

Charge redistribution from novel magneto-vorticity coupling in anomalous hydrodynamics

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Both strong magnetic field and sizable vorticity are present in the hot QCD matter created in non-central heavy-ion collisions. We report new phenomena that the interplay between the magnetic field and fluid vorticity induces the redistribution of the vector charge density and generates an axial current [1]. We show the role of the chiral anomaly underlying in these effects which, however, have not been captured by the conventional anomalous hydrodynamics. We discuss an imprint of these effects on the charged-particle spectrum measured in the experiment and argue that these effect should be implemented and quantitatively studied in anomalous magnetohydrodynamics.

[1] Koichi Hattori and Yi Yin. “Charge redistribution from anomalous magneto-vorticity coupling.” Accepted for publication in Phys. Rev. Lett. [arXiv:1607.01513 [hep-th]]

Preferred Track

New Theoretical Developments

Collaboration

Not applicable

Primary authors: HATTORI, Koichi (Fudan University); YIN, Yi (MIT)

Presenter: HATTORI, Koichi (Fudan University)

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