963E+00 | 1.829E+00 | 1.410E+01 | 2.517E-03 | 6.472E-03 | 1.760E-01 |
| 55 | 6.06E-01 | 1.779E+01 | 1.687E+01 | 1.896E+01 | 1.392E-03 | 1.191E-04 | 4.86E+00 | 2.221E+00 | 2.086E+00 | 1.595E+01 | 1.968E-03 | 5.919E-03 | 1.882E-01 |
| 60 | 6.51E-01 | 1.751E+01 | 1.660E+01 | 1.867E+01 | 1.436E-03 | 1.134E-04 | 4.57E+00 | 2.495E+00 | 2.359E+00 | 1.791E+01 | 1.561E-03 | 5.262E-03 | 1.989E-01 |
| 65 | 6.92E-01 | 1.723E+01 | 1.631E+01 | 1.836E+01 | 1.484E-03 | 1.067E-04 | 4.29E+00 | 2.783E+00 | 2.647E+00 | 1.997E+01 | 1.255E-03 | 4.616E-03 | 2.082E-01 |
| 70 | 7.31E-01 | 1.693E+01 | 1.601E+01 | 1.804E+01 | 1.537E-03 | 9.876E-05 | 4.01E+00 | 3.083E+00 | 2.947E+00 | 2.211E+01 | 1.023E-03 | 4.026E-03 | 2.158E-01 |
| 75 | 7.65E-01 | 1.662E+01 | 1.570E+01 | 1.771E+01 | 1.595E-03 | 8.941E-05 | 3.75E+00 | 3.393E+00 | 3.256E+00 | 2.433E+01 | 8.452E-04 | 3.511E-03 | 2.219E-01 |
| 80 | 7.95E-01 | 1.630E+01 | 1.539E+01 | 1.738E+01 | 1.657E-03 | 7.849E-05 | 3.50E+00 | 3.709E+00 | 3.572E+00 | 2.660E+01 | 7.071E-04 | 3.069E-03 | 2.262E-01 |
| 85 | 8.21E-01 | 1.598E+01 | 1.507E+01 | 1.703E+01 | 1.725E-03 | 6.582E-05 | 3.25E+00 | 4.031E+00 | 3.894E+00 | 2.890E+01 | 5.988E-04 | 2.694E-03 | 2.288E-01 |
| 90 | 8.41E-01 | 1.565E+01 | 1.474E+01 | 1.669E+01 | 1.797E-03 | 5.123E-05 | 3.02E+00 | 4.355E+00 | 4.218E+00 | 3.122E+01 | 5.131E-04 | 2.378E-03 | 2.297E-01 |
| 95 | 8.55E-01 | 1.533E+01 | 1.442E+01 | 1.634E+01 | 1.873E-03 | 3.457E-05 | 2.80E+00 | 4.679E+00 | 4.542E+00 | 3.354E+01 | 4.445E-04 | 2.113E-03 | 2.288E-01 |
| 100 | 8.64E-01 | 1.501E+01 | 1.410E+01 | 1.600E+01 | 1.954E-03 | 1.571E-05 | 2.59E+00 | 5.001E+00 | 4.863E+00 | 3.585E+01 | 3.892E-04 | 1.890E-03 | 2.262E-01 |
| 105 | 8.65E-01 | 1.469E+01 | 1.378E+01 | 1.567E+01 | 2.039E-03 | -5.441E-06 | 2.39E+00 | 5.318E+00 | 5.180E+00 | 3.811E+01 | 3.443E-04 | 1.702E-03 | 2.219E-01 |
| 110 | 8.60E-01 | 1.438E+01 | 1.347E+01 | 1.534E+01 | 2.128E-03 | -2.891E-05 | 2.20E+00 | 5.627E+00 | 5.489E+00 | 4.033E+01 | 3.075E-04 | 1.543E-03 | 2.158E-01 |
| 115 | 8.47E-01 | 1.408E+01 | 1.317E+01 | 1.502E+01 | 2.219E-03 | -5.465E-05 | 2.01E+00 | 5.927E+00 | 5.789E+00 | 4.248E+01 | 2.772E-04 | 1.410E-03 | 2.082E-01 |
| 120 | 8.27E-01 | 1.379E+01 | 1.288E+01 | 1.471E+01 | 2.313E-03 | -8.252E-05 | 1.83E+00 | 6.214E+00 | 6.076E+00 | 4.454E+01 | 2.521E-04 | 1.297E-03 | 1.989E-01 |
| 125 | 7.98E-01 | 1.352E+01 | 1.261E+01 | 1.442E+01 | 2.407E-03 | -1.122E-04 | 1.66E+00 | 6.488E+00 | 6.350E+00 | 4.650E+01 | 2.313E-04 | 1.201E-03 | 1.882E-01 |
| 130 | 7.60E-01 | 1.326E+01 | 1.235E+01 | 1.415E+01 | 2.502E-03 | -1.434E-04 | 1.49E+00 | 6.745E+00 | 6.607E+00 | 4.834E+01 | 2.140E-04 | 1.121E-03 | 1.760E-01 |
| 135 | 7.15E-01 | 1.302E+01 | 1.211E+01 | 1.389E+01 | 2.594E-03 | -1.756E-04 | 1.33E+00 | 6.984E+00 | 6.846E+00 | 5.005E+01 | 1.996E-04 | 1.053E-03 | 1.624E-01 |
| 140 | 6.61E-01 | 1.280E+01 | 1.189E+01 | 1.366E+01 | 2.684E-03 | -2.080E-04 | 1.17E+00 | 7.203E+00 | 7.065E+00 | 5.162E+01 | 1.877E-04 | 9.960E-04 | 1.476E-01 |
| 145 | 5.99E-01 | 1.260E+01 | 1.170E+01 | 1.345E+01 | 2.768E-03 | -2.399E-04 | 1.02E+00 | 7.401E+00 | 7.262E+00 | 5.304E+01 | 1.778E-04 | 9.484E-04 | 1.317E-01 |
| 150 | 5.30E-01 | 1.243E+01 | 1.152E+01 | 1.326E+01 | 2.846E-03 | -2.703E-04 | 8.69E-01 | 7.575E+00 | 7.437E+00 | 5.428E+01 | 1.697E-04 | 9.092E-04 | 1.148E-01 |
| 155 | 4.53E-01 | 1.228E+01 | 1.137E+01 | 1.310E+01 | 2.916E-03 | -2.983E-04 | 7.20E-01 | 7.725E+00 | 7.586E+00 | 5.536E+01 | 1.632E-04 | 8.774E-04 | 9.707E-02 |
| 160 | 3.70E-01 | 1.215E+01 | 1.125E+01 | 1.297E+01 | 2.976E-03 | -3.229E-04 | 5.74E-01 | 7.849E+00 | 7.711E+00 | 5.625E+01 | 1.581E-04 | 8.523E-04 | 7.856E-02 |
| 165 | 2.83E-01 | 1.205E+01 | 1.115E+01 | 1.287E+01 | 3.024E-03 | -3.432E-04 | 4.29E-01 | 7.946E+00 | 7.808E+00 | 5.694E+01 | 1.542E-04 | 8.333E-04 | 5.945E-02 |
| 170 | 1.91E-01 | 1.198E+01 | 1.108E+01 | 1.279E+01 | 3.059E-03 | -3.584E-04 | 2.85E-01 | 8.017E+00 | 7.878E+00 | 5.745E+01 | 1.515E-04 | 8.200E-04 | 3.989E-02 |
| 175 | 9.61E-02 | 1.194E+01 | 1.104E+01 | 1.275E+01 | 3.081E-03 | -3.677E-04 | 1.42E-01 | 8.059E+00 | 7.921E+00 | 5.775E+01 | 1.499E-04 | 8.122E-04 | 2.002E-02 |
| 180 | 0. | 1.193E+01 | 1.102E+01 | 1.273E+01 | 3.088E-03 | -3.709E-04 | 0. | 8.073E+00 | 7.935E+00 | 5.785E+01 | 1.494E-04 | 8.095E-04 | 0. |

DELTA(1236) => NEUTRON + PI PLUS AT 30 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.23600E+00 M2 = 9.39553E-01 M3 = 1.39569E-01
P2CM= 2.29699E-01
E2CM= 9.67223E-01 E3CM= 2.68777E-01

1-V1LAB= 8.476E-04 GCM = 2.42924E+01 S = 1.52770E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.906E+01 | 2.813E+01 | 3.094E+01 | 5.224E-04 | 6.249E-05 | 0. | 9.438E-01 | 8.145E-01 | 6.836E+00 | 1.076E-02 | -5.924E-02 | 0. |
| 1 | 7.91E-03 | 2.906E+01 | 2.813E+01 | 3.094E+01 | 5.224E-04 | 6.249E-05 | 2.43E-01 | 9.446E-01 | 8.153E-01 | 6.842E+00 | 1.074E-02 | -5.901E-02 | 4.009E-03 |
| 2 | 1.58E-02 | 2.905E+01 | 2.813E+01 | 3.094E+01 | 5.225E-04 | 6.249E-05 | 4.85E-01 | 9.472E-01 | 8.179E-01 | 6.860E+00 | 1.068E-02 | -5.835E-02 | 8.016E-03 |
| 3 | 2.37E-02 | 2.905E+01 | 2.812E+01 | 3.093E+01 | 5.227E-04 | 6.247E-05 | 7.24E-01 | 9.515E-01 | 8.221E-01 | 6.890E+00 | 1.059E-02 | -5.726E-02 | 1.202E-02 |
| 4 | 3.16E-02 | 2.904E+01 | 2.812E+01 | 3.093E+01 | 5.229E-04 | 6.246E-05 | 9.59E-01 | 9.575E-01 | 8.280E-01 | 6.933E+00 | 1.046E-02 | -5.577E-02 | 1.602E-02 |
| 5 | 3.95E-02 | 2.904E+01 | 2.811E+01 | 3.092E+01 | 5.232E-04 | 6.244E-05 | 1.19E+00 | 9.652E-01 | 8.357E-01 | 6.988E+00 | 1.029E-02 | -5.392E-02 | 2.002E-02 |
| 6 | 4.74E-02 | 2.903E+01 | 2.810E+01 | 3.091E+01 | 5.235E-04 | 6.241E-05 | 1.41E+00 | 9.746E-01 | 8.450E-01 | 7.054E+00 | 1.010E-02 | -5.175E-02 | 2.401E-02 |
| 7 | 5.53E-02 | 2.901E+01 | 2.809E+01 | 3.090E+01 | 5.239E-04 | 6.239E-05 | 1.63E+00 | 9.858E-01 | 8.560E-01 | 7.133E+00 | 9.875E-03 | -4.931E-02 | 2.799E-02 |
| 8 | 6.32E-02 | 2.900E+01 | 2.808E+01 | 3.088E+01 | 5.243E-04 | 6.235E-05 | 1.83E+00 | 9.986E-01 | 8.687E-01 | 7.224E+00 | 9.627E-03 | -4.664E-02 | 3.197E-02 |
| 9 | 7.10E-02 | 2.899E+01 | 2.806E+01 | 3.087E+01 | 5.249E-04 | 6.231E-05 | 2.03E+00 | 1.013E+00 | 8.831E-01 | 7.327E+00 | 9.356E-03 | -4.381E-02 | 3.593E-02 |
| 10 | 7.89E-02 | 2.897E+01 | 2.805E+01 | 3.085E+01 | 5.254E-04 | 6.227E-05 | 2.22E+00 | 1.029E+00 | 8.992E-01 | 7.442E+00 | 9.068E-03 | -4.087E-02 | 3.989E-02 |
| 15 | 1.18E-01 | 2.887E+01 | 2.794E+01 | 3.074E+01 | 5.293E-04 | 6.198E-05 | 3.00E+00 | 1.135E+00 | 1.004E+00 | 8.197E+00 | 7.470E-03 | -2.600E-02 | 5.945E-02 |
| 20 | 1.57E-01 | 2.872E+01 | 2.780E+01 | 3.058E+01 | 5.347E-04 | 6.156E-05 | 3.51E+00 | 1.283E+00 | 1.151E+00 | 9.245E+00 | 5.868E-03 | -1.376E-02 | 7.856E-02 |
| 25 | 1.95E-01 | 2.853E+01 | 2.761E+01 | 3.039E+01 | 5.417E-04 | 6.100E-05 | 3.79E+00 | 1.470E+00 | 1.337E+00 | 1.058E+01 | 4.478E-03 | -5.526E-03 | 9.707E-02 |
| 30 | 2.32E-01 | 2.831E+01 | 2.738E+01 | 3.015E+01 | 5.503E-04 | 6.026E-05 | 3.88E+00 | 1.695E+00 | 1.561E+00 | 1.219E+01 | 3.372E-03 | -7.555E-04 | 1.148E-01 |
| 35 | 2.69E-01 | 2.805E+01 | 2.712E+01 | 2.987E+01 | 5.606E-04 | 5.933E-05 | 3.86E+00 | 1.957E+00 | 1.823E+00 | 1.406E+01 | 2.533E-03 | 1.661E-03 | 1.317E-01 |
| 40 | 3.05E-01 | 2.775E+01 | 2.683E+01 | 2.955E+01 | 5.726E-04 | 5.817E-05 | 3.76E+00 | 2.254E+00 | 2.119E+00 | 1.618E+01 | 1.911E-03 | 2.684E-03 | 1.476E-01 |
| 45 | 3.39E-01 | 2.742E+01 | 2.650E+01 | 2.920E+01 | 5.864E-04 | 5.675E-05 | 3.60E+00 | 2.583E+00 | 2.447E+00 | 1.854E+01 | 1.456E-03 | 2.960E-03 | 1.624E-01 |
| 50 | 3.73E-01 | 2.706E+01 | 2.614E+01 | 2.882E+01 | 6.021E-04 | 5.502E-05 | 3.43E+00 | 2.942E+00 | 2.806E+00 | 2.110E+01 | 1.123E-03 | 2.872E-03 | 1.760E-01 |
| 55 | 4.04E-01 | 2.668E+01 | 2.575E+01 | 2.841E+01 | 6.196E-04 | 5.293E-05 | 3.24E+00 | 3.329E+00 | 3.192E+00 | 2.387E+01 | 8.780E-04 | 2.630E-03 | 1.882E-01 |
| 60 | 4.34E-01 | 2.627E+01 | 2.534E+01 | 2.797E+01 | 6.391E-04 | 5.042E-05 | 3.05E+00 | 3.739E+00 | 3.602E+00 | 2.681E+01 | 6.959E-04 | 2.340E-03 | 1.989E-01 |
| 65 | 4.62E-01 | 2.584E+01 | 2.491E+01 | 2.752E+01 | 6.606E-04 | 4.743E-05 | 2.86E+00 | 4.171E+00 | 4.033E+00 | 2.990F+01 | 5.594E-04 | 2.053E-03 | 2.082E-01 |
| 70 | 4.87E-01 | 2.539E+01 | 2.446E+01 | 2.704E+01 | 6.842E-04 | 4.389E-05 | 2.68E+00 | 4.620E+00 | 4.483E+00 | 3.312E+01 | 4.559E-04 | 1.791E-03 | 2.158E-01 |
| 75 | 5.10E-01 | 2.492E+01 | 2.400E+01 | 2.654E+01 | 7.099E-04 | 3.973E-05 | 2.50E+00 | 5.084E+00 | 4.947E+00 | 3.644E+01 | 3.766E-04 | 1.562E-03 | 2.219E-01 |
| 80 | 5.30E-01 | 2.445E+01 | 2.352E+01 | 2.604E+01 | 7.377E-04 | 3.487E-05 | 2.33E+00 | 5.559E+00 | 5.422E+00 | 3.984E+01 | 3.150E-04 | 1.366E-03 | 2.262E-01 |
| 85 | 5.47E-01 | 2.396E+01 | 2.304E+01 | 2.553E+01 | 7.677E-04 | 2.924E-05 | 2.17E+00 | 6.042E+00 | 5.904E+00 | 4.330E+01 | 2.667E-04 | 1.199E-03 | 2.288E-01 |
| 90 | 5.61E-01 | 2.348E+01 | 2.256E+01 | 2.501E+01 | 7.998E-04 | 2.275E-05 | 2.02E+00 | 6.528E+00 | 6.390E+00 | 4.678E+01 | 2.285E-04 | 1.058E-03 | 2.297E-01 |
| 95 | 5.70E-01 | 2.299E+01 | 2.207E+01 | 2.449E+01 | 8.340E-04 | 1.534E-05 | 1.87E+00 | 7.014E+00 | 6.876E+00 | 5.026E+01 | 1.979E-04 | 9.402E-04 | 2.288E-01 |
| 100 | 5.76E-01 | 2.251E+01 | 2.159E+01 | 2.398E+01 | 8.701E-04 | 6.956E-06 | 1.73E+00 | 7.496E+00 | 7.358E+00 | 5.372E+01 | 1.733E-04 | 8.408E-04 | 2.262E-01 |
| 105 | 5.77E-01 | 2.203E+01 | 2.111E+01 | 2.347E+01 | 9.080E-04 | -2.447E-06 | 1.60E+00 | 7.971E+00 | 7.833E+00 | 5.712E+01 | 1.533E-04 | 7.572E-04 | 2.219E-01 |
| 110 | 5.73E-01 | 2.157E+01 | 2.065E+01 | 2.298E+01 | 9.474E-04 | -1.288E-05 | 1.47E+00 | 8.435E+00 | 8.297E+00 | 6.044E+01 | 1.369E-04 | 6.867E-04 | 2.158E-01 |
| 115 | 5.65E-01 | 2.112E+01 | 2.020E+01 | 2.250E+01 | 9.881E-04 | -2.432E-05 | 1.34E+00 | 8.884E+00 | 8.746E+00 | 6.366E+01 | 1.234E-04 | 6.273E-04 | 2.082E-01 |
| 120 | 5.51E-01 | 2.069E+01 | 1.977E+01 | 2.204E+01 | 1.030E-03 | -3.670E-05 | 1.22E+00 | 9.316E+00 | 9.177E+00 | 6.675E+01 | 1.122E-04 | 5.770E-04 | 1.989E-01 |
| 125 | 5.32E-01 | 2.028E+01 | 1.936E+01 | 2.160E+01 | 1.072E-03 | -4.991E-05 | 1.11E+00 | 9.726E+00 | 9.587E+00 | 6.969E+01 | 1.029E-04 | 5.346E-04 | 1.882E-01 |
| 130 | 5.07E-01 | 1.989E+01 | 1.897E+01 | 2.119E+01 | 1.114E-03 | -6.377E-05 | 9.97E-01 | 1.011E+01 | 9.973E+00 | 7.246E+01 | 9.524E-05 | 4.987E-04 | 1.760E-01 |
| 135 | 4.76E-01 | 1.953E+01 | 1.861E+01 | 2.081E+01 | 1.155E-03 | -7.804E-05 | 8.89E-01 | 1.047E+01 | 1.033E+01 | 7.503E+01 | 8.883E-05 | 4.685E-04 | 1.624E-01 |
| 140 | 4.41E-01 | 1.920E+01 | 1.829E+01 | 2.046E+01 | 1.195E-03 | -9.243E-05 | 7.83E-01 | 1.080E+01 | 1.066E+01 | 7.738E+01 | 8.350E-05 | 4.431E-04 | 1.476E-01 |
| 145 | 3.99E-01 | 1.891E+01 | 1.799E+01 | 2.015E+01 | 1.233E-03 | -1.066E-04 | 6.80E-01 | 1.110E+01 | 1.096E+01 | 7.950E+01 | 7.911E-05 | 4.220E-04 | 1.317E-01 |
| 150 | 3.53E-01 | 1.864E+01 | 1.773E+01 | 1.987E+01 | 1.267E-03 | -1.201E-04 | 5.79E-01 | 1.136E+01 | 1.122E+01 | 8.138E+01 | 7.551E-05 | 4.045E-04 | 1.148E-01 |
| 155 | 3.02E-01 | 1.842E+01 | 1.750E+01 | 1.963E+01 | 1.298E-03 | -1.325E-04 | 4.80E-01 | 1.158E+01 | 1.144E+01 | 8.298E+01 | 7.261E-05 | 3.904E-04 | 9.707E-02 |
| 160 | 2.47E-01 | 1.823E+01 | 1.732E+01 | 1.943E+01 | 1.325E-03 | -1.435E-04 | 3.83E-01 | 1.177E+01 | 1.163E+01 | 8.432E+01 | 7.033E-05 | 3.792E-04 | 7.856E-02 |
| 165 | 1.88E-01 | 1.809E+01 | 1.717E+01 | 1.928E+01 | 1.347E-03 | -1.525E-04 | 2.86E-01 | 1.191E+01 | 1.177E+01 | 8.537E+01 | 6.861E-05 | 3.707E-04 | 5.945E-02 |
| 170 | 1.27E-01 | 1.798E+01 | 1.707E+01 | 1.916E+01 | 1.362E-03 | -1.592E-04 | 1.90E-01 | 1.202E+01 | 1.188E+01 | 8.612E+01 | 6.742E-05 | 3.648E-04 | 3.989E-02 |
| 175 | 6.40E-02 | 1.792E+01 | 1.700E+01 | 1.910E+01 | 1.372E-03 | -1.633E-04 | 9.49E-02 | 1.208E+01 | 1.194E+01 | 8.658E+01 | 6.671E-05 | 3.613E-04 | 2.002E-02 |
| 180 | 0. | 1.790E+01 | 1.698E+01 | 1.907E+01 | 1.375E-03 | -1.647E-04 | 0. | 1.210E+01 | 1.196E+01 | 8.673E+01 | 6.648E-05 | 3.602E-04 | 0. |

DELTA(1236) => NEUTRON + PI PLUS AT 40 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.23600E+00 M2 = 9.39553E-01 M3 = 1.39569E-01
P2CM= 2.29699E-01
E2CM= 9.67223E-01 E3CM= 2.68777E-01

1-V1LAB= 4.771E-04 GCM = 3.23779E+01 S = 1.52770E+00

| Θ2 CM | Θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | Θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 3.874E+01 | 3.781E+01 | 4.124E+01 | 2.940E-04 | 3.516E-05 | 0. | 1.261E+00 | 1.129E+00 | 9.091E+00 | 6.068E-03 | -3.317E-02 | 0. |
| 1 | 5.93E-03 | 3.874E+01 | 3.781E+01 | 4.124E+01 | 2.940E-04 | 3.516E-05 | 1.82E-01 | 1.262E+00 | 1.130E+00 | 9.099E+00 | 6.058E-03 | -3.305E-02 | 4.009E-03 |
| 2 | 1.19E-02 | 3.873E+01 | 3.781E+01 | 4.124E+01 | 2.941E-04 | 3.515E-05 | 3.63E-01 | 1.266E+00 | 1.134E+00 | 9.123E+00 | 6.025E-03 | -3.268E-02 | 8.016E-03 |
| 3 | 1.78E-02 | 3.873E+01 | 3.780E+01 | 4.123E+01 | 2.941E-04 | 3.515E-05 | 5.42E-01 | 1.271E+00 | 1.139E+00 | 9.164E+00 | 5.972E-03 | -3.207E-02 | 1.202E-02 |
| 4 | 2.37E-02 | 3.872E+01 | 3.779E+01 | 4.122E+01 | 2.943E-04 | 3.514E-05 | 7.18E-01 | 1.279E+00 | 1.147E+00 | 9.221E+00 | 5.898E-03 | -3.124E-02 | 1.602E-02 |
| 5 | 2.96E-02 | 3.871E+01 | 3.778E+01 | 4.121E+01 | 2.944E-04 | 3.513E-05 | 8.90E-01 | 1.290E+00 | 1.158E+00 | 9.294E+00 | 5.806E-03 | -3.021E-02 | 2.002E-02 |
| 6 | 3.55E-02 | 3.870E+01 | 3.777E+01 | 4.120E+01 | 2.946E-04 | 3.511E-05 | 1.06E+00 | 1.302E+00 | 1.170E+00 | 9.383E+00 | 5.696E-03 | -2.900E-02 | 2.401E-02 |
| 7 | 4.15E-02 | 3.868E+01 | 3.776E+01 | 4.118E+01 | 2.948E-04 | 3.510E-05 | 1.22E+00 | 1.317E+00 | 1.185E+00 | 9.488E+00 | 5.570E-03 | -2.764E-02 | 2.799E-02 |
| 8 | 4.74E-02 | 3.867E+01 | 3.774E+01 | 4.117E+01 | 2.951E-04 | 3.508E-05 | 1.37E+00 | 1.334E+00 | 1.202E+00 | 9.609E+00 | 5.430E-03 | -2.615E-02 | 3.197E-02 |
| 9 | 5.33E-02 | 3.865E+01 | 3.772E+01 | 4.115E+01 | 2.954E-04 | 3.506E-05 | 1.52E+00 | 1.353E+00 | 1.221E+00 | 9.747E+00 | 5.277E-03 | -2.457E-02 | 3.593E-02 |
| 10 | 5.92E-02 | 3.863E+01 | 3.770E+01 | 4.112E+01 | 2.957E-04 | 3.503E-05 | 1.66E+00 | 1.375E+00 | 1.242E+00 | 9.900E+00 | 5.114E-03 | -2.293E-02 | 3.989E-02 |
| 15 | 8.85E-02 | 3.849E+01 | 3.756E+01 | 4.097E+01 | 2.979E-04 | 3.487E-05 | 2.25E+00 | 1.516E+00 | 1.383E+00 | 1.091E+01 | 4.213E-03 | -1.462E-02 | 5.945E-02 |
| 20 | 1.18E-01 | 3.829E+01 | 3.736E+01 | 4.077E+01 | 3.009E-04 | 3.463E-05 | 2.63E+00 | 1.711E+00 | 1.578E+00 | 1.230E+01 | 3.309E-03 | -7.752E-03 | 7.856E-02 |
| 25 | 1.46E-01 | 3.804E+01 | 3.711E+01 | 4.050E+01 | 3.048E-04 | 3.431E-05 | 2.84E+00 | 1.960E+00 | 1.826E+00 | 1.408E+01 | 2.525E-03 | -3.125E-03 | 9.707E-02 |
| 30 | 1.74E-01 | 3.774E+01 | 3.681E+01 | 4.018E+01 | 3.097E-04 | 3.390E-05 | 2.91E+00 | 2.260E+00 | 2.125E+00 | 1.623E+01 | 1.901E-03 | -4.375E-04 | 1.148E-01 |
| 35 | 2.02E-01 | 3.739E+01 | 3.647E+01 | 3.981E+01 | 3.155E-04 | 3.338E-05 | 2.89E+00 | 2.609E+00 | 2.474E+00 | 1.872E+01 | 1.427E-03 | 9.263E-04 | 1.317E-01 |
| 40 | 2.29E-01 | 3.700E+01 | 3.607E+01 | 3.939E+01 | 3.223E-04 | 3.273E-05 | 2.82E+00 | 3.005E+00 | 2.868E+00 | 2.155E+01 | 1.077E-03 | 1.505E-03 | 1.476E-01 |
| 45 | 2.55E-01 | 3.656E+01 | 3.563E+01 | 3.893E+01 | 3.300E-04 | 3.192E-05 | 2.70E+00 | 3.443E+00 | 3.307E+00 | 2.469E+01 | 8.205E-04 | 1.663E-03 | 1.624E-01 |
| 50 | 2.79E-01 | 3.608E+01 | 3.516E+01 | 3.842E+01 | 3.388E-04 | 3.095E-05 | 2.57E+00 | 3.922E+00 | 3.785E+00 | 2.812E+01 | 6.327E-04 | 1.615E-03 | 1.760E-01 |
| 55 | 3.03E-01 | 3.557E+01 | 3.464E+01 | 3.787E+01 | 3.487E-04 | 2.977E-05 | 2.43E+00 | 4.436E+00 | 4.299E+00 | 3.180E+01 | 4.945E-04 | 1.479E-03 | 1.882E-01 |
| 60 | 3.25E-01 | 3.502E+01 | 3.409E+01 | 3.729E+01 | 3.597E-04 | 2.836E-05 | 2.29E+00 | 4.984E+00 | 4.846E+00 | 3.572E+01 | 3.919E-04 | 1.316E-03 | 1.989E-01 |
| 65 | 3.46E-01 | 3.445E+01 | 3.352E+01 | 3.668E+01 | 3.718E-04 | 2.668E-05 | 2.15E+00 | 5.559E+00 | 5.421E+00 | 3.984E+01 | 3.150E-04 | 1.155E-03 | 2.082E-01 |
| 70 | 3.65E-01 | 3.385E+01 | 3.292E+01 | 3.604E+01 | 3.851E-04 | 2.469E-05 | 2.01E+00 | 6.158E+00 | 6.020E+00 | 4.414E+01 | 2.567E-04 | 1.008E-03 | 2.158E-01 |
| 75 | 3.83E-01 | 3.323E+01 | 3.230E+01 | 3.538E+01 | 3.995E-04 | 2.235E-05 | 1.88E+00 | 6.777E+00 | 6.639E+00 | 4.857E+01 | 2.120E-04 | 8.791E-04 | 2.219E-01 |
| 80 | 3.98E-01 | 3.259E+01 | 3.167E+01 | 3.471E+01 | 4.152E-04 | 1.961E-05 | 1.75E+00 | 7.410E+00 | 7.272E+00 | 5.310E+01 | 1.773E-04 | 7.685E-04 | 2.262E-01 |
| 85 | 4.10E-01 | 3.195E+01 | 3.102E+01 | 3.402E+01 | 4.321E-04 | 1.644E-05 | 1.63E+00 | 8.053E+00 | 7.915E+00 | 5.771E+01 | 1.501E-04 | 6.747E-04 | 2.288E-01 |
| 90 | 4.20E-01 | 3.130E+01 | 3.038E+01 | 3.333E+01 | 4.502E-04 | 1.279E-05 | 1.51E+00 | 8.701E+00 | 8.563E+00 | 6.235E+01 | 1.286E-04 | 5.956E-04 | 2.297E-01 |
| 95 | 4.28E-01 | 3.065E+01 | 2.973E+01 | 3.264E+01 | 4.694E-04 | 8.625E-06 | 1.40E+00 | 9.349E+00 | 9.211E+00 | 6.699E+01 | 1.114E-04 | 5.291E-04 | 2.288E-01 |
| 100 | 4.32E-01 | 3.001E+01 | 2.909E+01 | 3.196E+01 | 4.897E-04 | 3.907E-06 | 1.30E+00 | 9.992E+00 | 9.854E+00 | 7.160E+01 | 9.753E-05 | 4.732F-04 | 2.262E-01 |
| 105 | 4.33E-01 | 2.938E+01 | 2.845E+01 | 3.128E+01 | 5.110E-04 | -1.382E-06 | 1.20E+00 | 1.063E+01 | 1.049E+01 | 7.614E+01 | 8.626E-05 | 4.261E-04 | 2.219E-01 |
| 110 | 4.30E-01 | 2.876E+01 | 2.783E+01 | 3.063E+01 | 5.332E-04 | -7.251E-06 | 1.10E+00 | 1.124E+01 | 1.111E+01 | 8.057E+01 | 7.703E-05 | 3.865E-04 | 2.158E-01 |
| 115 | 4.24E-01 | 2.816E+01 | 2.724E+01 | 2.999E+01 | 5.562E-04 | -1.368E-05 | 1.01E+00 | 1.184E+01 | 1.170E+01 | 8.486E+01 | 6.943E-05 | 3.530F-04 | 2.082E-01 |
| 120 | 4.13E-01 | 2.758E+01 | 2.666E+01 | 2.938E+01 | 5.796E-04 | -2.065E-05 | 9.18E-01 | 1.242E+01 | 1.228E+01 | 8.898E+01 | 6.315E-05 | 3.247E-04 | 1.989E-01 |
| 125 | 3.99E-01 | 2.704E+01 | 2.611E+01 | 2.879E+01 | 6.033E-04 | -2.808E-05 | 8.32E-01 | 1.297E+01 | 1.283E+01 | 9.290E+01 | 5.793E-05 | 3.008E-04 | 1.882E-01 |
| 130 | 3.80E-01 | 2.652E+01 | 2.560E+01 | 2.825E+01 | 6.269E-04 | -3.587E-05 | 7.48E-01 | 1.348E+01 | 1.334E+01 | 9.659E+01 | 5.360E-05 | 2.806E-04 | 1.760E-01 |
| 135 | 3.57E-01 | 2.604E+01 | 2.512E+01 | 2.774E+01 | 6.501E-04 | -4.390E-05 | 6.67E-01 | 1.396E+01 | 1.382E+01 | 1.000E+02 | 4.999E-05 | 2.636E-04 | 1.624E-01 |
| 140 | 3.30E-01 | 2.560E+01 | 2.468E+01 | 2.727E+01 | 6.726E-04 | -5.199E-05 | 5.88E-01 | 1.440E+01 | 1.426E+01 | 1.032E+02 | 4.699E-05 | 2.493E-04 | 1.476E-01 |
| 145 | 2.99E-01 | 2.521E+01 | 2.429E+01 | 2.685E+01 | 6.938E-04 | -5.995E-05 | 5.10E-01 | 1.479E+01 | 1.465E+01 | 1.060E+02 | 4.452E-05 | 2.374E-04 | 1.317E-01 |
| 150 | 2.65E-01 | 2.486E+01 | 2.394E+01 | 2.648E+01 | 7.134E-04 | -6.754E-05 | 4.35E-01 | 1.514E+01 | 1.500E+01 | 1.085E+02 | 4.249E-05 | 2.276E-04 | 1.148E-01 |
| 155 | 2.26E-01 | 2.456E+01 | 2.364E+01 | 2.616E+01 | 7.308E-04 | -7.453E-05 | 3.60E-01 | 1.544E+01 | 1.530E+01 | 1.106E+02 | 4.086E-05 | 2.197E-04 | 9.707E-02 |
| 160 | 1.85E-01 | 2.431E+01 | 2.339E+01 | 2.590E+01 | 7.458E-04 | -8.068E-05 | 2.87E-01 | 1.569E+01 | 1.555E+01 | 1.124E+02 | 3.958E-05 | 2.134E-04 | 7.856E-02 |
| 165 | 1.41E-01 | 2.412E+01 | 2.320E+01 | 2.569E+01 | 7.579E-04 | -8.574E-05 | 2.14E-01 | 1.588E+01 | 1.574E+01 | 1.138E+02 | 3.861E-05 | 2.086E-04 | 5.945E-02 |
| 170 | 9.53E-02 | 2.398E+01 | 2.306E+01 | 2.554E+01 | 7.668E-04 | -8.952E-05 | 1.43E-01 | 1.602E+01 | 1.588E+01 | 1.148E+02 | 3.794E-05 | 2.053E-04 | 3.989E-02 |
| 175 | 4.80E-02 | 2.389E+01 | 2.297E+01 | 2.545E+01 | 7.723E-04 | -9.185E-05 | 7.12E-02 | 1.611E+01 | 1.597E+01 | 1.154E+02 | 3.754E-05 | 2.033E-04 | 2.002E-02 |
| 180 | 0. | 2.386E+01 | 2.294E+01 | 2.542E+01 | 7.741E-04 | -9.264E-05 | 0. | 1.614E+01 | 1.600E+01 | 1.156E+02 | 3.741E-05 | 2.027E-04 | 0. |

DELTA(1236) => NEUTRON + PI PLUS AT 50 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.23600E+00 M2 = 9.39553E-01 M3 = 1.39569E-01
P2CM= 2.29699E-01
E2CM= 9.67223E-01 E3CM= 2.68777E-01

1-V1LAB= 3.054E-04 GCM = 4.04654E+01 S = 1.52770E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 4.842E+01 | 4.749E+01 | 5.155E+01 | 1.882E-04 | 2.250E-05 | 0. | 1.578E+00 | 1.445E+00 | 1.135E+01 | 3.889E-03 | -2.119E-02 | 0. |
| 1 | 4.74E-03 | 4.842E+01 | 4.749E+01 | 5.155E+01 | 1.882E-04 | 2.250E-05 | 1.45E-01 | 1.579E+00 | 1.446E+00 | 1.136E+01 | 3.882E-03 | -2.111E-02 | 4.809E-03 |
| 2 | 9.49E-03 | 4.842E+01 | 4.749E+01 | 5.154E+01 | 1.882E-04 | 2.250E-05 | 2.90E-01 | 1.584E+00 | 1.450E+00 | 1.139E+01 | 3.861E-03 | -2.087E-02 | 8.016E-03 |
| 3 | 1.42E-02 | 4.841E+01 | 4.748E+01 | 5.153E+01 | 1.883E-04 | 2.250E-05 | 4.33E-01 | 1.591E+00 | 1.457E+00 | 1.144E+01 | 3.827E-03 | -2.049E-02 | 1.202E-02 |
| 4 | 1.90E-02 | 4.840E+01 | 4.747E+01 | 5.152E+01 | 1.884E-04 | 2.249E-05 | 5.74E-01 | 1.601E+00 | 1.467E+00 | 1.151E+01 | 3.780E-03 | -1.996E-02 | 1.602E-02 |
| 5 | 2.37E-02 | 4.839E+01 | 4.746E+01 | 5.151E+01 | 1.885E-04 | 2.248E-05 | 7.11E-01 | 1.613E+00 | 1.480E+00 | 1.160E+01 | 3.720E-03 | -1.930E-02 | 2.002E-02 |
| 6 | 2.84E-02 | 4.837E+01 | 4.744E+01 | 5.149E+01 | 1.886E-04 | 2.247E-05 | 8.44E-01 | 1.629E+00 | 1.495E+00 | 1.172E+01 | 3.650E-03 | -1.853E-02 | 2.401E-02 |
| 7 | 3.32E-02 | 4.835E+01 | 4.742E+01 | 5.147E+01 | 1.887E-04 | 2.246E-05 | 9.74E-01 | 1.648E+00 | 1.514E+00 | 1.185E+01 | 3.569E-03 | -1.766E-02 | 2.799E-02 |
| 8 | 3.79E-02 | 4.833E+01 | 4.740E+01 | 5.145E+01 | 1.889E-04 | 2.245E-05 | 1.10E+00 | 1.669E+00 | 1.535E+00 | 1.200E+01 | 3.479E-03 | -1.671E-02 | 3.197E-02 |
| 9 | 4.26E-02 | 4.831E+01 | 4.738E+01 | 5.143E+01 | 1.891E-04 | 2.244E-05 | 1.22E+00 | 1.693E+00 | 1.559E+00 | 1.217E+01 | 3.382E-03 | -1.571E-02 | 3.593E-02 |
| 10 | 4.73E-02 | 4.828E+01 | 4.735E+01 | 5.140E+01 | 1.893E-04 | 2.242E-05 | 1.33E+00 | 1.720E+00 | 1.586E+00 | 1.236E+01 | 3.277E-03 | -1.466E-02 | 3.989E-02 |
| 15 | 7.08E-02 | 4.811E+01 | 4.717E+01 | 5.121E+01 | 1.907E-04 | 2.232E-05 | 1.80E+00 | 1.896E+00 | 1.761E+00 | 1.362E+01 | 2.699E-03 | -9.353E-03 | 5.945E-02 |
| 20 | 9.40E-02 | 4.786E+01 | 4.693E+01 | 5.095E+01 | 1.926E-04 | 2.217E-05 | 2.10E+00 | 2.140E+00 | 2.005E+00 | 1.537E+01 | 2.120E-03 | -4.965E-03 | 7.856E-02 |
| 25 | 1.17E-01 | 4.755E+01 | 4.662E+01 | 5.062E+01 | 1.951E-04 | 2.196E-05 | 2.27E+00 | 2.451E+00 | 2.315E+00 | 1.759E+01 | 1.618E-03 | -2.005E-03 | 9.707E-02 |
| 30 | 1.39E-01 | 4.718E+01 | 4.625E+01 | 5.022E+01 | 1.983E-04 | 2.170E-05 | 2.33E+00 | 2.826E+00 | 2.689E+00 | 2.027E+01 | 1.218E-03 | -2.837E-04 | 1.148E-01 |
| 35 | 1.62E-01 | 4.674E+01 | 4.581E+01 | 4.976E+01 | 2.020E-04 | 2.136E-05 | 2.32E+00 | 3.262E+00 | 3.125E+00 | 2.339E+01 | 9.143E-04 | 5.905E-04 | 1.317E-01 |
| 40 | 1.83E-01 | 4.625E+01 | 4.532E+01 | 4.923E+01 | 2.063E-04 | 2.095E-05 | 2.25E+00 | 3.755E+00 | 3.618E+00 | 2.693E+01 | 6.899E-04 | 9.621E-04 | 1.476E-01 |
| 45 | 2.04E-01 | 4.570E+01 | 4.477E+01 | 4.865E+01 | 2.113E-04 | 2.043E-05 | 2.16E+00 | 4.303E+00 | 4.166E+00 | 3.085E+01 | 5.255E-04 | 1.064E-03 | 1.624E-01 |
| 50 | 2.24E-01 | 4.510E+01 | 4.417E+01 | 4.801E+01 | 2.169E-04 | 1.981E-05 | 2.06E+00 | 4.901E+00 | 4.764E+00 | 3.513E+01 | 4.052E-04 | 1.033E-03 | 1.760E-01 |
| 55 | 2.42E-01 | 4.446E+01 | 4.353E+01 | 4.733E+01 | 2.232E-04 | 1.906E-05 | 1.94E+00 | 5.545E+00 | 5.407E+00 | 3.974E+01 | 3.167E-04 | 9.466E-04 | 1.882E-01 |
| 60 | 2.60E-01 | 4.378E+01 | 4.285E+01 | 4.660E+01 | 2.303E-04 | 1.815E-05 | 1.83E+00 | 6.229E+00 | 6.091E+00 | 4.464E+01 | 2.510E-04 | 8.425E-04 | 1.989E-01 |
| 65 | 2.77E-01 | 4.306E+01 | 4.213E+01 | 4.584E+01 | 2.380E-04 | 1.707E-05 | 1.72E+00 | 6.948E+00 | 6.810E+00 | 4.979E+01 | 2.017E-04 | 7.394E-04 | 2.082E-01 |
| 70 | 2.92E-01 | 4.231E+01 | 4.138E+01 | 4.504E+01 | 2.465E-04 | 1.580E-05 | 1.61E+00 | 7.697E+00 | 7.559E+00 | 5.516E+01 | 1.644E-04 | 6.452E-04 | 2.158E-01 |
| 75 | 3.06E-01 | 4.153E+01 | 4.060E+01 | 4.422E+01 | 2.558E-04 | 1.430E-05 | 1.50E+00 | 8.470E+00 | 8.332E+00 | 6.070E+01 | 1.357E-04 | 5.627E-04 | 2.219E-01 |
| 80 | 3.18E-01 | 4.074E+01 | 3.981E+01 | 4.337E+01 | 2.658E-04 | 1.255E-05 | 1.40E+00 | 9.262E+00 | 9.123E+00 | 6.637E+01 | 1.135E-04 | 4.919E-04 | 2.262E-01 |
| 85 | 3.28E-01 | 3.994E+01 | 3.901E+01 | 4.252E+01 | 2.766E-04 | 1.052E-05 | 1.30E+00 | 1.007E+01 | 9.927E+00 | 7.212E+01 | 9.612E-05 | 4.319E-04 | 2.288E-01 |
| 90 | 3.36E-01 | 3.913E+01 | 3.820E+01 | 4.166E+01 | 2.882E-04 | 8.187E-06 | 1.21E+00 | 1.088E+01 | 1.074E+01 | 7.793E+01 | 8.234E-05 | 3.813E-04 | 2.297E-01 |
| 95 | 3.42E-01 | 3.832E+01 | 3.739E+01 | 4.080E+01 | 3.005E-04 | 5.519E-06 | 1.12E+00 | 1.169E+01 | 1.155E+01 | 8.373E+01 | 7.132E-05 | 3.387E-04 | 2.288E-01 |
| 100 | 3.45E-01 | 3.751E+01 | 3.659E+01 | 3.994E+01 | 3.135E-04 | 2.499E-06 | 1.04E+00 | 1.249E+01 | 1.235E+01 | 8.949E+01 | 6.244E-05 | 3.029E-04 | 2.262E-01 |
| 105 | 3.46E-01 | 3.672E+01 | 3.579E+01 | 3.910E+01 | 3.271E-04 | -8.864E-07 | 9.57E-01 | 1.328E+01 | 1.314E+01 | 9.516E+01 | 5.522E-05 | 2.728E-04 | 2.219E-01 |
| 110 | 3.44E-01 | 3.595E+01 | 3.502E+01 | 3.827E+01 | 3.414E-04 | -4.642E-06 | 8.80E-01 | 1.405E+01 | 1.391E+01 | 1.007E+02 | 4.931E-05 | 2.474E-04 | 2.158E-01 |
| 115 | 3.39E-01 | 3.520E+01 | 3.427E+01 | 3.748E+01 | 3.560E-04 | -8.760E-06 | 8.06E-01 | 1.480E+01 | 1.466E+01 | 1.061E+02 | 4.445E-05 | 2.260E-04 | 2.082E-01 |
| 120 | 3.31E-01 | 3.448E+01 | 3.355E+01 | 3.671E+01 | 3.710E-04 | -1.322E-05 | 7.34E-01 | 1.552E+01 | 1.538E+01 | 1.112E+02 | 4.043E-05 | 2.079E-04 | 1.989E-01 |
| 125 | 3.19E-01 | 3.380E+01 | 3.287E+01 | 3.598E+01 | 3.862E-04 | -1.797E-05 | 6.65E-01 | 1.621E+01 | 1.607E+01 | 1.161E+02 | 3.709E-05 | 1.926E-04 | 1.882E-01 |
| 130 | 3.04E-01 | 3.315E+01 | 3.223E+01 | 3.530E+01 | 4.013E-04 | -2.296E-05 | 5.98E-01 | 1.685E+01 | 1.671E+01 | 1.207E+02 | 3.431E-05 | 1.796E-04 | 1.760E-01 |
| 135 | 2.86E-01 | 3.256E+01 | 3.163E+01 | 3.466E+01 | 4.162E-04 | -2.809E-05 | 5.33E-01 | 1.745E+01 | 1.731E+01 | 1.250E+02 | 3.200E-05 | 1.687E-04 | 1.624E-01 |
| 140 | 2.64E-01 | 3.201E+01 | 3.108E+01 | 3.408E+01 | 4.306E-04 | -3.327E-05 | 4.70E-01 | 1.799E+01 | 1.785E+01 | 1.289E+02 | 3.008E-05 | 1.596E-04 | 1.476E-01 |
| 145 | 2.40E-01 | 3.151E+01 | 3.059E+01 | 3.356E+01 | 4.441E-04 | -3.836E-05 | 4.08E-01 | 1.849E+01 | 1.835E+01 | 1.325E+02 | 2.850E-05 | 1.520E-04 | 1.317E-01 |
| 150 | 2.12E-01 | 3.108E+01 | 3.015E+01 | 3.309E+01 | 4.567E-04 | -4.322E-05 | 3.48E-01 | 1.892E+01 | 1.878E+01 | 1.356E+02 | 2.720E-05 | 1.457E-04 | 1.148E-01 |
| 155 | 1.81E-01 | 3.070E+01 | 2.978E+01 | 3.269E+01 | 4.679E-04 | -4.770E-05 | 2.88E-01 | 1.930E+01 | 1.916E+01 | 1.383E+02 | 2.615E-05 | 1.406E-04 | 9.707E-02 |
| 160 | 1.48E-01 | 3.039E+01 | 2.947E+01 | 3.236E+01 | 4.775E-04 | -5.163E-05 | 2.30E-01 | 1.961E+01 | 1.947E+01 | 1.405E+02 | 2.533E-05 | 1.366E-04 | 7.856E-02 |
| 165 | 1.13E-01 | 3.015E+01 | 2.922E+01 | 3.210E+01 | 4.852E-04 | -5.487E-05 | 1.72E-01 | 1.985E+01 | 1.971E+01 | 1.422E+02 | 2.472E-05 | 1.335E-04 | 5.945E-02 |
| 170 | 7.62E-02 | 2.997E+01 | 2.905E+01 | 3.192E+01 | 4.909E-04 | -5.729E-05 | 1.14E-01 | 2.003E+01 | 1.989E+01 | 1.435E+02 | 2.428E-05 | 1.314E-04 | 3.989E-02 |
| 175 | 3.84E-02 | 2.987E+01 | 2.894E+01 | 3.180E+01 | 4.944E-04 | -5.878E-05 | 5.70E-02 | 2.013E+01 | 1.999E+01 | 1.443E+02 | 2.403E-05 | 1.301E-04 | 2.002E-02 |
| 180 | 0. | 2.983E+01 | 2.891E+01 | 3.177E+01 | 4.956E-04 | -5.928E-05 | 0. | 2.017E+01 | 2.003E+01 | 1.445E+02 | 2.395E-05 | 1.297E-04 | 0. |

