Abstract

We report the first measurements of D^0-meson production at mid-rapidity ($|y| < 1$) in isobar collisions (^{96}Ru+^{96}Ru and ^{96}Zr+^{96}Zr) at $\sqrt{s_{NN}} = 200$ GeV with the STAR experiment. D^0 p_T differential invariant yield with transverse momentum $p_T < 8$ GeV/c are reported in 0-10%, 10-40% and 40-80% centrality bins. The number of binary collisions scale effect between isobar and Au + Au collisions is observed. The strong suppression D^0 nuclear modification factor R_{AA} is also observed for $p_T > 3$ GeV/c in the central isobar collisions, demonstrating that charm quarks suffer significant energy loss in the bulk QCD medium. And model calculations reproduce the feature of R_{AA} measured at 200 GeV.