

Abstract Submitted
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A measurement of two-photon exchange in unpolarized elastic electron-proton scattering JAMES JOHNSON, Northwestern University, JEFFERSON LAB E05-017 COLLABORATION — Inconsistency between the measurements of the proton elastic form factors using recoil polarization and precision Rosenbluth separations suggests the presence of a two-photon exchange term. We look for the effects of two-photon exchange on electron-proton elastic scattering through both precision comparisons of cross section and recoil polarization measurements, and mapping nonlinearities in the reduced cross section with respect to the virtual photon longitudinal polarization. We achieve the necessary sensitivity using a modified Rosenbluth method. By detecting protons instead of electrons, we reduce the variation in the cross section as well as the magnitude of the radiative corrections. We have taken measurements between 0.6 and 5.74 Q^2 , sensitive to the nonlinear portion of two-photon exchange at the low end and the full two photon effect at the high end. We will present initial results, and show the sensitivity we hope to obtain in the final measurement.

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