HALL D

INTERVIEW SEMINAR

Eric Fuchey

University of Connecticut

"Two-photon exchange and nucleon form factors with  
Super BigBite Spectrometer"

Nucleon form factors are the most basic and fundamental aspects of the nucleon structure, yet many aspects of this topic remain to be understood. Namely, a sharp discrepancy had been observed on the proton between measurements of GE/GM with electron-proton polarization transfer and measurements of GE/GM with Rosenbluth separation (i.e. using the virtual photon polarization dependence of the elastic electron-proton cross section). The two-photon exchange in elastic electron-nucleon scattering is suspected to be responsible for this discrepancy, and a measurement of this effect is essential to improve our understanding of the nucleon form factors. The neutron Two-Photon Exchange (nTPE) experiment with the Super BigBite Spectrometer (SBS) aims to provide the first estimation of the two-photon exchange effect on the neutron, by way of a Rosenbluth separation of the elastic electron-neutron scattering cross-section. The nTPE experiment has been submitted to the Jefferson Lab Program Advisory Committee in 2020, and has successfully run in the winter of 2022. I will review the neutron Two Photon Exchange (nTPE) experiment within the broader context of the SBS physics program. I will also present the ongoing data analysis for nTPE (status and future path), and highlight my contributions to the SBS software and to the preparation of the BigBite spectrometer for the GMn and nTPE experiment.

JUNE 3, 2022

2 PM

VIA ZOOM

[<https://jlab-org.zoomgov.com/j/1605065317?pwd=SWFUMGl4MHdmTnBjY2ZMN3drVDhWdz09&from=addon>](https://jlab-org.zoomgov.com/j/1609187655?pwd=aS9nYlp1bGFIRkhpa3FlM3hHTk1UQT09&from=addon)