

CURRENT EXPERIMENTS IN ELEMENTARY PARTICLE PHYSICS

C.G. Wohl, F.E. Armstrong, A. Rittenberg, T.G. Trippe, G.P. Yost

Particle Data Group, Lawrence Berkeley Laboratory, Berkeley, CA 94720 USA

Y. Oyanagi

University of Tsukuba, Sakura-mura, Niihari-gun, Ibaraki-ken 305, Japan

D.C. Dodder

Los Alamos National Laboratory, Los Alamos, NM 87545, USA

S.N. Grudtsin, Yu.G. Ryabov

Institute for High Energy Physics, Serpukhov, Protvino, Moscow Region 142 284, USSR

R. Frosch

Swiss Institute for Nuclear Research, CH-5234 Villigen, Switzerland

A. Olin

TRIUMF, 4004 Wesbrook Mall, Vancouver BC V6T 2A3, Canada

F. Lehar

DPhPE-SEPh, CEN Saclay, F-91190 Gif-sur-Yvette, France

A.A. Vorobiev

Leningrad Nuclear Physics Institute, Gatchina, Leningrad 188 350, USSR

B.P. Barkov

Institute of Theoretical and Experimental Physics, Moscow 117 259, USSR

Abstract -- This report contains summaries of 551 approved experiments in elementary particle physics (experiments that finished taking data before 1 January 1980 are excluded). Included are experiments at Brookhaven, CERN, CESR, DESY, Fermilab, Moscow Institute of Theoretical and Experimental Physics, Tokyo Institute of Nuclear Studies, KEK, LAMPF, Leningrad Nuclear Physics Institute, Saclay, Serpukhov, SIN, SLAC, and TRIUMF, and also experiments on proton decay. Properties of the fixed-target beams at most of the laboratories are summarized. Instructions are given for searching online the computer database (maintained under the SLAC/SPIRES system) that contains the summaries.

**The Berkeley Particle Data Group is supported by the Director, Office of Energy Research, Office of High Energy and Nuclear Physics, Division of High Energy Physics of the U.S. Department of Energy under Contract No. DE-AC03-76SF00098, and by the U.S. National Science Foundation under Agreement No. PHY83-18358.*

TABLE OF CONTENTS

Example from the microfiche	Inside front cover
Introduction	1
Searching the Experiments computer database online	3
Indices	
List of experiments and titles	5
Beam-target-momentum index	13
Spokesperson index	19
Abbreviations used on the microfiche	
Journals	23
Kinematic variables	23
Accelerators	23
Detectors	24
Particles	25
Institutions	27
Properties of fixed-target beams	
Brookhaven AGS beams	31
CERN PS beams	32
CERN SPS beams	33
Fermilab beams	35
KEK beams	37
LAMPF beams	38
Serpukhov beams	39
SIN beams	40
SLAC beams	41
TRIUMF beams	42
Microfiche with summaries	Inside back cover

INTRODUCTION

The microfiche at the back of this report contains summaries of 551 approved experiments in elementary particle physics. An example from the summaries is given on the inside front cover. Note that a summary includes a list of the published papers that have come from the experiment. A list of all the experiments with their titles begins on p. 5. Experiments that finished taking data before 1 January 1980 are not included here but are available on a computer database (see below). Experiments at the following laboratories are included:

Brookhaven (BNL)	KEK
CERN	Leningrad Nuclear Physics Institute (LENI)
CESR	Los Alamos (LAMPF)
DESY	Saclay
Fermilab (FNAL)	Serpukhov (SERP)
Institute for Nuclear Studies, Tokyo (INS)	SIN
Institute for Theoretical and Experimental Physics, Moscow (ITEP)	SLAC
	TRIUMF

There are also summaries of proton decay experiments (P-DECAY).

Computer database -- This report is produced from a computer database maintained at SLAC under the SPIRES database management system. The database, named EXPERIMENTS, also contains information from earlier editions of this report about many experiments completed before 1980 (going back to about 1975, and including experiments at Argonne and Rutherford). A guide to gaining access to and searching the EXPERIMENTS database online begins on p. 3.

Sources of information -- Our first information about an experiment usually comes from the proposal for the experiment. Then we follow the progress of the experiment as best we can in laboratory reports such as "Experiments at CERN in 1984" and the "SLAC Users' Bulletin." Finally, a few months before an edition of this report is to appear, we send copies of the summaries of the experiments to the spokespersons for checking and updating. If a reply is received -- as was the case for well over half the experiments -- there is a "*" next to "spokesperson" on the summary. (A single "*" indicates a reply for our 1983 edition, but none this time.)

Supplement on detectors -- This report has a supplement entitled "Major Detectors in Elementary Particle Physics." For each detector, there is a 2-page summary giving properties and performance characteristics and a diagram. The second edition, covering about 50 detectors, appears together with this edition of "Experiments."

Guides to the microfiche -- There are four aids for finding particular experiments on the microfiche. One is the list of experiments and their titles already mentioned. The second is an index of initial-state particles and beam momenta, in order of increasing particle mass and momentum. The third is an index of spokespersons. Finally, the table of contents of "Major Detectors in Elementary Particle Physics" lists the experiments that use the detectors described therein.

Abbreviations -- To keep the summaries on the microfiche brief, abbreviations are used to

indicate journals, kinematic variables, accelerators, detectors, particles, and institutions. The abbreviations are usually obvious but are defined in the yellow pages at the center of the report.

Properties of particle beams -- Tables at the back of the report summarize the properties of beams for fixed-target experiments at Brookhaven, CERN, Fermilab, KEK, LAMPF, Serpukhov, SIN, SLAC, and TRIUMF.

Acknowledgments -- We thank L. Addis (SLAC) for much help with the SPIRES database system, M. Ferro-Luzzi (CERN) for permission to make extensive use of "Experiments at CERN in 1984," J. Coleman (FNAL) for information about Fermilab experiments, G. Bunce (BNL) for information about Brookhaven experiments, J. Doornbus (TRIUMF) for a discussion about TRIUMF beams, and the 349 spokespersons who took the time to reply to our inquiries.

Comments and requests -- We invite comments pointing out omissions, obscurities, out-of-date information, and errors. Comments should be sent to:

Particle Data Group (50-308)
Attn: EXPERIMENTS
Lawrence Berkeley Laboratory
Berkeley, CA 94720
USA

Requests for copies from the Americas, Australasia, and the Far East should go to the above address, while those from other areas should go to:

CERN Scientific Information Service
CH-1211 Geneva 23
Switzerland

SEARCHING THE EXPERIMENTS COMPUTER DATABASE ONLINE

As mentioned in the Introduction, the information in this report, and similar information about many earlier experiments, is contained in a computer database named EXPERIMENTS maintained at SLAC under the SPIRES database management system.

Anyone who has a SLAC account can access this database online. If you have an account but are unfamiliar with SPIRES, a "Guide to VM SPIRES" is available from the SLAC Library, Bin 196, SLAC, P.O. Box 4349, Stanford, CA 94305, USA (phone: 415/854-3300, ext. 2411). If you do not have an account and cannot find anyone who does (at main laboratories, ask at the library), contact Louise Addis of the SLAC Library. If you just want to try out the system, contact us about using a temporary guest account: Particle Data Group, 50-308, Lawrence Berkeley Laboratory, Berkeley, CA 94720, USA (phone: 415/486-5885, or FTS 451-5885).

The EXPERIMENTS database is also available under a different system in Europe (contact M. Whalley, Dept. of Physics, Univ. of Durham, South Road, Durham DH1 3LE, England) and in the USSR (contact V. V. Ezhela, Inst. for High Energy Physics, Serpukhov, Moscow Region, USSR).

A brief description of how to use the EXPERIMENTS database under SPIRES follows. Words *not* enclosed in angular brackets <> are to be typed in as given (only the letters in **BOLDFACE UPPER CASE** are needed, and these may be entered in upper or lower case). Words in angular brackets are "variables" for which the user substitutes an appropriate value, again in either upper or lower case (the brackets are *not* typed).

If you will be communicating with the SLAC computer (an IBM 3081 running VM/CMS) at 1200 BAUD or less (such as over telephone lines or with a hardcopy terminal), you will need to set your terminal/modem for half-duplex operation, and you will be running in line-by-line mode. If you will be communicating at a speed greater than 1200 BAUD, you will need to use full-duplex operation, and you will be running in full-screen mode. You will usually connect to the computer through the "MICOM switch," which will ask you what "class" you want. If you are set up for line-by-line mode, type:

VM

If you are set up for full-screen mode, type:

24VM

In full-screen mode, you will then be asked to type a carriage return, and for the kind of terminal you are using (e.g., VT100 or ADM3A). Finally, in either mode, type an extra carriage return after you see the message VM/370 ONLINE. [Note that in full-screen mode, whenever the screen fills up (indicated by the word MORE at the bottom), you must clear it by hitting the CLEAR key (which may be ENTER or CONTROL-Z on your terminal). Also, if you are listing out information and want to terminate the listing prematurely, type in HT and a carriage return before hitting the CLEAR key. In line-by-line mode, you can terminate a listing prematurely by hitting the BREAK or ATTN key.]

After going through the above connection procedure, log on to the computer by typing:

Logon <your-account>
(e.g., Logon **JDOE**)

Then type your password when asked for it (it will not show on your terminal), and finally type an extra carriage return after the system gives its introductory messages.

To enter the SPIRES system, type:

SPIRES

To get a detailed explanation of how to use a particular SPIRES command, type:

EXPLAIN <command-word>
(e.g., **EXPLAIN FIND, EXPLAIN EXPLAIN, EXPLAIN EVERYTHING**)

To access the database, type:

SELEct EXPERIMENTS

To find out what indices are available for searching in this database (and the various index names you may use to refer to them), type:

SHOw INDEX

To see a random selection of values in an index (and thus determine the form to use for a search value), type:

BROuse <index-name>
(e.g., **BRO**use **EX**Periment-num)

To see a selection of values in an index near a particular value (perhaps to see if a value you are interested in is valid, or to see nearby values), type:

BROuse <index-name> <value>
(e.g., **BRO**use **EX**Periment-num **SLAC-PEP**)

To search for experiments satisfying certain criteria, type:

FINd <index-name> <value> **AND(OR)** <index-name> <value> ...

Some sample searches are:

FINd **EX**Periment-num **CERN-UA-001**
FINd Author **RUBBIA**
FINd **DE**Tector **OMEGA OR OMEGAPRIME**
FINd Title **J/PSI**

This finds any experiment with J/PSI as part of the title.

FINd **CIT**ation "**PRL 46 (1981) 1115**"

Note that the above form, with spaces but no commas between the elements, must be used. Note also the quotes which are required here and in the following two examples; for an explanation, see the discussion below on *Searching Problems*.

FINd **RE**action "**PI- P --> PI0 N**" **AND AC**celerator **KEK**

The "arrow" here is composed of two minus signs and a greater-than sign. Specifying the reaction as, e.g., **PI- P#** would get all reactions with π^-p as the initial state, regardless of the final state.

FINd **PAR**ticle "**UPSI(9460)**"

***Searching Problems:** If your search does not find any experiments, there are two common reasons why it may have failed spuriously. (1) You may have used an incorrect form for the value for which you were searching (e.g., an incorrect particle or experiment name). To find out the correct form, use the **BROWSE** command for the index you are searching (see above), or look in the lists of names and abbreviations given in the central section (colored pages) of this report. Note, in particular, that most antiparticle names are formed by preceding the particle name with the letter A; thus the antiproton is **AP** rather than **PBAR**. (2) Any search value containing any of the special characters () < > = must be enclosed in quotes; see the examples for **CITATION**, **REACTION**, and **PARTICLE** above.*

After entering a **FIN**D command, you will be told the number of experiments satisfying the criteria given. At this point, you have several options: (1) You may list out the information available for these experiments (in the format shown on the inside front cover of this report) by typing:

TYPE (or **TYPE PAUSE** if you are in line-by-line mode on a CRT terminal)

(To find out how to terminate a listing prematurely, see the note in the center of the previous page.)

Or (2) you may narrow down the list already found (i.e., add more selection criteria) by typing:

AND <index-name> <value>

Or (3) you may broaden the list already found (i.e., include more cases) by typing:

OR <index-name> <value>

Or (4) you may initiate a new search with a new **FIN**D command, or issue any other command.

To switch to a briefer format (which does not list reactions and certain other information), type:

SET FORmat **QUICKLIST**

To switch back to the complete format, type:

SET FORmat **DEFAULT**

To terminate the session and log off the computer, type:

CP LOGoff

LIST OF EXPERIMENTS AND TITLES

EXPERIMENT	TITLE
BNL-698	POLARIZED TARGET PHYSICS WITH THE MPS FOR STUDY OF STRANGE-PARTICLE REACTIONS
BNL-702	RADIATIVE DECAY Σ^+ \rightarrow ρ γ FROM POLARIZED Σ^+ HYPERONS
BNL-705	A SEARCH FOR NARROW AND BROAD RESONANCES DECAYING INTO KSHORT KSHORT, LAMBDA ANTI-LAMBDA, LAMBDA KSHORT AND ANTI-LAMBDA KSHORT FROM π^- p INTERACTIONS AT 20 GEV/C USING THE BNL MPS
BNL-708	SEARCH FOR GAMMA TRANSITIONS IN PBAR p ANNIHILATIONS AT REST AND LOW ENERGIES
BNL-722	FURTHER SEARCH FOR EXOTIC SIX-QUARK STATES
BNL-723	A PRECISION MEASUREMENT OF THE MAGNETIC MOMENT OF THE NEGATIVE SIGMA HYPERON BY THE EXOTIC ATOMS TECHNIQUE
BNL-726	SEARCH FOR CHARM IN HADRONIC INTERACTIONS NEAR THRESHOLD
BNL-732	SEARCH FOR THE η /c
BNL-734	A MEASUREMENT OF THE ELASTIC SCATTERING OF NEUTRINOS FROM ELECTRONS AND PROTONS
BNL-735	TRANSVERSE MUON POLARIZATION IN K^+ \rightarrow μ^+ π^0 ν DECAYS; AN EXPERIMENTAL TEST OF TIME REVERSAL INVARIANCE
BNL-737	STUDY OF NEUTRINO INTERACTIONS IN DEUTERIUM
BNL-742	SEARCH FOR THE S MESON IN THE TOTAL, ELASTIC, AND ANNIHILATION PBAR p CROSS SECTIONS
BNL-744	MEASUREMENT OF INCLUSIVE Σ^0 PRODUCTION RATE AND POLARIZATION IN THE REACTION $p + \text{Be} \rightarrow \Sigma^0 + X$
BNL-745	AN IMPROVED TEST OF QED -- AN EXPERIMENT TO MEASURE VACUUM POLARIZATION IN THE 3d-3p TRANSITIONS IN MUONIC HELIUM
BNL-746	SPIN AND ISOSPIN EFFECTS IN LIGHT HYPERNUCLEI
BNL-747	A HIGH STATISTICS STUDY OF ϕ AND ϕ ϕ PRODUCTION FROM π^- p AND K^- p INTERACTIONS AT 22 GEV/C -- A SEARCH FOR GLUEBALLS
BNL-748	POLARIZATION IN pp ELASTIC SCATTERING AT MEDIUM AND HIGH $p_{T^{*2}}$ FROM 15 TO 28.5 GEV/C
BNL-749	A MEASUREMENT OF MILLINEAR CP VIOLATION IN KL-KS DECAYS THROUGH THE DETERMINATION OF EPSILON-PRIME
BNL-751	MEASUREMENT OF HYPERON RADIATIVE DECAY
BNL-752	A SEARCH FOR SIGMA HYPERNUCLEAR LEVELS IN $O(16)$ IN THE (K^- , π^+) REACTION
BNL-754	DETERMINATION OF THE DYNAMICS OF μ^+ MOTION IN ALUMINUM
BNL-755	π^- p TWO-BODY EXCLUSIVE REACTIONS AT 90 DEG FROM 8 GEV/C TO 18 GEV/C, AND (PHASE II) LARGE ANGLE EXCLUSIVES -- POSITIVES AND POLARIZATION
BNL-758	THE (π^+ , K^+) REACTION -- A NEW TOOL FOR THE STUDY OF HYPERNUCLEAR STRUCTURE
BNL-759	THE WEAK DECAY MODES OF HYPERNUCLEI
BNL-760	SPIN DEPENDENCE OF THE LAMBDA NUCLEUS INTERACTION DETERMINED BY OBSERVATION OF HYPERNUCLEAR GAMMA RAYS
BNL-762	SEARCH FOR NARROW STRUCTURES IN THE PBAR p ANNIHILATION CROSS SECTION FROM 1900 TO 1950 MEV
BNL-766	DEVELOPMENT OF THE HARDWARE PROCESSOR TECHNIQUE. STUDY OF Ω^- PRODUCTION AND SPIN. STUDY OF n p \rightarrow ALL CHARGED.
BNL-767	DEVELOPMENT OF A LOW ENERGY ANTINEUTRON SOURCE AND MEASUREMENT OF NBAR p ANNIHILATION CROSS SECTIONS NEAR ANTINUCLEON-NUCLEON THRESHOLD
BNL-769	SEARCH FOR GLUEBALLS AND OTHER MESON STATES
BNL-771	STUDY OF E-MESON CHARACTERISTICS IN π^- p, K^- p, AND PBAR p INTERACTIONS
BNL-772	SEARCH FOR PBAR-NEUTRON BOUND AND RESONANT STATES
BNL-773	SEARCH FOR S=-1 DIBARYON STATE IN THE LAMBDA p MISSING MASS SPECTRUM NEAR THE SIGMA NUCLEON THRESHOLD IN THE REACTION $D(K^-, \pi^-) \rightarrow \text{LAMBDA} p$
BNL-774	SEARCH FOR SIGMA HYPERNUCLEAR LEVELS IN HE4
BNL-775	NEUTRINO OSCILLATION EXPERIMENTS AT THE AGS TO COVER THE INTERVAL $0.1 < \Delta^2 \sin^2(2\alpha) < 100 \text{ EV}^{*2}$
BNL-776	NEUTRINO OSCILLATION EXPERIMENT AT BNL
BNL-777	SEARCH FOR THE RARE DECAY MODE $K^+ \rightarrow \pi^+ \mu^+ e^-$
BNL-778	STUDY OF NUCLEAR FRAGMENTS PRODUCED FROM p NUCLEUS COLLISIONS IN THE THRESHOLD REGION $1 < p < 28 \text{ GEV/C}$ USING A WARM GAS JET INTERNAL TARGET
BNL-779	USE OF 28-GEV PROTON EXTERNAL BEAM FOR NUCLEAR SPECTROSCOPY AND NUCLEAR REACTION STUDIES
BNL-780	A SEARCH FOR THE FLAVOR CHANGING NEUTRAL CURRENTS $K^0 \rightarrow \mu^+ \mu^-$ MUON ELECTRON AND KLONG $\rightarrow E^+ e^-$
BNL-781	SPIN DEPENDENCE OF THE LAMBDA NUCLEUS INTERACTION DETERMINED BY OBSERVATION OF HYPERNUCLEAR GAMMA RAYS
BNL-782	SPIN-SPIN EFFECTS IN MEDIUM AND HIGH MOMENTUM TRANSFER ELASTIC p p SCATTERING
BNL-785	SINGLE SPIN ASYMMETRY MEASUREMENT IN INCLUSIVE p(POLARIZED) p REACTIONS AT 24 GEV/C AT HIGH TRANSVERSE MOMENTUM
BNL-787	A STUDY OF THE DECAY $K^+ \rightarrow \pi^+ \nu$ NUBAR
BNL-788	THE FOUR-FERMION WEAK INTERACTION AND THE DECAY OF LAMBDA-HE4 AND LAMBDA-HE5
BNL-789	SEARCH FOR $\chi(2.22)$ FORMATION IN PBAR-p INTERACTIONS
BNL-790	NUCLEAR STOPPING POWER MEASUREMENTS WITH 18-GEV/C PROTONS
BNL-791	STUDY OF VERY RARE K-LONG DECAYS
CERN-IS-010	DETERMINATION OF THE ELECTRON NEUTRINO MASS FROM EXPERIMENTS ON ELECTRON-CAPTURE BETA DECAY (EC)
CERN-LEP-ALEPH	THE ALEPH DETECTOR
CERN-LEP-DELPHI	DELPHI
CERN-LEP-L3	L3 EXPERIMENT
CERN-LEP-OPAL	OPAL COLLABORATION LEP
CERN-NA-001	MEASUREMENT OF THE PHOTOPRODUCTION OF VECTOR AND SCALAR BOSONS
CERN-NA-002	ELECTROMAGNETIC INTERACTIONS OF MUONS
CERN-NA-003	DIRECT PHOTON PRODUCTION IN HADRON-HADRON COLLISIONS AT THE SPS.
CERN-NA-004	INCLUSIVE DEEP INELASTIC MUON SCATTERING
CERN-NA-005	A STUDY OF HARD HADRON-HADRON COLLISIONS WITH A STREAMER CHAMBER VERTEX SPECTROMETER AND A CALORIMETER TRIGGER
CERN-NA-006	NEUTRON ELASTIC SCATTERING AT VERY SMALL ANGLES
CERN-NA-007	MEASUREMENT OF THE ELECTROMAGNETIC FORM FACTORS OF π AND K MESONS AT THE SPS
CERN-NA-008	HADRON ELASTIC SCATTERING AT SMALL ANGLES
CERN-NA-009	STUDY OF FINAL STATES IN DEEP INELASTIC MUON SCATTERING
CERN-NA-010	HIGH RESOLUTION STUDY OF THE INCLUSIVE PRODUCTION OF MASSIVE MUON PAIRS BY INTENSE PION BEAMS
CERN-NA-011	MEASUREMENT OF CHARMED PARTICLE PRODUCTION IN HADRONIC REACTIONS
CERN-NA-012	STUDY OF π^- p INTERACTIONS WITH NEUTRAL FINAL STATES
CERN-NA-014	PHOTOPRODUCTION AT HIGH ENERGY AND HIGH INTENSITY
CERN-NA-014-2	A PROGRAM OF HEAVY FLAVOR PHOTOPRODUCTION
CERN-NA-016	STUDY OF THE HADRONIC PRODUCTION AND PROPERTIES OF NEW PARTICLES WITH A LIFETIME $10(-13) \text{ S} < \tau < 10(-10) \text{ S}$ USING LEBE-ENS
CERN-NA-017	MOMENTUM AND ANGULAR CORRELATIONS STUDY IN π^- NUCLEI JETS AT HIGH ENERGIES USING AN EMULSION TELESCOPE TECHNIQUE WITH MAGNETIC FIELD
CERN-NA-018	SEARCH FOR SHORT-LIVED PARTICLES PRODUCED ON NUCLEI WITH A HEAVY LIQUID MINI BUBBLE CHAMBER
CERN-NA-019	DIRECT OBSERVATION OF BEAUTY PARTICLES SELECTED BY MUONIC DECAY IN EMULSION
CERN-NA-020	MEASUREMENTS OF π^+ , π^- , K^+ , K^- , p, AND PBAR YIELDS IN 400 GEV PROTON BERYLLIUM AND COPPER COLLISIONS
CERN-NA-022	THE INFLUENCE OF PARTON STRUCTURE ON HADRONIC INTERACTIONS IN EHS WITH A $K^+/\pi^+/\rho$ BEAM AT 250 GEV/C
CERN-NA-023	STUDY OF DIFFRACTIVE DISSOCIATION ESPECIALLY INTO STRANGE AND CHARMED PARTICLES WITH EHS

LIST OF EXPERIMENTS AND TITLES

EXPERIMENT	TITLE
CERN-NA-024	DEEP INELASTIC SCATTERING PROCESSES INVOLVING LARGE PT DIRECT PHOTONS IN THE FINAL STATE
CERN-NA-025	STUDY OF CHARM AND BOTTOM PARTICLE PRODUCTION USING A HOLOGRAPHIC BUBBLE CHAMBER
CERN-NA-027	AN EXPERIMENT TO MEASURE ACCURATELY THE LIFETIME OF THE D_0 , D^+ , D^- , F^+ , F^- , Λ CHARM PARTICLES AND TO STUDY THEIR HADRONIC PRODUCTION AND DECAY PROPERTIES
CERN-NA-028	STUDY OF SHADOWING AND HADRON PRODUCTION IN HIGH ENERGY MUON SCATTERING USING NUCLEAR TARGETS
CERN-NA-029	STUDY OF π^- π^0 PRODUCTION VIA THE PRIMAKOFF EFFECT ON NUCLEI
CERN-NA-030	PRECISION DETERMINATION OF THE LIFETIME OF THE NEUTRAL PION
CERN-NA-031	MEASUREMENT OF THE RATIO $\eta \rightarrow \pi^+ \pi^- \pi^0$ SQUARED TO $\eta \rightarrow \pi^+ \pi^- \pi^0$ SQUARED
CERN-NA-032	INVESTIGATION OF CHARM PRODUCTION IN HADRONIC INTERACTIONS USING HIGH-RESOLUTION SILICON DETECTORS
CERN-NA-033	AN EXPERIMENTAL STUDY OF SINGLE-VERTEX ($e^- e^+$) PAIR CREATION IN A CRYSTAL
CERN-NA-034	LEPTON PRODUCTION
CERN-PS-157	HIGH PRECISION MEASUREMENT OF π^- p TOTAL CROSS SECTION
CERN-PS-159	STRANGE DIBARYON SYSTEMS
CERN-PS-160	MEASUREMENT OF A AND R PARAMETERS IN THE REACTION $\pi^+ p \rightarrow K^+ \Sigma^+$
CERN-PS-161	SEARCH FOR STRONGLY BOUND STATES OF THE ANTI-PROTON-PROTON, ANTI-PROTON-DEUTERON, AND ANTI-PROTON-FEW-NUCLEON STATES
CERN-PS-162	STUDY OF THE STRUCTURE OF EXOTIC LIGHT NUCLEI PRODUCED AT THE PS
CERN-PS-163-2	MEASUREMENT OF THE $\bar{p} p$ EXCITATION FUNCTION
CERN-PS-164	THE INFLUENCE OF CHANNELLING ON ATOMIC AND NUCLEAR REACTION YIELDS
CERN-PS-165	MEASUREMENT OF THE $K^- p$ SCATTERING LENGTH AT THRESHOLD BY OBSERVATION OF KAONIC HYDROGEN X-RAYS FROM A CONDENSED TARGET
CERN-PS-166	SEARCH FOR SIGMA HYPERNUCLEAR STATES USING THE STRANGENESS EXCHANGE REACTIONS (K^- , π^-) AND (K^- , π^+)
CERN-PS-167	BACKGROUND CALIBRATION FOR A PROTON-LIFETIME DETECTOR
CERN-PS-168	TO TEST A PROTOTYPE OF A PROTON LIFETIME DETECTOR IN A NEUTRINO BEAM AT THE PS
CERN-PS-169	SEARCH FOR NEUTRINO OSCILLATIONS
CERN-PS-170	PRECISION MEASUREMENTS OF THE PROTON ELECTROMAGNETIC FORM FACTORS IN THE TIME-LIKE REGION AND VECTOR MESON SPECTROSCOPY
CERN-PS-171	A STUDY OF $\bar{p} p$ INTERACTIONS AT REST IN A H_2 GAS TARGET AT LEAR
CERN-PS-172	$\bar{p} p$ TOTAL CROSS SECTIONS AND SPIN EFFECTS IN $\bar{p} p \rightarrow K^+ K^-$, $\pi^+ \pi^-$, $\bar{p} p$ ABOVE 200 MEV/C
CERN-PS-173	MEASUREMENT OF $\bar{p} p$ CROSS SECTIONS AT LOW $\bar{p} p$ MOMENTA
CERN-PS-174	PRECISION SURVEY OF X-RAYS FROM $\bar{p} p$ ($\bar{p} p \rightarrow D$) ATOMS USING THE INITIAL LEAR BEAM
CERN-PS-175	MEASUREMENT OF THE ANTI-PROTONIC LYMAN AND BALMER X-RAYS OF $\bar{p} p \rightarrow H$ AND $\bar{p} p \rightarrow D$ ATOMS AT VERY LOW TARGET PRESSURES
CERN-PS-176	STUDY OF X-RAY AND GAMMA-RAY SPECTRA FROM ANTI-PROTONIC ATOMS AT THE SLOWLY EXTRACTED ANTI-PROTON BEAM OF LEAR
CERN-PS-177	A SEARCH FOR HEAVY HYPERNUCLEI AT LEAR
CERN-PS-178	ANTINEUTRON PRODUCTION AT LEAR
CERN-PS-179	STUDY OF THE INTERACTION OF LOW-ENERGY ANTI-PROTONS WITH H_2 , He_3 , He_4 , AND Ne NUCLEI USING A STREAMER CHAMBER IN A MAGNETIC FIELD
CERN-PS-180	SEARCH FOR NEUTRINO OSCILLATIONS AT CERN PS USING BEBC
CERN-PS-181	CONTRIBUTION OF THE CHARM COLLABORATION TO THE CERN NEUTRINO OSCILLATION PROGRAM
CERN-PS-182	INVESTIGATIONS ON BARYONIUM AND OTHER RARE $\bar{p} p$ ANNIHILATION MODES USING HIGH-RESOLUTION π^0 SPECTROMETERS
CERN-PS-183	SEARCH FOR BOUND $\bar{n} n$ STATES USING A PRECISION GAMMA AND CHARGED PION SPECTROMETER AT LEAR
CERN-PS-184	STUDY OF ANTI-PROTON NUCLEUS INTERACTION WITH A HIGH RESOLUTION MAGNETIC SPECTROMETER
CERN-PS-185	STUDY OF THRESHOLD PRODUCTION OF $\bar{p} p$ TO $\bar{p} p$ AT LEAR
CERN-PS-186	NUCLEAR EXCITATIONS BY ANTI-PROTONS AND ANTI-PROTONIC ATOMS
CERN-PS-187	A GOOD STATISTICS STUDY OF ANTI-PROTON INTERACTIONS WITH NUCLEI
CERN-PS-188	MEASUREMENTS OF CHANNELLING RADIATION AND ITS POLARIZATION, X-RAY EXCITATION, TOGETHER WITH DEVIATIONS FROM LANDAU DISTRIBUTIONS
CERN-PS-189	HIGH PRECISION MASS MEASUREMENTS WITH A RADIOFREQUENCY MASS SPECTROMETER -- APPLICATION TO THE MEASUREMENT OF THE PROTON-ANTI-PROTON MASS DIFFERENCE
CERN-PS-191	SEARCH FOR DECAYS OF HEAVY NEUTRINOS WITH THE PS BEAM
CERN-PS-192	STUDY OF THE ENERGY DEPENDENCE OF THE ANOMALOUS MEAN FREE PATH EFFECT BY MEANS OF HIGH-ENERGY (> 12 GEV/NUCLEON) HELIUM NUCLEI
CERN-R-110	STUDY OF HIGH MASS ELECTRON PAIRS AND HIGH PT PHENOMENA
CERN-R-210	PRECISE MEASUREMENT OF THE PROTON-ANTI-PROTON TOTAL CROSS SECTION AT THE CERN-ISR
CERN-R-211	MEASUREMENT OF THE ANTI-PROTON-PROTON TOTAL CROSS-SECTION AT THE CERN-ISR
CERN-R-416	STUDY OF RARE EVENTS AT THE SPLIT FIELD MAGNET
CERN-R-418	STUDY OF LIGHT ION COLLISIONS
CERN-R-419	STUDY OF EVENTS WITH IDENTIFIED FORWARD PARTICLES AT THE SPLIT FIELD MAGNET
CERN-R-420	STUDY OF $\ln(S)$ PHYSICS IN $\bar{p} p$ INTERACTIONS AT THE SPLIT FIELD MAGNET
CERN-R-421	STUDY OF PROTON-PROTON AND PROTON-ANTI-PROTON COLLISIONS AT THE SFM FACILITY OF THE CERN ISR
CERN-R-422	STUDY OF HEAVY FLAVORS PRODUCTION IN $p p$ INTERACTIONS AT $\sqrt{s} = 62$ GEV
CERN-R-501	SEARCH FOR MAGNETIC MONOPOLES
CERN-R-608	LARGE-X HADRON PHYSICS AND CORRELATIONS WITH CENTRAL REGION PHENOMENA
CERN-R-703	EVALUATION OF A LARGE STREAMER CHAMBER DETECTION SYSTEM AND A STUDY OF ANTI-PROTON-PROTON PROTON-PROTON DIFFERENCES AT ISR ENERGIES
CERN-R-704	CHARMONIUM SPECTROSCOPY AT THE ISR USING AN ANTI-PROTON BEAM AND A HYDROGEN JET TARGET
CERN-R-806	STUDY OF LARGE TRANSVERSE MOMENTUM PHENOMENA
CERN-R-807	A STUDY OF LARGE TRANSVERSE MOMENTUM PHENOMENA
CERN-R-808	A STUDY OF DIRECT PHOTON PRODUCTION
CERN-SC-077	DETERMINATION OF THE BRANCHING RATIO FOR THE DECAY $\pi^0 \rightarrow e^+ e^-$
CERN-SC-094	STUDY OF THE PRODUCTION OF SINGLE PIONS IN PION-PROTON COLLISIONS NEAR THRESHOLD
CERN-UA-001	A 4PI SOLID ANGLE DETECTOR FOR THE SPS USED AS A PROTON-ANTI-PROTON COLLIDER AT A C.M. ENERGY OF 540 GEV
CERN-UA-002	STUDY OF ANTI-PROTON-PROTON INTERACTIONS AT 620-GEV C.M. ENERGY
CERN-UA-003	SEARCH FOR MAGNETIC MONOPOLES AT THE ANTI- p COLLIDING RING
CERN-UA-004	MEASUREMENT OF ELASTIC SCATTERING AND OF TOTAL CROSS SECTION AT THE CERN ANTI- p COLLIDER
CERN-UA-005	INVESTIGATION OF PROTON-ANTI-PROTON EVENTS AT 540-GEV C.M. ENERGY WITH A STREAMER CHAMBER DETECTION SYSTEM
CERN-UA-005-2	AN EXPLORATORY INVESTIGATION OF $\bar{p} p$ INTERACTIONS AT 800-900 C.M. ENERGY AT THE SPS COLLIDER
CERN-UA-006	AN INTERNAL HYDROGEN JET TARGET IN THE SPS TO STUDY INCLUSIVE ELECTROMAGNETIC FINAL STATES AND Λ PRODUCTION IN $\bar{p} p$ AND $p p$ INTERACTIONS AT $\sqrt{s} = 22.5$ GEV
CERN-WA-001	HIGH-ENERGY NEUTRINO INTERACTIONS
CERN-WA-001-2	PROPOSAL TO MEASURE $\sin^2(\theta_{12})$ IN SEMILEPTONIC NEUTRINO FE INTERACTIONS WITH HIGH PRECISION
CERN-WA-006	POLARIZATION IN $p p$ AND πp ELASTIC SCATTERING
CERN-WA-007	TWO-BODY REACTIONS AT LARGE TRANSVERSE MOMENTUM
CERN-WA-011	SEARCH FOR HIGH MASS STATES PRODUCED WITH THE $\Psi(3.1)$

