Measurements of electrons from heavy-flavor hadron decays in 27, 54.4, and 200 GeV Au+Au collisions in STAR

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Measurements of heavy-flavor hadron production and elliptic flow (v_2) are unique and indispensable probes to the properties of the Quark-Gluon Plasma (QGP). Measurements of the production of electrons from open charm and bottom hadron decays in Au+Au collisions serve as a valuable tool to investigate the mass hierarchy of the parton energy loss. Meanwhile, measuring v_2 of heavy flavor hadrons and their decay daughters at different collision energies provide important insights for understanding the temperature dependence of charm quark interactions with the QGP.

In this talk, we will present the latest measurements of the nuclear modification factor of heavy-flavor electrons in Au+Au collisions at $\sqrt{s_{\rm NN}} = 200$ GeV. Measurements of electrons from open charm- and bottom-hadron decays will be reported separately. The new results from STAR on the v_2 of heavy-flavor electrons at $\sqrt{s_{\rm NN}} = 27$ and 54.4 GeV will be presented. The energy dependence of heavy-flavor electron v_2 will be compared with those of light hadrons. Physics implications of these results will be discussed by comparing to theoretical model calculations.