

Abstract

Studies of the Transverse Momentum Dependent parton distributions (TMDs) of the nucleon in the valence quark region have emerged as one of the flagship physics programs of the Continuous Electron Beam Accelerator Facility (CEBAF) at Jefferson Lab. The TMDs of the nucleon describe the spin-dependent, three-dimensional distributions of its constituent partons in momentum space. The simplest and best-understood process relevant to the extraction of TMDs from both the experimental and theoretical points of view is single-hadron semi-inclusive deep inelastic scattering (SIDIS), $N(e, e'h)X$. Experiments using precision magnetic spectrometers in JLab's Halls A and C have made and will continue to make unique contributions to the precision mapping of the relevant observables of the SIDIS process, with the ultimate goal of facilitating a model-independent, global extraction of TMDs. In this talk, I will review the existing and forthcoming results on SIDIS and TMDs from experiments using precision magnetic spectrometers in JLab's experimental halls A and C.