

Abstract Submitted
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Analysis of Out-of-Plane Measurements of the Fifth Structure Function of the Deuteron¹ MATTHEW JORDAN, GERARD GILFOYLE, University of Richmond, CLAS COLLABORATION — We have measured the $D(\vec{e}, e'p)n$ reaction and the asymmetry A'_{LT} associated with the fifth structure function in quasi-elastic electron scattering from deuterium at a beam energy of 2.56 GeV and over the range $Q^2 = 0.1 - 2.0$ GeV² with the CLAS detector at Jefferson Lab. The data were collected using both magnet polarities to explore different Q^2 regions. We extracted A'_{LT} as a function of missing momentum (p_m) using spectra weighted by $\sin \phi_{pq}$ where ϕ_{pq} is the angle between the electron scattering plane and the plane defined by the ejected proton and 3-momentum transfer. We compared the measured A'_{LT} with a calculation by Jeschonnek and Van Orden by averaging over the Q^2 distribution of the CLAS data. The theoretical curves largely agree with the 2.56-GeV data at $Q^2 = 0.6 - 2.0$ GeV², but diverge from the data for low Q^2 ($0.1 - 1.0$ GeV²) and high p_m (greater than 0.4 GeV). To understand the systematic uncertainties on A'_{LT} we varied the positions of the kinematic cuts used to define quasielastic scattering and the final state proton. The results showed systematic uncertainties of about 1% or less in regions of high statistics.

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Gerard Gilfoyle
University of Richmond

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