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Jet and Heavy Flavor Production from Soft Collinear Effective Theory

Saturday, 24 September 2016 12:00 (20 minutes)

One of the earliest phases of our universe, the quark-gluon plasma (QGP), can be reproduced in heavy-ion collisions at RHIC and the LHC. Rare high energy probes produced in these collisions that traverse the hot and dense QCD medium, provide an excellent tool to probe this state of matter. In particular, the medium modification of jet and heavy flavor production cross sections has received a growing attention in recent years. We consider the nuclear modification factor R_{AA} which is most commonly used to study the quenching of hadron or jet production yields in heavy-ion collisions. We present new theoretical calculations based on recently developed techniques using Soft Collinear Effective Theory (SCET). In particular, we have developed a new formalism to resum logarithms in the jet radius parameter R for inclusive jet spectra. We present results for the medium modification of jet and heavy meson cross sections. In addition, we present new results for the modification of jet-substructure observables in heavy-ion collisions.

Summary

Presentation type

Oral

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