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Jet quenching and scaling properties of medium-evolved gluon cascade in expanding media

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We present a study of the impact of the expansion of deconfined medium on single-gluon emission spectra and the jet suppression factor (Q_{AA}) within the BDMPS-Z formalism. These quantities are calculated for three types of media (static medium, exponentially decaying medium and Bjorken expanding medium). The distribution of medium-induced gluons and the jet Q_{AA} are calculated using the evaluation of in-medium evolution with splitting kernels derived from the gluon emission spectra. A universal behavior of splitting kernels is derived for low- x and high- x regimes in the asymptote of large times and its impact on the resulting jet Q_{AA} is discussed. For the full phase-space of the radiation, the scaling of jet Q_{AA} with an effective quenching parameter is derived. The importance of the medium expansion for precise modeling of jet quenching phenomena as well as steps towards generalizing the results to other jet quenching observables are discussed.

Collaboration (if applicable)

Track

Jets and High Momentum Hadrons

Contribution type

Contributed Talk

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