Contribution ID : **160** Type : **plenary talk**

Jefferson Lab 12 GeV Upgrade and CLAS12 Science Program

Saturday, 4 June 2016 13:00 (0:30)

Collaboration

Abstract content

In the 12 GeV era, Hall B houses the CEBAF Large Acceptance Spectrometer (CLAS12), which is part of the Jefferson Lab 12 GeV upgrade project. For the foreseeable future, CLAS12 will be the only large acceptance detector available worldwide for use in electron scattering experiments. Its mission is to break new ground in our understanding of the complex structure of the nucleon and nuclei, as well as the formation of hadrons and their properties. CLAS12 consists of two large detector systems operating in concert: a forward one based on a new superconducting torus magnet and a central one with a new superconducting solenoid magnet.

After a brief description of the facility I will summarize the scientific opportunities for utilization of CLAS12. I will focus on the study of three-dimensional imaging of the nucleon via studies of the Generalized Parton Distributions (GPDs) and Transverse Momentum Dependent (TMD) parton distributions. The extended kinematic range and new experimental hardware associated with the Jefferson Lab 12 GeV upgrade will provide access to these fundamental underlying distributions and reveal new aspects of nucleon structure. I will present the talk in the context of the recent dedicated experiments to study GPDs and TMDs at 6 GeV from one end and the prospects of the future Electron Ion Collider from the other.

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Session Classification : Plenary Session