DELTA(1236) => NEUTRON + PI PLUS AT 60 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.23600E+00 M2 = 9.39553E-01 M3 = 1.39569E-01
P2CM= 2.29699E-01
E2CM= 9.67223E-01 E3CM= 2.68777E-01

1-V1LAB= 2.121E-04 GCM = 4.85540E+01 S = 1.52770E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 5.811E+01 | 5.717E+01 | 6.185E+01 | 1.307E-04 | 1.563E-05 | 0. | 1.895E+00 | 1.760E+00 | 1.361E+01 | 2.702E-03 | -1.470E-02 | 0. |
| 1 | 3.95E-03 | 5.810E+01 | 5.717E+01 | 6.185E+01 | 1.307E-04 | 1.563E-05 | 1.21E-01 | 1.896E+00 | 1.762E+00 | 1.362E+01 | 2.697E-03 | -1.464E-02 | 4.009E-03 |
| 2 | 7.91E-03 | 5.810E+01 | 5.717E+01 | 6.184E+01 | 1.307E-04 | 1.563E-05 | 2.42E-01 | 1.901E+00 | 1.767E+00 | 1.366E+01 | 2.683E-03 | -1.448E-02 | 8.016E-03 |
| 3 | 1.19E-02 | 5.809E+01 | 5.716E+01 | 6.184E+01 | 1.308E-04 | 1.562E-05 | 3.61E-01 | 1.910E+00 | 1.775E+00 | 1.372E+01 | 2.659E-03 | -1.421E-02 | 1.202E-02 |
| 4 | 1.58E-02 | 5.808E+01 | 5.715E+01 | 6.182E+01 | 1.308E-04 | 1.562E-05 | 4.78E-01 | 1.922E+00 | 1.787E+00 | 1.381E+01 | 2.627E-03 | -1.385E-02 | 1.602E-02 |
| 5 | 1.98E-02 | 5.806E+01 | 5.713E+01 | 6.181E+01 | 1.309E-04 | 1.561E-05 | 5.92E-01 | 1.937E+00 | 1.803E+00 | 1.392E+01 | 2.585E-03 | -1.339E-02 | 2.002E-02 |
| 6 | 2.37E-02 | 5.804E+01 | 5.711E+01 | 6.179E+01 | 1.310E-04 | 1.561E-05 | 7.03E-01 | 1.956E+00 | 1.821E+00 | 1.405E+01 | 2.536E-03 | -1.286E-02 | 2.401E-02 |
| 7 | 2.76E-02 | 5.802E+01 | 5.709E+01 | 6.176E+01 | 1.311E-04 | 1.560E-05 | 8.11E-01 | 1.978E+00 | 1.843E+00 | 1.421E+01 | 2.480E-03 | -1.225E-02 | 2.799E-02 |
| 8 | 3.16E-02 | 5.800E+01 | 5.706E+01 | 6.174E+01 | 1.312E-04 | 1.559E-05 | 9.14E-01 | 2.003E+00 | 1.869E+00 | 1.439E+01 | 2.418E-03 | -1.160E-02 | 3.197E-02 |
| 9 | 3.55E-02 | 5.797E+01 | 5.704E+01 | 6.171E+01 | 1.313E-04 | 1.558E-05 | 1.01E+00 | 2.032E+00 | 1.897E+00 | 1.460E+01 | 2.350E-03 | -1.090E-02 | 3.593E-02 |
| 10 | 3.94E-02 | 5.794E+01 | 5.700E+01 | 6.167E+01 | 1.315E-04 | 1.557E-05 | 1.11E+00 | 2.064E+00 | 1.930E+00 | 1.483E+01 | 2.277E-03 | -1.017E-02 | 3.989E-02 |
| 15 | 5.90E-02 | 5.773E+01 | 5.679E+01 | 6.145E+01 | 1.324E-04 | 1.550E-05 | 1.50E+00 | 2.275E+00 | 2.140E+00 | 1.633E+01 | 1.876E-03 | -6.494E-03 | 5.945E-02 |
| 20 | 7.84E-02 | 5.743E+01 | 5.650E+01 | 6.114E+01 | 1.338E-04 | 1.539E-05 | 1.75E+00 | 2.568E+00 | 2.433E+00 | 1.843E+01 | 1.473E-03 | -3.450E-03 | 7.856E-02 |
| 25 | 9.75E-02 | 5.706E+01 | 5.613E+01 | 6.074E+01 | 1.355E-04 | 1.525E-05 | 1.89E+00 | 2.941E+00 | 2.805E+00 | 2.110E+01 | 1.124E-03 | -1.394E-03 | 9.707E-02 |
| 30 | 1.16E-01 | 5.661E+01 | 5.568E+01 | 6.026E+01 | 1.377E-04 | 1.507E-05 | 1.94E+00 | 3.391E+00 | 3.254E+00 | 2.432E+01 | 8.461E-04 | -1.984E-04 | 1.148E-01 |
| 35 | 1.35E-01 | 5.609E+01 | 5.516E+01 | 5.971E+01 | 1.403E-04 | 1.484E-05 | 1.93E+00 | 3.914E+00 | 3.777E+00 | 2.806E+01 | 6.352E-04 | 4.092E-04 | 1.317E-01 |
| 40 | 1.52E-01 | 5.550E+01 | 5.456E+01 | 5.908E+01 | 1.433E-04 | 1.455E-05 | 1.88E+00 | 4.506E+00 | 4.369E+00 | 3.230E+01 | 4.793E-04 | 6.676E-04 | 1.476E-01 |
| 45 | 1.70E-01 | 5.484E+01 | 5.391E+01 | 5.838E+01 | 1.467E-04 | 1.419E-05 | 1.80E+00 | 5.164E+00 | 5.026E+00 | 3.701E+01 | 3.651E-04 | 7.384E-04 | 1.624E-01 |
| 50 | 1.86E-01 | 5.412E+01 | 5.319E+01 | 5.761E+01 | 1.507E-04 | 1.376E-05 | 1.71E+00 | 5.881E+00 | 5.743E+00 | 4.215E+01 | 2.815E-04 | 7.174E-04 | 1.760E-01 |
| 55 | 2.02E-01 | 5.335E+01 | 5.242E+01 | 5.679E+01 | 1.550E-04 | 1.323E-05 | 1.62E+00 | 6.653E+00 | 6.515E+00 | 4.768E+01 | 2.200E-04 | 6.574E-04 | 1.882E-01 |
| 60 | 2.17E-01 | 5.253E+01 | 5.160E+01 | 5.592E+01 | 1.599E-04 | 1.261E-05 | 1.53E+00 | 7.474E+00 | 7.335E+00 | 5.356E+01 | 1.743E-04 | 5.851E-04 | 1.989E-01 |
| 65 | 2.31E-01 | 5.167E+01 | 5.074E+01 | 5.500E+01 | 1.653E-04 | 1.186E-05 | 1.43E+00 | 8.337E+00 | 8.198E+00 | 5.974E+01 | 1.401E-04 | 5.135E-04 | 2.082E-01 |
| 70 | 2.44E-01 | 5.077E+01 | 4.984E+01 | 5.404E+01 | 1.712E-04 | 1.097E-05 | 1.34E+00 | 9.235E+00 | 9.097E+00 | 6.618E+01 | 1.142E-04 | 4.481E-04 | 2.158E-01 |
| 75 | 2.55E-01 | 4.984E+01 | 4.891E+01 | 5.306E+01 | 1.776E-04 | 9.932E-06 | 1.25E+00 | 1.016E+01 | 1.002E+01 | 7.283E+01 | 9.428E-05 | 3.908E-04 | 2.219E-01 |
| 80 | 2.65E-01 | 4.889E+01 | 4.796E+01 | 5.204E+01 | 1.846E-04 | 8.717E-06 | 1.17E+00 | 1.111E+01 | 1.097E+01 | 7.963E+01 | 7.885E-05 | 3.416E-04 | 2.262E-01 |
| 85 | 2.74E-01 | 4.793E+01 | 4.699E+01 | 5.102E+01 | 1.921E-04 | 7.307E-06 | 1.09E+00 | 1.208E+01 | 1.194E+01 | 8.654E+01 | 6.676E-05 | 3.000E-04 | 2.288E-01 |
| 90 | 2.80E-01 | 4.695E+01 | 4.602E+01 | 4.998E+01 | 2.001E-04 | 5.685E-06 | 1.01E+00 | 1.305E+01 | 1.291E+01 | 9.350E+01 | 5.719E-05 | 2.648E-04 | 2.297E-01 |
| 95 | 2.85E-01 | 4.598E+01 | 4.505E+01 | 4.895E+01 | 2.087E-04 | 3.832E-06 | 9.35E-01 | 1.402E+01 | 1.388E+01 | 1.005E+02 | 4.954E-05 | 2.352E-04 | 2.288E-01 |
| 100 | 2.88E-01 | 4.502E+01 | 4.409E+01 | 4.792E+01 | 2.177E-04 | 1.735E-06 | 8.65E-01 | 1.499E+01 | 1.485E+01 | 1.074E+02 | 4.337E-05 | 2.104E-04 | 2.262E-01 |
| 105 | 2.88E-01 | 4.407E+01 | 4.314E+01 | 4.691E+01 | 2.272E-04 | -6.162E-07 | 7.98E-01 | 1.594E+01 | 1.580E+01 | 1.142E+02 | 3.835E-05 | 1.894E-04 | 2.219E-01 |
| 110 | 2.87E-01 | 4.314E+01 | 4.221E+01 | 4.592E+01 | 2.371E-04 | -3.224E-06 | 7.33E-01 | 1.686E+01 | 1.672E+01 | 1.208E+02 | 3.425E-05 | 1.718E-04 | 2.158E-01 |
| 115 | 2.82E-01 | 4.224E+01 | 4.131E+01 | 4.497E+01 | 2.473E-04 | -6.084E-06 | 6.72E-01 | 1.776E+01 | 1.762E+01 | 1.273E+02 | 3.087E-05 | 1.569E-04 | 2.082E-01 |
| 120 | 2.75E-01 | 4.138E+01 | 4.045E+01 | 4.405E+01 | 2.577E-04 | -9.179E-06 | 6.12E-01 | 1.862E+01 | 1.849E+01 | 1.334E+02 | 2.808E-05 | 1.444E-04 | 1.989E-01 |
| 125 | 2.66E-01 | 4.056E+01 | 3.963E+01 | 4.318E+01 | 2.682E-04 | -1.248E-05 | 5.54E-01 | 1.945E+01 | 1.931E+01 | 1.393E+02 | 2.576E-05 | 1.337E-04 | 1.882E-01 |
| 130 | 2.53E-01 | 3.978E+01 | 3.886E+01 | 4.236E+01 | 2.787E-04 | -1.594E-05 | 4.99E-01 | 2.022E+01 | 2.008E+01 | 1.449E+02 | 2.383E-05 | 1.248E-04 | 1.760E-01 |
| 135 | 2.38E-01 | 3.907E+01 | 3.814E+01 | 4.159E+01 | 2.891E-04 | -1.951E-05 | 4.45E-01 | 2.093E+01 | 2.080E+01 | 1.500E+02 | 2.222E-05 | 1.172E-04 | 1.624E-01 |
| 140 | 2.20E-01 | 3.841E+01 | 3.748E+01 | 4.089E+01 | 2.991E-04 | -2.311E-05 | 3.92E-01 | 2.159E+01 | 2.145E+01 | 1.547E+02 | 2.089E-05 | 1.108E-04 | 1.476E-01 |
| 145 | 2.00E-01 | 3.782E+01 | 3.689E+01 | 4.026E+01 | 3.085E-04 | -2.664E-05 | 3.40E-01 | 2.218E+01 | 2.204E+01 | 1.589E+02 | 1.979E-05 | 1.056E-04 | 1.317E-01 |
| 150 | 1.76E-01 | 3.729E+01 | 3.637E+01 | 3.971E+01 | 3.172E-04 | -3.002E-05 | 2.90E-01 | 2.271E+01 | 2.257E+01 | 1.627E+02 | 1.889E-05 | 1.012E-04 | 1.148E-01 |
| 155 | 1.51E-01 | 3.684E+01 | 3.592E+01 | 3.923E+01 | 3.250E-04 | -3.312E-05 | 2.40E-01 | 2.316E+01 | 2.302E+01 | 1.659E+02 | 1.816E-05 | 9.765E-05 | 9.707E-02 |
| 160 | 1.23E-01 | 3.647E+01 | 3.555E+01 | 3.883E+01 | 3.316E-04 | -3.585E-05 | 1.91E-01 | 2.353E+01 | 2.339E+01 | 1.686E+02 | 1.759E-05 | 9.485E-05 | 7.856E-02 |
| 165 | 9.41E-02 | 3.618E+01 | 3.525E+01 | 3.852E+01 | 3.370E-04 | -3.810E-05 | 1.43E-01 | 2.382E+01 | 2.368E+01 | 1.707E+02 | 1.716E-05 | 9.274E-05 | 5.945E-02 |
| 170 | 6.35E-02 | 3.597E+01 | 3.504E+01 | 3.830E+01 | 3.410E-04 | -3.978E-05 | 9.51E-02 | 2.403E+01 | 2.389E+01 | 1.722E+02 | 1.687E-05 | 9.126E-05 | 3.989E-02 |
| 175 | 3.20E-02 | 3.584E+01 | 3.492E+01 | 3.816E+01 | 3.434E-04 | -4.082E-05 | 4.75E-02 | 2.416E+01 | 2.402E+01 | 1.731E+02 | 1.669E-05 | 9.038E-05 | 2.002E-02 |
| 180 | 0. | 3.580E+01 | 3.487E+01 | 3.812E+01 | 3.442E-04 | -4.117E-05 | 0. | 2.420E+01 | 2.406E+01 | 1.734E+02 | 1.663E-05 | 9.009E-05 | 0. |

DELTA(1236) => NEUTRON + PI PLUS AT 70 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.23600E+00 M2 = 9.39553E-01 M3 = 1.39569E-01
P2CM= 2.29699E-01
E2CM= 9.67223E-01 E3CM= 2.68777E-01

1-V1LAB= 1.559E-04 GCM = 5.66431E+01 S = 1.52770E+00

| Θ2 CM | Θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | Θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 6.779E+01 | 6.686E+01 | 7.216E+01 | 9.604E-05 | 1.148E-05 | 0. | 2.211E+00 | 2.076E+00 | 1.587E+01 | 1.986E-03 | -1.079E-02 | 0. |
| 1 | 3.39E-03 | 6.779E+01 | 6.685E+01 | 7.215E+01 | 9.604E-05 | 1.148E-05 | 1.04E-01 | 2.213E+00 | 2.078E+00 | 1.589E+01 | 1.983E-03 | -1.075E-02 | 4.009E-03 |
| 2 | 6.78E-03 | 6.778E+01 | 6.685E+01 | 7.215E+01 | 9.606E-05 | 1.148E-05 | 2.07E-01 | 2.219E+00 | 2.084E+00 | 1.593E+01 | 1.972E-03 | -1.063E-02 | 8.016E-03 |
| 3 | 1.02E-02 | 6.777E+01 | 6.684E+01 | 7.214E+01 | 9.609E-05 | 1.148E-05 | 3.09E-01 | 2.229E+00 | 2.094E+00 | 1.600E+01 | 1.955E-03 | -1.043E-02 | 1.202E-02 |
| 4 | 1.35E-02 | 6.776E+01 | 6.682E+01 | 7.212E+01 | 9.613E-05 | 1.148E-05 | 4.09E-01 | 2.243E+00 | 2.108E+00 | 1.610E+01 | 1.931E-03 | -1.017E-02 | 1.602E-02 |
| 5 | 1.69E-02 | 6.774E+01 | 6.681E+01 | 7.210E+01 | 9.618E-05 | 1.147E-05 | 5.07E-01 | 2.261E+00 | 2.125E+00 | 1.623E+01 | 1.900E-03 | -9.832E-03 | 2.002E-02 |
| 6 | 2.03E-02 | 6.772E+01 | 6.678E+01 | 7.208E+01 | 9.624E-05 | 1.147E-05 | 6.03E-01 | 2.283E+00 | 2.147E+00 | 1.638E+01 | 1.864E-03 | -9.440E-03 | 2.401E-02 |
| 7 | 2.37E-02 | 6.769E+01 | 6.676E+01 | 7.205E+01 | 9.631E-05 | 1.146E-05 | 6.95E-01 | 2.308E+00 | 2.173E+00 | 1.657E+01 | 1.823E-03 | -8.999E-03 | 2.799E-02 |
| 8 | 2.71E-02 | 6.766E+01 | 6.673E+01 | 7.202E+01 | 9.640E-05 | 1.146E-05 | 7.83E-01 | 2.338E+00 | 2.203E+00 | 1.678E+01 | 1.777E-03 | -8.517E-03 | 3.197E-02 |
| 9 | 3.04E-02 | 6.763E+01 | 6.670E+01 | 7.199E+01 | 9.649E-05 | 1.145E-05 | 8.68E-01 | 2.372E+00 | 2.236E+00 | 1.702E+01 | 1.727E-03 | -8.005E-03 | 3.593E-02 |
| 10 | 3.38E-02 | 6.759E+01 | 6.666E+01 | 7.195E+01 | 9.660E-05 | 1.144E-05 | 9.49E-01 | 2.409E+00 | 2.274E+00 | 1.729E+01 | 1.674E-03 | -7.471E-03 | 3.989E-02 |
| 15 | 5.06E-02 | 6.735E+01 | 6.641E+01 | 7.169E+01 | 9.730E-05 | 1.139E-05 | 1.28E+00 | 2.655E+00 | 2.519E+00 | 1.905E+01 | 1.379E-03 | -4.771E-03 | 5.945E-02 |
| 20 | 6.72E-02 | 6.700E+01 | 6.607E+01 | 7.132E+01 | 9.830E-05 | 1.131E-05 | 1.50E+00 | 2.997E+00 | 2.860E+00 | 2.150E+01 | 1.083E-03 | -2.535E-03 | 7.856E-02 |
| 25 | 8.36E-02 | 6.657E+01 | 6.564E+01 | 7.086E+01 | 9.958E-05 | 1.121E-05 | 1.62E+00 | 3.432E+00 | 3.295E+00 | 2.461E+01 | 8.261E-04 | -1.025E-03 | 9.707E-02 |
| 30 | 9.96E-02 | 6.605E+01 | 6.511E+01 | 7.030E+01 | 1.012E-04 | 1.107E-05 | 1.66E+00 | 3.956E+00 | 3.819E+00 | 2.836E+01 | 6.218E-04 | -1.464E-04 | 1.148E-01 |
| 35 | 1.15E-01 | 6.544E+01 | 6.450E+01 | 6.965E+01 | 1.031E-04 | 1.090E-05 | 1.65E+00 | 4.566E+00 | 4.429E+00 | 3.273E+01 | 4.668E-04 | 3.003E-04 | 1.317E-01 |
| 40 | 1.31E-01 | 6.475E+01 | 6.381E+01 | 6.892E+01 | 1.053E-04 | 1.069E-05 | 1.61E+00 | 5.257E+00 | 5.119E+00 | 3.768E+01 | 3.522E-04 | 4.903E-04 | 1.476E-01 |
| 45 | 1.45E-01 | 6.398E+01 | 6.305E+01 | 6.810E+01 | 1.078E-04 | 1.043E-05 | 1.54E+00 | 6.024E+00 | 5.886E+00 | 4.317E+01 | 2.683E-04 | 5.424E-04 | 1.624E-01 |
| 50 | 1.60E-01 | 6.314E+01 | 6.221E+01 | 6.721E+01 | 1.107E-04 | 1.011E-05 | 1.47E+00 | 6.861E+00 | 6.723E+00 | 4.917E+01 | 2.068E-04 | 5.271E-04 | 1.760E-01 |
| 55 | 1.73E-01 | 6.224E+01 | 6.131E+01 | 6.625E+01 | 1.139E-04 | 9.722E-06 | 1.39E+00 | 7.762E+00 | 7.623E+00 | 5.562E+01 | 1.616E-04 | 4.830E-04 | 1.882E-01 |
| 60 | 1.86E-01 | 6.128E+01 | 6.035E+01 | 6.523E+01 | 1.175E-04 | 9.261E-06 | 1.31E+00 | 8.719E+00 | 8.580E+00 | 6.248E+01 | 1.281E-04 | 4.299E-04 | 1.989E-01 |
| 65 | 1.98E-01 | 6.028E+01 | 5.934E+01 | 6.416E+01 | 1.215E-04 | 8.712E-06 | 1.23E+00 | 9.726E+00 | 9.587E+00 | 6.969E+01 | 1.030E-04 | 3.773E-04 | 2.082E-01 |
| 70 | 2.09E-01 | 5.923E+01 | 5.830E+01 | 6.305E+01 | 1.258E-04 | 8.062E-06 | 1.15E+00 | 1.077E+01 | 1.064E+01 | 7.720E+01 | 8.389E-05 | 3.292E-04 | 2.158E-01 |
| 75 | 2.19E-01 | 5.815E+01 | 5.721E+01 | 6.189E+01 | 1.305E-04 | 7.297E-06 | 1.07E+00 | 1.186E+01 | 1.172E+01 | 8.496E+01 | 6.928E-05 | 2.871E-04 | 2.219E-01 |
| 80 | 2.27E-01 | 5.704E+01 | 5.611E+01 | 6.072E+01 | 1.356E-04 | 6.404E-06 | 1.00E+00 | 1.296E+01 | 1.283E+01 | 9.290E+01 | 5.794E-05 | 2.510E-04 | 2.262E-01 |
| 85 | 2.34E-01 | 5.591E+01 | 5.498E+01 | 5.952E+01 | 1.412E-04 | 5.368E-06 | 9.31E-01 | 1.409E+01 | 1.395E+01 | 1.010E+02 | 4.906E-05 | 2.204E-04 | 2.288E-01 |
| 90 | 2.40E-01 | 5.478E+01 | 5.385E+01 | 5.831E+01 | 1.471E-04 | 4.176E-06 | 8.65E-01 | 1.522E+01 | 1.508E+01 | 1.091E+02 | 4.202E-05 | 1.946E-04 | 2.297E-01 |
| 95 | 2.44E-01 | 5.364E+01 | 5.271E+01 | 5.710E+01 | 1.533E-04 | 2.815E-06 | 8.02E-01 | 1.636E+01 | 1.622E+01 | 1.172E+02 | 3.640E-05 | 1.728E-04 | 2.288E-01 |
| 100 | 2.47E-01 | 5.252E+01 | 5.159E+01 | 5.591E+01 | 1.600E-04 | 1.274E-06 | 7.41E-01 | 1.748E+01 | 1.734E+01 | 1.253E+02 | 3.186E-05 | 1.546E-04 | 2.262E-01 |
| 105 | 2.47E-01 | 5.141E+01 | 5.048E+01 | 5.473E+01 | 1.670E-04 | -4.530E-07 | 6.84E-01 | 1.859E+01 | 1.845E+01 | 1.332E+02 | 2.818E-05 | 1.392E-04 | 2.219E-01 |
| 110 | 2.46E-01 | 5.033E+01 | 4.940E+01 | 5.358E+01 | 1.742E-04 | -2.369E-06 | 6.29E-01 | 1.967E+01 | 1.953E+01 | 1.410E+02 | 2.516E-05 | 1.262E-04 | 2.158E-01 |
| 115 | 2.42E-01 | 4.928E+01 | 4.835E+01 | 5.246E+01 | 1.817E-04 | -4.470E-06 | 5.76E-01 | 2.072E+01 | 2.058E+01 | 1.485E+02 | 2.268E-05 | 1.153E-04 | 2.082E-01 |
| 120 | 2.36E-01 | 4.827E+01 | 4.734E+01 | 5.139E+01 | 1.894E-04 | -6.744E-06 | 5.25E-01 | 2.173E+01 | 2.159E+01 | 1.557E+02 | 2.063E-05 | 1.061E-04 | 1.989E-01 |
| 125 | 2.28E-01 | 4.732E+01 | 4.639E+01 | 5.037E+01 | 1.971E-04 | -9.169E-06 | 4.75E-01 | 2.269E+01 | 2.255E+01 | 1.625E+02 | 1.893E-05 | 9.826E-05 | 1.882E-01 |
| 130 | 2.17E-01 | 4.642E+01 | 4.549E+01 | 4.941E+01 | 2.048E-04 | -1.171E-05 | 4.27E-01 | 2.359E+01 | 2.345E+01 | 1.690E+02 | 1.751E-05 | 9.167E-05 | 1.760E-01 |
| 135 | 2.04E-01 | 4.558E+01 | 4.465E+01 | 4.852E+01 | 2.124E-04 | -1.433E-05 | 3.81E-01 | 2.442E+01 | 2.428E+01 | 1.750E+02 | 1.633E-05 | 8.611E-05 | 1.624E-01 |
| 140 | 1.89E-01 | 4.481E+01 | 4.388E+01 | 4.770E+01 | 2.197E-04 | -1.698E-05 | 3.36E-01 | 2.519E+01 | 2.505E+01 | 1.805E+02 | 1.535E-05 | 8.145E-05 | 1.476E-01 |
| 145 | 1.71E-01 | 4.412E+01 | 4.319E+01 | 4.697E+01 | 2.267E-04 | -1.957E-05 | 2.92E-01 | 2.588E+01 | 2.574E+01 | 1.854E+02 | 1.454E-05 | 7.756E-05 | 1.317E-01 |
| 150 | 1.51E-01 | 4.351E+01 | 4.258E+01 | 4.632E+01 | 2.331E-04 | -2.205E-05 | 2.48E-01 | 2.649E+01 | 2.635E+01 | 1.898E+02 | 1.388E-05 | 7.435E-05 | 1.148E-01 |
| 155 | 1.29E-01 | 4.299E+01 | 4.206E+01 | 4.576E+01 | 2.388E-04 | -2.433E-05 | 2.06E-01 | 2.701E+01 | 2.687E+01 | 1.936E+02 | 1.335E-05 | 7.175E-05 | 9.707E-02 |
| 160 | 1.06E-01 | 4.255E+01 | 4.162E+01 | 4.530E+01 | 2.437E-04 | -2.634E-05 | 1.64E-01 | 2.745E+01 | 2.731E+01 | 1.967E+02 | 1.293E-05 | 6.969E-05 | 7.856E-02 |
| 165 | 8.07E-02 | 4.221E+01 | 4.128E+01 | 4.494E+01 | 2.476E-04 | -2.799E-05 | 1.23E-01 | 2.779E+01 | 2.765E+01 | 1.991E+02 | 1.261E-05 | 6.814E-05 | 5.945E-02 |
| 170 | 5.45E-02 | 4.196E+01 | 4.104E+01 | 4.468E+01 | 2.505E-04 | -2.923E-05 | 8.15E-02 | 2.804E+01 | 2.790E+01 | 2.009E+02 | 1.239E-05 | 6.705E-05 | 3.989E-02 |
| 175 | 2.74E-02 | 4.182E+01 | 4.089E+01 | 4.452E+01 | 2.523E-04 | -2.999E-05 | 4.07E-02 | 2.818E+01 | 2.804E+01 | 2.019E+02 | 1.226E-05 | 6.641E-05 | 2.002E-02 |
| 180 | 0. | 4.177E+01 | 4.084E+01 | 4.447E+01 | 2.529E-04 | -3.024E-05 | 0. | 2.823E+01 | 2.809E+01 | 2.023E+02 | 1.222E-05 | 6.619E-05 | 0. |

DELTA(1236) => NEUTRON + PI PLUS AT 80 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.23600E+00 M2 = 9.39553E-01 M3 = 1.39569E-01
P2CM= 2.29699E-01
E2CM= 9.67223E-01 E3CM= 2.68777E-01

1-V1LAB= 1.193E-04 GCM = 6.47326E+01 S = 1.52770E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 7.747E+01 | 7.654E+01 | 8.246E+01 | 7.353E-05 | 8.791E-06 | 0. | 2.528E+00 | 2.392E+00 | 1.814E+01 | 1.521E-03 | -8.259E-03 | 0. |
| 1 | 2.96E-03 | 7.747E+01 | 7.654E+01 | 8.246E+01 | 7.354E-05 | 8.790E-06 | 9.08E-02 | 2.530E+00 | 2.394E+00 | 1.815E+01 | 1.518E-03 | -8.228E-03 | 4.009E-03 |
| 2 | 5.93E-03 | 7.746E+01 | 7.653E+01 | 8.245E+01 | 7.355E-05 | 8.789E-06 | 1.81E-01 | 2.537E+00 | 2.401E+00 | 1.820E+01 | 1.510E-03 | -8.136E-03 | 8.016E-03 |
| 3 | 8.89E-03 | 7.745E+01 | 7.652E+01 | 8.244E+01 | 7.357E-05 | 8.788E-06 | 2.70E-01 | 2.548E+00 | 2.412E+00 | 1.828E+01 | 1.497E-03 | -7.986E-03 | 1.202E-02 |
| 4 | 1.19E-02 | 7.744E+01 | 7.650E+01 | 8.242E+01 | 7.360E-05 | 8.786E-06 | 3.58E-01 | 2.564E+00 | 2.428E+00 | 1.840F+01 | 1.478E-03 | -7.781E-03 | 1.602E-02 |
| 5 | 1.48E-02 | 7.742E+01 | 7.648E+01 | 8.240E+01 | 7.364E-05 | 8.783E-06 | 4.44E-01 | 2.584E+00 | 2.448E+00 | 1.854E+01 | 1.455E-03 | -7.525E-03 | 2.002E-02 |
| 6 | 1.78E-02 | 7.739E+01 | 7.646E+01 | 8.238E+01 | 7.369E-05 | 8.779E-06 | 5.27E-01 | 2.609E+00 | 2.473E+00 | 1.872E+01 | 1.428E-03 | -7.225E-03 | 2.401E-02 |
| 7 | 2.07E-02 | 7.736E+01 | 7.643E+01 | 8.234E+01 | 7.374E-05 | 8.775E-06 | 6.08E-01 | 2.639E+00 | 2.503E+00 | 1.893E+01 | 1.396E-03 | -6.887E-03 | 2.799E-02 |
| 8 | 2.37E-02 | 7.733E+01 | 7.639E+01 | 8.231E+01 | 7.381E-05 | 8.771E-06 | 6.85E-01 | 2.672E+00 | 2.537E+00 | 1.917E+01 | 1.361E-03 | -6.519E-03 | 3.197E-02 |
| 9 | 2.66E-02 | 7.729E+01 | 7.636E+01 | 8.227E+01 | 7.388E-05 | 8.765E-06 | 7.59E-01 | 2.711E+00 | 2.575E+00 | 1.945E+01 | 1.323E-03 | -6.127E-03 | 3.593E-02 |
| 10 | 2.96E-02 | 7.725E+01 | 7.631E+01 | 8.222E+01 | 7.396E-05 | 8.759E-06 | 8.30E-01 | 2.754E+00 | 2.618E+00 | 1.976E+01 | 1.282E-03 | -5.719E-03 | 3.989E-02 |
| 15 | 4.43E-02 | 7.697E+01 | 7.603E+01 | 8.192E+01 | 7.450E-05 | 8.719E-06 | 1.12E+00 | 3.035E+00 | 2.898E+00 | 2.177E+01 | 1.056E-03 | -3.652E-03 | 5.945E-02 |
| 20 | 5.88E-02 | 7.658E+01 | 7.564E+01 | 8.151E+01 | 7.526E-05 | 8.659E-06 | 1.31E+00 | 3.425E+00 | 3.288E+00 | 2.456E+01 | 8.292E-04 | -1.941E-03 | 7.856E-02 |
| 25 | 7.31E-02 | 7.608E+01 | 7.515E+01 | 8.098E+01 | 7.625E-05 | 8.580E-06 | 1.42E+00 | 3.922E+00 | 3.785E+00 | 2.812E+01 | 6.326E-04 | -7.851E-04 | 9.707E-02 |
| 30 | 8.72E-02 | 7.548E+01 | 7.455E+01 | 8.034E+01 | 7.746E-05 | 8.476E-06 | 1.46E+00 | 4.521E+00 | 4.384E+00 | 3.241E+01 | 4.762E-04 | -1.124E-04 | 1.148E-01 |
| 35 | 1.01E-01 | 7.478E+01 | 7.385E+01 | 7.960E+01 | 7.891E-05 | 8.345E-06 | 1.45E+00 | 5.218E+00 | 5.081E+00 | 3.740E+01 | 3.575E-04 | 2.297E-04 | 1.317E-01 |
| 40 | 1.14E-01 | 7.399E+01 | 7.306E+01 | 7.876E+01 | 8.061E-05 | 8.182E-06 | 1.41E+00 | 6.008E+00 | 5.870E+00 | 4.306E+01 | 2.697E-04 | 3.753E-04 | 1.476E-01 |
| 45 | 1.27E-01 | 7.312E+01 | 7.218E+01 | 7.783E+01 | 8.255E-05 | 7.982E-06 | 1.35E+00 | 6.884E+00 | 6.746E+00 | 4.934E+01 | 2.054E-04 | 4.152E-04 | 1.624E-01 |
| 50 | 1.40E-01 | 7.216E+01 | 7.123E+01 | 7.681E+01 | 8.475E-05 | 7.738E-06 | 1.29E+00 | 7.841E+00 | 7.703E+00 | 5.619E+01 | 1.584E-04 | 4.035E-04 | 1.760E-01 |
| 55 | 1.52E-01 | 7.113E+01 | 7.020E+01 | 7.572E+01 | 8.722E-05 | 7.444E-06 | 1.22E+00 | 8.870E+00 | 8.732E+00 | 6.356E+01 | 1.238E-04 | 3.698E-04 | 1.882E-01 |
| 60 | 1.63E-01 | 7.004E+01 | 6.910E+01 | 7.455E+01 | 8.997E-05 | 7.091E-06 | 1.14E+00 | 9.964E+00 | 9.825E+00 | 7.140E+01 | 9.809E-05 | 3.291E-04 | 1.989E-01 |
| 65 | 1.73E-01 | 6.889E+01 | 6.795E+01 | 7.333E+01 | 9.300E-05 | 6.670E-06 | 1.07E+00 | 1.111E+01 | 1.098E+01 | 7.964E+01 | 7.883E-05 | 2.889E-04 | 2.082E-01 |
| 70 | 1.83E-01 | 6.769E+01 | 6.676E+01 | 7.205E+01 | 9.632E-05 | 6.172E-06 | 1.00E+00 | 1.231E+01 | 1.217E+01 | 8.823E+01 | 6.424E-05 | 2.521E-04 | 2.158E-01 |
| 75 | 1.91E-01 | 6.645E+01 | 6.552E+01 | 7.073E+01 | 9.994E-05 | 5.587E-06 | 9.38E-01 | 1.355E+01 | 1.341E+01 | 9.709E+01 | 5.304E-05 | 2.199E-04 | 2.219E-01 |
| 80 | 1.99E-01 | 6.519E+01 | 6.425E+01 | 6.939E+01 | 1.039E-04 | 4.903E-06 | 8.75E-01 | 1.482E+01 | 1.468E+01 | 1.062E+02 | 4.436E-05 | 1.922E-04 | 2.262E-01 |
| 85 | 2.05E-01 | 6.390E+01 | 6.297E+01 | 6.802E+01 | 1.081E-04 | 4.110E-06 | 8.14E-01 | 1.610E+01 | 1.596E+01 | 1.154E+02 | 3.756E-05 | 1.687E-04 | 2.288E-01 |
| 90 | 2.10E-01 | 6.260E+01 | 6.167E+01 | 6.664E+01 | 1.126E-04 | 3.197E-06 | 7.56E-01 | 1.740E+01 | 1.726E+01 | 1.247E+02 | 3.218E-05 | 1.490E-04 | 2.297E-01 |
| 95 | 2.14E-01 | 6.131E+01 | 6.038E+01 | 6.526E+01 | 1.174E-04 | 2.155E-06 | 7.01E-01 | 1.869E+01 | 1.855E+01 | 1.339E+02 | 2.787E-05 | 1.323E-04 | 2.288E-01 |
| 100 | 2.16E-01 | 6.002E+01 | 5.909E+01 | 6.389E+01 | 1.225E-04 | 9.755E-07 | 6.49E-01 | 1.998E+01 | 1.984E+01 | 1.432E+02 | 2.440E-05 | 1.183E-04 | 2.262E-01 |
| 105 | 2.16E-01 | 5.876E+01 | 5.782E+01 | 6.254E+01 | 1.278E-04 | -3.470E-07 | 5.98E-01 | 2.111E+01 | 2.125E+01 | 1.522E+02 | 2.158E-05 | 1.066E-04 | 2.219E-01 |
| 110 | 2.15E-01 | 5.752E+01 | 5.659E+01 | 6.123E+01 | 1.334E-04 | -1.814E-06 | 5.50E-01 | 2.248E+01 | 2.234E+01 | 1.611E+02 | 1.927E-05 | 9.665E-05 | 2.158E-01 |
| 115 | 2.12E-01 | 5.632E+01 | 5.539E+01 | 5.995E+01 | 1.391E-04 | -3.423E-06 | 5.04E-01 | 2.368E+01 | 2.354E+01 | 1.697E+02 | 1.737E-05 | 8.828E-05 | 2.082E-01 |
| 120 | 2.07E-01 | 5.517E+01 | 5.424E+01 | 5.873E+01 | 1.450E-04 | -5.163E-06 | 4.59E-01 | 2.483E+01 | 2.469E+01 | 1.779E+02 | 1.579E-05 | 8.121E-05 | 1.989E-01 |
| 125 | 1.99E-01 | 5.408E+01 | 5.314E+01 | 5.756E+01 | 1.509E-04 | -7.020E-06 | 4.16E-01 | 2.593E+01 | 2.579E+01 | 1.858E+02 | 1.449E-05 | 7.523E-05 | 1.882E-01 |
| 130 | 1.90E-01 | 5.305E+01 | 5.211E+01 | 5.647E+01 | 1.568E-04 | -8.968E-06 | 3.74E-01 | 2.695E+01 | 2.682E+01 | 1.931E+02 | 1.341E-05 | 7.018E-05 | 1.760E-01 |
| 135 | 1.79E-01 | 5.209E+01 | 5.116E+01 | 5.545E+01 | 1.626E-04 | -1.097E-05 | 3.33E-01 | 2.791E+01 | 2.777E+01 | 2.000E+02 | 1.250E-05 | 6.593E-05 | 1.624E-01 |
| 140 | 1.65E-01 | 5.121E+01 | 5.028E+01 | 5.452E+01 | 1.682E-04 | -1.300E-05 | 2.94E-01 | 2.879E+01 | 2.865E+01 | 2.063E+02 | 1.175E-05 | 6.236E-05 | 1.476E-01 |
| 145 | 1.50E-01 | 5.042E+01 | 4.949E+01 | 5.368E+01 | 1.736E-04 | -1.499E-05 | 2.55E-01 | 2.958E+01 | 2.944E+01 | 2.119E+02 | 1.113E-05 | 5.938E-05 | 1.317E-01 |
| 150 | 1.32E-01 | 4.973E+01 | 4.880E+01 | 5.294E+01 | 1.785E-04 | -1.688E-05 | 2.17E-01 | 3.027E+01 | 3.013E+01 | 2.169E+02 | 1.063E-05 | 5.692E-05 | 1.148E-01 |
| 155 | 1.13E-01 | 4.913E+01 | 4.820E+01 | 5.230E+01 | 1.828E-04 | -1.863E-05 | 1.80E-01 | 3.087E+01 | 3.073E+01 | 2.212E+02 | 1.022E-05 | 5.493E-05 | 9.707E-02 |
| 160 | 9.26E-02 | 4.863E+01 | 4.770E+01 | 5.177E+01 | 1.866E-04 | -2.017E-05 | 1.43E-01 | 3.137E+01 | 3.123E+01 | 2.248E+02 | 9.898E-06 | 5.336E-05 | 7.856E-02 |
| 165 | 7.06E-02 | 4.824E+01 | 4.731E+01 | 5.135E+01 | 1.896E-04 | -2.143E-05 | 1.07E-01 | 3.176E+01 | 3.162E+01 | 2.276E+02 | 9.656E-06 | 5.217E-05 | 5.945E-02 |
| 170 | 4.77E-02 | 4.796E+01 | 4.703E+01 | 5.106E+01 | 1.918E-04 | -2.237E-05 | 7.13E-02 | 3.204E+01 | 3.190E+01 | 2.296E+02 | 9.488E-06 | 5.134E-05 | 3.989E-02 |
| 175 | 2.40E-02 | 4.779E+01 | 4.686E+01 | 5.088E+01 | 1.932E-04 | -2.296E-05 | 3.56E-02 | 3.221E+01 | 3.207E+01 | 2.308E+02 | 9.388E-06 | 5.084E-05 | 2.002E-02 |
| 180 | 0. | 4.773E+01 | 4.680E+01 | 5.082E+01 | 1.937E-04 | -2.316E-05 | 0. | 3.227E+01 | 3.213E+01 | 2.312E+02 | 9.355E-06 | 5.068E-05 | 0. |

DELTA(1236) => NEUTRON + PI PLUS AT 90 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.23600E+00 M2 = 9.39553E-01 M3 = 1.39569E-01
P2CM= 2.29699E-01
E2CM= 9.67223E-01 E3CM= 2.68777E-01

1-V1LAB= 9.429E-05 GCM = 7.28224E+01 S = 1.52770E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 8.716E+01 | 8.622E+01 | 9.277E+01 | 5.810E-05 | 6.946E-06 | 0. | 2.844E+00 | 2.708E+00 | 2.040E+01 | 1.202E-03 | -6.524E-03 | 0. |
| 1 | 2.64E-03 | 8.715E+01 | 8.622E+01 | 9.277E+01 | 5.810E-05 | 6.946E-06 | 8.07E-02 | 2.846E+00 | 2.710E+00 | 2.042E+01 | 1.200E-03 | -6.499E-03 | 4.009E-03 |
| 2 | 5.27E-03 | 8.715E+01 | 8.621E+01 | 9.276E+01 | 5.811E-05 | 6.945E-06 | 1.61E-01 | 2.854E+00 | 2.718E+00 | 2.047E+01 | 1.194E-03 | -6.427E-03 | 8.016E-03 |
| 3 | 7.90E-03 | 8.713E+01 | 8.620E+01 | 9.274E+01 | 5.813E-05 | 6.944E-06 | 2.40E-01 | 2.867E+00 | 2.731E+00 | 2.057E+01 | 1.183E-03 | -6.308E-03 | 1.202E-02 |
| 4 | 1.05E-02 | 8.712E+01 | 8.618E+01 | 9.273E+01 | 5.815E-05 | 6.942E-06 | 3.18E-01 | 2.885E+00 | 2.749E+00 | 2.069E+01 | 1.168E-03 | -6.146E-03 | 1.602E-02 |
| 5 | 1.32E-02 | 8.709E+01 | 8.616E+01 | 9.270E+01 | 5.819E-05 | 6.940E-06 | 3.94E-01 | 2.908E+00 | 2.771E+00 | 2.086E+01 | 1.150E-03 | -5.944E-03 | 2.002E-02 |
| 6 | 1.58E-02 | 8.706E+01 | 8.613E+01 | 9.267E+01 | 5.822E-05 | 6.937E-06 | 4.69E-01 | 2.936E+00 | 2.799E+00 | 2.106E+01 | 1.128E-03 | -5.707E-03 | 2.401E-02 |
| 7 | 1.84E-02 | 8.703E+01 | 8.610E+01 | 9.264E+01 | 5.827E-05 | 6.934E-06 | 5.40E-01 | 2.969E+00 | 2.832E+00 | 2.129E+01 | 1.103E-03 | -5.441E-03 | 2.799E-02 |
| 8 | 2.11E-02 | 8.699E+01 | 8.606E+01 | 9.260E+01 | 5.832E-05 | 6.930E-06 | 6.09E-01 | 3.007E+00 | 2.871E+00 | 2.157E+01 | 1.076E-03 | -5.150E-03 | 3.197E-02 |
| 9 | 2.37E-02 | 8.695E+01 | 8.602E+01 | 9.255E+01 | 5.838E-05 | 6.926E-06 | 6.75E-01 | 3.050E+00 | 2.914E+00 | 2.188E+01 | 1.045E-03 | -4.840E-03 | 3.593E-02 |
| 10 | 2.63E-02 | 8.690E+01 | 8.597E+01 | 9.250E+01 | 5.844E-05 | 6.921E-06 | 7.38E-01 | 3.098E+00 | 2.962E+00 | 2.222E+01 | 1.013E-03 | -4.518E-03 | 3.989E-02 |
| 15 | 3.93E-02 | 8.659E+01 | 8.565E+01 | 9.216E+01 | 5.887E-05 | 6.889E-06 | 9.98E-01 | 3.414E+00 | 3.278E+00 | 2.448E+01 | 8.344E-04 | -2.886E-03 | 5.945E-02 |
| 20 | 5.23E-02 | 8.615E+01 | 8.521E+01 | 9.170E+01 | 5.947E-05 | 6.842E-06 | 1.17E+00 | 3.853E+00 | 3.716E+00 | 2.763E+01 | 6.553E-04 | -1.534E-03 | 7.856E-02 |
| 25 | 6.50E-02 | 8.559E+01 | 8.465E+01 | 9.110E+01 | 6.025E-05 | 6.779E-06 | 1.26E+00 | 4.412E+00 | 4.275E+00 | 3.163E+01 | 4.999E-04 | -6.206E-04 | 9.707E-02 |
| 30 | 7.75E-02 | 8.492E+01 | 8.398E+01 | 9.038E+01 | 6.121E-05 | 6.697E-06 | 1.29E+00 | 5.086E+00 | 4.949E+00 | 3.646E+01 | 3.763E-04 | -8.897E-05 | 1.148E-01 |
| 35 | 8.97E-02 | 8.413E+01 | 8.320E+01 | 8.955E+01 | 6.235E-05 | 6.594E-06 | 1.29E+00 | 5.870E+00 | 5.733E+00 | 4.207E+01 | 2.825E-04 | 1.814E-04 | 1.317E-01 |
| 40 | 1.02E-01 | 8.324E+01 | 8.231E+01 | 8.860E+01 | 6.369E-05 | 6.465E-06 | 1.25E+00 | 6.759E+00 | 6.621E+00 | 4.844E+01 | 2.131E-04 | 2.964E-04 | 1.476E-01 |
| 45 | 1.13E-01 | 8.226E+01 | 8.132E+01 | 8.755E+01 | 6.523E-05 | 6.307E-06 | 1.20E+00 | 7.745E+00 | 7.607E+00 | 5.550E+01 | 1.623E-04 | 3.280E-04 | 1.624E-01 |
| 50 | 1.24E-01 | 8.118E+01 | 8.025E+01 | 8.641E+01 | 6.697E-05 | 6.114E-06 | 1.14E+00 | 8.821E+00 | 8.682E+00 | 6.321E+01 | 1.252E-04 | 3.188E-04 | 1.760E-01 |
| 55 | 1.35E-01 | 8.002E+01 | 7.909E+01 | 8.518E+01 | 6.892E-05 | 5.881E-06 | 1.08E+00 | 9.979E+00 | 9.840E+00 | 7.150E+01 | 9.780E-05 | 2.922E-04 | 1.882E-01 |
| 60 | 1.45E-01 | 7.879E+01 | 7.786E+01 | 8.387E+01 | 7.109E-05 | 5.602E-06 | 1.02E+00 | 1.121E+01 | 1.107E+01 | 8.032E+01 | 7.751E-05 | 2.600E-04 | 1.989E-01 |
| 65 | 1.54E-01 | 7.750E+01 | 7.656E+01 | 8.249E+01 | 7.348E-05 | 5.270E-06 | 9.54E-01 | 1.250E+01 | 1.236E+01 | 8.959E+01 | 6.229E-05 | 2.282E-04 | 2.082E-01 |
| 70 | 1.62E-01 | 7.615E+01 | 7.522E+01 | 8.106E+01 | 7.611E-05 | 4.877E-06 | 8.93E-01 | 1.385E+01 | 1.371E+01 | 9.925E+01 | 5.076E-05 | 1.992E-04 | 2.158E-01 |
| 75 | 1.70E-01 | 7.476E+01 | 7.382E+01 | 7.957E+01 | 7.897E-05 | 4.414E-06 | 8.34E-01 | 1.524E+01 | 1.510E+01 | 1.092E+02 | 4.191E-05 | 1.737E-04 | 2.219E-01 |
| 80 | 1.77E-01 | 7.333E+01 | 7.240E+01 | 7.806E+01 | 8.206E-05 | 3.874E-06 | 7.78E-01 | 1.667E+01 | 1.653E+01 | 1.194E+02 | 3.506E-05 | 1.519E-04 | 2.262E-01 |
| 85 | 1.82E-01 | 7.189E+01 | 7.095E+01 | 7.652E+01 | 8.540E-05 | 3.247E-06 | 7.24E-01 | 1.811E+01 | 1.798E+01 | 1.298E+02 | 2.968E-05 | 1.333E-04 | 2.288E-01 |
| 90 | 1.87E-01 | 7.043E+01 | 6.950E+01 | 7.497E+01 | 8.897E-05 | 2.526E-06 | 6.72E-01 | 1.957E+01 | 1.943E+01 | 1.402E+02 | 2.542E-05 | 1.177E-04 | 2.297E-01 |
| 95 | 1.90E-01 | 6.897E+01 | 6.804E+01 | 7.342E+01 | 9.277E-05 | 1.703E-06 | 6.23E-01 | 2.103E+01 | 2.089E+01 | 1.507E+02 | 2.202E-05 | 1.046E-04 | 2.288E-01 |
| 100 | 1.92E-01 | 6.752E+01 | 6.659E+01 | 7.188E+01 | 9.679E-05 | 7.707E-07 | 5.77E-01 | 2.248E+01 | 2.234E+01 | 1.610E+02 | 1.928E-05 | 9.351E-05 | 2.262E-01 |
| 105 | 1.92E-01 | 6.610E+01 | 6.517E+01 | 7.036E+01 | 1.010E-04 | -2.742E-07 | 5.32E-01 | 2.390E+01 | 2.376E+01 | 1.713E+02 | 1.705E-05 | 8.421E-05 | 2.219E-01 |
| 110 | 1.91E-01 | 6.471E+01 | 6.378E+01 | 6.888E+01 | 1.054E-04 | -1.433E-06 | 4.89E-01 | 2.529E+01 | 2.515E+01 | 1.812E+02 | 1.522E-05 | 7.637E-05 | 2.158E-01 |
| 115 | 1.88E-01 | 6.336E+01 | 6.243E+01 | 6.744E+01 | 1.099E-04 | -2.704E-06 | 4.48E-01 | 2.664E+01 | 2.650E+01 | 1.909E+02 | 1.372E-05 | 6.975E-05 | 2.082E-01 |
| 120 | 1.84E-01 | 6.207E+01 | 6.113E+01 | 6.607E+01 | 1.146E-04 | -4.080E-06 | 4.08E-01 | 2.794E+01 | 2.780E+01 | 2.002E+02 | 1.248E-05 | 6.417E-05 | 1.989E-01 |
| 125 | 1.77E-01 | 6.083E+01 | 5.990E+01 | 6.476E+01 | 1.192E-04 | -5.547E-06 | 3.70E-01 | 2.917E+01 | 2.903E+01 | 2.090E+02 | 1.145E-05 | 5.944E-05 | 1.882E-01 |
| 130 | 1.69E-01 | 5.968E+01 | 5.874E+01 | 6.352E+01 | 1.239E-04 | -7.086E-06 | 3.32E-01 | 3.032E+01 | 3.018E+01 | 2.173E+02 | 1.059E-05 | 5.546E-05 | 1.760E-01 |
| 135 | 1.59E-01 | 5.860E+01 | 5.767E+01 | 6.238E+01 | 1.285E-04 | -8.671E-06 | 2.96E-01 | 3.140E+01 | 3.126E+01 | 2.250E+02 | 9.879E-06 | 5.209E-05 | 1.624E-01 |
| 140 | 1.47E-01 | 5.762E+01 | 5.668E+01 | 6.133E+01 | 1.329E-04 | -1.027E-05 | 2.61E-01 | 3.239E+01 | 3.225E+01 | 2.320E+02 | 9.286E-06 | 4.927E-05 | 1.476E-01 |
| 145 | 1.33E-01 | 5.673E+01 | 5.580E+01 | 6.038E+01 | 1.371E-04 | -1.184E-05 | 2.27E-01 | 3.327E+01 | 3.313E+01 | 2.384E+02 | 8.797E-06 | 4.692E-05 | 1.317E-01 |
| 150 | 1.18E-01 | 5.594E+01 | 5.501E+01 | 5.955E+01 | 1.410E-04 | -1.334E-05 | 1.93E-01 | 3.406E+01 | 3.392E+01 | 2.440E+02 | 8.397E-06 | 4.498E-05 | 1.148E-01 |
| 155 | 1.01E-01 | 5.527E+01 | 5.434E+01 | 5.883E+01 | 1.445E-04 | -1.472E-05 | 1.60E-01 | 3.473E+01 | 3.459E+01 | 2.488E+02 | 8.074E-06 | 4.340E-05 | 9.707E-02 |
| 160 | 8.23E-02 | 5.471E+01 | 5.378E+01 | 5.824E+01 | 1.474E-04 | -1.593E-05 | 1.28E-01 | 3.529E+01 | 3.515E+01 | 2.528E+02 | 7.821E-06 | 4.216E-05 | 7.856E-02 |
| 165 | 6.28E-02 | 5.427E+01 | 5.334E+01 | 5.777E+01 | 1.498E-04 | -1.693E-05 | 9.53E-02 | 3.573E+01 | 3.559E+01 | 2.560E+02 | 7.630E-06 | 4.122E-05 | 5.945E-02 |
| 170 | 4.24E-02 | 5.396E+01 | 5.302E+01 | 5.744E+01 | 1.516E-04 | -1.768E-05 | 6.34E-02 | 3.604E+01 | 3.590E+01 | 2.583E+02 | 7.497E-06 | 4.056E-05 | 3.989E-02 |
| 175 | 2.13E-02 | 5.377E+01 | 5.283E+01 | 5.723E+01 | 1.527E-04 | -1.814E-05 | 3.17E-02 | 3.623E+01 | 3.610E+01 | 2.596E+02 | 7.418E-06 | 4.017E-05 | 2.002E-02 |
| 180 | 0. | 5.370E+01 | 5.277E+01 | 5.717E+01 | 1.530E-04 | -1.830E-05 | 0. | 3.630E+01 | 3.616E+01 | 2.601E+02 | 7.392E-06 | 4.004E-05 | 0. |

