

Medium modifications of quark propagation and hadron formation observables

Thursday, 12 December 2024 11:45 (15 minutes)

The main focus of the Jefferson Lab physics program of 6 GeV and 12 GeV era, which are now proposed to be extended here to 22 GeV, is to determine the mechanisms of confinement in hadron formation. A significant amount of information has been collected on understanding confinement through hadron spectroscopy. Another approach was introduced through the string-breaking mechanism studied via deep-inelastic scattering off nuclei. It has been considered the pioneering process in investigating medium modifications of quark propagation and hadron formation observables. Those observables, reflected in hadronic multiplicity ratios and transverse momentum broadening, are multidimensional in nature for which reason a high-dimensional analysis is necessary to disentangle dependencies on Q^2 , ν , z , p_T^2 kinematical variables. In this talk, I will survey of the most relevant data and its potential interpretation that will be followed by description of feasible measurements at Jefferson Lab 22 GeV.

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Session Classification: Nuclear Dynamics