Abstract Submitted for the APR21 Meeting of The American Physical Society

**Double Polarization Observable** E for  $\gamma p \to \pi^0 p$  from JLAB CLAS<sup>1</sup> CHAN KIM, The George Washington University, CLAS COLLABORATION — To study baryon resonances, measurements of the double polarization observable E for  $\gamma p \to \pi^0 p$  was performed using a circularly polarized photon beam on longitudinally polarized proton target (FROzen Spin Target experiment) at W energies between 1450 MeV and 2050 MeV. The final state particles were detected with CEBAF Large Acceptance Spectrometer (CLAS) in Hall B at the Thomas Jefferson National Accelerator Facility. The extracted data of helicity asymmetry E will be compared to the experimental results from CBELSA and partial wave analysis predictions from SAID, MAID, and BnGA. In certain energy and angle ranges, significant deviations from partial wave predictions were observed albeit in agreement with CBELSA results. Such discrepancies emphasize the need of further studies on polarization observables. In this talk, methods employed in the event selection, including machine learning techniques to control contaminated data, and preliminary results of helicity asymmetry E for  $\gamma p \to \pi^0 p$  will be presented.

<sup>1</sup>This work was performed with support from US DOE DE-SC001658, The George Washington University.

Chan Kim The George Washington University

Date submitted: 07 Jan 2021

Electronic form version 1.4