

Preliminary Results on Polarization Observables for Double-Pion Photoproduction from FROST

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Hadron spectroscopy is essential to understand nucleon structure in the low energy regime. Many low mass resonances have been experimentally observed via πN scattering but only a few higher mass resonances have been seen so far. It is speculated that photoproduction could be the key to detect the *missing* resonances and that these resonances probably decay into multi-particle final states. Hence, studying $p\pi^+\pi^-$ final state is crucial to complete the picture. Double-pion photoproduction has the highest cross section among other photoproduction reactions at photon energies ≥ 1 GeV, making this an indispensable channel to explore. To extract the resonances that contribute to this reaction, it is imperative to measure polarization observables which assist in isolating the broad and overlapping resonances. Here we report on the preliminary results obtained for polarization observables I^\odot , P_z , P_z^\odot and the ongoing analysis to extract $P_x^{s,c}$, $P_y^{s,c}$ from the study of double-pion photoproduction using circularly (linearly) polarized photons incident on a longitudinally (transversely) polarized butanol target. The experiments were conducted at Jefferson Lab using the CLAS spectrometer with photon energies up to 2.3 GeV.