

Measurement of the Beam Asymmetry, I^\odot and the Helicity Difference, P_z^\odot in $\vec{\gamma}\vec{p} \rightarrow p\pi^+\pi^-$ with CLAS spectrometer at JLab

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The study of baryon resonances helps provide a deeper understanding of the strong interaction since the properties of resonance states give insight as to the dynamics and relevant effective degrees of freedom for a baryonic QCD system. Higher-lying excited states at and above 1.9 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 tool to investigate properties of higher-mass resonances. The CLAS g9a (FroST) experiment, as part of the N^* 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 1.20 to 2.32 GeV. In this contribution, the extraction of the beam asymmetry using circularly polarized photons and the helicity difference for the reaction $\vec{\gamma}\vec{p} \rightarrow p\pi^+\pi^-$ will be described. Our preliminary results for the beam asymmetry are in overall good agreement with previous CLAS data.

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