

Abstract Submitted
for the DNP20 Meeting of
The American Physical Society

Probing multi-scale dynamical interactions between heavy quarks and the QGP using JETSCAPE¹ GOJKO VUJANOVIC, Wayne State University, JETSCAPE COLLABORATION — The shower development for a jet traveling through the QGP involves a variety of scales, e.g. the mass for heavy quarks. Though the mass of these quarks plays a sub-dominant role during the high virtuality portion of the jet, it affects the longitudinal drag and diffusion, stimulating additional radiation, which is modeled using the MATTER generator inside the JETSCAPE framework. These emissions partially compensate the reduction in radiation from the dead cone effect. In the lower virtuality (nearly on-shell) part of the shower, scattering and radiation processes off heavy and light quarks differ and are described by the LBT generator in JETSCAPE. Throughout this study, event by event modeling is used for shower development and for fluid dynamical medium simulations. Energy-momentum exchange with the medium proceeds using a weak coupling recoil approach. The transition scale between MATTER and LBT happens on the level of individual partons, and can be extracted from a comparison with data; i.e. leading hadron R_{AA} and v_2 . This allows to explore the effects/interplay between the different regimes of energy loss on the propagation and radiation from heavy quarks in a dense medium.

¹This work was supported in part by the Natural Sciences and Engineering Research Council of Canada, and in part by the National Science Foundation through award number ACI-1550300. Computations were performed on the Wayne State University Grid.

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Date submitted: 26 Jun 2020

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