LIST OF EXPERIMENTS AND TITLES

EXPERIMENT	TITLE
CERN-WA-018	STUDY OF SEMILEPTONIC AND LEPTONIC NEUTRAL-CURRENT PROCESSES AND OF MUON POLARIZATION PRODUCED IN NU AND ANTI-NU INTERACTIONS USING COUNTER TECHNIQUES
CERN-WA-018-2	HIGH-PRECISION MEASUREMENT OF THE RATIO SIGMA-NU(NC)/SIGMA-NU(CC)
CERN-WA-021	HIGH ENERGY NU AND ANTI-NU INTERACTIONS IN BEBC FILLED WITH H2
CERN-WA-025	NEUTRINO AND ANTINEUTRINO INTERACTIONS IN DEUTERIUM
CERN-WA-027	K+ P INTERACTIONS IN BEBC AT 70 GEV/C
CERN-WA-028	K- P INTERACTIONS IN BEBC AT 110-GEV/C
CERN-WA-038	MAGNETIC MONOPOLE SEARCH AT THE SPS
CERN-WA-042	AN EXPERIMENT ON THE STRONG INTERACTIONS AND RADIATIVE DECAYS OF HYPERONS
CERN-WA-044	SEARCH FOR QUARKS IN HIGH-ENERGY NEUTRINO INTERACTIONS
CERN-WA-047	CONTINUATION OF THE STUDY OF NEUTRINO INTERACTIONS WITH DICHROMATIC BEAMS AT THE SPS, USING BEBC FILLED WITH NEON
CERN-WA-056	STUDY OF N ANTI-N STATES PRODUCED VIA BARYON EXCHANGE IN PI+ P INTERACTIONS USING THE OMEGAPRIME SPECTROMETER
CERN-WA-058	MEASUREMENT OF THE LIFETIME OF CHARMED PARTICLES IN NUCLEAR EMULSION EXPOSED TO AN 80 GEV BREMSSTRAHLUNG BEAM IN CONJUNCTION WITH THE OMEGA PRIME SPECTROMETER
CERN-WA-059	MEASUREMENT OF NUCLEON STRUCTURE FUNCTIONS IN HORN FOCUSED NEUTRINO AND ANTI-NEUTRINO BEAMS IN BEBC FILLED WITH NEON
CERN-WA-062	SEARCH FOR THE CHARMED STRANGE BARYON Λ_0
CERN-WA-063	INCLUSIVE BARYON-ANTIBARYON PRODUCTION IN THE CENTRAL REGION USING THE OMEGA SPECTROMETER
CERN-WA-064	CHANNELLING RADIATION IN A SILICON CRYSTAL
CERN-WA-065	FURTHER STUDIES OF PROMPT NEUTRINO PRODUCTION IN 400 GEV PROTON NUCLEUS COLLISIONS
CERN-WA-066	FURTHER STUDY OF PROMPT NEUTRINO PRODUCTION IN PROTON-NUCLEUS COLLISIONS USING BEBC
CERN-WA-067	STUDY OF PI- P INTERACTIONS AT 85 GEV/C LEADING TO K-K+K-K- IN THE FINAL STATE -- SEARCH FOR NEW STATES
CERN-WA-068	FURTHER STUDY OF PROMPT NEUTRINO PRODUCTION IN A PROTON BEAM DUMP EXPERIMENT
CERN-WA-069	PHOTOPRODUCTION IN THE ENERGY RANGE 70-200 GEV
CERN-WA-070	STUDY OF DIRECT PHOTON EVENTS IN HADRONIC COLLISIONS
CERN-WA-071	AN EXPERIMENT TO STUDY BEAUTY PRODUCTION AND LIFETIME IN THE UPGRADED OMEGAPRIME SPECTROMETER
CERN-WA-072	A STUDY OF FAST PROTON PRODUCTION IN PI+/- NUCLEUS INTERACTIONS USING THE OMEGA SPECTROMETER
CERN-WA-074	ANTI-PROTON-PROTON GLORY SCATTERING
CERN-WA-075	AN EXPERIMENT TO OBSERVE DIRECTLY BEAUTY PARTICLES SELECTED BY MUONIC DECAY IN EMULSION AND TO ESTIMATE THEIR LIFETIMES
CERN-WA-076	STUDY OF THE MESONS PRODUCED CENTRALLY IN THE REACTION $P P \rightarrow P P + X_0$ AND $PI+ P \rightarrow PI+ P + X_0$ AT 85 GEV/C
CERN-WA-077	SEARCH FOR DIRECT PRODUCTION OF GLUONIUM STATES IN HIGH PT PI- N COLLISIONS AT 350 GEV/C
CERN-WA-078	SEARCH FOR THE HADROPRODUCTION OF B-BBAR PAIRS
CERN-WA-079	STUDY OF NEUTRINO-ELECTRON SCATTERING AT THE SPS
CESR-CLEO	THE CLEO EXPERIMENT AT CESR
CESR-CUSB	CUSB-II -- HIGH RESOLUTION BGO CALORIMETER TO STUDY THE UPSILON SPECTROSCOPY AND B PHYSICS
DESY-ARGUS	A NEW DETECTOR FOR DORIS
DESY-CRYSTAL-BAL	A LARGE SOLID ANGLE NEUTRAL DETECTOR (THE CRYSTAL BALL)
DESY-LENA	PROPOSAL FOR MEASUREMENTS IN CONTINUATION OF DESY-147
DESY-PETRA-CELLO	PROPOSAL FOR A 4 PI MAGNETIC DETECTOR FOR PETRA -- CELLO
DESY-PETRA-JADE	JADE -- PROPOSAL FOR A COMPACT MAGNETIC DETECTOR AT PETRA
DESY-PETRA-MARK J	A SIMPLE DETECTOR TO MEASURE E+ E- REACTIONS AT HIGH ENERGIES -- MARK J
DESY-PETRA-PLU-2	A PROPOSAL TO STUDY GAMMA-GAMMA INTERACTIONS WITH THE DETECTOR PLUTO AT PETRA
DESY-PETRA-TASSO	PROPOSAL FOR A LARGE 4 PI MAGNETIC DETECTOR FOR PETRA -- TASSO
FNAL-053A	SEARCH FOR THE INTERMEDIATE BOSON, LEPTON PAIR PRODUCTION, AND A STUDY OF DEEPLY INELASTIC REACTIONS UTILIZING HIGH ENERGY NEUTRINO INTERACTIONS IN LIQUID NEON
FNAL-180	A STUDY OF ANTINEUTRINO INTERACTIONS IN THE FERMILAB 15-FT BUBBLE CHAMBER, FILLED WITH HYDROGEN AND NEON
FNAL-326	A PROPOSAL TO MEASURE MUON PAIRS PRODUCED AT HIGH INVARIANT MASS BY PIONS
FNAL-400	CHARMED PARTICLE PRODUCTION BY NEUTRONS
FNAL-458	PHOTOPRODUCTION EXPERIMENT AT FERMILAB
FNAL-466	STUDY OF HIGH-ENERGY REACTION MECHANISMS BY THE MEASUREMENT OF THE ANGULAR AND ENERGY DISTRIBUTIONS OF NUCLEI RECOILING FROM TARGETS BOMBARDED WITH 200-300 GEV PROTONS
FNAL-490	SEARCH FOR SHORT LIVED PARTICLES USING A HIGH RESOLUTION STREAMER CHAMBER
FNAL-497	HYPERON FLUXES AND POLARIZATIONS
FNAL-502	SEARCH FOR MONOPOLES ABOVE THE 15-FOOT BUBBLE CHAMBER
FNAL-508	STUDY OF MECHANISM FOR MULTIPLE PRODUCTION OF PARTICLES AT HIGH ENERGIES; EMULSION EXPOSURE TO ABOUT 750 GEV PROTONS
FNAL-515	PROPOSAL TO STUDY CHARM PARTICLES PRODUCED IN HADRONIC INTERACTIONS
FNAL-516	PROPOSAL TO STUDY PHOTOPRODUCTION OF FINAL STATES OF MASS ABOVE 2.5 GEV WITH A MAGNETIC SPECTROMETER IN THE TAGGED PHOTON LAB
FNAL-524	PROPOSAL TO STUDY PROTON-NUCLEUS INTERACTIONS IN EMULSION PLATES WITH EMBEDDED METAL POWDER GRANULES AT HIGHEST AVAILABLE ENERGY (> 400 GEV)
FNAL-531	A PROPOSAL TO STUDY WEAK DECAY LIFETIMES OF NEUTRINO PRODUCED PARTICLES IN A TAGGED EMULSION SPECTROMETER
FNAL-537	PROPOSAL TO STUDY ANTI-P N INTERACTIONS IN THE P-WEST HIGH INTENSITY LABORATORY
FNAL-549	A SEARCH FOR FRACTIONAL CHARGES USING ACCELERATOR AND LOW TEMPERATURE TECHNIQUES
FNAL-553	A PROPOSAL TO SEARCH FOR SHORT-LIVED PARTICLES PRODUCED BY ANTINEUTRINOS AND NEUTRINOS
FNAL-555	A PROPOSAL TO STUDY CROSS SECTIONS AND POLARIZATION IN NEUTRAL STRANGE PARTICLE PRODUCTION AT HIGH TRANSVERSE MOMENTUM
FNAL-557	STUDY OF HADRON JETS WITH THE CALORIMETER TRIGGERED MULTIPARTICLE SPECTROMETER
FNAL-564	DIRECT DETECTION OF SHORT-LIVED PARTICLES FROM NEUTRINO INTERACTIONS IN NUCLEAR EMULSIONS INSIDE THE 15-FOOT BUBBLE CHAMBER
FNAL-565	A STUDY OF THE DETAILED CHARACTERISTICS OF HADRON-NUCLEUS COLLISIONS USING THE FERMILAB HYBRID SPECTROMETER
FNAL-570	PROPOSAL FOR A STUDY OF PARTICLE PRODUCTION AND DYNAMICS FROM $X = 0$ TO $X = 1$ AND THE DEPENDENCE ON INCIDENT QUANTUM NUMBERS
FNAL-576	500 GEV PROTON INTERACTIONS IN NUCLEAR EMULSION
FNAL-577	PROPOSAL TO MEASURE PI P ELASTIC SCATTERING AT LARGE ANGLES
FNAL-580	A SEARCH FOR NARROW AND BROAD RESONANCES DECAYING INTO LAMBDA-ALAMBDA, LAMBDA-ALAMBDA-PI, K(SHORT)-K(SHORT) AND K(SHORT)-K(SHORT)-PI FROM PI- P INTERACTIONS AT 200-GEV/C USING THE FERMILAB MPS
FNAL-584	PROPOSAL TO SEARCH FOR THE DECAY OF NEW LONG-LIVED NEUTRAL PARTICLES WITH A MASS AND LIFETIME EXCEEDING THAT OF THE K(LONG)

LIST OF EXPERIMENTS AND TITLES

EXPERIMENT	TITLE
FNAL-585	EXCLUSIVE K N CHARGE EXCHANGE
FNAL-591	BROAD SEARCH FOR NEW HADRONIC STATES VIA HIGH RESOLUTION CHARGE AND MASS DETERMINATION OF NUCLEAR FRAGMENTS FROM P-NUCLEUS COLLISIONS
FNAL-594	PROPOSAL FOR A NEW NEUTRINO DETECTOR AT FERMILAB
FNAL-595	A STUDY OF CHARM AND PROMPT SINGLE MUON PRODUCTION IN PROTON-NUCLEON AND PION-NUCLEON COLLISIONS
FNAL-597	PROPOSAL FOR A HIGH STATISTICS STUDY OF PBAR P ANNIHILATIONS AND A COMPARISON OF PBAR, P, PI-, PI+, AND K+ INTERACTIONS ON HYDROGEN, MAGNESIUM, SILVER, AND GOLD AT 100-GEV/C UTILIZING THE FERMILAB 30-INCH HYDROGEN BUBBLE CHAMBER AND DOWNSTREAM PARTICLE IDENTIFIER
FNAL-605	A STUDY OF LEPTONS AND HADRONS NEAR THE KINEMATIC LIMITS
FNAL-609	A STUDY OF THE STRUCTURE OF HIGH PT HADRONIC INTERACTIONS
FNAL-610	PION PRODUCTION OF HEAVY QUARK MESON STATES DECAYING INTO PSI/J(3097)
FNAL-612	A PROPOSAL TO MEASURE THE DIFFRACTIVE PHOTON DISSOCIATION ON HYDROGEN
FNAL-613	PROPOSAL FOR A PROMPT NEUTRINO EXPERIMENT AT FERMILAB
FNAL-615	A STUDY OF THE FORWARD PRODUCTION OF MASSIVE PARTICLES
FNAL-616	PROPOSAL TO MEASURE NEUTRINO STRUCTURE FUNCTIONS
FNAL-617	A STUDY OF DIRECT CP VIOLATION IN THE DECAY OF THE NEUTRAL KAON VIA A PRECISION MEASUREMENT OF ABS(ETA00/ETA+-)
FNAL-619	A MEASUREMENT OF THE SIGMA0-LAMBDA0 TRANSITION MAGNETIC MOMENT
FNAL-620	PROPOSAL TO MEASURE THE MAGNETIC MOMENTS OF THE SIGMA+, XI-, SIGMA-, AND OMEGA- HYPERONS USING THE FERMILAB NEUTRAL HYPERON BEAM
FNAL-621	A MEASUREMENT OF THE CP VIOLATION PARAMETER ETA+-0
FNAL-622	PROPOSAL TO SEARCH FOR FRACTIONAL CHARGE PARTICLES FROM A MAGNETIZED BEAM DUMP
FNAL-623	HIGH-MASS STATES DECAYING INTO PHI PI AND PHI PHI PRODUCED CENTRALLY IN 400 GEV/C P P INTERACTIONS
FNAL-629	MEASUREMENT OF DIRECT PHOTON PRODUCTION IN HADRON-NUCLEUS COLLISIONS
FNAL-630	STUDY OF B PARTICLE AND CHARMED PARTICLE PRODUCTION AND DECAY USING A HIGH RESOLUTION STREAMER CHAMBER
FNAL-631	A MEASUREMENT OF NUCLEAR CALIBRATION CROSS SECTIONS FOR PROTONS BETWEEN 100 AND 1000 GEV
FNAL-632	AN EXPOSURE OF THE 15-FOOT BUBBLE CHAMBER WITH A NEON-HYDROGEN MIXTURE TO A WIDEBAND NEUTRINO BEAM FROM THE TEVATRON
FNAL-635	PROPOSAL TO SEARCH FOR AXION-LIKE PARTICLES AND TO MEASURE NUMU E- AND ANUMU E- ELASTIC SCATTERING AT THE TEVATRON OF FERMILAB
FNAL-636	NEUTRINO INTERACTION STUDIES WITH A HEAVY LIQUID BUBBLE CHAMBER AT TEVATRON ENERGIES USING A BEAM DUMP TECHNIQUE TO PRODUCE THE NEUTRINO BEAM
FNAL-646	SEARCH FOR THE NUTAU AND STUDY OF NUE AND ANUE INTERACTIONS
FNAL-649	PROPOSAL TO STUDY NUCLEON STRUCTURE FUNCTIONS AT HIGH Q SQUARED
FNAL-650	SEARCH FOR CHARM PRODUCTION IN HADRON INTERACTIONS
FNAL-652	NEUTRINO PHYSICS AT THE TEVATRON
FNAL-653	A PROPOSAL TO MEASURE CHARM AND B DECAYS VIA HADRONIC PRODUCTION IN A HYBRID EMULSION SPECTROMETER
FNAL-660	PROPOSAL TO STUDY THE EFFECT OF BENT CRYSTALS ON CHANNELING NEAR THE CRITICAL RADIUS OF BENDING
FNAL-663	COMPARISON OF POLARIZATIONS OF INCLUSIVELY PRODUCED LAMBDA AND ANTILAMBDA BY PROTONS, ANTIPROTONS, KAONS AND PIONS ON HYDROGEN
FNAL-665	MUON SCATTERING WITH HADRON DETECTION AT THE TEVATRON
FNAL-666	EMULSION EXPOSURE TO SIGMA MINUS BEAM AT FERMILAB
FNAL-672	A STUDY OF HADRONIC FINAL STATES PRODUCED IN ASSOCIATION WITH HIGH-PT JETS AND HIGH-MASS DIMUONS
FNAL-673	CHI MESON PRODUCTION BY HADRONS
FNAL-683	PHOTOPRODUCTION OF HIGH PT JETS
FNAL-687	HIGH ENERGY PHOTOPRODUCTION OF STATES CONTAINING HEAVY QUARKS AND OTHER RARE PHENOMENA
FNAL-690	STUDY OF HADRONIC PRODUCTION AND SPECTROSCOPY OF STRANGE, CHARM, AND BOTTOM PARTICLES AT THE TEVATRON
FNAL-691	PHOTON PHYSICS WITH THE TEVATRON AT THE TAGGED PHOTON SPECTROMETER
FNAL-701	A SEARCH FOR NEUTRINO OSCILLATIONS WITH (DELTA M)**2 GREATER THAN 10 EV**2
FNAL-704	INTEGRATED PROPOSAL ON FIRST ROUND EXPERIMENTS WITH THE POLARIZED BEAM FACILITY
FNAL-705	A STUDY OF CHARMONIUM AND DIRECT PHOTON PRODUCTION BY 300 GEV/C ANTIPROTON, PROTON, PI+, AND PI- BEAMS
FNAL-706	A COMPREHENSIVE STUDY OF DIRECT PHOTON PRODUCTION IN HADRON INDUCED COLLISIONS
FNAL-710	MEASUREMENTS OF ELASTIC SCATTERING AND TOTAL CROSS SECTIONS AT THE FERMILAB PBAR-P COLLIDER
FNAL-711	A STUDY OF THE ANGULAR AND ENERGY DEPENDENCE OF CONSTITUENT SCATTERING THROUGH MEASUREMENTS OF THE REACTION P N --> HADRON HADRON ANYTHING
FNAL-713	PROPOSAL FOR A SEARCH FOR HIGHLY IONIZING PARTICLES FOR THE DO AREA AT FERMILAB
FNAL-715	PRECISION MEASUREMENT OF THE DECAY SIGMA- --> N E- NU
FNAL-720	PROPOSAL TO SEARCH FOR +1/3 E STABLE PARTICLES USING CRYOGENIC SOURCES
FNAL-721	CP VIOLATION
FNAL-723	TEST OF A GRAVITATIONAL DETECTOR AT THE FERMILAB COLLIDER
FNAL-730	EMULSION EXPOSURE TO 250 GEV SIGMA-MINUS
FNAL-731	A MEASUREMENT OF THE MAGNITUDE OF EPSILONPRIME/EPSILON IN THE NEUTRAL KAON SYSTEM TO A PRECISION OF .001
FNAL-733	PROPOSAL TO STUDY HIGH ENERGY NEUTRINO INTERACTIONS WITH THE TEVATRON QUADRUPOLE TRIPLET BEAM
FNAL-735	SEARCH FOR A DECONFINED QUARK GLUON PHASE OF STRONGLY INTERACTING MATTER IN PBAR-P INTERACTIONS AT ECM NEAR 2 TEV
FNAL-740	A STUDY OF PROTON ANTIPROTON COLLISION USING A LARGE DETECTOR AT D-0
FNAL-741	A STUDY OF PROTON ANTIPROTON COLLISIONS USING A LARGE DETECTOR AT B-0
FNAL-743	CHARM PRODUCTION IN P P COLLISIONS WITH LEBC-FMPS AT TEVATRON ENERGIES
FNAL-744	HIGH STATISTICS STUDIES OF CHARGED CURRENT INTERACTIONS USING THE TEVATRON QUAD TRIPLET BEAM
FNAL-745	MUON NEUTRINO EXPERIMENT USING THE TOHOKU HIGH RESOLUTION ONE METER BUBBLE CHAMBER
INS-14-3	MEASUREMENT OF THE DIFFERENTIAL CROSS SECTION FOR THE REACTION GAMMA P --> ETA P BY TAGGED PHOTON BEAM
INS-14-4	MEASUREMENT OF THE POLARIZED TARGET ASYMMETRY OF THE REACTION GAMMA N --> PI- P IN THE SECOND RESONANCE REGION
INS-15-1	MEASUREMENT OF THE RECOIL PROTON POLARIZATION IN THE REACTION GAMMA P --> PIO P
INS-15-2	MEASUREMENT OF GAMMA P --> (PI+/- OR P) + ANYTHING BY TAGGED PHOTON BEAM
INS-15-3	MEASUREMENT OF THE BACKWARD DIFFERENTIAL CROSS SECTION FOR (GAMMA, P) REACTION OFF DEUTERIUM AND CARBON
INS-15-4	PHOTOPRODUCTION OF L- L+ OFF NUCLEI
INS-16-1	MEASUREMENT OF POLARIZED TARGET ASYMMETRY IN THE REACTION GAMMA DEUT --> P N IN THE ENERGY RANGE BETWEEN 300 AND 650 MEV
INS-16-2	MEASUREMENT OF PI- PHOTOPRODUCTION RATE ON NUCLEUS TARGET
INS-17-1	MEASUREMENT OF DIFFERENTIAL CROSS SECTION FOR PROTON COMPTON SCATTERING
INS-17-2	STUDY OF QUASI-FREE DEUTERONS IN LIGHT NUCLEI
INS-18-1	ANGULAR DISTRIBUTION OF PHOTODISINTEGRATION OF QUASI-FREE DEUTERONS IN LIGHT NUCLEI
INS-18-3	MEASUREMENT OF DIFFERENTIAL CROSS SECTION OF GAMMA DEUTERIUM --> PIO DEUTERIUM REACTION
INS-19-1	MEASUREMENT OF DIFFERENTIAL CROSS SECTIONS FOR THE GAMMA DEUT --> PIO DEUT REACTION AT BACKWARD ANGLES

LIST OF EXPERIMENTS AND TITLES

EXPERIMENT	TITLE
INS-19-2	STUDY OF THE REACTION γ HE4 \rightarrow p n(p) ANYTHING
INS-19-3	STUDY OF CUMULATIVE EFFECTS IN PHOTONUCLEAR REACTIONS
ITEP-E-761	STUDY OF RARE K0 DECAYS
ITEP-E-771	STUDY OF THE INCLUSIVE PROPERTIES OF DEEP INELASTIC NUCLEAR REACTIONS
ITEP-E-782	STUDY OF LIGHT NUCLEUS INTERACTIONS WITH PROTONS IN THE INTERMEDIATE ENERGY REGION
ITEP-E-801	STUDY OF POLARIZATION EFFECTS IN PROCESSES WITH TWO CHARGED PARTICLES IN THE FINAL STATE AT INTERMEDIATE ENERGIES
ITEP-E-802	STUDY OF K+ INTERACTIONS WITH XENON
ITEP-E-811	STUDY OF KL \rightarrow 2GAMMA AND SEARCH FOR KS \rightarrow 2GAMMA DECAYS
ITEP-E-812	STUDY OF CUMULATIVE PARTICLE PRODUCTION IN PION NUCLEUS INTERACTIONS
ITEP-E-813	STUDY OF CUMULATIVE PARTICLE CORRELATIONS
ITEP-E-821	STUDY OF KL \rightarrow PION E NU GAMMA AND KL \rightarrow 2PION E NU DECAYS
ITEP-E-822	SEARCH FOR BOUND AND RESONANT STATES IN THE TWO-LAMBDA SYSTEM
ITEP-E-823	MEASUREMENT OF COULOMB-NUCLEAR INTERFERENCE IN PI+ NUCLEI SCATTERING
ITEP-E-831	MEASUREMENT OF PI-, PI+, P, H2, H3, AND HE3 INCLUSIVE CROSS SECTIONS IN PROTON INTERACTIONS WITH BE, AL, CU, AND TA NUCLEI IN THE ENERGY RANGE 3.7 TO 9.2 GEV
KEK-TE-001	TRISTAN E+ E- EXPERIMENTS BY VENUS COLLABORATION
KEK-TE-002	STUDY OF ELECTRON-POSITRON ANNIHILATION PHENOMENA BY A DETECTOR WITH PARTICLE IDENTIFICATION
KEK-TE-003	AMY -- A HIGH RESOLUTION LEPTON DETECTOR FOR TRISTAN
KEK-010	SEARCH FOR RARE DECAY MODES K+ \rightarrow PI+ NU ANU, K+ \rightarrow PI+ 2GAMMA, AND K+ \rightarrow PI+ AXION
KEK-034	MEASUREMENT OF THE POLARIZATION FOR THE REACTIONS K+ N \rightarrow K+ N, KO P AT 1.06, 1.28, 1.39, AND 1.49 GEV/C
KEK-049	PRODUCTION OF POLARIZED LAMBDA PARTICLES AND THEIR BETA DECAYS
KEK-057	STUDIES OF P P INTERACTIONS IN THE MOMENTUM RANGE 0.9-2.0 GEV/C
KEK-062	STUDY OF AP P REACTIONS IN THE 3 TO 5 GEV/C REGION
KEK-064	STUDY OF 2PI, 3PI STATES IN PI- P INELASTIC FORWARD SCATTERING
KEK-074	SEARCH FOR BARYONIUM STATES IN ANTIPROTON-NUCLEON INTERACTIONS
KEK-074A	SEARCH FOR BARYONIUM STATES IN ANTIPROTON-NUCLEON INTERACTIONS
KEK-075	MEASUREMENTS OF POLARIZATION PARAMETERS IN ELASTIC PROTON-NEUTRON SCATTERING
KEK-079	CALIBRATION OF ELECTRON/PION IDENTIFICATION EFFICIENCY IN THE BUBBLE CHAMBER
KEK-080	STUDY OF DEUTERIUM-PROTON REACTIONS FROM 2.0 TO 4.0 GEV/C
KEK-081	ASYMMETRY IN THE ELASTIC SCATTERING OF K+ AND PI+ FROM DEUTERIUM NEAR 1.5 GEV/C
KEK-082	NUCLEAR REACTIONS WITH HIGH ENERGY PARTICLE BEAMS
KEK-083	MEASUREMENT OF PI DEUTERIUM ELASTIC SCATTERING
KEK-084	STUDY OF HADRON-NUCLEUS INTERACTIONS WITH EMULSION CHAMBERS
KEK-089	SEARCH FOR A HEAVY NEUTRINO EMITTED IN K+ \rightarrow MU+ NU DECAY
KEK-090	STUDY OF HIGH ENERGY NUCLEAR REACTIONS WITH LARGE APERTURE MULTIPARTICLE DETECTOR
KEK-092	MEASUREMENTS OF ASYMMETRY PARAMETER IN SIGMA+ \rightarrow P GAMMA DECAY
KEK-094	REACTION MECHANISMS IN PI-NUCLEUS INTERACTIONS
KEK-099	STUDY OF MU+ POLARIZATION IN K-MU-2 DECAY
KEK-104	SEARCH FOR HEAVY NEUTRINOS IN K+ \rightarrow MU+ NU, E+ NU
KEK-113	DEUTERON FROM P NUCLEUS REACTIONS
KEK-114	STUDY OF SIGMA HYPERNUCLEI VIA (K-, PI+) SPECTROSCOPY
KEK-117	STUDIES OF LAMBDA AND SIGMA HYPERNUCLEI BY STOPPED K-
KEK-121	STUDY OF FEW PION STATES IN PI- P EXCHANGE REACTION
KEK-125	STUDIES OF D D INTERACTION IN THE RANGE OF 2-4 GEV/C
LAMPF-015	ELASTIC SCATTERING AND TOTAL CROSS SECTION MEASUREMENTS OF PROTON ON HYDROGEN, DEUTERIUM, AND HELIUM
LAMPF-032	PRECISION MEASUREMENT OF THE PROCESSES PI+ \rightarrow PION E+ NU
LAMPF-058-120	MEASUREMENT OF PI- P \rightarrow GAMMA N, AND MEASUREMENT OF THE POLARIZATION ASYMMETRY AND THE DIFFERENTIAL CROSS SECTION OF PION NUCLEON CHARGE EXCHANGE FROM 160 TO 500 MEV
LAMPF-190	A PRECISION MEASUREMENT OF THE PI-/PIO MASS DIFFERENCE
LAMPF-194	PROTON-PROTON D, R, AND A MEASUREMENTS
LAMPF-225	A STUDY OF NEUTRINO-ELECTRON SCATTERING
LAMPF-295	STUDY OF THE PION-DEUTERON SINGLE CHARGE-EXCHANGE REACTION D(PI-, PION)2N
LAMPF-336	STUDY OF THE SPIN DEPENDENCE OF PROTON-PROTON PION PRODUCTION REACTIONS
LAMPF-360	THE MEASUREMENT OF THE POLARIZATION TRANSFER COEFFICIENTS D/T AND A'/T AT 800 MEV FOR THE REACTIONS D(P,N)2P, L16(P,N)BE6, AND BE9(P,N)B9
LAMPF-366	NONRESONANT PION PRODUCTION IN THE REACTION N P \rightarrow PI- P P
LAMPF-385	MEASUREMENT OF THE POLARIZED P N ANALYZING POWER, A/Y(THETA), FROM 10-70 DEG THETA C.M.
LAMPF-392	A MEASUREMENT OF THE TRIPLE-SCATTERING PARAMETERS D, R, A, R', AND A' FOR PROTON-PROTON AND PROTON-NEUTRON SCATTERING AT 800 MEV
LAMPF-400-445	STUDY OF PION \rightarrow 3 GAMMA AND PI+ \rightarrow E+ GAMMA NEUTRINO DECAYS, AND SEARCH FOR LEPTON FLAVOR-VIOLATING DECAYS MU+ \rightarrow E+ E+ E-, MU+ \rightarrow E+ 2 GAMMA, AND MU+ \rightarrow E+ GAMMA
LAMPF-402	A MEASUREMENT OF THE POLARIZATION TRANSFER COEFFICIENTS D/T(0 DEG) AND A'/T(0 DEG) IN THE REACTION P P \rightarrow N X AT 800 MEV
LAMPF-403	A MEASUREMENT OF THE TRIPLE-SCATTERING PARAMETER D/T FOR THE CHARGE-EXCHANGE REGION IN N P SCATTERING
LAMPF-421	SENSITIVE SEARCH FOR MU- \rightarrow E- CONVERSION
LAMPF-444	SEARCH FOR THE DECAY MUON \rightarrow ELECTRON GAMMA
LAMPF-455	HIGH-PRECISION STUDY OF THE MU+ DECAY SPECTRUM
LAMPF-457	MEASUREMENT OF THE QUASI-FREE P N AND P P AND FREE P P ANALYZING POWERS, 500-800 MEV
LAMPF-462	ANALYZING POWER AND DIFFERENTIAL CROSS SECTIONS FOR THE REACTIONS P P \rightarrow D PI+ AND P D \rightarrow T PI+ AT ABOUT 600 MEV AND 400 MEV
LAMPF-478	PI+ AND PI- ELASTIC SCATTERING FROM DEUTERIUM
LAMPF-492	POLARIMETER CALIBRATIONS AND SEARCH FOR ENERGY-DEPENDENT STRUCTURE IN P P ELASTIC SCATTERING VIA CROSS SECTION, ANALYZING POWER, AND WOLFENSTEIN PARAMETER MEASUREMENTS
LAMPF-498	MEASUREMENTS OF LONGITUDINAL CROSS SECTION DIFFERENCE FOR LONGITUDINAL POLARIZED BEAM AND TARGET; DELTA-SIGMA/L FOR (1) P P, (2) P DEUT, AND (3) N P.
LAMPF-504	MEASUREMENT OF THE TOTAL CROSS SECTION DIFFERENCE FOR PROTON-PROTON SCATTERING IN PURE TRANSVERSE INITIAL SPIN STATES IN THE 400-800 MEV REGION
LAMPF-508	DIBARYON RESONANCES IN PION PRODUCTION
LAMPF-517	POLARIZED BEAM AND TARGET EXPERIMENTS IN THE P P SYSTEM. PHASE I. A/Y AND A'/Y FOR THE D PI+ CHANNEL AND A'/Y FOR THE ELASTIC CHANNEL FROM 500 TO 800 MEV

