

Plasmon mass scale and quantum fluctuations of classical fields on a real time lattice

Classical Yang-Mills theory calculations are frequently used to study nonequilibrium phenomena in nonperturbative overoccupied systems, especially in the context of ultrarelativistic heavy-ion collisions. We study the limits of the quasiparticle picture of the classical Yang-Mills fields by determining the plasmon mass of the system using 3 different methods. We also demonstrate an algorithm which allows us to simulate quantum fluctuations on top of a classical background field, while keeping the separation between the two manifest. We also test a lattice implementation of the algorithm and demonstrate that the linearization indeed works and that the Gauss's law is conserved.

Preferred Track

Initial State Physics and Approach to Equilibrium

Collaboration

Not applicable

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