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Dynamical evolution of magnetic fields in heavy-ion collisions

The electromagnetic fields in heavy-ion collisions are important ingredients for many interesting phenomena, such as the Chiral Magnetic Effect (CME) and the directed flow v_1 of D^0 mesons. A critical and challenging problem in this direction is the dynamical evolution of the magnetic field in the medium. The magnetic fields from the initial colliding nuclei decay very fast in the vacuum. Nevertheless, it has been proposed that its lifetime could be extended through medium response. We focus on the dynamical electromagnetic fields in heavy-ion collisions by numerical solving the Maxwell equations together with the hydrodynamically expanding medium, by assuming negligible backreaction of the fields on the fluid evolution.

Topics

Chiral Magnetic Effect

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