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Interplaying mechanisms behind inclusive jet R_{AA} and extraction of jet energy loss distributions

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The observed suppression of inclusive jets in heavy-ion collisions at LHC has a very weak p_T dependence over a large range of p_T = 50-1000 GeV and is almost independent of the colliding energy, though the initial energy density of the formed QGP has increased significantly from $\sqrt{s}$ = 2.76 to 5.02 TeV. This interesting phenomenon is fully investigated in the linear Boltzmann transport(LBT) model for jet propagation combined event-by-event 3+1D hydro backgrounds. We found that the p_T dependence of jet R_{AA} is determined by the initial spectrum in pp collisions and jet quenching in which medium response has a significant contribution. Furthermore, the energy loss distribution is extracted directly from experimental data within a Beyesian method, which provides a model-independent approach to understand jet quenching in detail. The extracted jet energy loss distributions have a scaling behavior and indicate that jet quenching is caused on the average by only a few out-of-cone scatterings.

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