

The influence of the magnetic fields on the elliptic flow in HIC at RHIC and LHC energies

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The hydrodynamic model of heavy ion collisions has been very successful in providing a description of the dynamical evolution of the QGP in good agreement with the experimental data, in particular after the introduction of the viscous effects. In the last years it has been realized that the huge magnetic fields produced by the electric charges contained in the fast moving nuclei might also have measurable effects on some observables, for example the anisotropic flows. Nevertheless, so far, only very few hydro codes for HIC are able to consistently evolve the magnetic fields coupled with the fluid. ECHO-QGP is one of them, although, at the moment, only in the ideal MHD limit. In this talk, after giving an overview of the code, I will present the results of numerical simulations at RHIC and LHC energies, executed with ECHO-QGP, which suggest that the magnetic fields might slightly enhance the elliptic flow in peripheral collisions. However, given the uncertainties in the estimates of the magnitude of the magnetic field at the beginning of the numerical simulations and the absence, in our model, of important elements like the resistivity of the medium or the final hadronic rescattering, further and more refined investigations are indeed necessary to better assess the present results.

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