

# Measurements on the energy dependence of light hypernuclei production at STAR

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1       Hypernuclei are bound states of nucleons and hyperons. Model calculations  
2 predict that hypernuclei are abundantly produced at high baryon density re-  
3 gions. Nevertheless, the production mechanisms of hypernuclei in heavy-ion  
4 collisions remain not well understood. Measurements on the production yields  
5 of hypernuclei are crucial to the investigation of hypernuclei production mech-  
6 anisms and the strength of hyperon-nucleon ( $Y$ - $N$ ) interactions.

7       Thanks to the high statistical data taken from the STAR BES II program in  
8 2018-2021, a series of measurements on production yields of light hypernuclei at  
9 low energies are carried out. In this talk, the rapidity and energy dependence  
10 of light hypernuclei ( ${}^3_{\Lambda}\text{H}$ ,  ${}^4_{\Lambda}\text{H}$ ,  ${}^4_{\Lambda}\text{He}$ ) yields in Au+Au  $\sqrt{s_{\text{NN}}} = 3, 19.6,$  and  $27$   
11 GeV collisions will be presented.  ${}^3_{\Lambda}\text{H}$  will be reconstructed via both  ${}^3_{\Lambda}\text{H} \rightarrow {}^3\text{He}\pi$   
12 and  ${}^3_{\Lambda}\text{H} \rightarrow \text{dp}\pi$  channels. The ratio of hypernuclei and light nuclei production  
13 yields will also be presented. The results will be compared with coalescence and  
14 thermal model calculations. The physics implications will be discussed.