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PHENIX measurements of single electrons from charm and bottom decays at midrapidity in Au+Au collisions

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Hadrons carrying heavy flavor (charm and bottom quarks) are a sensitive probe of the hot, dense medium created in high-energy nuclear collisions at RHIC because they are generated early in the reaction and subsequently propagate through the created matter.

The PHENIX experiment has measured inclusive open heavy flavor via the measurement of electrons from semi-leptonic decays of hadrons carrying charm or bottom quarks in a variety of Collision systems. After the addition of the silicon vertex tracker, VTX, independent measurements of charm and beauty meson are now possible via off-vertex decays. Using Bayesian unfolding techniques applied simultaneously to the heavy flavor electron yield and the distance of closest approach for heavy flavor electrons, PHENIX measured heavy-quark production of charm and bottom separately using data sets taken in 2011, 2014 and 2015 Au+Au and $p+p$ collisions.

In this talk, we will present the single electrons, from b and c decays separately, nuclear modification factors R_{AA} and their interpretation in view of current theoretical understanding.

Preferred Track

Open Heavy Flavors

Collaboration

PHENIX

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