Measurements of D^0-tagged Jet Spectra and Radial Profiles in Au+Au collisions from STAR

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Measurements of hard probes such as jets and heavy flavor hadrons are essential to study the microscopic properties of the Quark-Gluon Plasma. In particular, due to their large intrinsic mass, measurements involving heavy flavor quarks are important to understand the mass dependence of the parton energy loss. With the Heavy Flavor Tracker at STAR, the opportunity to use fully reconstructed D mesons to tag a clean and large sample of charm jets is enabled as combinatorial backgrounds can be removed by requiring a secondary D meson decay vertex. In this poster we present the details of the first measurements of D^0-tagged jet spectra and radial profiles in Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV. We introduce a new approach of simultaneously subtracting the residual D^0-jet combinatorial background and applying efficiency corrections using the ${}_s\mathcal{P}$lot method. We additionally show the central-to-peripheral nuclear modification factor, $R_{\rm CP}$, as a function of D^0-jet transverse momentum. Finally, we compare our data to measurements from the Large Hadron Collider, and PYTHIA 8 simulations and various heavy quark transport models.