

10th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions



Contribution ID: 189

Type: Oral Presentation

The dynamics of leading jets and the jet energy loss

Thursday, June 4, 2020 1:10 PM (20 minutes)

In heavy-ion collisions the Quark Gluon Plasma (QGP) is recreated which is believed to have filled our universe shortly after the Big Bang. The quenching of highly energetic jets which are also produced in these collisions are powerful probes of the QGP. We propose the measurement of leading and subleading jets as a new probe of the underlying dynamics of the QGP. The dynamics of leading jets are significantly more complicated than inclusive jets but allow for a more precise use of jets as probes of the underlying parton dynamics that carry information about the QGP. In particular, leading jets allow for a definition of the so-called jet energy loss at the cross section level. The measurement of subleading jets further allows for a quantitative exploration of how the lost energy is distributed in the final state phase space. We present results for the factorization and evolution of leading and subleading jets both in proton-proton and heavy-ion collisions and outline possible measurements to better illuminate the interaction of the QGP with hard probes.

Collaboration (if applicable)

Track

Jets and High Momentum Hadrons

Contribution type

Contributed Talk

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Session Classification: Parallel

Track Classification: Jets and High Momentum Hadrons