Beitrag ID: **303** Typ: **Talk**

Exploring jet transport coefficients by elastic and radiative scatterings in the strongly interacting quark-gluon plasma

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We study the interaction of leading jet partons in a strongly interacting quark-gluon plasma (sQGP) medium based on the effective dynamical quasi-particle model (DQPM). The DQPM describes the non-perturbative nature of the sQGP at finite temperature T and baryon chemical potential μ_B based on a propagator representation of massive off-shell partons whose properties are adjusted to reproduce the lQCD EoS for the QGP in thermodynamic equilibrium. We present the results for the jet transport coefficients, i.e. the transverse momentum transfer squared per unit length $\hat{q}$ and the energy loss per unit length $\Delta E = dE/dx$ in the QGP and investigate their dependence on the temperature T and baryon chemical potential μ_B as well as on jet properties such as the leading jet parton momentum, mass, flavor, and the choice of the strong coupling constant. In this work both elastic and radiative scattering processes of leading jet parton with the sQGP partons are considered. We compute the cross sections and transport coefficients and compare the contributions from elastic partonic scattering and radiative processes for the emission of massive gluons. We present a comparison of our results for the elastic energy loss in the sQGP medium with pQCD results as well as with lattice QCD and also with estimates for $\hat{q}$ by the JET and JETSCAPE Collaborations based on a comparison of hydrodynamical calculations with experimental heavy-ion data.

Experiment/Theory

Theory/Phenomenology

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