

Abstract Submitted
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Simulation of Lambda-Proton Elastic Scattering in CLAS¹ MARCOS GUILLEN, NORAIM NUNEZ, JOHN PRICE, California State University, Dominguez Hills, CLAS COLLABORATION — The cross section for Lambda-Proton elastic scattering is complicated. The cross section formula is well-known, and depends on the numbers of detected events, beam particles, and target particles, the acceptance, and the detector and analysis efficiencies. For Lambda-Proton elastic scattering, the beam particle is a secondary particle with a short mean life, complicating this calculation. This study made use of the CLAS simulation program GSIM, which includes a complete description of the CLAS detector. The first step is to simulate the energy and angular spectrum of the beam Lambda. Also, the Lambda's short mean life makes it necessary to study the effect of its decay on the luminosity. The energy and angular spectrum of the beam Lambda is simulated with the process $\gamma p \rightarrow K^+ \Lambda$. Using this energy and angular spectrum, we then determine the luminosity of our Lambda-Proton measurement by generating Lambdas based upon the simulated results, with a second pass of the simulation. We can then determine the geometrical acceptance for the Lambda-Proton elastic scattering process with a third pass of the simulation. This talk will discuss the status of the simulation project, and will present the initial results of the Lambda spectrum simulation.

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