

# Measurements of light hypernuclei properties and production yields in Au+Au collisions from the STAR experiment

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1        Hypernuclei are bound states of nucleons and hyperons. Precise measurements of  
2        hypernuclei properties and production yields can shed light on the poorly understood  
3        hyperon–nucleon (Y-N) interaction and production mechanisms of hypernuclei.

4        Thanks to the high statistics data and low collision energies, the STAR beam energy scan  
5        phase-II program provides a great opportunity to study hypernuclei production. In this  
6        presentation, we will report production yields of  ${}^3_{\Lambda}\text{H}$ ,  ${}^4_{\Lambda}\text{H}$  in Au+Au collisions at  $\sqrt{s_{NN}} =$   
7        3, 19.6, and 27 GeV. The strangeness population factors ( $S_A = \frac{A}{p} \frac{\text{H}}{\text{He}}$ ),  $S_3$  and  $S_4$ ,  
8        and A=4 hypernuclei yield ratio ( ${}^4_{\Lambda}\text{He}/{}^4_{\Lambda}\text{H}$ ) will also be presented. We will also report precise  
9        measurements of  ${}^3_{\Lambda}\text{H}$  branching ratio and lifetimes of light hypernuclei. The results will be  
10       compared with model calculations and physics implications will be discussed.