DELTA(1236) => NEUTRON + PI PLUS AT 100 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.23600E+00 M2 = 9.39553E-01 M3 = 1.39569E-01
P2CM= 2.29699E-01
E2CM= 9.67223E-01 E3CM= 2.68777E-01

1-V1LAB= 7.638E-05 GCM = 8.09123E+01 S = 1.52770E+00

| Θ2 CM | Θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | Θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 9.684E+01 | 9.590E+01 | 1.031E+02 | 4.706E-05 | 5.626E-06 | 0. | 3.160E+00 | 3.024E+00 | 2.266E+01 | 9.738E-04 | -5.283E-03 | 0. |
| 1 | 2.37E-03 | 9.684E+01 | 9.590E+01 | 1.031E+02 | 4.707E-05 | 5.626E-06 | 7.26E-02 | 3.163E+00 | 3.027E+00 | 2.269E+01 | 9.721E-04 | -5.263E-03 | 4.009E-03 |
| 2 | 4.74E-03 | 9.683E+01 | 9.589E+01 | 1.031E+02 | 4.707E-05 | 5.625E-06 | 1.45E-01 | 3.172E+00 | 3.035E+00 | 2.275E+01 | 9.669E-04 | -5.205E-03 | 8.016E-03 |
| 3 | 7.11E-03 | 9.681E+01 | 9.588E+01 | 1.030E+02 | 4.709E-05 | 5.624E-06 | 2.16E-01 | 3.186E+00 | 3.049E+00 | 2.285E+01 | 9.583E-04 | -5.109E-03 | 1.202E-02 |
| 4 | 9.48E-03 | 9.679E+01 | 9.586E+01 | 1.030E+02 | 4.711E-05 | 5.623E-06 | 2.86E-01 | 3.206E+00 | 3.069E+00 | 2.299E+01 | 9.465E-04 | -4.977E-03 | 1.602E-02 |
| 5 | 1.19E-02 | 9.677E+01 | 9.583E+01 | 1.030E+02 | 4.713E-05 | 5.621E-06 | 3.55E-01 | 3.231E+00 | 3.094E+00 | 2.317E+01 | 9.317E-04 | -4.814E-03 | 2.002E-02 |
| 6 | 1.42E-02 | 9.674E+01 | 9.580E+01 | 1.030E+02 | 4.716E-05 | 5.619E-06 | 4.22E-01 | 3.262E+00 | 3.126E+00 | 2.339E+01 | 9.140E-04 | -4.622E-03 | 2.401E-02 |
| 7 | 1.66E-02 | 9.670E+01 | 9.577E+01 | 1.029E+02 | 4.720E-05 | 5.616E-06 | 4.86E-01 | 3.299E+00 | 3.162E+00 | 2.366E+01 | 8.938E-04 | -4.406E-03 | 2.799E-02 |
| 8 | 1.89E-02 | 9.666E+01 | 9.572E+01 | 1.029E+02 | 4.724E-05 | 5.613E-06 | 5.48E-01 | 3.341E+00 | 3.205E+00 | 2.396E+01 | 8.713E-04 | -4.171E-03 | 3.197E-02 |
| 9 | 2.13E-02 | 9.661E+01 | 9.568E+01 | 1.028E+02 | 4.729E-05 | 5.610E-06 | 6.07E-01 | 3.389E+00 | 3.253E+00 | 2.430E+01 | 8.468E-04 | -3.920E-03 | 3.593E-02 |
| 10 | 2.37E-02 | 9.656E+01 | 9.562E+01 | 1.028E+02 | 4.734E-05 | 5.606E-06 | 6.64E-01 | 3.443E+00 | 3.306E+00 | 2.469E+01 | 8.207E-04 | -3.659E-03 | 3.989E-02 |
| 15 | 3.54E-02 | 9.621E+01 | 9.527E+01 | 1.024E+02 | 4.768E-05 | 5.580E-06 | 8.98E-01 | 3.794E+00 | 3.657E+00 | 2.720E+01 | 6.760E-04 | -2.337E-03 | 5.945E-02 |
| 20 | 4.70E-02 | 9.572E+01 | 9.478E+01 | 1.019E+02 | 4.817E-05 | 5.542E-06 | 1.05E+00 | 4.282E+00 | 4.145E+00 | 3.070E+01 | 5.308E-04 | -1.243E-03 | 7.856E-02 |
| 25 | 5.85E-02 | 9.510E+01 | 9.416E+01 | 1.012E+02 | 4.880E-05 | 5.491E-06 | 1.13E+00 | 4.903E+00 | 4.765E+00 | 3.514E+01 | 4.050E-04 | -5.028E-04 | 9.707E-02 |
| 30 | 6.97E-02 | 9.435E+01 | 9.341E+01 | 1.004E+02 | 4.958E-05 | 5.425E-06 | 1.16E+00 | 5.651E+00 | 5.514E+00 | 4.050E+01 | 3.048E-04 | -7.216E-05 | 1.148E-01 |
| 35 | 8.08E-02 | 9.348E+01 | 9.254E+01 | 9.950E+01 | 5.051E-05 | 5.341E-06 | 1.16E+00 | 6.523E+00 | 6.385E+00 | 4.675E+01 | 2.288E-04 | 1.469E-04 | 1.317E-01 |
| 40 | 9.15E-02 | 9.249E+01 | 9.156E+01 | 9.845E+01 | 5.159E-05 | 5.237E-06 | 1.13E+00 | 7.510E+00 | 7.372E+00 | 5.382E+01 | 1.727E-04 | 2.401E-04 | 1.476E-01 |
| 45 | 1.02E-01 | 9.140E+01 | 9.046E+01 | 9.728E+01 | 5.283E-05 | 5.108E-06 | 1.08E+00 | 8.605E+00 | 8.467E+00 | 6.166E+01 | 1.315E-04 | 2.657E-04 | 1.624E-01 |
| 50 | 1.12E-01 | 9.020E+01 | 8.927E+01 | 9.601E+01 | 5.424E-05 | 4.952E-06 | 1.03E+00 | 9.801E+00 | 9.662E+00 | 7.023E+01 | 1.014E-04 | 2.582E-04 | 1.760E-01 |
| 55 | 1.21E-01 | 8.891E+01 | 8.798E+01 | 9.464E+01 | 5.583E-05 | 4.764E-06 | 9.72E-01 | 1.109E+01 | 1.095E+01 | 7.944E+01 | 7.922E-05 | 2.366E-04 | 1.882E-01 |
| 60 | 1.30E-01 | 8.755E+01 | 8.661E+01 | 9.319E+01 | 5.758E-05 | 4.538E-06 | 9.15E-01 | 1.245E+01 | 1.232E+01 | 8.924E+01 | 6.278E-05 | 2.106E-04 | 1.989E-01 |
| 65 | 1.39E-01 | 8.611E+01 | 8.517E+01 | 9.165E+01 | 5.952E-05 | 4.269E-06 | 8.59E-01 | 1.389E+01 | 1.375E+01 | 9.955E+01 | 5.046E-05 | 1.849E-04 | 2.082E-01 |
| 70 | 1.46E-01 | 8.461E+01 | 8.368E+01 | 9.006E+01 | 6.165E-05 | 3.950E-06 | 8.04E-01 | 1.539E+01 | 1.525E+01 | 1.103E+02 | 4.112E-05 | 1.613E-04 | 2.158E-01 |
| 75 | 1.53E-01 | 8.306E+01 | 8.213E+01 | 8.841E+01 | 6.396E-05 | 3.575E-06 | 7.51E-01 | 1.694E+01 | 1.680E+01 | 1.214E+02 | 3.395E-05 | 1.407E-04 | 2.219E-01 |
| 80 | 1.59E-01 | 8.148E+01 | 8.055E+01 | 8.673E+01 | 6.647E-05 | 3.138E-06 | 7.00E-01 | 1.852E+01 | 1.838E+01 | 1.327E+02 | 2.840E-05 | 1.230E-04 | 2.262E-01 |
| 85 | 1.64E-01 | 7.987E+01 | 7.894E+01 | 8.502E+01 | 6.918E-05 | 2.630E-06 | 6.51E-01 | 2.013E+01 | 1.999E+01 | 1.442E+02 | 2.404E-05 | 1.080E-04 | 2.288E-01 |
| 90 | 1.68E-01 | 7.825E+01 | 7.732E+01 | 8.330E+01 | 7.207E-05 | 2.046E-06 | 6.05E-01 | 2.175E+01 | 2.161E+01 | 1.558E+02 | 2.059E-05 | 9.535E-05 | 2.297E-01 |
| 95 | 1.71E-01 | 7.663E+01 | 7.570E+01 | 8.157E+01 | 7.515E-05 | 1.379E-06 | 5.61E-01 | 2.337E+01 | 2.323E+01 | 1.674E+02 | 1.784E-05 | 8.470E-05 | 2.288E-01 |
| 100 | 1.73E-01 | 7.503E+01 | 7.409E+01 | 7.986E+01 | 7.840E-05 | 6.242E-07 | 5.19E-01 | 2.497E+01 | 2.483E+01 | 1.789E+02 | 1.562E-05 | 7.574E-05 | 2.262E-01 |
| 105 | 1.73E-01 | 7.344E+01 | 7.251E+01 | 7.818E+01 | 8.182E-05 | -2.222E-07 | 4.79E-01 | 2.656E+01 | 2.642E+01 | 1.903E+02 | 1.381E-05 | 6.821E-05 | 2.219E-01 |
| 110 | 1.72E-01 | 7.190E+01 | 7.096E+01 | 7.653E+01 | 8.537E-05 | -1.161E-06 | 4.40E-01 | 2.810E+01 | 2.796E+01 | 2.014E+02 | 1.233E-05 | 6.186E-05 | 2.158E-01 |
| 115 | 1.69E-01 | 7.040E+01 | 6.947E+01 | 7.494E+01 | 8.904E-05 | -2.191E-06 | 4.03E-01 | 2.960E+01 | 2.946E+01 | 2.121E+02 | 1.112E-05 | 5.650E-05 | 2.082E-01 |
| 120 | 1.65E-01 | 6.896E+01 | 6.803E+01 | 7.341E+01 | 9.280E-05 | -3.305E-06 | 3.67E-01 | 3.104E+01 | 3.090E+01 | 2.224E+02 | 1.011E-05 | 5.198E-05 | 1.989E-01 |
| 125 | 1.59E-01 | 6.759E+01 | 6.666E+01 | 7.195E+01 | 9.659E-05 | -4.493E-06 | 3.33E-01 | 3.241E+01 | 3.227E+01 | 2.322E+02 | 9.274E-06 | 4.815E-05 | 1.882E-01 |
| 130 | 1.52E-01 | 6.631E+01 | 6.538E+01 | 7.058E+01 | 1.004E-04 | -5.740E-06 | 2.99E-01 | 3.369E+01 | 3.355E+01 | 2.414E+02 | 8.580E-06 | 4.492E-05 | 1.760E-01 |
| 135 | 1.43E-01 | 6.511E+01 | 6.418E+01 | 6.931E+01 | 1.041E-04 | -7.024E-06 | 2.67E-01 | 3.489E+01 | 3.475E+01 | 2.500E+02 | 8.002E-06 | 4.220E-05 | 1.624E-01 |
| 140 | 1.32E-01 | 6.402E+01 | 6.308E+01 | 6.814E+01 | 1.077E-04 | -8.318E-06 | 2.35E-01 | 3.598E+01 | 3.584E+01 | 2.578E+02 | 7.522E-06 | 3.991E-05 | 1.476E-01 |
| 145 | 1.20E-01 | 6.303E+01 | 6.210E+01 | 6.709E+01 | 1.111E-04 | -9.591E-06 | 2.04E-01 | 3.697E+01 | 3.683E+01 | 2.649E+02 | 7.126E-06 | 3.801E-05 | 1.317E-01 |
| 150 | 1.06E-01 | 6.216E+01 | 6.123E+01 | 6.617E+01 | 1.142E-04 | -1.081E-05 | 1.74E-01 | 3.784E+01 | 3.770E+01 | 2.711E+02 | 6.802E-06 | 3.643E-05 | 1.148E-01 |
| 155 | 9.06E-02 | 6.141E+01 | 6.048E+01 | 6.537E+01 | 1.170E-04 | -1.192E-05 | 1.44E-01 | 3.859E+01 | 3.845E+01 | 2.765E+02 | 6.540E-06 | 3.516E-05 | 9.707E-02 |
| 160 | 7.40E-02 | 6.079E+01 | 5.986E+01 | 6.471E+01 | 1.194E-04 | -1.291E-05 | 1.15E-01 | 3.921E+01 | 3.907E+01 | 2.809E+02 | 6.335E-06 | 3.415E-05 | 7.856E-02 |
| 165 | 5.65E-02 | 6.030E+01 | 5.937E+01 | 6.419E+01 | 1.214E-04 | -1.372E-05 | 8.58E-02 | 3.970E+01 | 3.956E+01 | 2.844E+02 | 6.180E-06 | 3.339E-05 | 5.945E-02 |
| 170 | 3.81E-02 | 5.995E+01 | 5.902E+01 | 6.382E+01 | 1.228E-04 | -1.432E-05 | 5.71E-02 | 4.005E+01 | 3.991E+01 | 2.869E+02 | 6.072E-06 | 3.286E-05 | 3.989E-02 |
| 175 | 1.92E-02 | 5.974E+01 | 5.881E+01 | 6.359E+01 | 1.237E-04 | -1.469E-05 | 2.85E-02 | 4.026E+01 | 4.012E+01 | 2.885E+02 | 6.009E-06 | 3.254E-05 | 2.002E-02 |
| 180 | 0. | 5.967E+01 | 5.874E+01 | 6.352E+01 | 1.239E-04 | -1.482E-05 | 0. | 4.033E+01 | 4.019E+01 | 2.890E+02 | 5.988E-06 | 3.244E-05 | 0. |

DELTA(1236) => NEUTRON + PI PLUS AT 125 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.23600E+00 M2 = 9.39553E-01 M3 = 1.39569E-01
P2CM= 2.29699E-01
E2CM= 9.67223E-01 E3CM= 2.68777E-01

1-V1LAB= 4.888E-05 GCM = 1.01138E+02 S = 1.52770E+00

| Θ2 CM | Θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | Θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.210E+02 | 1.201E+02 | 1.288E+02 | 3.012E-05 | 3.601E-06 | 0. | 3.951E+00 | 3.814E+00 | 2.833E+01 | 6.234E-04 | -3.380E-03 | 0. |
| 1 | 1.90E-03 | 1.210E+02 | 1.201E+02 | 1.288E+02 | 3.012E-05 | 3.601E-06 | 5.81E-02 | 3.954E+00 | 3.817E+00 | 2.835E+01 | 6.222E-04 | -3.367E-03 | 4.009E-03 |
| 2 | 3.79E-03 | 1.210E+02 | 1.201E+02 | 1.288E+02 | 3.013E-05 | 3.600E-06 | 1.16E-01 | 3.965E+00 | 3.828E+00 | 2.843E+01 | 6.189E-04 | -3.330E-03 | 8.016E-03 |
| 3 | 5.69E-03 | 1.210E+02 | 1.201E+02 | 1.288E+02 | 3.014E-05 | 3.600E-06 | 1.73E-01 | 3.983E+00 | 3.846E+00 | 2.855E+01 | 6.134E-04 | -3.268E-03 | 1.202E-02 |
| 4 | 7.59E-03 | 1.210E+02 | 1.201E+02 | 1.288E+02 | 3.015E-05 | 3.599E-06 | 2.29E-01 | 4.008E+00 | 3.870E+00 | 2.873E+01 | 6.059E-04 | -3.184E-03 | 1.602E-02 |
| 5 | 9.48E-03 | 1.210E+02 | 1.200E+02 | 1.287E+02 | 3.017E-05 | 3.598E-06 | 2.84E-01 | 4.039E+00 | 3.902E+00 | 2.896E+01 | 5.964E-04 | -3.080E-03 | 2.002E-02 |
| 6 | 1.14E-02 | 1.209E+02 | 1.200E+02 | 1.287E+02 | 3.018E-05 | 3.596E-06 | 3.37E-01 | 4.078E+00 | 3.941E+00 | 2.924E+01 | 5.851E-04 | -2.957E-03 | 2.401E-02 |
| 7 | 1.33E-02 | 1.209E+02 | 1.199E+02 | 1.287E+02 | 3.021E-05 | 3.594E-06 | 3.89E-01 | 4.124E+00 | 3.987E+00 | 2.957E+01 | 5.721E-04 | -2.819E-03 | 2.799E-02 |
| 8 | 1.52E-02 | 1.208E+02 | 1.199E+02 | 1.286E+02 | 3.023E-05 | 3.593E-06 | 4.38E-01 | 4.177E+00 | 4.040E+00 | 2.995E+01 | 5.577E-04 | -2.669E-03 | 3.197E-02 |
| 9 | 1.70E-02 | 1.208E+02 | 1.198E+02 | 1.285E+02 | 3.026E-05 | 3.590E-06 | 4.86E-01 | 4.237E+00 | 4.100E+00 | 3.037E+01 | 5.421E-04 | -2.508E-03 | 3.593E-02 |
| 10 | 1.89E-02 | 1.207E+02 | 1.198E+02 | 1.285E+02 | 3.030E-05 | 3.588E-06 | 5.31E-01 | 4.304E+00 | 4.167E+00 | 3.085E+01 | 5.254E-04 | -2.341E-03 | 3.989E-02 |
| 15 | 2.83E-02 | 1.203E+02 | 1.193E+02 | 1.280E+02 | 3.052E-05 | 3.571E-06 | 7.18E-01 | 4.743E+00 | 4.605E+00 | 3.400E+01 | 4.327E-04 | -1.496E-03 | 5.945E-02 |
| 20 | 3.76E-02 | 1.196E+02 | 1.187E+02 | 1.273E+02 | 3.083E-05 | 3.547E-06 | 8.41E-01 | 5.353E+00 | 5.215E+00 | 3.836E+01 | 3.398E-04 | -7.954E-04 | 7.856E-02 |
| 25 | 4.68E-02 | 1.189E+02 | 1.179E+02 | 1.265E+02 | 3.123E-05 | 3.514E-06 | 9.08E-01 | 6.128E+00 | 5.990E+00 | 4.392E+01 | 2.592E-04 | -3.219E-04 | 9.707E-02 |
| 30 | 5.58E-02 | 1.179E+02 | 1.170E+02 | 1.255E+02 | 3.173E-05 | 3.472E-06 | 9.32E-01 | 7.064E+00 | 6.926E+00 | 5.062E+01 | 1.951E-04 | -4.628E-05 | 1.148E-01 |
| 35 | 6.46E-02 | 1.168E+02 | 1.159E+02 | 1.244E+02 | 3.233E-05 | 3.418E-06 | 9.26E-01 | 8.153E+00 | 8.015E+00 | 5.843E+01 | 1.465E-04 | 9.393E-05 | 1.317E-01 |
| 40 | 7.32E-02 | 1.156E+02 | 1.147E+02 | 1.231E+02 | 3.302E-05 | 3.351E-06 | 9.01E-01 | 9.387E+00 | 9.249E+00 | 6.727E+01 | 1.105E-04 | 1.536E-04 | 1.476E-01 |
| 45 | 8.15E-02 | 1.142E+02 | 1.133E+02 | 1.216E+02 | 3.382E-05 | 3.269E-06 | 8.65E-01 | 1.076E+01 | 1.062E+01 | 7.708E+01 | 8.417E-05 | 1.700E-04 | 1.624E-01 |
| 50 | 8.94E-02 | 1.128E+02 | 1.118E+02 | 1.200E+02 | 3.472E-05 | 3.170E-06 | 8.23E-01 | 1.225E+01 | 1.211E+01 | 8.778E+01 | 6.489E-05 | 1.653E-04 | 1.760E-01 |
| 55 | 9.70E-02 | 1.111E+02 | 1.102E+02 | 1.183E+02 | 3.573E-05 | 3.049E-06 | 7.78E-01 | 1.386E+01 | 1.372E+01 | 9.930E+01 | 5.071E-05 | 1.514E-04 | 1.882E-01 |
| 60 | 1.04E-01 | 1.094E+02 | 1.085E+02 | 1.165E+02 | 3.685E-05 | 2.904E-06 | 7.32E-01 | 1.557E+01 | 1.543E+01 | 1.115E+02 | 4.019E-05 | 1.348E-04 | 1.989E-01 |
| 65 | 1.11E-01 | 1.076E+02 | 1.067E+02 | 1.146E+02 | 3.810E-05 | 2.732E-06 | 6.87E-01 | 1.737E+01 | 1.723E+01 | 1.244E+02 | 3.230E-05 | 1.183E-04 | 2.082E-01 |
| 70 | 1.17E-01 | 1.058E+02 | 1.048E+02 | 1.126E+02 | 3.946E-05 | 2.528E-06 | 6.43E-01 | 1.924E+01 | 1.910E+01 | 1.378E+02 | 2.632E-05 | 1.033E-04 | 2.158E-01 |
| 75 | 1.22E-01 | 1.038E+02 | 1.029E+02 | 1.105E+02 | 4.094E-05 | 2.288E-06 | 6.00E-01 | 2.117E+01 | 2.103E+01 | 1.517E+02 | 2.173E-05 | 9.006E-05 | 2.219E-01 |
| 80 | 1.27E-01 | 1.019E+02 | 1.009E+02 | 1.084E+02 | 4.254E-05 | 2.008E-06 | 5.60E-01 | 2.315E+01 | 2.301E+01 | 1.659E+02 | 1.817E-05 | 7.873E-05 | 2.262E-01 |
| 85 | 1.31E-01 | 9.984E+01 | 9.891E+01 | 1.063E+02 | 4.427E-05 | 1.683E-06 | 5.21E-01 | 2.516E+01 | 2.502E+01 | 1.803E+02 | 1.539E-05 | 6.912E-05 | 2.288E-01 |
| 90 | 1.35E-01 | 9.782E+01 | 9.688E+01 | 1.041E+02 | 4.613E-05 | 1.310E-06 | 4.84E-01 | 2.718E+01 | 2.704E+01 | 1.948E+02 | 1.318E-05 | 6.102E-05 | 2.297E-01 |
| 95 | 1.37E-01 | 9.579E+01 | 9.486E+01 | 1.020E+02 | 4.810E-05 | 8.827E-07 | 4.49E-01 | 2.921E+01 | 2.907E+01 | 2.093E+02 | 1.142E-05 | 5.421E-05 | 2.288E-01 |
| 100 | 1.38E-01 | 9.378E+01 | 9.285E+01 | 9.982E+01 | 5.018E-05 | 3.995E-07 | 4.15E-01 | 3.122E+01 | 3.108E+01 | 2.237E+02 | 9.994E-06 | 4.848E-05 | 2.262E-01 |
| 105 | 1.38E-01 | 9.181E+01 | 9.087E+01 | 9.772E+01 | 5.236E-05 | -1.422E-07 | 3.83E-01 | 3.320E+01 | 3.306E+01 | 2.378E+02 | 8.839E-06 | 4.366E-05 | 2.219E-01 |
| 110 | 1.38E-01 | 8.987E+01 | 8.894E+01 | 9.566E+01 | 5.464E-05 | -7.432E-07 | 3.52E-01 | 3.513E+01 | 3.499E+01 | 2.517E+02 | 7.893E-06 | 3.959E-05 | 2.158E-01 |
| 115 | 1.36E-01 | 8.800E+01 | 8.707E+01 | 9.367E+01 | 5.699E-05 | -1.402E-06 | 3.22E-01 | 3.700E+01 | 3.686E+01 | 2.651E+02 | 7.114E-06 | 3.616E-05 | 2.082E-01 |
| 120 | 1.32E-01 | 8.620E+01 | 8.527E+01 | 9.175E+01 | 5.939E-05 | -2.115E-06 | 2.94E-01 | 3.880E+01 | 3.866E+01 | 2.780E+02 | 6.470E-06 | 3.327E-05 | 1.989E-01 |
| 125 | 1.28E-01 | 8.449E+01 | 8.356E+01 | 8.993E+01 | 6.182E-05 | -2.876E-06 | 2.66E-01 | 4.051E+01 | 4.037E+01 | 2.902E+02 | 5.936E-06 | 3.082E-05 | 1.882E-01 |
| 130 | 1.22E-01 | 8.289E+01 | 8.195E+01 | 8.822E+01 | 6.424E-05 | -3.673E-06 | 2.39E-01 | 4.212E+01 | 4.198E+01 | 3.018E+02 | 5.491E-06 | 2.875E-05 | 1.760E-01 |
| 135 | 1.14E-01 | 8.139E+01 | 8.046E+01 | 8.663E+01 | 6.662E-05 | -4.495E-06 | 2.13E-01 | 4.361E+01 | 4.347E+01 | 3.125E+02 | 5.121E-06 | 2.701E-05 | 1.624E-01 |
| 140 | 1.86E-01 | 8.002E+01 | 7.909E+01 | 8.518E+01 | 6.892E-05 | -5.323E-06 | 1.88E-01 | 4.498E+01 | 4.484E+01 | 3.223E+02 | 4.814E-06 | 2.554E-05 | 1.476E-01 |
| 145 | 9.58E-02 | 7.879E+01 | 7.785E+01 | 8.386E+01 | 7.110E-05 | -6.138E-06 | 1.63E-01 | 4.621E+01 | 4.607E+01 | 3.311E+02 | 4.561E-06 | 2.432E-05 | 1.317E-01 |
| 150 | 8.47E-02 | 7.770E+01 | 7.677E+01 | 8.270E+01 | 7.310E-05 | -6.915E-06 | 1.39E-01 | 4.730E+01 | 4.716E+01 | 3.389E+02 | 4.353E-06 | 2.332E-05 | 1.148E-01 |
| 155 | 7.25E-02 | 7.676E+01 | 7.583E+01 | 8.171E+01 | 7.490E-05 | -7.631E-06 | 1.15E-01 | 4.824E+01 | 4.810E+01 | 3.456E+02 | 4.186E-06 | 2.250E-05 | 9.707E-02 |
| 160 | 5.92E-02 | 7.599E+01 | 7.505E+01 | 8.088E+01 | 7.643E-05 | -8.260E-06 | 9.18E-02 | 4.901E+01 | 4.887E+01 | 3.512E+02 | 4.054E-06 | 2.186E-05 | 7.856E-02 |
| 165 | 4.52E-02 | 7.538E+01 | 7.444E+01 | 8.023E+01 | 7.767E-05 | -8.778E-06 | 6.86E-02 | 4.962E+01 | 4.948E+01 | 3.555E+02 | 3.955E-06 | 2.137E-05 | 5.945E-02 |
| 170 | 3.05E-02 | 7.494E+01 | 7.401E+01 | 7.977E+01 | 7.858E-05 | -9.164E-06 | 4.57E-02 | 5.006E+01 | 4.992E+01 | 3.587E+02 | 3.886E-06 | 2.103E-05 | 3.989E-02 |
| 175 | 1.54E-02 | 7.468E+01 | 7.374E+01 | 7.949E+01 | 7.914E-05 | -9.403E-06 | 2.28E-02 | 5.032E+01 | 5.019E+01 | 3.606E+02 | 3.846E-06 | 2.083E-05 | 2.002E-02 |
| 180 | 0. | 7.459E+01 | 7.365E+01 | 7.939E+01 | 7.933E-05 | -9.484E-06 | 0. | 5.041E+01 | 5.027E+01 | 3.612E+02 | 3.832E-06 | 2.076E-05 | 0. |

DELTA(1236) => NEUTRON + PI PLUS AT 150 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.23600E+00 M2 = 9.39553E-01 M3 = 1.39569E-01
P2CM= 2.29699E-01
E2CM= 9.67223E-01 E3CM= 2.68777E-01

1-V1LAB= 3.395E-05 GCM = 1.21363E+02 S = 1.52770E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.453E+02 | 1.443E+02 | 1.546E+02 | 2.092E-05 | 2.501E-06 | 0. | 4.742E+00 | 4.684E+00 | 3.399E+01 | 4.329E-04 | -2.347E-03 | 0. |
| 1 | 1.58E-03 | 1.453E+02 | 1.443E+02 | 1.546E+02 | 2.092E-05 | 2.500E-06 | 4.84E-02 | 4.746E+00 | 4.688E+00 | 3.402E+01 | 4.322E-04 | -2.338E-03 | 4.009E-03 |
| 2 | 3.16E-03 | 1.452E+02 | 1.443E+02 | 1.546E+02 | 2.092E-05 | 2.500E-06 | 9.65E-02 | 4.759E+00 | 4.621E+00 | 3.411E+01 | 4.299E-04 | -2.312E-03 | 8.016E-03 |
| 3 | 4.74E-03 | 1.452E+02 | 1.443E+02 | 1.546E+02 | 2.093E-05 | 2.500E-06 | 1.44E-01 | 4.780E+00 | 4.642E+00 | 3.426E+01 | 4.260E-04 | -2.269E-03 | 1.202E-02 |
| 4 | 6.32E-03 | 1.452E+02 | 1.443E+02 | 1.545E+02 | 2.094E-05 | 2.499E-06 | 1.91E-01 | 4.809E+00 | 4.672E+00 | 3.447E+01 | 4.208E-04 | -2.211E-03 | 1.602E-02 |
| 5 | 7.90E-03 | 1.452E+02 | 1.442E+02 | 1.545E+02 | 2.095E-05 | 2.498E-06 | 2.37E-01 | 4.848E+00 | 4.710E+00 | 3.475E+01 | 4.142E-04 | -2.139E-03 | 2.002E-02 |
| 6 | 9.48E-03 | 1.451E+02 | 1.442E+02 | 1.544E+02 | 2.096E-05 | 2.497E-06 | 2.81E-01 | 4.894E+00 | 4.757E+00 | 3.508E+01 | 4.063E-04 | -2.053E-03 | 2.401E-02 |
| 7 | 1.11E-02 | 1.451E+02 | 1.441E+02 | 1.544E+02 | 2.098E-05 | 2.496E-06 | 3.24E-01 | 4.949E+00 | 4.812E+00 | 3.548E+01 | 3.974E-04 | -1.958E-03 | 2.799E-02 |
| 8 | 1.26E-02 | 1.450E+02 | 1.441E+02 | 1.543E+02 | 2.100E-05 | 2.495E-06 | 3.65E-01 | 5.013E+00 | 4.875E+00 | 3.593E+01 | 3.874E-04 | -1.853E-03 | 3.197E-02 |
| 9 | 1.42E-02 | 1.449E+02 | 1.440E+02 | 1.542E+02 | 2.102E-05 | 2.493E-06 | 4.05E-01 | 5.085E+00 | 4.947E+00 | 3.645E+01 | 3.765E-04 | -1.742E-03 | 3.593E-02 |
| 10 | 1.58E-02 | 1.448E+02 | 1.439E+02 | 1.542E+02 | 2.104E-05 | 2.492E-06 | 4.42E-01 | 5.165E+00 | 5.028E+00 | 3.702E+01 | 3.649E-04 | -1.626E-03 | 3.989E-02 |
| 15 | 2.36E-02 | 1.443E+02 | 1.434E+02 | 1.536E+02 | 2.119E-05 | 2.480E-06 | 5.98E-01 | 5.692E+00 | 5.554E+00 | 4.079E+01 | 3.005E-04 | -1.039E-03 | 5.945E-02 |
| 20 | 3.14E-02 | 1.436E+02 | 1.426E+02 | 1.528E+02 | 2.141E-05 | 2.463E-06 | 7.01E-01 | 6.423E+00 | 6.285E+00 | 4.603E+01 | 2.360E-04 | -5.524E-04 | 7.856E-02 |
| 25 | 3.90E-02 | 1.426E+02 | 1.417E+02 | 1.518E+02 | 2.169E-05 | 2.441E-06 | 7.56E-01 | 7.354E+00 | 7.216E+00 | 5.270E+01 | 1.800E-04 | -2.236E-04 | 9.707E-02 |
| 30 | 4.65E-02 | 1.415E+02 | 1.406E+02 | 1.506E+02 | 2.204E-05 | 2.411E-06 | 7.76E-01 | 8.477E+00 | 8.339E+00 | 6.075E+01 | 1.355E-04 | -3.217E-05 | 1.148E-01 |
| 35 | 5.38E-02 | 1.402E+02 | 1.393E+02 | 1.492E+02 | 2.245E-05 | 2.374E-06 | 7.72E-01 | 9.784E+00 | 9.645E+00 | 7.011E+01 | 1.017E-04 | 6.521E-05 | 1.317E-01 |
| 40 | 6.10E-02 | 1.387E+02 | 1.378E+02 | 1.477E+02 | 2.293E-05 | 2.327E-06 | 7.51E-01 | 1.126E+01 | 1.113E+01 | 8.072E+01 | 7.675E-05 | 1.067E-04 | 1.476E-01 |
| 45 | 6.79E-02 | 1.371E+02 | 1.362E+02 | 1.459E+02 | 2.348E-05 | 2.270E-06 | 7.21E-01 | 1.291E+01 | 1.277E+01 | 9.249E+01 | 5.845E-05 | 1.181E-04 | 1.624E-01 |
| 50 | 7.45E-02 | 1.353E+02 | 1.344E+02 | 1.440E+02 | 2.411E-05 | 2.201E-06 | 6.86E-01 | 1.470E+01 | 1.456E+01 | 1.053E+02 | 4.507E-05 | 1.148E-04 | 1.760E-01 |
| 55 | 8.08E-02 | 1.334E+02 | 1.324E+02 | 1.420E+02 | 2.481E-05 | 2.117E-06 | 6.48E-01 | 1.663E+01 | 1.649E+01 | 1.192E+02 | 3.522E-05 | 1.052E-04 | 1.882E-01 |
| 60 | 8.68E-02 | 1.313E+02 | 1.304E+02 | 1.398E+02 | 2.559E-05 | 2.017E-06 | 6.10E-01 | 1.868E+01 | 1.854E+01 | 1.339E+02 | 2.791E-05 | 9.362E-05 | 1.989E-01 |
| 65 | 9.23E-02 | 1.292E+02 | 1.282E+02 | 1.375E+02 | 2.646E-05 | 1.897E-06 | 5.72E-01 | 2.084E+01 | 2.070E+01 | 1.493E+02 | 2.243E-05 | 8.217E-05 | 2.082E-01 |
| 70 | 9.74E-02 | 1.269E+02 | 1.260E+02 | 1.351E+02 | 2.740E-05 | 1.756E-06 | 5.36E-01 | 2.309E+01 | 2.295E+01 | 1.654E+02 | 1.828E-05 | 7.171E-05 | 2.158E-01 |
| 75 | 1.02E-01 | 1.246E+02 | 1.237E+02 | 1.326E+02 | 2.843E-05 | 1.589E-06 | 5.00E-01 | 2.540E+01 | 2.527E+01 | 1.820E+02 | 1.509E-05 | 6.254E-05 | 2.219E-01 |
| 80 | 1.06E-01 | 1.222E+02 | 1.213E+02 | 1.301E+02 | 2.955E-05 | 1.395E-06 | 4.67E-01 | 2.778E+01 | 2.764E+01 | 1.990E+02 | 1.262E-05 | 5.467E-05 | 2.262E-01 |
| 85 | 1.09E-01 | 1.198E+02 | 1.189E+02 | 1.275E+02 | 3.075E-05 | 1.169E-06 | 4.34E-01 | 3.019E+01 | 3.005E+01 | 2.163E+02 | 1.069E-05 | 4.800E-05 | 2.288E-01 |
| 90 | 1.12E-01 | 1.174E+02 | 1.164E+02 | 1.249E+02 | 3.203E-05 | 9.094E-07 | 4.03E-01 | 3.262E+01 | 3.248E+01 | 2.337E+02 | 9.154E-06 | 4.238E-05 | 2.297E-01 |
| 95 | 1.14E-01 | 1.150E+02 | 1.140E+02 | 1.224E+02 | 3.340E-05 | 6.130E-07 | 3.74E-01 | 3.505E+01 | 3.491E+01 | 2.511E+02 | 7.929E-06 | 3.765E-05 | 2.288E-01 |
| 100 | 1.15E-01 | 1.125E+02 | 1.116E+02 | 1.198E+02 | 3.485E-05 | 2.774E-07 | 3.46E-01 | 3.746E+01 | 3.732E+01 | 2.684E+02 | 6.941E-06 | 3.367E-05 | 2.262E-01 |
| 105 | 1.15E-01 | 1.102E+02 | 1.092E+02 | 1.173E+02 | 3.637E-05 | -9.879E-08 | 3.19E-01 | 3.983E+01 | 3.969E+01 | 2.854E+02 | 6.138E-06 | 3.032E-05 | 2.219E-01 |
| 110 | 1.15E-01 | 1.078E+02 | 1.069E+02 | 1.148E+02 | 3.795E-05 | -5.161E-07 | 2.93E-01 | 4.215E+01 | 4.201E+01 | 3.020E+02 | 5.481E-06 | 2.749E-05 | 2.158E-01 |
| 115 | 1.13E-01 | 1.056E+02 | 1.047E+02 | 1.124E+02 | 3.958E-05 | -9.736E-07 | 2.69E-01 | 4.440E+01 | 4.426E+01 | 3.181E+02 | 4.940E-06 | 2.511E-05 | 2.082E-01 |
| 120 | 1.10E-01 | 1.034E+02 | 1.025E+02 | 1.101E+02 | 4.125E-05 | -1.469E-06 | 2.45E-01 | 4.656E+01 | 4.642E+01 | 3.336E+02 | 4.493E-06 | 2.310E-05 | 1.989E-01 |
| 125 | 1.06E-01 | 1.014E+02 | 1.005E+02 | 1.079E+02 | 4.293E-05 | -1.997E-06 | 2.22E-01 | 4.861E+01 | 4.847E+01 | 3.483E+02 | 4.122E-06 | 2.140E-05 | 1.882E-01 |
| 130 | 1.01E-01 | 9.946E+01 | 9.853E+01 | 1.059E+02 | 4.461E-05 | -2.551E-06 | 1.99E-01 | 5.054E+01 | 5.040E+01 | 3.621E+02 | 3.813E-06 | 1.997E-05 | 1.760E-01 |
| 135 | 9.53E-02 | 9.767E+01 | 9.673E+01 | 1.040E+02 | 4.627E-05 | -3.122E-06 | 1.78E-01 | 5.233E+01 | 5.219E+01 | 3.749E+02 | 3.557E-06 | 1.876E-05 | 1.624E-01 |
| 140 | 8.81E-02 | 9.603E+01 | 9.509E+01 | 1.022E+02 | 4.786E-05 | -3.697E-06 | 1.57E-01 | 5.397E+01 | 5.383E+01 | 3.867E+02 | 3.343E-06 | 1.774E-05 | 1.476E-01 |
| 145 | 7.98E-02 | 9.455E+01 | 9.361E+01 | 1.006E+02 | 4.937E-05 | -4.262E-06 | 1.36E-01 | 5.545E+01 | 5.531E+01 | 3.973E+02 | 3.167E-06 | 1.689E-05 | 1.317E-01 |
| 150 | 7.06E-02 | 9.324E+01 | 9.230E+01 | 9.924E+01 | 5.077E-05 | -4.802E-06 | 1.16E-01 | 5.676E+01 | 5.662E+01 | 4.067E+02 | 3.023E-06 | 1.619E-05 | 1.148E-01 |
| 155 | 6.04E-02 | 9.212E+01 | 9.118E+01 | 9.805E+01 | 5.201E-05 | -5.299E-06 | 9.61E-02 | 5.788E+01 | 5.774E+01 | 4.147E+02 | 2.907E-06 | 1.563E-05 | 9.707E-02 |
| 160 | 4.94E-02 | 9.119E+01 | 9.025E+01 | 9.706E+01 | 5.308E-05 | -5.736E-06 | 7.65E-02 | 5.881E+01 | 5.868E+01 | 4.214E+02 | 2.816E-06 | 1.518E-05 | 7.856E-02 |
| 165 | 3.77E-02 | 9.045E+01 | 8.952E+01 | 9.628E+01 | 5.394E-05 | -6.096E-06 | 5.72E-02 | 5.955E+01 | 5.941E+01 | 4.266E+02 | 2.747E-06 | 1.484E-05 | 5.945E-02 |
| 170 | 2.54E-02 | 8.993E+01 | 8.899E+01 | 9.572E+01 | 5.457E-05 | -6.364E-06 | 3.80E-02 | 6.007E+01 | 5.993E+01 | 4.304E+02 | 2.699E-06 | 1.460E-05 | 3.989E-02 |
| 175 | 1.28E-02 | 8.961E+01 | 8.868E+01 | 9.538E+01 | 5.496E-05 | -6.530E-06 | 1.90E-02 | 6.039E+01 | 6.025E+01 | 4.327E+02 | 2.671E-06 | 1.446E-05 | 2.002E-02 |
| 180 | 0. | 8.950E+01 | 8.857E+01 | 9.527E+01 | 5.509E-05 | -6.586E-06 | 0. | 6.050E+01 | 6.036E+01 | 4.334E+02 | 2.661E-06 | 1.442E-05 | 0. |

DELTA(1236) => NEUTRON + PI PLUS AT 175 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.23600E+00 M2 = 9.39553E-01 M3 = 1.39569E-01
P2CM= 2.29699E-01
E2CM= 9.67223E-01 E3CM= 2.68777E-01

