



Contribution ID: 83

Type: **Talk**

## Measurements of open charm hadrons in Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV by the STAR experiment

*Tuesday, August 31, 2021 11:00 AM (30 minutes)*

At RHIC energies, charm quarks are primarily produced in hard partonic scatterings at early stages of ultra-relativistic heavy-ion collisions. This makes them an ideal probe of the Quark-Gluon Plasma (QGP), as they experience the entire evolution of this hot and dense medium. STAR is able to measure the production of charm quarks and their interaction with the QGP through direct reconstruction of hadronic decays of  $D^\pm$ ,  $D^0$ ,  $D_s$ , and  $\Lambda_c^\pm$  hadrons, enabled by the excellent track pointing resolution provided by the Heavy Flavor Tracker.

In this talk, we will present the most recent results on open charm hadron production from the STAR experiment. In particular, we will discuss the nuclear modification factors of  $D^\pm$  and  $D^0$  mesons which provide information on the charm quark energy loss in the QGP. We will also present the  $D_s/D^0$  and  $\Lambda_c^\pm/D^0$  yield ratios as functions of transverse momentum and collision centrality which help us better understand the charm quark hadronization process in heavy-ion collisions. The spectra of  $D^0$ ,  $D^\pm$ ,  $D_s$ , and  $\Lambda_c^\pm$  in 10-40% central Au+Au collisions are used to calculate total charm quark production cross section in Au+Au collisions which, compared to the value measured in p+p collisions, gives insight into charm quark production in heavy-ion collisions.

### Is this abstract from experiment?

Yes

### Name of experiment and experimental site

STAR

### Is the speaker for that presentation defined?

Yes

### Details

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### Internet talk

No

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**Session Classification:** B Heavy Ion Collisions and Critical Phenomena