Determination of the Hyperon Induced Polarization and Polarization–Transfer Coefficients for Quasi-Free Hyperon Photoproduction off the Bound Neutron

Colin Gleason

June 15, 2017

Many excited states (N^*) predicted by quark models, but not observed in πN channels, are expected to couple strongly to kaon–hyperon (KY) channels. While in the last decade data has been published for KY photoproduction off the proton, data off the neutron are scarce. In this talk we will show preliminary results for P, C_x, and C_z for the reaction $\gamma d \to K^0\Lambda(p)$ for E_γ between 0.9–2.6 GeV and $\cos\theta^{CM}_{K^0}$ between -0.9–1. The data was collected in experiment E06-103 (g13) with the CLAS detector at Thomas Jefferson National Accelerator Facility using a circularly polarized photon beam and an unpolarized LD2 target. We will discuss the effect of neutron binding on the observables and the comparison of our results with theoretical predictions. Our study is part of a larger effort by the g13 group to provide cross–sections and polarization observables for meson photoproduction off the neutron and is expected to have a large impact on the N^* research.