LIST OF EXPERIMENTS AND TITLES

EXPERIMENT	TITLE
LAMPF-518	POLARIZED BEAM AND TARGET EXPERIMENTS IN THE P P SYSTEM; PHASE II. MEASUREMENTS OF A/ZZ AND A/XZ FOR THE D PI+ CHANNEL AND FOR THE ELASTIC CHANNEL FROM 500 TO 800 MEV
LAMPF-546	INVESTIGATION OF THE SPIN FORM FACTOR OF TRITIUM AND HELIUM-THREE
LAMPF-563	P P ELASTIC SCATTERING AT 800 AND 500 MEV
LAMPF-567	A STUDY OF THE PI+ D ----> P P REACTION AT PION ENERGIES 5-200 MEV
LAMPF-581	PI+- ELASTIC SCATTERING FROM DEUTERIUM AT 256 MEV
LAMPF-585	MEASUREMENT OF P P AND P D ELASTIC SCATTERING IN THE COULOMB INTERFERENCE REGION BETWEEN 500 AND 800 MEV
LAMPF-589	FREE-FORWARD N P ELASTIC-SCATTERING ANALYZING POWER MEASUREMENTS AT 800 MEV
LAMPF-590	MEASUREMENT OF D(THETA) IN P N AND N P SCATTERING AT 800, 650 MEV AND OTHER ENERGIES WITH ASSOCIATED P P MEASUREMENTS
LAMPF-605	A DIBARYON SEARCH AT EPICS
LAMPF-634	MEASUREMENT OF PARITY VIOLATION IN THE P-NUCLEON TOTAL CROSS SECTIONS AT 800 MEV
LAMPF-635	SPIN MEASUREMENTS IN P D ELASTIC SCATTERING
LAMPF-636	A MEASUREMENT OF THE WOLFENSTEIN POLARIZATION PARAMETERS D/LL, D/SL, K/LL, AND K/SL FOR P P ELASTIC SCATTERING
LAMPF-637	A MEASUREMENT OF THE VECTOR POLARIZATION OF THE DEUTERON IN THE REACTION P P ----> D PI+
LAMPF-638	A SEARCH FOR OSCILLATIONS USING MUON NEUTRINOS
LAMPF-645	A SEARCH FOR NEUTRINO OSCILLATIONS AT LAMPF
LAMPF-647	A NEUTRON OSCILLATION EXPERIMENT AT LAMPF
LAMPF-650	A SEARCH FOR NEUTRINO MIXING VIA NONEXPONENTIAL PI ----> MU NU DECAY
LAMPF-651	MEASUREMENT OF A LOWER LIMIT FOR THE SUBTHRESHOLD PRODUCTION OF KAONS WITH 800-MEV PROTONS
LAMPF-664	THE MEASUREMENT OF THE POLARIZATION TRANSFER COEFFICIENTS A'/T AND D/T AT 500, 650, AND 800 MEV FOR THE REACTION D(P,N)2P
LAMPF-665	THE MEASUREMENT OF THE INITIAL STATE SPIN CORRELATION PARAMETERS C/LL AND C/SL IN N P ELASTIC SCATTERING AT 500, 650, AND 800 MEV
LAMPF-682	SEARCH FOR DIBARYON RESONANCES IN THE REACTION PI D ----> P PI N AT PLAB 200 TO 600 MEV/C
LAMPF-683	MEASUREMENT OF DELTA-SIGMA/L IN FREE NEUTRON-PROTON SCATTERING AT 500, 650, AND 800 MEV
LAMPF-685	SPIN CORRELATIONS IN THE REACTION P(D,D)P AT 500 MEV
LAMPF-689	A. NEUTRON COUNTER CALIBRATION USING TAGGED NEUTRONS FROM THE REACTION PI- D ----> N N, AND B. FEASIBILITY STUDY; MEASUREMENTS OF THE DIFFERENTIAL CROSS SECTION FOR PI- D ----> N N TO TEST CHARGE SYMMETRY AND ISOSPIN INVARIANCE
LAMPF-708	A MEASUREMENT OF THE DEPOLARIZATION, THE POLARIZATION, AND THE POLARIZATION ROTATION PARAMETERS AND THE ANALYZING POWER FOR THE REACTION P P ----> P PI+ N
LAMPF-726	SEARCH FOR THE C-NONINVARIANT DECAY P I O ----> 3 GAMMA
LAMPF-758	TO CATCH A DEMON
LAMPF-764	SEARCH FOR NEUTRINO OSCILLATIONS AND MEASUREMENTS OF CROSS SECTIONS USING A LIQUID SCINTILLATOR DETECTOR IN A MUON NEUTRINO BEAM AT THE LINE D STUB
LAMPF-767	PI+- DEUTERON ELASTIC SCATTERING AT THREE ENERGIES BETWEEN 30 AND 80 MEV
LAMPF-770	THE MEASUREMENT OF N P ELASTIC-SCATTERING SPIN-CORRELATION PARAMETERS WITH L- AND S-TYPE POLARIZED BEAM AND TARGET BETWEEN 500 AND 800 MEV
LAMPF-783	PION-INDUCED PION PRODUCTION ON DEUTERONS
LAMPF-790	I=1 N N INELASTIC CROSS SECTIONS AND FIRST MEASUREMENTS OF T20 FOR THE P P ----> D PI+ REACTION AT 800 AND 650 MEV
LAMPF-792	MEASUREMENT OF PARITY VIOLATION IN THE P-P AND P-NUCLEON TOTAL CROSS SECTIONS AT 800 MEV
LAMPF-795	A PRECISION TEST OF CHARGE INDEPENDENCE
LAMPF-804	MEASUREMENT OF THE ASYMMETRY PARAMETER IN PI- P ----> GAMMA N USING A TRANSVERSE POLARIZED TARGET
LAMPF-806	MEASUREMENT OF SPIN-ROTATION PARAMETERS 'A AND R' IN PI+ P ----> PI+ P AND PI- P ----> PI- P
LAMPF-808	0-DEGREE EXCITATION FUNCTION FOR PI- P ----> P I O N
LAMPF-818	PROTON-DEUTERON ELASTIC SCATTERING AT 800 MEV; TWO- AND THREE-SPIN OBSERVABLES
LAMPF-825	INVESTIGATION OF THE N-DELTA INTERACTION VIA PI+ D ----> P PI+ N
LAMPF-828	TOTAL AND DIFFERENTIAL CROSS SECTIONS FOR PI+ D ----> P P BELOW 20 MEV
LAMPF-846	N N ----> N N PI; CROSS SECTIONS AND ANALYZING POWERS FOR THE 800-MEV P P ----> PI+ (N P) AND P N ----> PI- (P P) INCLUSIVE REACTIONS
LAMPF-849	A MEASUREMENT OF THE DIFFERENTIAL CROSS SECTION FOR PI- P ----> P I O N AT 0 DEGREES AND 180 DEGREES IN THE MOMENTUM REGION 471-687 MEV/C
LAMPF-853	MEASUREMENT OF WOLFENSTEIN PARAMETERS AT 650 AND DSIGMA/DOMEGA AT 500, 650, AND 800 MEV FOR P D ----> P D ELASTIC SCATTERING
LAMPF-861	MEASUREMENTS OF THE SPIN-CORRELATION PARAMETER ANN(THETA) FOR N P ELASTIC SCATTERING AT 800 MEV
LAMPF-869	HIGHER PRECISION MEASUREMENT OF THE LAMB SHIFT IN MUONIUM
LENI-SC-021	INELASTIC SCATTERING OF PROTONS WITH ENERGY 1 GEV AND TRANSITION NUCLEAR DENSITIES
LENI-SC-029	MULTIPARAMETER INVESTIGATIONS OF FRAGMENT KINEMATICS WHEN DESTROYING NUCLEI BY PROTONS WITH ENERGY 1 GEV USING A DOUBLE-ARM TIME-OF-FLIGHT MASS SPECTROMETER
LENI-SC-042	STUDY OF MULTIPARTICLE DISINTEGRATION OF NUCLEI BY FAST HADRONS
LENI-SC-052	QUASIFREE PROTON SCATTERING AT ENERGY 1 GEV
LENI-SC-056	MEASUREMENT OF ENERGY AND ANGULAR DEPENDENCE OF THE CORRELATION COEFFICIENT OF POLARIZATION C(NN) IN ELASTIC PROTON-PROTON SCATTERING AT ENERGIES 690-950 MEV
LENI-SC-062	STUDY OF DIFFERENTIAL CROSS SECTIONS FOR PI+ DEUT ----> P P IN THE DIBARYON RESONANCES REGION
LENI-SC-066	STUDY OF CUMULATIVE NEUTRON PRODUCTION FROM NUCLEI BY PROTONS WITH ENERGY 1 GEV
LENI-SC-078	EXPERIMENTAL DISCOVERY OF SPATIAL CAPTURE EFFECT BY A MONOCRYSTAL IN THE CHANNELING REGIME
LENI-SC-085	MEASUREMENT OF CUMULATIVE PROTON POLARIZATION
LENI-SC-097	SUBTHRESHOLD K+ MESON PRODUCTION IN PROTON NUCLEUS INTERACTIONS
LENI-SC-108	STUDY OF BACKWARD PROTON SPECTRA IN THE REACTION P DEUT ----> P P N IN THE ENERGY REGION 500-1000 MEV
P-DECAY-FREJUS	NUCLEON DECAY EXPERIMENT WITH A MODULAR FLASH CHAMBER DETECTOR
P-DECAY-HOMESTAK	THE HOMESTAKE GOLD MINE EXPERIMENT
P-DECAY-HPM	THE HARVARD-PURDUE-WISCONSIN EXPERIMENT
P-DECAY-IMB	THE IRVINE-MICHIGAN-BROOKHAVEN EXPERIMENT
P-DECAY-KAMIOKA	THE KAMIOKA EXPERIMENT
P-DECAY-KGF	THE KOLAR GOLD FIELD EXPERIMENT
P-DECAY-NUSEX	THE MONT BLANC EXPERIMENT
P-DECAY-SOUDANII	THE SOUDAN-II EXPERIMENT
SACLAY-010	STUDY OF THE COHERENT PRODUCTION OF PI+ AND PI- BY LIGHT IONS IN THE ENERGY REGION 150-300 MEV/NUCLEON
SACLAY-013	ALPHA-ALPHA INTERACTIONS

LIST OF EXPERIMENTS AND TITLES

EXPERIMENT	TITLE
SACLAY-017	CROSSING JETS
SACLAY-037	MEASUREMENT OF P D \rightarrow HE3 GAMMA TO TEST DETAILED BALANCE
SACLAY-038	D-P ELASTIC SCATTERING AS A SOURCE OF INFORMATION ABOUT THE DEUTERON D-WAVE AND THE SPIN STRUCTURE OF THE N-N AMPLITUDES
SACLAY-050	STUDY OF THE DIBARYONIC COMPONENT (Δ^{++} , $2N$) AND EVENTUALLY DIBARYONIC ($T=1$) IN HE3 USING THE TRANSFER REACTIONS HE3(P,T), HE3(P,D), AND P(HE3,D).
SACLAY-051	P-D AND P-HE3 ELASTIC SCATTERING BETWEEN 140 AND 180 DEGREES CM
SACLAY-052	STUDY OF NUCLEON-NUCLEON SCATTERING AT SATURNE II
SACLAY-052-2	MEASUREMENT OF P P ELASTIC SCATTERING IN THE COULOMB-NUCLEAR INTERFERENCE REGION USING THE POLARIZED PROTON BEAM FROM SATURNE II
SACLAY-057	SEARCH FOR BARYONIUM STATES NEAR THE N-NBAR THRESHOLD BY THE DETECTION OF RECOIL NUCLEI WITH SPES-IV
SACLAY-060	ANGULAR AND ENERGY DEPENDENCE OF THE CROSS SECTION AND THE ANALYZING POWER OF THE REACTION P P \rightarrow D PI+ BETWEEN 725 AND 1000 MEV
SACLAY-066	MEASUREMENT OF THE THE D D \rightarrow HE GAMMA REACTION FOR A TEST OF THE MICROSCOPIC REVERSIBILITY PRINCIPLE
SACLAY-068	STUDY OF REACTIONS P D \rightarrow HE3 P10, P D \rightarrow HE3 GAMMA, AND P D \rightarrow H3 PI+
SACLAY-070	SEARCH FOR DIBARYONIC RESONANCES IN P P ELASTIC SCATTERING BETWEEN 600 AND 1000 MEV
SACLAY-078	N P ELASTIC SCATTERING AT SMALL ANGLES
SACLAY-080	STUDY OF ISOSCALAR DIBARYONIC RESONANCES
SACLAY-085	THE (HE3, T) REACTION AT INTERMEDIATE ENERGIES
SACLAY-087	MEASUREMENT OF THE TOTAL CROSS SECTION DIFFERENCE $\Delta\sigma$ (P P) IN THE ENERGY RANGE FROM 0.52 TO 2.8 GEV
SACLAY-088	MEASUREMENT OF A(OOKK) FOR P P ELASTIC SCATTERING FROM 725 TO 1040 MEV
SACLAY-089	EXPERIMENTAL CONFIRMATION OF THE PHASE-SHIFT ANALYSIS PREDICTIONS IN THE DIBARYON REGION
SACLAY-092	COHERENT PRODUCTION OF PIONS IN THE REACTION HE3(HE3, PI+)LI6 AS A FUNCTION OF INCIDENT ENERGY
SACLAY-095	COHERENT PRODUCTION OF THE ETA IN THE BACKWARD DIRECTION IN P D AND D D SYSTEMS
SACLAY-099	MEASUREMENT OF THE ANGULAR DISTRIBUTION OF THE DIFFERENTIAL CROSS SECTION AND POLARIZATION A(YO) IN THE REACTION P D \rightarrow H3 PI+ BETWEEN 500 AND 1000 MEV
SACLAY-101	NOVEL TECHNIQUE FOR THE BEAM POLARIZATION MEASUREMENT AT HIGH ENERGIES
SACLAY-104	MEASUREMENT OF WOLFENSTEIN PARAMETERS IN P P SCATTERING BETWEEN 600 MEV AND 3 GEV
SACLAY-105	TEST OF CHARGE SYMMETRY IN THE REACTION D D \rightarrow HE4 P10
SACLAY-106	SIMULTANEOUS MEASUREMENT OF THE ASYMMETRIES EPSILON(PP) AND EPSILON(NP)
SACLAY-107	ANOMALOUS PION PRODUCTION IN THE PROTON NUCLEUS INTERACTION AT INTERMEDIATE ENERGIES
SACLAY-108	MEASUREMENT OF VECTOR AND TENSOR ANALYZING POWERS FOR THE CONSTRUCTION OF THE DEUTERON POLARIMETER IN THE ENERGY REGION 150-500 MEV
SACLAY-113	SEARCH FOR MULTIBARYONIC RESONANCES BY A STUDY OF MISSING MASS SPECTRA IN THE REACTIONS P P \rightarrow PI- X AND P D \rightarrow PI- X
SACLAY-115	THE (D, HE2) REACTION
SERP-E-045	STUDY OF MUON CHARACTERISTICS IN NEUTRINO INTERACTIONS
SERP-E-100	STUDY OF LARGE PT PARTICLE PRODUCTION IN P NUCLEON COLLISIONS AT 70 GEV
SERP-E-102	STUDY OF HYPERCHARGE EXCHANGE SCATTERING PROCESSES
SERP-E-104	SEARCH FOR CHARM
SERP-E-105	STUDY OF HADRON INTERACTIONS IN THE ENERGY RANGE 20-40 GEV
SERP-E-107	STUDY OF NEUTRINO AND ANTINEUTRINO INTERACTIONS WITH NUCLEI
SERP-E-112	POLARIZATION MEASUREMENT IN CHARGE-EXCHANGE REACTIONS AT 40 GEV/C
SERP-E-115	STUDY OF CHARGED PARTICLE RARE DECAYS
SERP-E-116	STUDY OF CHARGE-EXCHANGE REACTIONS AT SMALL MOMENTUM TRANSFER
SERP-E-119	RELATIVISTIC POSITRONIUM PHYSICS
SERP-E-120	EXPERIMENTS WITH HYPERON BEAMS
SERP-E-121	SEARCH FOR DECAYS OF PARTICLES WITH MEAN LIFETIMES 10^{*-11} TO 10^{*-12} SEC
SERP-E-127	STUDY OF HADRON ATOMS AND ELEMENTARY PARTICLE PROPERTIES USING A CRYSTAL-DIFFRACTION SPECTROMETER AT THE SERPUKHOV PROTON SYNCHROTRON
SERP-E-130	LIQUID ARGON DETECTOR FOR HADRONS AND GAMMAS
SERP-E-132	INVESTIGATION OF POSSIBILITY OF BENDING AND COOLING OF BEAMS BY SINGLE CRYSTALS. DESIGN OF NEW TYPE DETECTORS FOR CHARGED PARTICLES
SERP-E-133	PROPOSAL TO EXTEND THE 32 GEV/C K+ P EXPERIMENT ON THE MIRABELLE BUBBLE CHAMBER UP TO 1 MILLION PICTURES
SERP-E-136	NEUTRINO DETECTOR
SERP-E-138	STUDY OF MULTIPARTICLE AP P INTERACTIONS AT 32 GEV/C WITH STATISTICS OF 10 EVENTS/MICROBARN IN MIRABELLE
SERP-E-139	STUDY OF ANTIDEUTERON-PROTON AND ANTIDEUTERON-DEUTERON INTERACTIONS IN LUMILLA
SERP-E-140	STUDY OF CHARGE-EXCHANGE REACTIONS AND SEARCH FOR NEW PARTICLES
SERP-E-142	INVESTIGATIONS OF ELECTROMAGNETIC DECAYS OF MESONS
SERP-E-143	STUDY OF THE PION STRUCTURE IN THE RADIATIVE SCATTERING REACTION ON NUCLEI
SERP-E-144	MEASUREMENTS OF THE SLOW ANTIPROTON YIELD IN 70 GEV PROTON INTERACTIONS
SERP-E-146	SEARCH FOR NARROW BARYON RESONANCES IN HIGH ENERGY NEUTRON DIFFRACTIVE SCATTERING
SERP-E-147	STUDY OF REACTIONS WITH STRANGE PARTICLE PRODUCTION IN THE PI- MESON BEAM OF THE IHEP ACCELERATOR
SERP-E-148	STUDY OF EXCLUSIVE RESONANCE PRODUCTION IN RARE PROCESSES IN SIGMA-M
SERP-E-150	AN ADDITION TO EXPERIMENT E-138 WITH A PROGRAM OF P P AND P DEUTERON INVESTIGATIONS AT 32 GEV/C
SERP-E-152	NEUTRINO EXPERIMENT USING A TAGGED NEUTRINO BEAM
SERP-E-153	STUDY OF CUMULATIVE HADRON PRODUCTION IN PROTON-NUCLEUS INTERACTIONS AT ENERGIES FROM 12 TO 70 GEV
SERP-E-157	NEW RESONANCES SEARCH IN DIFFRACTIVE PROCESSES ON NUCLEI WITH THE MIS-2 DETECTOR
SIN-R-71-07	P P ELASTIC SCATTERING BETWEEN 400 AND 600 MEV
SIN-R-71-08	PRECISION MEASUREMENT OF THE MUON MOMENTUM IN PION DECAY AT REST
SIN-R-72-02	EXPERIMENTS WITH NEUTRON BEAMS
SIN-R-73-01-2	ENERGY AND ANGLE DEPENDENCE OF THE TENSOR POLARIZATION T20 IN PI D ELASTIC SCATTERING
SIN-R-74-05	ELECTRON POLARIZATION IN MUON DECAY
SIN-R-75-07-2	MEASUREMENT OF THE P PARAMETER IN PI- P ELASTIC AND CHARGE EXCHANGE SCATTERING
SIN-R-77-01	STUDY OF ANGULAR CORRELATIONS IN THE REACTIONS C12(MU-, NU)B12 (G.S.)
SIN-R-78-05-4	MEASUREMENT OF THE AXZ PARAMETER IN THE REACTION P P \rightarrow PI+ D
SIN-R-78-06	MEASUREMENT OF THE REACTION P (POLARIZED) P (POLARIZED) \rightarrow PI+ D AT 580 MEV
SIN-R-78-09	SEARCH FOR ANOMALOUS MUON-NUCLEON INTERACTIONS; PRECISION MEASUREMENTS OF 2P-1S TRANSITIONS IN MUONIC LI7, C12, AND C13
SIN-R-78-13-1	STUDY OF THE RADIATIVE DECAY OF THE PION
SIN-R-78-15-1	MEASUREMENT OF THE 2P-2S ENERGY DIFFERENCE IN MUONIC HYDROGEN

LIST OF EXPERIMENTS AND TITLES

EXPERIMENT	TITLE
SIN-R-78-18	DETERMINATION OF THE VECTOR ANALYZING POWER IN π^0 SCATTERING
SIN-R-79-05	π^+ AND π^- ABSORPTION IN LIGHT NUCLEI
SIN-R-79-07	THE STUDY OF THE REACTION $\pi^+ d \rightarrow p p$ WITH A VECTOR POLARIZED d TARGET
SIN-R-80-01	MEASUREMENT OF CROSS SECTIONS WITH A BEAM OF POLARIZED PROTONS AND A POLARIZED TARGET
SIN-R-80-11	SEARCH FOR ADMIXTURE OF HEAVY NEUTRINOS IN $\pi^+ \rightarrow \mu^+ \text{NUMU}$ DECAY
SIN-R-81-01	EXPERIMENTAL DETERMINATION OF THE STRONG INTERACTION SHIFT IN THE $2p-1s$ TRANSITION OF PIONIC HYDROGEN AND DEUTERIUM ATOMS
SIN-R-81-02	STUDY OF THE FORMATION OF MUONIC ATOMS IN LOW Z GASEOUS MATERIALS IN A CYCLOTRON TRAP
SIN-R-81-06	IMPROVED DETECTION OF $2-\gamma$ EVENTS FROM THE SIN BEAM DUMP AND MEASUREMENT OF THEIR INVARIANT MASS
SIN-R-81-09	SEARCH FOR HEAVY NEUTRINOS IN $\pi^- \rightarrow e \text{NU}$ DECAY
SIN-R-82-01	SEARCH FOR AN ADMIXTURE OF HEAVY NEUTRINOS IN THE DECAY OF PIONS AT REST
SIN-R-82-03-1	MEASUREMENT OF THE LIFETIME OF THE $2s$ STATE OF MUONIC HELIUM AT GAS PRESSURES BELOW 5 ATM
SIN-R-82-04	PRECISE DETERMINATION OF THE BRANCHING RATIO $R = (\pi^+ \rightarrow e \text{NU} + \pi^+ \rightarrow e \text{NU} \gamma) / (\pi^+ \rightarrow \mu^+ \text{NU} + \pi^+ \rightarrow \mu^+ \text{NU} \gamma)$
SIN-R-82-06	SPIN TRANSFER PARAMETERS IN THE PROTON-PROTON INELASTIC CHANNELS
SIN-R-82-10	PRECISION DETERMINATION OF THE MASS OF THE NEGATIVE PION AND SEARCH FOR STRONG π N VAN DER WAALS FORCES
SIN-R-82-17	COULOMB-NUCLEAR INTERFERENCE IN $\pi^+ p$ AND $\pi^- p$ ELASTIC SCATTERING AT 55 MEV
SIN-R-83-20-2	MEASUREMENT OF THE $2s-2p$ ENERGY DIFFERENCE IN MUONIC HELIUM-4 AT LOW GAS DENSITY
SIN-R-83-29	MEASUREMENT OF THE χ_1 PARAMETER IN μ DECAY
SIN-Z-75-02	PARITY VIOLATION IN $p p$ SCATTERING
SIN-Z-80-01	PARITY VIOLATION IN p ALPHA SCATTERING
SLAC-BC-072	STUDY OF CHARM PHOTOPRODUCTION IN THE SHF EXPOSED TO A POLARIZED MONO-ENERGETIC BACKSCATTERED LASER BEAM OF 20 GEV PHOTONS
SLAC-BC-073	MEASUREMENT OF LIFETIME AND OTHER PROPERTIES OF CHARMED PARTICLES
SLAC-BC-075	PROPOSAL FOR AN IMPROVED CHARM PHOTOPRODUCTION STUDY AT THE SLAC HYBRID FACILITY
SLAC-BC-076	AN EXPERIMENT TO STUDY λ^0/c^+ DECAY MODES IN 10.5 GEV PHOTOPRODUCTION, WHERE A THRESHOLD ENHANCEMENT IS PREDICTED
SLAC-E-130	PRECISE MEASUREMENTS OF ASYMMETRIES IN DEEP INELASTIC SCATTERING OF POLARIZED ELECTRONS BY POLARIZED PROTONS AND BY POLARIZED DEUTERONS
SLAC-E-135	COMPARISON OF $K^- p$ AND $K^+ p$ INTERACTIONS, AND A PROGRAMMATIC STUDY OF STRANGE QUARK SPECTROSCOPY
SLAC-E-136	ELASTIC ELECTRON-PROTON CROSS SECTIONS AT LARGE MOMENTUM TRANSFER
SLAC-E-137	SEARCH FOR LOW MASS, METASTABLE NEUTRAL PARTICLES AT SLAC
SLAC-PEP-002	SEARCH FOR HIGHLY IONIZING PARTICLES AT PEP
SLAC-PEP-004	A PEP FACILITY BASED ON THE TIME PROJECTION CHAMBER
SLAC-PEP-005	A GENERAL SURVEY OF PARTICLE PRODUCTION AT PEP
SLAC-PEP-006	A LEPTON TOTAL ENERGY DETECTOR AT PEP
SLAC-PEP-009	A PEP FORWARD DETECTOR FACILITY
SLAC-PEP-012	A HIGH RESOLUTION SPECTROMETER AT PEP
SLAC-PEP-014	A SEARCH FOR FREE QUARKS AT PEP
SLAC-PEP-020	DELCO AT PEP
SLAC-PEP-021	PROPOSAL TO SEARCH FOR $e^+ e^- \rightarrow$ UNSEEN STATES USING PHOTON TAGGING
SLAC-SLC-SLD	SLD DETECTOR FOR THE SLC
SLAC-SLC-6	MARK II AT THE SLC
SLAC-SP-030	A LARGE SOLID ANGLE NEUTRAL DETECTOR FOR SPEAR II (THE CRYSTAL BALL)
SLAC-SP-031	CHECKOUT OF MARK III DETECTOR AT SPEAR
SLAC-SP-032	MARK-III AT SPEAR
TRIUMF-009	π^0 RADIATIVE CAPTURE AND CHARGE EXCHANGE IN FLIGHT
TRIUMF-052	A NEW MEASUREMENT OF THE $\pi^- \rightarrow e \text{NU}$ BRANCHING RATIO -- A TEST OF THE STANDARD MODEL
TRIUMF-104	SEARCH FOR MUON-ELECTRON CONVERSION AT TRIUMF
TRIUMF-121	TEST OF CHARGE-SYMMETRY IN $n p$ SCATTERING
TRIUMF-132-192	MEASUREMENT OF THE PION PRODUCTION ASYMMETRIES AND CROSS SECTIONS FROM REACTION $p p \rightarrow \text{DEUT } \pi^+ \text{ WITH A POLARIZED PROTON BEAM AT ENERGIES 350-500 MEV}$
TRIUMF-134	MEASUREMENT OF THE PARAMETER η IN MUON DECAY
TRIUMF-137	LIFETIME OF THE POSITIVE MUON
TRIUMF-168	$2s$ MUONIUM PRODUCTION FROM THIN FOILS
TRIUMF-171	TEST OF T -INVARIANCE IN $p p$ SCATTERING
TRIUMF-174	SPIN DEPENDENCE OF THE $p p \rightarrow p n \pi^+$ REACTION
TRIUMF-181	MEASUREMENT OF THE $1s$ STRONG INTERACTION SHIFT IN PIONIC HYDROGEN
TRIUMF-185	PRECISE MEASUREMENT OF THE POLARIZATION PARAMETER χ_1 ; A SEARCH FOR THE EFFECTS OF A RIGHT-HANDED GAUGE BOSON IN μ^+ DECAY
TRIUMF-190	RADIATIVE POLARIZED NEUTRON CAPTURE ON PROTONS
TRIUMF-205	TENSOR ANALYZING POWER IN PION DEUTERIUM SCATTERING
TRIUMF-208	PROTON-PROTON BREMSSTRAHLUNG
TRIUMF-217	LOW ENERGY, ELECTROMAGNETIC PION FORM FACTORS
TRIUMF-247	PRECISE MEASUREMENT OF MUON DECAY ASYMMETRY PARAMETER Δ
TRIUMF-248	A STUDY OF THE $\pi^+ \rightarrow e^+ \text{NU}$ DECAY
TRIUMF-277	THE BRANCHING RATIO OF THE RARE DECAY $\pi^0 \rightarrow e^+ e^-$

BEAM-TARGET-MOMENTUM INDEX

BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT
GAMMA P		<1.3	INS-15-2
GAMMA P		<200.0	CERN-NA-014
GAMMA P		<200.0	CERN-NA-014-2
GAMMA P	0.6	1.1	INS-15-1
GAMMA P	0.8	1.0	INS-14-3
GAMMA P	1.2		INS-17-1
GAMMA P	10.5		SLAC-BC-076
GAMMA P	20.0		SLAC-BC-072
GAMMA P	20.0		SLAC-BC-073
GAMMA P	20.0		SLAC-BC-075
GAMMA P	40.0	160.0	FNAL-691
GAMMA P	70.0	140.0	FNAL-516
GAMMA P	70.0	200.0	CERN-WA-069
GAMMA P	80.0	140.0	FNAL-612
GAMMA P	200.0	550.0	FNAL-683
GAMMA N	0.5	0.9	INS-14-4
GAMMA NUCLEON	10.0	180.0	CERN-NA-001
GAMMA DEUT	0.3	0.6	INS-16-1
GAMMA DEUT	0.4	0.8	INS-15-3
GAMMA DEUT	0.5	0.9	INS-19-1
GAMMA DEUT	0.5	1.0	INS-18-3
GAMMA HE	0.2	0.4	INS-19-2
GAMMA NUCLEUS	0.	300.0	FNAL-458
GAMMA NUCLEUS	0.2	0.5	INS-17-2
GAMMA NUCLEUS	0.2	0.5	INS-18-1
GAMMA NUCLEUS	0.2	1.0	INS-16-2
GAMMA NUCLEUS	0.3	0.6	INS-19-3
GAMMA NUCLEUS	0.4	0.8	INS-15-3
GAMMA NUCLEUS	0.7	1.0	INS-15-4
GAMMA NUCLEUS	10.0	180.0	CERN-NA-001
GAMMA NUCLEUS	20.0	80.0	CERN-WA-058
GAMMA NUCLEUS	200.0	500.0	FNAL-687
GAMMA CRYSTAL	100.0		CERN-NA-033

MOMENTUM RANGES FOR NEUTRINO AND ANTINEUTRINO BEAMS ARE NOT DEFINED VERY SYSTEMATICALLY.

