

Collisions in Non-conformal Theories: Hydrodynamization without Equilibration

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Ever since fast hydrodynamization has been observed in heavy ion collisions the understanding of the very early non-equilibrium stage of such collisions has been a topic of intense research. We use the gauge/string duality to model the creation of a strongly coupled Quark-Gluon plasma in a non-conformal gauge theory. We focus on new physics (as compared to the conformal case) such as the non-trivial equation of state and the presence of a sizeable bulk viscosity. Non-conformality gives rise to an increase of the relaxation times of the resulting plasma. Furthermore, if the bulk viscosity is large enough then the plasma becomes well described by hydrodynamics before the equilibrium equation of state becomes applicable.

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