

Abstract Submitted  
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**Study of Double Regge Exchange in the  $\pi^0\eta$  System at GlueX**  
LAWRENCE NG, Florida State Univ, GLUEX COLLABORATION — Hybrid mesons are mesons that have valence quark and gluonic degrees of freedom. Establishing the spectrum of the hybrid mesons promises to provide unique insight into QCD and quark confinement. There is significant evidence for only the lightest exotic hybrid meson known as the  $\pi_1$  with observations in the  $\pi\eta$  system. For this system any odd- $\ell$  partial wave is exotic and can be seen as an asymmetry in the  $\cos(\theta)_{GJ}$  distribution. Baryon resonances and the non-resonant Deck process can produce a similar signature. The latter is expected to be a significant background around the  $\pi_1$  mass region and therefore needs to be understood. The GlueX experiment, located at Thomas Jefferson National Laboratory, uses a linearly polarized photon beam on a proton target. Photoproduction of the  $\pi^0\eta$  system off the proton into the 4 photon final state, i.e.  $\gamma p \rightarrow \pi^0\eta p \rightarrow 4\gamma p$ , is being analyzed. The non-resonant Deck process dominates the large  $M(\pi\eta)$  region. Studies of events in this region will be shown with comparisons to a double-Regge exchange model being developed in collaboration with the Joint Analysis Physics Center(JPAC). A comparison will also be made to the  $\gamma p \rightarrow \Delta^{++}\eta\pi^-$  channel.

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