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Heavy Quark Energy Loss and Bulk Physics

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Bulk matter phenomena in heavy ion collisions is characterized by an extremely small viscosity to entropy ratio best understood by strong coupling dynamics described by the AdS/CFT correspondence. We test a consistent description of QGP physics by applying this AdS/CFT paradigm to the energy loss of heavy quarks. Previously we found consistency with the non-photonic electron data at RHIC but a significant, systematic oversuppression compared to LHC D meson measurements; b quark energy loss is so far consistent within the large uncertainties of current LHC results. Previous predictions for light mesons are also suggestive of oversuppression in this AdS/CFT picture. We present an attempt to resolve the discrepancy between the AdS/CFT energy loss predictions and data by incorporating a more realistic matching between the AdS/CFT world and ours, and thus resolve the current contradiction between the low momentum and high momentum physics phenomena seen at RHIC and LHC.

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