

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



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Jet quenching tests of the QCD Equation of State

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Jet quenching has become a fundamental tool to study the hot QCD matter produced in heavy ion collisions. While important theoretical and experimental advances have been made in the last two decades, the extraction of the medium properties and the comparison with finite temperature QCD is still particularly worrisome. In this work we show that improvements in the calculation of the medium-induced gluon spectrum are required for a correct extraction of these parameters without temperature issues. In particular, we employ an improved numerical implementation of multiple scatterings that resums all possible terms in the opacity expansion beyond the Gaussian approximation. We find significant differences in the extracted medium parameters when comparing with two of the most used approximations in phenomenological analyses to date, the first order opacity expansion and the Gaussian approximation. We also make a first attempt to compare the extracted medium parameters with lattice results.

Collaboration (if applicable)

Track

Jets and High Momentum Hadrons

Contribution type

Contributed Talk

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