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Recent open heavy flavor production at RHIC

Summary

Heavy quarks are predominantly produced in initial hard partonic scatterings in ultra-relativistic heavy-ion collisions at RHIC energies. Therefore, they are expected to experience the entire evolution of the hot and dense nuclear matter produced in these collisions, known as the Quark-Gluon Plasma (QGP). Thus heavy quarks are ideal probe for the QGP matter and its properties. Taking advantage of the development of the detector technology, such as the STAR Heavy Falvor Tracker (HFT), charmed hadrons can be reconstructed via their decay vertices from hadronic decay channels. With the precision measurement of the production of charmed hadrons and inclusive electrons from heavy falvor decays, the electron from charm and beauty decays can be isolated.

In this talk, the recent progress on open heavy flavor production at RHIC will be reviewed. The experimental observables, such as nuclear modification factor (R_{AA}), elliptic flow (v_2), particle ratios, etc., of charmed hadrons and/or electrons from charm and beauty decays will be presented. The related physics interpretation will also be given.

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