Abstract Submitted
for the APR08 Meeting of
The American Physical Society

New Measurements of the Proton Spin-Structure Functions g_1 and g_2 in and above the Resonance Region ROBERT FERSCH, College of William and Mary, CLAS COLLABORATION — The CLAS (CEBAF Large Acceptance Spectrometer) EG1b experiment in Hall-B at Jefferson Laboratory measured double-spin inclusive and exclusive electron-nucleon scattering asymmetries using longitudinally polarized frozen NH_3 and ND_3 targets and a longitudinally polarized electron beam at 4 different energies (1.6, 2.5, 4.2, 5.6 GeV). Extraction of the virtual photon asymmetry A_1 (for 0.05 GeV^2 $< Q^2 <$ 4.0 GeV^2) provides precision measurements of the polarized spin-structure function g_1 in and above the resonance region. Linear regression of data between the varying energies yields new constraints on the virtual photon asymmetry A_2 (and thus the structure function g_2) in the resonance region (for 0.3 GeV^2 $< Q^2 <$ 1.0 GeV^2). Measurements of these structure functions and their moments allows testing of QCD models, sum rules, foward-spin polarizability and duality for the proton.

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Date submitted: 11 Jan 2008 Electronic form version 1.4