# Longitudinal Spin-Transfer in Λ Production at HERMES

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Spin transfer in deep-inelastic Λ electroproduction has been studied with the HERMES detector using the 27.6-GeV polarized positron beam in the HERA storage ring. The longitudinal spin transfer $D_{LL'}$ from the virtual photon to the Λ has been extracted as a function of $z$, the fraction of the virtual photon energy carried by the Λ. The observable $D_{LL'}$ is sensitive to both helicity conservation in the fragmentation process and to hyperon spin structure.

Including all data taken at HERMES during the years 1997-2000, a preliminary average value of $D_{LL'} = 0.04 \pm 0.09$ is obtained in the current fragmentation region $x_F > 0$. The small magnitude of this result is at first surprising, given the significant longitudinal spin transfer measured by the OPAL and ALEPH experiments. Further, the dependence of $D_{LL'}$ on the energy fraction $z$ does not display the rise in polarization at high $z$ that is predicted by various phenomenological models. The HERMES results are well explained, however, by,a Monte Carlo simulation based on the Lund string model, the constituent quark model of hyperon spin structure, and simple hypotheses for helicity conservation in the fragmentation process. The principal conclusion of these studies is that even in the forward-production region $x_F > 0$, Λ production in medium-energy deep-inelastic scattering is complicated by the influence of the target remnant.