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**Photoproduction of $K^0\Sigma^+$ at CLAS**

KYLE ROMINES, ZULKAIDA AKBAR, VOLKER CREDE, Florida State Univ, CLAS COLLABORATION — Hadron spectroscopy is used to acquire more information on the quark-gluon interactions and existence of excited hadrons. The photoproduction reaction $\gamma p \rightarrow K^0\Sigma^+$ using data from two different experiments of CLAS at Jefferson Lab has been analyzed. This reaction is underexplored among the isospin-related $K\Sigma$ channels. In the g12 experiment, photons ranging in energy from 1.1 to 5.4 GeV were incident on a liquid hydrogen target and the differential cross section was extracted. From the g9a experiment, where circularly-polarized photons were incident on a longitudinally-polarized butanol target, the helicity asymmetry $E$ has been determined. In both experiments, events which contained the proton and three-pion final state $\pi^+\pi^-\rho\pi^0$ were selected and an event-based quality factor determination was used for background subtraction. Monte Carlo simulations were then performed to determine acceptance corrections for the cross section. These observables will have a significant impact on partial wave analysis that aims on extracting nucleon resonances from photoproduction data.

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