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Transverse Beam Spin Asymmetries at Backward Angles in G^0
JULIETTE MAMMEI, Virginia Tech, G0 COLLABORATION — Transverse beam spin asymmetries in elastic electron-nucleon scattering arise due to the interference of the imaginary part of the two-photon exchange amplitude with that of a single photon. Two-photon exchange processes have received renewed interest because the inclusion of the real part of the two-photon exchange amplitude in the electron scattering cross section may account for the difference between polarization transfer measurements and unpolarized cross section measurements of the ratio of G_E^p/G_M^p. By measuring the beam-normal single-spin asymmetry, we are testing the theoretical framework used to calculate two-photon exchange effects as well as related γZ and W^+W^- box diagrams that are important corrections to precision electroweak measurements. During the G^0 program, which ran in Hall C at Jefferson Lab, asymmetry data for (quasi-)elastic electron scattering with a transversely polarized electron beam were collected for four target and beam energy combinations at backward ($\sim 108^\circ$) angles - hydrogen and deuterium at 362 and 687 MeV. Results for the asymmetries from hydrogen will be presented and compared with available theoretical models. Results from deuterium, which can be used to extract a transverse asymmetry for the neutron after appropriate corrections, will also be presented.

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