

Azimuthal asymmetries in SIDIS di-hadron muoproduction off longitudinally polarized protons at COMPASS

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Abstract

In recent years, measuring azimuthal asymmetries in semi-inclusive deep-inelastic scattering (SIDIS) off polarized targets emerged as a powerful tool to investigate the nucleon spin structure, one of the main objectives of the COMPASS physics program.

The two-stage COMPASS spectrometer at the CERN SPS is characterized by a large acceptance and a broad kinematic coverage. It makes use of a tertiary longitudinally polarized high-energetic μ^+ beam, impinging on a transversely or longitudinally polarized ammonia target.

In this talk we present first results on both leading and subleading longitudinal target spin dependent asymmetries arising in the di-hadron SIDIS cross section. The results provide new insights to the longitudinal spin structure of the nucleon, addressing the role of spin-orbit couplings and quark-gluon correlations in the framework of collinear or transverse momentum dependent factorization.

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