1-V1LAB= 2.494E-05 GCM = 1.41589E+02 S = 1.52770E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.695E+02 | 1.685E+02 | 1.804E+02 | 1.537E-05 | 1.837E-06 | 0. | 5.532E+00 | 5.394E+00 | 3.965E+01 | 3.181E-04 | -1.724E-03 | 0. |
| 1 | 1.36E-03 | 1.695E+02 | 1.685E+02 | 1.804E+02 | 1.537E-05 | 1.837E-06 | 4.15E-02 | 5.537E+00 | 5.399E+00 | 3.969E+01 | 3.175E-04 | -1.718E-03 | 4.009E-03 |
| 2 | 2.71E-03 | 1.694E+02 | 1.685E+02 | 1.804E+02 | 1.537E-05 | 1.837E-06 | 8.27E-02 | 5.552E+00 | 5.414E+00 | 3.979E+01 | 3.158E-04 | -1.698E-03 | 8.016E-03 |
| 3 | 4.07E-03 | 1.694E+02 | 1.685E+02 | 1.803E+02 | 1.538E-05 | 1.837E-06 | 1.24E-01 | 5.577E+00 | 5.439E+00 | 3.997E+01 | 3.130E-04 | -1.667E-03 | 1.202E-02 |
| 4 | 5.42E-03 | 1.694E+02 | 1.685E+02 | 1.803E+02 | 1.538E-05 | 1.836E-06 | 1.64E-01 | 5.611E+00 | 5.473E+00 | 4.022E+01 | 3.092E-04 | -1.624E-03 | 1.602E-02 |
| 5 | 6.77E-03 | 1.693E+02 | 1.684E+02 | 1.802E+02 | 1.539E-05 | 1.836E-06 | 2.03E-01 | 5.656E+00 | 5.518E+00 | 4.054E+01 | 3.043E-04 | -1.571E-03 | 2.002E-02 |
| 6 | 8.13E-03 | 1.693E+02 | 1.684E+02 | 1.802E+02 | 1.540E-05 | 1.835E-06 | 2.41E-01 | 5.710E+00 | 5.572E+00 | 4.093E+01 | 2.986E-04 | -1.509E-03 | 2.401E-02 |
| 7 | 9.48E-03 | 1.692E+02 | 1.683E+02 | 1.801E+02 | 1.541E-05 | 1.834E-06 | 2.78E-01 | 5.775E+00 | 5.637E+00 | 4.139E+01 | 2.920E-04 | -1.438E-03 | 2.799E-02 |
| 8 | 1.08E-02 | 1.692E+02 | 1.682E+02 | 1.800E+02 | 1.543E-05 | 1.833E-06 | 3.13E-01 | 5.849E+00 | 5.711E+00 | 4.192E+01 | 2.846E-04 | -1.361E-03 | 3.197E-02 |
| 9 | 1.22E-02 | 1.691E+02 | 1.681E+02 | 1.799E+02 | 1.544E-05 | 1.832E-06 | 3.47E-01 | 5.933E+00 | 5.795E+00 | 4.252E+01 | 2.766E-04 | -1.279E-03 | 3.593E-02 |
| 10 | 1.35E-02 | 1.690E+02 | 1.680E+02 | 1.798E+02 | 1.546E-05 | 1.831E-06 | 3.79E-01 | 6.026E+00 | 5.888E+00 | 4.319E+01 | 2.681E-04 | -1.194E-03 | 3.989E-02 |
| 15 | 2.02E-02 | 1.684E+02 | 1.674E+02 | 1.792E+02 | 1.557E-05 | 1.822E-06 | 5.13E-01 | 6.641E+00 | 6.502E+00 | 4.759E+01 | 2.208E-04 | -7.631E-04 | 5.945E-02 |
| 20 | 2.69E-02 | 1.675E+02 | 1.666E+02 | 1.783E+02 | 1.573E-05 | 1.810E-06 | 6.01E-01 | 7.494E+00 | 7.356E+00 | 5.370E+01 | 1.734E-04 | -4.058E-04 | 7.856E-02 |
| 25 | 3.34E-02 | 1.664E+02 | 1.655E+02 | 1.771E+02 | 1.594E-05 | 1.793E-06 | 6.48E-01 | 8.580E+00 | 8.441E+00 | 6.148E+01 | 1.323E-04 | -1.643E-04 | 9.707E-02 |
| 30 | 3.99E-02 | 1.651E+02 | 1.642E+02 | 1.757E+02 | 1.619E-05 | 1.771E-06 | 6.65E-01 | 9.890E+00 | 9.751E+00 | 7.087E+01 | 9.956E-05 | -2.365E-05 | 1.148E-01 |
| 35 | 4.61E-02 | 1.636E+02 | 1.626E+02 | 1.741E+02 | 1.649E-05 | 1.744E-06 | 6.61E-01 | 1.141E+01 | 1.128E+01 | 8.179E+01 | 7.474E-05 | 4.790E-05 | 1.317E-01 |
| 40 | 5.23E-02 | 1.619E+02 | 1.609E+02 | 1.723E+02 | 1.685E-05 | 1.710E-06 | 6.44E-01 | 1.314E+01 | 1.300E+01 | 9.417E+01 | 5.639E-05 | 7.836E-05 | 1.476E-01 |
| 45 | 5.82E-02 | 1.599E+02 | 1.590E+02 | 1.702E+02 | 1.725E-05 | 1.668E-06 | 6.18E-01 | 1.506E+01 | 1.492E+01 | 1.079E+02 | 4.295E-05 | 8.674E-05 | 1.624E-01 |
| 50 | 6.39E-02 | 1.579E+02 | 1.569E+02 | 1.680E+02 | 1.771E-05 | 1.617E-06 | 5.88E-01 | 1.715E+01 | 1.701E+01 | 1.229E+02 | 3.311E-05 | 8.431E-05 | 1.760E-01 |
| 55 | 6.93E-02 | 1.556E+02 | 1.547E+02 | 1.656E+02 | 1.823E-05 | 1.556E-06 | 5.56E-01 | 1.940E+01 | 1.926E+01 | 1.390E+02 | 2.587E-05 | 7.727E-05 | 1.882E-01 |
| 60 | 7.44E-02 | 1.532E+02 | 1.523E+02 | 1.631E+02 | 1.880E-05 | 1.482E-06 | 5.23E-01 | 2.179E+01 | 2.166E+01 | 1.562E+02 | 2.050E-05 | 6.878E-05 | 1.989E-01 |
| 65 | 7.92E-02 | 1.507E+02 | 1.498E+02 | 1.604E+02 | 1.944E-05 | 1.394E-06 | 4.91E-01 | 2.431E+01 | 2.417E+01 | 1.742E+02 | 1.648E-05 | 6.037E-05 | 2.082E-01 |
| 70 | 8.35E-02 | 1.481E+02 | 1.471E+02 | 1.576E+02 | 2.013E-05 | 1.290E-06 | 4.59E-01 | 2.693E+01 | 2.679E+01 | 1.930E+02 | 1.343E-05 | 5.269E-05 | 2.158E-01 |
| 75 | 8.75E-02 | 1.454E+02 | 1.444E+02 | 1.547E+02 | 2.089E-05 | 1.167E-06 | 4.29E-01 | 2.964E+01 | 2.950E+01 | 2.124E+02 | 1.109E-05 | 4.595E-05 | 2.219E-01 |
| 80 | 9.09E-02 | 1.426E+02 | 1.417E+02 | 1.518E+02 | 2.171E-05 | 1.025E-06 | 4.00E-01 | 3.241E+01 | 3.227E+01 | 2.322E+02 | 9.273E-06 | 4.017E-05 | 2.262E-01 |
| 85 | 9.38E-02 | 1.398E+02 | 1.388E+02 | 1.488E+02 | 2.259E-05 | 8.589E-07 | 3.72E-01 | 3.522E+01 | 3.508E+01 | 2.524E+02 | 7.851E-06 | 3.527E-05 | 2.288E-01 |
| 90 | 9.61E-02 | 1.369E+02 | 1.360E+02 | 1.458E+02 | 2.353E-05 | 6.681E-07 | 3.46E-01 | 3.806E+01 | 3.792E+01 | 2.727E+02 | 6.725E-06 | 3.113E-05 | 2.297E-01 |
| 95 | 9.78E-02 | 1.341E+02 | 1.332E+02 | 1.427E+02 | 2.454E-05 | 4.503E-07 | 3.21E-01 | 4.089E+01 | 4.075E+01 | 2.930E+02 | 5.825E-06 | 2.766E-05 | 2.288E-01 |
| 100 | 9.87E-02 | 1.313E+02 | 1.304E+02 | 1.397E+02 | 2.560E-05 | 2.038E-07 | 2.97E-01 | 4.370E+01 | 4.356E+01 | 3.131E+02 | 5.099E-06 | 2.473E-05 | 2.262E-01 |
| 105 | 9.89E-02 | 1.285E+02 | 1.276E+02 | 1.368E+02 | 2.672E-05 | -7.259E-08 | 2.74E-01 | 4.647E+01 | 4.633E+01 | 3.330E+02 | 4.510E-06 | 2.227E-05 | 2.219E-01 |
| 110 | 9.83E-02 | 1.258E+02 | 1.249E+02 | 1.339E+02 | 2.788E-05 | -3.792E-07 | 2.51E-01 | 4.918E+01 | 4.904E+01 | 3.524E+02 | 4.027E-06 | 2.020E-05 | 2.158E-01 |
| 115 | 9.68E-02 | 1.232E+02 | 1.223E+02 | 1.311E+02 | 2.908E-05 | -7.153E-07 | 2.30E-01 | 5.180E+01 | 5.166E+01 | 3.711E+02 | 3.630E-06 | 1.845E-05 | 2.082E-01 |
| 120 | 9.44E-02 | 1.207E+02 | 1.197E+02 | 1.285E+02 | 3.030E-05 | -1.079E-06 | 2.10E-01 | 5.432E+01 | 5.418E+01 | 3.892E+02 | 3.301E-06 | 1.697E-05 | 1.989E-01 |
| 125 | 9.11E-02 | 1.183E+02 | 1.174E+02 | 1.259E+02 | 3.154E-05 | -1.467E-06 | 1.90E-01 | 5.671E+01 | 5.657E+01 | 4.063E+02 | 3.029E-06 | 1.572E-05 | 1.882E-01 |
| 130 | 8.69E-02 | 1.160E+02 | 1.151E+02 | 1.235E+02 | 3.278E-05 | -1.874E-06 | 1.71E-01 | 5.896E+01 | 5.882E+01 | 4.224E+02 | 2.802E-06 | 1.467E-05 | 1.760E-01 |
| 135 | 8.17E-02 | 1.139E+02 | 1.130E+02 | 1.213E+02 | 3.399E-05 | -2.293E-06 | 1.52E-01 | 6.105E+01 | 6.091E+01 | 4.374E+02 | 2.613E-06 | 1.378E-05 | 1.624E-01 |
| 140 | 7.55E-02 | 1.120E+02 | 1.111E+02 | 1.192E+02 | 3.517E-05 | -2.716E-06 | 1.34E-01 | 6.297E+01 | 6.283E+01 | 4.512E+02 | 2.456E-06 | 1.303E-05 | 1.476E-01 |
| 145 | 6.84E-02 | 1.103E+02 | 1.094E+02 | 1.174E+02 | 3.627E-05 | -3.132E-06 | 1.17E-01 | 6.470E+01 | 6.456E+01 | 4.635E+02 | 2.327E-06 | 1.241E-05 | 1.317E-01 |
| 150 | 6.05E-02 | 1.088E+02 | 1.078E+02 | 1.158E+02 | 3.730E-05 | -3.528E-06 | 9.94E-02 | 6.622E+01 | 6.608E+01 | 4.745E+02 | 2.221E-06 | 1.190E-05 | 1.148E-01 |
| 155 | 5.18E-02 | 1.075E+02 | 1.065E+02 | 1.144E+02 | 3.821E-05 | -3.693E-06 | 8.24E-02 | 6.753E+01 | 6.739E+01 | 4.839E+02 | 2.136E-06 | 1.148E-05 | 9.707E-02 |
| 160 | 4.23E-02 | 1.064E+02 | 1.054E+02 | 1.132E+02 | 3.900E-05 | -4.214E-06 | 6.56E-02 | 6.862E+01 | 6.848E+01 | 4.916E+02 | 2.069E-06 | 1.115E-05 | 7.856E-02 |
| 165 | 3.23E-02 | 1.055E+02 | 1.046E+02 | 1.123E+02 | 3.963E-05 | -4.478E-06 | 4.90E-02 | 6.947E+01 | 6.933E+01 | 4.977E+02 | 2.018E-06 | 1.090E-05 | 5.945E-02 |
| 170 | 2.18E-02 | 1.049E+02 | 1.040E+02 | 1.117E+02 | 4.010E-05 | -4.676E-06 | 3.26E-02 | 7.008E+01 | 6.994E+01 | 5.021E+02 | 1.983E-06 | 1.073E-05 | 3.989E-02 |
| 175 | 1.10E-02 | 1.045E+02 | 1.036E+02 | 1.113E+02 | 4.038E-05 | -4.798E-06 | 1.63E-02 | 7.045E+01 | 7.031E+01 | 5.048E+02 | 1.962E-06 | 1.063E-05 | 2.002E-02 |
| 180 | 0. | 1.044E+02 | 1.035E+02 | 1.111E+02 | 4.048E-05 | -4.839E-06 | 0. | 7.058E+01 | 7.044E+01 | 5.057E+02 | 1.955E-06 | 1.059E-05 | 0. |

DELTA(1236) => NEUTRON + PI PLUS AT 200 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.23600E+00 M2 = 9.39553E-01 M3 = 1.39569E-01
P2CM= 2.29699E-01
E2CM= 9.67223E-01 E3CM= 2.68777E-01

1-V1LAB= 1.910E-05 GCM = 1.61815E+02 S = 1.52770E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 1.937E+02 | 1.927E+02 | 2.061E+02 | 1.177E-05 | 1.407E-06 | 0. | 6.323E+00 | 6.185E+00 | 4.531E+01 | 2.436E-04 | -1.320E-03 | 0. |
| 1 | 1.19E-03 | 1.937E+02 | 1.927E+02 | 2.061E+02 | 1.177E-05 | 1.407E-06 | 3.63E-02 | 6.328E+00 | 6.190E+00 | 4.535E+01 | 2.431E-04 | -1.315E-03 | 4.009E-03 |
| 2 | 2.37E-03 | 1.937E+02 | 1.927E+02 | 2.061E+02 | 1.177E-05 | 1.406E-06 | 7.24E-02 | 6.345E+00 | 6.207E+00 | 4.547E+01 | 2.418E-04 | -1.300E-03 | 8.016E-03 |
| 3 | 3.56E-03 | 1.936E+02 | 1.927E+02 | 2.061E+02 | 1.177E-05 | 1.406E-06 | 1.08E-01 | 6.374E+00 | 6.236E+00 | 4.568E+01 | 2.397E-04 | -1.276E-03 | 1.202E-02 |
| 4 | 4.74E-03 | 1.936E+02 | 1.926E+02 | 2.060E+02 | 1.178E-05 | 1.406E-06 | 1.43E-01 | 6.413E+00 | 6.275E+00 | 4.596E+01 | 2.367E-04 | -1.244E-03 | 1.602E-02 |
| 5 | 5.93E-03 | 1.935E+02 | 1.926E+02 | 2.060E+02 | 1.178E-05 | 1.405E-06 | 1.77E-01 | 6.464E+00 | 6.326E+00 | 4.633E+01 | 2.330E-04 | -1.203E-03 | 2.002E-02 |
| 6 | 7.11E-03 | 1.935E+02 | 1.925E+02 | 2.059E+02 | 1.179E-05 | 1.405E-06 | 2.11E-01 | 6.526E+00 | 6.388E+00 | 4.677E+01 | 2.286E-04 | -1.155E-03 | 2.401E-02 |
| 7 | 8.29E-03 | 1.934E+02 | 1.925E+02 | 2.058E+02 | 1.180E-05 | 1.404E-06 | 2.43E-01 | 6.600E+00 | 6.462E+00 | 4.730E+01 | 2.235E-04 | -1.101E-03 | 2.799E-02 |
| 8 | 9.47E-03 | 1.933E+02 | 1.924E+02 | 2.058E+02 | 1.181E-05 | 1.403E-06 | 2.74E-01 | 6.684E+00 | 6.546E+00 | 4.790E+01 | 2.179E-04 | -1.042E-03 | 3.197E-02 |
| 9 | 1.07E-02 | 1.932E+02 | 1.923E+02 | 2.057E+02 | 1.182E-05 | 1.402E-06 | 3.04E-01 | 6.780E+00 | 6.642E+00 | 4.859E+01 | 2.118E-04 | -9.796E-04 | 3.593E-02 |
| 10 | 1.18E-02 | 1.931E+02 | 1.922E+02 | 2.055E+02 | 1.184E-05 | 1.402E-06 | 3.32E-01 | 6.887E+00 | 6.749E+00 | 4.936E+01 | 2.053E-04 | -9.143E-04 | 3.989E-02 |
| 15 | 1.77E-02 | 1.924E+02 | 1.915E+02 | 2.048E+02 | 1.192E-05 | 1.395E-06 | 4.49E-01 | 7.589E+00 | 7.451E+00 | 5.439E+01 | 1.691E-04 | -5.843E-04 | 5.945E-02 |
| 20 | 2.35E-02 | 1.914E+02 | 1.905E+02 | 2.038E+02 | 1.204E-05 | 1.386E-06 | 5.26E-01 | 8.565E+00 | 8.426E+00 | 6.137E+01 | 1.328E-04 | -3.107E-04 | 7.856E-02 |
| 25 | 2.92E-02 | 1.902E+02 | 1.893E+02 | 2.024E+02 | 1.220E-05 | 1.373E-06 | 5.67E-01 | 9.806E+00 | 9.667E+00 | 7.026E+01 | 1.013E-04 | -1.258E-04 | 9.707E-02 |
| 30 | 3.49E-02 | 1.887E+02 | 1.878E+02 | 2.008E+02 | 1.240E-05 | 1.356E-06 | 5.82E-01 | 1.130E+01 | 1.116E+01 | 8.099E+01 | 7.623E-05 | -1.812E-05 | 1.148E-01 |
| 35 | 4.04E-02 | 1.870E+02 | 1.860E+02 | 1.990E+02 | 1.263E-05 | 1.335E-06 | 5.79E-01 | 1.305E+01 | 1.291E+01 | 9.347E+01 | 5.723E-05 | 3.667E-05 | 1.317E-01 |
| 40 | 4.57E-02 | 1.850E+02 | 1.840E+02 | 1.969E+02 | 1.290E-05 | 1.309E-06 | 5.63E-01 | 1.502E+01 | 1.488E+01 | 1.076E+02 | 4.317E-05 | 6.000E-05 | 1.476E-01 |
| 45 | 5.09E-02 | 1.828E+02 | 1.819E+02 | 1.946E+02 | 1.321E-05 | 1.277E-06 | 5.41E-01 | 1.721E+01 | 1.707E+01 | 1.233E+02 | 3.288E-05 | 6.641E-05 | 1.624E-01 |
| 50 | 5.59E-02 | 1.804E+02 | 1.795E+02 | 1.920E+02 | 1.356E-05 | 1.238E-06 | 5.14E-01 | 1.960E+01 | 1.946E+01 | 1.404E+02 | 2.535E-05 | 6.455E-05 | 1.760E-01 |
| 55 | 6.06E-02 | 1.778E+02 | 1.769E+02 | 1.893E+02 | 1.396E-05 | 1.191E-06 | 4.86E-01 | 2.217E+01 | 2.203E+01 | 1.589E+02 | 1.981E-05 | 5.916E-05 | 1.882E-01 |
| 60 | 6.51E-02 | 1.751E+02 | 1.742E+02 | 1.864E+02 | 1.440E-05 | 1.134E-06 | 4.58E-01 | 2.491E+01 | 2.477E+01 | 1.785E+02 | 1.570E-05 | 5.266E-05 | 1.989E-01 |
| 65 | 6.93E-02 | 1.722E+02 | 1.713E+02 | 1.833E+02 | 1.488E-05 | 1.067E-06 | 4.29E-01 | 2.778E+01 | 2.764E+01 | 1.991E+02 | 1.262E-05 | 4.622E-05 | 2.082E-01 |
| 70 | 7.31E-02 | 1.692E+02 | 1.683E+02 | 1.801E+02 | 1.541E-05 | 9.875E-07 | 4.02E-01 | 3.078E+01 | 3.064E+01 | 2.205E+02 | 1.028E-05 | 4.034E-05 | 2.158E-01 |
| 75 | 7.65E-02 | 1.661E+02 | 1.652E+02 | 1.768E+02 | 1.599E-05 | 8.939E-07 | 3.75E-01 | 3.387E+01 | 3.373E+01 | 2.427E+02 | 8.489E-06 | 3.518E-05 | 2.219E-01 |
| 80 | 7.95E-02 | 1.630E+02 | 1.620E+02 | 1.735E+02 | 1.662E-05 | 7.845E-07 | 3.50E-01 | 3.704E+01 | 3.690E+01 | 2.654E+02 | 7.100E-06 | 3.076E-05 | 2.262E-01 |
| 85 | 8.21E-02 | 1.597E+02 | 1.588E+02 | 1.700E+02 | 1.730E-05 | 6.576E-07 | 3.26E-01 | 4.025E+01 | 4.011E+01 | 2.884E+02 | 6.011E-06 | 2.700E-05 | 2.288E-01 |
| 90 | 8.41E-02 | 1.565E+02 | 1.556E+02 | 1.666E+02 | 1.802E-05 | 5.115E-07 | 3.03E-01 | 4.349E+01 | 4.335E+01 | 3.116E+02 | 5.149E-06 | 2.384E-05 | 2.297E-01 |
| 95 | 8.55E-02 | 1.533E+02 | 1.523E+02 | 1.631E+02 | 1.879E-05 | 3.448E-07 | 2.81E-01 | 4.673E+01 | 4.659E+01 | 3.348E+02 | 4.460E-06 | 2.118E-05 | 2.288E-01 |
| 100 | 8.64E-02 | 1.501E+02 | 1.491E+02 | 1.597E+02 | 1.960E-05 | 1.560E-07 | 2.59E-01 | 4.995E+01 | 4.981E+01 | 3.579E+02 | 3.904E-06 | 1.894E-05 | 2.262E-01 |
| 105 | 8.65E-02 | 1.469E+02 | 1.460E+02 | 1.563E+02 | 2.046E-05 | -5.558E-08 | 2.39E-01 | 5.311E+01 | 5.297E+01 | 3.805E+02 | 3.453E-06 | 1.705E-05 | 2.219E-01 |
| 110 | 8.60E-02 | 1.438E+02 | 1.429E+02 | 1.531E+02 | 2.135E-05 | -2.903E-07 | 2.20E-01 | 5.620E+01 | 5.606E+01 | 4.027E+02 | 3.083E-06 | 1.547E-05 | 2.158E-01 |
| 115 | 8.47E-02 | 1.408E+02 | 1.399E+02 | 1.499E+02 | 2.226E-05 | -5.477E-07 | 2.01E-01 | 5.920E+01 | 5.906E+01 | 4.242E+02 | 2.779E-06 | 1.413E-05 | 2.082E-01 |
| 120 | 8.26E-02 | 1.379E+02 | 1.370E+02 | 1.468E+02 | 2.320E-05 | -8.262E-07 | 1.84E-01 | 6.208E+01 | 6.194E+01 | 4.448E+02 | 2.528E-06 | 1.299E-05 | 1.989E-01 |
| 125 | 7.97E-02 | 1.352E+02 | 1.343E+02 | 1.439E+02 | 2.415E-05 | -1.123E-06 | 1.66E-01 | 6.481E+01 | 6.467E+01 | 4.644E+02 | 2.319E-06 | 1.204E-05 | 1.882E-01 |
| 130 | 7.60E-02 | 1.326E+02 | 1.317E+02 | 1.412E+02 | 2.510E-05 | -1.435E-06 | 1.50E-01 | 6.738E+01 | 6.724E+01 | 4.828E+02 | 2.145E-06 | 1.123E-05 | 1.760E-01 |
| 135 | 7.15E-02 | 1.302E+02 | 1.293E+02 | 1.386E+02 | 2.603E-05 | -1.756E-06 | 1.33E-01 | 6.977E+01 | 6.963E+01 | 4.999E+02 | 2.001E-06 | 1.055E-05 | 1.624E-01 |
| 140 | 6.61E-02 | 1.280E+02 | 1.271E+02 | 1.363E+02 | 2.692E-05 | -2.079E-06 | 1.18E-01 | 7.196E+01 | 7.183E+01 | 5.156E+02 | 1.881E-06 | 9.978E-06 | 1.476E-01 |
| 145 | 5.99E-02 | 1.261E+02 | 1.251E+02 | 1.342E+02 | 2.777E-05 | -2.398E-06 | 1.02E-01 | 7.394E+01 | 7.380E+01 | 5.298E+02 | 1.782E-06 | 9.502E-06 | 1.317E-01 |
| 150 | 5.29E-02 | 1.243E+02 | 1.234E+02 | 1.323E+02 | 2.856E-05 | -2.701E-06 | 8.69E-02 | 7.568E+01 | 7.554E+01 | 5.422E+02 | 1.700E-06 | 9.109E-06 | 1.148E-01 |
| 155 | 4.53E-02 | 1.228E+02 | 1.219E+02 | 1.307E+02 | 2.926E-05 | -2.981E-06 | 7.21E-02 | 7.718E+01 | 7.704E+01 | 5.530E+02 | 1.635E-06 | 8.790E-06 | 9.707E-02 |
| 160 | 3.70E-02 | 1.216E+02 | 1.206E+02 | 1.294E+02 | 2.986E-05 | -3.226E-06 | 5.74E-02 | 7.842E+01 | 7.828E+01 | 5.619E+02 | 1.584E-06 | 8.538E-06 | 7.856E-02 |
| 165 | 2.82E-02 | 1.206E+02 | 1.197E+02 | 1.284E+02 | 3.034E-05 | -3.429E-06 | 4.29E-02 | 7.939E+01 | 7.925E+01 | 5.689E+02 | 1.545E-06 | 8.348E-06 | 5.945E-02 |
| 170 | 1.91E-02 | 1.199E+02 | 1.190E+02 | 1.276E+02 | 3.070E-05 | -3.580E-06 | 2.85E-02 | 8.010E+01 | 7.996E+01 | 5.739E+02 | 1.518E-06 | 8.214E-06 | 3.989E-02 |
| 175 | 9.60E-03 | 1.195E+02 | 1.185E+02 | 1.272E+02 | 3.092E-05 | -3.673E-06 | 1.42E-02 | 8.052E+01 | 8.038E+01 | 5.769E+02 | 1.502E-06 | 8.136E-06 | 2.002E-02 |
| 180 | 0. | 1.193E+02 | 1.184E+02 | 1.270E+02 | 3.099E-05 | -3.705E-06 | 0. | 8.066E+01 | 8.052E+01 | 5.779E+02 | 1.497E-06 | 8.110E-06 | 0. |

DELTA(1236) => NEUTRON + PI PLUS AT 225 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.23600E+00 M2 = 9.39553E-01 M3 = 1.39569E-01
P2CM= 2.29699E-01
E2CM= 9.67223E-01 E3CM= 2.68777E-01

1-V1LAB= 1.509E-05 GCM = 1.82042E+02 S = 1.52770E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.179E+02 | 2.169E+02 | 2.319E+02 | 9.297E-06 | 1.111E-06 | 0. | 7.113E+00 | 6.975E+00 | 5.097E+01 | 1.924E-04 | -1.043E-03 | 0. |
| 1 | 1.05E-03 | 2.179E+02 | 2.169E+02 | 2.319E+02 | 9.298E-06 | 1.111E-06 | 3.23E-02 | 7.119E+00 | 6.981E+00 | 5.102E+01 | 1.921E-04 | -1.039E-03 | 4.009E-03 |
| 2 | 2.11E-03 | 2.179E+02 | 2.169E+02 | 2.319E+02 | 9.299E-06 | 1.111E-06 | 6.43E-02 | 7.139E+00 | 7.000E+00 | 5.116E+01 | 1.911E-04 | -1.027E-03 | 8.016E-03 |
| 3 | 3.16E-03 | 2.178E+02 | 2.169E+02 | 2.318E+02 | 9.302E-06 | 1.111E-06 | 9.61E-02 | 7.170E+00 | 7.032E+00 | 5.139E+01 | 1.894E-04 | -1.008E-03 | 1.202E-02 |
| 4 | 4.22E-03 | 2.178E+02 | 2.168E+02 | 2.318E+02 | 9.306E-06 | 1.111E-06 | 1.27E-01 | 7.215E+00 | 7.077E+00 | 5.170E+01 | 1.870E-04 | -9.825E-04 | 1.602E-02 |
| 5 | 5.27E-03 | 2.177E+02 | 2.168E+02 | 2.317E+02 | 9.311E-06 | 1.110E-06 | 1.58E-01 | 7.272E+00 | 7.134E+00 | 5.211E+01 | 1.841E-04 | -9.503E-04 | 2.002E-02 |
| 6 | 6.32E-03 | 2.177E+02 | 2.167E+02 | 2.317E+02 | 9.317E-06 | 1.110E-06 | 1.87E-01 | 7.342E+00 | 7.204E+00 | 5.262E+01 | 1.806E-04 | -9.125E-04 | 2.401E-02 |
| 7 | 7.37E-03 | 2.176E+02 | 2.166E+02 | 2.316E+02 | 9.324E-06 | 1.109E-06 | 2.16E-01 | 7.425E+00 | 7.287E+00 | 5.321E+01 | 1.766E-04 | -8.699E-04 | 2.799E-02 |
| 8 | 8.42E-03 | 2.175E+02 | 2.165E+02 | 2.315E+02 | 9.332E-06 | 1.109E-06 | 2.44E-01 | 7.520E+00 | 7.382E+00 | 5.389E+01 | 1.722E-04 | -8.234E-04 | 3.197E-02 |
| 9 | 9.47E-03 | 2.174E+02 | 2.164E+02 | 2.314E+02 | 9.341E-06 | 1.108E-06 | 2.70E-01 | 7.628E+00 | 7.490E+00 | 5.466E+01 | 1.673E-04 | -7.740E-04 | 3.593E-02 |
| 10 | 1.05E-02 | 2.173E+02 | 2.163E+02 | 2.312E+02 | 9.351E-06 | 1.107E-06 | 2.95E-01 | 7.748E+00 | 7.610E+00 | 5.553E+01 | 1.622E-04 | -7.224E-04 | 3.989E-02 |
| 15 | 1.57E-02 | 2.165E+02 | 2.155E+02 | 2.304E+02 | 9.420E-06 | 1.102E-06 | 3.99E-01 | 8.538E+00 | 8.400E+00 | 6.118E+01 | 1.336E-04 | -4.616E-04 | 5.945E-02 |
| 20 | 2.09E-02 | 2.154E+02 | 2.144E+02 | 2.292E+02 | 9.516E-06 | 1.095E-06 | 4.67E-01 | 9.635E+00 | 9.497E+00 | 6.904E+01 | 1.049E-04 | -2.455E-04 | 7.856E-02 |
| 25 | 2.60E-02 | 2.140E+02 | 2.130E+02 | 2.277E+02 | 9.641E-06 | 1.085E-06 | 5.04E-01 | 1.103E+01 | 1.089E+01 | 7.904E+01 | 8.003E-05 | -9.940E-05 | 9.707E-02 |
| 30 | 3.10E-02 | 2.123E+02 | 2.113E+02 | 2.259E+02 | 9.794E-06 | 1.072E-06 | 5.18E-01 | 1.272E+01 | 1.258E+01 | 9.111E+01 | 6.023E-05 | -1.432E-05 | 1.148E-01 |
| 35 | 3.59E-02 | 2.103E+02 | 2.094E+02 | 2.239E+02 | 9.978E-06 | 1.055E-06 | 5.14E-01 | 1.468E+01 | 1.454E+01 | 1.052E+02 | 4.522E-05 | 2.897E-05 | 1.317E-01 |
| 40 | 4.07E-02 | 2.081E+02 | 2.072E+02 | 2.215E+02 | 1.019E-05 | 1.034E-06 | 5.01E-01 | 1.690E+01 | 1.676E+01 | 1.211E+02 | 3.411E-05 | 4.740E-05 | 1.476E-01 |
| 45 | 4.53E-02 | 2.056E+02 | 2.047E+02 | 2.189E+02 | 1.044E-05 | 1.009E-06 | 4.81E-01 | 1.936E+01 | 1.922E+01 | 1.387E+02 | 2.598E-05 | 5.247E-05 | 1.624E-01 |
| 50 | 4.97E-02 | 2.030E+02 | 2.020E+02 | 2.160E+02 | 1.072E-05 | 9.783E-07 | 4.57E-01 | 2.205E+01 | 2.191E+01 | 1.580E+02 | 2.003E-05 | 5.100E-05 | 1.760E-01 |
| 55 | 5.39E-02 | 2.001E+02 | 1.991E+02 | 2.129E+02 | 1.103E-05 | 9.410E-07 | 4.32E-01 | 2.494E+01 | 2.481E+01 | 1.787E+02 | 1.565E-05 | 4.674E-05 | 1.882E-01 |
| 60 | 5.79E-02 | 1.970E+02 | 1.960E+02 | 2.097E+02 | 1.138E-05 | 8.964E-07 | 4.07E-01 | 2.802E+01 | 2.788E+01 | 2.008E+02 | 1.240E-05 | 4.161E-05 | 1.989E-01 |
| 65 | 6.16E-02 | 1.937E+02 | 1.928E+02 | 2.062E+02 | 1.176E-05 | 8.432E-07 | 3.82E-01 | 3.126E+01 | 3.112E+01 | 2.240E+02 | 9.969E-06 | 3.652E-05 | 2.082E-01 |
| 70 | 6.50E-02 | 1.904E+02 | 1.894E+02 | 2.026E+02 | 1.218E-05 | 7.803E-07 | 3.57E-01 | 3.463E+01 | 3.449E+01 | 2.481E+02 | 8.123E-06 | 3.187E-05 | 2.158E-01 |
| 75 | 6.80E-02 | 1.869E+02 | 1.860E+02 | 1.989E+02 | 1.264E-05 | 7.063E-07 | 3.34E-01 | 3.811E+01 | 3.797E+01 | 2.730E+02 | 6.707E-06 | 2.780E-05 | 2.219E-01 |
| 80 | 7.07E-02 | 1.833E+02 | 1.824E+02 | 1.951E+02 | 1.313E-05 | 6.198E-07 | 3.11E-01 | 4.167E+01 | 4.153E+01 | 2.985E+02 | 5.610E-06 | 2.430E-05 | 2.262E-01 |
| 85 | 7.30E-02 | 1.797E+02 | 1.788E+02 | 1.913E+02 | 1.367E-05 | 5.196E-07 | 2.90E-01 | 4.528E+01 | 4.514E+01 | 3.245E+02 | 4.750E-06 | 2.134E-05 | 2.288E-01 |
| 90 | 7.47E-02 | 1.761E+02 | 1.751E+02 | 1.874E+02 | 1.424E-05 | 4.042E-07 | 2.69E-01 | 4.893E+01 | 4.879E+01 | 3.506E+02 | 4.068E-06 | 1.883E-05 | 2.297E-01 |
| 95 | 7.60E-02 | 1.724E+02 | 1.715E+02 | 1.835E+02 | 1.485E-05 | 2.724E-07 | 2.49E-01 | 5.257E+01 | 5.243E+01 | 3.767E+02 | 3.524E-06 | 1.673E-05 | 2.288E-01 |
| 100 | 7.68E-02 | 1.688E+02 | 1.679E+02 | 1.797E+02 | 1.549E-05 | 1.233E-07 | 2.31E-01 | 5.619E+01 | 5.605E+01 | 4.026E+02 | 3.085E-06 | 1.496E-05 | 2.262E-01 |
| 105 | 7.69E-02 | 1.652E+02 | 1.643E+02 | 1.759E+02 | 1.616E-05 | -4.392E-08 | 2.13E-01 | 5.975E+01 | 5.961E+01 | 4.281E+02 | 2.728E-06 | 1.347E-05 | 2.219E-01 |
| 110 | 7.64E-02 | 1.618E+02 | 1.608E+02 | 1.722E+02 | 1.687E-05 | -2.294E-07 | 1.96E-01 | 6.323E+01 | 6.309E+01 | 4.530E+02 | 2.436E-06 | 1.222E-05 | 2.158E-01 |
| 115 | 7.53E-02 | 1.584E+02 | 1.575E+02 | 1.686E+02 | 1.759E-05 | -4.327E-07 | 1.79E-01 | 6.660E+01 | 6.646E+01 | 4.772E+02 | 2.196E-06 | 1.116E-05 | 2.082E-01 |
| 120 | 7.35E-02 | 1.552E+02 | 1.542E+02 | 1.652E+02 | 1.833E-05 | -6.528E-07 | 1.63E-01 | 6.984E+01 | 6.970E+01 | 5.004E+02 | 1.997E-06 | 1.027E-05 | 1.989E-01 |
| 125 | 7.09E-02 | 1.521E+02 | 1.512E+02 | 1.619E+02 | 1.908E-05 | -8.875E-07 | 1.48E-01 | 7.291E+01 | 7.277E+01 | 5.224E+02 | 1.832E-06 | 9.512E-06 | 1.882E-01 |
| 130 | 6.76E-02 | 1.492E+02 | 1.483E+02 | 1.588E+02 | 1.983E-05 | -1.134E-06 | 1.33E-01 | 7.581E+01 | 7.567E+01 | 5.431E+02 | 1.695E-06 | 8.874E-06 | 1.760E-01 |
| 135 | 6.35E-02 | 1.465E+02 | 1.456E+02 | 1.559E+02 | 2.056E-05 | -1.387E-06 | 1.19E-01 | 7.850E+01 | 7.836E+01 | 5.624E+02 | 1.581E-06 | 8.336E-06 | 1.624E-01 |
| 140 | 5.87E-02 | 1.440E+02 | 1.431E+02 | 1.533E+02 | 2.127E-05 | -1.643E-06 | 1.04E-01 | 8.096E+01 | 8.082E+01 | 5.801E+02 | 1.486E-06 | 7.884E-06 | 1.476E-01 |
| 145 | 5.32E-02 | 1.418E+02 | 1.409E+02 | 1.509E+02 | 2.194E-05 | -1.894E-06 | 9.08E-02 | 8.318E+01 | 8.304E+01 | 5.960E+02 | 1.408E-06 | 7.508E-06 | 1.317E-01 |
| 150 | 4.70E-02 | 1.399E+02 | 1.389E+02 | 1.489E+02 | 2.256E-05 | -2.134E-06 | 7.73E-02 | 8.514E+01 | 8.500E+01 | 6.100E+02 | 1.344E-06 | 7.197E-06 | 1.148E-01 |
| 155 | 4.03E-02 | 1.382E+02 | 1.372E+02 | 1.471E+02 | 2.312E-05 | -2.355E-06 | 6.41E-02 | 8.682E+01 | 8.669E+01 | 6.221E+02 | 1.292E-06 | 6.945E-06 | 9.707E-02 |
| 160 | 3.29E-02 | 1.368E+02 | 1.358E+02 | 1.456E+02 | 2.359E-05 | -2.549E-06 | 5.10E-02 | 8.822E+01 | 8.808E+01 | 6.321E+02 | 1.251E-06 | 6.746E-06 | 7.856E-02 |
| 165 | 2.51E-02 | 1.357E+02 | 1.347E+02 | 1.444E+02 | 2.397E-05 | -2.709E-06 | 3.81E-02 | 8.932E+01 | 8.918E+01 | 6.400E+02 | 1.221E-06 | 6.596E-06 | 5.945E-02 |
| 170 | 1.69E-02 | 1.349E+02 | 1.340E+02 | 1.436E+02 | 2.426E-05 | -2.828E-06 | 2.54E-02 | 9.011E+01 | 8.997E+01 | 6.456E+02 | 1.200E-06 | 6.490E-06 | 3.989E-02 |
| 175 | 8.53E-03 | 1.344E+02 | 1.335E+02 | 1.431E+02 | 2.443E-05 | -2.902E-06 | 1.27E-02 | 9.058E+01 | 9.044E+01 | 6.490E+02 | 1.187E-06 | 6.428E-06 | 2.002E-02 |
| 180 | 0. | 1.343E+02 | 1.333E+02 | 1.429E+02 | 2.449E-05 | -2.927E-06 | 0. | 9.074E+01 | 9.060E+01 | 6.502E+02 | 1.183E-06 | 6.408E-06 | 0. |

DELTA(12236) => NEUTRON + PI PLUS AT 250 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.23600E+00 M2 = 9.39553E-01 M3 = 1.39569E-01
P2CM= 2.29699E-01
E2CM= 9.67223E-01 E3CM= 2.68777E-01

1-V1LAB= 1.222E-05 GCM = 2.02268E+02 S = 1.52770E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.421E+02 | 2.412E+02 | 2.577E+02 | 7.531E-06 | 9.002E-07 | 0. | 7.904E+00 | 7.765E+00 | 5.664E+01 | 1.559E-04 | -8.446E-04 | 0. |
| 1 | 9.49E-04 | 2.421E+02 | 2.412E+02 | 2.577E+02 | 7.531E-06 | 9.002E-07 | 2.90E-02 | 7.911E+00 | 7.772E+00 | 5.669E+01 | 1.556E-04 | -8.415E-04 | 4.009E-03 |
| 2 | 1.90E-03 | 2.421E+02 | 2.411E+02 | 2.576E+02 | 7.532E-06 | 9.001E-07 | 5.79E-02 | 7.932E+00 | 7.794E+00 | 5.684E+01 | 1.548E-04 | -8.321E-04 | 8.016E-03 |
| 3 | 2.85E-03 | 2.420E+02 | 2.411E+02 | 2.576E+02 | 7.535E-06 | 8.999E-07 | 8.65E-02 | 7.967E+00 | 7.829E+00 | 5.709E+01 | 1.534E-04 | -8.168E-04 | 1.202E-02 |
| 4 | 3.79E-03 | 2.420E+02 | 2.410E+02 | 2.576E+02 | 7.538E-06 | 8.997E-07 | 1.15E-01 | 8.017E+00 | 7.878E+00 | 5.745E+01 | 1.515E-04 | -7.958E-04 | 1.602E-02 |
| 5 | 4.74E-03 | 2.419E+02 | 2.410E+02 | 2.575E+02 | 7.542E-06 | 8.994E-07 | 1.42E-01 | 8.080E+00 | 7.942E+00 | 5.790E+01 | 1.491E-04 | -7.697E-04 | 2.002E-02 |
| 6 | 5.69E-03 | 2.418E+02 | 2.409E+02 | 2.574E+02 | 7.546E-06 | 8.991E-07 | 1.69E-01 | 8.158E+00 | 8.020E+00 | 5.846E+01 | 1.463E-04 | -7.391E-04 | 2.401E-02 |
| 7 | 6.63E-03 | 2.418E+02 | 2.408E+02 | 2.573E+02 | 7.552E-06 | 8.986E-07 | 1.94E-01 | 8.250E+00 | 8.112E+00 | 5.912E+01 | 1.431E-04 | -7.046E-04 | 2.799E-02 |
| 8 | 7.58E-03 | 2.416E+02 | 2.407E+02 | 2.572E+02 | 7.559E-06 | 8.981E-07 | 2.19E-01 | 8.356E+00 | 8.217E+00 | 5.988E+01 | 1.395E-04 | -6.669E-04 | 3.197E-02 |
| 9 | 8.52E-03 | 2.415E+02 | 2.406E+02 | 2.571E+02 | 7.566E-06 | 8.976E-07 | 2.43E-01 | 8.476E+00 | 8.337E+00 | 6.074E+01 | 1.356E-04 | -6.269E-04 | 3.593E-02 |
| 10 | 9.47E-03 | 2.414E+02 | 2.405E+02 | 2.569E+02 | 7.575E-06 | 8.970E-07 | 2.65E-01 | 8.610E+00 | 8.471E+00 | 6.169E+01 | 1.314E-04 | -5.852E-04 | 3.989E-02 |
| 15 | 1.42E-02 | 2.405E+02 | 2.396E+02 | 2.560E+02 | 7.630E-06 | 8.928E-07 | 3.59E-01 | 9.487E+00 | 9.348E+00 | 6.798E+01 | 1.082E-04 | -3.739E-04 | 5.945E-02 |
| 20 | 1.88E-02 | 2.393E+02 | 2.384E+02 | 2.547E+02 | 7.708E-06 | 8.868E-07 | 4.20E-01 | 1.071E+01 | 1.057E+01 | 7.671E+01 | 8.497E-05 | -1.949E-04 | 7.856E-02 |
| 25 | 2.34E-02 | 2.377E+02 | 2.368E+02 | 2.530E+02 | 7.809E-06 | 8.786E-07 | 4.54E-01 | 1.226E+01 | 1.212E+01 | 8.783E+01 | 6.482E-05 | -8.052E-05 | 9.707E-02 |
| 30 | 2.79E-02 | 2.359E+02 | 2.349E+02 | 2.510E+02 | 7.933E-06 | 8.680E-07 | 4.66E-01 | 1.413E+01 | 1.399E+01 | 1.012E+02 | 4.879E-05 | -1.160E-05 | 1.148E-01 |
| 35 | 3.23E-02 | 2.337E+02 | 2.328E+02 | 2.487E+02 | 8.082E-06 | 8.546E-07 | 4.63E-01 | 1.631E+01 | 1.617E+01 | 1.168E+02 | 3.663E-05 | 2.346E-05 | 1.317E-01 |
| 40 | 3.66E-02 | 2.312E+02 | 2.303E+02 | 2.461E+02 | 8.255E-06 | 8.379E-07 | 4.51E-01 | 1.877E+01 | 1.863E+01 | 1.345E+02 | 2.763E-05 | 3.839E-05 | 1.476E-01 |
| 45 | 4.07E-02 | 2.285E+02 | 2.276E+02 | 2.432E+02 | 8.454E-06 | 8.174E-07 | 4.33E-01 | 2.151E+01 | 2.137E+01 | 1.541E+02 | 2.105E-05 | 4.250E-05 | 1.624E-01 |
| 50 | 4.47E-02 | 2.255E+02 | 2.246E+02 | 2.400E+02 | 8.680E-06 | 7.924E-07 | 4.11E-01 | 2.450E+01 | 2.436E+01 | 1.755E+02 | 1.623E-05 | 4.131E-05 | 1.760E-01 |
| 55 | 4.85E-02 | 2.223E+02 | 2.213E+02 | 2.366E+02 | 8.933E-06 | 7.622E-07 | 3.89E-01 | 2.772E+01 | 2.758E+01 | 1.986E+02 | 1.268E-05 | 3.786E-05 | 1.882E-01 |
| 60 | 5.21E-02 | 2.189E+02 | 2.179E+02 | 2.329E+02 | 9.214E-06 | 7.261E-07 | 3.66E-01 | 3.113E+01 | 3.100E+01 | 2.231E+02 | 1.005E-05 | 3.370E-05 | 1.989E-01 |
| 65 | 5.54E-02 | 2.153E+02 | 2.143E+02 | 2.291E+02 | 9.524E-06 | 6.830E-07 | 3.43E-01 | 3.473E+01 | 3.459E+01 | 2.488E+02 | 8.075E-06 | 2.958E-05 | 2.082E-01 |
| 70 | 5.85E-02 | 2.115E+02 | 2.106E+02 | 2.251E+02 | 9.865E-06 | 6.320E-07 | 3.21E-01 | 3.847E+01 | 3.834E+01 | 2.757E+02 | 6.580E-06 | 2.582E-05 | 2.158E-01 |
| 75 | 6.12E-02 | 2.077E+02 | 2.067E+02 | 2.210E+02 | 1.024E-05 | 5.721E-07 | 3.00E-01 | 4.234E+01 | 4.220E+01 | 3.034E+02 | 5.433E-06 | 2.252E-05 | 2.219E-01 |
| 80 | 6.36E-02 | 2.037E+02 | 2.028E+02 | 2.168E+02 | 1.064E-05 | 5.021E-07 | 2.80E-01 | 4.630E+01 | 4.616E+01 | 3.317E+02 | 4.544E-06 | 1.968E-05 | 2.262E-01 |
| 85 | 6.57E-02 | 1.997E+02 | 1.987E+02 | 2.125E+02 | 1.107E-05 | 4.209E-07 | 2.61E-01 | 5.032E+01 | 5.018E+01 | 3.605E+02 | 3.847E-06 | 1.728E-05 | 2.288E-01 |
| 90 | 6.73E-02 | 1.956E+02 | 1.947E+02 | 2.082E+02 | 1.153E-05 | 3.274E-07 | 2.42E-01 | 5.436E+01 | 5.423E+01 | 3.895E+02 | 3.295E-06 | 1.526F-05 | 2.297E-01 |
| 95 | 6.84E-02 | 1.916E+02 | 1.906E+02 | 2.039E+02 | 1.202E-05 | 2.207E-07 | 2.24E-01 | 5.841E+01 | 5.827E+01 | 4.185E+02 | 2.854E-06 | 1.355E-05 | 2.288E-01 |
| 100 | 6.91E-02 | 1.876E+02 | 1.866E+02 | 1.996E+02 | 1.255E-05 | 9.985E-08 | 2.08E-01 | 6.243E+01 | 6.229E+01 | 4.473E+02 | 2.499E-06 | 1.212E-05 | 2.262E-01 |
| 105 | 6.92E-02 | 1.836E+02 | 1.827E+02 | 1.954E+02 | 1.309E-05 | -3.557E-08 | 1.91E-01 | 6.639E+01 | 6.625E+01 | 4.757E+02 | 2.210E-06 | 1.091E-05 | 2.219E-01 |
| 110 | 6.88E-02 | 1.797E+02 | 1.788E+02 | 1.913E+02 | 1.366E-05 | -1.858E-07 | 1.76E-01 | 7.026E+01 | 7.012F+01 | 5.034E+02 | 1.973E-06 | 9.898E-06 | 2.158E-01 |
| 115 | 6.78E-02 | 1.760E+02 | 1.751E+02 | 1.873E+02 | 1.425E-05 | -3.505E-07 | 1.61E-01 | 7.400E+01 | 7.386E+01 | 5.302E+02 | 1.779E-06 | 9.041E-06 | 2.082E-01 |
| 120 | 6.61E-02 | 1.724E+02 | 1.715E+02 | 1.835E+02 | 1.485E-05 | -5.288E-07 | 1.47E-01 | 7.759E+01 | 7.746E+01 | 5.560E+02 | 1.618E-06 | 8.317E-06 | 1.989E-01 |
| 125 | 6.38E-02 | 1.690E+02 | 1.681E+02 | 1.799E+02 | 1.546E-05 | -7.189E-07 | 1.33E-01 | 8.101E+01 | 8.087E+01 | 5.805E+02 | 1.484E-06 | 7.745E-06 | 1.882E-01 |
| 130 | 6.08E-02 | 1.658E+02 | 1.648E+02 | 1.764E+02 | 1.606E-05 | -9.184E-07 | 1.20E-01 | 8.423E+01 | 8.409E+01 | 6.035E+02 | 1.373E-06 | 7.188E-06 | 1.760E-01 |
| 135 | 5.72E-02 | 1.628E+02 | 1.618E+02 | 1.733E+02 | 1.666E-05 | -1.124E-06 | 1.07E-01 | 8.722E+01 | 8.708E+01 | 6.249E+02 | 1.280E-06 | 6.752F-06 | 1.624F-01 |
| 140 | 5.29E-02 | 1.600E+02 | 1.591E+02 | 1.703E+02 | 1.723E-05 | -1.331E-06 | 9.40E-02 | 8.996E+01 | 8.982E+01 | 6.445E+02 | 1.204E-06 | 6.386E-06 | 1.476E-01 |
| 145 | 4.79E-02 | 1.576E+02 | 1.566E+02 | 1.677E+02 | 1.778E-05 | -1.534E-06 | 8.17E-02 | 9.242E+01 | 9.228E+01 | 6.622E+02 | 1.140E-06 | 6.081E-06 | 1.317E-01 |
| 150 | 4.23E-02 | 1.554E+02 | 1.545E+02 | 1.654E+02 | 1.828E-05 | -1.729E-06 | 6.96E-02 | 9.460E+01 | 9.446E+01 | 6.778E+02 | 1.084E-06 | 5.830E-06 | 1.148E-01 |
| 155 | 3.62E-02 | 1.535E+02 | 1.526E+02 | 1.634E+02 | 1.873E-05 | -1.908E-06 | 5.77E-02 | 9.647E+01 | 9.633E+01 | 6.912E+02 | 1.047E-06 | 5.626F-06 | 9.707E-02 |
| 160 | 2.96E-02 | 1.520E+02 | 1.510E+02 | 1.618E+02 | 1.911E-05 | -2.065E-06 | 4.59E-02 | 9.802E+01 | 9.788E+01 | 7.023E+02 | 1.014E-06 | 5.464E-06 | 7.856E-02 |
| 165 | 2.26E-02 | 1.508E+02 | 1.498E+02 | 1.605E+02 | 1.942E-05 | -2.194E-06 | 3.43E-02 | 9.924E+01 | 9.910E+01 | 7.111E+02 | 9.889E-07 | 5.343E-06 | 5.945E-02 |
| 170 | 1.52E-02 | 1.499E+02 | 1.489E+02 | 1.595E+02 | 1.965E-05 | -2.291E-06 | 2.28E-02 | 1.001E+02 | 9.998E+01 | 7.173E+02 | 9.717E-07 | 5.257E-06 | 3.989E-02 |
| 175 | 7.68E-03 | 1.494E+02 | 1.484E+02 | 1.590E+02 | 1.979E-05 | -2.351E-06 | 1.14E-02 | 1.006E+02 | 1.005E+02 | 7.211E+02 | 9.615E-07 | 5.207E-06 | 2.002E-02 |
| 180 | 0. | 1.492E+02 | 1.482E+02 | 1.588E+02 | 1.983E-05 | -2.371E-06 | 0. | 1.008E+02 | 1.007E+02 | 7.224E+02 | 9.581E-07 | 5.190E-06 | 0. |