NU NE	10.0	200.0	FNAL-646
NU	0.	5.0	CERN-PS-191
ANU	0.	5.0	CERN-PS-191
NUE E-	0.	70.0	SERP-E-152
NUE E-	2.0E-02	5.3E-02	LAMPF-225
NUE E-	10.0	200.0	FNAL-646
NUE NE	10.0	200.0	FNAL-646
NUE NUCLEUS	0.	70.0	SERP-E-152
NUE NUCLEUS	0.5	3.0	CERN-PS-180
NUE NUCLEUS	10.0	250.0	FNAL-636
NUE	0.	5.3E-02	LAMPF-645
ANUE E-	0.	230.0	FNAL-594
ANUE E-	10.0	200.0	FNAL-646
ANUE P	0.	5.3E-02	LAMPF-645
ANUE NE	10.0	200.0	FNAL-646
ANUE AL	2.0	30.0	SERP-E-045
NUMU E-	0.	12.0	BNL-734
NUMU E-	0.	70.0	SERP-E-152
NUMU E-	0.	150.0	CERN-WA-021
NUMU E-	0.	200.0	FNAL-053A
NUMU E-	0.	230.0	FNAL-594
NUMU E-	0.	260.0	CERN-WA-018
NUMU E-	0.	<400.0	FNAL-635
NUMU E-	2.0	30.0	SERP-E-045
NUMU E-	5.0	100.0	CERN-WA-079
NUMU P	0.	10.0	BNL-737
NUMU P	0.	12.0	BNL-734
NUMU P	0.	150.0	CERN-WA-021
NUMU P	0.	200.0	FNAL-053A
NUMU P	0.	260.0	CERN-WA-001
NUMU P	0.	260.0	CERN-WA-025
NUMU N	0.	10.0	BNL-737
NUMU N	0.	12.0	BNL-734
NUMU N	0.	230.0	FNAL-594
NUMU N	0.	260.0	CERN-WA-025
NUMU N	2.0	30.0	SERP-E-045
NUMU NUCLEON	10.0	600.0	FNAL-649
NUMU DEUT	0.	10.0	BNL-737
NUMU DEUT	0.	260.0	CERN-WA-001
NUMU DEUT	0.	260.0	CERN-WA-025
NUMU C12	0.	0.3	LAMPF-764
NUMU NE	0.	200.0	FNAL-053A
NUMU NE	10.0	200.0	FNAL-646
NUMU AL	0.	0.3	LAMPF-764
NUMU AL	2.0	30.0	SERP-E-045
NUMU FE	0.	160.0	CERN-WA-001-2
NUMU FE	0.	260.0	CERN-WA-001
NUMU FE	2.0	30.0	SERP-E-045
NUMU FE	30.0	230.0	FNAL-701
NUMU PB	0.	200.0	CERN-WA-044
NUMU NUCLEUS	0.	6.0	CERN-PS-167
NUMU NUCLEUS	0.	6.0	CERN-PS-168
NUMU NUCLEUS	0.	70.0	SERP-E-152
NUMU NUCLEUS	0.	160.0	CERN-WA-018-2
NUMU NUCLEUS	0.	230.0	FNAL-594
NUMU NUCLEUS	0.	260.0	CERN-WA-018

BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT
NUMU NUCLEUS	0.	500.0	FNAL-733
NUMU NUCLEUS		<400.0	FNAL-744
NUMU NUCLEUS		<500.0	FNAL-745
NUMU NUCLEUS	0.5	1.5	CERN-PS-181
NUMU NUCLEUS	0.5	3.0	CERN-PS-180
NUMU NUCLEUS	10.0	20.0	SERP-E-107
NUMU NUCLEUS	10.0	100.0	CERN-WA-059
NUMU NUCLEUS	10.0	100.0	FNAL-531
NUMU NUCLEUS	10.0	100.0	FNAL-564
NUMU NUCLEUS	10.0	200.0	CERN-WA-047
NUMU NUCLEUS	10.0	250.0	FNAL-636
NUMU NUCLEUS	10.0	400.0	FNAL-632
NUMU NUCLEUS	20.0	600.0	FNAL-652
NUMU NUCLEUS	25.0	250.0	FNAL-616
NUMU NUCLEUS	>60.0		FNAL-553
NUMU	0.	5.3E-02	LAMPF-645
NUMU	0.	0.3	LAMPF-764
NUMU	0.	4.0	BNL-775
NUMU	0.	7.0	BNL-776
NUMU	6.0E-02	0.3	LAMPF-638
NUMU	0.5	3.0	CERN-PS-169
ANUMU E-	0.	12.0	BNL-734
ANUMU E-	0.	200.0	FNAL-180
ANUMU E-	0.	230.0	FNAL-594
ANUMU E-	0.	260.0	CERN-WA-018
ANUMU E-	0.	<400.0	FNAL-635
ANUMU E-	5.0	100.0	CERN-WA-079
ANUMU P	0.	12.0	BNL-734
ANUMU P	0.	150.0	CERN-WA-021
ANUMU P	0.	200.0	FNAL-180
ANUMU P	0.	230.0	FNAL-594
ANUMU P	0.	260.0	CERN-WA-001
ANUMU P	0.	260.0	CERN-WA-025
ANUMU P	2.0	30.0	SERP-E-045
ANUMU N	0.	12.0	BNL-734
ANUMU N	0.	200.0	FNAL-180
ANUMU N	0.	260.0	CERN-WA-025
ANUMU NUCLEON	10.0	600.0	FNAL-649
ANUMU DEUT	0.	260.0	CERN-WA-001
ANUMU DEUT	0.	260.0	CERN-WA-025
ANUMU NE	10.0	200.0	FNAL-646
ANUMU AL	2.0	30.0	SERP-E-045
ANUMU FE	0.	160.0	CERN-WA-001-2
ANUMU FE	0.	260.0	CERN-WA-001
ANUMU FE	0.	260.0	CERN-WA-018
ANUMU FE	2.0	30.0	SERP-E-045
ANUMU FE	30.0	230.0	FNAL-701
ANUMU NUCLEUS	0.	6.0	CERN-PS-167
ANUMU NUCLEUS	0.	6.0	CERN-PS-168
ANUMU NUCLEUS	0.	160.0	CERN-WA-018-2
ANUMU NUCLEUS	0.	230.0	FNAL-594
ANUMU NUCLEUS	0.	260.0	CERN-WA-018
ANUMU NUCLEUS	0.	500.0	FNAL-733
ANUMU NUCLEUS		<400.0	FNAL-744
ANUMU NUCLEUS	10.0	20.0	SERP-E-107
ANUMU NUCLEUS	10.0	100.0	CERN-WA-059
ANUMU NUCLEUS	10.0	100.0	FNAL-531
ANUMU NUCLEUS	10.0	100.0	FNAL-564
ANUMU NUCLEUS	10.0	200.0	CERN-WA-047
ANUMU NUCLEUS	10.0	400.0	FNAL-632
ANUMU NUCLEUS	20.0	600.0	FNAL-652
ANUMU NUCLEUS	25.0	250.0	FNAL-616
ANUMU NUCLEUS	>60.0		FNAL-553
ANUMU	0.	5.3E-02	LAMPF-645
ANUMU	6.0E-02	0.3	LAMPF-638
NUTAU NE	10.0	200.0	FNAL-646
NUTAU NUCLEUS	10.0	250.0	FNAL-636
ANUTAU NE	10.0	200.0	FNAL-646

E- P	6.4		SLAC-E-130
E- P	14.0		SLAC-E-136
E- P	16.2		SLAC-E-130
E- P	21.0		SLAC-E-136
E- P	22.6		SLAC-E-130
E- P	28.5		SLAC-E-136
E- DEUT	6.4		SLAC-E-130
E- DEUT	16.2		SLAC-E-130
E- DEUT	22.6		SLAC-E-130
E- NUCLEUS	20.0		SLAC-E-137
E-	1.0	10.0	CERN-PS-188
E-	5.0	20.0	CERN-WA-064

FOR E+E- COLLIDING BEAM EXPERIMENTS, WE GIVE THE CENTER-OF-MASS (=LAB) MOMENTA RATHER THAN THE EQUIVALENT LAB MOMENTUM FOR SCATTERING ON A STATIONARY TARGET.

E+ E-	?		SLAC-SP-031
E+ E-	0.2		CERN-WA-007
E+ E-	0.2		CERN-WA-007
E+ E-	0.2		CERN-WA-007
E+ E-	0.2		CERN-WA-007
E+ E-	1.5	4.2	SLAC-SP-050
E+ E-	1.5		SLAC-SP-052
E+ E-	1.8		SLAC-SP-052

BEAM-TARGET-MOMENTUM INDEX

BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT	BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT
E+ E-	1.9		SLAC-SP-032	PI+ P	280.0		CERN-WA-070
E+ E-	2.0	2.5	SLAC-SP-032	PI+ P	400.0		FNAL-609
E+ E-	2.2	5.6	DESY-CRYSTAL-BAL	PI+ N	5.0	20.0	SERP-E-102
E+ E-	3.7	5.8	DESY-LENA	PI+ N	20.0		CERN-WA-056
E+ E-	4.0	18.0	SLAC-PEP-002	PI+ DEUT	3.8E-02		LAMPF-828
E+ E-	4.0	18.0	SLAC-PEP-005	PI+ DEUT	5.4E-02		LAMPF-828
E+ E-	4.0	18.0	SLAC-PEP-006	PI+ DEUT	6.6E-02		LAMPF-828
E+ E-	4.0	18.0	SLAC-PEP-012	PI+ DEUT	9.5E-02	0.2	LAMPF-767
E+ E-	4.5	5.8	DESY-ARGUS	PI+ DEUT	0.1		LAMPF-567
E+ E-	4.5	6.0	CESR-CLEO	PI+ DEUT	0.2		LAMPF-567
E+ E-	4.7	5.8	CESR-CUSB	PI+ DEUT	0.2		LAMPF-567
E+ E-	5.0	22.0	DESY-PETRA-JADE	PI+ DEUT	0.2	0.4	TRIUMF-205
E+ E-	6.0	15.0	SLAC-PEP-009	PI+ DEUT	0.2		LAMPF-567
E+ E-	6.0	23.5	DESY-PETRA-MARK J	PI+ DEUT	0.2	0.6	LAMPF-682
E+ E-	6.0	23.5	DESY-PETRA-TASSO	PI+ DEUT	0.2		LAMPF-567
E+ E-	7.0	23.7	DESY-PETRA-CELLO	PI+ DEUT	0.2	0.4	SIN-R-79-07
E+ E-	14.5		SLAC-PEP-004	PI+ DEUT	0.2	0.4	SIN-R-78-18
E+ E-	14.5		SLAC-PEP-014	PI+ DEUT	0.2	0.3	SIN-R-73-01-2
E+ E-	14.5		SLAC-PEP-020	PI+ DEUT	0.2		LAMPF-567
E+ E-	14.5		SLAC-PEP-021	PI+ DEUT	0.2		LAMPF-567
E+ E-	17.5		DESY-PETRA-PLU-2	PI+ DEUT	0.2		LAMPF-478
E+ E-		<35.0	KEK-TE-001	PI+ DEUT	0.3	0.6	LAMPF-825
E+ E-		<35.0	KEK-TE-002	PI+ DEUT	0.3	0.4	LAMPF-605
E+ E-		<35.0	KEK-TE-003	PI+ DEUT	0.4		LAMPF-581
E+ E-	50.0		SLAC-SLC-SLD	PI+ DEUT	0.4		LAMPF-783
E+ E-	50.0		SLAC-SLC-6	PI+ DEUT	0.4	0.7	LEN1-SC-062
E+ E-	?		CERN-LEP-ALEPH	PI+ DEUT	0.5		LAMPF-783
E+ E-	?		CERN-LEP-DELPHI	PI+ DEUT	0.5	1.2	KEK-083
E+ E-	?		CERN-LEP-L3	PI+ DEUT	0.6		LAMPF-783
E+ E-	?		CERN-LEP-OPAL	PI+ DEUT	0.7		KEK-081
E+	1.0	10.0	CERN-PS-188	PI+ DEUT	1.0	1.4	CERN-PS-159
E+	5.0	20.0	CERN-WA-064	PI+ DEUT	1.5		KEK-081
MU- P	0.		SIN-R-78-15-1	PI+ DEUT	300.0		FNAL-705
MU- P	120.0	280.0	CERN-NA-002	PI+ DEUT	750.0		FNAL-705
MU- P	120.0	280.0	CERN-NA-009	PI+ HE3	0.1	0.3	SIN-R-79-05
MU- HE	0.		BNL-745	PI+ HE3	0.2		LAMPF-546
MU- HE	0.		SIN-R-82-03-1	PI+ HE3	0.3		LAMPF-546
MU- C12	0.		SIN-R-77-01	PI+ TRIT	0.2		LAMPF-546
MU- NUCLEUS	0.		LAMPF-421	PI+ TRIT	0.3		LAMPF-546
MU- NUCLEUS	0.		TRIUMF-104	PI+ HE	100.0	150.0	CERN-NA-008
MU- NUCLEUS	0.2		SIN-R-81-02	PI+ C	530.0		FNAL-706
MU- NUCLEUS	100.0	250.0	CERN-NA-004	PI+ C12	1.0		BNL-758
MU-	0.2		SIN-R-83-29	PI+ NUCLEUS	0.2	2.0	KEK-094
MU+ E-	?		TRIUMF-168	PI+ NUCLEUS	1.0	5.0	KEK-090
MU+ E-	5.0E-03		LAMPF-869	PI+ NUCLEUS	1.0	9.0	ITEP-E-771
MU+ AL	0.1		BNL-754	PI+ NUCLEUS	1.5		ITEP-E-812
MU+	0.		LAMPF-400-445	PI+ NUCLEUS	1.8		ITEP-E-823
MU+	0.		LAMPF-444	PI+ NUCLEUS	3.0		ITEP-E-823
MU+	0.		LAMPF-455	PI+ NUCLEUS	30.0		CERN-WA-072
MU+	0.		TRIUMF-134	PI+ NUCLEUS	75.0		FNAL-615
MU+	0.		TRIUMF-137	PI+ NUCLEUS	100.0		FNAL-597
MU+	0.		TRIUMF-247	PI+ NUCLEUS	140.0	300.0	CERN-NA-010
MU+	3.0E-02		TRIUMF-185	PI+ NUCLEUS	150.0		CERN-NA-003
MU+	5.2E-02		TRIUMF-248	PI+ NUCLEUS	200.0		CERN-NA-003
MU+	0.1		SIN-R-74-05	PI+ NUCLEUS	200.0		FNAL-565
MU+	0.2		SIN-R-83-29	PI+ NUCLEUS	200.0		FNAL-629
MUON P	750.0		FNAL-665	PI+ NUCLEUS	250.0		CERN-NA-022
MUON NUCLEUS	280.0		CERN-NA-028	PI+ NUCLEUS	250.0		FNAL-615
MUON NUCLEUS	325.0		CERN-NA-028	PI+ NUCLEUS	280.0		CERN-NA-003
MUON NUCLEUS	750.0		FNAL-665	PI+ NUCLEUS	500.0		FNAL-672
TAU-	0.	70.0	SERP-E-152	PI+	0.		LAMPF-400-445
PION NUCLEUS	?		CERN-NA-018	PI+	0.		LAMPF-650
PION NUCLEUS	350.0		CERN-NA-019	PI+	0.		SIN-R-78-13-1
PI+ P	0.1		SIN-R-82-17	PI+	0.		SIN-R-81-09
PI+ P	0.1		LAMPF-567	PI+	7.0E-02		TRIUMF-052
PI+ P	0.2		LAMPF-567	PI+	8.5E-02		TRIUMF-248
PI+ P	0.2		LAMPF-567	PI+	9.0E-02		SIN-R-82-04
PI+ P	0.2		LAMPF-567	PI+	0.1		SIN-R-80-11
PI+ P	0.2		LAMPF-567	PI+	0.2		SIN-R-82-01
PI+ P	0.2		LAMPF-567	PI+	0.2		SIN-R-71-08
PI+ P	0.2		LAMPF-567	PI+	0.5		LAMPF-032
PI+ P	0.2		LAMPF-567	PI+	1.0	10.0	CERN-PS-188
PI+ P	0.2		LAMPF-567	PI+	2.0	20.0	CERN-PS-164
PI+ P	0.2		LAMPF-058-120	P10	?		TRIUMF-277
PI+ P	0.3	0.5	CERN-SC-094	P10	0.		LAMPF-400-445
PI+ P	0.4	0.6	LAMPF-806	P10	0.		LAMPF-726
PI+ P	0.5	0.7	LAMPF-849	P10	0.		TRIUMF-217
PI+ P	0.5		LAMPF-032	P10	?		CERN-SC-077
PI+ P	0.7		LAMPF-058-120	P10	?		SERP-E-119
PI+ P	1.4	2.1	ITEP-E-801	PI- E-	250.0		CERN-NA-007
PI+ P	1.5	1.9	CERN-PS-160	PI- E-	300.0		CERN-NA-007
PI+ P	2.5	14.0	CERN-PS-157	PI- P	0.		CERN-NA-007
PI+ P	5.0	20.0	SERP-E-102	PI- P	0.		SIN-R-81-01
PI+ P	10.0		BNL-755	PI- P	0.		TRIUMF-181
PI+ P	20.0		CERN-WA-056	PI- P	0.		TRIUMF-217
PI+ P	50.0	200.0	CERN-WA-006	PI- P	?		KEK-064
PI+ P	85.0		CERN-WA-076	PI- P	7.7E-02	<8.0	TRIUMF-009
PI+ P	100.0		FNAL-577	PI- P	8.6E-02	0.3	LAMPF-190
PI+ P	100.0		FNAL-597	PI- P	9.5E-02	0.2	LAMPF-808
PI+ P	147.0		FNAL-570	PI- P	0.1		SIN-R-82-17
PI+ P	150.0	300.0	CERN-NA-024	PI- P	0.2	0.4	SIN-R-75-07-2
PI+ P	200.0		CERN-WA-070	PI- P	0.2		LAMPF-058-120
PI+ P	200.0		FNAL-577	PI- P	0.2	0.7	LAMPF-804
PI+ P	250.0		CERN-NA-022	PI- P	0.3	0.5	CERN-SC-094
PI+ P	250.0		CERN-NA-022	PI- P	0.4	0.6	LAMPF-806

BEAM-TARGET-MOMENTUM INDEX

LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT	
BEAM AND TARGET			BEAM AND TARGET			
PI- P	0.5	0.7	LAMPF-849	PI- NUCLEUS	30.0	SERP-E-148
PI- P	0.7		LAMPF-058-120	PI- NUCLEUS	40.0	SERP-E-143
PI- P	1.4	2.1	ITEP-E-801	PI- NUCLEUS	40.0	SERP-E-148
PI- P	2.0	14.0	CERN-PS-157	PI- NUCLEUS	75.0	FNAL-615
PI- P	8.0		BNL-771	PI- NUCLEUS	100.0	FNAL-597
PI- P	8.0		KEK-121	PI- NUCLEUS	125.0	FNAL-537
PI- P	10.0		BNL-755	PI- NUCLEUS	140.0	CERN-NA-010
PI- P	12.0		CERN-WA-056	PI- NUCLEUS	150.0	CERN-NA-003
PI- P	13.0		BNL-726	PI- NUCLEUS	200.0	CERN-NA-003
PI- P	13.0		BNL-732	PI- NUCLEUS	200.0	FNAL-490
PI- P	13.5		SERP-E-116	PI- NUCLEUS	200.0	FNAL-515
PI- P	13.5		BNL-755	PI- NUCLEUS	200.0	FNAL-565
PI- P	20.0		BNL-705	PI- NUCLEUS	250.0	FNAL-615
PI- P	20.0		CERN-WA-007	PI- NUCLEUS	280.0	CERN-NA-003
PI- P	20.0		SERP-E-148	PI- NUCLEUS	300.0	CERN-NA-017
PI- P	20.0	40.0	SERP-E-105	PI- NUCLEUS	350.0	CERN-WA-071
PI- P	21.0		BNL-769	PI- NUCLEUS	350.0	CERN-WA-078
PI- P	22.0		BNL-747	PI- NUCLEUS	350.0	FNAL-653
PI- P	25.0		SERP-E-116	PI- NUCLEUS	360.0	CERN-WA-075
PI- P	30.0		SERP-E-148	PI- NUCLEUS	360.0	FNAL-597
PI- P	33.0		SERP-E-142	PI- NUCLEUS	500.0	FNAL-672
PI- P	38.0		SERP-E-140	PI-	?	SERP-E-115
PI- P	40.0		CERN-WA-007	PI-	4.0E-02	SIN-R-78-15-1
PI- P	40.0		SERP-E-112	PI-	4.0E-02	SIN-R-82-03-1
PI- P	40.0		SERP-E-116	PI-	1.0	CERN-PS-188
PI- P	40.0		SERP-E-147	PI-	2.0	CERN-PS-164
PI- P	40.0		SERP-E-148			
PI- P	60.0		CERN-WA-007	RH00	20.0	SERP-E-148
PI- P	80.0		CERN-WA-007	RH00	30.0	SERP-E-148
PI- P	85.0		CERN-WA-067	RH00	40.0	SERP-E-148
PI- P	100.0		FNAL-577	OMEGA	38.0	SERP-E-140
PI- P	100.0	345.0	FNAL-597	PHI	38.0	SERP-E-140
PI- P	100.0		CERN-NA-008	A1(1270)-	20.0	SERP-E-148
PI- P	140.0		CERN-WA-011	A1(1270)-	30.0	SERP-E-148
PI- P	147.0		FNAL-570	A1(1270)-	40.0	SERP-E-148
PI- P	150.0		CERN-NA-005	D(1285)	33.0	SERP-E-142
PI- P	150.0	300.0	CERN-NA-024	FPRIME	33.0	SERP-E-142
PI- P	175.0		FNAL-663	A3(1680)-	20.0	SERP-E-148
PI- P	200.0		CERN-WA-070	A3(1680)-	30.0	SERP-E-148
PI- P	200.0		FNAL-577	A3(1680)-	40.0	SERP-E-148
PI- P	200.0		FNAL-580			
PI- P	280.0		CERN-WA-070	K+ P	10.0	BNL-755
PI- P	300.0		CERN-NA-005	K+ P	11.0	SLAC-E-135
PI- P	300.0		CERN-NA-012	K+ P	32.1	SERP-E-133
PI- P	360.0		CERN-NA-016	K+ P	70.0	CERN-WA-027
PI- P	360.0		CERN-NA-027	K+ P	100.0	FNAL-577
PI- P	360.0		FNAL-597	K+ P	100.0	FNAL-597
PI- DEUT	0.		SIN-R-81-01	K+ P	147.0	FNAL-570
PI- DEUT	9.5E-02	0.2	LAMPF-767	K+ P	200.0	FNAL-577
PI- DEUT	9.5E-02	0.3	LAMPF-295	K+ P	250.0	CERN-NA-022
PI- DEUT	0.2		LAMPF-478	K+ N	1.1	KEK-034
PI- DEUT	0.3		LAMPF-689	K+ N	1.3	KEK-034
PI- DEUT	0.4		LAMPF-581	K+ N	1.4	KEK-034
PI- DEUT	0.4		LAMPF-783	K+ N	1.5	KEK-034
PI- DEUT	0.4	1.2	KEK-083	K+ N	5.0	SERP-E-102
PI- DEUT	0.5		LAMPF-783	K+ N	75.0	FNAL-585
PI- DEUT	0.6		LAMPF-783	K+ N	100.0	FNAL-585
PI- DEUT	1.0	1.4	CERN-PS-159	K+ N	150.0	FNAL-585
PI- DEUT	300.0		FNAL-705	K+ DEUT	1.5	KEK-081
PI- DEUT	750.0		FNAL-705	K+ DEUT	1.7	KEK-081
PI- HE3	0.	0.3	SIN-R-79-05	K+ XE	0.8	ITEP-E-802
PI- HE3	0.2		LAMPF-546	K+ XE	0.8	ITEP-E-761
PI- HE3	0.3		LAMPF-546	K+ NUCLEUS	100.0	FNAL-597
PI- TRIT	0.2		LAMPF-546	K+ NUCLEUS	200.0	FNAL-565
PI- TRIT	0.3		LAMPF-546	K+ NUCLEUS	250.0	CERN-NA-022
PI- HE	50.0	300.0	CERN-WA-008	K+ NUCLEUS	500.0	FNAL-672
PI- BE	100.0	200.0	CERN-WA-011	K+	?	KEK-104
PI- BE	185.0		FNAL-673	K+	0.	BNL-787
PI- BE	225.0		FNAL-326	K+	0.	KEK-099
PI- BE	225.0		FNAL-610	K+		KEK-089
PI- BE	275.0		FNAL-650	K+	0.5	KEK-010
PI- BE	350.0		CERN-WA-077	K+	2.0	CERN-PS-164
PI- C	530.0		FNAL-706	K+	4.0	BNL-735
PI- SI	40.0		SERP-E-157	K+	6.0	BNL-777
PI- SI	200.0		CERN-NA-032	K0	?	BNL-749
PI- FE	278.0		FNAL-595	K0	0.8	ITEP-E-761
PI- CU	20.0		SERP-E-148	KS	1.0	ITEP-E-811
PI- CU	30.0		SERP-E-148	KS	50.0	CERN-NA-031
PI- CU	40.0		SERP-E-148	KS	50.0	FNAL-621
PI- CU	225.0		FNAL-326	KL CU	1.0	ITEP-E-811
PI- SN	225.0		FNAL-326	KL	1.0	ITEP-E-811
PI- WT	225.0		FNAL-326	KL	1.0	ITEP-E-821
PI- PB	100.0	200.0	CERN-NA-029	KL	4.0	BNL-780
PI- NUCLEUS		<4.3	KEK-082	KL	4.0	BNL-791
PI- NUCLEUS	0.2	2.0	KEK-094	KL	5.0	FNAL-721
PI- NUCLEUS	1.0		SERP-E-127	KL	30.0	FNAL-617
PI- NUCLEUS	1.0	9.0	ITEP-E-771	KL	50.0	CERN-NA-031
PI- NUCLEUS	1.5		ITEP-E-812	KL	50.0	FNAL-731
PI- NUCLEUS	1.8		ITEP-E-823	KL	50.0	FNAL-621
PI- NUCLEUS	2.5		ITEP-E-813	K- E-	250.0	CERN-NA-007
PI- NUCLEUS	3.0		ITEP-E-823	K- P	0.	CERN-PS-165
PI- NUCLEUS	5.0		ITEP-E-813	K- P	0.7	BNL-702
PI- NUCLEUS	20.0		SERP-E-148	K- P	2.2	BNL-698
PI- NUCLEUS	30.0		CERN-WA-072	K- P	4.7	CERN-PS-157

BEAM-TARGET-MOMENTUM INDEX

LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT
BEAM AND TARGET			BEAM AND TARGET		
K- P	6.0	BNL-771	P P	1.3	LAMPF-790
K- P	8.0	CERN-WA-074	P P	1.3	LAMPF-636
K- P	10.0	BNL-755	P P	1.3	SACLAY-052-2
K- P	11.0	SLAC-E-135	P P	1.3	LENI-SC-056
K- P	13.0	SERP-E-116	P P	1.3	LAMPF-517
K- P	20.0	CERN-WA-007	P P	1.4	LAMPF-517
K- P	20.0	SERP-E-148	P P	1.4	LAMPF-708
K- P	22.0	BNL-747	P P	1.5	LAMPF-385
K- P	25.0	SERP-E-116	P P	1.5	LAMPF-492
K- P	30.0	SERP-E-148	P P	1.5	LAMPF-015
K- P	33.0	SERP-E-142	P P	1.5	LAMPF-194
K- P	40.0	CERN-WA-007	P P	1.5	LAMPF-336
K- P	40.0	SERP-E-112	P P	1.5	LAMPF-392
K- P	40.0	SERP-E-116	P P	1.5	LAMPF-402
K- P	40.0	SERP-E-148	P P	1.5	LAMPF-457
K- P	60.0	CERN-WA-007	P P	1.5	LAMPF-462
K- P	75.0	FNAL-585	P P	1.5	LAMPF-517
K- P	80.0	CERN-WA-007	P P	1.5	LAMPF-563
K- P	100.0	FNAL-577	P P	1.5	LAMPF-590
K- P	100.0	FNAL-585	P P	1.5	LAMPF-637
K- P	108.6	CERN-WA-028	P P	1.5	LAMPF-708
K- P	150.0	FNAL-585	P P	1.5	LAMPF-758
K- P	175.0	FNAL-663	P P	1.5	LAMPF-790
K- P	200.0	FNAL-577	P P	1.5	LAMPF-792
K- DEUT	0.9	BNL-773	P P	1.5	LAMPF-846
K- DEUT	1.0	CERN-PS-159	P P	1.5	SACLAY-088
K- HE	0.7	BNL-774	P P	1.5	SACLAY-089
K- HE	0.8	BNL-788	P P	1.6	SACLAY-088
K- L16	0.7	BNL-752	P P	1.6	SACLAY-089
K- L16	0.8	BNL-788	P P	1.6	SACLAY-088
K- C	0.8	BNL-759	P P	1.6	SACLAY-089
K- O	0.7	BNL-752	P P	1.7	SACLAY-088
K- SI	40.0	SERP-E-157	P P	1.7	SACLAY-089
K- WT	6.0	BNL-751	P P	1.8	SACLAY-088
K- NUCLEUS	0.4	KEK-117	P P	1.8	SACLAY-089
K- NUCLEUS	0.4	CERN-PS-166	P P	5.6	BNL-722
K- NUCLEUS	0.4	KEK-114	P P	10.0	BNL-755
K- NUCLEUS	0.5	CERN-PS-166	P P	15.0	BNL-748
K- NUCLEUS	0.8	BNL-746	P P	20.0	BNL-748
K- NUCLEUS	0.8	BNL-760	P P	20.0	CERN-WA-007
K- NUCLEUS	0.8	BNL-781	P P	23.0	BNL-748
K- NUCLEUS	1.0	SERP-E-127	P P	24.0	BNL-785
K- NUCLEUS	200.0	FNAL-565	P P	26.0	BNL-748
K- NUCLEUS	500.0	FNAL-672	P P	26.0	BNL-782
K-	?	SERP-E-115	P P	28.5	BNL-748
K-	2.0	CERN-PS-164	P P	32.0	SERP-E-150
K*(892)0	30.0	FNAL-617	P P	40.0	CERN-WA-007
MESON-	20.0	SERP-E-148	P P	50.0	CERN-WA-006
MESON-	30.0	SERP-E-148	P P	60.0	CERN-WA-007
MESON-	40.0	SERP-E-148	P P	70.0	SERP-E-100
			P P	80.0	CERN-WA-007
			P P	85.0	CERN-WA-076
			P P	100.0	FNAL-577
			P P	100.0	FNAL-597
			P P	100.0	CERN-WA-008
			P P	147.0	FNAL-570
			P P	150.0	CERN-WA-024
			P P	175.0	FNAL-663
			P P	200.0	CERN-WA-005
			P P	200.0	CERN-WA-025
			P P	200.0	CERN-WA-070
			P P	200.0	FNAL-577
			P P	200.0	FNAL-704
			P P	212.2	CERN-R-420
			P P	268.8	CERN-UA-006
			P P	280.0	CERN-WA-070
			P P	281.0	CERN-R-211
			P P	293.3	CERN-R-210
			P P	300.0	CERN-WA-005
			P P	360.0	CERN-WA-016
			P P	360.0	CERN-WA-025
			P P	360.0	CERN-WA-027
			P P	>360.0	CERN-WA-023
			P P	400.0	FNAL-557
			P P	400.0	FNAL-609
			P P	400.0	FNAL-623
			P P	478.7	CERN-R-211
			P P	478.7	CERN-R-421
			P P	478.7	CERN-R-608
			P P	478.7	CERN-R-110
			P P	478.7	CERN-R-501
			P P	478.7	CERN-R-808
			P P	478.7	CERN-R-806
			P P	511.2	CERN-R-807
			P P	800.0	FNAL-557
			P P	1000.0	FNAL-743
			P P	1030.7	CERN-R-421
			P P	1030.7	CERN-R-416
			P P	1440.0	CERN-R-211
			P P	1440.0	CERN-R-420
			P P	1495.9	CERN-R-608
			P P	2047.5	CERN-R-211
			P P	2047.5	CERN-R-419
			P P	2047.5	CERN-R-421
			P P	2047.5	CERN-R-421

PROTON-PROTON COLLIDING BEAM EXPERIMENTS ARE ORDERED BY THE EQUIVALENT LAB MOMENTUM FOR SCATTERING ON A STATIONARY TARGET RATHER THAN BY THE ACTUAL LAB (=CENTER-OF-MASS) MOMENTUM.

