

Color Transparency with CLAS.

Maurik Holtrop

University of New Hampshire

for the CLAS collaboration

Abstract

Quantum Chromo Dynamics (QCD) predicts that, under certain specific conditions, exotic configurations of hadrons with extremely small size can be selected. Such point-like configurations exhibit vanishingly small cross sections due to strong cancellations between the color fields of their quarks, and are thus expected to travel through the nucleus with very little absorption. This phenomenon, known as Color Transparency (CT), can be studied using nuclear filtering, by measuring the nuclear transparency (T_A) of the hadrons in the final state versus Q^2 . An increase in T_A for increasing Q^2 would signal the onset of Color Transparency.

CT has previously been observed at very high energy, but mapping out its onset at lower energies gives new information on the dynamical evolution from these exotic short-lived states into normal hadrons. The production of vector mesons, like the ρ^0 meson, in electron scattering is a particularly sensitive reaction to study CT.

In this talk the phenomenon of CT will be introduced and recent results of the analysis of ρ^0 electro-production with CLAS will be presented.¹

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