

Measurement of heavy-flavor electron production in Au+Au collisions at $\sqrt{s_{NN}} = 54.4$ GeV at STAR

Poster

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Abstract

1 Studying heavy-flavor production in heavy-ion collisions (HIC) can improve
2 our understanding of parton interactions with the Quark-Gluon Plasma
3 (QGP). Due to their significant mass, heavy quarks (charm and bottom) are
4 mainly produced in the initial phase of high-energy HIC, when hard scatter-
5 ings are prevalent, and thus experience the entire evolution of the QGP. One
6 way to study heavy quarks is to measure Heavy-Flavor Electrons (HFE) -
7 electrons emitted from the semi-leptonic decays of heavy-flavor hadrons.

8 In this contribution, we will present the HFE measurement at low trans-
9 verse momentum (p_T) in Au+Au collisions at $\sqrt{s_{NN}} = 54.4$ GeV using data
10 taken in 2017 by the STAR experiment. The strong HFE suppression was
11 already observed in the central Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV.
12 The measurement of heavy-flavor quark central-to-peripheral nuclear mod-
13 ification factors below the RHIC top energy will provide new insights into
14 the collisional energy loss that is dominant at low p_T and will complement
15 the existing results at $\sqrt{s_{NN}} = 200$ GeV and the recent HFE elliptic flow
16 measurement at $\sqrt{s_{NN}} = 54.4$ GeV.