

# Universal features of the medium-induced gluon cascade and jet quenching 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 ( $R$ ) 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  $R$  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- $Q$  and high- $Q$  regimes in the asymptote of large times and its impact on the resulting jet  $R$  is discussed. For the full phase-space of the radiation, the scaling of jet  $R$  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.

## Secondary track (number)

**Primary author:** Dr ADHYA, Souvik Priyam (Institute of Particle and Nuclear Physics Faculty of Mathematics and Physics, Charles University)

**Co-authors:** SALGADO LOPEZ, Carlos Albert (Universidade de Santiago de Compostela (ES)); SPOUSTA, Martin (Charles University); Dr TYWONIUK, Konrad (University of Bergen (NO))

**Presenter:** Dr ADHYA, Souvik Priyam (Institute of Particle and Nuclear Physics Faculty of Mathematics and Physics, Charles University)

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