

Quantum fields out-of-equilibrium, fluid dynamics and response theory

The dynamics of strongly interacting quantum fields can to a large extent be described with relativistic fluid dynamics. This is based on an expansion around thermal equilibrium states and their extension to local equilibrium. The connection between the fluid description and the underlying quantum field theoretic description can be formulated in terms of linear and non-linear response theory. I will review essential elements of this construction and discuss how it can be developed further.

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