Λ^0 Polarization In $pp \rightarrow p_f p_s \Lambda^0_{anti}$-$\Lambda^0$ At 800-GeV/c

J. Castorena,[1] J. Félix,[1] M.C. Berisso,[2] D.C. Christian,[3] A. Gara,[4] E.E. Gottschalk,[3] G. Gutiérrez,[3] E.P. Hartouni,[5] B.C. Knapp,[4] M.N. Kreisler,[2] S. Lee,[2] K. Markianos,[2] G. Moreno,[1] M. A. Reyes,[1] M.H.L.S. Wang,[2] A. Wehmann,[3] D. Wesson[2].

[1]*Universidad de Guanajuato, León, Guanajuato, México.*
[2]*University of Massachusetts, Amherst, Massachusetts, USA.*
[3]*Fermilab, Batavia, Illinois, USA.*
[4]*Columbia University, Nevis Laboratory, New York, New York, USA.*
[5]*Lawrence Livermore National Laboratory, Livermore, California, USA.*

Abstract. The preliminary results of a Λ^0 and anti-Λ^0 polarization study as functions of the $M_{(\Lambda\text{-}b\Lambda)}$, X_F and their corresponding P_T are reported in this work.

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The polarization of Λ^0 or anti-Λ^0 is measured with respect to the normal vector to its corresponding production plane; it is extracted by fitting to a straight line the angular distribution ($\cos\theta$) of the proton decaying from Λ^0 or anti-Λ^0, $\cos\theta$ has the following dependence on the polarization (P): $dN/d\Omega = N_0(1-\alpha P\cos\theta)$.

Λ^0 polarization and anti-Λ^0 polarization depend on $M_{(\Lambda\text{-}b\Lambda)}$ (Λ^0anti-Λ^0 invariant mass), P_T and X_F. Both Λ^0 and anti-Λ^0 polarizations have a similar dependence on P_T; and a symmetric dependence as functions of X_F. The dependence of Λ^0 polarization on $M_{(\Lambda\text{-}b\Lambda)}$ suggests that the origin of the polarization might be related to the production of the Λ^0 anti-Λ^0 system. The preliminary results are shown in Figure 1.

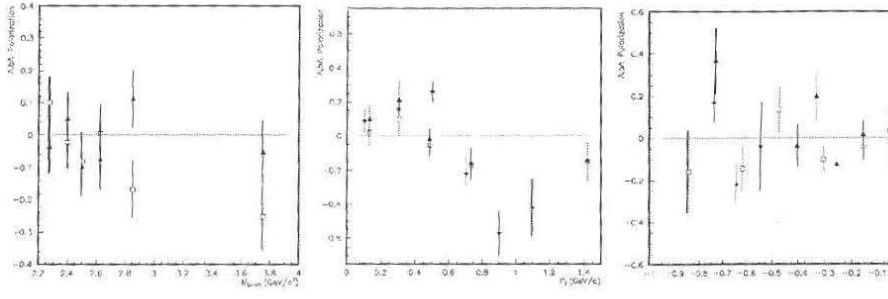

FIGURE 1. Polarization as a function of $M_{(\Lambda\text{-}b\Lambda)}$ (left), X_F (center) and P_T (right). The squares (□) correspond to the results for Lambda, triangles (▲) for anti-Lambda and stars for results reported in [1].

REFERENCES

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