



Contribution ID: 230

Type: Poster

Equilibration of QCD plasmas at finite net-baryon density

Wednesday 6 April 2022 18:06 (4 minutes)

We employ an effective kinetic theory of Quantum Chromo Dynamics (QCD) to study the pre-equilibrium dynamics of the Quark-Gluon Plasma (QGP) at zero and finite net-baryon density. By investigating the dynamics of the energy-momentum tensor and the conserved charges, we determine the relevant time and temperature scales for the onset of viscous hydrodynamics, and quantify the evolution of the chemical composition of the QGP at early times [1,2]. We address phenomenological consequences regarding the role of the pre-equilibrium phase at different collision energies [1], and discuss how the improved understanding of the pre-equilibrium phase can be used to constrain hot and cold nuclear matter properties from heavy-ion collisions [3].

[1] X. Du, S. Schlichting, PRL 127 (2021) 122301

[2] X. Du, S. Schlichting, PRD 104 (2021) 054011

[3] X. Du, S. Schlichting, work in progress

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Session Classification: Poster Session 1 T01

Track Classification: Initial state physics and approach to thermal equilibrium