Contribution ID: **178** Type: **3a) Heavy-flavours and quarkonia (TALK)**

Measurements of $\Lambda_c^{\pm}$, $D_s^{\pm}$, $D^{*\pm}$ and $D^0(\overline{D^0})$ Production in Au+Au Collisions at $\sqrt{s_{NN}}$ = 200 GeV at STAR

Thursday 4 October 2018 11:25 (20 minutes)

Because of their large mass, charm quarks are suggested to be an important tool for studying the properties of the Quark Gluon Plasma (QGP) produced in heavy-ion collisions. Recently, measurements at RHIC and LHC have indicated strong energy loss and large elliptic flow for open charm hadrons, similar in magnitude to those of light hadrons. The observed enhancements of $\Lambda_c^{\pm}$ and $D_s^{\pm}$ in Au+Au collisions suggest that the coalescence mechanism plays an important role also for charm quark hadronization.

In this presentation, we will report on the measurements of production of various charmed hadrons (including $D^0(\overline{D^0})$, $D_s^{\pm}$, $D^{*\pm}$ and $\Lambda_c^{\pm}$) obtained via topological reconstruction in Au+Au collisions at $\sqrt{s_{NN}}$ = 200 GeV, utilizing the Heavy Flavor Tracker at STAR. Precise results on the D^0 yields from the 2014 data are reported for a wide transverse momentum range down to 0 GeV/c in various centrality bins. The $D_s^{\pm}$ and $D^{*\pm}$ spectra in different collision centralities will also be presented. With the high-statistics data collected in 2014 and 2016, and the usage of a supervised machine learning algorithm for cut optimization, the first measurement of the centrality and transverse momentum dependences of $\Lambda_c^{\pm}$ production will be shown. Finally, the total charm quark cross section extracted from these measurements in Au+Au collisions at $\sqrt{s_{NN}}$ = 200 GeV will be presented.

Summary

Author: XIE, Guannan (University of Illinois at Chicago)

Presenter: XIE, Guannan (University of Illinois at Chicago)

Session Classification: Parallel 3