

Study of Λ^0 Hyperon Fragmentation in Current and Spectator Regions using CLAS

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Abstract

The color propagation and hadron production from hard interactions in nuclei have been extensively studied over the last few decades. These studies are related to one of the basic phenomenon of quantum chromodynamics (QCD) referred to as hadronization or fragmentation. In this process, an energetic struck quark transforms to color-neutral hadrons making it an effective probe of the confinement dynamics as well as the characteristic time-scales involved. This talk will highlight ongoing efforts to study, for the first time, the semi-inclusive deep inelastic production of Λ^0 hyperon in the current and target fragmentation regions using the Jefferson Lab CLAS EG2 data. The results of this baryon channel combined with other meson production in the same data sets will improve our understanding of the space-time evolution of hadrons at intermediate energy scales. Additionally, the results will provide a strong baseline for the extension of this hadronization program using the upgraded Jefferson Lab electron beam and CLAS12 spectrometer.

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