

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

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

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