

High-energy parton in unstable QGP

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The momentum distribution of quark-gluon plasma at the early stage of relativistic heavy-ion collisions is anisotropic and consequently, the system is unstable due chromomagnetic plasma modes. We consider a high-energy parton, which flies across such an unstable plasma, showing that the parton either loses or gains an energy in dependence of initial conditions. The energy transfer is studied as an initial value problem. We have checked that in the limit of equilibrium plasma the highly-energetic parton loses the energy and the well-known formula of the collisional energy-loss is reproduced. Consequences of our findings for a phenomenology of jet quenching in relativistic heavy-ion collisions are discussed.

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