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The Search for Color Transparency - A Color Coherence Effects in Nuclear Physics

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Mapping the transition of the strong interaction from the hadronic degrees of freedom to the partonic degrees of freedom of quantum chromodynamics (QCD), is an important goal in intermediate energy nuclear and particle physics. The need for such a mapping arises from the fact that at low energies the nucleon-meson picture is very successful in describing the overall features of the strong interaction, while at high energies perturbative QCD (pQCD) with its quark-gluon degrees of freedom allows extremely precise description of the interaction. Unfortunately, there is no clear understanding of how these two regimes are connected. One of the popular approaches used to study the transition between these two regions involves searching for the onset of various phenomena which are naturally predicted in pQCD. One such phenomena is Color Transparency (CT), which refers to the suppression of final (and initial) state interactions of hadrons with the nuclear medium in exclusive processes at high momentum transfers. I will review the status of the experimental search for CT covering experiments spanning over a decade. I will also show preliminary results from a few recently completed experiments at Jefferson Lab (JLab) and talk about future experiments being planned at JLab following the proposed upgrade to 12 GeV. This work is supported by the U.S. Department of Energy under contract number DE-FG02-03ER41231.