

Novel tools and observables for jet physics in heavy-ion collisions

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Studies of fully reconstructed QCD jets in heavy-ion collisions aim to extract properties of the created hot and dense nuclear matter. Recently, jet substructure observables have extended the plethora of established observables by introducing techniques that facilitate more differential measurements of jet modifications. This talk will summarize the main lines of discussion at the 5th Heavy Ion Jet Workshop and CERN TH institute “Novel tools and observables for jet physics in heavy-ion collisions” in 2017. We present a first attempt at outlining a strategy for isolating and identifying the relevant physical processes that are responsible for the observed modifications in the kinematical Lund plane. Furthermore, we report on performed studies of jet substructure observables using two of the available Monte Carlo models of jet quenching, QPYTHIA and JEWEL, exploiting grooming techniques to elucidate differences between the models. These investigations also outline the strategy for the study of the parton shower shape dependence of the jet quenching using inclusive jet or photon-tagged jets.

Summary

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