DELTA(1236) => NEUTRON + PI PLUS AT 275 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.23600E+00 M2 = 9.39553E-01 M3 = 1.39569E-01
P2CM= 2.29699E-01
E2CM= 9.67223E-01 E3CM= 2.68777E-01

1-V1LAB= 1.010E-05 GCM = 2.22494E+02 S = 1.52770E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.663E+02 | 2.654E+02 | 2.834E+02 | 6.224E-06 | 7.440E-07 | 0. | 8.694E+00 | 8.556E+00 | 6.230E+01 | 1.288E-04 | -6.980E-04 | 0. |
| 1 | 8.63E-04 | 2.663E+02 | 2.654E+02 | 2.834E+02 | 6.224E-06 | 7.439E-07 | 2.64E-02 | 8.702E+00 | 8.563E+00 | 6.236E+01 | 1.286E-04 | -6.954E-04 | 4.009E-03 |
| 2 | 1.72E-03 | 2.663E+02 | 2.653E+02 | 2.834E+02 | 6.225E-06 | 7.439E-07 | 5.26E-02 | 8.725E+00 | 8.587E+00 | 6.252E+01 | 1.279E-04 | -6.877E-04 | 8.016E-03 |
| 3 | 2.59E-03 | 2.662E+02 | 2.653E+02 | 2.834E+02 | 6.227E-06 | 7.437E-07 | 7.86E-02 | 8.764E+00 | 8.626E+00 | 6.280E+01 | 1.268E-04 | -6.750E-04 | 1.202E-02 |
| 4 | 3.45E-03 | 2.662E+02 | 2.652E+02 | 2.833E+02 | 6.229E-06 | 7.435E-07 | 1.04E-01 | 8.819E+00 | 8.680E+00 | 6.319E+01 | 1.252E-04 | -6.577E-04 | 1.602E-02 |
| 5 | 4.31E-03 | 2.661E+02 | 2.652E+02 | 2.832E+02 | 6.233E-06 | 7.433E-07 | 1.29E-01 | 8.889E+00 | 8.750E+00 | 6.369E+01 | 1.233E-04 | -6.361E-04 | 2.002E-02 |
| 6 | 5.17E-03 | 2.660E+02 | 2.651E+02 | 2.831E+02 | 6.237E-06 | 7.430E-07 | 1.53E-01 | 8.974E+00 | 8.836E+00 | 6.431E+01 | 1.209E-04 | -6.108E-04 | 2.401E-02 |
| 7 | 6.03E-03 | 2.659E+02 | 2.650E+02 | 2.830E+02 | 6.242E-06 | 7.427E-07 | 1.77E-01 | 9.075E+00 | 8.937E+00 | 6.503E+01 | 1.182E-04 | -5.823E-04 | 2.799E-02 |
| 8 | 6.89E-03 | 2.658E+02 | 2.649E+02 | 2.829E+02 | 6.247E-06 | 7.423E-07 | 1.99E-01 | 9.191E+00 | 9.053E+00 | 6.586E+01 | 1.153E-04 | -5.512E-04 | 3.197E-02 |
| 9 | 7.75E-03 | 2.657E+02 | 2.647E+02 | 2.828E+02 | 6.253E-06 | 7.418E-07 | 2.21E-01 | 9.323E+00 | 9.185E+00 | 6.681E+01 | 1.120E-04 | -5.181E-04 | 3.593E-02 |
| 10 | 8.61E-03 | 2.655E+02 | 2.646E+02 | 2.826E+02 | 6.260E-06 | 7.413E-07 | 2.41E-01 | 9.471E+00 | 9.332E+00 | 6.786E+01 | 1.086E-04 | -4.836E-04 | 3.989E-02 |
| 15 | 1.29E-02 | 2.646E+02 | 2.636E+02 | 2.816E+02 | 6.306E-06 | 7.379E-07 | 3.26E-01 | 1.044E+01 | 1.030E+01 | 7.478E+01 | 8.942E-05 | -3.090E-04 | 5.945E-02 |
| 20 | 1.71E-02 | 2.632E+02 | 2.623E+02 | 2.802E+02 | 6.370E-06 | 7.329E-07 | 3.82E-01 | 1.178E+01 | 1.164E+01 | 8.438E+01 | 7.022E-05 | -1.644E-04 | 7.856E-02 |
| 25 | 2.13E-02 | 2.615E+02 | 2.606E+02 | 2.783E+02 | 6.454E-06 | 7.261E-07 | 4.13E-01 | 1.348E+01 | 1.334E+01 | 9.661E+01 | 5.357E-05 | -6.654E-05 | 9.707E-02 |
| 30 | 2.54E-02 | 2.595E+02 | 2.585E+02 | 2.762E+02 | 6.556E-06 | 7.173E-07 | 4.23E-01 | 1.554E+01 | 1.540E+01 | 1.114E+02 | 4.032E-05 | -9.589E-06 | 1.148E-01 |
| 35 | 2.94E-02 | 2.571E+02 | 2.561E+02 | 2.736E+02 | 6.679E-06 | 7.063E-07 | 4.21E-01 | 1.794E+01 | 1.780E+01 | 1.285E+02 | 3.027E-05 | 1.939E-05 | 1.317E-01 |
| 40 | 3.33E-02 | 2.543E+02 | 2.534E+02 | 2.707E+02 | 6.823E-06 | 6.925E-07 | 4.10E-01 | 2.065E+01 | 2.051E+01 | 1.480E+02 | 2.284E-05 | 3.173E-05 | 1.476E-01 |
| 45 | 3.70E-02 | 2.513E+02 | 2.504E+02 | 2.675E+02 | 6.987E-06 | 6.755E-07 | 3.93E-01 | 2.366E+01 | 2.352E+01 | 1.695E+02 | 1.739E-05 | 3.512E-05 | 1.624E-01 |
| 50 | 4.06E-02 | 2.481E+02 | 2.471E+02 | 2.640E+02 | 7.173E-06 | 6.549E-07 | 3.74E-01 | 2.695E+01 | 2.681E+01 | 1.931E+02 | 1.341E-05 | 3.414E-05 | 1.760E-01 |
| 55 | 4.41E-02 | 2.445E+02 | 2.436E+02 | 2.602E+02 | 7.383E-06 | 6.300E-07 | 3.54E-01 | 3.049E+01 | 3.035E+01 | 2.184E+02 | 1.048E-05 | 3.129E-05 | 1.882E-01 |
| 60 | 4.73E-02 | 2.408E+02 | 2.398E+02 | 2.562E+02 | 7.615E-06 | 6.001E-07 | 3.33E-01 | 3.425E+01 | 3.411E+01 | 2.454E+02 | 8.304E-06 | 2.785E-05 | 1.989E-01 |
| 65 | 5.04E-02 | 2.368E+02 | 2.359E+02 | 2.520E+02 | 7.871E-06 | 5.645E-07 | 3.12E-01 | 3.820E+01 | 3.806E+01 | 2.737E+02 | 6.674E-06 | 2.445E-05 | 2.082E-01 |
| 70 | 5.32E-02 | 2.327E+02 | 2.317E+02 | 2.477E+02 | 8.153E-06 | 5.223E-07 | 2.92E-01 | 4.232E+01 | 4.218E+01 | 3.032E+02 | 5.436E-06 | 2.134E-05 | 2.158E-01 |
| 75 | 5.57E-02 | 2.284E+02 | 2.275E+02 | 2.431E+02 | 8.459E-06 | 4.728E-07 | 2.73E-01 | 4.657E+01 | 4.643E+01 | 3.337E+02 | 4.490E-06 | 1.861E-05 | 2.219E-01 |
| 80 | 5.78E-02 | 2.241E+02 | 2.231E+02 | 2.385E+02 | 8.791E-06 | 4.149E-07 | 2.55E-01 | 5.093E+01 | 5.079E+01 | 3.649E+02 | 3.755E-06 | 1.627E-05 | 2.262E-01 |
| 85 | 5.97E-02 | 2.197E+02 | 2.187E+02 | 2.338E+02 | 9.148E-06 | 3.478E-07 | 2.37E-01 | 5.535E+01 | 5.521E+01 | 3.966E+02 | 3.179E-06 | 1.428E-05 | 2.288E-01 |
| 90 | 6.12E-02 | 2.152E+02 | 2.143E+02 | 2.290E+02 | 9.531E-06 | 2.706E-07 | 2.20E-01 | 5.980E+01 | 5.966E+01 | 4.285E+02 | 2.723E-06 | 1.261E-05 | 2.297E-01 |
| 95 | 6.22E-02 | 2.107E+02 | 2.098E+02 | 2.243E+02 | 9.938E-06 | 1.824E-07 | 2.04E-01 | 6.426E+01 | 6.412E+01 | 4.604E+02 | 2.359E-06 | 1.120E-05 | 2.288E-01 |
| 100 | 6.28E-02 | 2.063E+02 | 2.054E+02 | 2.196E+02 | 1.037E-05 | 8.252E-08 | 1.89E-01 | 6.868E+01 | 6.854E+01 | 4.921E+02 | 2.065E-06 | 1.002E-05 | 2.262E-01 |
| 105 | 6.29E-02 | 2.020E+02 | 2.010E+02 | 2.150E+02 | 1.082E-05 | -2.940E-08 | 1.74E-01 | 7.303E+01 | 7.289E+01 | 5.232E+02 | 1.826E-06 | 9.020E-06 | 2.219E-01 |
| 110 | 6.25E-02 | 1.977E+02 | 1.968E+02 | 2.104E+02 | 1.129E-05 | -1.536E-07 | 1.60E-01 | 7.728E+01 | 7.714E+01 | 5.537E+02 | 1.631E-06 | 8.180E-06 | 2.158E-01 |
| 115 | 6.16E-02 | 1.936E+02 | 1.927E+02 | 2.061E+02 | 1.178E-05 | -2.897E-07 | 1.47E-01 | 8.140E+01 | 8.126E+01 | 5.832E+02 | 1.470E-06 | 7.472E-06 | 2.082E-01 |
| 120 | 6.01E-02 | 1.896E+02 | 1.887E+02 | 2.018E+02 | 1.227E-05 | -4.370E-07 | 1.34E-01 | 8.535E+01 | 8.521E+01 | 6.116E+02 | 1.337E-06 | 6.873E-06 | 1.989E-01 |
| 125 | 5.80E-02 | 1.859E+02 | 1.849E+02 | 1.978E+02 | 1.277E-05 | -5.941E-07 | 1.21E-01 | 8.911E+01 | 8.897E+01 | 6.385E+02 | 1.226E-06 | 6.367E-06 | 1.882E-01 |
| 130 | 5.53E-02 | 1.823E+02 | 1.814E+02 | 1.941E+02 | 1.327E-05 | -7.590E-07 | 1.09E-01 | 9.265E+01 | 9.251E+01 | 6.638E+02 | 1.135E-06 | 5.940E-06 | 1.760E-01 |
| 135 | 5.20E-02 | 1.791E+02 | 1.781E+02 | 1.906E+02 | 1.377E-05 | -9.288E-07 | 9.70E-02 | 9.594E+01 | 9.580E+01 | 6.874E+02 | 1.058E-06 | 5.580E-06 | 1.624E-01 |
| 140 | 4.81E-02 | 1.760E+02 | 1.751E+02 | 1.874E+02 | 1.424E-05 | -1.100E-06 | 8.55E-02 | 9.895E+01 | 9.881E+01 | 7.090E+02 | 9.947E-07 | 5.278E-06 | 1.476E-01 |
| 145 | 4.35E-02 | 1.733E+02 | 1.724E+02 | 1.845E+02 | 1.469E-05 | -1.268E-06 | 7.43E-02 | 1.017E+02 | 1.015E+02 | 7.284E+02 | 9.423E-07 | 5.026E-06 | 1.317E-01 |
| 150 | 3.85E-02 | 1.709E+02 | 1.700E+02 | 1.819E+02 | 1.510E-05 | -1.429E-06 | 6.32E-02 | 1.041E+02 | 1.039E+02 | 7.456E+02 | 8.994E-07 | 4.818E-06 | 1.148E-01 |
| 155 | 3.29E-02 | 1.689E+02 | 1.679E+02 | 1.797E+02 | 1.548E-05 | -1.577E-06 | 5.24E-02 | 1.061E+02 | 1.060E+02 | 7.603E+02 | 8.649E-07 | 4.649E-06 | 9.707E-02 |
| 160 | 2.69E-02 | 1.672E+02 | 1.662E+02 | 1.779E+02 | 1.579E-05 | -1.707E-06 | 4.17E-02 | 1.078E+02 | 1.077E+02 | 7.726E+02 | 8.377E-07 | 4.516E-06 | 7.856E-02 |
| 165 | 2.05E-02 | 1.658E+02 | 1.649E+02 | 1.765E+02 | 1.605E-05 | -1.814E-06 | 3.12E-02 | 1.092E+02 | 1.090E+02 | 7.822E+02 | 8.173E-07 | 4.415E-06 | 5.945E-02 |
| 170 | 1.39E-02 | 1.649E+02 | 1.639E+02 | 1.755E+02 | 1.624E-05 | -1.893E-06 | 2.08E-02 | 1.101E+02 | 1.100E+02 | 7.891E+02 | 8.030E-07 | 4.345E-06 | 3.989E-02 |
| 175 | 6.98E-03 | 1.643E+02 | 1.634E+02 | 1.749E+02 | 1.635E-05 | -1.943E-06 | 1.04E-02 | 1.107E+02 | 1.106E+02 | 7.932E+02 | 7.946E-07 | 4.303E-06 | 2.002E-02 |
| 180 | 0. | 1.641E+02 | 1.632E+02 | 1.747E+02 | 1.639E-05 | -1.959E-06 | 0. | 1.109E+02 | 1.108E+02 | 7.946E+02 | 7.918E-07 | 4.289E-06 | 0. |

DELTA(1236) => NEUTRON + PI PLUS AT 300 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.23600E+00 M2 = 9.39553E-01 M3 = 1.39569E-01
P2CM= 2.29699E-01
E2CM= 9.67223E-01 E3CM= 2.68777E-01

1-V1LAB= 8.467E-06 GCM = 2.42721E+02 S = 1.52770E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 2.905E+02 | 2.896E+02 | 3.092E+02 | 5.230E-06 | 6.251E-07 | 0. | 9.484E+00 | 9.346E+00 | 6.796E+01 | 1.083E-04 | -5.865E-04 | 0. |
| 1 | 7.91E-04 | 2.905E+02 | 2.896E+02 | 3.092E+02 | 5.230E-06 | 6.251E-07 | 2.42E-02 | 9.493E+00 | 9.354E+00 | 6.802E+01 | 1.081E-04 | -5.843E-04 | 4.009E-03 |
| 2 | 1.58E-03 | 2.905E+02 | 2.895E+02 | 3.092E+02 | 5.231E-06 | 6.251E-07 | 4.83E-02 | 9.518E+00 | 9.380E+00 | 6.821E+01 | 1.075E-04 | -5.778E-04 | 8.016E-03 |
| 3 | 2.37E-03 | 2.904E+02 | 2.895E+02 | 3.091E+02 | 5.232E-06 | 6.249E-07 | 7.20E-02 | 9.561E+00 | 9.422E+00 | 6.851E+01 | 1.065E-04 | -5.672E-04 | 1.202E-02 |
| 4 | 3.16E-03 | 2.904E+02 | 2.894E+02 | 3.091E+02 | 5.235E-06 | 6.248E-07 | 9.54E-02 | 9.620E+00 | 9.482E+00 | 6.894E+01 | 1.052E-04 | -5.526E-04 | 1.602E-02 |
| 5 | 3.95E-03 | 2.903E+02 | 2.894E+02 | 3.090E+02 | 5.237E-06 | 6.246E-07 | 1.18E-01 | 9.697E+00 | 9.558E+00 | 6.948E+01 | 1.036E-04 | -5.345E-04 | 2.002E-02 |
| 6 | 4.74E-03 | 2.902E+02 | 2.893E+02 | 3.089E+02 | 5.241E-06 | 6.243E-07 | 1.41E-01 | 9.790E+00 | 9.651E+00 | 7.015E+01 | 1.016E-04 | -5.132E-04 | 2.401E-02 |
| 7 | 5.53E-03 | 2.901E+02 | 2.892E+02 | 3.088E+02 | 5.245E-06 | 6.241E-07 | 1.62E-01 | 9.900E+00 | 9.762E+00 | 7.094E+01 | 9.936E-05 | -4.893E-04 | 2.799E-02 |
| 8 | 6.32E-03 | 2.900E+02 | 2.890E+02 | 3.086E+02 | 5.249E-06 | 6.237E-07 | 1.83E-01 | 1.003E+01 | 9.889E+00 | 7.185E+01 | 9.686E-05 | -4.631E-04 | 3.197E-02 |
| 9 | 7.10E-03 | 2.898E+02 | 2.889E+02 | 3.085E+02 | 5.254E-06 | 6.233E-07 | 2.02E-01 | 1.017E+01 | 1.003E+01 | 7.288E+01 | 9.414E-05 | -4.353E-04 | 3.593E-02 |
| 10 | 7.89E-03 | 2.897E+02 | 2.887E+02 | 3.083E+02 | 5.260E-06 | 6.229E-07 | 2.21E-01 | 1.033E+01 | 1.019E+01 | 7.403E+01 | 9.123E-05 | -4.063E-04 | 3.989E-02 |
| 15 | 1.18E-02 | 2.886E+02 | 2.877E+02 | 3.072E+02 | 5.299E-06 | 6.200E-07 | 2.99E-01 | 1.138E+01 | 1.125E+01 | 8.157E+01 | 7.514E-05 | -2.597E-04 | 5.945E-02 |
| 20 | 1.57E-02 | 2.872E+02 | 2.862E+02 | 3.056E+02 | 5.353E-06 | 6.158E-07 | 3.50E-01 | 1.285E+01 | 1.271E+01 | 9.205E+01 | 5.901E-05 | -1.381E-04 | 7.856E-02 |
| 25 | 1.95E-02 | 2.853E+02 | 2.844E+02 | 3.036E+02 | 5.423E-06 | 6.101E-07 | 3.78E-01 | 1.471E+01 | 1.457E+01 | 1.054E+02 | 4.502E-05 | -5.592E-05 | 9.707E-02 |
| 30 | 2.32E-02 | 2.830E+02 | 2.821E+02 | 3.013E+02 | 5.509E-06 | 6.028E-07 | 3.88E-01 | 1.695E+01 | 1.682E+01 | 1.215E+02 | 3.388E-05 | -8.059E-06 | 1.148E-01 |
| 35 | 2.69E-02 | 2.804E+02 | 2.795E+02 | 2.985E+02 | 5.612E-06 | 5.935E-07 | 3.86E-01 | 1.957E+01 | 1.943E+01 | 1.402E+02 | 2.544E-05 | 1.629E-05 | 1.317E-01 |
| 40 | 3.05E-02 | 2.775E+02 | 2.765E+02 | 2.953E+02 | 5.733E-06 | 5.819E-07 | 3.76E-01 | 2.253E+01 | 2.239E+01 | 1.614E+02 | 1.919E-05 | 2.666E-05 | 1.476E-01 |
| 45 | 3.39E-02 | 2.742E+02 | 2.732E+02 | 2.918E+02 | 5.871E-06 | 5.676E-07 | 3.60E-01 | 2.581E+01 | 2.568E+01 | 1.850E+02 | 1.462E-05 | 2.951E-05 | 1.624E-01 |
| 50 | 3.73E-02 | 2.706E+02 | 2.697E+02 | 2.880E+02 | 6.028E-06 | 5.503E-07 | 3.43E-01 | 2.940E+01 | 2.926E+01 | 2.107E+02 | 1.127E-05 | 2.869E-05 | 1.760E-01 |
| 55 | 4.04E-02 | 2.667E+02 | 2.658E+02 | 2.839E+02 | 6.203E-06 | 5.293E-07 | 3.24E-01 | 3.326E+01 | 3.312E+01 | 2.383E+02 | 8.805E-06 | 2.629E-05 | 1.882E-01 |
| 60 | 4.34E-02 | 2.626E+02 | 2.617E+02 | 2.795E+02 | 6.399E-06 | 5.042E-07 | 3.05E-01 | 3.736E+01 | 3.722E+01 | 2.677E+02 | 6.977E-06 | 2.340E-05 | 1.989E-01 |
| 65 | 4.62E-02 | 2.583E+02 | 2.574E+02 | 2.749E+02 | 6.614E-06 | 4.743E-07 | 2.86E-01 | 4.168E+01 | 4.154E+01 | 2.986E+02 | 5.608E-06 | 2.054E-05 | 2.082E-01 |
| 70 | 4.87E-02 | 2.538E+02 | 2.529E+02 | 2.702E+02 | 6.850E-06 | 4.389E-07 | 2.68E-01 | 4.617E+01 | 4.603E+01 | 3.308E+02 | 4.569E-06 | 1.793E-05 | 2.158E-01 |
| 75 | 5.10E-02 | 2.492E+02 | 2.483E+02 | 2.652E+02 | 7.108E-06 | 3.973E-07 | 2.50E-01 | 5.081E+01 | 5.067E+01 | 3.640E+02 | 3.773E-06 | 1.564E-05 | 2.219E-01 |
| 80 | 5.30E-02 | 2.444E+02 | 2.435E+02 | 2.602E+02 | 7.387E-06 | 3.486E-07 | 2.33E-01 | 5.556E+01 | 5.542E+01 | 3.981E+02 | 3.156E-06 | 1.367E-05 | 2.262E-01 |
| 85 | 5.47E-02 | 2.396E+02 | 2.387E+02 | 2.550E+02 | 7.687E-06 | 2.923E-07 | 2.17E-01 | 6.038E+01 | 6.024E+01 | 4.326E+02 | 2.672E-06 | 1.200E-05 | 2.288E-01 |
| 90 | 5.61E-02 | 2.348E+02 | 2.338E+02 | 2.499E+02 | 8.008E-06 | 2.273E-07 | 2.02E-01 | 6.524E+01 | 6.510E+01 | 4.674E+02 | 2.288E-06 | 1.059E-05 | 2.297E-01 |
| 95 | 5.70E-02 | 2.299E+02 | 2.290E+02 | 2.447E+02 | 8.351E-06 | 1.532E-07 | 1.87E-01 | 7.010E+01 | 6.996E+01 | 5.022E+02 | 1.982E-06 | 9.412E-06 | 2.288E-01 |
| 100 | 5.76E-02 | 2.251E+02 | 2.241E+02 | 2.396E+02 | 8.712E-06 | 6.934E-08 | 1.73E-01 | 7.492E+01 | 7.478E+01 | 5.368E+02 | 1.735E-06 | 8.417E-06 | 2.262E-01 |
| 105 | 5.77E-02 | 2.203E+02 | 2.194E+02 | 2.345E+02 | 9.092E-06 | -2.471E-08 | 1.60E-01 | 7.967E+01 | 7.953E+01 | 5.708E+02 | 1.535E-06 | 7.579E-06 | 2.219E-01 |
| 110 | 5.73E-02 | 2.157E+02 | 2.148E+02 | 2.296E+02 | 9.487E-06 | -1.290E-07 | 1.47E-01 | 8.431E+01 | 8.417E+01 | 6.040E+02 | 1.370E-06 | 6.874E-06 | 2.158E-01 |
| 115 | 5.65E-02 | 2.112E+02 | 2.103E+02 | 2.248E+02 | 9.895E-06 | -2.434E-07 | 1.34E-01 | 8.880E+01 | 8.866E+01 | 6.362E+02 | 1.235E-06 | 6.278E-06 | 2.082E-01 |
| 120 | 5.51E-02 | 2.069E+02 | 2.059E+02 | 2.202E+02 | 1.031E-05 | -3.672E-07 | 1.22E-01 | 9.311E+01 | 9.297E+01 | 6.672E+02 | 1.123E-06 | 5.775E-06 | 1.989E-01 |
| 125 | 5.32E-02 | 2.028E+02 | 2.018E+02 | 2.158E+02 | 1.073E-05 | -4.992E-07 | 1.11E-01 | 9.722E+01 | 9.708E+01 | 6.965E+02 | 1.031E-06 | 5.350E-06 | 1.882E-01 |
| 130 | 5.07E-02 | 1.989E+02 | 1.980E+02 | 2.117E+02 | 1.115E-05 | -6.378E-07 | 9.97E-02 | 1.011E+02 | 1.009E+02 | 7.242E+02 | 9.534E-07 | 4.991E-06 | 1.760E-01 |
| 135 | 4.76E-02 | 1.953E+02 | 1.944E+02 | 2.079E+02 | 1.157E-05 | -7.804E-07 | 8.89E-02 | 1.047E+02 | 1.045E+02 | 7.499E+02 | 8.892E-07 | 4.689E-06 | 1.624E-01 |
| 140 | 4.40E-02 | 1.921E+02 | 1.911E+02 | 2.044E+02 | 1.197E-05 | -9.242E-07 | 7.84E-02 | 1.079E+02 | 1.078E+02 | 7.734E+02 | 8.359E-07 | 4.435E-06 | 1.476E-01 |
| 145 | 3.99E-02 | 1.891E+02 | 1.882E+02 | 2.013E+02 | 1.234E-05 | -1.066E-06 | 6.81E-02 | 1.109E+02 | 1.108E+02 | 7.946E+02 | 7.918E-07 | 4.223E-06 | 1.317E-01 |
| 150 | 3.53E-02 | 1.865E+02 | 1.855E+02 | 1.985E+02 | 1.269E-05 | -1.201E-06 | 5.80E-02 | 1.135E+02 | 1.134E+02 | 8.134E+02 | 7.558E-07 | 4.048E-06 | 1.148E-01 |
| 155 | 3.02E-02 | 1.842E+02 | 1.833E+02 | 1.961E+02 | 1.300E-05 | -1.325E-06 | 4.80E-02 | 1.158E+02 | 1.156E+02 | 8.295E+02 | 7.267E-07 | 3.907E-06 | 9.707E-02 |
| 160 | 2.47E-02 | 1.824E+02 | 1.814E+02 | 1.941E+02 | 1.327E-05 | -1.434E-06 | 3.83E-02 | 1.176E+02 | 1.175E+02 | 8.428E+02 | 7.039E-07 | 3.795E-06 | 7.856E-02 |
| 165 | 1.88E-02 | 1.809E+02 | 1.800E+02 | 1.926E+02 | 1.349E-05 | -1.524E-06 | 2.86E-02 | 1.191E+02 | 1.190E+02 | 8.533E+02 | 6.867E-07 | 3.710E-06 | 5.945E-02 |
| 170 | 1.27E-02 | 1.799E+02 | 1.789E+02 | 1.914E+02 | 1.364E-05 | -1.591E-06 | 1.90E-02 | 1.201E+02 | 1.200E+02 | 8.608E+02 | 6.748E-07 | 3.651E-06 | 3.989E-02 |
| 175 | 6.40E-03 | 1.792E+02 | 1.783E+02 | 1.908E+02 | 1.374E-05 | -1.632E-06 | 9.50E-03 | 1.208E+02 | 1.206E+02 | 8.654E+02 | 6.677E-07 | 3.616E-06 | 2.002E-02 |
| 180 | 0. | 1.790E+02 | 1.781E+02 | 1.905E+02 | 1.377E-05 | -1.646E-06 | 0. | 1.210E+02 | 1.209E+02 | 8.669E+02 | 6.653E-07 | 3.604E-06 | 0. |

DELTA(1236) => NEUTRON + PI PLUS AT 350 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.23600E+00 M2 = 9.39553E-01 M3 = 1.39569E-01
P2CM= 2.29699E-01
E2CM= 9.67223E-01 E3CM= 2.68777E-01

1-V1LAB= 6.235E-06 GCM = 2.83173E+02 S = 1.52770E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 3.389E+02 | 3.380E+02 | 3.607E+02 | 3.842E-06 | 4.593E-07 | 0. | 1.107E+01 | 1.093E+01 | 7.929E+01 | 7.954E-05 | -4.309E-04 | 0. |
| 1 | 6.78E-04 | 3.389E+02 | 3.380E+02 | 3.607E+02 | 3.842E-06 | 4.593E-07 | 2.07E-02 | 1.108E+01 | 1.094E+01 | 7.936E+01 | 7.939E-05 | -4.293E-04 | 4.009E-03 |
| 2 | 1.36E-03 | 3.389E+02 | 3.380E+02 | 3.607E+02 | 3.843E-06 | 4.592E-07 | 4.14E-02 | 1.111E+01 | 1.097E+01 | 7.957E+01 | 7.897E-05 | -4.245E-04 | 8.016E-03 |
| 3 | 2.03E-03 | 3.388E+02 | 3.379E+02 | 3.606E+02 | 3.844E-06 | 4.591E-07 | 6.17E-02 | 1.115E+01 | 1.102E+01 | 7.993E+01 | 7.827E-05 | -4.167E-04 | 1.202E-02 |
| 4 | 2.71E-03 | 3.388E+02 | 3.378E+02 | 3.606E+02 | 3.846E-06 | 4.590E-07 | 8.18E-02 | 1.122E+01 | 1.109E+01 | 8.042E+01 | 7.731E-05 | -4.060E-04 | 1.602E-02 |
| 5 | 3.39E-03 | 3.387E+02 | 3.377E+02 | 3.605E+02 | 3.848E-06 | 4.589E-07 | 1.01E-01 | 1.131E+01 | 1.117E+01 | 8.106E+01 | 7.609E-05 | -3.927E-04 | 2.002E-02 |
| 6 | 4.06E-03 | 3.386E+02 | 3.376E+02 | 3.604E+02 | 3.850E-06 | 4.587E-07 | 1.20E-01 | 1.142E+01 | 1.128E+01 | 8.184E+01 | 7.465E-05 | -3.771E-04 | 2.401E-02 |
| 7 | 4.74E-03 | 3.384E+02 | 3.375E+02 | 3.602E+02 | 3.853E-06 | 4.585E-07 | 1.39E-01 | 1.155E+01 | 1.141E+01 | 8.276E+01 | 7.300E-05 | -3.595E-04 | 2.799E-02 |
| 8 | 5.41E-03 | 3.383E+02 | 3.374E+02 | 3.601E+02 | 3.857E-06 | 4.582E-07 | 1.57E-01 | 1.170E+01 | 1.156E+01 | 8.382E+01 | 7.116E-05 | -3.403E-04 | 3.197E-02 |
| 9 | 6.09E-03 | 3.381E+02 | 3.372E+02 | 3.599E+02 | 3.860E-06 | 4.580E-07 | 1.74E-01 | 1.187E+01 | 1.173E+01 | 8.503E+01 | 6.916E-05 | -3.198E-04 | 3.593E-02 |
| 10 | 6.76E-03 | 3.379E+02 | 3.370E+02 | 3.597E+02 | 3.865E-06 | 4.576E-07 | 1.90E-01 | 1.205E+01 | 1.191E+01 | 8.637E+01 | 6.703E-05 | -2.985E-04 | 3.989E-02 |
| 15 | 1.01E-02 | 3.367E+02 | 3.358E+02 | 3.584E+02 | 3.893E-06 | 4.555E-07 | 2.56E-01 | 1.328E+01 | 1.314E+01 | 9.517E+01 | 5.521E-05 | -1.908E-04 | 5.945E-02 |
| 20 | 1.34E-02 | 3.350E+02 | 3.341E+02 | 3.566E+02 | 3.933E-06 | 4.524E-07 | 3.00E-01 | 1.499E+01 | 1.485E+01 | 1.074E+02 | 4.335E-05 | -1.015E-04 | 7.856E-02 |
| 25 | 1.67E-02 | 3.328E+02 | 3.319E+02 | 3.543E+02 | 3.984E-06 | 4.483E-07 | 3.24E-01 | 1.716E+01 | 1.702E+01 | 1.230E+02 | 3.307E-05 | -4.108E-05 | 9.707E-02 |
| 30 | 1.99E-02 | 3.302E+02 | 3.293E+02 | 3.515E+02 | 4.048E-06 | 4.429E-07 | 3.33E-01 | 1.978E+01 | 1.964E+01 | 1.417E+02 | 2.489E-05 | -5.922E-06 | 1.148E-01 |
| 35 | 2.31E-02 | 3.272E+02 | 3.262E+02 | 3.482E+02 | 4.123E-06 | 4.360E-07 | 3.31E-01 | 2.283E+01 | 2.269E+01 | 1.636E+02 | 1.869E-05 | 1.197E-05 | 1.317E-01 |
| 40 | 2.61E-02 | 3.237E+02 | 3.228E+02 | 3.445E+02 | 4.212E-06 | 4.275E-07 | 3.22E-01 | 2.628E+01 | 2.614E+01 | 1.883E+02 | 1.410E-05 | 1.959E-05 | 1.476E-01 |
| 45 | 2.91E-02 | 3.199E+02 | 3.189E+02 | 3.405E+02 | 4.313E-06 | 4.170E-07 | 3.09E-01 | 3.012E+01 | 2.998E+01 | 2.158E+02 | 1.074E-05 | 2.168E-05 | 1.624E-01 |
| 50 | 3.19E-02 | 3.157E+02 | 3.148E+02 | 3.360E+02 | 4.429E-06 | 4.043E-07 | 2.94E-01 | 3.430E+01 | 3.416E+01 | 2.458E+02 | 8.278E-06 | 2.108E-05 | 1.760E-01 |
| 55 | 3.46E-02 | 3.112E+02 | 3.103E+02 | 3.312E+02 | 4.558E-06 | 3.889E-07 | 2.78E-01 | 3.880E+01 | 3.866E+01 | 2.780E+02 | 6.469E-06 | 1.932E-05 | 1.882E-01 |
| 60 | 3.72E-02 | 3.064E+02 | 3.055E+02 | 3.261E+02 | 4.701E-06 | 3.704E-07 | 2.61E-01 | 4.359E+01 | 4.345E+01 | 3.123E+02 | 5.126E-06 | 1.720E-05 | 1.989E-01 |
| 65 | 3.96E-02 | 3.014E+02 | 3.004E+02 | 3.208E+02 | 4.859E-06 | 3.485E-07 | 2.45E-01 | 4.885E+01 | 4.848E+01 | 3.484E+02 | 4.120E-06 | 1.509E-05 | 2.082E-01 |
| 70 | 4.18E-02 | 2.961E+02 | 2.952E+02 | 3.152E+02 | 5.033E-06 | 3.225E-07 | 2.30E-01 | 5.386E+01 | 5.372E+01 | 3.859E+02 | 3.357E-06 | 1.317E-05 | 2.158E-01 |
| 75 | 4.37E-02 | 2.907E+02 | 2.898E+02 | 3.094E+02 | 5.222E-06 | 2.919E-07 | 2.14E-01 | 5.928E+01 | 5.914E+01 | 4.247E+02 | 2.772E-06 | 1.149E-05 | 2.219E-01 |
| 80 | 4.54E-02 | 2.852E+02 | 2.842E+02 | 3.035E+02 | 5.427E-06 | 2.562E-07 | 2.00E-01 | 6.482E+01 | 6.468E+01 | 4.644E+02 | 2.318E-06 | 1.004E-05 | 2.262E-01 |
| 85 | 4.69E-02 | 2.796E+02 | 2.786E+02 | 2.975E+02 | 5.648E-06 | 2.147E-07 | 1.86E-01 | 7.044E+01 | 7.030E+01 | 5.047E+02 | 1.963E-06 | 8.817E-06 | 2.288E-01 |
| 90 | 4.81E-02 | 2.739E+02 | 2.730E+02 | 2.915E+02 | 5.884E-06 | 1.670E-07 | 1.73E-01 | 7.611E+01 | 7.597E+01 | 5.453E+02 | 1.681E-06 | 7.784E-06 | 2.297E-01 |
| 95 | 4.89E-02 | 2.682E+02 | 2.673E+02 | 2.855E+02 | 6.135E-06 | 1.126E-07 | 1.60E-01 | 8.178E+01 | 8.164E+01 | 5.859E+02 | 1.456E-06 | 6.915E-06 | 2.288E-01 |
| 100 | 4.94E-02 | 2.626E+02 | 2.617E+02 | 2.795E+02 | 6.401E-06 | 5.094E-08 | 1.48E-01 | 8.741E+01 | 8.727E+01 | 6.263E+02 | 1.275E-06 | 6.184E-06 | 2.262E-01 |
| 105 | 4.95E-02 | 2.571E+02 | 2.561E+02 | 2.736E+02 | 6.680E-06 | -1.815E-08 | 1.37E-01 | 9.294E+01 | 9.281E+01 | 6.659E+02 | 1.127E-06 | 5.569E-06 | 2.219E-01 |
| 110 | 4.91E-02 | 2.516E+02 | 2.507E+02 | 2.678E+02 | 6.970E-06 | -9.480E-08 | 1.26E-01 | 9.836E+01 | 9.822E+01 | 7.047E+02 | 1.007E-06 | 5.050E-06 | 2.158E-01 |
| 115 | 4.84E-02 | 2.464E+02 | 2.455E+02 | 2.623E+02 | 7.270E-06 | -1.788E-07 | 1.15E-01 | 1.036E+02 | 1.035E+02 | 7.423E+02 | 9.075E-07 | 4.613E-06 | 2.082E-01 |
| 120 | 4.72E-02 | 2.414E+02 | 2.404E+02 | 2.569E+02 | 7.576E-06 | -2.698E-07 | 1.05E-01 | 1.086E+02 | 1.085E+02 | 7.783E+02 | 8.253E-07 | 4.243E-06 | 1.989E-01 |
| 125 | 4.56E-02 | 2.366E+02 | 2.356E+02 | 2.518E+02 | 7.886E-06 | -3.668E-07 | 9.51E-02 | 1.134E+02 | 1.133E+02 | 8.126E+02 | 7.571E-07 | 3.931E-06 | 1.882E-01 |
| 130 | 4.34E-02 | 2.321E+02 | 2.311E+02 | 2.470E+02 | 8.195E-06 | -4.686E-07 | 8.55E-02 | 1.179E+02 | 1.178E+02 | 8.449E+02 | 7.004E-07 | 3.667E-06 | 1.760E-01 |
| 135 | 4.08E-02 | 2.279E+02 | 2.270E+02 | 2.426E+02 | 8.498E-06 | -5.734E-07 | 7.62E-02 | 1.221E+02 | 1.220E+02 | 8.749E+02 | 6.533E-07 | 3.445E-06 | 1.624E-01 |
| 140 | 3.78E-02 | 2.241E+02 | 2.231E+02 | 2.385E+02 | 8.792E-06 | -6.790E-07 | 6.72E-02 | 1.259E+02 | 1.258E+02 | 9.023E+02 | 6.141E-07 | 3.258E-06 | 1.476E-01 |
| 145 | 3.42E-02 | 2.206E+02 | 2.197E+02 | 2.348E+02 | 9.069E-06 | -7.829E-07 | 5.83E-02 | 1.294E+02 | 1.293E+02 | 9.271E+02 | 5.817E-07 | 3.103E-06 | 1.317E-01 |
| 150 | 3.02E-02 | 2.176E+02 | 2.166E+02 | 2.316E+02 | 9.325E-06 | -8.820E-07 | 4.97E-02 | 1.324E+02 | 1.323E+02 | 9.489E+02 | 5.553E-07 | 2.974E-06 | 1.148E-01 |
| 155 | 2.59E-02 | 2.149E+02 | 2.140E+02 | 2.288E+02 | 9.554E-06 | -9.733E-07 | 4.12E-02 | 1.351E+02 | 1.349E+02 | 9.677E+02 | 5.339E-07 | 2.870E-06 | 9.707E-02 |
| 160 | 2.12E-02 | 2.128E+02 | 2.118E+02 | 2.265E+02 | 9.750E-06 | -1.054E-06 | 3.28E-02 | 1.372E+02 | 1.371E+02 | 9.833E+02 | 5.172E-07 | 2.788E-06 | 7.856E-02 |
| 165 | 1.61E-02 | 2.111E+02 | 2.101E+02 | 2.246E+02 | 9.908E-06 | -1.120E-06 | 2.45E-02 | 1.389E+02 | 1.388E+02 | 9.955E+02 | 5.045E-07 | 2.726E-06 | 5.945E-02 |
| 170 | 1.09E-02 | 2.098E+02 | 2.089E+02 | 2.233E+02 | 1.002E-05 | -1.169E-06 | 1.63E-02 | 1.402E+02 | 1.400E+02 | 1.004E+03 | 4.957E-07 | 2.682E-06 | 3.989E-02 |
| 175 | 5.49E-03 | 2.091E+02 | 2.082E+02 | 2.225E+02 | 1.010E-05 | -1.199E-06 | 8.14E-03 | 1.409E+02 | 1.408E+02 | 1.010E+03 | 4.905E-07 | 2.657E-06 | 2.002E-02 |
| 180 | 0. | 2.088E+02 | 2.079E+02 | 2.223E+02 | 1.012E-05 | -1.210E-06 | 0. | 1.412E+02 | 1.410E+02 | 1.011E+03 | 4.888E-07 | 2.648E-06 | 0. |

DELTA(1236) => NEUTRON + PI PLUS AT 400 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.23600E+00 M2 = 9.39553E-01 M3 = 1.39569E-01
P2CM= 2.29699E-01
E2CM= 9.67223E-01 E3CM= 2.68777E-01

