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Recent studies on hypernulei lifetimes from STAR

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The hyperon-nucleon (Y-N) interaction is an essential ingredient in the description of the equation-of-state of high-baryon-density matter. Light hypernuclei (A = 3, 4), being simple Y-N bound states, serve as cornerstones of our understanding of the Y-N interaction. Precise measurements of the lifetimes of light hypernuclei can help provide input to our understanding in the Y-N interaction.

Light hypernuclei are expected to be abundantly produced in intermediate to low energy heavy-ion collisions due to the high baryon density. As a result, the STAR Beam Energy Scan Phase II program, spanning an energy range $\sqrt{s_{\mathrm{NN}}} = 3$-27 GeV, is particularly suited for hypernuclei studies. In this talk, recent results on the lifetimes of light hypernuclei ($^{3}_{\Lambda}\mathrm{H}$, $^{4}_{\Lambda}\mathrm{H}$, $^{4}_{\Lambda}\mathrm{He}$) measured in $\sqrt{s_{\mathrm{NN}}} = 3$ and 7.2 GeV Au+Au collisions will be presented. The results will be compared to previous measurements and theoretical calculations, and the physics implications will be discussed.

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