

# Multi-stage jet evolution through QGP using the JETSCAPE framework: inclusive jets, correlations and leading hadrons.

*Thursday, 4 October 2018 12:05 (20 minutes)*

The JETSCAPE Collaboration (Jet Energy-loss Tomography with a Statistically and Computationally Advanced Program Envelope) has developed and released an innovative, modular and flexible event generator to be used by the heavy-ion community. High-energy jet evolution through deconfined QCD matter is a multi-scale problem that involves different stages, whose physics should be addressed by different effective approaches: a few-scattering vacuum-like shower phase; a multiple scattering induced rare emission phase; and a strongly coupled phase. The goal of the present work is to put all of these limited descriptions together in a single combined effective evolution, and to confront its predictions with data.

In this talk we will present a selection of first results obtained from this approach made possible by the extensive flexibility of the JETSCAPE framework, including event-by-event fluctuating hydro and jet modification simulations. We will focus on several jet and hadron observables (inclusive and correlations), measured both at RHIC and LHC. While a full accounting of the jet/plasma interplay has not yet been implemented, the observables presented in this work (involving single high pt hadrons and jets) are expected to be rather insensitive to such effects, allowing us to interpret the data in a meaningful way while providing a reliable and comprehensive framework with which to extract transport properties of the QGP.

## Summary

**Primary author:** PARK, Chanwook (McGill University)

**Presenter:** PARK, Chanwook (McGill University)

**Session Classification:** Parallel 2