

Highlight of Fragmentation Studies in CLAS

Lamiaa El Fassi¹, Sereres C. Johnston² and Md Latiful Kabir¹

¹Mississippi State University

²Argonne National Laboratory

On behalf of the CLAS Collaboration

June 27, 2018

Abstract

Over the last few decades several studies have probed color propagation and hadron production from hard interactions in nuclei, related to one of the basic phenomenon of quantum chromodynamics (QCD). The process referred to as hadronization or fragmentation, in which the energetic struck quark transforms to color-neutral hadrons, is an effective way to probe the confinement dynamics and test its characteristic time-scales. 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 6 GeV CLAS EG2 data. The analysis 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, and would manifest a good boost for the upcoming extension of this hadronization program with the upgraded Jefferson Lab 12 GeV beam-energy and CLAS.

This work is supported in part by the US DOE contracts # DE-FG02-03ER41528 and DE-AC02-06CH11357.