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Measurement of the t-dependence for the Beam Asymmetry of Photoproduced η Mesons at GlueX[1] TOLGA ERBORA, JOERG REINHOLD, Florida International University , THE GLUEX COLLABORATION — We report on the photoproduction of η mesons studied at the GlueX experiment at Thomas Jefferson National Laboratory in Newport News, VA. These particles are produced by a linearly polarized photon beam at energies between 8.2 and 8.8 GeV incident on protons in a liquid hydrogen target. Azimuthal (ϕ) angular distributions with respect to the direction of the polarized photon facilitate the extraction of the beam asymmetry Σ for the reaction $\vec{\gamma}p \to \eta p$. Σ is derived as a function of four-momentum transfer $-t$. Compared with previous GlueX results [1,2,3], the 2018 run period produced approximately 3-4 times more statistics, thereby allowing us to extend these measurements to values beyond the previous limitation of $-t \leq 1.1$ (GeV/c)^2. Preliminary results will be shown for events reconstructed from the decays of $\eta \to \pi^+\pi^-\pi^0$ and $\eta \to \gamma\gamma$. [1] S. Adhikari *et al.* [GlueX Collaboration], Phys. Rev. C **100**, no. 5, 052201 (2019) [2] H. Al Ghoul *et al.* [GlueX],Phys. Rev. C **95**, no.4, 042201 (2017) [3] P. Collins *et al.* [CLAS Collaboration],Phys. Lett. B **771**, 213 (2017)

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Tolga Erbora
Florida International University

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