

Suppression of Spin Transfer to Λ in Deep Inelastic Scattering

We investigate Λ production in semi-inclusive deep inelastic scattering using a polarized lepton beam and find that the spin transfer is significantly suppressed by target fragmentation. As further demonstrated by a model estimation, experimental data can be well described once the target fragmentation is taken into account. Our findings suggest that, at the medium-energy scales of existing fixed-target experiments, such as JLab, COMPASS and HERMES, the separation of current and target fragmentation regions is not distinct. The spin suppression effect from target fragmentation not only alleviates the tension between data and theoretical predictions with current fragmentation, but also provides a new perspective to explore the hadronization mechanism. This effect can be further tested at high energy levels in the future experiments.

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