Abstract Submitted
for the DNP20 Meeting of
The American Physical Society

Analysis of the reaction $\gamma p \to \eta^{'}\pi^0 p$ in GlueX in search of photoproduced exotic mesons[1] RUPESH DOTEL, WERNER BOEGLIN, Florida International University, GLUEX COLLABORATION — The GlueX experiment in Hall-D at Jefferson lab is dedicated to measure the light meson spectrum and search for hybrid and exotic mesons. The discovery of hybrid mesons will be important to our understanding of the gluonic field responsible for the binding of quarks in hadrons. The experiment uses a tagged linearly polarized photon beam created by coherent Bremsstrahlung and a polarization peaking at around 9 GeV which is incident on a 30 cm long liquid hydrogen target. The detector with an almost 4π acceptance and good efficiency for both charged particles as well as photons allows for final states with high particle multiplicities . This analysis focuses on the study of the $\eta^{'}\pi^0$ system with the decays $\eta^{'} \to \pi^+\pi^-\eta(\eta \to \gamma\gamma)$ and $\pi^0 \to \gamma\gamma$. We will present initial analysis results of the GlueX Phase-I dataset focusing on the selection of $\eta^{'}$ events and the background studies.

[1]This work was partially supported by the U.S. Department of Energy, Office of Science, Office of Nuclear Physics under contracts DE-SC0013620 and DE-AC05-06OR23177.

Rupesh Dotel
Florida International University

Date submitted: 23 Jun 2020 Electronic form version 1.4