

Abstract Submitted
for the DNP20 Meeting of
The American Physical Society

Lambda Nucleon Scattering with the CLAS Detector JOSEPH ROWLEY, KEN HICKS, Ohio Univ, CLAS COLLABORATION — Elastic Λp scattering might take place in the center of neutron stars. To better understand their equation of state, better data is needed for this reaction. Currently, data primarily comes from bubble chamber era experiments in part because of the difficulty of creating an exotic Λ beam. Thus, ΛN data is very limited compared to other elastic scattering processes, such as NN , KN and πN . However, the richness of Λ production in modern day accelerators has never been realized. Using the CLAS detector in Hall B of Jefferson Lab, data was mined from existing experiments from the g12 run. A high luminosity photon beam incident on a 40 cm liquid hydrogen target allows for a Λ beam to be created inside the target. The cross sections presented are much more precise ($<10\%$) than previous measurements, which had statistical uncertainties between 20%-50% in the incident momentum range 1.0-1.6 GeV/c. Our results are compared with calculations based on effective field theory, along with predictions from the Nijmegen and Julich models.

Joseph Rowley
Ohio Univ

Date submitted: 01 Jul 2020

Electronic form version 1.4