BEAM-TARGET-MOMENTUM INDEX

LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT
BEAM AND TARGET			BEAM AND TARGET		
P P	2047.5	CERN-R-422	P NUCLEUS	1.7	LENI-SC-021
P P	2047.5	CERN-R-608	P NUCLEUS	1.7	LENI-SC-029
P P	2114.1	CERN-R-420	P NUCLEUS	1.7	LENI-SC-052
P P	1.6E+05	CERN-R-703	P NUCLEUS	1.7	LENI-SC-066
P N		SERP-E-119	P NUCLEUS	2.5	ITEP-E-813
P N	1.1	LAMPF-392	P NUCLEUS	3.7	SACLAY-057
P N	1.2	LAMPF-590	P NUCLEUS	4.5	ITEP-E-831
P N	1.3	KEK-075	P NUCLEUS	5.0	ITEP-E-813
P N	1.4	KEK-075	P NUCLEUS	7.5	ITEP-E-813
P N	1.5	LAMPF-385	P NUCLEUS	12.0	SERP-E-153
P N	1.5	LAMPF-392	P NUCLEUS	12.0	KEK-049
P N	1.5	LAMPF-457	P NUCLEUS	17.0	BNL-790
P N	1.5	LAMPF-590	P NUCLEUS	20.0	FNAL-591
P N	1.5	LAMPF-792	P NUCLEUS	70.0	SERP-E-120
P N	1.5	LAMPF-846	P NUCLEUS	70.0	SERP-E-121
P N	1.6	KEK-075	P NUCLEUS	70.0	SERP-E-144
P N	1.8	KEK-075	P NUCLEUS	100.0	FNAL-597
P N	32.0	SERP-E-150	P NUCLEUS	200.0	FNAL-565
P NUCLEON	1.5	LAMPF-634	P NUCLEUS	200.0	FNAL-629
P DEUT	?	SACLAY-037	P NUCLEUS	200.0	FNAL-466
P DEUT	?	SACLAY-113	P NUCLEUS	400.0	CERN-NA-030
P DEUT	1.0	LAMPF-498	P NUCLEUS	400.0	CERN-WA-038
P DEUT	1.0	SACLAY-068	P NUCLEUS	400.0	CERN-WA-065
P DEUT	1.1	SACLAY-099	P NUCLEUS	400.0	CERN-WA-066
P DEUT	1.1	LAMPF-635	P NUCLEUS	400.0	FNAL-497
P DEUT	1.1	LAMPF-664	P NUCLEUS	400.0	FNAL-549
P DEUT	1.1	LAMPF-853	P NUCLEUS	400.0	FNAL-557
P DEUT	1.2	LENI-SC-108	P NUCLEUS	400.0	FNAL-565
P DEUT	1.2	SACLAY-095	P NUCLEUS	400.0	FNAL-605
P DEUT	1.2	SACLAY-051	P NUCLEUS	400.0	FNAL-613
P DEUT	1.3	LAMPF-585	P NUCLEUS	400.0	FNAL-631
P DEUT	1.3	LAMPF-635	P NUCLEUS	400.0	FNAL-622
P DEUT	1.3	LAMPF-664	P NUCLEUS	450.0	CERN-NA-030
P DEUT	1.3	LAMPF-853	P NUCLEUS	450.0	CERN-WA-068
P DEUT	1.5	LAMPF-385	P NUCLEUS	500.0	FNAL-576
P DEUT	1.5	LAMPF-015	P NUCLEUS	500.0	FNAL-672
P DEUT	1.5	LAMPF-360	P NUCLEUS	750.0	FNAL-508
P DEUT	1.5	LAMPF-462	P NUCLEUS	800.0	FNAL-557
P DEUT	1.5	LAMPF-635	P NUCLEUS	800.0	FNAL-605
P DEUT	1.5	LAMPF-664	P NUCLEUS	1000.0	FNAL-672
P DEUT	1.5	LAMPF-795	P	1.0	CERN-PS-188
P DEUT	1.5	LAMPF-818	P	2.0	CERN-PS-164
P DEUT	1.5	LAMPF-853	N P	0.	CERN-NA-006
P DEUT	1.6	SACLAY-095	N P	0.6	SIN-R-72-02
P DEUT	32.0	SERP-E-150	N P	0.6	TRIUMF-190
P DEUT	70.0	SERP-E-100	N P	0.9	SACLAY-078
P DEUT	300.0	FNAL-705	N P	1.0	LAMPF-498
P DEUT	750.0	FNAL-705	N P	1.0	SACLAY-106
P HE3	1.3	SACLAY-051	N P	1.1	TRIUMF-121
P HE3	1.4	SACLAY-050	N P	1.1	LAMPF-665
P HE3	1.6	SACLAY-050	N P	1.1	LAMPF-683
P HE	0.3	SIN-Z-80-01	N P	1.1	LAMPF-770
P HE	1.5	LAMPF-015	N P	1.2	LAMPF-590
P HE	72.1	CERN-R-210	N P	1.3	LAMPF-498
P HE	100.0	CERN-NA-008	N P	1.3	LAMPF-665
P HE	118.7	CERN-R-110	N P	1.3	LAMPF-683
P HE	126.9	CERN-R-418	N P	1.5	LAMPF-366
P BE	1.5	LAMPF-360	N P	1.5	LAMPF-403
P BE	28.5	BNL-744	N P	1.5	LAMPF-590
P BE	100.0	CERN-NA-011	N P	1.5	LAMPF-498
P BE	200.0	FNAL-673	N P	1.5	LAMPF-589
P BE	250.0	FNAL-673	N P	1.5	LAMPF-665
P BE	400.0	CERN-NA-020	N P	1.5	LAMPF-683
P BE	400.0	FNAL-555	N P	1.5	LAMPF-861
P BE	450.0	CERN-NA-034	N P	10.0	BNL-766
P BE	900.0	FNAL-711	N DEUT	0.6	SIN-R-72-02
P C	400.0	FNAL-706	N C	45.0	SERP-E-104
P C	530.0	FNAL-706	N SI	280.0	FNAL-400
P C	800.0	FNAL-706	N SI	560.0	FNAL-400
P C12	1.5	LAMPF-651	N NUCLEUS	2.0	ITEP-E-822
P SI	1.0	LENI-SC-078	N NUCLEUS	40.0	SERP-E-146
P AR	200.0	CERN-NA-005	N NUCLEUS	300.0	FNAL-630
P CR	500.0	FNAL-524	N	1.4E-04	LAMPF-647
P FE	350.0	FNAL-595	N	0.1	BNL-767
P CU	0.9	SACLAY-107	AN P	0.	CERN-PS-179
P CU	400.0	CERN-NA-020	AN NUCLEUS	0.	CERN-PS-170
P AG	500.0	FNAL-524	AP P	0.	CERN-PS-171
P XE	200.0	CERN-NA-005	AP P	0.	CERN-PS-174
P WT	500.0	FNAL-524	AP P	0.	CERN-PS-175
P IR	20.0	CERN-PS-162	AP P	0.	CERN-PS-182
P TH	28.0	BNL-779	AP P	0.	CERN-PS-183
P U	20.0	CERN-PS-162	AP P	0.	CERN-PS-183
P U	28.0	BNL-779	AP P	0.	CERN-PS-161
P NUCLEUS	?	KEK-084	AP P	0.	BNL-708
P NUCLEUS		KEK-082	AP P	0.	CERN-PS-179
P NUCLEUS	0.8	LENI-SC-097	AP P	0.	CERN-PS-170
P NUCLEUS	1.0	LENI-SC-042	AP P	0.2	CERN-PS-173
P NUCLEUS	1.0	LENI-SC-085	AP P	0.2	CERN-PS-172
P NUCLEUS	1.0	SERP-E-127	AP P	0.3	CERN-PS-172
P NUCLEUS	1.0	KEK-113	AP P	0.3	CERN-PS-178
P NUCLEUS	1.0	KEK-090	AP P	0.3	BNL-762
P NUCLEUS	1.0	ITEP-E-771	AP P	0.3	KEK-074
P NUCLEUS	1.0	BNL-778	AP P	0.4	KEK-074A
P NUCLEUS	1.2	SIN-R-81-06	AP P	0.4	BNL-742

BEAM-TARGET-MOMENTUM INDEX

LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT		
BEAM AND TARGET			BEAM AND TARGET				
AP P	0.4	1.0	CERN-PS-163-2	AP	2.0E-02	CERN-PS-189	
AP P	1.2	1.6	BNL-789	AP	2.0	20.0	CERN-PS-164
AP P	1.5	2.0	CERN-PS-185	LAMBDA P	30.0	60.0	SERP-E-120
AP P	3.0		KEK-062	LAMBDA DEUT	30.0	60.0	SERP-E-120
AP P	3.5	7.5	KEK-062	LAMBDA NUCLEUS	80.0	350.0	FNAL-619
AP P	3.5		CERN-R-704	SIGMA+ P	30.0	60.0	SERP-E-120
AP P	4.0		KEK-062	SIGMA+ DEUT	30.0	60.0	SERP-E-120
AP P	4.5		KEK-062	SIGMA+	?		KEK-092
AP P	5.0	16.0	BNL-771	SIGMA+	120.0	250.0	FNAL-620
AP P	8.0		CERN-WA-074	SIGMA- P	30.0	60.0	SERP-E-120
AP P	13.0		SERP-E-116	SIGMA- P	74.0		CERN-WA-042
AP P	20.0		CERN-WA-007	SIGMA- P	137.0		CERN-WA-042
AP P	20.0		SERP-E-148	SIGMA- DEUT	30.0	60.0	SERP-E-120
AP P	25.0		SERP-E-116	SIGMA- DEUT	74.0		CERN-WA-042
AP P	30.0		SERP-E-148	SIGMA- DEUT	137.0		CERN-WA-042
AP P	32.0		SERP-E-138	SIGMA- BE	135.0		CERN-WA-062
AP P	32.0		SERP-E-150	SIGMA- NUCLEUS	0.		BNL-723
AP P	40.0		CERN-WA-007	SIGMA- NUCLEUS	1.0		SERP-E-127
AP P	40.0		SERP-E-116	SIGMA- NUCLEUS	20.0	350.0	FNAL-666
AP P	40.0		SERP-E-148	SIGMA- NUCLEUS	250.0		FNAL-730
AP P	60.0		CERN-WA-007	SIGMA- NUCLEUS	120.0	250.0	FNAL-620
AP P	74.0		CERN-WA-042	SIGMA-	250.0		FNAL-715
AP P	80.0		CERN-WA-007	XIO P	30.0	60.0	SERP-E-120
AP P	100.0		FNAL-577	XIO DEUT	30.0	60.0	SERP-E-120
AP P	100.0		FNAL-597	XI- P	30.0	60.0	SERP-E-120
AP P	137.0		CERN-WA-042	XI- P	74.0		CERN-WA-042
AP P	147.0		FNAL-570	XI- P	137.0	60.0	SERP-E-120
AP P	175.0		FNAL-663	XI- DEUT	30.0		CERN-WA-042
AP P	200.0		CERN-WA-005	XI- DEUT	74.0		SERP-E-120
AP P	200.0		FNAL-577	XI- DEUT	74.0		CERN-WA-042
AP P	200.0		FNAL-704	XI- DEUT	137.0		CERN-WA-042
AP P	212.2		CERN-R-420	XI- BE	116.0		CERN-WA-042
AP P	268.8		CERN-UA-006	XI-	120.0	250.0	FNAL-620
AP P	293.3	2094.0	CERN-R-210	OMEGA- P	30.0	60.0	SERP-E-120
AP P	478.7		CERN-R-211	OMEGA- DEUT	30.0	60.0	SERP-E-120
AP P	478.7		CERN-R-421	OMEGA-	120.0	250.0	FNAL-620
AP P	478.7		CERN-R-608	DEUT P	?		SACLAY-066
AP P	478.7	2047.5	CERN-R-110	DEUT P	0.8	1.5	SACLAY-108
AP P	478.7	2047.5	CERN-R-501	DEUT P	1.5		LAMPF-685
AP P	478.7	2047.5	CERN-R-808	DEUT P	1.6	3.6	SACLAY-115
AP P	478.7	2047.5	CERN-R-807	DEUT P	2.0	4.0	KEK-080
AP P	511.2	2047.5	CERN-R-807	DEUT P	2.4		SACLAY-038
AP P	1030.7		CERN-R-421	DEUT P	2.9		SACLAY-038
AP P	1440.0		CERN-R-211	DEUT P	3.4		SACLAY-038
AP P	1440.0		CERN-R-420	DEUT DEUT	?		SACLAY-066
AP P	1495.9		CERN-R-608	DEUT DEUT	1.9	2.6	SACLAY-105
AP P	2047.5		CERN-R-211	DEUT DEUT	2.0	4.0	KEK-125
AP P	2047.5		CERN-R-421	DEUT DEUT	3.0		SACLAY-080
AP P	2047.5		CERN-R-608	DEUT DEUT	3.4		SACLAY-080
AP P	2114.1		CERN-R-420	DEUT DEUT	3.7		SACLAY-080
AP P	5328.0	1.6E+05	CERN-UA-004	DEUT DEUT	254.3		CERN-R-418
AP P	47959.2	2.1E+06	FNAL-710	DEUT HE3	0.2	0.3	SIN-R-73-01-2
AP P	47959.2	2.1E+06	FNAL-713	DEUT LI6	?		SACLAY-010
AP P	1.3E+05	2.1E+06	FNAL-740	DEUT BE	?		SACLAY-010
AP P	1.3E+05	2.1E+06	FNAL-741	DEUT BOR10	?		SACLAY-010
AP P	1.6E+05		CERN-R-703	DEUT NUCLEUS	1.6	3.6	SACLAY-115
AP P	1.6E+05		CERN-UA-001	ADEUT P	12.0	13.0	SERP-E-139
AP P	1.6E+05		CERN-UA-003	ADEUT DEUT	12.0	13.0	SERP-E-139
AP P	1.6E+05		CERN-UA-005	HE3 P	1.8	4.3	SACLAY-085
AP P	2.0E+05		CERN-UA-002	HE3 P	2.5		ITEP-E-782
AP P	3.4E+05	4.3E+05	CERN-UA-005-2	HE3 P	4.7		SACLAY-050
AP P	2.1E+06		FNAL-735	HE3 P	5.0		ITEP-E-782
AP N	32.0		SERP-E-150	HE3 HE3	?		SACLAY-092
AP DEUT	0.		CERN-PS-174	HE3 NUCLEUS	1.8	4.3	SACLAY-085
AP DEUT	0.		CERN-PS-175	TRIT P	2.5		ITEP-E-782
AP DEUT	0.	0.5	CERN-PS-161	TRIT P	5.0		ITEP-E-782
AP DEUT	0.	0.6	BNL-772	HE P	4.3		SACLAY-013
AP DEUT	0.	1.0	CERN-PS-179	HE P	7.0		SACLAY-013
AP DEUT	0.3	1.0	KEK-074	HE DEUT	4.3		SACLAY-013
AP DEUT	32.0		SERP-E-150	HE DEUT	7.0		SACLAY-013
AP DEUT	74.0		CERN-WA-042	HE HE3	4.3		SACLAY-013
AP DEUT	137.0		CERN-WA-042	HE HE3	7.0		SACLAY-013
AP DEUT	300.0		FNAL-705	HE HE	4.3		SACLAY-013
AP DEUT	750.0		FNAL-705	HE HE	7.0		SACLAY-013
AP HE3	0.	1.0	CERN-PS-179	HE HE	4.3		SACLAY-013
AP HE	0.	1.0	CERN-PS-179	HE HE	5.0		SACLAY-013
AP NE	0.	1.0	CERN-PS-179	HE HE	70.2	523.5	CERN-R-210
AP AL	0.4	0.6	BNL-742	HE HE	116.9	511.8	CERN-R-110
AP AR	200.0		CERN-NA-005	HE HE	116.9	511.8	CERN-R-808
AP CU	0.4	0.6	BNL-742	HE HE	125.1		CERN-R-418
AP XE	200.0		CERN-NA-005	HE HE	125.1	511.8	CERN-R-807
AP PB	0.4	0.6	BNL-742	HE NUCLEUS	>45.0		CERN-PS-192
AP NUCLEUS	?		KEK-084	BOR12	0.	70.0	SIN-R-77-01
AP NUCLEUS	0.		CERN-PS-176	CHARMED-MESON	0.		SERP-E-152
AP NUCLEUS	0.		CERN-PS-177	HADRON P	200.0	2000.0	FNAL-690
AP NUCLEUS	0.		CERN-PS-186	CHARGED+ P	40.0		CERN-WA-063
AP NUCLEUS	0.	0.5	CERN-PS-161	CHARGED+	10.0	40.0	SERP-E-132
AP NUCLEUS	0.3	0.6	CERN-PS-184	CHARGED+	50.0	200.0	FNAL-660
AP NUCLEUS	0.6		CERN-PS-187	CHARGED- P	40.0		CERN-WA-063
AP NUCLEUS	100.0		FNAL-597	CHARGED-	10.0	40.0	SERP-E-132
AP NUCLEUS	125.0		FNAL-537	CHARGED-	50.0	200.0	FNAL-660
AP NUCLEUS	500.0		FNAL-672	NEUTRAL	?		FNAL-584

SPOKESPERSON INDEX

SPOKESPERSON	INSTITUTION	EXPERIMENT	SPOKESPERSON	INSTITUTION	EXPERIMENT
ADAIR, R.K.	YALE	BNL-735	DAVID, M.	SACL	CERN-WA-011
ADAIR, R.K.	YALE	BNL-749	DAVIES, J.D.	BIRM	CERN-PS-174
AMALDI, U.	CERN	CERN-LEP-DELPHI	DAVIES, J.D.	BIRM	CERN-SC-077
ANDERSON, H.L.	LANL	LAMPF-455	DEL PRETE, T.	PISA	CERN-R-210
ANTIPOV, Y.M.	SERP	SERP-E-143	DENISOV, S.P.	SERP	SERP-E-152
ANTIPOV, Y.M.	SERP	SERP-E-148	DERRICK, M.	ANL	SLAC-PEP-012
ARNOLD, R.G.	AMER	SLAC-E-136	DEUTSCH, M.	MIT	BNL-760
ASTON, D.	SLAC	SLAC-E-135	DEUTSCH, M.	MIT	BNL-781
AUER, I.P.	ANL	LAMPF-498	DEVLIN, T.	RUTG	BNL-555
AVILEZ, C.	MEXU	BNL-766	DEVLIN, T.	RUTG	FNAL-619
AXEN, D.A.	BRCO	TRIUMF-174	DIAMBRINI-PALAZZI, G.	GENO	CERN-WA-058
BACKENSTOSS, G.	BASL	SIN-R-79-05	DIAMBRINI-PALAZZI, G.	ROMA	CERN-WA-071
BADERTSCHER, A.	YALE	LAMPF-869	DICK, L.	CERN	CERN-UA-006
BAKER, S.I.	FNAL	FNAL-631	DIGIACOMO, N.	LANL	CERN-PS-187
BALATZ, M.Y.	ITEP	ITEP-E-821	DITZLER, W.R.	ANL	LAMPF-683
BALATZ, M.Y.	ITEP	ITEP-E-811	DOMBECK, T.W.	LANL	LAMPF-764
BALDO-CEOLIN, M.	PADO	CERN-PS-180	DOMBECK, T.W.	LANL	LAMPF-638
BALTAY, C.	COLU	FNAL-646	DORFAN, J.	SLAC	SLAC-SLC-6
BALTAY, C.	COLU	SLAC-SLC-SLD	DUFLO, J.	SACL	SACLAY-013
BALTAY, C.	COLU	FNAL-053A	DYDAK, F.	CERN	CERN-WA-001-2
BARLOUTAUD, R.	SACL	P-DECAY-FREJUS	DZIERBA, A.	IND	FNAL-672
BARLOUTAUD, R.	SACL	CERN-PS-168	ECKHAUSE, M.	WILL	TRIUMF-137
BARNES, P.D.	CMU	BNL-788	ELLIS, R.J.	LANL	LAMPF-647
BARNES, P.D.	CMU	BNL-759	ENDO, I.	HIRO	INS-15-3
BARRELET, E.	EPOL	CERN-PS-157	ERMOLOV, P.F.	SERP	FNAL-180
BARRETT, D.F.	COLO	FNAL-502	EXTERMANN, P.	GEVA	CERN-WA-042
BATTY, C.J.	RHEL	CERN-PS-165	FASSNACHT, P.	STRB	SACLAY-113
BEER, G.A.	VICT	TRIUMF-181	FAVART, D.	LVLN	CERN-R-211
BELLINI, G.	MILA	CERN-NA-029	FELDMAN, G.	SLAC	SLAC-SLC-6
BERKELMAN, K.	CORN	CESR-CLEO	FELST, R.	DESY	DESY-PETRA-JADE
BERTHET, P.	IPN	SACLAY-095	FERRER, A.	CERN	CERN-WA-056
BERTINI, R.	SACL	SACLAY-060	FETSCHER, W.	ETHZ	SIN-R-74-05
BEVINGTON, P.R.	CASE	LAMPF-194	FETSCHER, W.	ETHZ	SIN-R-83-29
BHATIA, T.S.	TAMU	LAMPF-457	FIDECARO, G.	CERN	CERN-WA-006
BHATIA, T.S.	TAMU	LAMPF-846	FIORINI, E.	MILA	CERN-PS-167
BIENLEIN, J.	DESY	DESY-LENA	FIORINI, E.	MILA	P-DECAY-NUSEX
BIENLEIN, J.K.	DESY	DESY-CRYSTAL-BAL	FISHER, C.	RHEL	CERN-NA-016
BIMBOT, L.	IPN	SACLAY-092	FITZGERALD, D.	LANL	LAMPF-808
BLESZYNSKI, M.	UCLA	LAMPF-635	FITZGERALD, D.H.	LANL	LAMPF-849
BLESZYNSKI, M.	UCLA	LAMPF-685	FITZGERALD, D.H.	UCLA	LAMPF-689
BLOOM, E.	SLAC	DESY-CRYSTAL-BAL	FOA, L.	PISA	CERN-NA-001
BLOOM, E.D.	SLAC	SLAC-SP-030	FOA, L.	PISA	CERN-NA-029
BODEK, A.	ROCH	FNAL-595	FONTAINE, J.M.	SACL	SACLAY-104
BOGGILD, H.	COPE	CERN-R-807	FRANCIS, W.	MSU	FNAL-585
BOLOTOV, V.N.	MINR	SERP-E-115	FRANK, S.G.F.	SHMP	CERN-NA-007
BONNER, B.E.	LANL	LAMPF-635	FRANKEL, S.	PENN	LAMPF-421
BONNER, B.E.	LANL	LAMPF-403	FRANKLIN, G.	CMU	BNL-788
BONNER, B.E.	LANL	LAMPF-403	FRANZINI, P.	COLU	CESR-CUSB
BORISOV, V.S.	ITEP	ITEP-E-823	FRASCARIA, R.	IPN	SACLAY-095
BOUDARD, A.	SACL	SACLAY-108	FRASCARIA, R.	IPN	SACLAY-051
BOUDRIE, R.L.	LANL	LAMPF-581	FRASCARIA, R.	SACL	SACLAY-080
BOVET, E.	NEUC	SIN-R-81-01	FRIEDLANDER, E.M.	LBL	CERN-PS-192
BOWMAN, J.D.	LANL	LAMPF-650	FROSCH, R.	VILL	SIN-R-82-01
BOWMAN, J.D.	LANL	LAMPF-444	FROSCH, R.	VILL	SIN-R-71-08
BOWMAN, J.D.	LANL	LAMPF-295	FRYBERGER, D.	SLAC	SLAC-PEP-002
BOWMAN, J.D.	LANL	LAMPF-455	FUKUI, S.	NAGO	KEK-084
BRAU, J.	TENN	SLAC-BC-076	GAARDE, C.	COPE	SACLAY-115
BREIDENBACH, M.	SLAC	SLAC-SLC-SLD	GAARDE, C.	COPE	SACLAY-085
BRESSANI, T.	TORI	CERN-PS-178	GAGO, J.M.	LSBF	CERN-WA-074
BRISCOE, W.J.	UCLA	LAMPF-546	GARCON, M.	SACL	SACLAY-017
BRISCOE, W.J.	GWU	LAMPF-849	GARRETA, D.	SACL	CERN-PS-184
BRISCOE, W.J.	GWU	LAMPF-806	GAZZALY, M.M.	MINN	LAMPF-790
BROCK, R.	MSU	FNAL-733	GEIST, W.	CERN	CERN-R-416
BRUECKNER, W.	MPIH	CERN-PS-166	GEIST, W.	CERN	CERN-R-419
BRYMAN, D.A.	TRIU, VICT	TRIUMF-052	GIBSON, W.	ALBA	FNAL-660
BRYMAN, D.A.	VICT, TRIU	TRIUMF-104	GIMLETT, J.	CIT	SIN-R-81-01
BUDAGOV, Y.A.	JINR	SERP-E-102	GLADISCH, M.W.	HEID	LAMPF-869
BUGG, D.	LOQM	CERN-PS-172	GLASS, G.	TAMU	LAMPF-664
BUNCE, G.	BNL	BNL-755	GLASS, G.	TAMU	LAMPF-402
BUNYATOV, S.A.	JINR	SERP-E-136	GLASS, G.	TAMU	LAMPF-846
BURKE, D.	SLAC	SLAC-PEP-021	GLASS, G.C.	TAMU	LAMPF-589
BURLESON, G.R.	UNM	LAMPF-770	GOLDZAHN, L.	SACL	SACLAY-095
BURLESON, G.R.	NMXS	LAMPF-665	GOTOW, K.	VPI	LAMPF-767
BUTLER, J.	FNAL	FNAL-687	GOTOW, K.	VPI	LAMPF-567
BUTTON-SHAFFER, J.	MASA	BNL-698	GOTOW, K.	VPI	LAMPF-828
CAMERON, J.	ALBE	SACLAY-108	GOUDSMIT, P.F.A.	ANIK	SIN-R-78-09
CAMERON, J.M.	ALBE	TRIUMF-190	GOUZIANOS, K.	ROCK	FNAL-612
CAMILLERI, L.	CERN	CERN-R-110	GRACCO, V.	GENO	CERN-WA-007
CARLINI, R.	LANL	LAMPF-634	GRAFSTROM, P.	UOPP	CERN-NA-008
CARR, J.	LBL	TRIUMF-247	GRAM, P.A.M.	LANL	LAMPF-783
CASON, N.M.	NDAM	BNL-769	GRAMENITSKY, I.M.	JINR	SERP-E-139
CHEW, H.H.	UCI	LAMPF-225	GRANNIS, P.	STON	FNAL-740
CHRISTENSON, J.H.	NYU	BNL-726	GREEN, D.	FNAL	FNAL-623
CHUNG, S.U.	BNL	BNL-771	GREEN, D.	FNAL	FNAL-580
CLINE, D.	WISC	P-DECAY-HPW	GREENE, S.J.	NMXS	LAMPF-682
COOPER, J.	PENN	FNAL-673	GRUEEBLER, W.	ETHZ	SIN-R-73-01-2
COOPER, M.	LANL	LAMPF-808	GUSTAFSON, H.R.	MICH	FNAL-622
COOPER, P.S.	YALE	FNAL-715	GUTAY, L.J.	PURD	FNAL-735
CORMELL, L.R.	ARIZ	FNAL-683	GUTAY, L.J.	PURD	FNAL-591
COUVERT, P.	SACL	SACLAY-068	HAHN, B.	BERN	SIN-R-82-04
COX, B.	FNAL	FNAL-705	HAYANO, R.	TOKY	KEK-099
COX, B.	FNAL	FNAL-537	HEBERT, J.	OTTA	FNAL-576
CROWE, K.M.	LBL	TRIUMF-134	HESS, R.	GEVA	SIN-R-78-06
DALPIAZ, P.	FERR	CERN-PS-170	HESS, R.	GEVA	SIN-R-80-01
DARRIULAT, P.	CERN	CERN-UA-002	HESS, R.	GEVA	SIN-R-71-07

