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Bayesian extraction of $\hat{q}$ with correlated experimental errors[1]
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We use Bayesian inference to constrain four- and five- component parameterized dependence of the jet transport coefficient $\hat{q}$ on the local temperature and the energy and virtuality of a parton scattering off a thermal medium. These parameters differentiate between different types of energy loss mechanisms; their. For the evolution in energy and virtuality of partons propagating through a 2+1D viscous fluid dynamical medium we explore a high virtuality shower simulator (MATTER), an on-shell transport simulator (LBT), and a combination of the two. All simulations are carried out within the multi-stage JETSCAPE framework. To minimize sensitivity to recoil effects, we focus on single hadron suppression at multiple collision energies and centralities. Previous analyses of relativistic heavy-ion data have neglected correlations among the experimental errors because typically the full error covariance matrix is not available. In this work we introduce as part of the experimental error treatment a correlation length for the systematic errors, for which we explore different ansatze. Our finding underscores the importance of reporting full error covariance matrices for the experimental data.

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