

Abstract Submitted
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Out-of-Plane Measurements of the Fifth Structure Function of the Deuteron¹ GERARD GILFOYLE, University of Richmond, CLAS COLLABORATION — We have measured the asymmetry A'_{LT} associated with the fifth structure function in quasi-elastic kinematics at beam energies of 2.56 GeV and 4.23 GeV over a Q^2 range 0.1 – 2.0 (GeV/c)² with the CLAS detector at Jefferson Lab. The differential cross section of the $D(\vec{e}, e'p)n$ reaction with a polarized beam and unpolarized target has a component that is the imaginary part of the interference term between the longitudinal and transverse parts of the nuclear current. This fifth structure function is non-zero only for protons ejected out of the scattering plane defined by the incoming and outgoing electron and is sensitive to final-state interactions. Only limited measurements have been made of this quantity before now. We extract A'_{LT} using quasi-elastic, missing momentum (p_m) spectra weighted by $\sin(\phi_{pq})$ where ϕ_{pq} is the angle between the scattering plane and the plane defined by the ejected proton and neutron. We will present event selection criteria, calibrations, and consistency checks of the analysis. We will show results for measurements of A'_{LT} that explore different Q^2 regions and different W ranges near the quasi-elastic peak. The data agree with theoretical calculations at low p_m , but diverge at higher missing momenta.

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