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A multi-messenger Bayesian Inference analysis of QGP jet transport using inclusive hadron and reconstructed jet data by JETSCAPE

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The JETSCAPE Collaboration reports a new Bayesian Inference analysis of jet transport in the QGP, using both hadron and jet inclusive suppression data. The JETSCAPE framework comprises a modular multi-stage modeling of in-medium jet evolution and medium response, together with a statistical framework for rigorous data-model comparison using a Bayesian formalism. The multi-stage approach includes virtuality-dependent in-medium partonic energy loss coupled to a detailed dynamical model of QGP evolution. In this talk we present a new JETSCAPE Bayesian inference analysis that extends the previously published JETSCAPE Bayesian determination of \hat{q} , which was based solely on inclusive hadron suppression data. It now incorporates inclusive jet measurements at RHIC and the LHC as well. We explore tension between different datasets considered in the analysis, and report a new, multi-messenger, determination of \hat{q} . This study represents the next step in the program toward a comprehensive study of the constraints of the QGP properties from jet quenching data. Future possibilities, including more sophisticated modeling and the inclusion of other types of measurements, will also be discussed.

Experiment/Theory

Theory/Phenomenology

Affiliation

JETSCAPE Collaboration

Hauptautor: Frau CHEN, Yi (MIT)

Vortragende(r): Frau CHEN, Yi (MIT)

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Track Klassifizierung: High momentum hadrons and correlations