

Abstract Submitted
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Charge Symmetry Violation Quark Distribution via Precise Measurement using SIDIS in JLab Hall C¹ SHUO JIA, Temple University — Charge symmetry in the parton distributions assumes the distribution of quarks in the proton are related to those in the neutron. Indirect experimental evidence constrains Charge Symmetry Violation (CSV) to be less than 9%. In Quantum Chromodynamics (QCD), charge symmetry is broken by the mass difference between up and down quarks. CSV in the valence region can be extracted from precision measurements of the cross section ratio of charged pion production in semi-inclusive deep inelastic scattering (SIDIS) from deuterium. The experiment E12-09-002 was conducted at Jefferson Lab in Hall C from fall 2018 to spring 2019 with upgraded 10.6 GeV electron beam. The experiment detected charged pions in coincidence with scattered electrons covering Q^2 from 4 to 5.5 GeV, x for 0.35-0.65, and z from 0.4-0.7. Some preliminary results and the current progress in data analysis will be discussed in this talk.

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