

Abstract Submitted
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The Hall C SIDIS program towards understanding the transverse momentum dependence of valence quarks¹ E.R. KINNEY, Univ of Colorado - Boulder, R. ENT, Jefferson Laboratory, T. HORN, Catholic University of America, H. MKRTCHYAN, V. TADEVOSYAN, Yerevan — Semi-inclusive deep inelastic scattering (SIDIS) is an important tool for unveiling the inner structure of the core of the atom, the nucleons and their basic constituents. Azimuthal spin asymmetries in polarized SIDIS are directly related to transverse momentum dependent parton distributions (TMDs) and fragmentation functions. The TMDs allow one to probe the 3D dynamical structure of partons inside the nucleon. Understanding the nature of the SIDIS process is essential for TMD studies, in particular at modest energies where deviations from the leading order factorized picture may be a significant. Precise maps of the meson cross sections and their ratios at low transverse momentum provide a stringent test of the theoretical foundation of SIDIS in terms of factorized parton distributions convoluted with fragmentation functions. The magnetic spectrometers in Hall C at Jefferson Lab are well suited for such precision measurements of fully L/T separated cross sections and their ratios. The addition of neutral particle detection enables additional opportunities. Recent results and upcoming experiments that will investigate the potential for TMD studies at the 12 GeV Jefferson Lab will be presented.

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Edward Kinney
Univ of Colorado - Boulder

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