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Determining the Nucleon's Neutral Weak Axial Form Factor $G_A^{e(T=1)}$ Using Quasi-Elastic Electron Scattering from a Deuterium Target COLLEEN ELLIS, University of Maryland, College Park, GZERO COLLABORATION — The G^0 collaboration has taken data using the Jefferson Lab high- luminosity polarized electron beam to measure the parity-violating asymmetry of elastically and quasi-elastically scattered electrons from cryogenic proton and deuterium targets. This asymmetry, arising from the interference between the electromagnetic and neutral weak interactions and which may be as small as a few ppm, provides a means to determine the strange quark contribution to the proton electric and magnetic form factors, G_E^s and G_M^s, and the neutron's neutral weak axial form factor, $G_A^{e(T=1)}$. The asymmetry seen in quasi-elastic electron scattering from deuterium is predominantly sensitive to the isovector part of G_A^e, which is one of the dominant uncertainties in the present experimental determination of G_E^s and G_M^s at lower momentum transfer. The status, method, and on-going analysis of the data quality, behavior of asymmetries, and systemic errors involved in the determination of G_A^e at Q^2 of 0.23 GeV^2 and 0.63 GeV^2 will be presented.

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