Abstract Submitted
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Beam Normal Single Spin Asymmetries in Elastic Electron Scattering from Selected Targets[1] WADE DUVALL, Virginia Tech, QWEAK COLLABORATION — The primary focus of the $Q_{\rm weak}$ experiment at Jefferson Lab is the determination of the proton's weak charge. To make corrections to the measured asymmetry, dedicated measurements were made of the parity-conserving beam normal single spin asymmetries ($A_{\rm n}$) in elastic scattering of transversly polarized electrons from several unpolarized targets. The targets included hydrogen, carbon, and aluminum. In the case of hydrogen, two separate spectrometer settings were used to study elastic scattering off both the protons and electrons in the hydrogen target. The $A_{\rm n}$ for the hadronic targets are dominated by two-photon exchange amplitudes, which were important in resolving the discrepancy between two different methods determining the proton's electromagnetic form factors. For the heavy nuclear targets, proper calculation of Coulomb distortion effects are also important. For the case of the elastic scattering from electrons (Moller scattering), the asymmetry is a calculable QED process. The measurements were made with the $Q_{\rm weak}$ apparatus at a beam energy of 1165 MeV and central scattering angle of $\sim 8^{\circ}$. An overview of the motivations, the experimental approach, and the status of the analysis will be presented.

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