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Evolution of QCD jets in non equilibrium plasmas

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In this work, we study the evolution of a jet, modelled as a linear perturbation of the distribution of quarks or gluons, in an out of equilibrium system of quarks and gluons. The hard probe and the bulk QCD matter are described in a unified approach using QCD kinetic theory. This allows us to investigate the interplay between the hard and soft sectors of jets as well as those in the bulk. We shall focus on new features of jet evolution resulted from such an approach, contrasting it with the conventional description using quenching weights. This study involves solving the Boltzmann Equation in Diffusion Approximation (BEDA) numerically, complemented with parametric estimates. Our results will also be compared with those using the Effective Kinetic Theory (EKT).

Category

Theory

Collaboration

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