



Contribution ID: 44

Type: QCD and Hadrons

η Meson Photoproduction with the GlueX Experiment

Thursday, 17 February 2022 10:48 (12 minutes)

Studies of the exclusive production of the η meson in photonuclear reactions offer a wide range of physics insight. These include constraining models of hadron photoproduction, insight into the spectrum of excited N^* states, and may even provide a probe into the structure of the nucleon at wide-angles of production. GlueX, a high-intensity photoproduction experiment located at Hall D of Jefferson Lab, measures exclusive η mesons off the proton with large statistics and comparatively low background. We present cross section measurements of η photoproduction at $E_\gamma = 6-11$ GeV and find consistent results using the decay modes $\eta \rightarrow \gamma\gamma$, $\pi^+\pi^-\pi^0$, and $\pi^0\pi^0\pi^0$. When studied as a function of Mandelstam t , these cross sections can constrain models describing η production in terms of t -channel Reggeon exchange. Such measurements inform future searches for exotic hybrid mesons and serve as a benchmark for the Jefferson Lab Eta Factory, a future upgrade to the existing GlueX facility focused on rare η decays.

This work is supported by the Natural Sciences and Engineering Research Council of Canada Grant No. SAPPJ-2018-00021.

email address

Jonathan.Zarling@uregina.ca

Please select: Experiment or Theory

Experiment

Primary authors: ZARLING, Jonathan (University of Regina); Dr PAPANDEOU, Zisis (University of Regina)

Presenter: ZARLING, Jonathan (University of Regina)

Session Classification: Scattering and Electrons