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Measurements of the Nucleon Elastic Electromagnetic Form Factors at Jefferson Lab

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Content

The elastic, electromagnetic form factors are fundamental observables that describe the internal structure of protons, neutrons, and atomic nuclei. Jefferson Lab in the United States has nearly completed the 12 GeV Upgrade that will open new opportunities to study the form factors. A campaign to measure all four nucleon form factors (electric and magnetic ones for both proton and neutron) has been approved consisting of six experiments in Halls A, B, and C. The increased energy of the electron beam will extend the range of precision measurements to higher Q^2 for all four form factors together. This combination will allow for the decomposition of the results into their quark components and guide the development of a QCD-based understanding of nuclei in the non-perturbative regime. I will present more details on the 12 GeV Upgrade, the suite of detectors in the experimental halls, and the methods used to measure the form factors.

Session

Perturbative and nonperturbative QCD

Primary author(s) : Dr. GILFOYLE, Gerard (University of Richmond)

Presenter(s) : Dr. GILFOYLE, Gerard (University of Richmond)

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