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Interpreting single jet measurements in heavy ion collisions

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Recent measurements of jet and charged particle suppression and single jet fragmentation in heavy ion collisions at the LHC provide important experimental information on the quenching of high-energy jets in the quark-gluon plasma. Important features such as the variation of jet R_{AA} with p_T , the pattern of modification of the jet fragmentation functions and the evolution of the charged particle R_{AA} with p_T , taken together, should provide insight on the physics mechanism responsible for the quenching. While a proper understanding of the data requires a detailed theoretical model of jet quenching in a dynamically evolving medium, we argue that multiple features of the data including those listed above arise from a common origin. Using a phenomenological model with minimal assumptions on the parametric behavior of the parton energy loss, we can reproduce most of the features of the single-jet data. Results of our analysis will be presented and used to argue that there are important features of the underlying jet production that may need particular attention in jet quenching models.

On behalf of collaboration:

NONE

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