

Measurement of the Helicity Difference in $\vec{\gamma}p \rightarrow p\pi^+\pi^-$ with CLAS at Jefferson Laboratory

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The study of baryon resonances provides a deeper understanding of the strong interaction because the dynamics and relevant degrees of freedom hidden within them are reflected by the properties of the excited states of baryons. Higher-lying excited states at and above $1.9 \text{ GeV}/c^2$ are generally predicted to have strong couplings to the $\pi\pi N$ final states via $\pi\Delta$ or ρN intermediate states. Double-pion photoproduction is therefore important to investigate properties of high-mass resonances. The CLAS g9a (FroST) experiment, as part of the N^* spectroscopy program at Jefferson Laboratory, has accumulated photoproduction data using linearly- and circularly-polarized photons incident on a longitudinally-polarized butanol target in the photon energy range 0.3 to 2.4 GeV. In this contribution, the extraction of the helicity difference for the reaction $\vec{\gamma}p \rightarrow p\pi^+\pi^-$ will be described and preliminary results will be presented.

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