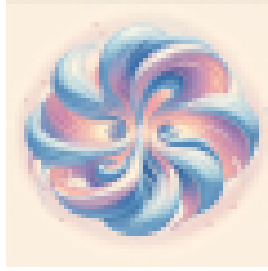


# The 8th International Conference on Chirality, Vorticity and Magnetic Field in Quantum Matter



ID de Contribution: 52

Type: **On-line talk**

## Global Hypertriton Polarization in Au+Au collisions at $\sqrt{s_{NN}} = 7.7 - 200$ GeV (online)

*mercredi 24 juillet 2024 12:00 (30 minutes)*

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 due to spin-orbit coupling in the produced matter, and this has indeed been observed for many hyperons and vector mesons. Here, we show that the hypertriton ( $^3_{\Lambda}\text{H}$ ), 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  $^3_{\Lambda}\text{H}$  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  $^3_{\Lambda}\text{H}$  polarizations in heavy-ion collisions from a few to hundreds GeV based on a multi-phase transport model (AMPT) and coalescence model. We further discuss the comparison of the global polarization between hypertriton and hyperon with the energy dependence. These patterns of the global  $^3_{\Lambda}\text{H}$  polarization are expected to be tested in future experiments.

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**Classification de Session:** Hyperons