Contribution ID: **257** Type: **Parallel**

High Q^2 Elastic Form Factor Program at Jefferson Lab

Thursday, May 31, 2018 2:40 PM (30 minutes)

The electromagnetic form factors (EMFFs) of the nucleon, measured in elastic electron-nucleon scattering, are among the simplest and most well-defined measurable dynamical properties of the nucleon, and serve as important benchmarks for the testing of theoretical models and *ab initio* lattice QCD calculations of nucleon structure. They also provide stringent, model-independent constraints on the extraction of Generalized Parton Distributions (GPDs), particularly at large values of the momentum transfer Q^2. Precise knowledge of the EMFFs over a wide Q^2 range is also essential to the interpretation of many other experiments in nuclear and particle physics. In the last two decades, the use of polarization observables has dramatically increased our knowledge of the nucleon EMFFs at large Q^2 values. Such measurements are presently a unique worldwide capability of Jefferson Lab's Continuous Electron Beam Accelerator Facility (CEBAF). In this talk, I will present the near-future program of high-Q^2 nucleon EMFF measurements at CEBAF, exploiting the recently-completed upgrade of CEBAF to a maximum beam energy of 11 GeV (for electron-beam experiments), and the complementary capabilities of experimental Halls A, B, and C. Central to this program is the new Super BigBite Spectrometer (SBS), which is specifically designed to enable the high-Q^2 EMFF program. Time permitting, I will also discuss prospects for higher-Q^2 EMFF measurements at a future polarized electron-ion collider (EIC).

E-mail

andrew.puckett@uconn.edu

Funding source

US Department of Energy, Office of Science (Award ID DE-SC0014230)

Primary author: Prof. PUCKETT, Andrew (University of Connecticut)

Presenter: Prof. PUCKETT, Andrew (University of Connecticut)

Session Classification: QCD, Hadron Spectroscopy, and Exotics

Track Classification: QCDHS