

# Gluon emission from heavy quarks in dense nuclear medium

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We study the medium-induced gluon emission process experienced by a hard jet parton propagating through dense nuclear matter in the framework of deep inelastic scattering off a large nucleus.

We work **beyond collinear rescattering expansion and soft gluon emission limit**, and derive a **closed formula for medium-induced single gluon emission from a heavy or light quark jet** interacting with dense nuclear medium *via transverse and longitudinal scatterings*.

Without performing collinear expansion, **the medium-induced gluon emission spectrum is controlled by the full distribution of the differential elastic scattering rates** between the propagating partons and medium constituents.

We further show that if one utilizes heavy static scattering centers for traversed nuclear matter and takes soft gluon emission limit, **our result can reduce to the first order in opacity Djordjevic-Gyulassy-Levai-Vitev formula**.

## Type

Parallel talk

## Sessions (parallel only)

Heavy Ions

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