SPOKESPERSON INDEX

SPOKESPERSON	INSTITUTION	EXPERIMENT	SPOKESPERSON	INSTITUTION	EXPERIMENT
HESS, R.	GEVA	SIN-R-82-06	LANDER, R.	UCD	SLAC-PEP-009
HIBOU, F.	STRB	SACLAY-010	LANDSBERG, L.G.	SERP	SERP-E-120
HIBOU, F.	STRB, SACL	SACLAY-092	LANDSBERG, L.G.	SERP	SERP-E-142
HIGHLAND, V.L.	TEMP	LAMPF-726	LE BORNEC, Y.	IPN, SACL	SACLAY-092
HIRSCHMANN, H.	VILL	SIN-R-75-07-2	LEE, W.	COLU	FNAL-458
HITLIN, D.	CIT	SLAC-SP-031	LEE, W.	COLU	BNL-776
HITLIN, D.G.	CIT	SLAC-SP-032	LEE-FRANZINI, J.	STON	CESR-CUSB
HOFFMAN, C.M.	LANL	LAMPF-400-445	LEGRAND, D.	SACL	SACLAY-070
HOFFMANN, G.W.	LANL	LAMPF-385	LEHAR, F.	SACL	SACLAY-106
HOFFMANN, G.W.	TEXA	LAMPF-392	LEHAR, F.	SACL	SIN-R-80-01
HOFFMANN, G.W.	TEXA	LAMPF-563	LEHAR, F.	SACL	SACLAY-089
HOFSTADTER, R.	STAN	LAMPF-444	LEHAR, F.	SACL	SACLAY-052
HOLLAS, C.L.	TEXA	LAMPF-636	LEHAR, F.	SACL	SACLAY-087
HOLLAS, C.L.	TEXA	LAMPF-708	LEHAR, F.	SACL	SACLAY-101
HOLLEBEEK, R.	SLAC	SLAC-PEP-021	LEHAR, F.	SACL	SACLAY-088
HOMMA, S.	INUS	INS-17-2	LEHAR, F.	SACL	SACLAY-104
HOMMA, S.	INUS	INS-18-1	LEIPUNER, L.B.	BNL	BNL-749
HOMMA, S.	INUS	INS-19-2	LEISI, H.J.	ETHZ	SIN-R-82-10
HOMMA, S.	INUS	INS-14-3	LEISI, H.J.	ETHZ	SIN-R-78-09
HORIKAWA, N.	NAGO	INS-16-1	LEKSI, G.A.	ITEP	ITEP-E-813
HUGENTOBLER, E.	BERN	CERN-NA-018	LEKSI, G.A.	ITEP	ITEP-E-771
HUGHES, V.W.	YALE	LAMPF-421	LEVEQUE, A.	CERN	CERN-UA-001
HUGHES, V.W.	YALE	LAMPF-869	LEVINHAL, D.	FNAL	FNAL-711
HUGHES, V.W.	YALE	SLAC-E-130	LICHTENSTADT, J.	TELA	LAMPF-783
HULTH, P.O.	STOH	CERN-WA-066	LIKHACHEV, M.F.	JINR	SERP-E-104
HUNGERFORD, E.	HOUS	BNL-752	LIKHACHEV, M.F.	JINR	SERP-E-146
HUNGERFORD, E.V.	HOUS	BNL-774	LINDENBAUM, S.J.	BNL, CUNY	BNL-747
HUNGERFORD, E.V.	HOUS	BNL-773	LING, T.Y.	OSU	LAMPF-645
HUTCHEON, D.A.	TRIU	TRIUMF-171	LITCHEFIELD, P.J.	RHEL	CERN-PS-160
IGO, G.	UCLA	SACLAY-038	LITKE, A.	STAN	SLAC-PEP-014
IGO, G.J.	UCLA	LAMPF-818	LOCKYER, N.	SLAC	SLAC-PEP-005
IGO, G.J.	UCLA	LAMPF-685	LONGO, M.J.	MICH	FNAL-549
IGO, G.J.	UCLA	KEK-081	MACEK, R.J.	LANL	LAMPF-032
IGO, G.J.	UCLA	LAMPF-635	MACRI, M.	CERN	CERN-R-704
IGO, G.J.	UCLA	LAMPF-853	MAKDISI, Y.I.	BNL	BNL-785
IGO, G.J.	UCLA	LAMPF-015	MAKI, A.	KEK	KEK-TE-003
IMAI, K.	ANL	LAMPF-682	MALAMUD, E.	FNAL	FNAL-557
INAGAKI, T.	KEK	KEK-121	MANDL, F.	VLEN	CERN-WA-028
ISHII, T.	INUS	INS-17-1	MARKOV, P.K.	SOFI	SERP-E-104
ITO, H.	SAGA	KEK-094	MARKYAN, M.	VLEN	CERN-NA-023
IWATA, S.	KEK	KEK-TE-002	MARSHAK, M.	MINN	P-DECAY-SOUDANII
JACKSON, J.N.	LIVP	CERN-WA-067	MARSHAK, M.	MINN	BNL-755
JARMER, J.J.	LANL	LAMPF-517	MARTEMIANOV, V.P.	KIAE	CERN-WA-038
JARMER, J.J.	LANL	LAMPF-518	MARTIN, M.	GEVA	CERN-WA-070
JENSEN, D.	MASA	BNL-744	MASAIKE, A.	KEK	KEK-081
JONSON, B.	CERN	CERN-IS-010	MASTERSON, T.G.	COLO	LAMPF-478
JOSEPH, C.	LAUS	CERN-UA-006	MASTERSON, T.G.	COLO	LAMPF-581
JULIEN, J.	SACL	SACLAY-107	MATTHIAE, G.	NAPL	CERN-NA-004
KAFITANOV, V.S.	ITEP	SERP-E-045	MAY, M.	BNL	BNL-781
KAJIKAWA, R.	NAGO	INS-14-4	MAYER, B.	SACL	SACLAY-060
KALMUS, G.	RHEL	SLAC-BC-073	MAYER, B.	SACL	SACLAY-099
KALOGEROPOULOS, T.	SYRA	BNL-772	MAYES, B.W.	HOUS	LAMPF-366
KALOGEROPOULOS, T.E.	SYRA	BNL-708	MCCARTHY, R.	STON	FNAL-605
KAMAE, T.	TOKY	KEK-TE-002	MCCUBBIN, N.A.	RHEL	CERN-NA-034
KANAVETS, V.P.	ITEP	ITEP-E-801	MCDONALD, K.T.	PRIN	FNAL-615
KATCOFF, S.	BNL	BNL-779	MCFARLANE, W.K.	TEMP	LAMPF-032
KATO, S.	INUS	INS-15-1	MCAUGHTON, M.W.	LANL	LAMPF-492
KATO, S.	INUS	INS-16-1	MEASDAY, D.	TRIU	TRIUMF-009
KATO, S.	INUS	INS-18-3	MELISSINOS, A.	ROCH	FNAL-723
KAZARINOV, Y.M.	JINR	SERP-E-112	MERRITT, F.	CHIC	FNAL-744
KERNEL, G.	LJUB	CERN-SC-094	MEYER, D.	MICH	SLAC-PEP-012
KILIAN, K.	CERN	CERN-PS-185	MEYER, W.T.	AMES	CERN-R-420
KIRK, T.B.	FNAL	FNAL-610	MIAKE, Y.	TOKY	KEK-113
KIRK, T.B.W.	FNAL	FNAL-665	MICHALOWICZ, A.	LAPP	SACLAY-052-2
KIRKBY, J.	STAN	SLAC-PEP-020	MICHELINI, A.	CERN	CERN-LEP-003
KITAGAKI, T.	TOHO	KEK-079	MICHELINI, A.	CERN	CERN-NA-03AL
KITAGAKI, T.	TOHO	FNAL-745	MINEHART, R.C.	VIRG	LAMPF-828
KITCHING, P.	ALBE	TRIUMF-208	MINEHART, R.C.	VIRG	LAMPF-567
KITTEL, W.	NIJM	CERN-NA-022	MINEHART, R.C.	VIRG	SIN-R-80-11
KLANNER, R.	MPIM	CERN-NA-011	MIYACHI, T.	INUS	INS-19-1
KLEMP, E.	MANZ	CERN-PS-171	MIYAKE, K.	KYOT	KEK-092
KLUBERG, L.	EPOL	CERN-NA-010	MO, L.	VPI	SLAC-E-137
KLUGE, W.	KARL	SIN-R-82-17	MO, L.W.	VPI	FNAL-635
KNAPP, B.	NEVI	FNAL-690	MOFFEIT, K.	SLAC	SLAC-BC-075
KNAPP, B.	NEVI	BNL-766	MOFFEIT, K.C.	SLAC	SLAC-BC-072
KNBRAK, H.	UCSD	FNAL-663	MOINSTER, M.A.	TELA, LANL	LAMPF-295
KOCH, H.	KARL	CERN-PS-161	MOISEEV, A.M.	SERP	SERP-E-150
KONDO, K.	TSUK	KEK-049	MOISEEV, A.M.	SERP	SERP-E-138
KOROLEV, G.	LENI	SACLAY-078	MONTANET, L.	CERN	CERN-NA-027
KOSSLER, W.J.	WILL	BNL-754	MORI, S.	TSUK	KEK-082
KOTTMANN, F.	ETHZ	SIN-R-78-15-1	MORRIS, C.L.	LANL	LAMPF-651
KOTTMANN, F.	ETHZ	SIN-R-83-20-2	MORRISON, D.R.O.	CERN	FNAL-632
KOTTMANN, F.	ETHZ	SIN-R-82-03-1	MORSE, W.H.	BNL	BNL-780
KREISLER, M.	MASA	BNL-766	MOSER, U.	BERN	SIN-R-82-04
KRISCH, A.D.	MICH	BNL-782	MUKHIN, A.I.	SERP	SERP-E-045
KRISCH, A.D.	MICH	BNL-748	MULLER, A.	SACL	CERN-WA-063
KRUSE, H.	LANL	LAMPF-764	MURATA, Y.	INUS	INS-19-3
KUREPIN, A.B.	MINR	SACLAY-107	MURTAGH, M.J.	BNL	BNL-775
KUTYIN, V.M.	SERP	SERP-E-102	MUSSET, P.	CERN	CERN-R-501
KUZNETSOV, E.P.	SERP	SERP-E-107	MUSSET, P.	CERN	CERN-UA-003
KYCIA, T.F.	BNL	BNL-787	MUSSET, P.	CERN	CERN-WA-075
KYCIA, T.F.	BNL	BNL-722	MUSSET, P.	CERN	CERN-NA-019
KYCIA, T.F.	BNL	BNL-732	MUTCHLER, G.S.	RICE	LAMPF-336
LACH, J.	FNAL	FNAL-497	MUTCHLER, G.S.	RICE	LAMPF-825
LANDE, K.	PENN	P-DECAY-HOMESTAK	MUTCHLER, G.S.	RICE	LAMPF-366

SPOKESPERSON INDEX

SPOKESPERSON	INSTITUTION	EXPERIMENT	SPOKESPERSON	INSTITUTION	EXPERIMENT
MYATT, G.	OXF	CERN-WA-021	RUBINSTEIN, R.	FNAL	FNAL-577
NAGASHIMA, Y.	KEK	KEK-010	RUNGE, K.	FREI	CERN-NA-006
NAGASHIMA, Y.	OSAK	KEK-TE-001	RUSHBROOKE, J.G.	CAMB	CERN-R-703
NAGY, E.	BUDA	SERP-E-104	RUSHBROOKE, J.G.	CAMB	CERN-UA-005
NAKACH, A.	SACL	SACLAY-101	RUSHBROOKE, J.G.	CAMB	CERN-UA-005-2
NAKAI, K.	TOKY	KEK-090	RYKALIN, V.I.	SERP	SERP-E-144
NAKAMURA, K.	TOKY	KEK-074A	RYSECK, H.E.	BERL	SERP-E-104
NAKAMURA, K.	TOKY	KEK-074	SACHS, H.E.	COLU	BNL-745
NANN, H.	NWES	LAMPF-462	SADLER, A.M.	ABLC	LAMPF-849
NARASIMHAM, V.S.	TATA	P-DECAY-KGF	SADLER, M.E.	ABLC	LAMPF-806
NASH, T.	FNAL	FNAL-516	SAI, F.	TOKY	KEK-080
NEFKENS, B.	UCLA	SACLAY-066	SAKITT, M.	BNL	BNL-742
NEFKENS, B.	UCLA	SACLAY-037	SANDERS, G.H.	LANL	LAMPF-726
NEFKENS, B.M.K.	UCLA	LAMPF-058-120	SANDWEISS, J.	YALE	FNAL-490
NEFKENS, B.M.K.	UCLA	LAMPF-689	SANDWEISS, J.	YALE	FNAL-630
NEFKENS, B.M.K.	UCLA	LAMPF-546	SASAKI, A.	AKIT	INS-15-2
NEFKENS, B.M.K.	UCLA	SACLAY-068	SCHALK, T.	UCSC	SLAC-SP-032
NEFKENS, B.M.K.	UCLA	LAMPF-804	SCHARENBERG, R.P.	PURD	BNL-778
NEFKENS, B.M.K.	UCLA	LAMPF-806	SCHIFFER, J.P.	ANL	FNAL-720
NELSON, C.A.	FNAL	FNAL-629	SCHLEIN, P.	UCLA	CERN-R-608
NEMENOV, L.L.	JINR	SERP-E-119	SCHMIDT, M.P.	YALE	BNL-780
NEWSOM, C.R.	SACL	SACLAY-088	SCHMIDT-PARZEFALL, W.	DESY	DESY-ARGUS
NORTHCLIFFE, L.C.	TAMU	LAMPF-589	SCHMITT, H.	FREI	SIN-R-72-02
NORTHCLIFFE, L.C.	TAMU	LAMPF-861	SCHWITTERS, R.	HARV	FNAL-741
NORTHCLIFFE, L.C.	TAMU	LAMPF-590	SCIULLI, F.	CIT	FNAL-616
NORTHCLIFFE, L.C.	TAMU	LAMPF-517	SCIULLI, F.	COLU	FNAL-652
NORTHCLIFFE, L.C.	TAMU	LAMPF-518	SCULLI, J.	NYU	BNL-789
NUMAO, T.	TRIU	TRIUMF-248	SELEKTOR, Y.M.	ITEP	ITEP-E-782
NURUSHEV, S.B.	SERP	SERP-E-112	SELOVE, W.	PENN	FNAL-609
OBERLACK, H.	MPIM	DESY-PETRA-CELLO	SETH, K.K.	NWES	LAMPF-758
ODDONE, P.	LBL	SLAC-PEP-004	SETH, K.K.	NWES	LAMPF-462
OGAWA, K.	KEK	KEK-075	SETH, K.K.	NWES	LAMPF-508
OLSEN, S.L.	ROCH	KEK-TE-003	SETH, K.K.	NWES	LAMPF-795
ORAM, C.	BRCO	TRIUMF-168	SETH, K.K.	NWES	LAMPF-605
OREAR, J.	CORN	FNAL-710	SEYBOTH, P.	MPIM	CERN-NA-005
OTTERLUND, I.	LUND	FNAL-576	SHAEVITZ, M.	COLU	FNAL-701
OTTERLUND, I.	LUND	CERN-R-418	SHEBANOV, V.A.	ITEP	ITEP-E-802
PALANO, A.	CERN	CERN-WA-076	SHEBANOV, V.A.	ITEP	ITEP-E-761
PALEVSKY, H.	BNL	BNL-746	SHEPARD, P.	PITT	FNAL-553
PALMER, R.B.	BNL	BNL-737	SHEPARD, W.D.	NDAM	FNAL-597
PAUL, E.	BONN	CERN-WA-069	SHIN, Y.M.	SASK	TRIUMF-205
PAULETTA, G.	UCLA	LAMPF-585	SHLYAPNIKOV, P.V.	SERP	SERP-E-133
PAULETTA, G.	UCLA	LAMPF-790	SHOCHET, M.J.	CHIC	FNAL-326
PAULI, E.	SACL	CERN-PS-159	SHUPE, M.	MINN	BNL-785
PEDRONI, E.	VILL	SIN-R-82-17	SHUVALOV, R.S.	SERP	SERP-E-130
PENZO, A.	TRST	SACLAY-089	SIMMONS, J.E.	LANL	LAMPF-402
PERROUD, J.P.	LAUS	SIN-R-78-13-1	SIMMONS, J.E.	LANL	LAMPF-590
PETRUKHIN, V.I.	JINR	SERP-E-105	SIMMONS, J.E.	LANL	LAMPF-683
PHILLIPS, G.C.	RICE	LAMPF-504	SIMMONS, J.E.	LANL	LAMPF-518
PIASETZKY, E.	LANL	LAMPF-783	SIMMONS, J.E.	LANL	LAMPF-360
PICCOLO, M.	FRAS	SLAC-PEP-006	SIMMONS, J.E.	LANL	LAMPF-517
PIEKARZ, H.	BRAN	BNL-773	SIMMONS, J.E.	LANL	LAMPF-457
PINSKY, L.S.	HOUS	LAMPF-336	SIMONIOUS, M.	ETHZ	SIN-Z-75-02
PIRAGINO, G.	TORI	CERN-PS-179	SIMONIOUS, M.	ETHZ	SIN-Z-80-01
PISTILLI, P.	ROMA	CERN-WA-078	SIMONS, L.M.	KFZK, KARL	SIN-R-81-02
PLESS, I.A.	MIT	FNAL-565	SIMONS, L.M.	KFZK, KARL	CERN-PS-175
PLESS, I.A.	MIT	FNAL-636	SLATTERY, P.	ROCH	FNAL-706
PLESS, I.A.	MIT	FNAL-570	SLOAN, T.	LANC	CERN-NA-002
PLOUIN, F.	SACL	SACLAY-105	SLOAN, T.	LANC	CERN-NA-009
POLIKANOV, S.	DGSI	CERN-PS-177	SLOAN, T.	LANC	CERN-NA-028
PONDROM, L.	WISC	FNAL-620	SMIRNOV, V.M.	LENI	SERP-E-127
PORILE, N.T.	PURD	FNAL-466	SMITH, G.A.	PSU	BNL-762
POSTER, R.	BRAN	BNL-751	SMITH, G.A.	PSU	BNL-767
POTH, H.	KARL	CERN-PS-176	SMITH, G.A.	PSU	CERN-PS-183
POUTISSOU, J.M.	TRIU	TRIUMF-217	SMITH, G.R.	KARL	SIN-R-79-07
POVH, B.	MPIM	KEK-114	SMITH, G.R.	KARL	SIN-R-78-18
PRETZL, K.P.	MPIM	CERN-WA-024	SMOLYANKIN, V.T.	ITEP	SERP-E-120
PRICE, P.B.	UCB	SLAC-PEP-002	SOBER, D.T.	CATH	LAMPF-058-120
PRICE, P.B.	UCB	FNAL-713	SOKOLOVSKY, V.V.	ITEP	SERP-E-147
PRIEELS, R.	LVLN	SIN-R-81-09	SOUDER, P.A.	YALE	LAMPF-421
PROKOSHKIN, Y.D.	SERP	SERP-E-140	SPINKA, H.	ANL	LAMPF-770
PROKOSHKIN, Y.D.	SERP	SERP-E-116	STANEK, R.	ANL	LAMPF-664
PROKOSHKIN, Y.D.	SERP	CERN-WA-012	STEINBERGER, J.	CERN	CERN-LEP-ALEPH
QUERCIGH, E.	CERN	CERN-WA-077	STEINBERGER, J.	CERN	CERN-WA-068
RADVANYI, P.	SACL	SACLAY-057	STEINBERGER, J.	CERN	CERN-WA-001
RATCLIFF, B.	SLAC	SLAC-E-135	STREIT, K.P.	HEID	CERN-WA-062
REAY, N.W.	OSU	FNAL-653	STROVINK, M.	UCB, LBL	TRIUMF-185
REAY, N.W.	OSU	FNAL-531	SULYAEV, R.M.	SERP	SERP-E-100
REBKA, G.A.	WYOM	LAMPF-783	SUMI, Y.	HIRO	KEK-083
REINES, F.	UCI	P-DECAY-IMB	SZEPTYCKA, M.	WARS	CERN-WA-072
REMILLIEUX, J.	LYON	CERN-NA-033	TAKASAKI, F.	KEK	KEK-TE-001
REMSBERG, L.P.	BNL	BNL-790	TAKASAKI, F.	KEK	KEK-034
REUCROFT, S.	CERN	FNAL-743	TALAGA, R.L.	LANL	LAMPF-634
RILEY, P.J.	TEXA	LAMPF-360	TALLINI, B.	SACL	CERN-WA-047
RITCHIE, B.G.	SCUC	LAMPF-567	TANAKA, N.	LANL	LAMPF-790
RITCHIE, B.G.	UMD	LAMPF-828	TANAKA, N.	LANL	LAMPF-015
ROBERTS, B.L.	BOST	BNL-723	TATISCHEFF, B.	SACL	SACLAY-080
ROE, B.P.	MICH	FNAL-613	TATISCHEFF, B.	IPN	SACLAY-050
ROESSLE, E.	FREI	SIN-R-72-02	TAUSCHER, L.	BASL	CERN-PS-182
ROMANOWSKI, T.A.	OSU	LAMPF-645	TAVERNIER, S.	LIBH	CERN-NA-025
ROSEN, J.	NWES	FNAL-515	TAYLOR, F.E.	MIT	FNAL-649
ROSEN, J.	NWES	FNAL-721	TENNER, A.	AMST	CERN-WA-025
ROY-STEPHAN, M.	IPN	SACLAY-057	TERAZAWA, H.	INUS	INS-15-4
RUBBIA, C.	HARV	P-DECAY-HPW	TEREKHOV, Y.V.	ITEP	ITEP-E-812
RUBBIA, C.	CERN	CERN-UA-001	TERRIEN, Y.	SACL	SACLAY-078

SPOKESPERSON INDEX

SPOKESPERSON	INSTITUTION	EXPERIMENT	SPOKESPERSON	INSTITUTION	EXPERIMENT
THIBAUT, C.	ORSA	CERN-PS-189	WESTON, G.S.	UCLA	LAMPF-853
THIBAUT, C.	ORSA	CERN-PS-162	WHISNANT, C.S.	SCUC	LAMPF-767
THIESSEN, H.A.	LANL	BNL-758	WHITE, D.H.	BNL	BNL-734
THOMPSON, G.	RUTG	FNAL-621	WHITMORE, J.	PSU	FNAL-597
THOMPSON, G.	WISC	FNAL-584	WILKES, R.J.	WASH	FNAL-730
TIMM, U.	DESY	DESY-PETRA-PLU-2	WILKES, R.J.	WASH	FNAL-666
TING, S.C.C.	MIT	CERN-LEP-L3	WILKES, R.J.	WASH	FNAL-524
TING, S.C.C.	MIT	DESY-PETRA-MARKJ	WILLARD, H.B.	CASE	LAMPF-492
TRAN, M.T.	LAUS	SIN-R-75-07-2	WILLIS, N.	IPM	SACLAY-010
TREBUKHOVSKY, Y.V.	ITEP	ITEP-E-831	WILLIS, N.	SACL	SACLAY-080
TREILLE, D.	CERN	CERN-NA-014-2	WILLIS, N.	IPM	SACLAY-113
TREILLE, D.	CERN	CERN-NA-014	WILLIS, W.	CERN	CERN-R-806
TSURU, T.	KEK	KEK-064	WILLIS, W.J.	CERN	CERN-R-808
TSYGANOV, E.N.	JINR	SERP-E-132	WINSTEIN, B.	EFI	FNAL-617
TYAPKIN, A.A.	JINR	SERP-E-157	WINSTEIN, B.	CHIC	FNAL-731
UGGERHOJ, E.	AARH	CERN-PS-188	WINTER, K.	CERN	CERN-WA-065
UGGERHOJ, E.	AARH	CERN-WA-064	WINTER, K.	CERN	CERN-WA-079
UGGERHOJ, E.	CERN	CERN-PS-164	WINTER, K.	CERN	CERN-WA-018
ULLRICH, H.	KFZK, KARL	SIN-R-79-05	WINTER, K.	CERN	CERN-WA-018-2
VAN DE WALLE, R.T.	NIJM	CERN-WA-027	WINTER, K.	CERN	CERN-PS-181
VAN DER VELDE, J.C.	NICH	P-DECAY-IMB	WISS, J.	ILL	FNAL-400
VAN OERS, W.T.H.	MANI	TRIUMF-121	WITHERELL, M.S.	UCSB	FNAL-691
VAN ROSSUM, L.	SACL	SACLAY-101	WOJCIK, S.G.	STAN	BNL-791
VANNUCCI, F.	CURI	CERN-PS-191	WOLF, G.	DESY	DESY-PETRA-TASSO
VENUS, W.	RHEL	CERN-WA-059	WOLTER, W.	CRAC	FNAL-508
VILLAR, E.	SANT	CERN-NA-017	WOTSCHACK, J.	CERN	CERN-PS-169
VISHNEVSKY, M.E.	ITEP	ITEP-E-811	YAMAMOTO, S.S.	TOKY	KEK-057
VISHNEVSKY, M.E.	ITEP	ITEP-E-822	YAMAMOTO, S.S.	TOKY	KEK-125
VON DARDEL, G.	LUND	CERN-NA-030	YAMAZAKI, T.	TOKY	KEK-089
VON EGIDY, T.	MUNT	CERN-PS-186	YAMAZAKI, T.	TOKY	KEK-104
VOSS, R.	MPIM	CERN-NA-004	YAMAZAKI, T.	TOKY	KEK-117
VOYENKO, A.S.	SERP	SERP-E-136	YOKOSAWA, A.	ANL	FNAL-704
VOYVODIC, L.	FNAL	FNAL-564	YOSHIMURA, Y.	KEK	KEK-062
WACHSMUTH, H.	CERN	CERN-NA-020	YUAN, V.	ILL	LAMPF-792
WAGNER, R.	ANL	LAMPF-665	YUAN, V.	ILL	LAMPF-634
WAHL, H.	CERN	CERN-NA-031	ZENNDER, A.	VILL	SIN-R-81-06
WALCHER, T.	MPIH	CERN-PS-163-2	ZENNDER, A.	ETHZ	SIN-R-77-01
WALCHER, T.	MPIH	CERN-PS-173	ZELLER, M.E.	YALE	BNL-777
WALDEN, P.	TRIU	TRIUMF-132-192	ZELLER, M.E.	YALE	BNL-702
WALKER, J.K.	FNAL	FNAL-594	ZICHICHI, A.	CERN	CERN-R-422
WALTHAM, C.E.	TRIU, BRCO	TRIUMF-277	ZICHICHI, A.	CERN	CERN-R-421
WEBB, R.	PRIN	FNAL-650	ZICHICHI, A.	CERN	CERN-WA-044
WEBSTER, M.S.	VAND	BNL-705	ZIOCK, K.O.H.	VIRG	SIN-R-80-11
WEDDIGEN, C.	KFZK, KARL	SIN-R-78-05-4	ZIOCK, K.O.H.	VIRG	LAMPF-190
WEILHAMMER, P.	CERN	CERN-NA-032	ZOLIN, L.S.	JINR	SERP-E-153
WELSH, R.E.	WILL	BNL-723	ZOLIN, L.S.	JINR	SERP-E-121

ABBREVIATIONS USED ON THE MICROFICHE

JOURNALS

Following are abbreviations for journals listed in the summaries:

AJP	American Journal of Physics
ANNP	Annals of Physics
APP	Acta Physica Polonica
ARNPS	Annual Review of Nuclear and Particle Science
BAPS	Bulletin of the American Physical Society
CNPP	Comments on Nuclear and Particle Physics
HPA	Helvetica Physica Acta
IEEE TNS	Institute of Electrical and Electronics Engineers Transactions in Nuclear Science
JASA	Journal of the Acoustical Society of America
JETPL	JETP Letters (translation of ZETFP)
JJAP	Japanese Journal of Applied Physics
JP	Journale de Physique
JPHY	Journal of Physics
JPL	Journale de Physique Lettres
JPSJ	Journal of the Physical Society of Japan
LNC	Lettere al Nuovo Cimento
NIM	Nuclear Instruments and Methods
NP	Nuclear Physics
PL	Physics Letters
PR	Physical Review
PREP	Physics Reports (Physics Letters C)
PRL	Physical Review Letters
PS	Physica Scripta
RMP	Reviews of Modern Physics
RNC	Rivista del Nuovo Cimento
SHEP	Surveys in High Energy Physics
SJNP	Soviet Journal of Nuclear Physics (translation of YF)
YF	Yadernaya Fizika (translated as SJNP)
ZETFP	Pis'ma v Zhurnal Eksperimental'noi i Teoreticheskoi Fiziki (translated as JETPL)
ZPHY	Zeitschrift für Physik

KINEMATIC VARIABLES

The following abbreviations are used with reactions to indicate the momenta or energies at which they are studied:

PLAB	beam momentum in the lab frame
TLAB	beam kinetic energy in the lab frame
ECM	total energy in the c.m. frame
Q2	absolute value of the 4-momentum transfer

ACCELERATORS

BNL	Brookhaven (AGS) Proton Synchrotron (31 GeV/c Plab)
CERN-ISR	CERN Intersecting Storage Rings (62 GeV Ecm)
CERN-LEP	CERN Large Electron-Positron Collider
CERN-PBAR/P	CERN Proton-Antiproton Collider (540 GeV Ecm)
CERN-PS	CERN Proton Synchrotron (28 GeV/c Plab)
CERN-SC	CERN Synchro-Cyclotron (600 MeV Tlab)
CERN-SPS	CERN Super Proton Synchrotron (450 GeV/c Plab)
CESR	Cornell Positron-Electron Storage Ring (16 GeV Ecm)
DESY	Deutsches Electron Synchrotron (7.5 GeV/c Plab)
DESY-DORIS	DESY Positron-Electron Ring (11.6 GeV Ecm)
DESY-PETRA	DESY Positron-Electron Colliding Beams (40 GeV Ecm)
FNAL	FNAL Proton Synchrotron (500 GeV/c Plab)
FNAL-COLLIDER	FNAL Proton-Antiproton Collider (2 TeV Ecm)
FNAL-TEV	FNAL Tevatron (1 TeV Plab)
ITEP	Moscow Proton Synchrotron (7 GeV/c Plab)
KEK	KEK Proton Synchrotron (13 GeV/c Plab)
KEK-TRISTAN	KEK Positron-Electron Ring (60 GeV Ecm)
LAMPF	Los Alamos Meson/Proton Factory (1460 MeV/c Plab)
LENI	Leningrad Synchrotron (1 GeV Tlab)
SATURNE-II	Saclay p, d, He Synchrotron
SERP	Serpukhov Proton Synchrotron (76 GeV/c Plab)
SIN	Schweizerisches Inst. für Nuklearforschung (590 MeV Tlab)
SLAC	Stanford Electron Linear Accelerator (33 GeV/c Plab)
SLAC-PEP	SLAC Positron-Electron Project (36 GeV Ecm)
SLAC-SLC	SLAC Linear Collider (100 GeV Ecm)
SLAC-SPEAR	SLAC Positron-Electron Ring (8.4 GeV Ecm)
TOKY	INS Tokyo Electron Synchrotron (1.3 GeV/c Plab)
TRIUMF	Canadian Triangle Universities Meson Facility (520 MeV Tlab)

DETECTORS

For bubble chambers we use a construction such as:

DBC-2M, or **HBC-15FT-HYB**, or **HLBC-BEBC-TST**.

The first element, one of

HBC, **DBC**, **HEBC**, or **HLBC**,

tells whether the chamber fill is hydrogen, deuterium, helium, or heavy liquid. The second element gives the size or name of the chamber. Where appropriate, a third element, one of

HYB, **RAP**, or **TST**,

indicates that the chamber is part of a hybrid system, or that it is rapid cycling, or that it contains a track-sensitive target.

