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A new calculation of light quark jet energy loss using the AdS/CFT correspondence

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Unlike heavy quarks, light quark energy loss in AdS/CFT is surprisingly dependent on both the string initial conditions and the very definition of the jet itself in the gravity theory. In order to more accurately model QCD jet energy loss in AdS/CFT, we more closely match the string initial conditions to those expected from pQCD and simultaneously propose a novel jet prescription in the dual theory. With the new jet prescription, light quark jet energy loss regains the “explosive,” late-time Bragg peak in both static and expanding plasmas. We incorporate the improved AdS/CFT results into a phenomenological energy loss model and compare our predictions to light meson suppression at RHIC and LHC.

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