1-V1LAB= 4.774E-06 GCM = 3.23626E+02 S = 1.52770E+00

| 02 CM | 02 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | 03 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 3.874E+02 | 3.864E+02 | 4.123E+02 | 2.942E-06 | 3.516E-07 | 0. | 1.265E+01 | 1.251E+01 | 9.062E+01 | 6.090E-05 | -3.299E-04 | 0. |
| 1 | 5.93E-04 | 3.873E+02 | 3.864E+02 | 4.123E+02 | 2.942E-06 | 3.516E-07 | 1.81E-02 | 1.266E+01 | 1.252E+01 | 9.070E+01 | 6.079E-05 | -3.287E-04 | 4.009E-03 |
| 2 | 1.19E-03 | 3.873E+02 | 3.864E+02 | 4.122E+02 | 2.942E-06 | 3.516E-07 | 3.62E-02 | 1.269E+01 | 1.255E+01 | 9.094E+01 | 6.046E-05 | -3.250E-04 | 8.016E-03 |
| 3 | 1.78E-03 | 3.873E+02 | 3.863E+02 | 4.122E+02 | 2.943E-06 | 3.515E-07 | 5.40E-02 | 1.275E+01 | 1.261E+01 | 9.134E+01 | 5.993E-05 | -3.190E-04 | 1.202E-02 |
| 4 | 2.37E-03 | 3.872E+02 | 3.862E+02 | 4.121E+02 | 2.944E-06 | 3.514E-07 | 7.16E-02 | 1.283E+01 | 1.269E+01 | 9.191E+01 | 5.919E-05 | -3.108E-04 | 1.602E-02 |
| 5 | 2.96E-03 | 3.871E+02 | 3.861E+02 | 4.120E+02 | 2.946E-06 | 3.513E-07 | 8.87E-02 | 1.293E+01 | 1.279E+01 | 9.264E+01 | 5.826E-05 | -3.006E-04 | 2.002E-02 |
| 6 | 3.56E-03 | 3.869E+02 | 3.860E+02 | 4.118E+02 | 2.948E-06 | 3.512E-07 | 1.05E-01 | 1.305E+01 | 1.291E+01 | 9.353E+01 | 5.716E-05 | -2.887E-04 | 2.401E-02 |
| 7 | 4.15E-03 | 3.868E+02 | 3.859E+02 | 4.117E+02 | 2.950E-06 | 3.510E-07 | 1.22E-01 | 1.320E+01 | 1.306E+01 | 9.459E+01 | 5.589E-05 | -2.752E-04 | 2.799E-02 |
| 8 | 4.74E-03 | 3.866E+02 | 3.857E+02 | 4.115E+02 | 2.953E-06 | 3.508E-07 | 1.37E-01 | 1.337E+01 | 1.323E+01 | 9.580E+01 | 5.448E-05 | -2.605E-04 | 3.197E-02 |
| 9 | 5.33E-03 | 3.864E+02 | 3.855E+02 | 4.113E+02 | 2.956E-06 | 3.506E-07 | 1.52E-01 | 1.356E+01 | 1.342E+01 | 9.717E+01 | 5.295E-05 | -2.449E-04 | 3.593E-02 |
| 10 | 5.92E-03 | 3.862E+02 | 3.853E+02 | 4.111E+02 | 2.959E-06 | 3.504E-07 | 1.66E-01 | 1.378E+01 | 1.364E+01 | 9.871E+01 | 5.132E-05 | -2.286E-04 | 3.989E-02 |
| 15 | 8.85E-03 | 3.848E+02 | 3.839E+02 | 4.096E+02 | 2.981E-06 | 3.488E-07 | 2.24E-01 | 1.518E+01 | 1.504E+01 | 1.088E+02 | 4.227E-05 | -1.461E-04 | 5.945E-02 |
| 20 | 1.18E-02 | 3.829E+02 | 3.819E+02 | 4.075E+02 | 3.011E-06 | 3.464E-07 | 2.63E-01 | 1.713E+01 | 1.699E+01 | 1.227E+02 | 3.319E-05 | -7.769E-05 | 7.856E-02 |
| 25 | 1.46E-02 | 3.804E+02 | 3.795E+02 | 4.049E+02 | 3.050E-06 | 3.432E-07 | 2.84E-01 | 1.961E+01 | 1.947E+01 | 1.405E+02 | 2.532E-05 | -3.146E-05 | 9.707E-02 |
| 30 | 1.74E-02 | 3.774E+02 | 3.765E+02 | 4.017E+02 | 3.099E-06 | 3.391E-07 | 2.91E-01 | 2.261E+01 | 2.247E+01 | 1.620E+02 | 1.906E-05 | -4.534E-06 | 1.148E-01 |
| 35 | 2.02E-02 | 3.739E+02 | 3.730E+02 | 3.980E+02 | 3.157E-06 | 3.338E-07 | 2.89E-01 | 2.609E+01 | 2.595E+01 | 1.869E+02 | 1.431E-05 | 9.163E-06 | 1.317E-01 |
| 40 | 2.29E-02 | 3.700E+02 | 3.690E+02 | 3.938E+02 | 3.225E-06 | 3.273E-07 | 2.82E-01 | 3.004E+01 | 2.990E+01 | 2.152E+02 | 1.079E-05 | 1.500E-05 | 1.476E-01 |
| 45 | 2.55E-02 | 3.656E+02 | 3.646E+02 | 3.891E+02 | 3.302E-06 | 3.193E-07 | 2.70E-01 | 3.442E+01 | 3.428E+01 | 2.466E+02 | 8.221E-06 | 1.660E-05 | 1.624E-01 |
| 50 | 2.79E-02 | 3.608E+02 | 3.599E+02 | 3.840E+02 | 3.391E-06 | 3.095E-07 | 2.57E-01 | 3.920E+01 | 3.906E+01 | 2.809E+02 | 6.338E-06 | 1.614E-05 | 1.760E-01 |
| 55 | 3.03E-02 | 3.557E+02 | 3.547E+02 | 3.785E+02 | 3.489E-06 | 2.978E-07 | 2.43E-01 | 4.435E+01 | 4.421E+01 | 3.177E+02 | 4.953E-06 | 1.479E-05 | 1.882E-01 |
| 60 | 3.25E-02 | 3.502E+02 | 3.492E+02 | 3.727E+02 | 3.599E-06 | 2.836E-07 | 2.29E-01 | 4.981E+01 | 4.968E+01 | 3.569E+02 | 3.925E-06 | 1.317E-05 | 1.989E-01 |
| 65 | 3.46E-02 | 3.444E+02 | 3.435E+02 | 3.666E+02 | 3.720E-06 | 2.668E-07 | 2.15E-01 | 5.557E+01 | 5.543E+01 | 3.981E+02 | 3.154E-06 | 1.156E-05 | 2.082E-01 |
| 70 | 3.65E-02 | 3.384E+02 | 3.375E+02 | 3.602E+02 | 3.853E-06 | 2.469E-07 | 2.01E-01 | 6.156E+01 | 6.142E+01 | 4.411E+02 | 2.570E-06 | 1.008E-05 | 2.158E-01 |
| 75 | 3.83E-02 | 3.323E+02 | 3.313E+02 | 3.536E+02 | 3.998E-06 | 2.235E-07 | 1.88E-01 | 6.774E+01 | 6.760E+01 | 4.854E+02 | 2.122E-06 | 8.795E-06 | 2.219E-01 |
| 80 | 3.98E-02 | 3.259E+02 | 3.250E+02 | 3.469E+02 | 4.155E-06 | 1.961E-07 | 1.75E-01 | 7.407E+01 | 7.394E+01 | 5.307E+02 | 1.775E-06 | 7.689E-06 | 2.262E-01 |
| 85 | 4.10E-02 | 3.195E+02 | 3.186E+02 | 3.401E+02 | 4.324E-06 | 1.644E-07 | 1.63E-01 | 8.050E+01 | 8.036E+01 | 5.768E+02 | 1.503E-06 | 6.751E-06 | 2.288E-01 |
| 90 | 4.20E-02 | 3.130E+02 | 3.121E+02 | 3.332E+02 | 4.505E-06 | 1.279E-07 | 1.51E-01 | 8.698E+01 | 8.684E+01 | 6.232E+02 | 1.287E-06 | 5.960E-06 | 2.297E-01 |
| 95 | 4.28E-02 | 3.065E+02 | 3.056E+02 | 3.263E+02 | 4.697E-06 | 8.619E-08 | 1.40E-01 | 9.346E+01 | 9.332E+01 | 6.696E+02 | 1.115E-06 | 5.294E-06 | 2.288E-01 |
| 100 | 4.32E-02 | 3.001E+02 | 2.992E+02 | 3.194E+02 | 4.901E-06 | 3.900E-08 | 1.30E-01 | 9.989E+01 | 9.975E+01 | 7.157E+02 | 9.761E-07 | 4.734E-06 | 2.262E-01 |
| 105 | 4.33E-02 | 2.938E+02 | 2.928E+02 | 3.127E+02 | 5.114E-06 | -1.390E-08 | 1.20E-01 | 1.062E+02 | 1.061E+02 | 7.611E+02 | 8.632E-07 | 4.263E-06 | 2.219E-01 |
| 110 | 4.30E-02 | 2.876E+02 | 2.867E+02 | 3.061E+02 | 5.336E-06 | -7.258E-08 | 1.10E-01 | 1.124E+02 | 1.123E+02 | 8.054E+02 | 7.708E-07 | 3.867E-06 | 2.158E-01 |
| 115 | 4.24E-02 | 2.816E+02 | 2.807E+02 | 2.997E+02 | 5.566E-06 | -1.369E-07 | 1.01E-01 | 1.184E+02 | 1.183E+02 | 8.483E+02 | 6.948E-07 | 3.532E-06 | 2.082E-01 |
| 120 | 4.13E-02 | 2.758E+02 | 2.749E+02 | 2.936E+02 | 5.801E-06 | -2.066E-07 | 9.18E-02 | 1.242E+02 | 1.240E+02 | 8.895E+02 | 6.319E-07 | 3.249E-06 | 1.989E-01 |
| 125 | 3.99E-02 | 2.704E+02 | 2.694E+02 | 2.878E+02 | 6.038E-06 | -2.808E-07 | 8.32E-02 | 1.296E+02 | 1.295E+02 | 9.287E+02 | 5.797E-07 | 3.010E-06 | 1.882E-01 |
| 130 | 3.80E-02 | 2.652E+02 | 2.643E+02 | 2.823E+02 | 6.274E-06 | -3.587E-07 | 7.48E-02 | 1.348E+02 | 1.346E+02 | 9.656E+02 | 5.363E-07 | 2.808E-06 | 1.760E-01 |
| 135 | 3.57E-02 | 2.605E+02 | 2.595E+02 | 2.772E+02 | 6.507E-06 | -4.390E-07 | 6.67E-02 | 1.395E+02 | 1.394E+02 | 9.998E+02 | 5.002E-07 | 2.638E-06 | 1.624E-01 |
| 140 | 3.30E-02 | 2.561E+02 | 2.551E+02 | 2.725E+02 | 6.731E-06 | -5.199E-07 | 5.88E-02 | 1.439E+02 | 1.438E+02 | 1.031E+03 | 4.702E-07 | 2.495E-06 | 1.476E-01 |
| 145 | 2.99E-02 | 2.521E+02 | 2.512E+02 | 2.683E+02 | 6.943E-06 | -5.994E-07 | 5.10E-02 | 1.479E+02 | 1.477E+02 | 1.060E+03 | 4.454E-07 | 2.375E-06 | 1.317E-01 |
| 150 | 2.65E-02 | 2.486E+02 | 2.477E+02 | 2.646E+02 | 7.139E-06 | -6.753E-07 | 4.35E-02 | 1.514E+02 | 1.512E+02 | 1.084E+03 | 4.251E-07 | 2.277E-06 | 1.148E-01 |
| 155 | 2.26E-02 | 2.456E+02 | 2.447E+02 | 2.615E+02 | 7.315E-06 | -7.452E-07 | 3.60E-02 | 1.544E+02 | 1.542E+02 | 1.106E+03 | 4.088E-07 | 2.198E-06 | 9.707E-02 |
| 160 | 1.85E-02 | 2.432E+02 | 2.422E+02 | 2.588E+02 | 7.465E-06 | -8.066E-07 | 2.87E-02 | 1.568E+02 | 1.567E+02 | 1.124E+03 | 3.960E-07 | 2.135E-06 | 7.856E-02 |
| 165 | 1.41E-02 | 2.412E+02 | 2.403E+02 | 2.567E+02 | 7.586E-06 | -8.572E-07 | 2.15E-02 | 1.588E+02 | 1.586E+02 | 1.138E+03 | 3.863E-07 | 2.087E-06 | 5.945E-02 |
| 170 | 9.53E-03 | 2.398E+02 | 2.389E+02 | 2.552E+02 | 7.675E-06 | -8.949E-07 | 1.43E-02 | 1.602E+02 | 1.601E+02 | 1.148E+03 | 3.796E-07 | 2.054E-06 | 3.989E-02 |
| 175 | 4.80E-03 | 2.390E+02 | 2.380E+02 | 2.543E+02 | 7.729E-06 | -9.183E-07 | 7.12E-03 | 1.610E+02 | 1.609E+02 | 1.154E+03 | 3.756E-07 | 2.034E-06 | 2.002E-02 |
| 180 | 0. | 2.387E+02 | 2.377E+02 | 2.540E+02 | 7.748E-06 | -9.262E-07 | 0. | 1.613E+02 | 1.612E+02 | 1.156E+03 | 3.743E-07 | 2.027E-06 | 0. |

DELTA(1236) => NEUTRON + PI PLUS AT 450 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.23600E+00 M2 = 9.39553E-01 M3 = 1.39569E-01
P2CM= 2.29699E-01
E2CM= 9.67223E-01 E3CM= 2.68777E-01

1-V1LAB= 3.772E-06 GCM = 3.64079E+02 S = 1.52770E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 4.358E+02 | 4.348E+02 | 4.638E+02 | 2.324E-06 | 2.778E-07 | 0. | 1.423E+01 | 1.409E+01 | 1.019E+02 | 4.812E-05 | -2.607E-04 | 0. |
| 1 | 5.27E-04 | 4.358E+02 | 4.348E+02 | 4.638E+02 | 2.324E-06 | 2.778E-07 | 1.61E-02 | 1.424E+01 | 1.410E+01 | 1.020E+02 | 4.803E-05 | -2.597E-04 | 4.009E-03 |
| 2 | 1.05E-03 | 4.357E+02 | 4.348E+02 | 4.638E+02 | 2.325E-06 | 2.778E-07 | 3.22E-02 | 1.428E+01 | 1.414E+01 | 1.023E+02 | 4.777E-05 | -2.568E-04 | 8.016E-03 |
| 3 | 1.58E-03 | 4.357E+02 | 4.347E+02 | 4.637E+02 | 2.326E-06 | 2.778E-07 | 4.80E-02 | 1.434E+01 | 1.420E+01 | 1.028E+02 | 4.735E-05 | -2.521E-04 | 1.202E-02 |
| 4 | 2.11E-03 | 4.356E+02 | 4.346E+02 | 4.636E+02 | 2.326E-06 | 2.777E-07 | 6.36E-02 | 1.443E+01 | 1.429E+01 | 1.034E+02 | 4.677E-05 | -2.456E-04 | 1.602E-02 |
| 5 | 2.63E-03 | 4.355E+02 | 4.345E+02 | 4.635E+02 | 2.328E-06 | 2.776E-07 | 7.89E-02 | 1.455E+01 | 1.441E+01 | 1.042E+02 | 4.603E-05 | -2.375E-04 | 2.002E-02 |
| 6 | 3.16E-03 | 4.353E+02 | 4.344E+02 | 4.633E+02 | 2.329E-06 | 2.775E-07 | 9.37E-02 | 1.469E+01 | 1.455E+01 | 1.052E+02 | 4.516E-05 | -2.281E-04 | 2.401E-02 |
| 7 | 3.69E-03 | 4.351E+02 | 4.342E+02 | 4.631E+02 | 2.331E-06 | 2.774E-07 | 1.08E-01 | 1.485E+01 | 1.471E+01 | 1.064E+02 | 4.416E-05 | -2.174E-04 | 2.799E-02 |
| 8 | 4.21E-03 | 4.350E+02 | 4.340E+02 | 4.629E+02 | 2.333E-06 | 2.772E-07 | 1.22E-01 | 1.504E+01 | 1.490E+01 | 1.078E+02 | 4.305E-05 | -2.058E-04 | 3.197E-02 |
| 9 | 4.74E-03 | 4.347E+02 | 4.338E+02 | 4.627E+02 | 2.335E-06 | 2.770E-07 | 1.35E-01 | 1.526E+01 | 1.512E+01 | 1.093E+02 | 4.184E-05 | -1.935E-04 | 3.593E-02 |
| 10 | 5.26E-03 | 4.345E+02 | 4.336E+02 | 4.625E+02 | 2.338E-06 | 2.768E-07 | 1.47E-01 | 1.550E+01 | 1.536E+01 | 1.110E+02 | 4.055E-05 | -1.806E-04 | 3.989E-02 |
| 15 | 7.87E-03 | 4.329E+02 | 4.320E+02 | 4.608E+02 | 2.355E-06 | 2.756E-07 | 1.99E-01 | 1.708E+01 | 1.694E+01 | 1.224E+02 | 3.340E-05 | -1.154E-04 | 5.945E-02 |
| 20 | 1.05E-02 | 4.307E+02 | 4.298E+02 | 4.584E+02 | 2.379E-06 | 2.737E-07 | 2.34E-01 | 1.927E+01 | 1.913E+01 | 1.381E+02 | 2.623E-05 | -6.138E-05 | 7.856E-02 |
| 25 | 1.30E-02 | 4.279E+02 | 4.270E+02 | 4.555E+02 | 2.410E-06 | 2.712E-07 | 2.52E-01 | 2.206E+01 | 2.192E+01 | 1.581E+02 | 2.001E-05 | -2.485E-05 | 9.707E-02 |
| 30 | 1.55E-02 | 4.246E+02 | 4.236E+02 | 4.519E+02 | 2.449E-06 | 2.679E-07 | 2.59E-01 | 2.543E+01 | 2.529E+01 | 1.822E+02 | 1.506E-05 | -3.583E-06 | 1.148E-01 |
| 35 | 1.79E-02 | 4.206E+02 | 4.197E+02 | 4.477E+02 | 2.494E-06 | 2.638E-07 | 2.57E-01 | 2.935E+01 | 2.921E+01 | 2.103E+02 | 1.131E-05 | 7.240E-06 | 1.317E-01 |
| 40 | 2.03E-02 | 4.162E+02 | 4.153E+02 | 4.430E+02 | 2.548E-06 | 2.586E-07 | 2.50E-01 | 3.379E+01 | 3.365E+01 | 2.421E+02 | 8.529E-06 | 1.185E-05 | 1.476E-01 |
| 45 | 2.26E-02 | 4.113E+02 | 4.103E+02 | 4.377E+02 | 2.609E-06 | 2.523E-07 | 2.40E-01 | 3.872E+01 | 3.858E+01 | 2.774E+02 | 6.496E-06 | 1.312E-05 | 1.624E-01 |
| 50 | 2.48E-02 | 4.059E+02 | 4.050E+02 | 4.320E+02 | 2.679E-06 | 2.446E-07 | 2.29E-01 | 4.410E+01 | 4.396E+01 | 3.160E+02 | 5.008E-06 | 1.275E-05 | 1.760E-01 |
| 55 | 2.69E-02 | 4.001E+02 | 3.992E+02 | 4.259E+02 | 2.757E-06 | 2.353E-07 | 2.16E-01 | 4.989E+01 | 4.975E+01 | 3.574E+02 | 3.913E-06 | 1.169E-05 | 1.882E-01 |
| 60 | 2.89E-02 | 3.940E+02 | 3.930E+02 | 4.193E+02 | 2.844E-06 | 2.241E-07 | 2.03E-01 | 5.604E+01 | 5.590E+01 | 4.015E+02 | 3.101E-06 | 1.040E-05 | 1.989E-01 |
| 65 | 3.08E-02 | 3.875E+02 | 3.865E+02 | 4.124E+02 | 2.940E-06 | 2.108E-07 | 1.91E-01 | 6.251E+01 | 6.237E+01 | 4.479E+02 | 2.492E-06 | 9.130E-06 | 2.082E-01 |
| 70 | 3.25E-02 | 3.807E+02 | 3.798E+02 | 4.052E+02 | 3.045E-06 | 1.951E-07 | 1.79E-01 | 6.925E+01 | 6.911E+01 | 4.962E+02 | 2.031E-06 | 7.968E-06 | 2.158E-01 |
| 75 | 3.40E-02 | 3.738E+02 | 3.729E+02 | 3.978E+02 | 3.159E-06 | 1.766E-07 | 1.67E-01 | 7.621E+01 | 7.607E+01 | 5.460E+02 | 1.677E-06 | 6.949E-06 | 2.219E-01 |
| 80 | 3.53E-02 | 3.667E+02 | 3.657E+02 | 3.903E+02 | 3.283E-06 | 1.550E-07 | 1.56E-01 | 8.333E+01 | 8.319E+01 | 5.971E+02 | 1.402E-06 | 6.075E-06 | 2.262E-01 |
| 85 | 3.65E-02 | 3.594E+02 | 3.585E+02 | 3.826E+02 | 3.416E-06 | 1.299E-07 | 1.45E-01 | 9.057E+01 | 9.043E+01 | 6.489E+02 | 1.187E-06 | 5.334E-06 | 2.288E-01 |
| 90 | 3.74E-02 | 3.521E+02 | 3.512E+02 | 3.748E+02 | 3.559E-06 | 1.010E-07 | 1.34E-01 | 9.786E+01 | 9.772E+01 | 7.011E+02 | 1.017E-06 | 4.709E-06 | 2.297E-01 |
| 95 | 3.80E-02 | 3.449E+02 | 3.439E+02 | 3.670E+02 | 3.711E-06 | 6.810E-08 | 1.25E-01 | 1.051E+02 | 1.050E+02 | 7.534E+02 | 8.810E-07 | 4.183E-06 | 2.288E-01 |
| 100 | 3.84E-02 | 3.376E+02 | 3.367E+02 | 3.593E+02 | 3.872E-06 | 3.082E-08 | 1.15E-01 | 1.124E+02 | 1.122E+02 | 8.052E+02 | 7.712E-07 | 3.741E-06 | 2.262E-01 |
| 105 | 3.85E-02 | 3.305E+02 | 3.296E+02 | 3.518E+02 | 4.041E-06 | -1.098E-08 | 1.06E-01 | 1.195E+02 | 1.194E+02 | 8.562E+02 | 6.820E-07 | 3.369E-06 | 2.219E-01 |
| 110 | 3.82E-02 | 3.235E+02 | 3.226E+02 | 3.444E+02 | 4.216E-06 | -5.735E-08 | 9.78E-02 | 1.265E+02 | 1.263E+02 | 9.061E+02 | 6.090E-07 | 3.055E-06 | 2.158E-01 |
| 115 | 3.77E-02 | 3.168E+02 | 3.159E+02 | 3.372E+02 | 4.398E-06 | -1.082E-07 | 8.95E-02 | 1.332E+02 | 1.331E+02 | 9.544E+02 | 5.490E-07 | 2.790E-06 | 2.082E-01 |
| 120 | 3.67E-02 | 3.103E+02 | 3.094E+02 | 3.303E+02 | 4.583E-06 | -1.632E-07 | 8.16E-02 | 1.397E+02 | 1.395E+02 | 1.001E+03 | 4.993E-07 | 2.567E-06 | 1.989E-01 |
| 125 | 3.54E-02 | 3.042E+02 | 3.032E+02 | 3.237E+02 | 4.770E-06 | -2.219E-07 | 7.39E-02 | 1.458E+02 | 1.457E+02 | 1.045E+03 | 4.580E-07 | 2.378E-06 | 1.882E-01 |
| 130 | 3.38E-02 | 2.984E+02 | 2.975E+02 | 3.176E+02 | 4.957E-06 | -2.834E-07 | 6.65E-02 | 1.516E+02 | 1.515E+02 | 1.086E+03 | 4.237E-07 | 2.218E-06 | 1.760E-01 |
| 135 | 3.18E-02 | 2.930E+02 | 2.921E+02 | 3.119E+02 | 5.141E-06 | -3.468E-07 | 5.93E-02 | 1.570E+02 | 1.569E+02 | 1.125E+03 | 3.952E-07 | 2.084E-06 | 1.624E-01 |
| 140 | 2.94E-02 | 2.881E+02 | 2.871E+02 | 3.066E+02 | 5.318E-06 | -4.108E-07 | 5.22E-02 | 1.619E+02 | 1.618E+02 | 1.160E+03 | 3.715E-07 | 1.971E-06 | 1.476E-01 |
| 145 | 2.66E-02 | 2.836E+02 | 2.827E+02 | 3.019E+02 | 5.486E-06 | -4.736E-07 | 4.54E-02 | 1.664E+02 | 1.662E+02 | 1.192E+03 | 3.519E-07 | 1.877E-06 | 1.317E-01 |
| 150 | 2.35E-02 | 2.797E+02 | 2.788E+02 | 2.977E+02 | 5.641E-06 | -5.336E-07 | 3.86E-02 | 1.703E+02 | 1.701E+02 | 1.220E+03 | 3.359E-07 | 1.799E-06 | 1.148E-01 |
| 155 | 2.01E-02 | 2.764E+02 | 2.754E+02 | 2.941E+02 | 5.779E-06 | -5.888E-07 | 3.20E-02 | 1.736E+02 | 1.735E+02 | 1.244E+03 | 3.230E-07 | 1.736E-06 | 9.707E-02 |
| 160 | 1.65E-02 | 2.736E+02 | 2.726E+02 | 2.912E+02 | 5.898E-06 | -6.373E-07 | 2.55E-02 | 1.764E+02 | 1.763E+02 | 1.264E+03 | 3.129E-07 | 1.687E-06 | 7.856E-02 |
| 165 | 1.26E-02 | 2.714E+02 | 2.704E+02 | 2.888E+02 | 5.994E-06 | -6.773E-07 | 1.91E-02 | 1.786E+02 | 1.785E+02 | 1.280E+03 | 3.052E-07 | 1.649E-06 | 5.945E-02 |
| 170 | 8.47E-03 | 2.698E+02 | 2.688E+02 | 2.871E+02 | 6.064E-06 | -7.071E-07 | 1.27E-02 | 1.802E+02 | 1.801E+02 | 1.291E+03 | 2.999E-07 | 1.623E-06 | 3.989E-02 |
| 175 | 4.27E-03 | 2.688E+02 | 2.679E+02 | 2.861E+02 | 6.107E-06 | -7.255E-07 | 6.33E-03 | 1.812E+02 | 1.810E+02 | 1.298E+03 | 2.968E-07 | 1.607E-06 | 2.002E-02 |
| 180 | 0. | 2.685E+02 | 2.676E+02 | 2.858E+02 | 6.122E-06 | -7.318E-07 | 0. | 1.815E+02 | 1.813E+02 | 1.300E+03 | 2.957E-07 | 1.602E-06 | 0. |

DELTA(1236) => NEUTRON + PI PLUS AT 500 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.23600E+00 M2 = 9.39553E-01 M3 = 1.39569E-01
P2CM= 2.29699E-01
E2CM= 9.67223E-01 E3CM= 2.68777E-01

1-V1LAB= 3.055E-06 GCM = 4.04532E+02 S = 1.52770E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 4.842E+02 | 4.833E+02 | 5.153E+02 | 1.883E-06 | 2.251E-07 | 0. | 1.581E+01 | 1.567E+01 | 1.133E+02 | 3.897E-05 | -2.111E-04 | 0. |
| 1 | 4.74E-04 | 4.842E+02 | 4.832E+02 | 5.153E+02 | 1.883E-06 | 2.250E-07 | 1.45E-02 | 1.582E+01 | 1.568E+01 | 1.134E+02 | 3.890E-05 | -2.104E-04 | 4.009E-03 |
| 2 | 9.49E-04 | 4.841E+02 | 4.832E+02 | 5.153E+02 | 1.883E-06 | 2.250E-07 | 2.90E-02 | 1.586E+01 | 1.573E+01 | 1.137E+02 | 3.870E-05 | -2.080E-04 | 8.016E-03 |
| 3 | 1.42E-03 | 4.841E+02 | 4.831E+02 | 5.152E+02 | 1.884E-06 | 2.250E-07 | 4.32E-02 | 1.594E+01 | 1.580E+01 | 1.142E+02 | 3.835E-05 | -2.042E-04 | 1.202E-02 |
| 4 | 1.90E-03 | 4.840E+02 | 4.830E+02 | 5.151E+02 | 1.884E-06 | 2.249E-07 | 5.73E-02 | 1.603E+01 | 1.590E+01 | 1.149E+02 | 3.788E-05 | -1.989E-04 | 1.602E-02 |
| 5 | 2.37E-03 | 4.838E+02 | 4.829E+02 | 5.150E+02 | 1.885E-06 | 2.249E-07 | 7.10E-02 | 1.616E+01 | 1.602E+01 | 1.158E+02 | 3.729E-05 | -1.924E-04 | 2.002E-02 |
| 6 | 2.84E-03 | 4.837E+02 | 4.827E+02 | 5.148E+02 | 1.887E-06 | 2.248E-07 | 8.43E-02 | 1.632E+01 | 1.618E+01 | 1.169E+02 | 3.658E-05 | -1.848E-04 | 2.401E-02 |
| 7 | 3.32E-03 | 4.835E+02 | 4.826E+02 | 5.146E+02 | 1.888E-06 | 2.247E-07 | 9.72E-02 | 1.650E+01 | 1.636E+01 | 1.182E+02 | 3.577E-05 | -1.761E-04 | 2.799E-02 |
| 8 | 3.79E-03 | 4.833E+02 | 4.823E+02 | 5.144E+02 | 1.890E-06 | 2.245E-07 | 1.10E-01 | 1.671E+01 | 1.657E+01 | 1.197E+02 | 3.487E-05 | -1.667E-04 | 3.197E-02 |
| 9 | 4.26E-03 | 4.830E+02 | 4.821E+02 | 5.141E+02 | 1.892E-06 | 2.244E-07 | 1.21E-01 | 1.695E+01 | 1.681E+01 | 1.215E+02 | 3.389E-05 | -1.567E-04 | 3.593E-02 |
| 10 | 4.73E-03 | 4.828E+02 | 4.818E+02 | 5.138E+02 | 1.894E-06 | 2.242E-07 | 1.33E-01 | 1.722E+01 | 1.708E+01 | 1.234E+02 | 3.285E-05 | -1.463E-04 | 3.989E-02 |
| 15 | 7.08E-03 | 4.810E+02 | 4.801E+02 | 5.120E+02 | 1.908E-06 | 2.232E-07 | 1.80E-01 | 1.897E+01 | 1.884E+01 | 1.360E+02 | 2.705E-05 | -9.348E-05 | 5.945E-02 |
| 20 | 9.41E-03 | 4.786E+02 | 4.776E+02 | 5.094E+02 | 1.927E-06 | 2.217E-07 | 2.10E-01 | 2.141E+01 | 2.127E+01 | 1.534E+02 | 2.124E-05 | -4.972E-05 | 7.856E-02 |
| 25 | 1.17E-02 | 4.755E+02 | 4.745E+02 | 5.061E+02 | 1.952E-06 | 2.196E-07 | 2.27E-01 | 2.451E+01 | 2.437E+01 | 1.756E+02 | 1.621E-05 | -2.013E-05 | 9.707E-02 |
| 30 | 1.39E-02 | 4.717E+02 | 4.708E+02 | 5.021E+02 | 1.983E-06 | 2.170E-07 | 2.33E-01 | 2.826E+01 | 2.812E+01 | 2.025E+02 | 1.220E-05 | -2.902E-06 | 1.148E-01 |
| 35 | 1.62E-02 | 4.674E+02 | 4.664E+02 | 4.975E+02 | 2.020E-06 | 2.136E-07 | 2.31E-01 | 3.261E+01 | 3.247E+01 | 2.337E+02 | 9.157E-06 | 5.864E-06 | 1.317E-01 |
| 40 | 1.83E-02 | 4.625E+02 | 4.615E+02 | 4.922E+02 | 2.064E-06 | 2.095E-07 | 2.25E-01 | 3.755E+01 | 3.741E+01 | 2.690E+02 | 6.908E-06 | 9.598E-06 | 1.476E-01 |
| 45 | 2.04E-02 | 4.570E+02 | 4.560E+02 | 4.864E+02 | 2.114E-06 | 2.043E-07 | 2.16E-01 | 4.302E+01 | 4.288E+01 | 3.083E+02 | 5.262E-06 | 1.062E-05 | 1.624E-01 |
| 50 | 2.24E-02 | 4.510E+02 | 4.501E+02 | 4.800E+02 | 2.170E-06 | 1.981E-07 | 2.06E-01 | 4.900E+01 | 4.886E+01 | 3.511E+02 | 4.056E-06 | 1.033E-05 | 1.760E-01 |
| 55 | 2.42E-02 | 4.446E+02 | 4.436E+02 | 4.732E+02 | 2.233E-06 | 1.906E-07 | 1.94E-01 | 5.543E+01 | 5.529E+01 | 3.972E+02 | 3.170E-06 | 9.465E-06 | 1.882E-01 |
| 60 | 2.60E-02 | 4.377E+02 | 4.368E+02 | 4.659E+02 | 2.304E-06 | 1.815E-07 | 1.83E-01 | 6.227E+01 | 6.213E+01 | 4.462E+02 | 2.512E-06 | 8.426E-06 | 1.989E-01 |
| 65 | 2.77E-02 | 4.305E+02 | 4.296E+02 | 4.582E+02 | 2.381E-06 | 1.708E-07 | 1.72E-01 | 6.946E+01 | 6.932E+01 | 4.977E+02 | 2.019E-06 | 7.395E-06 | 2.082E-01 |
| 70 | 2.92E-02 | 4.231E+02 | 4.221E+02 | 4.503E+02 | 2.466E-06 | 1.580E-07 | 1.61E-01 | 7.695E+01 | 7.681E+01 | 5.513E+02 | 1.645E-06 | 6.454E-06 | 2.158E-01 |
| 75 | 3.06E-02 | 4.153E+02 | 4.144E+02 | 4.420E+02 | 2.559E-06 | 1.430E-07 | 1.50E-01 | 8.468E+01 | 8.454E+01 | 6.067E+02 | 1.358E-06 | 5.629E-06 | 2.219E-01 |
| 80 | 3.18E-02 | 4.074E+02 | 4.065E+02 | 4.336E+02 | 2.659E-06 | 1.255E-07 | 1.40E-01 | 9.259E+01 | 9.245E+01 | 6.634E+02 | 1.136E-06 | 4.921E-06 | 2.262E-01 |
| 85 | 3.28E-02 | 3.994E+02 | 3.984E+02 | 4.251E+02 | 2.767E-06 | 1.052E-07 | 1.30E-01 | 1.006E+02 | 1.005E+02 | 7.210E+02 | 9.618E-07 | 4.320E-06 | 2.288E-01 |
| 90 | 3.36E-02 | 3.913E+02 | 3.903E+02 | 4.164E+02 | 2.883E-06 | 8.185E-08 | 1.21E-01 | 1.087E+02 | 1.086E+02 | 7.790E+02 | 8.239E-07 | 3.814E-06 | 2.297E-01 |
| 95 | 3.42E-02 | 3.832E+02 | 3.822E+02 | 4.078E+02 | 3.006E-06 | 5.516E-08 | 1.12E-01 | 1.168E+02 | 1.167E+02 | 8.371E+02 | 7.136E-07 | 3.388E-06 | 2.288E-01 |
| 100 | 3.45E-02 | 3.751E+02 | 3.742E+02 | 3.993E+02 | 3.136E-06 | 2.496E-08 | 1.04E-01 | 1.249E+02 | 1.247E+02 | 8.946E+02 | 6.247E-07 | 3.030E-06 | 2.262E-01 |
| 105 | 3.46E-02 | 3.672E+02 | 3.663E+02 | 3.908E+02 | 3.273E-06 | -8.894E-09 | 9.57E-02 | 1.328E+02 | 1.326E+02 | 9.513E+02 | 5.524E-07 | 2.729E-06 | 2.219E-01 |
| 110 | 3.44E-02 | 3.595E+02 | 3.586E+02 | 3.826E+02 | 3.415E-06 | -4.645E-08 | 8.80E-02 | 1.405E+02 | 1.404E+02 | 1.007E+03 | 4.933E-07 | 2.475E-06 | 2.158E-01 |
| 115 | 3.39E-02 | 3.520E+02 | 3.511E+02 | 3.746E+02 | 3.562E-06 | -8.763E-08 | 8.06E-02 | 1.480E+02 | 1.479E+02 | 1.060E+03 | 4.447E-07 | 2.260E-06 | 2.082E-01 |
| 120 | 3.31E-02 | 3.448E+02 | 3.439E+02 | 3.670E+02 | 3.712E-06 | -1.322E-07 | 7.34E-02 | 1.552E+02 | 1.550E+02 | 1.112E+03 | 4.044E-07 | 2.079E-06 | 1.989E-01 |
| 125 | 3.19E-02 | 3.380E+02 | 3.370E+02 | 3.597E+02 | 3.864E-06 | -1.797E-07 | 6.65E-02 | 1.620E+02 | 1.619E+02 | 1.161E+03 | 3.710E-07 | 1.926E-06 | 1.882E-01 |
| 130 | 3.04E-02 | 3.315E+02 | 3.306E+02 | 3.529E+02 | 4.015E-06 | -2.236E-07 | 5.98E-02 | 1.685E+02 | 1.683E+02 | 1.207E+03 | 3.432E-07 | 1.797E-06 | 1.760E-01 |
| 135 | 2.86E-02 | 3.256E+02 | 3.246E+02 | 3.465E+02 | 4.164E-06 | -2.809E-07 | 5.34E-02 | 1.744E+02 | 1.743E+02 | 1.250E+03 | 3.201E-07 | 1.688E-06 | 1.624E-01 |
| 140 | 2.64E-02 | 3.201E+02 | 3.192E+02 | 3.407E+02 | 4.308E-06 | -3.327E-07 | 4.70E-02 | 1.799E+02 | 1.798E+02 | 1.289E+03 | 3.009E-07 | 1.597E-06 | 1.476E-01 |
| 145 | 2.40E-02 | 3.152E+02 | 3.142E+02 | 3.354E+02 | 4.444E-06 | -3.836E-07 | 4.08E-02 | 1.848E+02 | 1.847E+02 | 1.324E+03 | 2.851E-07 | 1.520E-06 | 1.317E-01 |
| 150 | 2.12E-02 | 3.108E+02 | 3.099E+02 | 3.308E+02 | 4.569E-06 | -4.322E-07 | 3.48E-02 | 1.892E+02 | 1.891E+02 | 1.356E+03 | 2.721E-07 | 1.457E-06 | 1.148E-01 |
| 155 | 1.81E-02 | 3.071E+02 | 3.061E+02 | 3.268E+02 | 4.681E-06 | -4.769E-07 | 2.88E-02 | 1.929E+02 | 1.928E+02 | 1.382E+03 | 2.616E-07 | 1.406E-06 | 9.707E-02 |
| 160 | 1.48E-02 | 3.040E+02 | 3.030E+02 | 3.235E+02 | 4.777E-06 | -5.162E-07 | 2.30E-02 | 1.960E+02 | 1.959E+02 | 1.405E+03 | 2.534E-07 | 1.366E-06 | 7.856E-02 |
| 165 | 1.13E-02 | 3.015E+02 | 3.006E+02 | 3.209E+02 | 4.855E-06 | -5.486E-07 | 1.72E-02 | 1.985E+02 | 1.983E+02 | 1.422E+03 | 2.472E-07 | 1.336E-06 | 5.945E-02 |
| 170 | 7.62E-03 | 2.998E+02 | 2.988E+02 | 3.190E+02 | 4.912E-06 | -5.728E-07 | 1.14E-02 | 2.002E+02 | 2.001E+02 | 1.435E+03 | 2.429E-07 | 1.314E-06 | 3.989E-02 |
| 175 | 3.84E-03 | 2.987E+02 | 2.978E+02 | 3.179E+02 | 4.947E-06 | -5.877E-07 | 5.70E-03 | 2.013E+02 | 2.012E+02 | 1.442E+03 | 2.404E-07 | 1.302E-06 | 2.002E-02 |
| 180 | 0. | 2.984E+02 | 2.974E+02 | 3.175E+02 | 4.959E-06 | -5.927E-07 | 0. | 2.016E+02 | 2.015E+02 | 1.445E+03 | 2.395E-07 | 1.298E-06 | 0. |

DELTA(1236) => NEUTRON + PI PLUS AT 750 GEV/C
(1) (2) (3) P1 LAB

M1 = 1.23600E+00 M2 = 9.39553E-01 M3 = 1.39569E-01
P2CM= 2.29699E-01
E2CM= 9.67223E-01 E3CM= 2.68777E-01

1-V1LAB= 1.358E-06 GCM = 6.06797E+02 S = 1.52770E+00

| θ2 CM | θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 7.263E+02 | 7.253E+02 | 7.730E+02 | 8.367E-07 | 1.000E-07 | 0. | 2.371E+01 | 2.357E+01 | 1.699E+02 | 1.732E-05 | -9.384E-05 | 0. |
| 1 | 3.16E-04 | 7.263E+02 | 7.253E+02 | 7.730E+02 | 8.368E-07 | 1.000E-07 | 9.68E-03 | 2.373E+01 | 2.359E+01 | 1.701E+02 | 1.729E-05 | -9.349E-05 | 4.009E-03 |
| 2 | 6.32E-04 | 7.262E+02 | 7.253E+02 | 7.729E+02 | 8.369E-07 | 1.000E-07 | 1.93E-02 | 2.380E+01 | 2.366E+01 | 1.705E+02 | 1.720E-05 | -9.245E-05 | 8.016E-03 |
| 3 | 9.49E-04 | 7.261E+02 | 7.252E+02 | 7.728E+02 | 8.372E-07 | 9.999E-08 | 2.88E-02 | 2.390E+01 | 2.376E+01 | 1.713E+02 | 1.705E-05 | -9.074E-05 | 1.202E-02 |
| 4 | 1.26E-03 | 7.259E+02 | 7.250E+02 | 7.727E+02 | 8.375E-07 | 9.997E-08 | 3.82E-02 | 2.405E+01 | 2.391E+01 | 1.723E+02 | 1.684E-05 | -8.841E-05 | 1.602E-02 |
| 5 | 1.58E-03 | 7.258E+02 | 7.248E+02 | 7.725E+02 | 8.380E-07 | 9.993E-08 | 4.73E-02 | 2.424E+01 | 2.410E+01 | 1.737E+02 | 1.657E-05 | -8.551E-05 | 2.002E-02 |
| 6 | 1.90E-03 | 7.255E+02 | 7.246E+02 | 7.722E+02 | 8.385E-07 | 9.989E-08 | 5.62E-02 | 2.448E+01 | 2.434E+01 | 1.754E+02 | 1.626E-05 | -8.211E-05 | 2.401E-02 |
| 7 | 2.21E-03 | 7.252E+02 | 7.243E+02 | 7.719E+02 | 8.391E-07 | 9.985E-08 | 6.48E-02 | 2.475E+01 | 2.461E+01 | 1.773E+02 | 1.590E-05 | -7.828E-05 | 2.799E-02 |
| 8 | 2.53E-03 | 7.249E+02 | 7.240E+02 | 7.716E+02 | 8.399E-07 | 9.979E-08 | 7.31E-02 | 2.507E+01 | 2.493E+01 | 1.796E+02 | 1.550E-05 | -7.410E-05 | 3.197E-02 |
| 9 | 2.84E-03 | 7.246E+02 | 7.236E+02 | 7.712E+02 | 8.407E-07 | 9.973E-08 | 8.10E-02 | 2.543E+01 | 2.529E+01 | 1.822E+02 | 1.506E-05 | -6.965E-05 | 3.593E-02 |
| 10 | 3.16E-03 | 7.242E+02 | 7.232E+02 | 7.708E+02 | 8.416E-07 | 9.966E-08 | 8.85E-02 | 2.583E+01 | 2.569E+01 | 1.851E+02 | 1.460E-05 | -6.501E-05 | 3.989E-02 |
| 15 | 4.72E-03 | 7.215E+02 | 7.206E+02 | 7.680E+02 | 8.478E-07 | 9.920E-08 | 1.20E-01 | 2.846E+01 | 2.832E+01 | 2.039E+02 | 1.202E-05 | -4.155E-05 | 5.945E-02 |
| 20 | 6.27E-03 | 7.179E+02 | 7.169E+02 | 7.641E+02 | 8.565E-07 | 9.853E-08 | 1.40E-01 | 3.212E+01 | 3.198E+01 | 2.301E+02 | 9.442E-06 | -2.210E-05 | 7.856E-02 |
| 25 | 7.80E-03 | 7.132E+02 | 7.123E+02 | 7.591E+02 | 8.677E-07 | 9.762E-08 | 1.51E-01 | 3.677E+01 | 3.663E+01 | 2.635E+02 | 7.203E-06 | -8.948E-06 | 9.707E-02 |
| 30 | 9.30E-03 | 7.076E+02 | 7.067E+02 | 7.531E+02 | 8.815E-07 | 9.644E-08 | 1.55E-01 | 4.239E+01 | 4.225E+01 | 3.037E+02 | 5.421E-06 | -1.290E-06 | 1.148E-01 |
| 35 | 1.08E-02 | 7.011E+02 | 7.001E+02 | 7.462E+02 | 8.980E-07 | 9.495E-08 | 1.54E-01 | 4.892E+01 | 4.878E+01 | 3.505E+02 | 4.070E-06 | 2.606E-06 | 1.317E-01 |
| 40 | 1.22E-02 | 6.937E+02 | 6.927E+02 | 7.383E+02 | 9.173E-07 | 9.310E-08 | 1.50E-01 | 5.632E+01 | 5.618E+01 | 4.035E+02 | 3.070E-06 | 4.266E-06 | 1.476E-01 |
| 45 | 1.36E-02 | 6.855E+02 | 6.845E+02 | 7.296E+02 | 9.394E-07 | 9.082E-08 | 1.44E-01 | 6.454E+01 | 6.440E+01 | 4.624E+02 | 2.339E-06 | 4.722E-06 | 1.624E-01 |
| 50 | 1.49E-02 | 6.765E+02 | 6.756E+02 | 7.200E+02 | 9.644E-07 | 8.804E-08 | 1.37E-01 | 7.350E+01 | 7.336E+01 | 5.266E+02 | 1.803E-06 | 4.590E-06 | 1.760E-01 |
| 55 | 1.62E-02 | 6.669E+02 | 6.659E+02 | 7.098E+02 | 9.925E-07 | 8.469E-08 | 1.30E-01 | 8.315E+01 | 8.301E+01 | 5.957E+02 | 1.409E-06 | 4.207E-06 | 1.882E-01 |
| 60 | 1.74E-02 | 6.566E+02 | 6.557E+02 | 6.988E+02 | 1.024E-06 | 8.068E-08 | 1.22E-01 | 9.340E+01 | 9.326E+01 | 6.692E+02 | 1.116E-06 | 3.745E-06 | 1.989E-01 |
| 65 | 1.85E-02 | 6.458E+02 | 6.449E+02 | 6.874E+02 | 1.058E-06 | 7.589E-08 | 1.14E-01 | 1.042E+02 | 1.040E+02 | 7.465E+02 | 8.972E-07 | 3.287E-06 | 2.082E-01 |
| 70 | 1.95E-02 | 6.346E+02 | 6.336E+02 | 6.754E+02 | 1.096E-06 | 7.022E-08 | 1.07E-01 | 1.154E+02 | 1.153E+02 | 8.270E+02 | 7.311E-07 | 2.869E-06 | 2.158E-01 |
| 75 | 2.04E-02 | 6.230E+02 | 6.220E+02 | 6.631E+02 | 1.137E-06 | 6.356E-08 | 1.00E-01 | 1.270E+02 | 1.269E+02 | 9.101E+02 | 6.037E-07 | 2.502E-06 | 2.219E-01 |
| 80 | 2.12E-02 | 6.111E+02 | 6.102E+02 | 6.504E+02 | 1.182E-06 | 5.578E-08 | 9.33E-02 | 1.389E+02 | 1.388E+02 | 9.951E+02 | 5.049E-07 | 2.187E-06 | 2.262E-01 |
| 85 | 2.19E-02 | 5.991E+02 | 5.981E+02 | 6.376E+02 | 1.230E-06 | 4.676E-08 | 8.69E-02 | 1.509E+02 | 1.508E+02 | 1.082E+03 | 4.275E-07 | 1.920E-06 | 2.288E-01 |
| 90 | 2.24E-02 | 5.869E+02 | 5.860E+02 | 6.247E+02 | 1.281E-06 | 3.638E-08 | 8.07E-02 | 1.631E+02 | 1.630E+02 | 1.169E+03 | 3.662E-07 | 1.695E-06 | 2.297E-01 |
| 95 | 2.28E-02 | 5.748E+02 | 5.738E+02 | 6.117E+02 | 1.336E-06 | 2.452E-08 | 7.48E-02 | 1.752E+02 | 1.751E+02 | 1.256E+03 | 3.172E-07 | 1.506E-06 | 2.288E-01 |
| 100 | 2.30E-02 | 5.627E+02 | 5.618E+02 | 5.989E+02 | 1.394E-06 | 1.109E-08 | 6.92E-02 | 1.873E+02 | 1.872E+02 | 1.342E+03 | 2.776E-07 | 1.347E-06 | 2.262E-01 |
| 105 | 2.31E-02 | 5.508E+02 | 5.499E+02 | 5.863E+02 | 1.455E-06 | -3.953E-09 | 6.38E-02 | 1.992E+02 | 1.990E+02 | 1.427E+03 | 2.455E-07 | 1.213E-06 | 2.219E-01 |
| 110 | 2.29E-02 | 5.392E+02 | 5.383E+02 | 5.739E+02 | 1.518E-06 | -2.065E-08 | 5.87E-02 | 2.108E+02 | 2.106E+02 | 1.510E+03 | 2.193E-07 | 1.100E-06 | 2.158E-01 |
| 115 | 2.26E-02 | 5.280E+02 | 5.271E+02 | 5.620E+02 | 1.583E-06 | -3.895E-08 | 5.37E-02 | 2.220E+02 | 2.219E+02 | 1.591E+03 | 1.976E-07 | 1.005E-06 | 2.082E-01 |
| 120 | 2.20E-02 | 5.172E+02 | 5.163E+02 | 5.505E+02 | 1.650E-06 | -5.875E-08 | 4.90E-02 | 2.328E+02 | 2.326E+02 | 1.668E+03 | 1.797E-07 | 9.241E-07 | 1.989E-01 |
| 125 | 2.13E-02 | 5.070E+02 | 5.060E+02 | 5.396E+02 | 1.717E-06 | -7.988E-08 | 4.44E-02 | 2.430E+02 | 2.429E+02 | 1.741E+03 | 1.649E-07 | 8.561E-07 | 1.882E-01 |
| 130 | 2.03E-02 | 4.973E+02 | 4.964E+02 | 5.293E+02 | 1.785E-06 | -1.020E-07 | 3.99E-02 | 2.527E+02 | 2.525E+02 | 1.810E+03 | 1.525E-07 | 7.986E-07 | 1.760E-01 |
| 135 | 1.91E-02 | 4.884E+02 | 4.874E+02 | 5.198E+02 | 1.851E-06 | -1.249E-07 | 3.56E-02 | 2.616E+02 | 2.615E+02 | 1.875E+03 | 1.423E-07 | 7.502E-07 | 1.624E-01 |
| 140 | 1.76E-02 | 4.801E+02 | 4.792E+02 | 5.110E+02 | 1.915E-06 | -1.479E-07 | 3.13E-02 | 2.699E+02 | 2.697E+02 | 1.934E+03 | 1.337E-07 | 7.096E-07 | 1.476E-01 |
| 145 | 1.60E-02 | 4.727E+02 | 4.718E+02 | 5.031E+02 | 1.975E-06 | -1.705E-07 | 2.72E-02 | 2.773E+02 | 2.771E+02 | 1.987E+03 | 1.267E-07 | 6.757E-07 | 1.317E-01 |
| 150 | 1.41E-02 | 4.662E+02 | 4.653E+02 | 4.962E+02 | 2.031E-06 | -1.921E-07 | 2.32E-02 | 2.838E+02 | 2.837E+02 | 2.033E+03 | 1.209E-07 | 6.477E-07 | 1.148E-01 |
| 155 | 1.21E-02 | 4.606E+02 | 4.596E+02 | 4.902E+02 | 2.081E-06 | -2.120E-07 | 1.92E-02 | 2.894E+02 | 2.893E+02 | 2.074E+03 | 1.163E-07 | 6.251E-07 | 9.707E-02 |
| 160 | 9.87E-03 | 4.559E+02 | 4.550E+02 | 4.853E+02 | 2.123E-06 | -2.294E-07 | 1.53E-02 | 2.941E+02 | 2.939E+02 | 2.107E+03 | 1.126E-07 | 6.072E-07 | 7.856E-02 |
| 165 | 7.53E-03 | 4.523E+02 | 4.513E+02 | 4.814E+02 | 2.158E-06 | -2.438E-07 | 1.14E-02 | 2.977E+02 | 2.976E+02 | 2.133E+03 | 1.099E-07 | 5.936E-07 | 5.945E-02 |
| 170 | 5.08E-03 | 4.496E+02 | 4.487E+02 | 4.786E+02 | 2.183E-06 | -2.546E-07 | 7.61E-03 | 3.004E+02 | 3.002E+02 | 2.152E+03 | 1.080E-07 | 5.841E-07 | 3.989E-02 |
| 175 | 2.56E-03 | 4.481E+02 | 4.471E+02 | 4.769E+02 | 2.199E-06 | -2.612E-07 | 3.80E-03 | 3.019E+02 | 3.018E+02 | 2.163E+03 | 1.068F-07 | 5.785E-07 | 2.002E-02 |
| 180 | 0. | 4.475E+02 | 4.466E+02 | 4.763E+02 | 2.204E-06 | -2.634E-07 | 0. | 3.025E+02 | 3.023E+02 | 2.167E+03 | 1.065E-07 | 5.767E-07 | 0. |