For non-bubble-chamber detectors, general abbreviations are:

CALO	calorimeter
CNTR	counters (no chambers)
COMB	combinations of different types of detectors, no particular one dominant
DAS	double arm spectrometer
EMUL	emulsion
OSPK	optical spark chambers
OTHER	rare non-electronic detectors (e.g., moon, ocean floor)
PHOTON	photon spectrometer
PLASTIC	lexan or other such material in which tracks are frozen (except emulsion)
SAS	single arm spectrometer
SPEC	general spectrometer
STRC	streamer chamber
WIRE	wire chambers (proportional wire chambers, drift chambers, etc.); includes all non-optical spark chambers by convention)
WAS	wide angle spectrometer

Acronyms for specific detectors:

AFS	CERN-ISR axial field spectrometer
ALEPH	CERN-LEP detector
AMY	KEK-TRISTAN high resolution lepton detector
ARGUS	DESY-DORIS detector system
BIS	JINR spectrometer now at Serpukhov
CCS	FNAL Chicago cyclotron spectrometer
CDF	FNAL-COLLIDER detector
CDHS	CERN-Dortmund-Heidelberg-Saclay neutrino detector (WA1)
CELLO	DESY-PETRA spectrometer system
CHARM	CERN-Hamburg-Amsterdam-Rome-Moscow neutrino detector at CERN
CHARM-II	upgraded CHARM neutrino detector
CLEO	CESR spectrometer
CRYBOX	LAMPF crystal array detector
CRYS-BALL	SLAC-SPEAR and DESY-DORIS large solid angle neutral detector
CUSB	CESR high resolution calorimeter
CUSB-II	upgraded CUSB detector
DELCO	SLAC-SPEAR and PEP detector system

DETECTORS (CONT'D)

DELPHI	CERN-LEP detector
D0	FNAL-COLLIDER detector
EHS	European hybrid spectrometer at CERN-SPS
EMC	CERN-SPS European muon collaboration detector
EPICS	LAMPF energetic pion spectrometer and detection system
FANCY	KEK forward and cylindrical detector
FMPS	FNAL multiparticle spectrometer
GAMS	gamma spectrometer at Serpukhov
HPW	Harvard-Penn-Wisconsin neutrino detector at BNL
HRS	SLAC-PEP high resolution spectrometer
JADE	DESY-PETRA spectrometer system
JANUS	LAMPF proton polarimeter
LAB-E	FNAL target-calorimeter muon-spectrometer detector for neutrino physics
LAHRS	LAMPF high resolution proton spectrometer
LASS	SLAC large aperture solenoid spectrometer
LENA	DESY-DORIS detector system
L3	CERN-LEP detector
MAC	SLAC-PEP magnetic calorimeter
MARK-II	SLAC-SPEAR and PEP spectrometer system
MARK-III	SLAC-SPEAR spectrometer system (not related to MARK-II)
MARK-J	DESY-PETRA spectrometer system
MIS	Serpukhov multiparticle spectrometer
MPS	BNL multiparticle spectrometer
MPS-II	upgraded BNL MPS
OMEGA	CERN OMEGA spectrometer
OMEGAPRIME	upgraded OMEGA spectrometer
OMICRON	CERN-SC spectrometer
OPAL	CERN-LEP detector
PLUTO	DESY-DORIS and PETRA superconducting solenoid spectrometer
RMS	Rutherford multiparticle spectrometer, now at CERN
SFM	CERN-ISR split field magnet
SIGMA	CERN-IHEP magnetic spectrometer at Serpukhov
SLD	SLAC-SLC detector
SPES-I	Saclay SATURNE spectrometer
SPES-III	Saclay SATURNE spectrometer
SPES-IV	Saclay SATURNE spectrometer
SSF	SLAC spectrometer facility -- 1.6, 8, and/or 20 GeV
SUPERBENKEI	KEK superconducting magnetic spectrometer
TASSO	DESY-PETRA spectrometer system
TELAS	KEK target-embodied large-aperture spectrometer
TOKIWA	KEK spectrometer
TOPAZ	KEK-TRISTAN solenoidal spectrometer with TPC
TPC	SLAC-PEP time projection chamber
TPS	FNAL tagged photon spectrometer
UA1	CERN-PBAR/P detector
UA2	CERN-PBAR/P detector
VENUS	KEK-TRISTAN spectrometer
2-GAMMA	SLAC-PEP detector to study 2-gamma process

PARTICLES

ABARYON unspecified antibaryon
ACHARM particle with negative charm
ADEUT antideuteron
AD0 C=-1 D⁰ meson
AG silver nucleus
AHE anti-helium-4 nucleus
AHE3 anti-helium-3 nucleus
AK0 S=-1 K⁰
AK*(UNSPEC) unspecified S=-1 K*
AL aluminum nucleus
ALAMBDA antilambda (S=+1 antibaryon)
AN antineutron
ANNIHIL pure annihilation final state in N-N scattering
ANOMALON nuclear fragment with anomalous cross section
ANU antineutrino
ANUCLEON antinucleon
ANUCLEUS unspecified antinucleus
ANUE electron antineutrino
ANUINO antiparticle of a light supersymmetric particle
ANUMU muon antineutrino
ANUTAU tau antineutrino
ANYTHING any combination of particles
AP antiproton
AQUARK(1/3) antiquark
AQUARK(2/3) antiquark
AR argon nucleus
ASIGMA antisigma (S=+1 antibaryon)
ASTRANGE unspecified S=+1 particle
ATRIT anti-tritium nucleus
AU gold nucleus
AXION hypothesized light Higgs scalar boson
AXI anti-xi (S=+2 antibaryon)
A1(1270) meson
A2(1320) meson
A3(1680) meson
BARYON unspecified baryon
BARYONIUM meson coupling mainly to baryon-antibaryon
BE beryllium nucleus
BEAUTY particle with nonzero beauty (bottom)
BOR10 boron-10
BOR12 boron-12
B* meson with beauty
B(1235) meson
B(5270) meson with beauty
C carbon nucleus
CA calcium nucleus
CD cadmium nucleus
CENTAURO final state with 50 or more charged particles, no π^0 's
CHARGED charged particle

PARTICLES (CONT'D)

CHARM unspecified particle with charm
CHARMED-BARYON unspecified baryon with charm
CHARMED-MESON unspecified meson with charm
CHI(UNSPEC) unspecified radiative decay product of $\psi(3685)$
CHI(3510) $c\bar{c}$ meson
CHI(3555) $c\bar{c}$ meson
CHI/B(9875) $b\bar{b}$ meson
CHI/B(9895) $b\bar{b}$ meson
CHI/B(9915) $b\bar{b}$ meson
CHI/B(10240) $b\bar{b}$ meson
CHI/B(10255) $b\bar{b}$ meson
CHI/B(10270) $b\bar{b}$ meson
CHI/B(UNSPEC) unspecified radiative decay product of T's
CR chromium nucleus
CRYSTAL crystal, target in channeling experiments
CU copper nucleus
C12 carbon-12 nucleus
C*(4.44) 4.44 keV excited state of carbon
DD diffraction dissociation; followed by particles so produced, e.g. DD <P PI0> meson
DELTA(980) meson
DEL DEL(1232P33) baryon resonance
DEL(UNSPEC) unspecified I=3/2 baryon
DEMON exotic 3-diquark deuteron-like state
DEUT deuteron
DIBARYON unspecified S=0 dibaryon
DIHYPERON unspecified S=-2 dihyperon
D0 charmed meson
D+ charmed meson
D- charmed meson
D*(2010) charmed meson
D(UNSPEC) unspecified charmed meson
D(1285) meson
EPSILON π - π S-wave state
ETA meson
ETAPRIME recurrence of the η
ETAPRIME/C recurrence of the η_c
ETA/C lowest mass JP=0- charmonium state
EXOTIC-MESON cannot be formed of quark-antiquark
EXOTIC-NUCLEON cannot be formed of three quarks
E+ positron
E+- electron or positron
E- electron
E(1420) meson
F f(1270) meson
FE iron nucleus
FPRIME f'(1525) meson
FRAG nuclear fragment
F1(1540) meson

PARTICLES (CONT'D)

F+	charmed strange meson
F-	charmed strange meson
GAMMA	photon
GLUEBALL	gluon resonance
GLUON	gluon
HADRON	unspecified hadron
HE	helium-4 nucleus
HE3	helium 3
HIGGS	Higgs boson
HYPERNUC	hypernucleus
HVY-FLAVOR	unspecified particle with heavy flavor quark
HVY-LEPTON	unspecified heavy lepton
HVY-NEUTRINO	heavy neutrino
HVY-NUE	electron neutrino with nonzero mass
HVY-NUMU	muon neutrino with nonzero mass
H(2030)	I=0, JP=4+ meson
INELASTIC	same as ANYTHING, except elastic excluded
IOTA(1440)	meson
IR	iridium nucleus
JET	jet detected as a whole
J/PSI	c \bar{c} meson
KAON	unspecified K or \bar{K}
KL	K _L
KS	K _S
K0	K ⁰
K+	K ⁺
K-	K ⁻
K*(UNSPEC)	unspecified K*
K*(892)	meson
K*(1430)	meson
LAMBDA	S=-1 baryon
LAMBDA/C+	charmed baryon
LAM(UNSPEC)	I=0, S=-1 baryon
LAM(1330B)	unverified bump at 1330 MeV
LAM(1520D03)	baryon resonance
LEPTON	unspecified lepton
LI6	lithium-6 nucleus
LI7	lithium-7 nucleus
LONGLIVED	unspecified particle stable under strong and electromagnetic decay
MESON	unspecified meson
MESON(UNSPEC)	unspecified meson
MG	magnesium nucleus
MONOPOLE	magnetic monopole
MUONIUM	muon-electron atom
MUON	μ^+ or μ^-
MU+	μ^+
MU-	μ^-
N	neutron
NE	neon nucleus

PARTICLES (CONT'D)

NEUTRAL	neutral particle
NIT12	nitrogen-12 nucleus
NNBAR(2020)	nucleon-antinucleon state
NNBAR(2200)	nucleon-antinucleon state
NU	neutrino
NUCLEON	nucleon
NUCLEUS	unspecified nucleus
NUE	electron neutrino
NUINO	any light supersymmetric particle
NUMU	muon neutrino
NUTAU	tau neutrino
N*5/2(UNSPEC)	unspecified I=5/2, S=0 baryon
N*(UNSPEC)	unspecified S=0 baryon resonance
N(UNSPEC)	unspecified I=1/2, S=0 baryon resonance
N(1520D13)	baryon resonance
N(1675D15)	baryon resonance
O	oxygen nucleus
OMEGA	meson resonance
OMEGA-	S=-3 baryon
OMEGA/C0	baryon with quark content ssc (was T ⁰)
OMEGA*(UNSPEC)	unspecified S=-3 baryon resonance
P	proton
PB	lead nucleus
PHI	meson
PHIPRIME	recurrence of the ϕ
PHOTINO	supersymmetric counterpart of photon
PION	π of unspecified charge
PI0	π^0
PI+	π^+
PI+-	π^+ or π^-
PI-	π^-
PRONG	charged prong
PSI(UNSPEC)	unspecified JP=1- charmonium state
PSI(3685)	c \bar{c} meson
PSI(3770)	c \bar{c} meson
QUARK	unspecified quark
QUARK(1/3)	quark
QUARK(2/3)	quark
RHO	meson
RHOPRIME(1600)	meson
SELECTRON	supersymmetric counterpart of electron
SI	silicon nucleus
SIGMA	S=-1 baryon
SIGMA/C	I=1 charmed baryon
SIG(UNSPEC)	unspecified I=1, S=-1 baryon
SIG(1385P13)	baryon resonance
SN	tin nucleus
STRANGE	unspecified strange particle
STRANGEONIUM	meson dominantly $s\bar{s}$, such as the ϕ

PARTICLES (CONT'D)

SUPERSYM	any supersymmetric particle
S+	intermediate scalar boson
S-	intermediate scalar boson
S*(975)	π - π or K-K S-wave state
S(1935)	meson
TACHYON	hypothesized faster-than-light particle
TAU	heavy lepton
THETA(1690)	meson
TH	thorium nucleus
TOPONIUM	ff meson
TRIT	tritium nucleus
TRUTH	particle with nonzero truth (or top)
U	uranium nucleus
UNSPEC	particle of unspecified type
UPSI(UNSPEC)	unspecified upsilon particle
UPSI(9460)	$b\bar{b}$ meson
UPSI(10025)	$b\bar{b}$ meson
UPSI(10355)	$b\bar{b}$ meson
UPSI(10575)	$b\bar{b}$ meson
UPSI(10845)	$b\bar{b}$ meson
UPSI(11020)	$b\bar{b}$ meson
VEE	unspecified neutral strange particle decay
VMESON	unspecified vector meson
WATER	water
WT	tungsten nucleus (note name not same as chemical symbol)
W+	intermediate vector boson
W-	intermediate vector boson
XE	xenon nucleus
XI	S=-2 baryon
XI/C+	baryon with quark content usc (was A ⁺)
XI/C0	baryon with quark content dsc (was A ⁰)
XI*(UNSPEC)	unspecified S=-2 baryon resonance
XI(UNSPEC)	unspecified I=1/2, S=-2 baryon resonance
XI(1530P13)	baryon resonance
XI(1820)	baryon resonance
XI(1940)	baryon resonance
XI(2220)	narrow K \bar{K} meson seen in J/ ψ decay
Y0	neutral strange baryon
Y*(UNSPEC)	unspecified S=-1 baryon resonance
ZETA(8300)	meson seen in T(9460) decay
Z0	neutral weak gauge boson
Z*(UNSPEC)	unspecified exotic S=+1 baryon resonance

INSTITUTIONS

AACH	Phys. Inst. der Tech. Hochschule	Aachen, W. Germany
AARH	Aarhus Univ.	Aarhus, Denmark
ABLC	Abilene Christian Univ.	Abilene, TX, USA
AICH	Aichi Educational Univ.	Toyota, Aichi Pref., Japan
AKIT	Akita Univ.	Akita, Japan
ALBA	State Univ. of New York at Albany	Albany, NY, USA
ALBE	Alberta Univ., NRC	Edmonton, Alb., Canada
ALMA	Kazakh Inst. for High Energy Physics	Alma-Ata, USSR
AMER	American Univ.	Washington, DC, USA
AMES	Ames Lab	Ames, Iowa, USA
AMST	Univ. of Amsterdam	Amsterdam, Netherlands
ANIK	Amsterdam Nikhef	Amsterdam, Netherlands
ANL	Argonne Nat. Lab.	Argonne, Ill., USA
ANPL	Athens Univ., Nucl. Phys. Lab.	Athens, Greece
ARIZ	Univ. of Arizona	Tucson, Ariz., USA
ATEN	Nuclear Res. Centre Demokritos	Athens, Greece
AUCK	Auckland Univ.	Auckland, New Zealand
BARI	Univ. di Bari	Bari, Italy
BASL	Basel Univ.	Basel, Switzerland
BEDF	Bedford College	London, England
BELG	Inst. Interuniv. des Sci. Nuclear	Bruxelles, Belgium
BERG	Fysisk Institutt	Bergen, Norway
BERL	Inst. Hochenergiephys. DAW	Zeuthen/Berlin, E. Germany
BERN	Univ. Bern	Bern, Switzerland
BGNA	Univ. di Bologna	Bologna, Italy
BHEP	Inst. of High Energy Physics	Beijing, China
BIEL	Univ. Bielefeld	Bielefeld, W. Germany
BIRK	Birkbeck College	London, England
BIRM	Birmingham Univ.	Birmingham, England
BLOO	Bloomsburg State Coll.	Bloomsburg, PA, USA
BNL	Brookhaven National Lab.	Upton, L.I., NY, USA
BOHR	Niels Bohr Institute	Copenhagen, Denmark
BONN	Univ. Bonn	Bonn, W. Germany
BOST	Boston Univ.	Boston, Mass., USA
BRAN	Brandeis Univ.	Waltham, Mass., USA
BRAT	Inst. of Physics	Bratislava, Czechoslovakia
BRCO	British Columbia Univ.	Vancouver, Canada
BRIS	H. H. Wills Phys. Lab., U. of Bristol	Bristol, England
BROW	Brown Univ.	Providence, RI, USA
BRUX	Univ. Libre de Bruxelles	Bruxelles, Belgium
BTL	Bell Telephone Labs.	Murray Hill, NJ, USA
BUDA	Central Research Institute of Physics	Budapest, Hungary
CAEN	Lab. de Phys. Corpusculaire	Caen, France
CAGL	Calgary Univ.	Calgary., Alb., Canada
CAMB	Cambridge Univ.	Cambridge, England
CAPE	Univ. of Cape Town	Cape Town, S. Africa
CARL	Carleton Univ.	Ottawa, Canada
CASE	Case Western Reserve Univ.	Cleveland, Ohio, USA
CATH	Catholic Univ. of America	Washington DC, USA
CAVE	Cavendish Lab., Cambridge Univ.	Cambridge, England

INSTITUTIONS (CONT'D)

CBPF Centro Bras. Pesquisas Fisicas
CDEF College de France
CENG CEN, Grenoble
CERN European Org. for Nuclear Research
CHIC Univ. of Chicago
CHUO Chuo Univ.
CINC Univ. of Cincinnati
CIPP Canadian Inst. of Particle Physics
CIT Calif. Institute of Technology
CLER Univ. de Clermont-Ferrand
CLEV Cleveland State Univ.
CMU Carnegie-Mellon Univ.
CNRC Canadian National Research Council
COLC Colorado College
COLO Univ. of Colorado
COLU Columbia Univ.
COPE Copenhagen Univ.
CORN Cornell Univ.
CRAC Inst. for Nuclear Research
CRNL Chalk River Nuclear Lab.
CUNY City Univ. of New York
CURI Pierre et Marie Curie Univ., Paris VI
CWSH Central Washington Univ.
DEAJ Chungnan Univ.
DELH Univ. of Delhi
DESY Deutsches Elektronen-Synch.
DGSI Gesellschaft fur Schwerionenforschung
DLFT Technische Hogeschool
DOE Department of Energy
DORT Univ. Dortmund
DUKE Duke Univ.
DUUC University College
EDIN Univ. of Edinburgh
EFI Enrico Fermi Inst. for Nuclear Studies
ELMT Elmhurst College
EPOL Ecole Polytechnique
ERLA Univ. Erlangen
ETHZ Swiss Federal Inst. of Technology
FERR Univ. di Ferrara
FIRZ Univ. di Firenze
FKUU Fukui Univ.
FLOR Univ. of Florida
FNAL Fermi National Accelerator Lab.
FRAS Lab. Nazionali del Sincrotrone
FREI Univ. Freiburg
FRIB Univ. de Fribourg
FRNK Univ. Frankfurt
FSU Florida State Univ.
GENE State Univ. of New York, Geneseo
GENO Univ. di Genova
GESC General Electric R and D Center
 Rio de Janeiro, Brazil
 Paris, France
 Grenoble, France
 Geneva, Switzerland
 Chicago, Ill., USA
 Tokyo, Japan
 Cincinnati, Ohio, USA
 Montreal, Canada
 Pasadena, Calif., USA
 Clermont-Ferrand, France
 Cleveland, OH, USA
 Pittsburgh, PA, USA
 Ottawa, Canada
 Colorado Springs, CO, USA
 Boulder, Colo., USA
 New York, NY, USA
 Copenhagen, Denmark
 Ithaca, NY, USA
 Cracow, Poland
 Chalk River, Canada
 New York, NY, USA
 Paris, France
 Ellensburg, WA, USA
 Deajeon, Korea
 Delhi, India
 Hamburg, W. Germany
 Darmstadt, W. Germany
 Delft, Netherlands
 Washington D.C., USA
 Dortmund-Hornbruch, W. Germany
 Durham, NC, USA
 Dublin, Ireland
 Edinburgh, Scotland
 Chicago, Ill., USA
 Elmhurst, Ill., USA
 Palaiseau, France
 Erlangen, W. Germany
 Zurich, Switzerland
 Ferrara, Italy
 Firenze, Italy
 Fukui, Japan
 Gainseville, FL, USA
 Batavia, Ill., USA
 Frascati, Italy
 Freiburg, W. Germany
 Fribourg, Switzerland
 Frankfurt, W. Germany
 Tallahassee, Fla., USA
 Geneseo, NY, USA
 Genova, Italy
 Schenectady, NY, USA

INSTITUTIONS (CONT'D)

GEVA Univ. de Geneve
GLAS Univ. of Glasgow
GMAS George Mason Univ.
GREN Grenoble Univ.
GUIL Univ. of Surrey at Guilford
GWU George Washington U.
HAIF Technion - Israel Inst. of Technology
HAMB Univ. Hamburg
HARV Harvard Univ.
HAWA Univ. of Hawaii
HEFE Univ. of Science and Tech.
HEID Univ. Heidelberg
HELS Helsingin Yliopisto
HIRO Hiroshima Univ.
HOUS Univ. of Houston
HOWD Howard Univ.
IDAH Univ. of Idaho
IIT Illinois Inst. of Tech.
ILL Univ. of Illinois
ILLC Univ. of Illinois at Chicago
IND Univ. of Indiana
INNS Innsbruck Univ.
INUS Inst. for Nuclear Study at Tokyo Univ.
IOWA Univ. of Iowa
IPN Inst. de Phys. Nucleaire
ISU Iowa State Univ.
ITEP Inst. for Teor. and Exp. Physics
ITHA Ithaca College
JADA Jadavpur Univ.
JAMU Jammu Univ.
JAPN Japan Univ. Group Collaboration
JHU Johns Hopkins Univ.
JINR Joint Inst. for Nuclear Research
KANS Univ. of Kansas
KARL Technische Univ. Karlsruhe
KEK Nat. Lab for High Energy Phys., Japan
KFAJ KFA Julich
KFZK Kernforschungszentrum, Karlsruhe
KHSU Kharkov State Univ.
KIAE Kurchatov Inst. of Atomic Energy
KIEL Kiel Univ.
KIMC Industrial Medical College
KOBE Kobe Univ.
KOSI Czech. Acad. Sci. Inst. Exp. Phys.
KYOE Kyoto U. of Education
KYOT Kyoto Univ.
KYUS Kyushu Univ.
LALO Linear Accelerator Lab, Orsay
LANC Lancaster Univ.
LANL Los Alamos National Lab.
LAPP Lapp Univ.
 Geneva, Switzerland
 Glasgow, Scotland
 Fairfax, VA, USA
 Grenoble, France
 Guilford, Surrey, England
 Washington, DC, USA
 Haifa, Israel
 Hamburg, W. Germany
 Cambridge, Mass., USA
 Honolulu, Hawaii, USA
 Hefei, Anhui, China
 Heidelberg, W. Germany
 Helsinki, Finland
 Hiroshima, Japan
 Houston, Texas, USA
 Washington, DC, USA
 Moscow, ID, USA
 Chicago, Ill., USA
 Urbana, Ill., USA
 Chicago, Ill., USA
 Bloomington, Ind., USA
 Innsbruck, Austria
 Tokyo, Japan
 Iowa City, Iowa, USA
 Orsay, France
 Ames, Iowa, USA
 Moscow, USSR
 Ithaca, NY, USA
 Calcutta, India
 Jammu-Tawi, India
 Japan
 Baltimore, MD, USA
 Dubna, USSR
 Lawrence, Kansas, USA
 Karlsruhe, W. Germany
 Tsukuba-gun, Japan
 Julich, W. Germany
 Leopoldshaven, W. Germany
 Kharkov, USSR
 Moscow, USSR
 Kiel, W. Germany
 Kitakyushu, Japan
 Kobe, Japan
 Kosice, Czechoslovakia
 Kyoto, Japan
 Kyoto, Japan
 Fukuoka, Japan
 Orsay, France
 Lancaster, England
 Los Alamos, NM, USA
 Annecy, France

INSTITUTIONS (CONT'D)

LAUS Univ. of Lausanne
LBL Lawrence Berkeley Lab.
LEBD Lebedev Physics Inst.
LEHI Lehigh Univ.
LEMO Le Moyne College
LENI Inst. of Nucl. Phys., Akad. Nauk USSR
LIBH Lab Interuniv. Belge High Energy
LISB Nova Univ. de Lisbon
LIVP Liverpool Univ.
LJUB Univ. of Ljubljana
LLL Lawrence Livermore Lab.
LOIC Imperial Col. of Science and Tech.
LOQM Queen Mary College
LOUC University College
LOWC Westfield College
LPGP Lab. de Phys. General, Univ. Paris
LSBF Lisbon Inst. Fisica
LSU Louisiana State Univ.
LUMI Centre Univ. de Luminy
LUND Lund Univ.
LVLN Univ. Catholique de Louvain
LYON Inst. de Phys. Nucl., Univ. de Lyon
MADR Junta de Energia Nuclear
MANI Univ. of Manitoba
MANZ Univ. Mainz
MARB Univ. Marburg
MASA Univ. of Massachusetts
MCGI McGill Univ.
MCHS Univ. Manchester
MCPT Meiji College of Pharmacy
MELB Univ. of Melbourne
MEXU Univ. Nac. Autonoma de Mexico
MIAM Miami Univ.
MICH Univ. of Michigan
MILA Univ. di Milano
MINN Univ. of Minnesota
MINR Institute for Nuclear Research
MISS Univ. of Mississippi
MIT Massachusetts Inst. of Technology
MONS Univ. de l'Etat, Mons
MONT Montreal Univ.
MOSU Moscow State Univ. Inst. of Nucl. Phys.
MPEI Moscow Phys. Eng. Inst.
MPIH Max-Planck-Inst. fur Phys.-Astrophys.
MPIM Max-Planck-Inst. fur Phys.-Astrophys.
MSU Michigan State Univ.
MTHO Mt. Holyoke College
MTU Univ. of Montana
MUNI Munich Univ.
MUNT Technische Univ. Munich
NAGM Nagoya Univ. Coll. Medical Tech.

Lausanne, Switzerland
 Berkeley, Calif., USA
 Moscow, USSR
 Bethlehem, PA, USA
 Syracuse, NY, USA
 Leningrad, USSR
 Brussels, Belgium
 Lisbon, Portugal
 Liverpool, England
 Ljubljana, Yugoslavia
 Livermore, Calif., USA
 London, England
 London, England
 London, England
 London, England
 Paris, France
 Lisbon, Portugal
 Baton Rouge, LA, USA
 Marseille, France
 Lund, Sweden
 Louvain-la-Neuve, Belg.
 Villeurbanne, France
 Madrid, Spain
 Winnipeg, Canada
 Mainz, W. Germany
 Marburg/Lahn, W. Germany
 Amherst, Mass., USA
 Montreal, Canada
 Manchester, England
 Tokyo, Japan
 Parkville, Vict., Australia
 Mexico City, Mexico
 Miami, FL, USA
 Ann Arbor, Mich., USA
 Milano, Italy
 Minneapolis, Minn., USA
 Moscow, USSR
 University, Miss., USA
 Cambridge, Mass., USA
 Mons, Belgium
 Montreal, Que., Canada
 Moscow, USSR
 Moscow, USSR
 Heidelberg, W. Germany
 Munich, W. Germany
 East Lansing, Mich., USA
 South Hadley, Mass., USA
 Missoula, Mont., USA
 Munich, W. Germany
 Munich, W. Germany
 Nagoya-shi, Aichi, Japan

INSTITUTIONS (CONT'D)

NAGO Nagoya Univ.
NANC Univ. de Nancy
NAPL Univ. di Napoli
NARA Nara Women's Univ.
NARU Nara Univ.
NDAM Univ. of Notre Dame
NEAS Northeastern Univ.
NEUC Univ. of Neuchatel
NEVI Nevis Lab.
NIFS Ist. di Fis. Sperimentale
NIHN Nihon Univ.
NIIG Niigata Univ.
NIJM R. K. Univ. Nijmegen
NILU Northern Illinois Univ.
NMXS New Mexico State Univ.
NNIK Nijmegen NIKHEF
NOVO Inst. of Nuclear Physics
NRDG Cal State Univ.
NRL Naval Research Laboratory
NTUA National Technical Univ. of Athens
NWES Northwestern Univ.
NYU New York Univ.
OKAY Okayama Univ.
OKLN Oklahama Univ.
OPEN Open Univ.
OREC Oregon State Univ.
ORNL Oak Ridge National Lab.
ORSA Univ. de Paris, Fac. des Science
OSAK Osaka Univ.
OSKC Osaka City Univ.
OSLO Oslo Univ.
OSSE Science Educ. Inst. of Osaka Pref.
OSU Ohio State Univ.
OTTA Univ. of Ottawa
OXF Oxford Univ.
PADO Univ. di Padova
PAVI Univ. di Pavia
PENN Univ. of Pennsylvania
PERG Univ. di Perugia
PISA Univ. di Pisa
PITT Univ. of Pittsburgh
PRAG Institute of Physics, CSAV
PRIN Princeton Univ.
PSU Pennsylvania State Univ.
PURD Purdue Univ.
QUNK Queen's Univ.
REHO Weizmann Inst. of Science
RHEL Rutherford High Energy Lab.
RHLC Royal Holloway College
RICE William Marsh Rice Univ.
RIKK Rikkyo University

Nagoya, Japan
 Nancy, France
 Napoli, Italy
 Nara, Japan
 Nara, Japan
 Notre Dame, Ind., USA
 Boston, Mass., USA
 Neuchatel, Switzerland
 Irvington-on-Hudson, NY, USA
 Napoli, Italy
 Tokyo, Japan
 Niigata, Japan
 Nijmegen, Netherlands
 Dekalb, Ill., USA
 Las Cruces, NM, USA
 Nijmegen, Netherlands
 Novosibirsk, USSR
 Northridge, Calif., USA
 Washington, D.C., USA
 Athens, Greece
 Evanston, Ill., USA
 New York, NY, USA
 Okayama, Japan
 Norman, OK, USA
 Milton Keynes, England
 Corvallis, OR, USA
 Oak Ridge, Tenn., USA
 Orsay, France
 Osaka, Japan
 Osaka, Japan
 Oslo, Norway
 Osaka, Japan
 Columbus, Ohio, USA
 Ottawa, Canada
 Oxford, England
 Padova, Italy
 Pavia, Italy
 Philadelphia, PA, USA
 Perugia, Italy
 Pisa, Italy
 Pittsburgh, PA, USA
 Prague, Czechoslovakia
 Princeton, NJ, USA
 Fogelsville, PA, USA
 Lafayette, Ind., USA
 Kingston, Ont., Canada
 Rehovoth, Israel
 Chilton, Did., Oxon., England
 Egham Hill, Surrey, England
 Houston, Texas, USA
 Rikkyo, Japan

INSTITUTIONS (CONT'D)

RISO RISO Natioanl Lab
ROCH Univ. of Rochester
ROCK Rockefeller Univ.
ROMA Univ. di Roma
ROSS Zentralinst. fur Kernforschung
RUTG Rutgers Univ.
SACL Center d'Etudes Nuclear Saclay
SACR Cal State, Sacramento
SAGA Saga Univ.
SAIT Saitama Univ.
SANI Ist. Superiore di Sanita
SANT Univ. de Santander
SASK Univ. of Saskatchewan
SCUC Univ. ov. at Seoul
SERP Inst. of High Energy Physics
SHAN Shandoong Univ.
SHEF Univ. of Sheffield
SHMP Univ. of Southampton
SIEG Siegen Univ.
SLAC Stanford Linear Accel. Center
SMAS Southeastern Massachusetts Univ.
SOFC High Inst. of Chem. Tech.
SOFI Bulgarian Acad. of Science
SRIP State Res. Inst. Photochem. Proj.
STAN Stanford Univ.
STEV Stevens Inst. of Tech.
STOH Stockholm Univ.
STON State Univ. of New York at Stonybrook
STRB Centre des Res. Nucleaires
SWRK Inst. of Nuclear Research
SYDN Univ. of Sydney
SYRA Syracuse Univ.
TAMU Texas A and M Univ.
TATA Tata Inst. of Fundamental Research
TBSU Tbilisi State Univ.
TELA Univ. of Tel-Aviv
TEMP Temple Univ.
TENN Univ. of Tennessee
TEXA Univ. of Texas at Austin
THES Univ. of Thessaloniki
TMSK Nucl. Phys. Inst., Tomsk Polytech. Inst.
TMU Tokyo Metropolitan Univ.
TNTO Univ. of Toronto
TOCR Cosmic Ray Lab, Tokyo Univ.
TOGA Tohoku-Gakuin Univ.
TOHO Tohoku Univ.
TOIN Tokyo Inst. Tech.
TOKY Univ. of Tokyo
TORI Univ. di Torino

Roskilde, Denmark
 Rochester, NY, USA
 New York, NY, USA
 Roma, Italy
 Rossendorf, E. Germany
 New Brunswick, NJ, USA
 Gif-sur-Yvette, France
 Sacramento, CA, USA
 Saga, Japan
 Saitama, Japan
 Rome, Italy
 Santander, Spain
 Saskatoon, Canada
 Seoul, S. Korea
 Serpukhov, USSR
 Jinan, Shandong, China
 Sheffield, Yorks., England
 Southampton, England
 Siegen, W. Germany
 Stanford, Calif., USA
 North Dartmouth, Mass., USA
 Sofia, Bulgaria
 Sofia, Bulgaria
 Moscow, USSR
 Stanford, Calif., USA
 Hoboken, NJ, USA
 Stockholm, Sweden
 Stonybrook, LI, NY, USA
 Strasbourg, France
 Swierk, Poland
 Sydney, Australia
 Syracuse, NY, USA
 College Station, TX, USA
 Bombay, India
 Tbilisi, USSR
 Tel-Aviv, Israel
 Philadelphia, PA, USA
 Knoxville, Tenn., USA
 Austin, TX, USA
 Thessaloniki, Greece
 Tomsk, USSR
 Tokyo, Japan
 Toronto, Canada
 Tokyo, Japan
 Miyagi, Japan
 Sendai, Japan
 Tokyo, Japan
 Tokyo, Japan
 Torino, Italy

INSTITUTIONS (CONT'D)

TRIU TRIUMF, Univ. of British Columbia
TRST Univ. di Trieste
TSUK Tsukuba Univ.
TUAT Tokyo Univ. of Agriculture and Tech.
TUFT Tufts Univ.
UATH Univ. of Athens
UBEL Univ. of Belgrade
UCB Univ. of Calif. at Berkeley
UCD Univ. of Calif. at Davis
UCI Univ. of Calif. at Irvine
UCLA Univ. of Calif. at Los Angeles
UCR Univ. of Calif. at Riverside
UCSB Univ. of Calif. at Santa Barbara
UCSC Univ. of Calif. at Santa Cruz
UCSD Univ. of Calif. at San Diego
UMAD Univ. de Madrid
UMD Univ. of Maryland
UNM Univ. of New Mexico
UTAH Univ. of Utah
UTRE University of Utrecht
UUPP Univ. of Uppsala
VALE Univ. de Valencia
VALI Valparaiso Univ.
VAND Vanderbilt Univ.
VASC Virginia State Coll.
VASS Vassar College
VICT Victoria Univ.
VIEN Inst. for High En. Phys., A. A. S.
VILL SIN, Villigen Univ. High Energy Physics
VIRG Univ. of Virginia
VIRK Inst. fur Radiumforschung und Kernphysik
VPI Virginia Polytechnic Inst.
VRIJ Vrije Univ.
WABE Eidgenossisches Amt fur Messwesen
WARS Univ. of Warsaw
WASH Univ. of Washington
WIEN Univ. Wien
WILL College of William and Mary
WINR Warsaw Inst. of Nuclear Research
WISC Univ. of Wisconsin
WSUP Washington State Univ.
WUPP Univ. Wuppertal
WURZ Wurzburg Univ.
WYOM Univ. of Wyoming
YALE Yale Univ.
YERE Yerevan Physics Inst.
YOKO Yokohama National Univ.
YORK York University
ZAGR Inst. Ruder Boskovic, Zagreb
ZURI Zurich University

Vancouver, Canada
 Trieste, Italy
 Ibaraki, Japan
 Tokyo, Japan
 Medford, Mass., USA
 Athens, Greece
 Belgrade, Yugoslavia
 Berkeley, Calif., USA
 Davis, Calif., USA
 Irvine, Calif., USA
 Los Angeles, Calif., USA
 Riverside, Calif., USA
 Santa Barbara, Calif., USA
 Santa Cruz, Calif., USA
 La Jolla, Calif., USA
 Madrid, Spain
 College Park, MD, USA
 Albuquerque, New Mex., USA
 Salt Lake City, Utah, USA
 Utrecht, Netherlands
 Uppsala, Sweden
 Valencia, Spain
 Valparaiso, IN, USA
 Nashville, Tenn., USA
 Petersburg, VA, USA
 Poughkeepsie, NY, USA
 Victoria, BC, Canada
 Vienna, Austria
 Villigen, Switzerland
 Charlottesville, VA, USA
 Vienna, Austria
 Blacksburg, VA, USA
 Amsterdam, Netherlands
 Wabern, Germany
 Warsaw, Poland
 Seattle, Wash., USA
 Vienna, Austria
 Williamsburg, VA, USA
 Warsaw, Poland
 Madison, Wisc., USA
 Pullman, WA, USA
 Wuppertal, W. Germany
 Wurzburg, W. Germany
 Laramie, Wyoming, USA
 New Haven, Conn., USA
 Yerevan, Armenia, USSR
 Yokohama, Japan
 Downsview, Ont., Canada
 Zagreb, Yugoslavia
 Zurich, Switzerland

BROOKHAVEN AGS BEAMS (Source: G. Bunce, BNL)

Up to 10^{13} protons per pulse are accelerated typically to 28.5 GeV kinetic energy (31 GeV has been obtained). At 28.5 GeV, the period is 2.4 sec for slow extraction (with a 1-sec flattop), or 1.4 sec for fast extraction (used for neutrino beams). Counting rates may be estimated using the nominal beam spill time of 1 sec.

