

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

Yue Hang Leung

April 26, 2023

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

8 The STAR Beam Energy Scan II program provides a unique opportunity to investigate
9 the collision energy and system size dependence of hypernuclei production. In this poster,
10 we present new measurements on the transverse momentum and centrality dependence of
11 ${}^3_{\Lambda}\text{H}$ yields in Au+Au collisions from $\sqrt{s_{NN}} = 7.7$ to 27 GeV. The ${}^3_{\Lambda}\text{H}/\Lambda$ ratio and S_3 will
12 be presented as functions of collision energy and centrality. These results are compared to
13 model calculations, and their physics implications will be discussed.