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## Production and Polarization of Hypernuclei in Heavy-Ion Collisions

Particles of non-zero spin produced in non-central heavy-ion collisions are expected to be polarized along the direction perpendicular to the reaction plane because of their spin-orbit interactions in the produced matter, and this has indeed been observed for many hyperons and vector mesons. Here, we show that the hypertriton  $(^3_\Lambda H)$ , which is the lightest hypernucleus, is also polarized in these collisions. Using the coalescence model based on the kinetic freezeout baryons for light (hyper-)nuclei production, we find that the angular distribution of the decay product of polarized  $^3_\Lambda H$  is highly sensitive to the spin configuration of its wavefunction, providing a novel way to determine its spin structure. We also predict the beam energy dependence of  $^3_\Lambda H$  and  $^3_{\bar{\Lambda}\bar{H}}$  polarizations in heavy-ion collisions from a few GeV to several TeV based on the measured  $\Lambda$  and  $\bar{\Lambda}$  polarizations. We further discuss the possibility of studying the spin correlations among nucleons and  $\Lambda$  hyperons in the produced hadronic matter from the measured  $\Lambda$  polarization in non-central heavy-ion collisions.

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