Abstract Submitted
for the HAW09 Meeting of
The American Physical Society

Systematic Uncertainties of Out-of-Plane Measurements of the Fifth Structure Function of the Deuteron MATTHEW JORDAN, GERARD GILFOYLE, The University of Richmond, CLAS Collaboration — We have measured the $^2\mathrm{H}(\vec{e}, e'p)n$ 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 $\mathrm{Q}^2 = 0.2 - 2.0$ 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 ϕ_{pq} is the angle between the electron scattering plane and the plane defined by the ejected proton and 3-momentum transfer. To understand the systematic uncertainties on $A_{LT'}$ we varied the positions of the cuts placed on the data used to define the position of the deuterium target, the active region of the electromagnetic calorimeters (EC), the sampling fraction of the EC, and the production of photoelectrons in the Cherenkov counters. These results show a systematic uncertainty of less than 1% in regions of high statistics and much lower than the statistical uncertainty across the full p_m range. We combined these results with our previous study of systematic uncertainties on our identification of the proton and neutron. Work supported by US Department of Energy contract DE-FG02-96ER40980.

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Date submitted: 30 Jul 2009 Electronic form version 1.4