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Recent Development in Relativistic Hydrodynamic Model

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Relativistic hydrodynamic models have played an important role in the physics of high-energy heavy ion collisions to describe the space-time evolution of the quark gluon plasma (QGP). Recent viscous hydrodynamic approaches enable us to extract bulk and transport properties of the QGP.

In this talk, I first show results from an integrated dynamical approach in which Monte-Carlo Glauber/KLN for the initial stage, relativistic hydrodynamics for the QGP stage and kinetic theory for the hadron gas stage are combined. In particular, I emphasize the importance of hadronic rescattering effects on transverse dynamics such as elliptic flow and HBT radii.

After that, some recent developments in the relativistic hydrodynamic model are highlighted. These topics include medium response to jet propagation, anomalous hydrodynamics, causal hydrodynamic fluctuation and its application to the QGP expansion.

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