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Measurements of Open Heavy Flavor Hadrons in STAR Experiment

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Heavy flavor quarks are dominantly produced in the initial hard interactions in high energy heavy ion collisions at the Relativistic Heavy Ion Collider (RHIC). Their interaction with QCD medium is sensitive to the medium dynamics. Thus heavy flavor quarks are suggested as an ideal probe to study the properties of the hot and dense nuclear matter created at RHIC. In this talk, we will present recent open heavy flavor measurements by the STAR experiment through both hadronic and semi-leptonic decay channels. We will
discuss results of open charm meson and non-photonic electron production cross section measurements in proton-proton and Au+Au collisions at $sqrts_N N$ = 200 GeV. We will also present measurements of open charm mesons in proton-proton collisions at $sqrts$ = 500 GeV and the first result in uranium-uranium collisions at $sqrts_{NN} = 193$ GeV. Finally we will describe the ongoing Heavy Flavor Tracker and Muon Telescope Detector upgrade projects and their anticipated physics reach in the coming years.

Keywords

Heavy Flavor, Open Charm Meson, Non-Photonic Electron, STAR Experiment

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