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Transverse target single-spin asymmetry in inclusive electroproduction of charged pions and kaons

Single-spin asymmetries were investigated in inclusive and semi-inclusive electroproduction of charged pions and kaons from a transversely polarized hydrogen target at the HERMES experiment. The asymmetries were studied as a function of the azimuthal angle ψ about the beam direction between the ‘upwards’ target spin direction and the hadron production plane, the transverse hadron momentum P_T relative to the direction of the incident beam and the Feynman variable x_F in the lepton-nucleon center-of-momentum frame. The $\sin\{\psi\}$ amplitudes are positive for π^+ and K^+ , slightly negative for π^- and consistent with zero for K^- , with particular P_T but weak x_F dependences. Especially large asymmetries are observed for two small subsamples of events, where also the scattered electron was recorded by the spectrometer.

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