6th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions (Hard Probes 2013)

Contribution ID: 19

Type: Oral

A hybrid strong/weak coupling approach to jet quenching

Thursday, 7 November 2013 13:30 (20 minutes)

We study the modification of jet properties in a heavy ion environement by the presence of strongly coupled quark gluon plasma. We explore a hybrid approach, in which the high virtuality splitting processes that dominate the QCD shower proceed as in vacuum while the partons of the shower interact with the system as dictated by strongly coupled computations via the AdS/CFT correspondence. We incorporate this approach into an event Monte Carlo and study multiple jet observables, such as jet suppression, di-jet asymmetry, etc. We show that this approach is in qualitative agreement with the available jet measurements at the LHC, but a quantitative description may require additional sources of energy loss, such as radiative processes.

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Session Classification: Jet Quenching and Observables

Track Classification: Jet Quenching and Observables