

# Measurements of inclusive $D^0$ -meson production in Ru+Ru and Zr+Zr collisions at $\sqrt{s_{NN}} = 200$ GeV at STAR

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Heavy-flavor quarks are dominantly produced in the initial hard scatterings of heavy-ion collisions and experience the entire evolution of the QCD medium created in those collisions. They are expected to suffer from energy losses due to interactions with the medium, from which the medium properties can be extracted. Energy loss of heavy quarks in the medium can be studied by measuring the nuclear modification factor ( $R_{AA}$ ) for  $D^0$ -mesons. Furthermore, measurements of  $D^0$   $R_{AA}$  in different colliding systems can shed light on the potential collision system dependence of the energy loss.

In this poster, we will present first measurements of  $D^0$ -meson production at mid-rapidity ( $|y| < 1$ ) in isobar collisions ( $^{96}\text{Ru} + ^{96}\text{Ru}$  and  $^{96}\text{Zr} + ^{96}\text{Zr}$ ) at  $\sqrt{s_{NN}} = 200$  GeV with the STAR experiment. The  $D^0$  invariant yields and  $R_{AA}$  as a function of transverse momentum ( $p_T$ ) for  $p_T < 8$  GeV/c are reported in 0-10%, 10-40%, and 40-80% centrality bins. The new results in isobar collisions will be compared to previous measurements in Au+Au collisions and to model calculations.