

Abstract Submitted
for the FWS15 Meeting of
The American Physical Society

Lambda Re-Scattering On the Proton JUAN CARDENAS, Presenter,
JOHN PRICE, Mentor — A complete study of the structure of the proton requires knowledge of its interaction with other particles. One such particle is the Λ , which is similar in structure to the proton, but with different quark content. Studying the interaction of the Λ with the proton is difficult, since the Λ does not exist naturally, and decays rapidly. The CLAS collaboration at the Thomas Jefferson National Accelerator Facility is able to produce large numbers of Λ 's via the photo production process $\gamma p \rightarrow K^+ \Lambda$. By using a long hydrogen target, the Λ produced in this reaction can sometimes interact with a second proton in the target. The simplest process between a Λ and a proton is the elastic scattering process $\Lambda p \rightarrow \Lambda p$. Determining the cross section for the process $\Lambda p \rightarrow \Lambda p$ requires the detection of the outgoing proton, the decay products of the Λ , and the K^+ from the original Λ production. Since the main decay mode of the Λ is to $\pi^- p$, the complete final state for this process is $K^+ \pi^- pp$, which is an apparent violation of baryon number conservation. The first step in this study is the identification of events that have two protons and a K^+ . This talk will discuss the physics motivation behind this work, and will present the current status of the analysis of Λ photo production in events with two protons.

Juan Cardenas
Presenter

Date submitted: 09 Oct 2015

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