

# Parton Energy Loss and the Generalized Jet Transport Coefficient

We revisit radiative parton energy loss in deeply inelastic scattering (DIS) off a large nucleus within the perturbative QCD approach. We calculate the gluon radiation spectra induced by double parton scattering in DIS without collinear expansion in the transverse momentum of initial gluons as in the original high-twist approach. The final radiative gluon spectrum can be expressed in terms of the convolution of hard partonic parts and unintegrated or transverse momentum dependent (TMD) quark-gluon correlations. The TMD quark-gluon correlation can be factorized approximately as a product of initial quark distribution and TMD gluon distribution which can be used to define the generalized or TMD jet transport coefficient. Under the static scattering center and soft radiative gluon approximation, we recover the result by Gyulassy-Levai-Vitev (GLV) in the first order of the opacity expansion. The difference as a result of the soft radiative gluon approximation is investigated numerically under the static scattering center approximation.

## Publications

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