Center for Frontiers in Nuclear Science
Workshop series

Contribution ID: **13** Type: **not specified**

Heavy meson tomography of cold nuclear matter at the electron-ion collider

Friday, 29 January 2021 11:50 (5 minutes)

An important part of the physics program at the future electron-ion collider is to understand the nature of hadronization and the transport of energy and matter in large nuclei. Open heavy flavor production in deep inelastic scattering provides a new tool to address these critical questions. We present the first calculation of D-mesons and B-meson cross sections in electron-nucleus collisions at the EIC by including both next-to-leading order QCD corrections and cold nuclear matter effects. Our formalism employs generalized DGLAP evolution to include the contribution of in-medium parton showers, and is based on methods developed in soft-collinear effective theory with Glauber gluons that describe inclusive hadron production in reactions with nucleons and nuclei. The comprehensive study summarized here allows us to identify the optimal observables, center-of-mass energies, and kinematic regions most sensitive to the physics of energy loss and hadronization at the EIC.

Primary author: LIU, Zelong (LANL)

Co-authors: Dr LI, Haitao; Prof. VITEV, Ivan

Presenter: LIU, Zelong (LANL)

Session Classification: Heavy flavor at EIC

Track Classification: Heavy flavor