Santa Fe
Jets and Heavy Flavor Workshop
January 11-13, 2016

Contribution ID: **78** Type: **not specified**

Bottom quark production at RHIC with the STAR experiment

Wednesday, January 13, 2016 11:30 AM (30 minutes)

Because of their large masses and long lifetimes, heavy quarks are dominantly produced from initial hard parton scattering processes and can experience the whole evolution of the Quark Gluon Plasma (QGP) created in high-energy heavy-ion collisions. For this reason, heavy quarks have been suggested as excellent probes of the properties of the QGP. Theoretical models based on existing data predict that bottom quarks will lose less energy than charm quarks in the QGP, which makes bottom quarks a particularly useful tool for studying the mass dependence of parton-QGP interactions, and thus QGP properties. The azimuthal correlation between either J/Psi or non-photonic electrons (electrons from open heavy flavor decays) and hadrons from the same collision can be used to study bottom production in p+p collisions at sqrt(s) = 200 GeV with the STAR experiment. By making use of difference in the shape of the azimuthal correlations for different sources, the ratios of b-> J/Psi to prompt J/Psi and b-> e to c-> e were extracted. These results cover a larger transverse momentum range and have better precision than previous measurements and will provide a more precise baseline for examination of heavy quark production in heavy-ion collisions. For heavy-ion collisions, the newly installed Heavy Flavor Tracker (HFT) will allow access to b-> J/Psi and b-> e production information. The HFT can precisely measure track impact parameters, and thus allows a separation between prompt and non-prompt J/Psi through measuring their decay lengths. A similar method will also allow separation of b-> e and c-> e, due to the longer lifetime of open bottom hadrons. We will present prospects for HFT measurements of bottom production in heavy-ion collisions alongside the results for p+p collisions.

Presenter: Mr MILLER, Zachariah (University of Illinois at Chicago; STAR)

Session Classification: Session 10