

Abstract Submitted  
for the DNP20 Meeting of  
The American Physical Society

**Tagged measurements of Short-Range Correlation at the EIC**

FLORIAN HAUENSTEIN, Old Dominion University ODU and Massachusetts Institute of Technology MIT — Understanding the modification of quarks in nucleons within nuclei (EMC effect) is a longstanding open question in nuclear physics. Recent experimental results from electron scattering at Jefferson Lab strengthen the correlation between the EMC effect and nucleon-nucleon short-range correlated pairs (SRC) within nuclei. That means that the EMC effect is probably driven by the high-momentum highly-virtual nucleons of the SRC pairs. This connection can be tested experimentally by measuring electron deep inelastic scattering (DIS) from a nucleon and detecting its correlated SRC partner nucleon (tagging). The Electron-Ion-Collider (EIC) is an ideal machine for tagging measurements due to unique capability of measuring recoil nucleons compared to fixed-target experiments. The design of the EIC detectors allows for a full acceptance for forward-going protons, neutrons and nuclear fragments in addition to the scattered electron. In my talk, I will present results from simulation studies of tagged short-range correlations in Quasi-elastic and DIS kinematics at the EIC. The results will show the requirements for detectors and beam energies for tagged SRC physics at the EIC as well as achievable statistics.

Florian Hauenstein  
Old Dominion University ODU and Massachusetts Institute of Technology MIT

Date submitted: 23 Jun 2020

Electronic form version 1.4