

Abstract Submitted
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Measurement of the Proton Form Factor Ratio G_E/G_M from Double Spin Asymmetries ANUSHA LIYANAGE, Hampton University, SANE COLLABORATION — Experiment E03-109 (SANE, Spin Asymmetries of the Nucleon Experiment) was carried out in Hall C at Jefferson Lab to study the proton spin structure functions with a dynamically polarized ammonia target and longitudinally polarized electron beam. Scattered electrons were detected by the Big Electron Telescope Array (BETA), and a set of elastic data was collected by detecting the recoiling proton in the High Momentum Spectrometer (HMS) in coincidence with the electron. The measurement of the elastic double spin asymmetry allows to extract the proton electric to magnetic form factor ratio G_E/G_M at high four-momentum transfers, $Q^2 = 5.25 \text{ (GeV/c)}^2$ and $Q^2 = 6.25 \text{ (GeV/c)}^2$. In addition to the coincidence data, inclusively scattered electrons from the polarized ammonia target were detected by HMS, which allows to extract G_E/G_M from the beam-target asymmetry in the elastic region at lower four-momentum transfer, $Q^2 = 2.2 \text{ (GeV/c)}^2$. These alternative measurements of G_E/G_M will verify the dramatic discrepancy at high Q^2 between the Rosenbluth and the recoil polarization transfer method. The current status of the analysis will be presented.

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