

Dynamics of relativistic polarized vortices

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We present first numerical applications of a recently formulated framework of perfect fluid hydrodynamics with spin [1] to model the space-time evolution of polarization in heavy-ion collisions. We consider various initial conditions for the hydrodynamic evolution and different forms of the spin tensor to study consequences of various physical assumptions for the time evolution of the system's polarization [2]. Our findings show a characteristic decrease of the overall polarization in the system with the increasing collision energy, as recently found in the experimental measurements of the Lambda hyperons. We also find that the polarization in our approach increases with time during the hydrodynamic evolution, an effect connected with the overall angular momentum and entropy conservation laws.

[1] W. Florkowski, B. Friman, A.Jaiswal, E. Speranza, arXiv:1705.00587

[2] W. Florkowski, B. Friman, A.Jaiswal, R.Ryblewski, E. Speranza, arXiv:1712.07676

[3] W. Florkowski, B. Friman, A.Jaiswal, R.Ryblewski, E. Speranza, forthcoming

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