

Abstract Submitted
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Λ_c baryon production at future EIC YUANJING JI, Lawrence Berkeley National Laboratory — In high energy collisions, heavy quarks (c, b) are predominantly 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. Recently, data from $p+p$, $p+A$, and $A+A$ collisions at RHIC and LHC showed that the Λ_c^+/D^0 ratio is considerably larger than the fragmentation baseline. The high luminosity e+p and e+A collisions in the future Electron-Ion Collider (EIC) at Brookhaven National Laboratory would allow us to systematically investigate the Λ_c production over a broad kinematic region, which will shed detail insights on charm hadrochemistry and charm-quark hadronization. In this talk, I will present the reconstruction capability study for Λ_c^+ baryons at the future EIC experiment utilizing an all silicon tracker based on next generation MAPS technology. Physics projections on the measurement of Λ_c^+/D^0 ratio in e+p and e+A collisions in the future EIC will be presented. I will also discuss the physics potentials towards understanding the nucleon/nuclei structure and cold nuclear matter effects enabled by the Λ_c^+ measurements at EIC.

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