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Preliminary HERMES results on the beam-spin induced polarization of Lambda and anti-Lambda hyperons produced in semi-inclusive DIS

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We present a detailed study of the polarization transfer from a longitudinally polarized lepton beam to the Λ and $\bar{\Lambda}$ hyperons produced in semi-inclusive deep-inelastic scattering (SIDIS). The spin-transfer coefficients DLZ and \bar{DLZ} are extracted using a three-dimensional method, allowing independent measurement of the spin-transfer vector components in the Λ rest frame. The analysis is based on data collected by the HERMES experiment during 1999-2007, covering a wide range of kinematic variables. The preliminary results show that the spin-transfer coefficients are compatible with zero, suggesting a negligible contribution from up quarks that dominate Λ production in the current-fragmentation region for HERMES kinematics. These findings provide new insights into the spin-dependent fragmentation functions and the underlying dynamics of polarized quark fragmentation.

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