Causal Dissipative Relativistic Fluid Dynamics

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Abstract

The dynamics of non-equilibrium hot dense matter is investigated using the hyperbolic causal-type theories of relativistic dissipative fluids. As special cases of these theories, standard relativistic dissipative fluid dynamics (parabolic-type) and the ideal fluid approximation are also studied. The transport coefficients are deduced from the collision kinematics in the framework of microscopic models, like UrQMD, and the coupling and relaxation coefficients are related to the equation of state.

Preprint submitted to Elsevier Preprint *20 December 2000*