



Contribution ID: 490

Type: Oral presentation

Non-equilibrium attractor in high-temperature QCD plasmas

Tuesday, 5 April 2022 18:10 (20 minutes)

We establish the existence of a far-from-equilibrium attractor in weakly-coupled gauge theory undergoing one-dimensional Bjorken expansion. We demonstrate that the resulting far-from-equilibrium evolution is insensitive to certain features of the initial condition, including both the initial momentum-space anisotropy and initial occupancy. We find that this insensitivity extends beyond the energy-momentum tensor to the detailed form of the one-particle distribution function. Based on our results, we assess different procedures for reconstructing the full one-particle distribution function from the energy-momentum tensor along the attractor and discuss implications for the freeze-out procedure used in the phenomenological analysis of ultrarelativistic nuclear collisions.

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Session Classification: Parallel Session T01: Initial state physics and approach to thermal equilibrium

Track Classification: Initial state physics and approach to thermal equilibrium