

11th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions



Beitrag ID: 225

Typ: Talk

System size dependence of pre-equilibrium and applicability of hydrodynamics in heavy-ion collisions

Dienstag, 28. März 2023 10:00 (20 Minuten)

Within a microscopic kinetic description based on the Boltzmann equation, we evaluate the importance of the pre-equilibrium stage in high-energy heavy-ion collisions for final state observables over a large range of viscosity and system size. We use our results to determine the range of applicability of an effective description in relativistic viscous hydrodynamics. We find that hydrodynamics provides a quantitatively accurate description of collective flow when the average inverse Reynolds number is sufficiently small and the early pre-equilibrium stage is properly accounted for. We discuss different possible treatments of the pre-equilibrium phase in kinetic theory, KoMPoST and hydrodynamics and assess their applicability.

Experiment/Theory

Theory/Phenomenology

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Sitzung Einordnung: Parallel: Early-Time Dynamics & nPDFs

Track Klassifizierung: Early time dynamics and nuclear PDFs