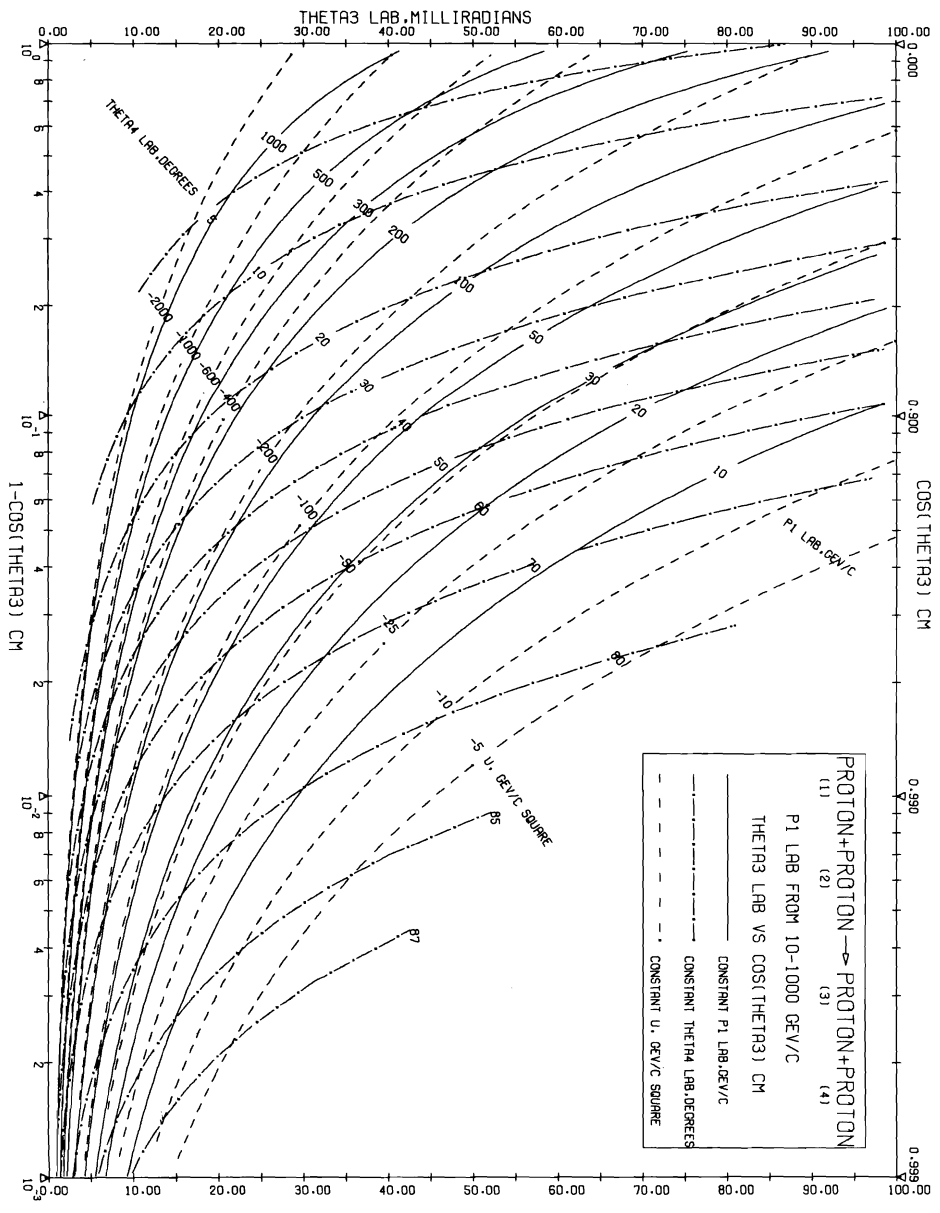
DELTA(1236) => NEUTRON + PI PLUS AT 1000 GEV/C
(1) (2) (3) P1 LAB

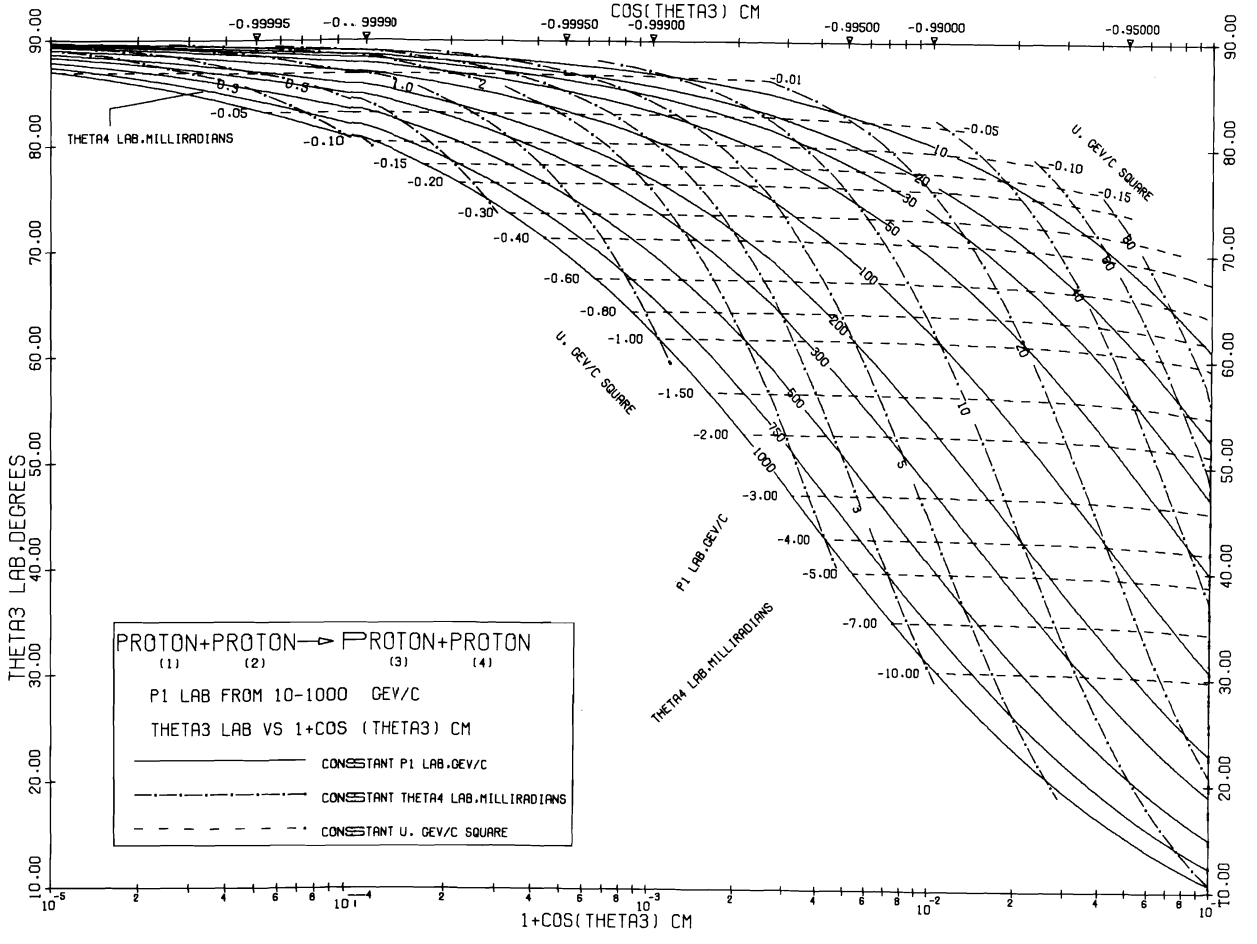
M1 = 1.23600E+00 M2 = 9.39553E-01 M3 = 1.39569E-01
P2CM= 2.29699E-01
E2CM= 9.67223E-01 E3CM= 2.68777E-01

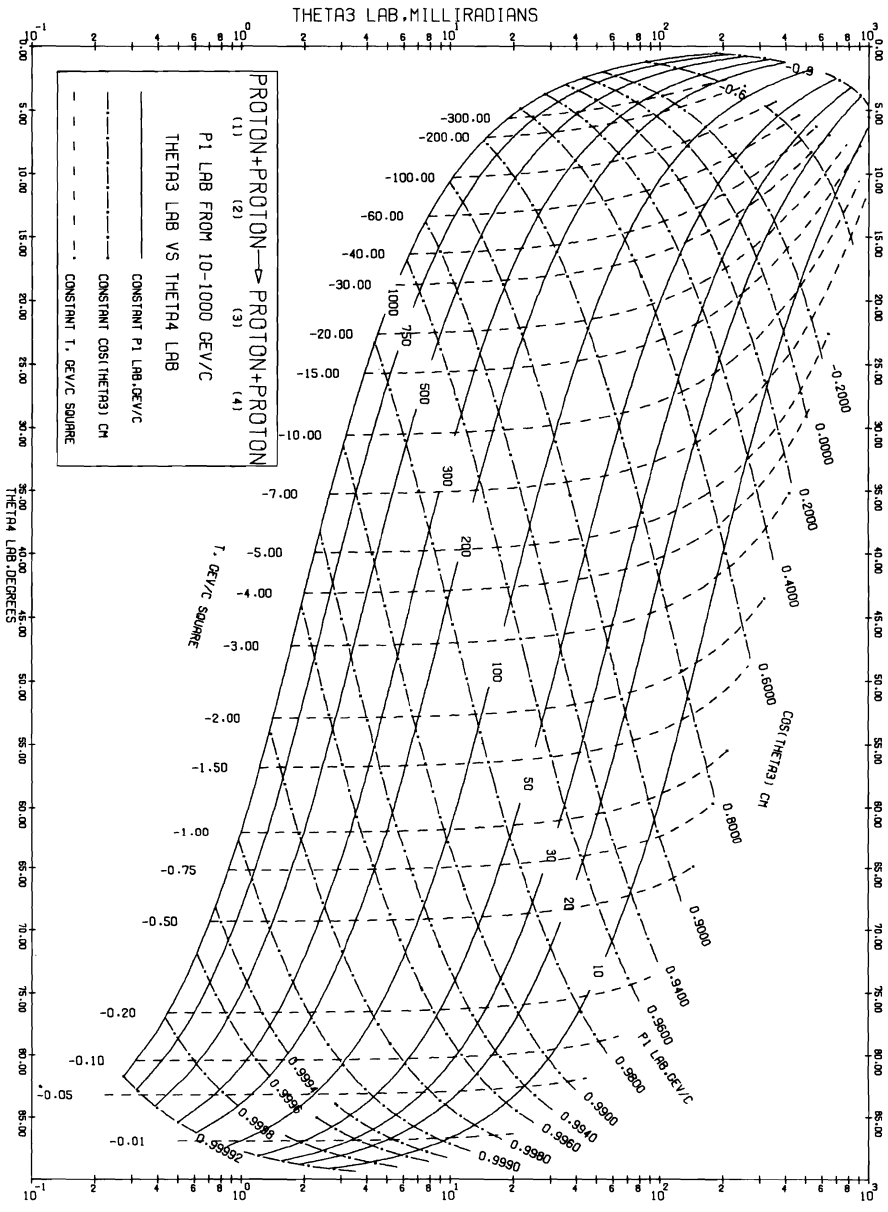
1-V1LAB= 7.638E-07 GCM = 8.09062E+02 S = 1.52770E+00

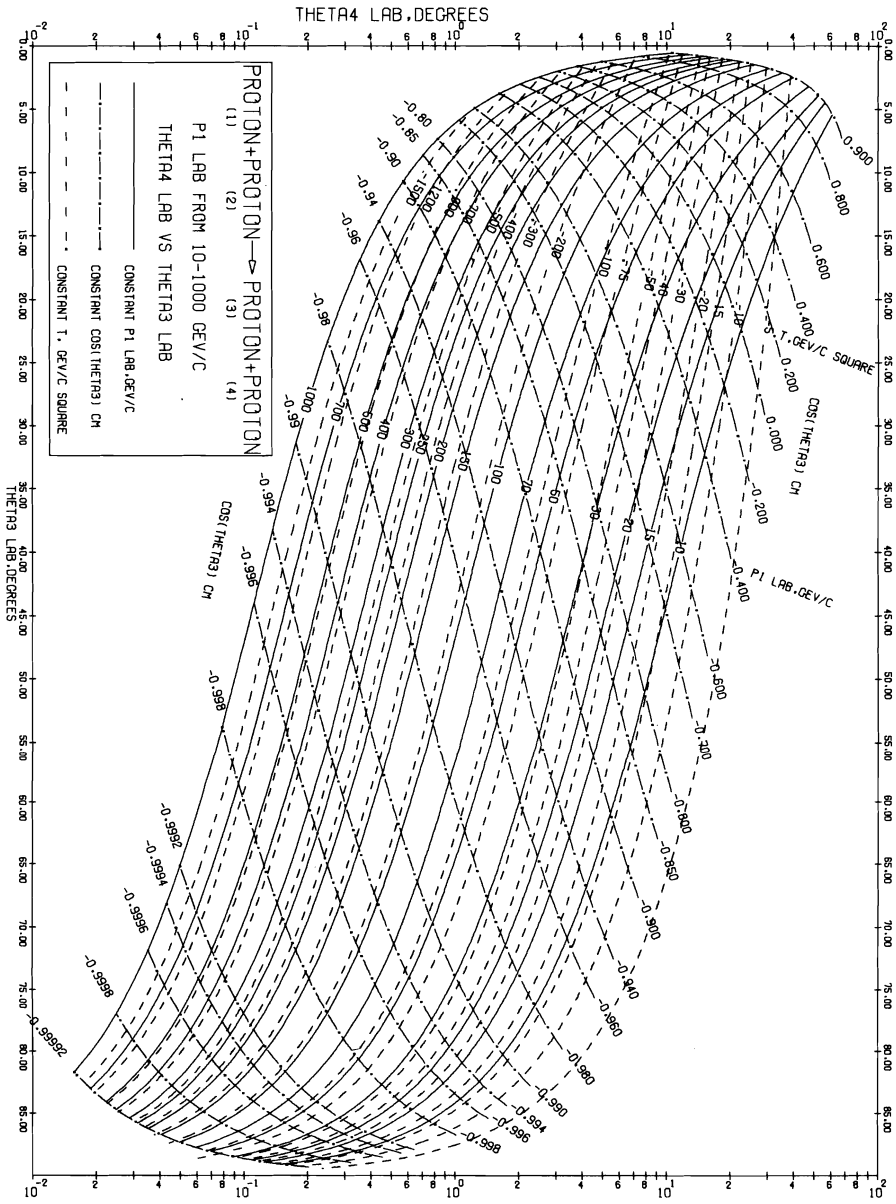
| Θ2 CM | Θ2 LAB | P2 LAB | T2 LAB | GAMMA2 LAB | 1-V2 LAB | JACOBIAN 2 | Θ3 LAB | P3 LAB | T3 LAB | GAMMA3 LAB | 1-V3 LAB | JACOBIAN 3 | TRANSV MOMENTUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0. | 9.684E+02 | 9.674E+02 | 1.031E+03 | 4.707E-07 | 5.626E-08 | 0. | 3.1[illegible]62E+01 | 3.148E+01 | 2.265E+02 | 9.744E-06 | -5.278E-05 | 0. |
| 1 | 2.37E-04 | 9.684E+02 | 9.674E+02 | 1.031E+03 | 4.707E-07 | 5.626E-08 | 7.26E-03 | 3.1[illegible]64E+01 | 3.151E+01 | 2.267E+02 | 9.726E-06 | -5.259E-05 | 4.009E-03 |
| 2 | 4.74E-04 | 9.683E+02 | 9.673E+02 | 1.031E+03 | 4.708E-07 | 5.625E-08 | 1.45E-02 | 3.1[illegible]73E+01 | 3.159E+01 | 2.273E+02 | 9.674E-06 | -5.200E-05 | 8.016E-03 |
| 3 | 7.11E-04 | 9.681E+02 | 9.672E+02 | 1.030E+03 | 4.709E-07 | 5.624E-08 | 2.16E-02 | 3.1[illegible]87E+01 | 3.173E+01 | 2.284E+02 | 9.588E-06 | -5.104E-05 | 1.202E-02 |
| 4 | 9.48E-04 | 9.679E+02 | 9.670E+02 | 1.030E+03 | 4.711E-07 | 5.623E-08 | 2.86E-02 | 3.2[illegible]07E+01 | 3.193E+01 | 2.298E+02 | 9.470E-06 | -4.973E-05 | 1.602E-02 |
| 5 | 1.19E-03 | 9.677E+02 | 9.667E+02 | 1.030E+03 | 4.714E-07 | 5.621E-08 | 3.55E-02 | 3.2[illegible]32E+01 | 3.218E+01 | 2.316E+02 | 9.322E-06 | -4.810E-05 | 2.002E-02 |
| 6 | 1.42E-03 | 9.674E+02 | 9.664E+02 | 1.030E+03 | 4.717E-07 | 5.619E-08 | 4.22E-02 | 3.2[illegible]63E+01 | 3.250E+01 | 2.338E+02 | 9.145E-06 | -4.619E-05 | 2.401E-02 |
| 7 | 1.66E-03 | 9.670E+02 | 9.661E+02 | 1.029E+03 | 4.720E-07 | 5.616E-08 | 4.86E-02 | 3.3[illegible]00E+01 | 3.286E+01 | 2.365E+02 | 8.943E-06 | -4.403E-05 | 2.799E-02 |
| 8 | 1.89E-03 | 9.666E+02 | 9.656E+02 | 1.029E+03 | 4.724E-07 | 5.613E-08 | 5.48E-02 | 3.3[illegible]43E+01 | 3.329E+01 | 2.395E+02 | 8.718E-06 | -4.168E-05 | 3.197E-02 |
| 9 | 2.13E-03 | 9.661E+02 | 9.652E+02 | 1.028E+03 | 4.729E-07 | 5.610E-08 | 6.07E-02 | 3.3[illegible]90E+01 | 3.377E+01 | 2.429E+02 | 8.473E-06 | -3.918E-05 | 3.593E-02 |
| 10 | 2.37E-03 | 9.656E+02 | 9.646E+02 | 1.028E+03 | 4.734E-07 | 5.606E-08 | 6.64E-02 | 3.4[illegible]44E+01 | 3.430E+01 | 2.468E+02 | 8.211E-06 | -3.657E-05 | 3.989E-02 |
| 15 | 3.54E-03 | 9.621E+02 | 9.611E+02 | 1.024E+03 | 4.769E-07 | 5.580E-08 | 8.98E-02 | 3.7[illegible]95E+01 | 3.781E+01 | 2.719E+02 | 6.763E-06 | -2.337E-05 | 5.945E-02 |
| 20 | 4.70E-03 | 9.572E+02 | 9.562E+02 | 1.019E+03 | 4.818E-07 | 5.542E-08 | 1.05E-01 | 4.2[illegible]82E+01 | 4.268E+01 | 3.068E+02 | 5.311E-06 | -1.243E-05 | 7.856E-02 |
| 25 | 5.85E-03 | 9.510E+02 | 9.500E+02 | 1.012E+03 | 4.881E-07 | 5.491E-08 | 1.13E-01 | 4.9[illegible]03E+01 | 4.889E+01 | 3.513E+02 | 4.052E-06 | -5.033E-06 | 9.707E-02 |
| 30 | 6.97E-03 | 9.435E+02 | 9.425E+02 | 1.004E+03 | 4.958E-07 | 5.425E-08 | 1.16E-01 | 5.6[illegible]51E+01 | 5.638E+01 | 4.049E+02 | 3.049E-06 | -7.257E-07 | 1.148E-01 |
| 35 | 8.08E-03 | 9.348E+02 | 9.338E+02 | 9.949E+02 | 5.051E-07 | 5.341E-08 | 1.16E-01 | 6.5[illegible]23E+01 | 6.509E+01 | 4.673E+02 | 2.289E-06 | 1.466E-06 | 1.317E-01 |
| 40 | 9.15E-03 | 9.249E+02 | 9.240E+02 | 9.844E+02 | 5.160E-07 | 5.237E-08 | 1.13E-01 | 7.5[illegible]09E+01 | 7.496E+01 | 5.381E+02 | 1.727E-06 | 2.399E-06 | 1.476E-01 |
| 45 | 1.02E-02 | 9.140E+02 | 9.130E+02 | 9.728E+02 | 5.284E-07 | 5.109E-08 | 1.08E-01 | 8.6[illegible]05E+01 | 8.591E+01 | 6.165E+02 | 1.315E-06 | 2.656E-06 | 1.624E-01 |
| 50 | 1.12E-02 | 9.020E+02 | 9.011E+02 | 9.600E+02 | 5.425E-07 | 4.952E-08 | 1.03E-01 | 9.8[illegible]00E+01 | 9.786E+01 | 7.022E+02 | 1.014E-06 | 2.582E-06 | 1.760E-01 |
| 55 | 1.21E-02 | 8.891E+02 | 8.882E+02 | 9.463E+02 | 5.583E-07 | 4.764E-08 | 9.72E-02 | 1.1[illegible]09E+02 | 1.107E+02 | 7.943E+02 | 7.924E-07 | 2.366E-06 | 1.882E-01 |
| 60 | 1.30E-02 | 8.755E+02 | 8.745E+02 | 9.318E+02 | 5.759E-07 | 4.538E-08 | 9.15E-02 | 1.2[illegible]45E+02 | 1.244E+02 | 8.923E+02 | 6.280E-07 | 2.106E-06 | 1.989E-01 |
| 65 | 1.39E-02 | 8.611E+02 | 8.601E+02 | 9.165E+02 | 5.953E-07 | 4.269E-08 | 8.59E-02 | 1.3[illegible]89E+02 | 1.388E+02 | 9.953E+02 | 5.047E-07 | 1.849E-06 | 2.082E-01 |
| 70 | 1.46E-02 | 8.461E+02 | 8.452E+02 | 9.005E+02 | 6.165E-07 | 3.950E-08 | 8.04E-02 | 1.5[illegible]39E+02 | 1.538E+02 | 1.103E+03 | 4.112E-07 | 1.614E-06 | 2.156E-01 |
| 75 | 1.53E-02 | 8.306E+02 | 8.297E+02 | 8.841E+02 | 6.397E-07 | 3.575E-08 | 7.51E-02 | 1.6[illegible]94E+02 | 1.692E+02 | 1.213E+03 | 3.396E-07 | 1.407E-06 | 2.219E-01 |
| 80 | 1.59E-02 | 8.148E+02 | 8.139E+02 | 8.672E+02 | 6.648E-07 | 3.138E-08 | 7.00E-02 | 1.8[illegible]52E+02 | 1.850E+02 | 1.327E+03 | 2.840E-07 | 1.230E-06 | 2.262E-01 |
| 85 | 1.64E-02 | 7.987E+02 | 7.978E+02 | 8.501E+02 | 6.918E-07 | 2.630E-08 | 6.51E-02 | 2.0[illegible]13E+02 | 2.011E+02 | 1.442E+03 | 2.405E-07 | 1.080E-06 | 2.288E-01 |
| 90 | 1.68E-02 | 7.825E+02 | 7.816E+02 | 8.329E+02 | 7.208E-07 | 2.046E-08 | 6.05E-02 | 2.2[illegible]75E+02 | 2.173E+02 | 1.558E+03 | 2.060E-07 | 9.535E-07 | 2.297E-01 |
| 95 | 1.71E-02 | 7.663E+02 | 7.654E+02 | 8.157E+02 | 7.516E-07 | 1.379E-08 | 5.61E-02 | 2.3[illegible]37E+02 | 2.335E+02 | 1.674E+03 | 1.784E-07 | 8.471E-07 | 2.288E-01 |
| 100 | 1.73E-02 | 7.503E+02 | 7.493E+02 | 7.985E+02 | 7.841E-07 | 6.241E-09 | 5.19E-02 | 2.4[illegible]97E+02 | 2.496E+02 | 1.789E+03 | 1.562E-07 | 7.575E-07 | 2.262E-01 |
| 105 | 1.73E-02 | 7.344E+02 | 7.335E+02 | 7.817E+02 | 8.183E-07 | -2.224E-09 | 4.79E-02 | 2.6[illegible]56E+02 | 2.654E+02 | 1.903E+03 | 1.381E-07 | 6.822E-07 | 2.219E-01 |
| 110 | 1.72E-02 | 7.190E+02 | 7.180E+02 | 7.652E+02 | 8.538E-07 | -1.161E-08 | 4.40E-02 | 2.8[illegible]10E+02 | 2.809E+02 | 2.013E+03 | 1.233E-07 | 6.187E-07 | 2.156E-01 |
| 115 | 1.69E-02 | 7.040E+02 | 7.031E+02 | 7.493E+02 | 8.906E-07 | -2.191E-08 | 4.03E-02 | 2.9[illegible]60E+02 | 2.959E+02 | 2.121E+03 | 1.112E-07 | 5.651E-07 | 2.082E-01 |
| 120 | 1.65E-02 | 6.896E+02 | 6.887E+02 | 7.340E+02 | 9.281E-07 | -3.305E-08 | 3.67E-02 | 3.1[illegible]04E+02 | 3.102E+02 | 2.224E+03 | 1.011E-07 | 5.198E-07 | 1.989E-01 |
| 125 | 1.59E-02 | 6.759E+02 | 6.750E+02 | 7.194E+02 | 9.660E-07 | -4.493E-08 | 3.33E-02 | 3.2[illegible]41E+02 | 3.239E+02 | 2.322E+03 | 9.275E-08 | 4.815E-07 | 1.882E-01 |
| 130 | 1.52E-02 | 6.631E+02 | 6.621E+02 | 7.057E+02 | 1.004E-06 | -5.740E-08 | 2.99E-02 | 3.[illegible]369E+02 | 3.368E+02 | 2.414E+03 | 8.580E-08 | 4.492E-07 | 1.760E-01 |
| 135 | 1.43E-02 | 6.511E+02 | 6.502E+02 | 6.930E+02 | 1.041E-06 | -7.024E-08 | 2.67E-02 | 3.[illegible]489E+02 | 3.487E+02 | 2.500E+03 | 8.003E-08 | 4.220E-07 | 1.624E-01 |
| 140 | 1.32E-02 | 6.402E+02 | 6.392E+02 | 6.814E+02 | 1.077E-06 | -8.318E-08 | 2.35E-02 | 3.[illegible]598E+02 | 3.597E+02 | 2.578E+03 | 7.523E-08 | 3.991E-07 | 1.476E-01 |
| 145 | 1.20E-02 | 6.303E+02 | 6.294E+02 | 6.709E+02 | 1.111E-06 | -9.590E-08 | 2.04E-02 | 3.[illegible]697E+02 | 3.695E+02 | 2.649E+03 | 7.126E-08 | 3.801E-07 | 1.317E-01 |
| 150 | 1.06E-02 | 6.216E+02 | 6.207E+02 | 6.616E+02 | 1.142E-06 | -1.081E-07 | 1.74E-02 | 3.[illegible]784E+02 | 3.783E+02 | 2.711E+03 | 6.802E-08 | 3.644E-07 | 1.148E-01 |
| 155 | 9.06E-03 | 6.141E+02 | 6.132E+02 | 6.536E+02 | 1.170E-06 | -1.192E-07 | 1.44E-02 | 3.[illegible]859E+02 | 3.857E+02 | 2.765E+03 | 6.541E-08 | 3.516E-07 | 9.707E-02 |
| 160 | 7.40E-03 | 6.079E+02 | 6.070E+02 | 6.470E+02 | 1.194E-06 | -1.291E-07 | 1.15E-02 | 3.[illegible]921E+02 | 3.920E+02 | 2.809E+03 | 6.335E-08 | 3.415E-07 | 7.856E-02 |
| 165 | 5.65E-03 | 6.038E+02 | 6.021E+02 | 6.418E+02 | 1.214E-06 | -1.371E-07 | 8.58E-03 | 3.[illegible]970E+02 | 3.968E+02 | 2.844E+03 | 6.181E-08 | 3.339E-07 | 5.945E-02 |
| 170 | 3.81E-03 | 5.995E+02 | 5.986E+02 | 6.381E+02 | 1.228E-06 | -1.432E-07 | 5.71E-03 | 4.[illegible]005E+02 | 4.003E+02 | 2.869E+03 | 6.073E-08 | 3.286E-07 | 3.989E-02 |
| 175 | 1.92E-03 | 5.974E+02 | 5.965E+02 | 6.358E+02 | 1.237E-06 | -1.469E-07 | 2.85E-03 | 4.[illegible]026E+02 | 4.025E+02 | 2.885E+03 | 6.009E-08 | 3.254E-07 | 2.002E-02 |
| 180 | 0. | 5.967E+02 | 5.958E+02 | 6.351E+02 | 1.240E-06 | -1.482E-07 | 0. | 4.[illegible]033E+02 | 4.032E+02 | 2.890E+03 | 5.988E-08 | 3.244E-07 | 0. |

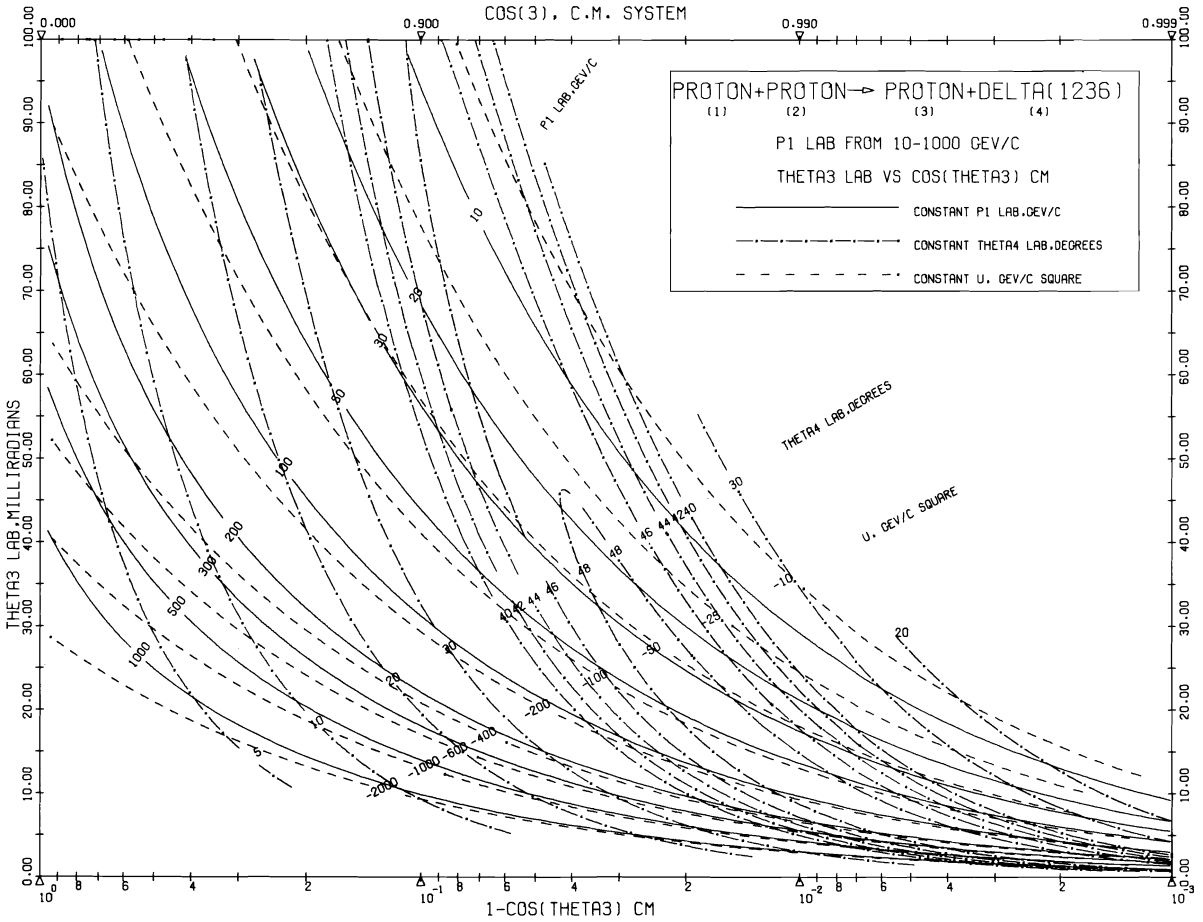
# V. PRODUCTION REACTION GRAPHS

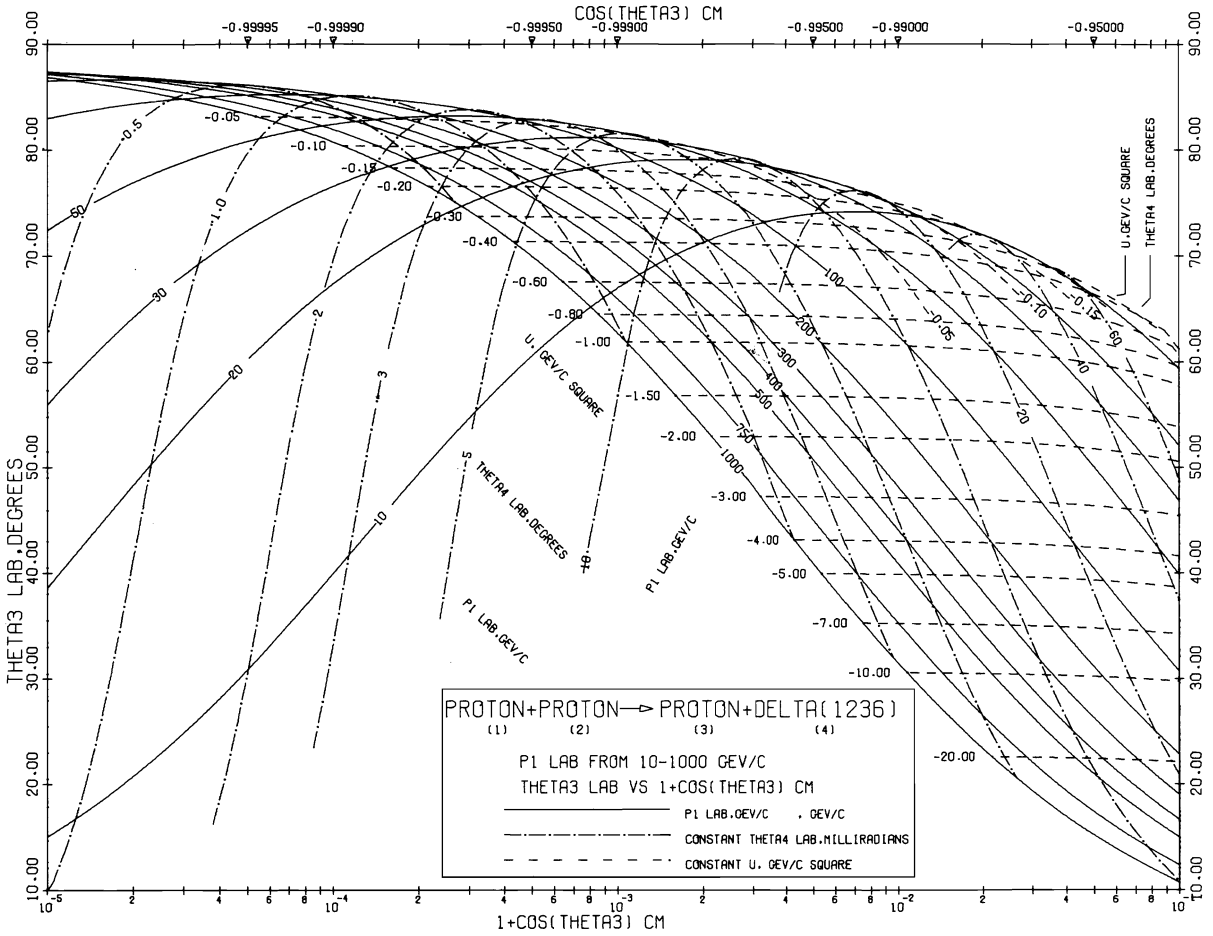

THETA3 LAB.MILLIRADIANS
1-COS(THETA3) CM
COS(THETA3) CM
THETA4 LAB.DEGREES
P1 LAB.GEV/C
-5 U. GEV/C SQUARE
PROTON+PROTON → PROTON+PROTON
(1) (2) (3) (4)
P1 LAB FROM 10-1000 GEV/C
THETA3 LAB VS COS(THETA3) CM
CONSTANT P1 LAB.GEV/C
CONSTANT THETA4 LAB.DEGREES
CONSTANT U. GEV/C SQUARE

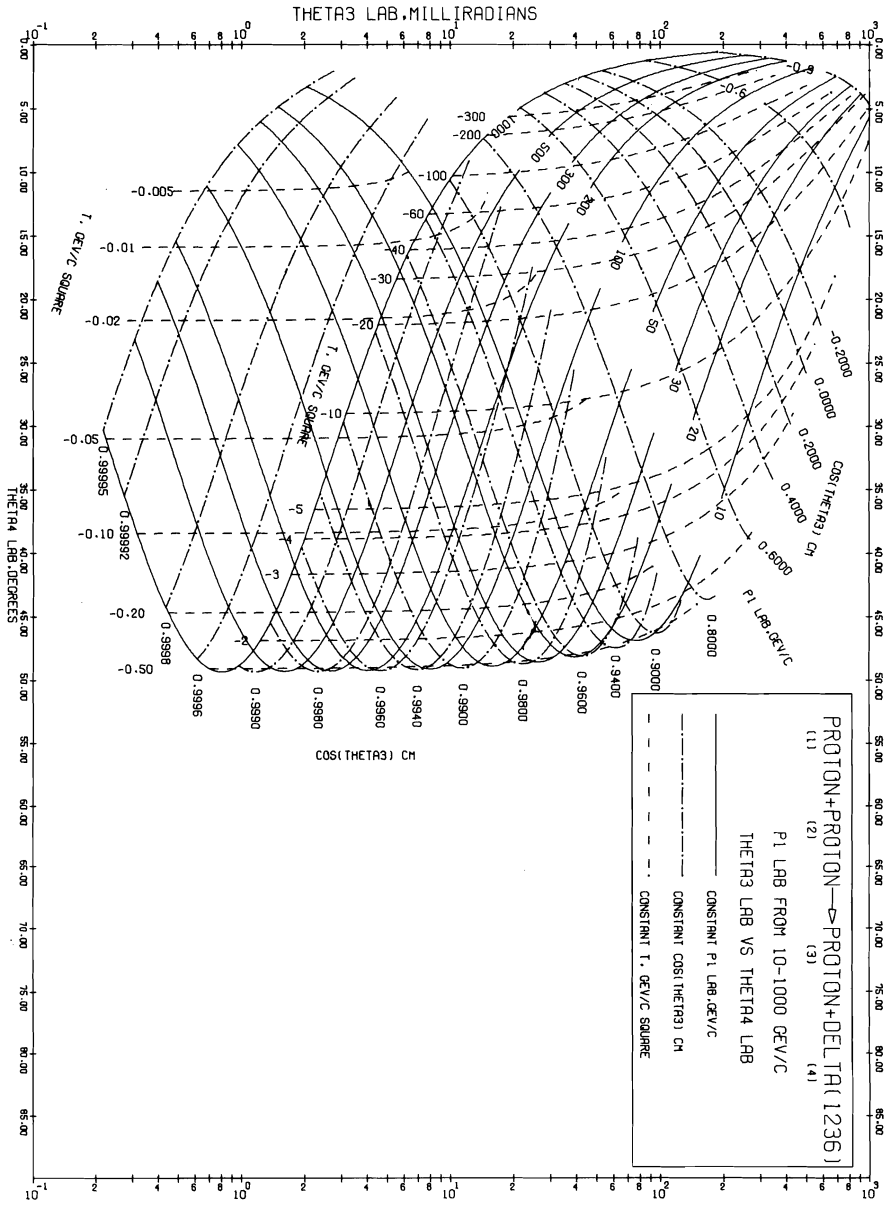

COS(THETA3) CM
-0.99995
-0.99990
-0.99950
-0.99900
-0.99500
-0.99000
-0.95000
THETA3 LAB.DEGREES
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
1+COS(THETA3) CM
THETA4 LAB.MILLIRADIANS
0.3
0.5
1.0
2
-0.05
-0.10
-0.15
-0.20
-0.30
-0.40
-0.60
-0.80
-1.00
-1.50
-2.00
-3.00
-4.00
-5.00
-7.00
-10.00
-0.01
U. GEV/C SQUARE
10
20
30
50
60
80
100
200
300
500
700
1000
3
5
7
P1 LAB.GEV/C
PROTON+PROTON→PROTON+PROTON
(1) (2) (3) (4)
P1 LAB FROM 10-1000 GEV/C
THETA3 LAB VS 1+COS (THETA3) CM
CONSTANT P1 LAB.GEV/C
CONSTANT THETA4 LAB.MILLIRADIANS
CONSTANT U. GEV/C SQUARE

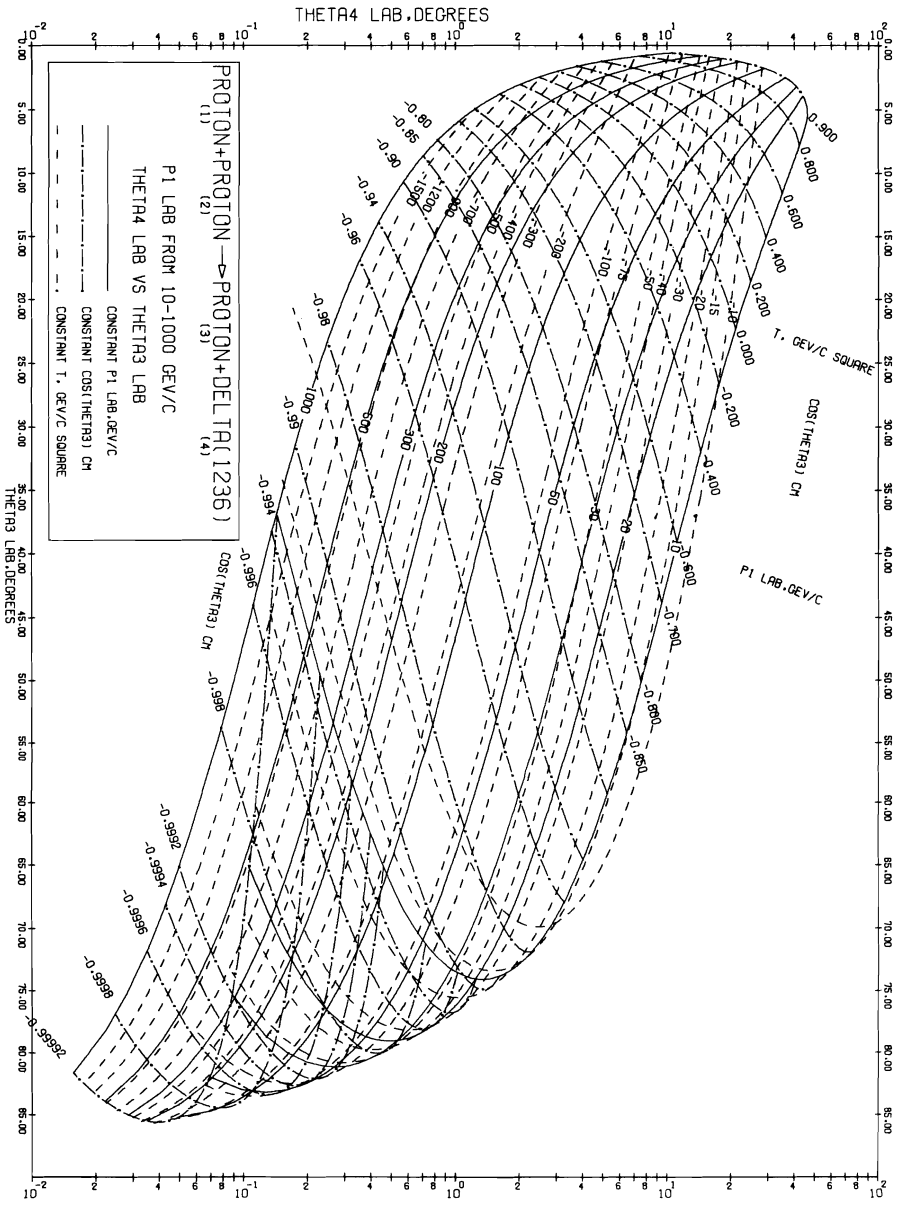

THETA3 LAB,MILLIRADIANS
THETA4 LAB,DEGREES
PROTON+PROTON—⇨ PROTON+PROTON
(1) (2) (3) (4)
P1 LAB FROM 10-1000 GEV/C
THETA3 LAB VS THETA4 LAB
CONSTANT P1 LAB,GEV/C
CONSTANT COS(THETA3) CM
CONSTANT T, GEV/C SQUARE
T, GEV/C SQUARE
COS(THETA3) CM
P1 LAB,GEV/C

