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Quark model calculation of spin-transfer observables for $\bar{p}p \to \bar{\Lambda}\Lambda$ MARY ALBERG, Seattle University, University of Washington, ERNEST HENLEY, University of Washington, PETER KUNZ, University of Colorado, LAWRENCE WILETS, University of Washington — The reaction $\bar{p}p \to \bar{\Lambda}\Lambda$ provides a test for models of strangeness production. Models of the strangeness production mechanism have been developed in terms of meson-baryon or quark-gluon degrees of freedom. Although both types of model have been successful in reproducing the measurements of PS185 for unpolarized proton targets, their predictions for the spin- transfer observables D_{nn} and K_{nn} are in disagreement with recent measurements for a polarized target. We have carried out an improved DWBA calculation of cross sections and spin observables for this reaction using a quark model for the strangeness production mechanism. Our initial state interaction is determined by a good fit to $\bar{p}p$ elastic scattering data in a momentum range corresponding to the $\bar{\Lambda}\Lambda$ production experiment. The reaction mechanism includes effective scalar and vector quark annihilation and creation contributions. The free parameters of the calculation include the strengths of the scalar and vector exchanges, a quark cluster size parameter, and parameters of the unknown $\bar{\Lambda}\Lambda$ interaction. Comparison with the published experimental results from PS185 is made, including both observables and spin density matrix parameters. This work is supported in part by the U.S. National Science Foundation, Award No. 0070942, and the U.S. Department of Energy.

Mary Alberg
Seattle University, University of Washington

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