

Abstract Submitted  
for the DNP20 Meeting of  
The American Physical Society

**$\Lambda_c$  baryon production at future EIC** YUANJING JI, University of Science and Technology of China / Lawrence Berkeley National Laboratory — In high energy collisions, heavy quarks (c, b) are predominately produced in the initial hard scattering process. The relative ratio of different heavy flavor hadrons species serves as a tool to study charm quark hadronization mechanism. A large  $\Lambda_c^+/D^0$  ratio is observed in both p+p and A+A collisions at  $p_T < 10$  GeV at LHC and RHIC. The high statistics charm baryon production in e+p and e+A collisions in the future Electron-Ion Collider (EIC) at Brookhaven National Laboratory shed light on the hadronization mechanism in the cold nuclear medium. In this talk, the measurement of  $\Lambda_c^+/D^0$  ratio in e+p and e+A collisions in the future EIC will be studied.  $\Lambda_c^+/D^0$  ratio as a function of multiplicity, transverse momentum, and  $Q^2$  in different systems will be presented. We will also discuss the potential of  $\Lambda_c^+$  production measurements in the future EIC collider. The physics projections will be shown based on estimated EIC detector performance.

Yuanjing Ji  
University of Science and Technology of China

Date submitted: 28 Jun 2020

Electronic form version 1.4