Chasing QCD Signatures in Nuclei

Lamiaa El Fassi
Mississippi State University

Abstract

Over the last few decades several experiments have used atomic nuclei as unique laboratories to probe the internal structure of the strongly interacting particles, namely hadrons. Indeed, the nucleus can be used as a revealing medium of the time evolution of elementary configurations of the hadron wave function. One of the ordinary approaches used to probe this picture involves searching for the onset of various phenomena which are naturally predicted by Quantum Chromo Dynamics (QCD), the theory of strong interactions. One such phenomena is Color Transparency (CT) which refers to the production and propagation of a small size hadron-like configuration which, under specific conditions, stays intact in a transparent nuclear medium. In this talk, I will briefly review the status of the experimental search for CT effects and highlight the upcoming Jefferson Lab experiment that will study CT at higher momentum transfer using the CLAS12 spectrometer.

This work is supported by the US DOE contract # DE-FG02-07ER41528.