

# Transverse momentum broadening in expanding medium induced cascades

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In this work, we explore the impact of expansion of medium on angular distribution of gluons at different kinematical scales in a medium-induced cascade. Firstly, we study the scaling of the gluon spectra at low- $x$  between expanding and static media and numerically obtain transverse momentum broadened spectra. Next, we study angular distributions for the in-cone radiation for different media and observe out-of-cone energy loss proceeds via radiative break-up of hard fragments followed by angular broadening of softer ones. We note angular distributions for soft fragments are similar for different media. Also, harder jet fragments within jets inside a cone are more sensitive to details of medium expansion as compared to softer fragments which are responsible for most of the gluon multiplicity in cascade. Finally, we observe that cascades in expanding media are relatively more collimated compared to static media and discuss phenomenological implications on jet quenching observables.

## Theory / experiment

Theory

## Group or collaboration name

**Primary author:** Mr ADHYA, Souvik Priyam (Institute of Nuclear Physics, Polish Academy of Sciences)

**Co-authors:** KUTAK, Krzysztof (Instytut Fizyki Jadrowej Polskiej Akademii Nauk); PLACZEK, Wiesiek (Jagiellonian University (PL)); ROHRMOSER, Martin (IFJ-PAN Krakow); TYWONIUK, Konrad (University of Bergen (NO))

**Presenter:** Mr ADHYA, Souvik Priyam (Institute of Nuclear Physics, Polish Academy of Sciences)

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