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Beam asymmetry Σ for π^0 and η photoproduction on the proton at GlueX[1] ZHENYU ZHANG, Wuhan University and Jefferson Lab, GLUEX COLLABORATION — Measurements of meson photoproduction at high energies began almost 50 years ago with bubble chamber experiments at SLAC, DESY, and Cambridge. These data have been successfully described through Regge theory in terms of t-channel quasi-particle exchange. High statistics measurements of pseudoscalar meson photoproduction at GlueX, using the 9 GeV linearly-polarized, tagged photon beam in Jefferson Lab's Hall D, will provide important new constraints on these Regge models. These measurements will test our understanding of the photoproduction mechanism at high energy, which is a necessary first step toward the broader meson spectroscopy program at GlueX. Through finite energy sum rules, these measurements can also impose new constraints on the extraction of nucleon resonances from low energy photoproduction data. In this talk, preliminary results for the linearly polarized photon beam asymmetry Σ for the exclusive reactions $\gamma p \to p\pi^0$ and $\gamma p \to p\eta$ will be presented. These are the first measurements of the η beam asymmetry at these energies.

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David Mack
TJNAF

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