

1  ${}^3_{\Lambda}\text{H}$  and  ${}^4_{\Lambda}\text{H}$  Lifetime Measurements in Au+Au collisions at  
2  $\sqrt{s_{\text{NN}}} = 3 \text{ GeV}$  with the STAR detector

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6 The study of hyperon-nucleon(Y-N) interaction is of great interest in recent years be-  
7 cause of its relation to high-density matter systems such as neutron stars. The presence of  
8 hyperons inside neutron stars would soften the equation of state, inhibiting the formation  
9 of large mass neutron stars. Hypernuclei, bound states of nucleons and hyperons, serve as  
10 a probe to study the Y-N interaction. Precise measurements of the lifetime can provide  
11 direct information on the Y-N interaction.

12 The data from fixed target Au+Au collisions at  $\sqrt{s_{\text{NN}}} = 3 \text{ GeV}$ , taken in 2018 by  
13 the STAR detector, is ideal for studying the properties of light hypernuclei, such as  ${}^3_{\Lambda}\text{H}$   
14 and  ${}^4_{\Lambda}\text{H}$ , due to the large statistics and high production yield. In this talk, lifetime mea-  
15 surements of  ${}^3_{\Lambda}\text{H}$  and  ${}^4_{\Lambda}\text{H}$  in Au+Au collisions at  $\sqrt{s_{\text{NN}}} = 3 \text{ GeV}$  will be presented. The  
16 new results will be compared to previous measurements, and physics implications will be  
17 discussed.

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