¹ Measurements of identified particle spectra in Ru+Ru ² and Zr+Zr collisions at $\sqrt{s_{\rm NN}} = 200$ GeV by the STAR ³ experiment

Rongrong Ma (For the STAR Collaboration)

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Brookhaven National Laboratory

Transverse momentum $(p_{\rm T})$ spectra of identified particles have been long used to investi-6 gate the bulk properties of the quark-gluon plasma (QGP) formed in heavy-ion collisions. In 7 particular, particle yields and spectrum shapes encode information of the QGP at different 8 stages of its evolution. In this contribution, we report measurements of the $p_{\rm T}$ -differential 9 invariant yields of π^{\pm} , K^{\pm} , p and \bar{p} in different centrality classes of Ru+Ru and Zr+Zr 10 collisions at $\sqrt{s_{\rm NN}} = 200$ GeV with the STAR experiment at RHIC. Quantities, such as 11 particle yields, yield ratios, mean $p_{\rm T}$, kinetic freeze-out temperature and transverse velocity, 12 extracted from the spectra are presented. They are also compared with similar measure-13 ments in Cu+Cu and Au+Au collisions to study the system size dependence of the QGP 14 properties. 15

Furthermore, the identified particle spectra in the two isobaric systems provide a unique 16 opportunity to study the transport of charge and baryon numbers over a large rapidity 17 gap, which may help reveal the nature of the baryon number carrier. Measurement of the 18 difference in the charge number at midrapidity between Ru+Ru and Zr+Zr collisions is 19 enabled via double ratios (e.g., $\frac{(N_{\pi^+}/N_{\pi^-})_{\text{Ru}+\text{Ru}}}{(N_{\pi^+}/N_{\pi^-})_{\text{Zr}+\text{Zr}}}$). Our results show a significant enhancement 20 of baryon transport over charge transport compared to model predictions employing valence 21 quarks as baryon number carriers, indicating that charge and baryon numbers are likely 22 carried by different entities. 23