



Contribution ID: 984

Type: Poster

## Jets as sources of acoustic probes for flowing quark-gluon plasma

Wednesday, 6 April 2022 18:30 (4 minutes)

We explore the thermalization of energetic partons in quark-gluon plasma medium by analyzing the medium response effect on jet substructure observables. In high-energy heavy-ion collisions, jets become more populated by soft partons through the induced radiation and scatterings in the medium. Consequently, the energies of some soft jet partons reach the typical energy of the medium constituents, and they thermalize in the medium. The thermalized component of the jet propagates hydrodynamically and emits hadrons correlated with the jet core. Those hadrons carry crucial information about the jet thermalization process and are measured as a part of clustered jets.

In this talk, we systematically study the medium response by performing simulations with two distinctive prescriptions: propagation of recoils in partonic scatterings based on a weakly-coupled description and its combination with hydrodynamical medium response assuming the partial thermalization of jets [1]. Furthermore, by studying the angular structure of jets with different flow configurations of the medium, we demonstrate that the background medium flow and the analysis for the large-angle region  $r > 1$  are essential to extract the details of the in-medium jet thermalization.

[1] Y. Tachibana, C. Shen and A. Majumder, “Bulk medium evolution has considerable effects on jet observables!,” arXiv:2001.08321 [nucl-th].

**Primary authors:** TACHIBANA, Yasuki (Akita International University); SHEN, Chun (Wayne State University); MAJUMDER, Abhijit (Wayne State University)

**Presenter:** TACHIBANA, Yasuki (Akita International University)

**Session Classification:** Poster Session 2 T04\_2

**Track Classification:** Jets, high-pT hadrons, and medium response