Beam	Momentum range (GeV/c)	$\pm \Delta p/p$ (%)	Production angle (°)	Solid angle (msr)	Beam length (m)	Particles	Flux in thousands per 10^{12} protons \rightarrow on target	at (GeV/c)	Comments
B4	1.5-6 1.5-9	3	3	0.3	81	K^+/K^- \bar{p} π^+/π^-	270/120 100 $4 \times 10^4/3 \times 10^4$	4	Usually 2×10^{12} ppp on target; $\pi/K \sim 3$ in K beam; $\pi/\bar{p} \sim 3/4$
B2	- same characteristics as B4 above -								To multiparticle spectrometer
C2, C4	< 1.1	2	10.5	2.6	15	K^+/K^- \bar{p} π^+/π^-	40/12 2 8×10^4	0.75	Usually 2×10^{12} ppp; $\pi/K \sim 10$ in K beam
C6, C8	< 0.8	2.5	5	15	15	K^+/K^- \bar{p} π^+/π^-	200/60 14 6×10^5	0.75	Usually 2×10^{12} ppp; $\pi/K \sim 20$
A1	5-24	1.5	0	0.2	130	π^-	1000	22	To multiparticle spectrometer; 10^{12} ppp; 25 cm Be target
B1	5-24	3	0	0.3	75	K^+/K^- p/\bar{p} π^+/π^-	2500/700 $1.5 \times 10^5/200$ $6 \times 10^4/3 \times 10^4$	10	Usually 2×10^{12} ppp
C1	5-24	5	0	0.8	61	K^+/K^- p/\bar{p} π^+/π^-	9000/400 $3 \times 10^4/30$ $10^5/3 \times 10^4$	16	Usually 2×10^{12} ppp; $\mu/\pi \sim 3\%$ in π beam; also runs at lower momenta (1.4 GeV/c)
D2	0.1-0.3(π) 0.05-0.15(μ)	9(π)	55(π)	50(π)	9	μ^-	2000	0.10	Muon channel; flux in 100 cm^2 with $\Delta p/p = \pm 2\%$; design intensity
A3	1-28		0	0.0045	8	K_L n	2000 10^5	1-28	Typically 10^{12} ppp; alternates with A1
B5	1-28		0	0.01	2.6	n	10^5	1-28	Typically 10^{10} ppp; design intensity
U	1.5 (peak)					$\nu/\bar{\nu}$	$10^7/7 \times 10^6$ per m^2		Typically 1.2×10^{13} ppp; flux averaged over 0.7 m radius; narrow band beam also available

Separated

Unseparated

Neutral

CERN PS BEAMS [Source: *Experiments at CERN in 1984* (M. Ferro-Luzzi, editor)]

East Area – The primary beam.

Beam	Momentum (GeV/c)	Particles	Flux/cycle	Comments
e ₁₇	8-24	p	2×10 ¹¹	Slow ejection; splits into two branches

East Area – These are counter beams fed by branches of the e₁₇ beam above. The fluxes are for $\Delta p/p = \pm 1\%$ and 10¹¹ 24-GeV/c protons on the external target; they assume 30% target efficiency (fluxes also depend on the external target used).

Beam	Momentum (GeV/c)	Particles	Flux/cycle	Comments
t ₇	1-10	p, π^+ , e ⁺ or π^- , e ⁻		e ⁺ is 7% of + beam at 5 GeV/c, 50% at 2 GeV/c
t ₉	<10	π^- e ⁻ positives	≥10 ⁵ at 10 GeV/c 1-3%* ≈4×10 ⁵	Production angle 0°; beam height 2.28 m
t ₁₀	<5	π^- e ⁻ positives	≈3×10 ⁵ at 5 GeV/c ≈10%* ≈6×10 ⁵	Production angle 3.53°; beam height 2.5 m
t ₁₁	<3.5	π^- e ⁻ positives	≈2×10 ⁵ at 3.5 GeV/c <10%* ≈4×10 ⁵	Production angle 8.55°; beam height 2.5 m

*The e⁻ percentage in the negative beam depends on the external target used.

South Area (LEAR) – Design values. The \bar{p} beam splits into three branches (six experimental areas).

Beam	Momentum range (GeV/c)	Flux (per sec)	Comments
External \bar{p} beam, with ultra-slow ejection (≈1 hr)	0.2-1.5 0.1-2.0	≤10 ⁶	A long spill of <3×10 ⁹ \bar{p}

CERN SPS BEAMS [Source: *Experiments at CERN in 1984* (M. Ferro-Luzzi, editor)]

North Area Beams (NA experiments)

Beam	Maximum momentum (GeV/c)	Maximum intensity for 10^{12} protons at 450 GeV/c	Beam type
H2	400	$9 \times 10^7 \pi^+$ at 200 GeV/c $3 \times 10^7 \pi^-$ " " " $4 \times 10^6 e^\pm$ at 150 "	High energy hadrons or electrons (also enriched K^+/\bar{p})
H4/E4	330	$6 \times 10^7 \pi^+$ at 200 GeV/c $2 \times 10^7 \pi^-$ " " " $1 \times 10^6 e^\pm$ " " "	High energy hadrons or electrons
K4	~200	$1 \times 10^5 K_L^0/10^{11}$ incident p $1 \times 10^2 K_S^0/10^7$ " " "	Alternate K_L^0/K_S^0 beam
H6	250	$1 \times 10^8 \pi^+$ at 150 GeV/c $4 \times 10^7 \pi^-$ " " "	Medium energy hadrons
H8	400	$2 \times 10^8 \pi^+$ at 200 GeV/c $7 \times 10^7 \pi^-$ " " "	High energy hadrons (electrons)
M2	325	$2.5 \times 10^7 \mu^+$ at 200 GeV/c $8 \times 10^6 \mu^-$ " " "	High intensity muons
P0	450	$\sim 10^{13}$ p at 450 GeV/c	High intensity primary protons for production of H10 or E12
H10	400/450	$2 \times 10^9 \pi^+$ at 200 GeV/c $7 \times 10^8 \pi^-$ " " "	High energy high-intensity hadrons or protons
E12	300	$1.5 \times 10^8 e^-$ total with energy > 100 GeV	Broad-band electrons/photons

West Area Beams (WA experiments) The table below gives some calculated properties of the upgraded beams.

Beam	Maximum momentum (GeV/c)	Intensity for 10^{12} protons at 450 GeV/c	Beam type
H1	450	$4 \times 10^6 \pi^-$ at 350 GeV/c $2 \times 10^8 \pi^+$ at 200 " $1.5 \times 10^6 e^\pm$ " " "	Hadrons, electrons, or attenuated protons
H3	450	$2 \times 10^6 \pi^-$ at 350 GeV/c $1 \times 10^8 \pi^+$ at 200 " $7 \times 10^5 e^\pm$ " " "	Hadrons, electrons, or attenuated protons
X3	50	10^3-10^4 tertiaries/ 10^7 incident particles from H3	Test beam; tertiary electrons & hadrons
X5	100	10^3-10^4 tertiaries/ 10^7 incident particles from H3	Test beam; tertiary electrons & hadrons
X7	100	10^3-10^4 tertiaries/ 10^7 incident particles from H3	Test beam; tertiary electrons & hadrons

CERN SPS BEAMS [Source: *Experiments at CERN in 1984* (M. Ferro-Luzzi, editor)]

West Area Neutrino Beams (WA experiments) – Reference: CERN/EF/BEAM 80-7, A. Grant, High momentum version of the narrow-band neutrino beam N3, and CERN/EF/BEAM 83-2, A. Grant and J.M. Maugain, High intensity version of beam N3.

Beam	Parent momentum (GeV/c)	Particle	Flux for 10^{13} incident protons [†]	$\langle E_\nu \rangle$ (GeV)	σ_{rms} on E_ν (GeV)	Beam type
N1	450 protons	ν	$5.3 \times 10^{10}/\text{m}^2$ (~ 0.25 ev/ton)	~ 30		Wide-band spectrum up to 450 GeV
		$\bar{\nu}$	$2.3 \times 10^{10}/\text{m}^2$ (~ 0.025 ev/ton)	~ 30		
N3	380 secondaries	ν_π	1.19×10^7	88	41	Narrow-band dichromatic beam with 450 GeV primary protons
		ν_K	5.4×10^6	259	49	
	350	$\bar{\nu}_\pi$	1.4×10^7	82	37	
		$\bar{\nu}_K$	1.7×10^5	248	48	
		ν_π	3.8×10^7	80	38	
		ν_K	2.5×10^7	251	45	
	320	$\bar{\nu}_\pi$	3.2×10^7	78	35	
		$\bar{\nu}_K$	7.2×10^5	224	49	
		ν_π	1.1×10^8	78	34	
		ν_K	8.5×10^7	228	45	
	300	$\bar{\nu}_\pi$	5.3×10^7	74	32	
		$\bar{\nu}_K$	1.7×10^6	220	37	
		ν_π	1.9×10^8	73	32	
		ν_K	1.2×10^8	220	41	
	275	$\bar{\nu}_\pi$	1.1×10^8	68	29	
		$\bar{\nu}_K$	3.4×10^6	215	34	
	200	$\bar{\nu}_\pi$	4.2×10^8	55	19	
		$\bar{\nu}_K$	1.8×10^7	167	26	
		ν_π	1.0×10^9	54	20	
		ν_K	2.4×10^8	165	20	
	160	$\bar{\nu}_\pi$	8.0×10^8	47	14.5	
		$\bar{\nu}_K$	1.8×10^7	141	15	
		ν_π	1.9×10^9	46.5	14.7	
		ν_K	2.4×10^8	141	15	

[†]Fluxes for the N3 beam are at the WA1 (CDHS) detector in a circle of diameter 1.5 m.

FERMILAB BEAMS (Source: H.B. White, Jr., FNAL)

Currently, protons are accelerated to an operational momentum of 800 GeV/c. The maximum intensity is 1×10^{13} protons per pulse, the current repetition rate is 0.017/sec, and the beam spill time is 20 sec. Maximum design momentum is 1000 GeV/c.

Beam	Momentum range (GeV/c)	$\pm \Delta p/p$ (%)	Production angle (mr)	Solid angle (μsr)	Particles	Flux in thousands per sec per 10^{12} protons on target	→ at (GeV/c)	Comments
PW	300 (peak)	5	1.5		π^-	2×10^6	300	High intensity pion beam
					\bar{p}	10^4	300	P-west secondary beam
*PB	600 (peak)	15		4	e^-	10^4	600	Wide band charged and neutral beam Also capable of K_L^0 , p, and π^-
					γ	8×10^3	>200	
					n	6×10^5	~750	
PE	300 (peak)	2.3	0-2	1.2	e^-	10^4	200	Also provides tagged photons Also tagged photons
	300 (peak)		0	0.04	n	4000	>100	
	300		2		π^-	8×10^4	300	
*PC	100-350		± 7.5		Σ^- Ω^-, Λ	2000 <50		P-center charged hyperons
PC	800		0	0.01-0.45	n	10^4		P-center neutral beam
					K_S^0	<50		
					K_L^0	<50		
ME	800 (peak)	1.0			p	$\sim 2 \times 10^9$	800	Primary protons
*MP	70-350	0 ± 5.0	0 ± 1.0		p	10^5	600	Polarized protons from 1000 GeV/c primary Antiprotons from 1000 GeV/c primary Also capable of unpolarized transport
	1000				\bar{p} p, π	<7000	200	
MC	50-150		0-3		K_L^0	2×10^5	100	Neutral beam with 1000 GeV/c primary variable
					n	7×10^5	variable	
MB	200 (peak)	± 4.0		2.5	π, K e^\pm	15×10^4 9	75-100 100	Low intensity wide-angle test beam
MT	800				p μ^\pm	10^9	800	Primary protons (intensity limited) Calibration beam mode

continued on next page

FERMILAB BEAMS (continued)

Beam	Momentum range (GeV/c)	$\pm \Delta p/p$ (%)	Production angle (mr)	Solid angle (μsr)	Particles	Flux in thousands per sec per 10^{12} protons on target	\rightarrow at (GeV/c)	Comments
*MW	1000 (peak)	10	0 ± 0.7		p	6×10^6	600	Beam transport to possible new multiparticle spectrometer; assumes 1000 GeV/c on target
					π^+	5×10^5	600	
					K^+	10^5	600	
					π^-	3×10^5	600	
					K^-	10^4	500	
					\bar{p}	10^4	300	
NW	10-150	2	0-1	4-16	μ^+			Currently a test beam, intensity limited
					π^+	40	~ 50	
					e^-	~ 10	~ 50	
*NC-D	750 (peak)		0		$\nu/\bar{\nu}$	variable		Narrow band, sign-selected neutrino beam
*NC-T	1000 (peak)		0		$\nu/\bar{\nu}$	variable		Broad band, quadrupole focus
NE	800		0		p	$\sim 10^6$	800	To hybrid spectrometer system and Lab G
NT-west	450		0-3		hadrons	$\sim 10^5$	450	Test beam to Lab E neutrino detector and Lab B
NT-east	450		0-3		hadrons	$\sim 10^5$	450	Test beam to Lab C neutrino detector Muons also available
*NP	1000		0		p	$\sim 10^{10}$	1000	Proton transport to prompt neutrino detector
*NM	275-750	20			μ^\pm	$\sim 10^4$	750	Tevatron muon beam

*These beams will be commissioned as part of the Tevatron II project. Design characteristics are shown; detailed characteristics will be determined in operation. These beams will also replace present beams in most cases.

KEK BEAMS (Source: H. Hirabayashi, KEK)

Protons are accelerated to a maximum momentum of 13 GeV/c. The maximum intensity is 4.0×10^{12} protons per pulse. The repetition rate is 0.45/sec.

Beam	Momentum range (GeV/c)	$\pm \Delta p/p$ (%)	Production angle (°)	Solid angle (msr)	Beam length (m)	Particles	Typical flux in particles per pulse	→ at (GeV/c)	Comments
EP1	4-13					p	5×10^{10}		Fast extraction
EP2	4-13					p	2×10^{12}		Slow extraction; branches feed the $\pi 1$, T1, K2, K3, and π - μ beams
$\pi 1$	4-8	2	1.5	0.33	33	π^+/π^-	$2 \times 10^6/6 \times 10^5$	8	Superconducting septum and bending magnets
$\pi 2$	2-4.3	1	10	0.594	31.3	p/\bar{p} π^+/π^-	$10^5/10^2$ $2 \times 10^5/1 \times 10^5$	3	Internal target beam; fluxes for 10^{11} ppp
T1	0.5-2.3	2	23	0.16	18.8	π^+/π^-	$5 \times 10^4/4 \times 10^3$	1	Internal target test beam; fluxes for 10^{11} ppp
T2	0.5-6.0	4	15	0.35	37.0	π^+/π^-	10^4	4	Test beam
K2	1-2	3	0	1.02	27.9	K^+/K^- p/\bar{p} π^+/π^-	$1.5 \times 10^5/5.7 \times 10^4$ $2 \times 10^7/1.2 \times 10^4$ $1.7 \times 10^7/1.4 \times 10^7$	2	
K3-S (K3-L)	0.5-1.0 "	2 "	0 "	7.3 (3.0)	14.4 (16.5)	K^+/K^- p/\bar{p} π^+/π^-	$4.2 \times 10^4/1.0 \times 10^4$ $7 \times 10^7/3.5 \times 10^2$ $5 \times 10^7/5 \times 10^7$	0.6 0.8 0.8	Fluxes are for the S (short) mode of operation
K4	0.4-0.8	3	0	7.3	28.5	\bar{p}	700	0.6	Branch of K3
π - μ	0.1-0.45		87	20		π^\pm μ^\pm	10^6 10^4	0.15	

LAMPF PARTICLE PHYSICS BEAMS (Source: D. Dodder, Los Alamos)

The primary 800 MeV H^+ beam normally runs with an average current up to 900 μA , but 1.2 mA has been achieved. The macro duty factor is up to 10.5%, with a macrostructure of 120 pps. Each macropulse consists of a 0.25 ns burst every 5 ns. This beam is used to generate the meson and neutrino beams described below, as well as additional beams for other purposes. Simultaneously with the H^+ beam a low current (5 μA unpolarized; up to 25 nA polarized) H^- beam is accelerated to a desired energy between 212 and 800 MeV.

Beam	Momentum (MeV/c)	$\pm \Delta p/p$ (%)	Solid angle (msr)	Particle	Flux in particles/sec or current	→ at (MeV/c)	Comments
A	1460	0.1		p	900 μA	1460	Main beam; 1.2 mA has been achieved
LEP	77-415	0.05-2.8	0-17	π^+ π^-	9×10^8 $\sim 2 \times 10^8$	195	Low energy pion beam; achromatic; flux at $\Delta p/p = 2.8\%$
EPICS	156-415	2.0	3.4	π^+ π^-	1.9×10^8 4.2×10^7	300	Energetic pion channel and spectrometer
p ³	100-750	5.0	7.0	π^+	2×10^9	470	High energy pions; achromatic
	"			π^-	3×10^8	470	
	28			μ^+	1.9×10^6	28	μ^- flux is without degrader
	100			μ^-	1.0×10^6	100	
Stopped muon	25-250			μ^+ μ^-	1.8×10^8 3.6×10^7	130	
	665-1460			p	6 μA	1460	Current reduced to 1/3 for <1460 MeV/c Polarization = 0.8 N,L,S available "Unpolarized" beam has P = 0.2 at 20° Polarization = 0.5; max 0° energy is given; other ports up to 37° give lower energies
	"		\bar{p}	25 nA			
	<1460	0.8		n	10^7		
	"	0.8		\bar{n}	10^4		
External proton beam	665-1460	<0.1	<6	p H^0 H^- \bar{p} \bar{H}^0 \bar{H}^-	<100 nA " " 10 nA " "	1460	H^- beam stripped to H^0 or H^+ Polarization = 0.8 N,L,S available Independent of polarization direction of internal beam
Area C HRS	475-1460	0.26		p \bar{p}	100nA 10nA		For high resolution proton spectrometer
Neutrino facility	0-53		$\sim 4\pi$ sr	ν_e	3×10^{14}	total	Peak momentum is 35 MeV/c for ν_μ Flux at 8 m is $4 \times 10^8 \nu/cm^2\text{-sec}$ Source subtends $\pm 1.5^\circ$ for target 8 m away
				ν_μ	"		
				$\bar{\nu}_\mu$	"		
Neutrino, line E	0-300			$\bar{\nu}_\mu$		total	Peak momentum is 150 MeV/c; flux at 25 m is $1.4 \times 10^5 \nu/cm^2\text{-sec}$

Main exp. area

Area B

Area C

SERPUKHOV BEAMS (Source: N.A. Gالياev and R.A. Rzaev, Serpukhov)

Protons are accelerated to a maximum momentum of 70 GeV/c. The intensity is about 3×10^{12} protons per pulse. The repetition rate is 0.115/sec, and the beam spill time is about 2 sec.

Beam	Momentum range (GeV/c)	$\pm \Delta p/p$ (%)	Production angle (mr)	Solid angle (μsr)	Beam length (m)	Particles	Typical flux in particles per pulse	\rightarrow at (GeV/c)	Comments
2/14	30-70	1	6-35	10	120	hadrons+	10^6	60	Internal target lines
	30-60	1	0-5	30		hadrons-	10^6	60	2A, 2B, 14; the e^- 's may
	5-45	3	0-7	30		e^-	10^6	30	be used for polarized γ 's
4	20-50	1	0-5	40	130	hadrons-	6×10^6	40	Internal target lines 4A, 4B, 4V, 4L, 4E
18	3-17	2	0-200	120	50	hadrons+	10^8	5	Internal target,
	2-14	2	240-400	80		hadrons-	10^4	8	injection in ring
21	70		0		180	p	10^{11}	70	Slow ejection
	7-70	2.5	0	60	110	hadrons+ hadrons-	6×10^7 2×10^7	35 35	External target Slow ejection
19	70		0			p	10^{12}	70	Slow ejection
	70		0.5-5			p	10^6 - 10^{10}	70	Internal target
4N	≤ 70		12	1	40	neutrals	10^7	total	Internal target
7	30-70	0.25	11.5	1-4	511.5	p	10^6	69	Internal target, unseparated Fast ejection, separated to bubble chamber
	20-50	0.25	0	40		π^+ , K^+ , \bar{p}			
	20-55	0.25	0	10		π^-			
9	< 25	0.5	0	30	194	π^+ , K^+ , \bar{p} , d	5		Fast ejection, separated
	10-13	1	0	30		\bar{d}	0.8	12.2	Separated
8	< 40		0	5000	500	ν , $\bar{\nu}$	5×10^9	total	Wide-band neutrino beam
	(mean=6) 70		0			p	10^{12}	70	Slow ejection

SIN BEAMS (Source: R. Frosch, SIN)

The average energy of the primary proton beam is 589 MeV with a FWHM spread of 0.4 %. The pulse rate is 5×10^7 per sec and the pulse width is 1 nsec. The maximum intensity at extraction is expected to be about 300 μA in 1985. Secondary beam rates given below are for $I_p = 100 \mu\text{A}$

Pion Beams

Beam	Energy range (MeV)	Minimum $\pm \Delta p/p$ (%)	Maximum flux (per sec)	for maximum flux		
				Energy (MeV)	$\pm \Delta p/p$ (%)	FWHM spot size H×V (cm)
πE1	50-350	0.2	π^+ 9×10^9 π^- 8×10^8	225	2.5	2×5
πE3	8-125	1.0	π^+ 7×10^8 π^- 1.3×10^8	85	5.0	5.6×2.6
πM3	8-350	0.1	π^+ 2.7×10^9 π^- 2.4×10^7	225	3.0	4×2
πM1	50-350	0.05	π^+ 3×10^7 π^- 3×10^6	225	1.0	0.9×0.7

Muon Beams (μ^+ fluxes are 4 or 5 times μ^- fluxes)

Beam	Momentum (MeV/c)	μ^- flux (per sec)	Δ -range (g/cm)	Stop density μ^- (stops/g-sec)	e^-/μ^- ratio	Burst width (nsec)	FWHM spot size H×V (cm)
μE1	120-50	3×10^7 - 4×10^5	4-0.3	1×10^5 - 3×10^4	0.01-3	≥ 4	6×4
μE2	125-50	10^7 - 10^5	2-0.15	4×10^4 - 1×10^4	0.01-3	≥ 4	10×6
μE3	stopping			3.5×10^6			
μE4	stopping			2×10^5	$0.3(\pi^-/\mu^-)$		
πE3	28	$10^7(\mu^+)$	0.04	$2 \times 10^7(\mu^+)$	$0.1(e^+/\mu^+)$		5×4

Neutron Beam (nE1)

Energy range (MeV)	Intensity in 25 cm^2 spot (per MeV-sec)	Available flight path (m)	Resolution from T.O.F. at 590 MeV (MeV)
590-200	4×10^5 - 1.4×10^5	60	7

SLAC BEAMS (Source: T. Fieguth, SLAC)

Accelerator mode	Particles	Momenta (GeV/c)	Particles per pulse	Pulse length (μ s)	Repetition rate (Hz)	Comments
Normal	e^-	≤ 23.5	$\leq 5 \times 10^{11}$	1.6	≤ 360	To conserve power, repetition rates rarely exceed 180 Hz. The e^+ beam would require
	e^+	≤ 15.0	$\leq 2 \times 10^{10}$	1.6	≤ 90	
SLED	e^-	≤ 33.5	10^{11}	0.2	≤ 360	reinstallation of a high-power source.
NPI	e^-	≤ 4	$\leq 8 \times 10^{11}$	1.6	≤ 180	Sector 25 off-axis injector

Colliding beams	Particles	C.m. energy (GeV)	Peak luminosity ($\text{cm}^{-2} \text{sec}^{-1}$)	Average luminosity ($\text{cm}^{-2} \text{sec}^{-1}$)	Comments
SPEAR	e^+e^-	2-7.4	2×10^{31} at 6.4 GeV	1×10^{30} at 3.7 GeV	SPEAR has 2 interaction regions, PEP has 6. At PEP, the luminosity scales as E^{-2} (E^{-3}) for c.m. energies below (above) that at the peak.
PEP	e^+e^-	8-36	3.2×10^{31} at 29 GeV	1.2×10^{31}	

Beam	Momentum range (GeV/c)	$\pm \Delta p/p$ (%)	Production angle ($^\circ$)	Solid angle (msr)	Particles	Maximum particles per pulse	at (GeV/c)	Repetition rate (Hz)	Facility	Comments	
21	1-16	≤ 4.0	1	0.03	K^+/K^-	17/8	10	≤ 180	Test beams	Separated: $\pi/K \approx 1/30$ $\pi/\bar{p} \approx 1/14$	
					p/\bar{p}	40/6					
					π^+/π^-	10^3					
					e^-	10^4					
	1-8				e^+	10^4	2.5				
27	20	9.0 FWHM	0	10^{-7}	γ	10^2	20	≤ 20	Test beam	Backscattered laser beam	
3	≤ 15	0.1-1.0			e^+	2×10^{10}	All	≤ 90	ESA 1.6, 8, & 20 GeV/c spectrometers	e^+ beam requires high power source; all fluxes at $\Delta p/p = \pm 0.25\%$ See footnote A	
	≤ 23.5	0.1-1.0			e^-	5×10^{11}	All	≤ 360			
	3.237 j (j=1,...,6)	0.1-1.0			e^-	5×10^{11}		120, 180			
	3.237 j (j=1,...,6)	≥ 0.5			e^-	10^9		≤ 360			
	≤ 21.5	Brems.	0		γ	4×10^9 EQ	20	≤ 360			0° bremsstrahlung
	5-15	7-10	0		γ	5×10^7 EQ	All	≤ 360			See footnote C
	≤ 21.5	Brems.	0		γ	2×10^8 EQ		≤ 360		See footnote D	
6	0.1-16	≤ 2.0	1.6-6	0.03	e^-	10		≤ 60	Test beams		
	1-16				π^-	10					
19	1-16	0.25	0		e^+	10	10	≤ 60	Test beam	Very pure; $\sigma_x = 1$ mm	

- A. High intensity source; longitudinal polarization = 0.4 (would require reinstallation).
 B. Low intensity source; longitudinal polarization = 0.85 (would require reinstallation).
 C. Coherent bremsstrahlung, linearly polarized (10^9 EQ without collimation).
 D. Linearly polarized at maximum energy by coherent pair production in graphite.

TRIUMF BEAMS [Source: Status of TRIUMF Plans for Development, G. Dutto, E.W. Blackmore, and M.K. Craddock, TRI-82-PP-37 (October 1982)]

The cyclotron energy range is 180-520 MeV with an energy spread of 0.1% (FWHM). The unpolarized intensity is 150 μA , and the polarized intensity is 300 nA; the polarization is 75-82%. The BL4/BL1A split ratio is $1/10^4$. The phase width is variable from 0.5 to 6 ns. The pulse separation is 43 or 217 ns. There are plans to upgrade various performance levels.

Main beam lines

Beam	Particle	Energy (MeV)	Intensity	Momentum spread FWHM (%)	Polarization (%)	Spot size H \times V(cm)
BL1A	p	180-520	120 μA (500 MeV)	0.2	0	0.2 \times 0.5
BL4/1B	\bar{p}	180-520	300nA	0.2	70-80	0.2 \times 0.5
BL4A	\bar{n}	160-500	10 ⁶ /sec	1.0	40-75	6 \times 6
BL2C	p	65-100	10 μA	0.2	0	1 \times 2

Secondary lines The M8, M9, and M20 fluxes are for full momentum acceptance with 100 μA of protons on a 10-cm Be target. The M11, M13, and M15 fluxes are for full momentum acceptance with 100 μA of protons on a 1-cm C target. Beams of π^- and μ^- have the same properties as the π^+ and μ^+ beams, except fluxes are about 5 times lower.

Beam	Particle	Momentum (MeV/c)	Particle flux (per sec)	\rightarrow at (MeV/c)	Momentum spread FWHM (%)	Polarization (%)	Spot size H \times V(cm)
M8	π^-	0-220	1.3 $\times 10^8$	180	13	--	1 \times 2
M9	μ^-	30-150	10 ⁶	77	14	50	8 \times 8
	π^+	30-250	2 $\times 10^8$	120	14	--	10 \times 2
M20	μ^+	30-200	2.5 $\times 10^6$	30	5	>90	4 \times 3
			2 $\times 10^6$	85	8	75	8 \times 8
M13	π^+	30-130	5 $\times 10^7$	130	10	--	3 \times 2
	μ^+	30 (surface)	1.3 $\times 10^6$	30	10	>90	3 \times 2
M11	π^+	90-470	5 $\times 10^6$	200	3	--	2 \times 3
M15 (design)	μ^+	30 (surface)	1.6 $\times 10^6$	30	12	>90	2 \times 1

Requests for copies from the Americas, Australasia, and the Far East should go to:

Particle Data Group (50-308)
Attn: EXPERIMENTS
Lawrence Berkeley Laboratory
Berkeley, CA 94720
USA

Requests from other areas should go to:

CERN Scientific Information Service
CH-1211 Geneva 23
Switzerland