

Abstract Submitted
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Simulation of Bottom Measurement with the STAR HFT Detector XIAOYU ZHU, UCLA, STAR COLLABORATION — STAR (Solenoidal Tracker At RHIC) is a working experiment at RHIC (Relativistic Heavy Ion Collider) to study properties of Quark-Gluon Matter under extreme energy density and temperature. Bottom quark production and propagation is a unique probe of the dense matter created at RHIC. The HFT (Heavy Flavor Tracker) is a proposed detector upgrade of STAR, capable of reconstructing open charm/bottom hadrons at midrapidity. We present a study of B meson reconstruction via the semi-electronic channel using GEANT simulations of HFT performance. We carried out two approaches to separate B from D mesons: the impact parameter method and the displaced vertex method. First, B mesons have mean proper decay lengths of 500 microns, so their decay electrons have large impact parameters with respect to the interaction vertex. Second, the secondary vertex (daughter D decay) displacement is in the direction of the B meson, and close to the direction of the decay electron, so the flight distance (the scalar product of the secondary vertex displacement and the daughter electron momentum) provides a good measure for the B meson reconstruction. Preliminary results on STAR HFT B measurement performance will be discussed.

Xiaoyu Zhu
UCLA

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