## The 8th Asian Triangle Heavy-Ion Conference (ATHIC2021)



Contribution ID: 78

Type: not specified

## The hypertriton and hyperquadron directed flow measurements in √sNN = 3 GeV Au+Au collisions from STAR

Monday 8 November 2021 11:25 (17 minutes)

Collective flow has been commonly used for studying the properties of matter created in high-energy heavyion collisions, due to its high sensitivity on early stage collision dynamics. The first-order Fourier coefficient of azimuthal distributions of produced particles  $v_1$ , also called directed flow, has been analyzed for different particle species from the lightest mesons to light nuclei in such collisions. In this talk, we report  ${}^3_{\Lambda}$ H reconstruction from its two-body and three-body pionic decay channels, and  ${}^4_{\Lambda}$ H reconstruction from its twobody pionic decay channel. Then, the first observation of the hyper-nuclei  ${}^3_{\Lambda}$ H and  ${}^4_{\Lambda}$ H directed flow  $v_1$  from  $\sqrt{s_{NN}} = 3$  GeV mid-central (5–40%) Au+Au collisions at RHIC will be presented. The directed flow of  ${}^3_{\Lambda}$ H and  ${}^4_{\Lambda}$ H are compared with those of the copiously produced particles such as p,  $\Lambda$ , d, t, <sup>3</sup>He and <sup>4</sup>He. It is observed that the slopes of  $v_1$  at midrapidity for the hyper-nuclei  ${}^3_{\Lambda}$ H and  ${}^4_{\Lambda}$ H follow a baryon number scaling implying that coalescence process is a dominant mechanism for the hyper-nuclei production in these collisions. Hypernuclei directed flow measurement would shed light on the hyperon-nucleon (YN) interaction in condensed nuclear medium with finite pressure.

Primary author: Dr ZHANG, Yapeng (Institute of Modern Physics, CAS)Presenter: Dr ZHANG, Yapeng (Institute of Modern Physics, CAS)Session Classification: Contributed Session 5

Track Classification: Track group 2: Experiment