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**Measurement of the Double Polarization Observables  $C_x$  and  $C_z$  for  $\Lambda n$  Final-state Interactions in  $\vec{\gamma}d \rightarrow K^+ \vec{\Lambda} n$**  TONGTONG CAO, University of South Carolina — 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. For the YN potential, some parameters can be obtained from the NN potential by using SU(3) symmetry. However, other parameters cannot be obtained from the NN potential due to broken SU(3) 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 present preliminary results for the polarization transfers  $C_x$  and  $C_z$  from the photon to the hyperon for final-state interactions in  $\vec{\gamma}d \rightarrow K^+ \vec{\Lambda} n$  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 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.

Tongtong Cao  
University of South Carolina

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