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Jet propagation within a Linearized Boltzmann Transport Model

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A Linearized Boltzmann Transport model is developed for the study of parton propagation inside quark-gluon plasma. The leading partons, thermal recoiled partons and radiated gluons are all tracked so that one can also study jet-induced medium excitation. In this study, we implement the complete set of elastic parton scattering processes and investigate parton energy loss, transverse momentum broadening and their nontrivial energy and length dependence. We further investigate the jet shape and fragmentation functions of reconstructed jets using FASTJET algorithm. Contributions from the recoiled thermal partons are found to have significant influences on jet shape and angular distribution of reconstructed jets.

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