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Effects of multiple jets in gamma-jets and dijet correlations in heavy ion collisions

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The study of modification of boson-tagged jet and dijet in high energy heavy ion collision can provide physical insight of jet-medium interactions. In this study, we use the Linear Boltzmann Transport(LBT) model to simulate the propagation of the shower partons generated from pythia or sherpa Monte Carlo simulations in the hot quark gluon plasma. We first calculate the p_T distribution of the 2nd jet in gamma-jet events according to gamma-jet asymmetry. In the gamma-jet correlation, we find that the inclusion of the 2nd jet will lead to the suppression of the angular correlation at large angle in AA collision. For dijet correlation, we investigate the dijet azimuthal correlation in events with 2, 3, 4 energetic jets for different regions of the leading jet p_T in both pp and AA collision. We also show the important contribution of the 3rd jet in dijet transverse momentum balance distribution. We further find that the energy distribution at the edge of the jet cone is modified by the interference among multiple jets inside quark gluon plasma.

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