

Abstract Submitted
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The Gep-III Experiment at Jefferson Lab Hall C EDWARD BRASH, Christopher Newport University and Jefferson Lab, THE JEFFERSON LAB HALL C GEP-III COLLABORATION — Measurements of the elastic electric and magnetic form factors of the proton, G_{Ep} and G_{Mp} , respectively, at large momentum transfer, Q^2 , shed new light on its internal nonperturbative structure. The ratio, $R_p = \mu_p G_{Ep}/G_{Mp}$, where μ_p is the proton magnetic moment, has been measured extensively over the last decade at the Jefferson Laboratory, using the polarization transfer method, where one measures R_p directly by measuring the ratio of transverse to longitudinal polarizations of the recoiling proton in elastic electron-proton scattering. These data have revealed that the ratio decreases approximately linearly with increasing Q^2 above a $Q^2 \sim 1 \text{ GeV}^2$. At the same time, they are in disagreement with previous results obtained using the Rosenbluth method based on cross section measurements. The polarization transfer results are of unprecedented high precision and accuracy, due in large part to the small systematic uncertainties associated with the experimental technique. Most recently, the Gep-III Experiment was completed in June of 2008 in Hall C at Jefferson Laboratory. It extends the Q^2 -range from 5.6 to 8.54 GeV^2 . In this presentation, I will review the status of the proton elastic electromagnetic form factor data, including the latest results from the Gep-III experiment, and discuss a number of theoretical approaches to describing nucleon form factors.

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