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SEMINAR ZAVODA ZA TEORIJSKU FIZIKU

Collision Integrals and Damping Rates from Finite-Time-Path Out-of-Equilibrium FT

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Abstract:

Braaten and Pisarski have calculated damping rates (D) for heavy ion collisions. They found gauge independent result D ~ g^2 T for quark and gluon damping rates. Within the Finite-Time-Path Out-of-Equilibrium Field Theory, we calculate collision integral and damping rates from Dyson-Schwinger equation for far from equilibrium media. The contributions to retarded self-energy split to “statical" (without minimal time vertices) part plus “dynamical" (with one or more minimal time vertices) part. Statical part contains (in the case of QCD) all hard thermal loop contributions together with higher order contributions (so called Braaten-Pisarski calculus near equilibrium) and multiplies algebraically. It is easilly resummed. This way one obtains improved collision integral and damping rate. For resummed propagators we find good agreement with Braaten and Pisarski resummation of hard thermal loops at equilibrium.

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