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Selected results from isobar collisions at RHIC

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Recent experiments involving isobar collisions of $^{96}_{44}$Ru+$^{96}_{44}$Ru and $^{96}_{40}$Zr+$^{96}_{40}$Zr have been carried out at the Relativistic Heavy Ion Collider (RHIC). These studies aim to explore various phenomena, including the initial conditions of the collision process, baryon stopping, the chiral magnetic effect, and collective flow, which are all essential for understanding the dynamics of heavy-ion collisions. Although the two nuclei have the same mass number, understanding the differences between their isobar collisions is valuable for exploring nuclear structure and deformation.

In this talk, we will discuss selected measurements related to particle production, collective flow, and the chiral magnetic effect of charged and identified hadrons at mid-rapidity for Ru+Ru and Zr+Zr collisions at $\sqrt{s_{\rm NN}}$ = 200 GeV. The dependence of the transverse momentum (p_T) for various centrality intervals will be shown. Additionally, system size dependence will be explored by comparing the results in isobar collisions with those from Cu+Cu, Au+Au, and U+U collisions. Furthermore, experimental results will be compared with transport model calculations to provide insight into the nuclear structure of the isobars.

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