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D_s Meson Reconstruction from STAR Heavy Flavor Tracker[1]
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Nucleus-Nucleus Collisions at RHIC (the Relativistic Heavy Ion Collider) have produced a strongly interacting dense partonic matter whose degrees of freedom are governed by the Quantum ChromoDynamics (QCD). The Solenoid Tracker At RHIC (STAR) is an ongoing major experiment which aims to study the properties of the QCD matter under extreme energy density, pressure, and temperature. Heavy quark production and propagation are unique probes to the dense matter created at RHIC. The HFT (Heavy Flavor Tracker) is a proposed detector upgrade of STAR, capable of reconstructing open charm hadrons from hadronic decay channels. We carry out a study of D_s meson reconstruction using GEANT simulations. We reconstruct D_s mesons through a 3-body decay of $K^+K^-\pi$ at displaced vertices as a function of transverse momentum. We present preliminary results on the statistical significance of the reconstructed D_s signal as well as on the D_s detection efficiency using HFT. The physics impact of the D_s measurement will also be discussed.

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