Abstract Submitted
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Measurement of unpolarized differential cross section of semi-inclusive deep-inelastic scattering on a ^{3}He target[1] XUEFEI YAN, Duke Univ, JEFFERSON LAB E06-010 COLLABORATION — Jefferson Lab experiment E06-010 was performed with 5.9 GeV polarized e^- beam on a transversely polarized ^{3}He target. The produced hadrons at semi-inclusive deep-inelastic scattering (SIDIS) kinematics were detected in the high-resolution spectrometer (HRS) in coincidence with the scattered electrons detected by the BigBite spectrometer. The kinematic coverage focuses on the valence quark region, x = 0.1 to 0.4, at Q^2=1 to 3 $(GeV/c)^2$. Previous analysis effort has been focused on extracting single-spin asymmetry (SSA) and double-spin asymmetry (DSA) related to various TMDs such as Transversity, Sivers, Pretzelosity and Transverse Helicity (g_{1T}^q). The extracted unpolarized differential cross section will put important constraints on the Cahn effect of SIDIS and the Boer-Mulders function. In this talk we will present new results on extracted unpolarized differential cross section of SIDIS in channels $e^- + {}^3He \rightarrow e^{-\prime} + \pi^{\pm} + X$. A dedicated study of the acceptance of HRS and BigBite spectrometers, as well as updated study of the efficiencies and particle contamination in the experiment allowed us to control systematic uncertainties to an acceptable level.

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