

Title: Measurement of the Double Polarization Observables C_x and C_z for Λn Final-state Interactions in $\vec{\gamma}d \rightarrow K^+ \vec{\Lambda}n$

Abstract: Building a comprehensive picture of the strong interaction is the goal of modern nuclear physics. While considerable progress has been made in the understanding of the nucleon-nucleon (NN) interaction, we are still far from a complete understanding of the hyperon-nucleon (YN) interaction, which plays a key role in hypernuclear matter and neutron stars. Some parameters of the YN potential can be obtained from the NN potential by using SU(3) symmetry. Since the flavor SU(3) is broken, there are free parameters in the YN potential, which cannot be obtained from the NN potential and must be obtained from fits to experimental data. One can access the dynamics of the YN interaction by studying nuclear reactions in which hyperons are produced. In this talk we will present preliminary results the polarization observables C_x and C_z for final-state interactions in the reaction $\vec{\gamma}d \rightarrow K^+ \vec{\Lambda}n$ and discuss their dependence on kinematic variables. We use data taken with the CLAS detector at Thomas Jefferson National Accelerator Facility. Our results are the first data ever obtained for C_x and C_z and will provide stringent constraints on the theoretical models of the YN potential. This work is funded in part by the U.S. NSF under grant PHY-125782.