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Hypertriton Production in Au+Au Collisions from $\sqrt{s_{NN}} = 7.7$ to 27 GeV from STAR

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Hypernuclei, bound states of nucleons and hyperons, serve as a natural laboratory to investigate the hyperon-nucleon (Y - N) interaction, which is an important ingredient for the nuclear equation-of-state. Furthermore, precise measurements of their production yields in heavy-ion collisions are crucial for understanding their production mechanisms. In addition, the strangeness population factor, $S_3 = (\lambda^3\text{H}/^3\text{He})/(\Lambda/p)$, is of particular interest as it has been suggested to be sensitive to baryon-strangeness correlations and the onset of deconfinement.

The STAR Beam Energy Scan II program provides a unique opportunity to investigate the collision energy and system size dependence of hypernuclei production. In this poster, we present new measurements on the transverse momentum and centrality dependence of ^3H yields in Au+Au collisions from $\sqrt{s_{NN}} = 7.7$ to 27 GeV. The $^3\text{H}/p$ ratio and S_3 will be presented as functions of collision energy and centrality. These results are compared to model calculations, and their physics implications will be discussed.

Category

Experiment

Collaboration (if applicable)

STAR collaboration

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