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p_T and energy dependence of single inclusive jet and hadron suppression at LHC

The observed suppression of single 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. The single inclusive hadron suppression, however, has strong p_T dependence but is independent of the colliding energy. We use the Linear Boltzmann Transport model for jet propagation combined with event-by-event 3+1D hydro background to understand these observed phenomena on jet quenching. We examine effects of the initial jet (parton) spectra, energy, temperature and parton flavor dependence of jet (parton) energy loss on the suppression of single inclusive jet (hadron) suppression. We also illustrate the influence of medium response (recoil) on the final jet energy loss and spectra suppression.

Summary

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