Analysis of Out-of-Plane Measurements of the Fifth Structure Function of the Deuteron\textsuperscript{1} 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 $Q^2 = 0.1 – 2.0$ GeV$^2$ 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 $\phi_{pq}$ 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 $Q^2 = 0.6 – 2.0$ GeV$^2$, but diverge from the data for low $Q^2$ ($0.1 – 1.0$ GeV$^2$) 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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