

Abstract Submitted
for the DNP20 Meeting of
The American Physical Society

${}^3_{\Lambda}\text{H}$ and ${}^4_{\Lambda}\text{H}$ Lifetime Measurements in Au+Au collisions at $\sqrt{s_{\text{NN}}} = 3$ GeV with the STAR detector YUE HANG LEUNG, Lawrence Berkeley National Laboratory, STAR COLLABORATION — The study of hyperon-nucleon interaction (Y-N) is of great interest in recent years because of its connection to high-density matter systems such as neutron stars. The presence of hyperons inside neutron stars softens the equation of state, inhibiting the formation of large mass neutron stars. Hypernuclei, being bound states of nucleons and hyperons, serve as a natural probe to study the Y-N interaction. Precise measurements of the lifetime provide direct information on the Y-N interaction. The data from fixed target Au+Au collisions at $\sqrt{s_{\text{NN}}} = 3$ GeV, taken in 2018 by the STAR detector, is ideal for studying the properties of light hypernuclei, such as ${}^3_{\Lambda}\text{H}$ and ${}^4_{\Lambda}\text{H}$, due to the large statistics and high production yield. In this talk, lifetime measurements of ${}^3_{\Lambda}\text{H}$ and ${}^4_{\Lambda}\text{H}$ in Au+Au collisions at $\sqrt{s_{\text{NN}}} = 3$ GeV will be presented. The new results will be compared to previous measurements, and physics implications will be discussed.

Yue Hang Leung
Lawrence Berkeley National Laboratory

Date submitted: 25 Jun 2020

Electronic form version 1.4