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The energy density as a function of spacetime for a light quark jet in AdS/CFT

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Abstract content ** ** (Max 300 words) **Formatting &**

Jets are produced due to hard scattering processes in heavy ion collisions and probe the Quark-Gluon Plasma (QGP). Analyses the energy loss of these energetic partons as they travel through QGP may reveal extremely valuable information about the dynamics of the plasma.

Our studies of jet of light quark using AdS/CFT revealed two interesting results: 1) With our new jet prescription, light quark jet energy loss regains the “explosive,” late-time Bragg peak in both static and expanding plasmas. 2) The resulted nuclear modification factor RAA shows good agreement with the experimental data on the Rjet of most central Pb-Pb collision at LHC.

That the results of our simple model are in such good agreement with data suggests that we attempt to better define the jet in AdS/CFT. The best way to map the string initial conditions to the physical states in QFT is computing the energy-momentum tensor associated with the propagation of the classical string solution. With the energy- momentum tensor in hand, we should be able to compute directly from the string theory the actual quantities measured experimentally.

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