Contribution ID: 179 Type: Parallel

Measurement of Polarization Observables in the Reaction $\gamma p \to K^+ \Lambda$

Tuesday, 29 May 2018 18:10 (20 minutes)

Spin observables are important to understand the production mechanisms of hyperons, as well as the contribution of intermediate baryon resonances. Λ polarization observables have been studied extensively in the recent decades using the reaction $\gamma+p\to K^++\Lambda$. This talk presents the measurement of transferred polarization coefficients C_x and C_z , and the induced polarization P, using a new set of high statistics data, obtained using the CEBAF Large Acceptance Spectrometer (CLAS) detector at Jefferson Lab. The photon beam energy range is 1.117 to 5.45 GeV. These results $(C_x,C_z$ and P) are extracted simultaneously using the Maximum Likelihood Method. The measurements for C_x and C_z have nearly an order of magnitude increase in events compared to previously published results and also extend the kinematic range for W>2.54 GeV, important for both the search for high-mass nucleon states as well as to provide information about non-resonant contributions.

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Track Classification: QCDHS