Ξ^- Baryon in Electroproduction off of a Proton Target at CLAS12

Jose C. Carvajal, Florida International University,
for the CLAS Collaboration

June 30, 2022

Baryons with multiple strange quarks played a vital role in the development of the quark model. However, more than half a century after their discovery, Cascade and Omega hyperons are experimentally underexplored. Typically small cross section and the significant change in baryon strangeness from the initial state ($S = 0$) to final state ($S = -2, -3$) make the observation of excited states difficult.

The CLAS12 Very Strange experiment (E12-11-005A) seeks to shed light into the production mechanisms of multi-strangeness baryons. The $ep \rightarrow eK^+K^+(X)$ reaction will be utilized to investigate the electroproduction of cascades. The scattered electron is detected in either the Forward Tagger (FT) or the Forward Detector (FD) regions of the CLAS12 detector. The FT covers a polar angle range between 2° and 5°, and it allows the study electroproduction at low Q^2. On the other hand, The FD covers between 5° and 35°; hence, a higher Q^2 region can be analyzed. Basic data features as well as preliminary acceptance corrected normalized yields for the ground state Cascade will be presented.