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Collins and Sivers asymmetries in inclusive ρ0 production from COMPASS

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The study of the partonic and spin structure of the nucleon, using semi-inclusive measurements of hadron muoproduction in Deep Inelastic Scattering (DIS), is one of the main objectives of the COMPASS experiment at CERN. Within the QCD parton model approach, the nucleon structure in DIS can be parametrized in terms of Transverse Momentum Dependent (TMD) Parton Distribution Functions (PDFs), while the hadronization mechanisms are described by the so-called Fragmentation Functions (FFs). Specific convolutions of the TMD PDFs and FFs can be accessed through the measurement of various spin-dependent azimuthal asymmetries in hadron or dihadron productions in DIS. The production of vector mesons in SIDIS is potentially interesting to study the polarized fragmentation and related phenomena. However, this domain is largely unexplored.
In this talk preliminary COMPASS results for the first ever measurement of Collins and Sivers asymmetries in inclusive ρ^0 production will be shown. The analysis is based on the SIDIS data-set collected by COMPASS in 2010 using a 160 GeV/c longitudinally polarized μ^+ beam impinging on a transversely polarized NH_3 target. The asymmetries were extracted as function of different kinematic variables and confronted with model expectations.

Submitted on behalf of a Collaboration?

Yes

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