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Identified particle spectra in isobaric collisions of Ru+Ru and Zr+Zr at $\sqrt{s_{NN}} = 200$ GeV with the STAR experiment

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Transverse momentum distributions of identified hadrons provide important information on the transverse expansion and freeze-out properties of the hot and dense matter created in relativistic heavy-ion collisions. In 2018, the STAR experiment collected large datasets of isobaric collisions of ${}^{96}_{44}\text{Ru}+{}^{96}_{44}\text{Ru}$ and ${}^{96}_{40}\text{Zr}+{}^{96}_{40}\text{Zr}$ at $\sqrt{s_{NN}} = 200$ GeV, which provide a good opportunity to study the charged particle spectra in these collisions with great precision. Furthermore, comparing the results between the two isobaric systems can reveal possible effects induced by isospin and electromagnetic field differences. In this presentation, we will report analysis progresses towards measuring π^{\pm}, K^{\pm} , proton and antiproton spectra as a function of transverse momentum for different rapidity and centrality intervals. Bulk properties of the system at chemical and kinetic freeze-out are measured. The results bridge the gap in system size between Cu+Cu and Au+Au collisions. Physics implications of these measurements will be discussed.

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