Contribution ID: **217**                                                                                              Type: **Poster**

# Multi-partonic medium induced cascades in expanding media

*Tuesday 7 September 2021 11:26 (1 minute)*

Going beyond the simplified gluonic cascades, we have introduced both gluon and quark degrees of freedom for partonic cascades inside the medium. We then solve the set of coupled evolution equations numerically with splitting kernels calculated for exponential and Bjorken expanding media to arrive at medium-modified parton spectra for quark and gluon initiated jets respectively. Firstly, we have studied the inclusive jet $R_{AA}$ by including phenomenologically driven combinations of quark and gluon fractions inside a jet. The impact of the rapidity dependence of the jet $R_{AA}$ has been studied in detail. Secondly, we have studied the path-length dependence of jet quenching for different types of expanding media by calculating the jet $v_2$. Additionally, we have qualitatively studied the sensitivity of the time for the onset of the quenching for the Bjorken profile on jet $v_2$ and comparison with data from ATLAS.

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**Session Classification:**   Poster Session I

**Track Classification:**   Hot and dense matter physics - QGP and heavy ion collisions