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Heavy Flavor Physics in Heavy-Ion Collisions with STAR Heavy Flavor Tracker YIFEI ZHANG, STAR COLLABORATION — Heavy quarks are a unique tool to probe the strongly interacting matter created in relativistic heavy-ion collisions at RHIC energies. Due to their large mass, energetic heavy quarks are predicted to lose less energy than light quarks by gluon radiation when they traverse a Quark-Gluon Plasma. In contrast, recent measurements of non-photonic electrons from heavy quark decays at high transverse momentum (p_T) show a jet quenching level similar to that of the light hadrons. Heavy quarks are produced mainly at early stage in heavy-ion collisions, thus they are proposed to probe the QCD medium and to be sensitive to bulk medium properties. Ultimately, their flow behavior may help establish whether light quarks thermalize. Therefore, topological reconstruction of D-mesons and identification of electrons from charm and bottom decays are crucial to understand the heavy flavor production and their in-medium properties. The Heavy Flavor Tracker (HFT) is a micro-vertex detector utilizing active pixel sensors and silicon strip technology. The HFT will significantly extend the physics reach of the STAR experiment for precise measurement of charmed and bottom hadrons. We present a performance study with full detector on the open charm nuclear modification factor, elliptic flow v_2 and Λ_c measurement as well as the measurement of bottom mesons via a semi-leptonic decay.

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