Contribution ID: **375** Type: **Poster**

Performance of Heavy-flavor Tagged Jet Identification in STAR

Tuesday, 15 May 2018 19:10 (30 minutes)

The measurement of heavy-flavor tagged jets in relativistic heavy ion collisions is an important tool to study the properties of the hot and dense QCD medium. While the flavor dependence of jet quenching has been attributed to several physics mechanisms, such as collisional and radiative energy losses of hard-scattered partons, previous measurements at the LHC have not shown a strong flavor dependence of jet quenching in the jet transverse momentum (p_{T}) range of 80-250 GeV/c in heavy ion collisions. However, experimental inability to distinguish prompt heavy-flavor quarks and those from gluon splitting has limited the quantitative interpretation of currently available measurements. Compared to collision energies at the LHC, the fraction of heavy-flavor quarks from gluon splitting to prompt heavy-flavor quarks is predicted to be lower at RHIC energies, making flavor-dependent measurements more accessible. In this poster, performance studies of heavy-flavortagged jet identification in the STAR experiment at RHIC are reported.

STAR's recent addition of the Heavy Flavor Tracker (HFT) provides significantly improved resolution of secondary vertices and thus excellent identification of particles containing heavy quarks. Taking advantage of the HFT capability, we have developed a number of heavy-flavor jet tagging algorithms based on properties of reconstructed secondary vertices and properties of constituent tracks. Tagging efficiency and misidentification rate of each algorithm are investigated via Monte Carlo simulations. These performance results will be used as a basis for upcoming STAR measurements on flavor dependence of jet quenching in heavy ion collisions.

Content type

Experiment

Collaboration

STAR

Centralised submission by Collaboration

Presenter name already specified

Primary author: YE, Zhenyu (University of Illinois at Chicago)

Presenter: OH, Saehanseul (Yale University and Brookhaven National Laboratory)

Session Classification: Poster Session

Track Classification: Jet modifications and high-pT hadrons