

# Beam Asymmetry and High- $t$ Analysis of Photoproduced $\eta$ Mesons in GlueX

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## 1 Abstract

In order to align with the goals of the GlueX Experiment which include identifying and exploring exotic mesons, several light, unflavored mesons such as the  $\eta$  meson need to be studied. Using high intensity data from 2018 with greater statistics, reactions with higher levels of momentum transfer  $t$  can be studied as opposed to previous experiments. Consequently, the beam asymmetry of  $\eta$  particles produced by the reaction  $\gamma p \rightarrow \eta p$  is calculated, and analyzed as a function of  $t$ . This is primarily looked at for certain decays of the  $\eta$  at beam energies between 8.2 and 8.8 GeV.