

Abstract Submitted
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Study of the Hyperon-Nucleon Interaction in Exclusive Λ Photo-production off the Deuteron¹ NICHOLAS ZACHARIOU, Univ of South Carolina, CLAS COLLABORATION — Understanding the nature of the nuclear force in terms of the fundamental degrees of freedom of the theory of strong interaction, Quantum Chromodynamics (QCD), is one of the primary goals of modern nuclear physics. While the nucleon-nucleon (NN) interaction has been studied for decades, a systematic description of the NN potential has been achieved only recently with the development of low-energy Effective Field Theories (EFT). To obtain a comprehensive understanding of the strong interaction, dynamics involving strange baryons must be studied. Currently, little is known about the properties of the hyperon-nucleon (YN) and the hyperon-hyperon (YY) interactions. In this talk I will describe our current research of the Λn interaction using the E06-103 experiment performed with the CLAS detector in Hall B at Jefferson Lab. The large kinematic coverage of the CLAS combined with the exceptionally high quality of the experimental data allows to identify and select final-state interaction events in the reaction $\gamma d \rightarrow K^+ \Lambda n$ and to establish their kinematical dependencies. The large set of observables we aim to obtain will provide tight constraints on modern YN potentials. I will present the current status of the project and will discuss future incentives.

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