

Abstract Submitted
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New measurement of the proton form factor ratio with polarized beam and target ANUSHA LIYANAGE, Hampton University, SANE COLLABORATION — The form factors are fundamental properties of the nucleon representing the effect of its structure on the response to electromagnetic probes. The ratio of the electric and magnetic form factors of the proton has been measured with doubly polarized elastic electron-proton scattering at $Q^2 = 2.06$ and 5.66 $(\text{GeV}/c)^2$ using the double spin asymmetry for a target spin aligned nearly perpendicular to the beam direction. This alternative measurement of G_E^p/G_M^p has verified and confirmed the dramatic discrepancy at high Q^2 between the Rosenbluth separation and polarization transfer methods with a different technique and systematic uncertainties uncorrelated to those of the recoil-polarization measurements. The measurement of the form factor ratio at $Q^2 = 2.06$ $(\text{GeV}/c)^2$ is in agreement with an earlier measurement with the polarized target technique at similar kinematics. The four-momentum transfer squared of $Q^2 = 5.66$ $(\text{GeV}/c)^2$ represents the highest Q^2 value reached with the double spin asymmetry to date. The results of this experiment will be presented.

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