Abstract Submitted
for the DNP20 Meeting of
The American Physical Society

**Photoproduction of $\eta$ Mesons with the GlueX Experiment**[1]
JONATHAN ZARLING, ZISIS PAPANDREOU, Univ of Regina, GLUEX COLLABORATION — Studies of the production and decay of the $\eta$ meson in photoproduction offer a wide range of physics opportunities: these include constraining models of hadronic photoproduction processes, relevant to searches for novel states in the light meson spectrum, searches for BSM states, high precision tests of chiral perturbation theory, and tests of CP conservation in the QCD sector. GlueX, a high-intensity photoproduction experiment located at Hall D of Jefferson Lab, offers a high-statistics sample of $\eta$ mesons off the proton and a unique degree of forward boosting in the lab frame to suppress background. However, the production mechanisms of the eta meson are poorly constrained at $E_\gamma$ = 6-11 GeV by previous experiments. We present recent results from the GlueX experiment that allow greater insight into $\eta$ photoproduction using several $\eta$ decay modes. Such measurements inform future searches for exotic hybrid mesons and serve as benchmarks for the Jefferson Lab Eta Factory, a future upgrade to the existing GlueX facility.

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

Jonathan Zarling
Univ of Regina

Date submitted: 25 Jun 2020 Electronic form version 1.4