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## $D^{*\pm}$ Production in Au+Au Collisions at $\sqrt{s_{NN}} = 200$ GeV Measured by the STAR Experiment

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One of the goals of heavy-ion collisions is to search for the Quark-Gluon Plasma (QGP) and study its properties. Due to their large masses, heavy quarks are mainly produced in the initial hard scatterings during the early stage of heavy-ion collisions and experience the entire space-time evolution of the system. At the STAR experiment, utilizing high-precision secondary vertex reconstruction provided by the Heavy Flavor Tracker (HFT),  $D^0$  mesons have been comprehensively studied to investigate the charm quark transport in the QGP. Measurement of  $D^{*\pm}$  production is complementary to the  $D^0$  measurement in studying the medium modification to the open charm meson production. It also provides useful information on feed-down contributions to the  $D^0$  yields.

In this poster, measurement of  $D^{*\pm}$  production at mid-rapidity ( $|y| < 1$ ) in Au+Au collisions at  $\sqrt{s_{NN}} = 200$  GeV is reported.  $D^{*\pm}$  are reconstructed via the hadronic decay channel ( $D^{*+} \rightarrow D^0\pi^+$ ,  $D^0 \rightarrow K^-\pi^+$ , and its charge conjugate channel) utilizing the STAR HFT detector. The invariant yields of  $D^{*\pm}$  and the ratios of  $D^{*\pm}/D^0$  yields will be shown as a function of transverse momentum in different centralities. The nuclear modification factor ( $R_{AA}$ ) for  $D^{*\pm}$  will be presented as well, and physics implications will be discussed.

### Content type

Experiment

### Collaboration

STAR

### Centralised submission by Collaboration

Presenter name already specified

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