

Light Nuclei Production in Isobar Collisions (Ru+Ru and Zr+Zr) at $\sqrt{s_{\text{NN}}} = 200$ GeV from STAR Experiment

Yun Huang for the STAR Collaboration

Central China Normal University

1 Light nuclei are loosely bound objects and expected to form via
2 nucleon coalescence in relativistic heavy-ion collisions. In 2018, the Rel-
3 ativistic Heavy-Ion Collider (RHIC) delivered high statistics datasets
4 of isobaric collisions (Ru+Ru and Zr+Zr) at 200 GeV, where a Ru nu-
5 cleus has four more protons than that of Zr. Therefore, by comparing
6 the centrality and rapidity dependences of light nuclei production in
7 Ru+Ru and Zr+Zr collisions, one can study the properties of baryon
8 stopping and transport in the QCD medium.

9 In this poster, we will present the first measurement of central-
10 ity and rapidity dependences of (anti-)deuteron (d, \bar{d}), triton (t) and
11 (anti-)helium-3 (${}^3\text{He}, \bar{{}^3\text{He}}$) production in Ru+Ru and Zr+Zr collisions
12 at $\sqrt{s_{\text{NN}}} = 200$ GeV. The energy and multiplicity dependences of light
13 nuclei production at RHIC will be discussed within the framework of
14 hydrodynamic and transport model calculations.