## Abstract Submitted for the DNP20 Meeting of The American Physical Society

Heavy jet evolution in QGP using the JETSCAPE framework<sup>1</sup>

WENKAI FAN, Duke University, GOJKO VUJANOVIC, Wayne State University, JETSCAPE COLLABORATION — The dynamics of shower development for a jet traveling through the quark-gluon plasma (QGP) involves a variety of scales, including the mass for heavy flavors in jets. Though the mass of the heavy quarks plays a subdominant role during the high virtuality portion of the jet, it does affect longitudinal drag and diffusion, stimulating additional radiation from heavy quarks. These emissions partially compensate the reduction in radiation from the dead cone effect. In the lower virtuality part of the shower, when the mass is comparable to the transverse momentum of the parton, scattering and radiation processes off heavy quarks are different than off light quarks. All these factors result in a different shower development for heavy-flavor tagged jets. The QGP evolution is modeled on an event by event basis using the JETSCAPE Framework. We present a multi-stage calculation that explores the importance of differences between various heavy quark energy-loss mechanisms within a realistically expanding medium. Energy-momentum exchange with the medium, essential for the study of jet modification, proceeds using a weak coupling recoil approach. Heavy jets as well as their substructure, give us a handle to study the heavy quark shower development.

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