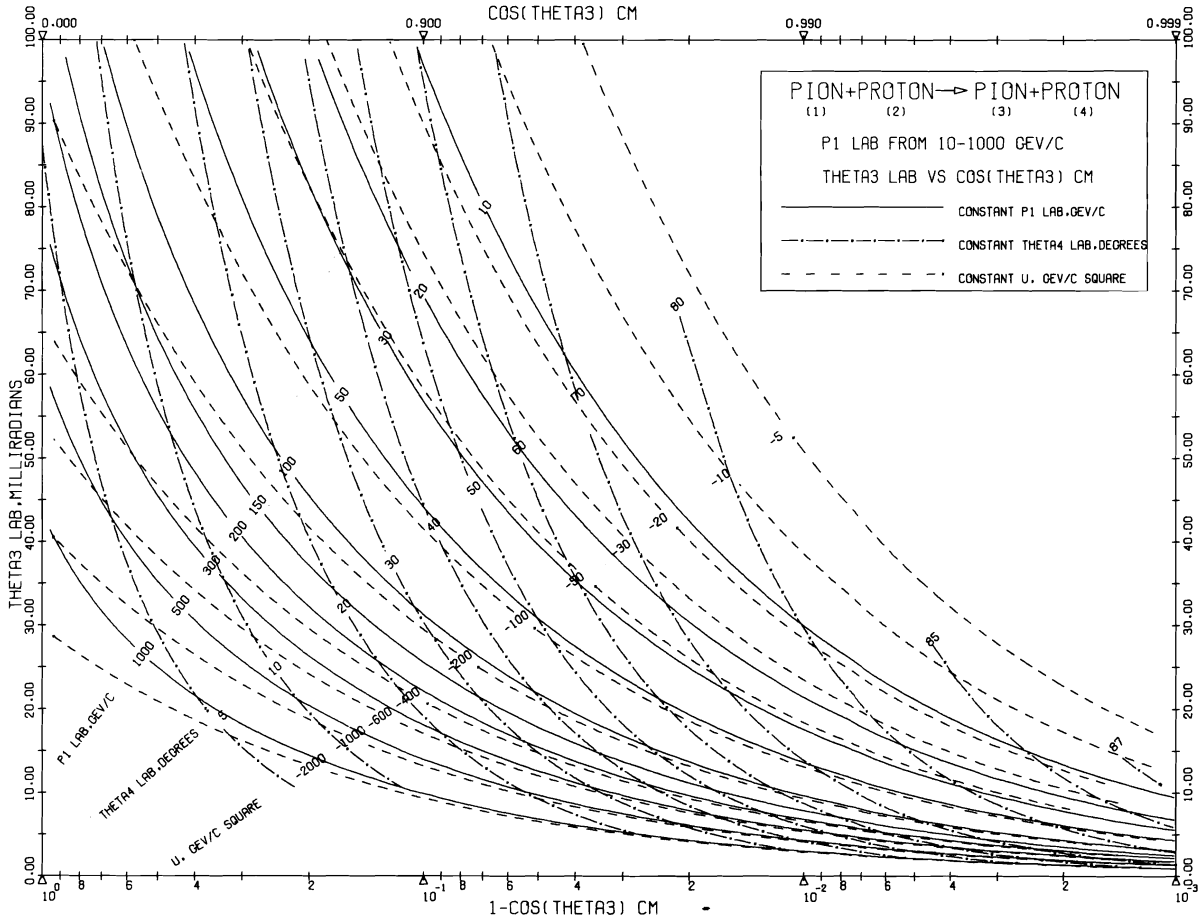

PROTON+PROTON—> PROTON+PROTON
(1) (2) (3) (4)
P1 LAB FROM 10-1000 GEV/C
THETA4 LAB VS THETA3 LAB
CONSTANT P1 LAB.GEV/C
CONSTANT COS(THETA3) CM
CONSTANT T, GEV/C SQUARE
THETA4 LAB.DEGREES
THETA3 LAB.DEGREES
COS(THETA3) CM
P1 LAB.GEV/C
T.GEV/C SQUARE

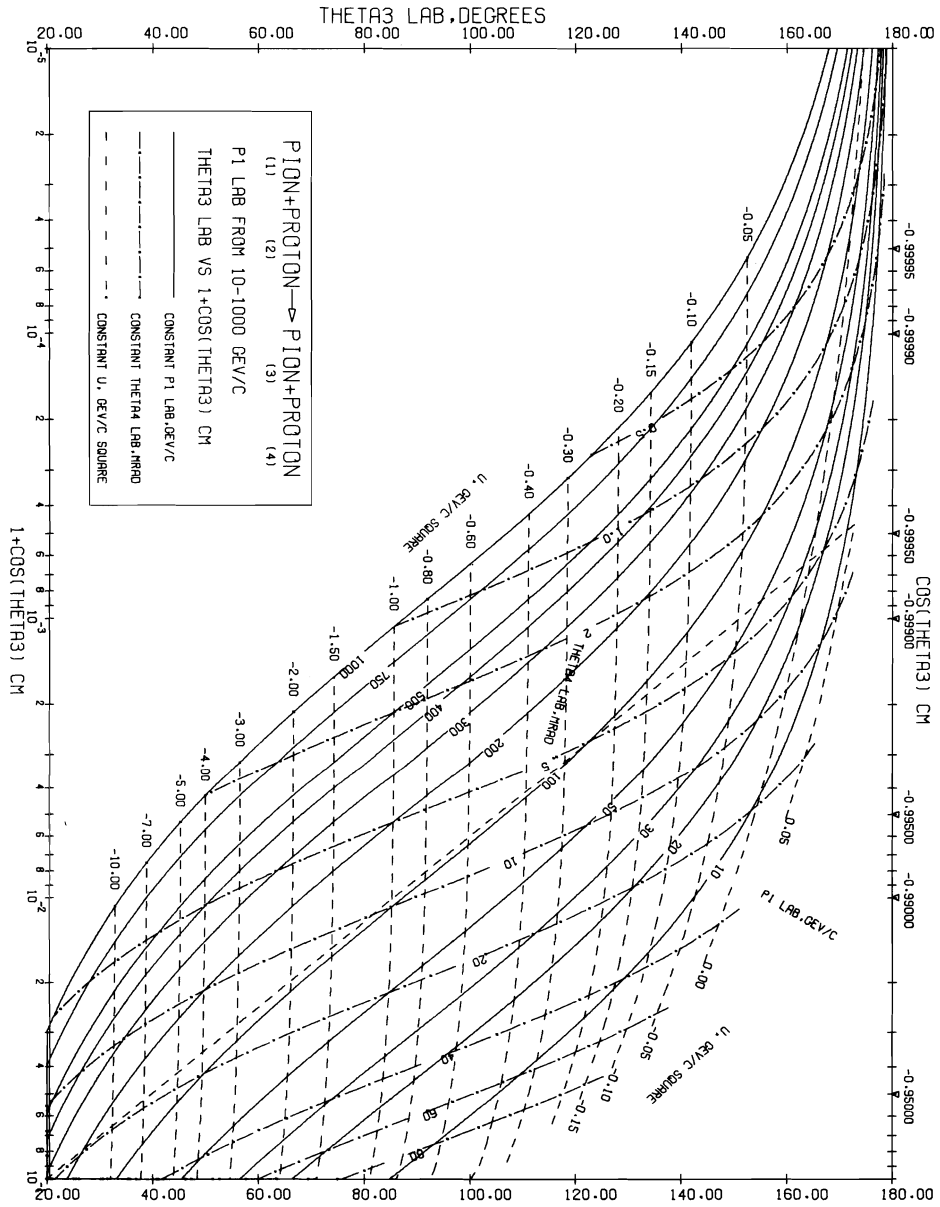

COS(3), C.M. SYSTEM
0.000
0.900
0.990
0.999
PROTON+PROTON→ PROTON+DELTA(1236)
(1) (2) (3) (4)
P1 LAB FROM 10-1000 GEV/C
THETA3 LAB VS COS(THETA3) CM
CONSTANT P1 LAB.GEV/C
CONSTANT THETA4 LAB.DEGREES
CONSTANT U, GEV/C SQUARE
P1 LAB.GEV/C
THETA4 LAB.DEGREES
U, GEV/C SQUARE
THETA3 LAB.MILLIRADIANS
1-COS(THETA3) CM

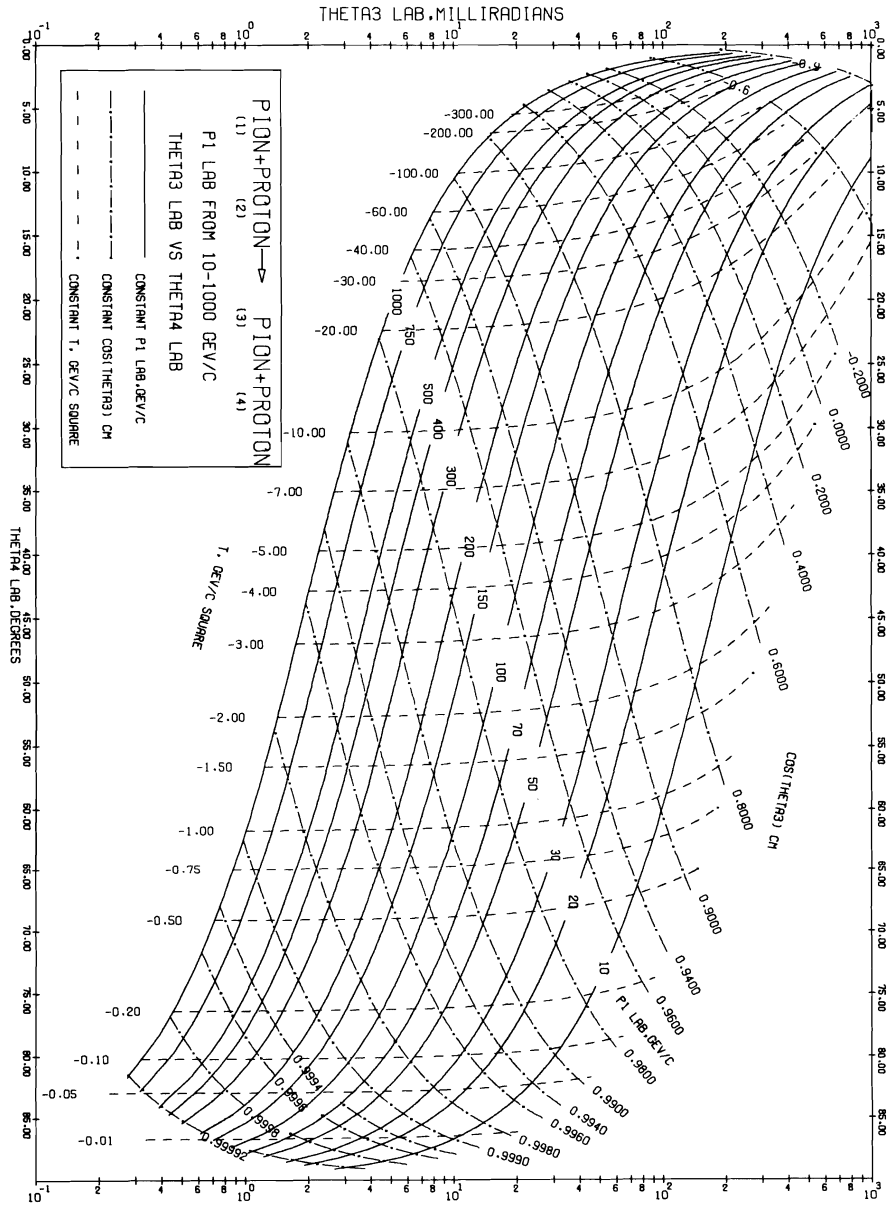

COS(THETA3) CM
-0.99995
-0.99990
-0.99950
-0.99900
-0.99500
-0.99000
-0.95000
THETA3 LAB.DEGREES
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
1+COS(THETA3) CM
U.GEV/C SQUARE
THETA4 LAB.DEGREES
P1 LAB.GEV/C
PROTON+PROTON→PROTON+DELTA(1236)
(1) (2) (3) (4)
P1 LAB FROM 10-1000 GEV/C
THETA3 LAB VS 1+COS(THETA3) CM
P1 LAB.GEV/C , GEV/C
CONSTANT THETA4 LAB.MILLIRADIANS
CONSTANT U, GEV/C SQUARE

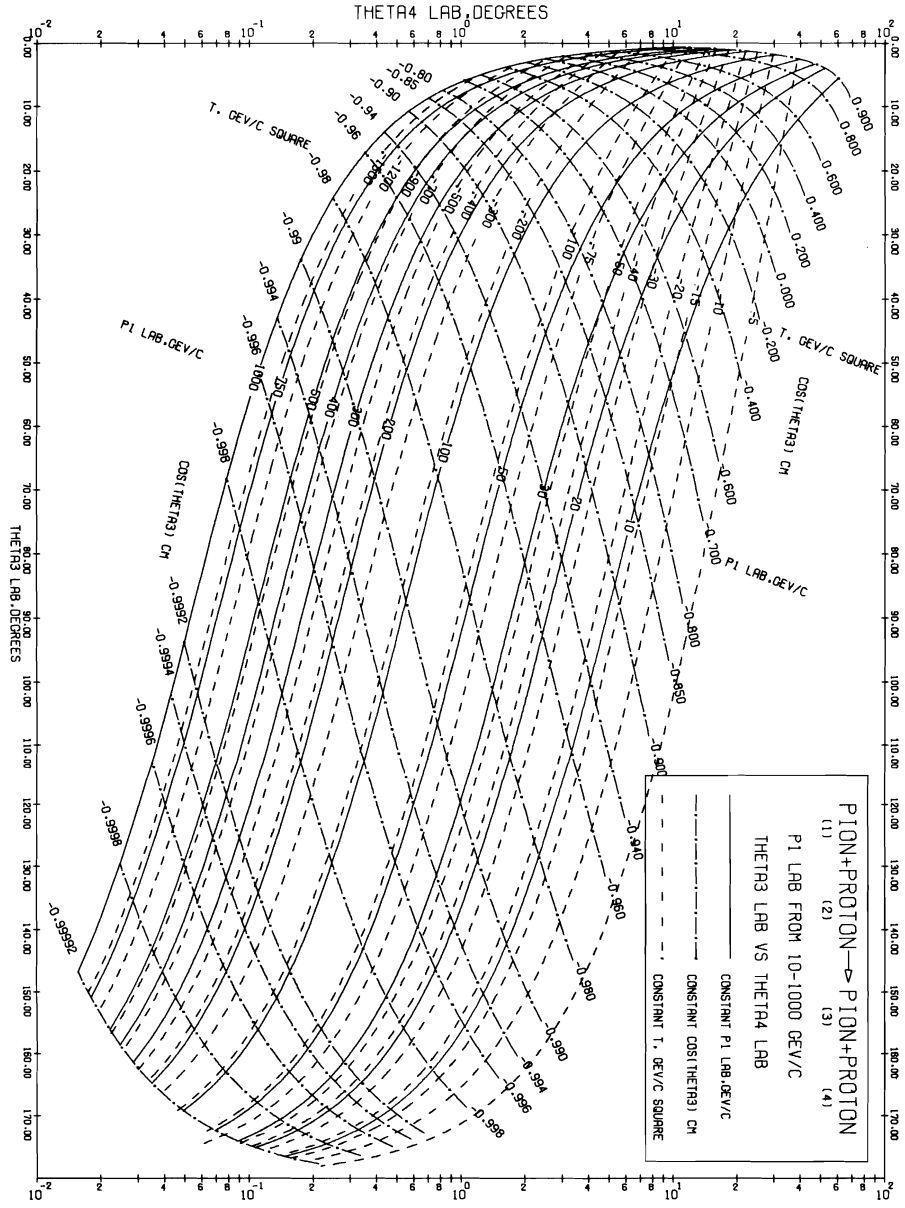

THETA3 LAB,MILLIRADIANS
THETA4 LAB,DEGREES
COS(THETA3) CM
T, GEV/C SQUARE
COS(THETA3) CM
P1 LAB,GEV/C
PROTON+PROTON—>PROTON+DELTA(1236)
(1) (2) (3) (4)
P1 LAB FROM 10-1000 GEV/C
THETA3 LAB VS THETA4 LAB
CONSTANT P1 LAB,GEV/C
CONSTANT COS(THETA3) CM
CONSTANT T, GEV/C SQUARE

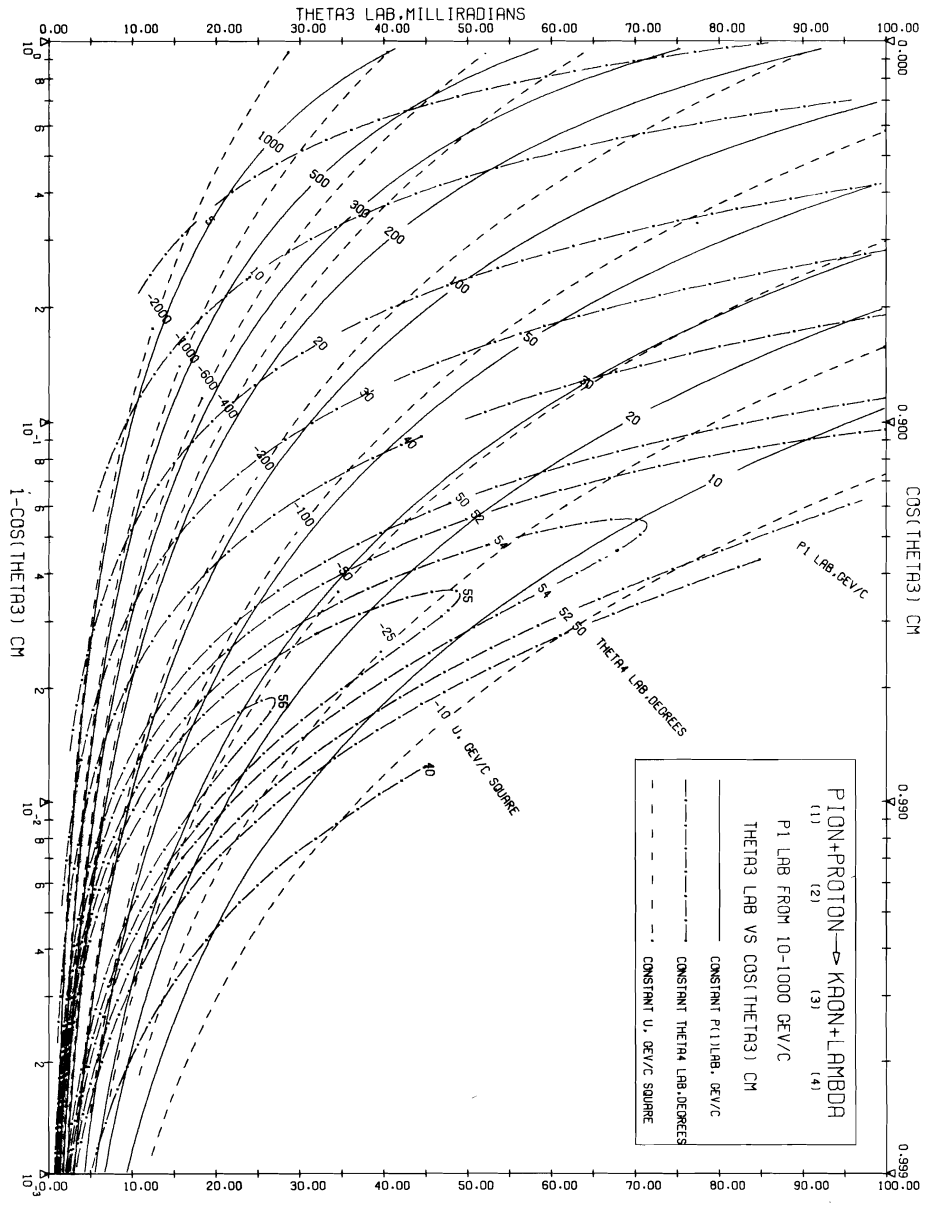

THETA4 LAB.DEGREES
THETA3 LAB.DEGREES
PROTON+PROTON→PROTON+DELTA(1236)
(1) (2) (3) (4)
P1 LAB FROM 10-1000 GEV/C
THETA4 LAB VS THETA3 LAB
CONSTANT P1 LAB.GEV/C
CONSTANT COS(THETA3) CM
CONSTANT T, GEV/C SQUARE
T, GEV/C SQUARE
COS(THETA3) CM
P1 LAB.GEV/C

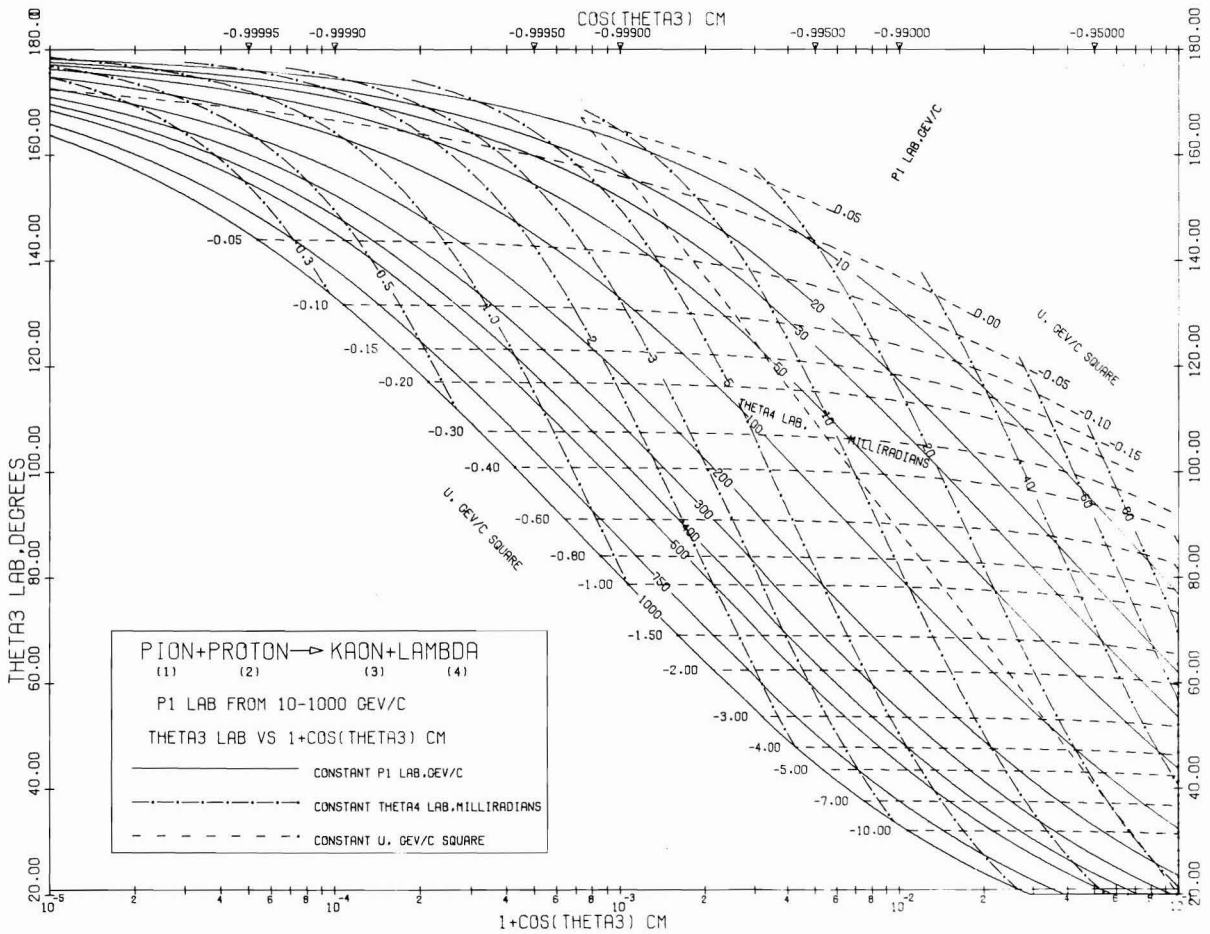

COS(THETA3) CM
0.000
0.900
0.990
0.999
PION+PROTON→ PION+PROTON
(1) (2) (3) (4)
P1 LAB FROM 10-1000 GEV/C
THETA3 LAB VS COS(THETA3) CM
CONSTANT P1 LAB.GEV/C
CONSTANT THETA4 LAB.DEGREES
CONSTANT U. GEV/C SQUARE
THETA3 LAB.MILLIRADIANS
1-COS(THETA3) CM
P1 LAB.GEV/C
THETA4 LAB.DEGREES
U. GEV/C SQUARE

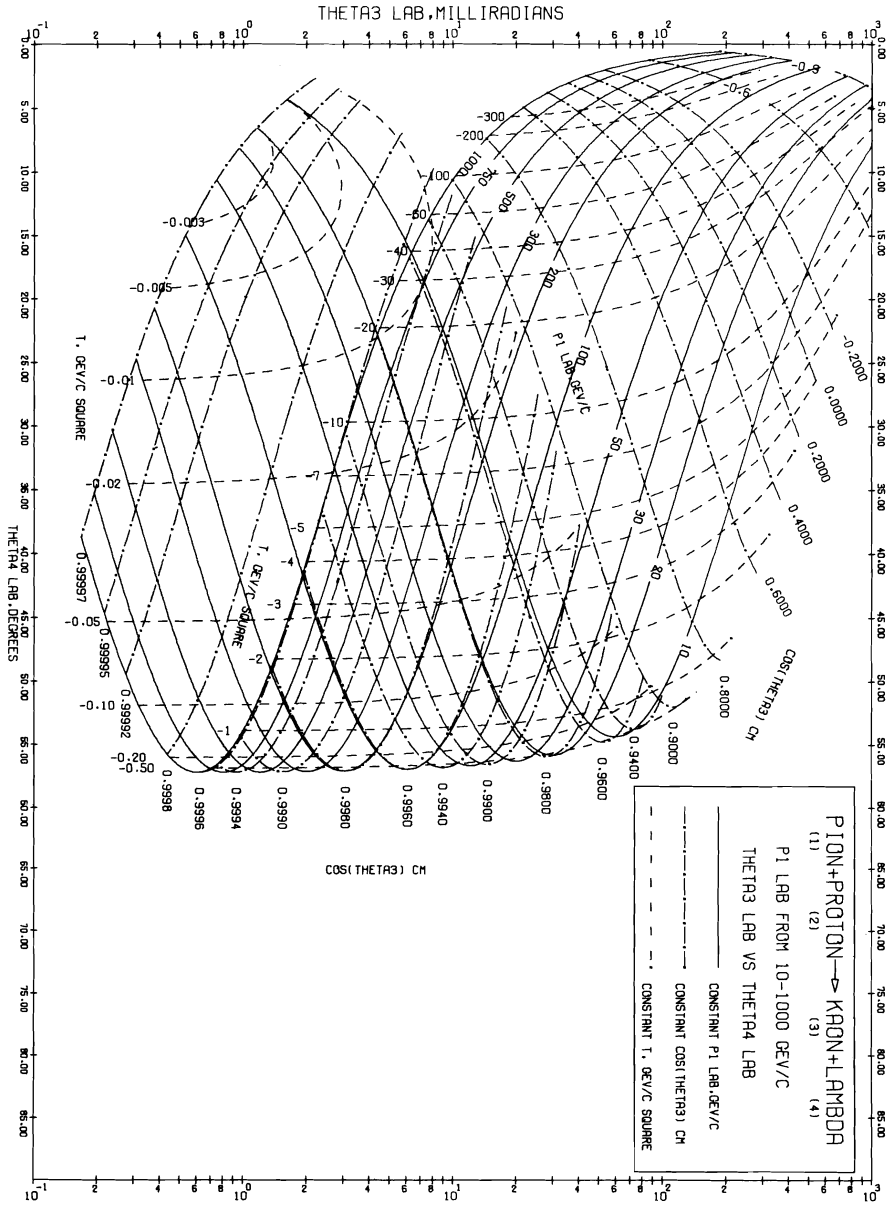

THETA3 LAB,DEGREES
20.00
40.00
60.00
80.00
100.00
120.00
140.00
160.00
180.00
1+COS(THETA3) CM
COS(THETA3) CM
PION+PROTON—> PION+PROTON
(1) (2) (3) (4)
P1 LAB FROM 10-1000 GEV/C
THETA3 LAB VS 1+COS(THETA3) CM
CONSTANT P1 LAB,GEV/C
CONSTANT THETA4 LAB,MRAD
CONSTANT U, GEV/C SQUARE
U, GEV/C SQUARE
THETA4 LAB,MRAD
P1 LAB,GEV/C

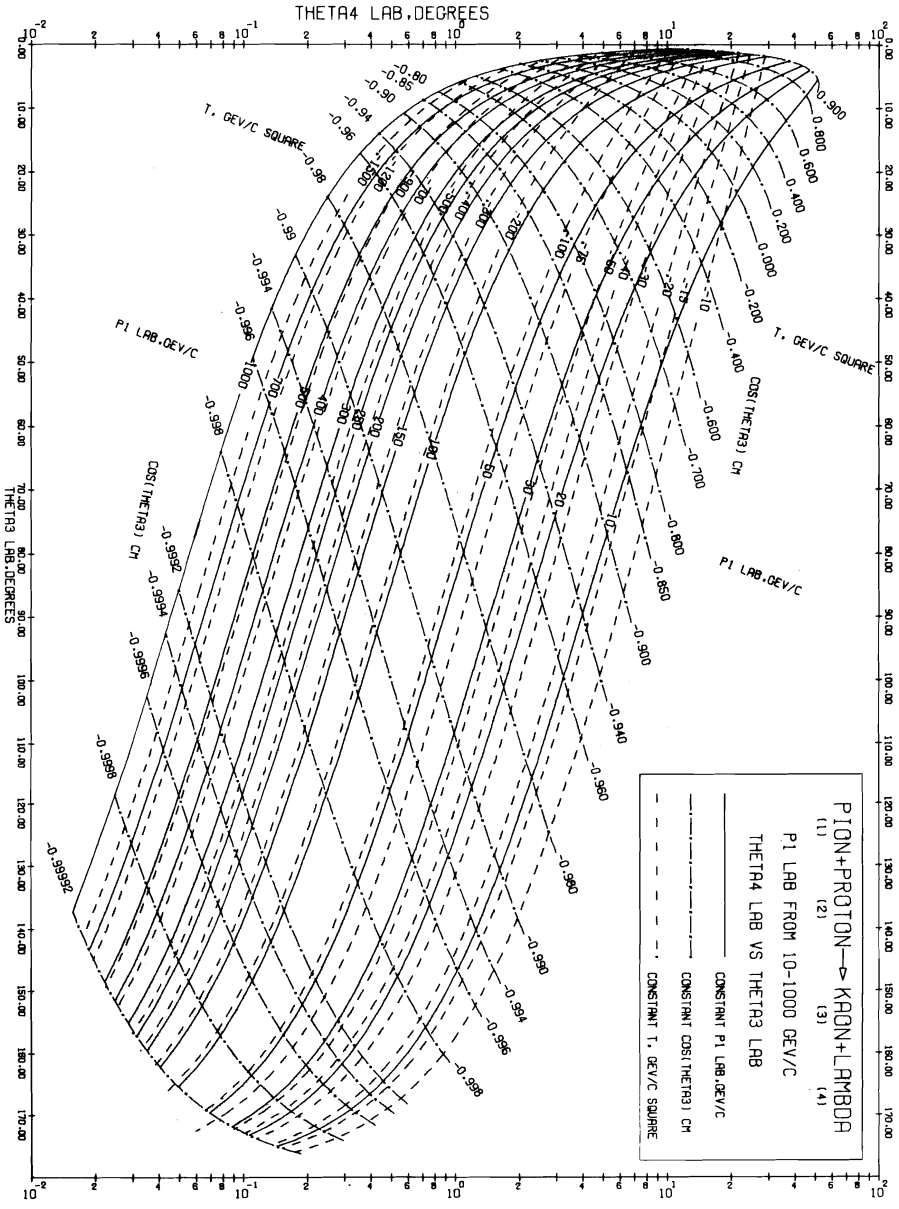

THETA3 LAB, MILLIRADIANS
THETA4 LAB, DEGREES
PION+PROTON→ PION+PROTON
(1) (2) (3) (4)
P1 LAB FROM 10-1000 GEV/C
THETA3 LAB VS THETA4 LAB
CONSTANT P1 LAB, GEV/C
CONSTANT COS(THETA3) CM
CONSTANT T, GEV/C SQUARE
T, GEV/C SQUARE
COS(THETA3) CM
P1 LAB, GEV/C


THETA4 LAB, DEGREES
THETA3 LAB, DEGREES
PION+PROTON→PION+PROTON
(1)
(2)
(3)
(4)
P1 LAB FROM 10-1000 GEV/C
THETA3 LAB VS THETA4 LAB
CONSTANT P1 LAB, GEV/C
CONSTANT COS(THETA3) CM
CONSTANT T, GEV/C SQUARE
P1 LAB, GEV/C
COS(THETA3) CM
T, GEV/C SQUARE


THETA3 LAB.MILLIRADIANS
1-COS(THETA3) CM
COS(THETA3) CM
PION+PROTON→ KAON+LAMBDA
(1) (2) (3) (4)
P1 LAB FROM 10-1000 GEV/C
THETA3 LAB VS COS(THETA3) CM
CONSTANT P(1)LAB. GEV/C
CONSTANT THETA4 LAB.DEGREES
CONSTANT U. GEV/C SQUARE
P1 LAB.GEV/C
THETA4 LAB.DEGREES
U. GEV/C SQUARE


COS(THETA3) CM
-0.99995
-0.99990
-0.99950
-0.99900
-0.99500
-0.99000
-0.95000
THETA3 LAB,DEGREES
180.00
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
1+COS(THETA3) CM
P1 LAB,GEV/C
U, GEV/C SQUARE
THETA4 LAB, MILLIRADIANS
PION+PROTON→ KAON+LAMBDA
(1) (2) (3) (4)
P1 LAB FROM 10-1000 GEV/C
THETA3 LAB VS 1+COS(THETA3) CM
CONSTANT P1 LAB,GEV/C
CONSTANT THETA4 LAB,MILLIRADIANS
CONSTANT U, GEV/C SQUARE


THETA3 LAB,MILLIRADIANS
THETA4 LAB,DEGREES
COS(THETA3) CM
T, GEV/C SQUARE
P1 LAB GEV/C
COS(THETA3) CM
PION+PROTON—▷ KAON+LAMBDA
(1) (2) (3) (4)
P1 LAB FROM 10-1000 GEV/C
THETA3 LAB VS THETA4 LAB
CONSTANT P1 LAB,GEV/C
CONSTANT COS(THETA3) CM
CONSTANT T, GEV/C SQUARE


THETA4 LAB,DEGREES
THETA3 LAB,DEGREES
P1 LAB,GEV/C
T, GEV/C SQUARE
COS(THETA3) CM
PION+PROTON—▷ KAON+LAMBDA
(1)
(2)
(3)
(4)
P1 LAB FROM 10-1000 GEV/C
THETA4 LAB VS THETA3 LAB
CONSTANT P1 LAB,GEV/C
CONSTANT COS(THETA3) CM
CONSTANT T, GEV/C SQUARE

# VI. HIGH ENERGY PRODUCTION FORMULAE

In this section various identities are listed which relate kinematic variables in a two-body reaction involving four particles of arbitrary mass. In addition, corresponding approximations are given which are valid for large "s" and small "|t|." Additional restrictions on particular formulae are noted along with the appropriate expressions.

The approximations are intended to provide rough estimates of kinematic variables in the CM system at large "s," and in the laboratory system at large "s" and "-u" and small "-t." In the latter system, approximate expressions for certain variables become at least as unwieldy as the exact expressions if they are to be applicable to an arbitrary selection of masses for the reacting particles. In such cases, alternate formulations or parameterizations are listed in an attempt to retain simplicity and at the same time give useful approximations.

1. $s = M_1^2 + M_2^2 + 2E_{1\,LAB}\, M_2$

2. $s \simeq 2P_{1\,LAB}\, M_2$

3. $\beta_{CM} = \dfrac{\left[(s - M_1^2 - M_2^2)^2 - 4M_1^2 M_2^2\right]^{1/2}}{(s - M_1^2 + M_2^2)}$

4. $\beta_{CM} \simeq 1 - \dfrac{2M_2^2}{s}$

5. $\beta_{CM} \simeq 1 - \dfrac{M_2}{P_{1\,LAB}}$

6. $\gamma_{CM} = \dfrac{\sqrt{s}}{2M_2}\left(1 - \dfrac{M_1^2 - M_2^2}{s}\right)$

7. $\gamma_{CM}\beta_{CM} = \dfrac{\left[(s - M_1^2 - M_2^2)^2 - 4M_1^2 M_2^2\right]^{1/2}}{2M_2\sqrt{s}}$

8. $\gamma_{CM}\beta_{CM} \simeq \dfrac{\sqrt{s}}{2M_2}\left(1 - \dfrac{M_1^2 + M_2^2}{s}\right)$

9. $P_{1\,CM} = \dfrac{\left[(s - M_1^2 - M_2^2)^2 - 4M_1^2 M_2^2\right]^{1/2}}{2\sqrt{s}}$

10. $P_{1\,CM} \simeq \dfrac{\sqrt{s}}{2}\left(1 - \dfrac{M_1^2 + M_2^2}{s}\right)$

11. $P_{3\,CM} = \dfrac{\left[(s - M_3^2 - M_4^2)^2 - 4M_3^2 M_4^2\right]^{1/2}}{2\sqrt{s}}$

12. $P_{3\,CM} \simeq \dfrac{\sqrt{s}}{2}\left(1 - \dfrac{M_3^2 + M_4^2}{s}\right)$

13. $E_{1\,CM} = \frac{\sqrt{s}}{2}\left(1 + \frac{M_1^2 - M_2^2}{s}\right)$

14. $E_{2\,CM} = \frac{\sqrt{s}}{2}\left(1 - \frac{M_1^2 - M_2^2}{s}\right)$

15. $E_{3\,CM} = \frac{\sqrt{s}}{2}\left(1 + \frac{M_3^2 - M_4^2}{s}\right)$

16. $E_{4\,CM} = \frac{\sqrt{s}}{2}\left(1 - \frac{M_3^2 - M_4^2}{s}\right)$

17. $-t = 2(E_{1\,CM}E_{3\,CM} - P_{1\,CM}\,P_{3\,CM}\,\mathrm{Cos}\;\theta_{3\,CM}) - M_1^2 - M_3^2$

18. $-t = 2(E_{1LAB}E_{3LAB} - P_{1LAB}\,P_{3LAB}\,\mathrm{Cos}\;\theta_{3LAB}) - M_1^2 - M_3^2$

19. $-t = 2\,E_{4LAB}M_2 - M_2^2 - M_4^2$

20. $-t = 2P_{1\,CM}^2\,(1 - \mathrm{Cos}\;\theta_{3\,CM})$; $M_1 = M_3$, $M_2 = M_4$.

21. $-t \simeq \frac{s\theta_{3\,CM}^2}{4} + \frac{(M_4^2 - M_2^2)(M_3^2 - M_1^2)}{s}$ ; $\theta$ in radians

22. $-t \simeq \frac{s^2\theta_{3LAB}^2}{4M_2^2} + \frac{(M_4^2 - M_2^2)(M_3^2 - M_1^2)}{s}$ ; $\theta$ in radians

23. $-u = 2(E_{1\,CM}E_{4\,CM} - P_{1\,CM}\,P_{4\,CM}\,\mathrm{Cos}\;\theta_{4\,CM}) - M_1^2 - M_4^2$

24. $-u = 2(E_{1LAB}E_{4\,LAB} - P_{1LAB}\,P_{4LAB}\,\mathrm{Cos}_{4\,LAB}) - M_1^2 - M_4^2$

25. $-u = 2E_{3LAB} M_2 - M_2^2 - M_3^2$

26. $-u = s+t-(M_1^2 + M_2^2 + M_3^2 + M_4^2)$

27. $-u \simeq 2P_{3LAB} M_2$

28. $P_{1LAB} = \dfrac{\left[(s-M_1^2-M_2^2)^2 - 4M_1^2 M_2^2\right]^{1/2}}{2M_2}$

29. $P_{1LAB} \simeq \dfrac{s}{2M_2}\left(1 - \dfrac{M_1^2+M_2^2}{s}\right)$

30. $P_{3LAB} = \left[\gamma_{CM}^2 (P_{3CM} \cos\theta_{3CM} + \beta_{CM} E_{3CM})^2 + P_{3CM}^2 \sin^2\theta_{3CM}\right]^{1/2}$

31. $P_{3LAB} = \dfrac{\left[(s+t-M_1^2-M_4^2)^2 - 4M_2^2 M_3^2\right]^{1/2}}{2M_2}$

32. $P_{3LAB} = \dfrac{\left[(u-M_2^2-M_3^2)^2 - 4M_2^2 M_3^2\right]^{1/2}}{2M_2}$

33. $P_{3LAB} \simeq \dfrac{s}{2M_2}\left(1 - \dfrac{M_1^2+M_4^2-t}{s}\right)$

34. $P_{3LAB} \simeq \dfrac{-u}{2M_2}\left(1 + \dfrac{M_2^2+M_3^2}{-u}\right)$

35. $P_{1LAB} - P_{3LAB} = \dfrac{1}{2M_2}\left\{\left[(s-M_1^2-M_2^2)^2 - 4M_1^2 M_2^2\right]^{1/2} - \left[(s+t-M_1^2-M_4^2) - 4M_2^2 M_3^2\right]^{1/2}\right\}$

36. $P_{1LAB} - P_{3LAB} \simeq \dfrac{M_4^2 - M_2^2 - t}{2M_2}$

37. $$P_{4\,LAB} = \left[ \gamma_{CM}^2 \left(P_{4CM} \cos \theta_{4CM} + \beta_{CM} E_{4CM}\right)^2 + P_{4CM}^2 \sin^2 \theta_{4CM} \right]^{1/2}$$

38. $$P_{4\,LAB} = \frac{\left[(t - M_2^2 - M_4^2)^2 - 4M_2^2 M_4^2\right]^{1/2}}{2M_2}$$

39. $$P_{4\,LAB} \simeq \frac{1}{2M_2}\left[(M_4^2 - M_2^2)^2 - 2t(M_4^2 + M_2^2)\right]^{1/2}$$

40. $$E_{1\,LAB} = \frac{s}{2M_2}\left(1 - \frac{M_1^2 + M_2^2}{s}\right)$$

41 $$E_{1\,LAB} = \frac{-u}{2M_2}\left(1 + \frac{M_3^2 + M_4^2 - t}{-u}\right)$$

42. $$E_{3\,LAB} = \frac{s}{2M_2}\left(1 + \frac{t - M_1^2 - M_4^2}{s}\right)$$

43. $$E_{3\,LAB} = \frac{-u}{2M_2}\left(1 + \frac{M_2^2 + M_3^2}{-u}\right)$$

44. $$E_{1\,LAB} - E_{3\,LAB} = \frac{M_4^2 - M_2^2 - t}{2M_2}$$

45. $$E_{4\,LAB} = \frac{(M_4 - M_2)^2 - t}{2M_2} + M_4$$

46. $$\theta_{3\,CM} = \cos^{-1}\left\{\frac{\left[t - M_1^2 - M_3^2 + 2E_{1\,CM}E_{3CM}\right]}{2P_{1\,CM}\,P_{3\,CM}}\right\}$$

47. $$\theta_{3\,CM} \simeq \frac{2}{\sqrt{s}}\left[-t - \frac{(M_4^2 - M_2^2)(M_3^2 - M_1^2)}{s}\right]^{1/2}$$

48. $$\theta_{4\,CM} = \cos^{-1}\left[\frac{u - M_1^2 - M_4^2 + 2E_{1\,CM}E_{4\,CM}}{2P_{1\,CM}\,P_{4\,CM}}\right]$$

49. $$\theta_{4\,CM} = \mathrm{Cos}^{-1}\left[\frac{-s-t+M_2^2+M_3^2+2E_{1\,CM}E_{4\,CM}}{2P_{1\,CM}P_{4\,CM}}\right]$$

50. $$\theta_{4\,CM} \simeq \mathrm{Cos}^{-1}\left[\frac{2t}{u}-1\right]$$

51. $$\theta_{4\,CM} \simeq \mathrm{Cos}^{-1}\left[-\frac{2t}{s}-1\right]$$

52. $$\theta_{3\,LAB} = \tan^{-1}\left[\frac{P_{3\,CM}\,\mathrm{Sin}\,\theta_{3\,CM}}{\gamma_{CM}\,(\mathrm{Cos}\,\theta_{3\,CM}P_{3\,CM}+\beta_{CM}\,E_{3\,CM})}\right]$$

53. $$\theta_{3\,LAB} = \mathrm{Cos}^{-1}\left[\frac{t-M_1^2-M_3^2+2E_{1\,LAB}\,E_{3\,LAB}}{2P_{1\,LAB}P_{3\,LAB}}\right]$$

54. $$\theta_{3\,LAB} \simeq \frac{M_2\,\theta_{3\,CM}}{\sqrt{s}}$$

55. $$\theta_{3\,LAB} \simeq \frac{2M_2}{s}\left(-t-\frac{(M_3^2-M_1^2)(M_4^2-M_2^2)}{s}\right)^{1/2}$$

56. $$\theta_{4\,LAB} = \tan^{-1}\left[\frac{P_{4\,CM}\,\mathrm{Sin}\,\theta_{4\,CM}}{\gamma_{CM}\,(\mathrm{Cos}\,\theta_{4\,CM}\,P_{4\,CM}+\beta_{CM}\,E_{4\,CM}}\right]$$

57. $$\theta_{4\,LAB} = \mathrm{Cos}^{-1}\left[\frac{u-M_1^2-M_4^2+2E_{1\,LAB}E_{4\,LAB}}{2P_{1\,LAB}\,P_{4\,LAB}}\right]$$

58. $$\theta_{4\,LAB} = \mathrm{Cos}^{-1}\left[\frac{-s-t+M_2^2+M_3^2+2E_{1\,LAB}\,E_{4\,LAB}}{2P_{1\,LAB}\,P_{4\,LAB}}\right]$$

59. $$\theta_{4\,LAB} \simeq \tan^{-1}\left[\frac{2M_2\sqrt{-t}}{M_4^2-M_2^2-t}\right]$$

60. $$\theta_{4\,LAB} \simeq \mathrm{Cos}^{-1}\left\{\frac{M_4^2-M_2^2-t}{\left[(M_4^2-M_2^2)^2-2t(M_4^2+M_2^2)\right]^{1/2}}\right\}$$

61. $$\tan\theta_{3LAB}\tan\theta_{4LAB} = \frac{4M_2^2}{s}\ ;\ M_1 = M_2 = M_3 = M_4$$

62. $$\tan\theta_{3LAB}\tan\theta_{4LAB} \simeq \frac{-4M_2^2\ t}{s(M_4^2 - M_2^2 - t)}$$

63. $$\frac{d\Omega_{3LAB}}{d\Omega_{3CM}} = \frac{\gamma_{CM}\,P_{3CM}^2(P_{3CM} + \beta_{CM}\cos\theta_{3CM}\,E_{3CM})}{\left\{\gamma_{CM}^2(P_{3CM}\cos\theta_{3CM} + \beta_{CM}\,E_{3CM})^2 + P_{3CM}^2\sin^2\theta_{3CM}\right\}^{3/2}}$$

64. $$\frac{d\Omega_{3LAB}}{d\Omega_{3CM}} \simeq \frac{M_2^2}{s}\left(1 - \frac{t}{s}\right)$$

65. $$\frac{d\Omega_{4LAB}}{d\Omega_{4CM}} = \frac{\gamma_{CM}\,P_{4CM}^2\ (P_{4CM} + \beta_{CM}\cos\theta_{4CM}\,E_{3CM})}{\left\{\gamma_{CM}^2(P_{4CM}\cos\theta_{4CM} + \beta_{CM}\ E_{4CM})^2 + P_{4CM}^2\sin^2\theta_{4CM}\right\}^{3/2}}$$

66. $$\frac{d\Omega_{4LAB}}{d\Omega_{4CM}} \simeq \frac{s}{8M_2\sqrt{-t}}\ ;\ M_4 = M_2$$

67. $$\frac{d\Omega_{4LAB}}{d\Omega_{4CM}} \simeq \frac{1}{4\theta_{3LAB}}\ ;\ M_4 = M_2\ ,\ \theta \text{ in radians}$$

68. $$\frac{d\Omega_{4LAB}}{d\Omega_{4CM}} \simeq \frac{-M_2^2\ s}{(M_4^2 - M_2^2)^2}\left[1 + \frac{3t(M_4^2 + M_2^2)}{(M_4^2 - M_2^2)^2}\right]\ ;\ M_4 \neq M_2$$