Abstract Submitted
for the APR21 Meeting of
The American Physical Society

Determining the jet transport coefficient $\hat{q}$ of the quark-gluon plasma using Bayesian parameter estimation JAMES MULLIGAN, University of California, Berkeley, JETSCAPE COLLABORATION — We present a new determination of $\hat{q}$, the jet transport coefficient of the quark-gluon plasma. Using the JETSCAPE framework, we use Bayesian parameter estimation to constrain the dependence of $\hat{q}$ on the jet energy, virtuality, and medium temperature from experimental measurements of inclusive hadron suppression in Au-Au collisions at RHIC and Pb-Pb collisions at the LHC. These results are based on a multi-stage theoretical approach to in-medium jet evolution with the MATTER and LBT jet quenching models. The functional dependence of $\hat{q}$ on jet energy, virtuality, and medium temperature is based on a perturbative picture of in-medium scattering, with components reflecting the different regimes of applicability of MATTER and LBT. The correlation of experimental systematic uncertainties is accounted for in the parameter extraction. These results provide state-of-the-art constraints on $\hat{q}$ and lay the groundwork to extract additional properties of the quark-gluon plasma from jet measurements in heavy-ion collisions.

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Date submitted: 07 Jan 2021 Electronic form version 1.4