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Jet Nuclear Modification Factor from the AdS/CFT Correspondence

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We define a novel definition of the holographic light hadron jet by a separation of scales from plasma to jet, which leads to the re-emergence of the late-time Bragg peak in the instantaneous jet energy loss rate. We use the holographic energy loss of light quark and our new jet prescription in AdS/CFT to calculate the nuclear modification factor of jet for a brick of plasma (both static and expanding plasma) and compare the AdS/CFT results with the experimental data for most central Pb-Pb collision at LHC at 2.76 TeV center-of-mass energy. Defining a "renormalized" AdS/CFT jets that we argue better reflect QCD physics, we find a surprisingly good agreement between our toy model which is the first fully strongly coupled calculations, and preliminary jet suppression data from heavy ion collisions at LHC.

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