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p_T dispersion of inclusive jets in high-energy nuclear collisions

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In this work, we study the impact of jet quenching on p_T dispersion($p_T D$) of inclusive jets ($R = 0.2$) in Pb+Pb collisions at $\sqrt{s} = 2.76$˜TeV.
The partonic spectrum in the initial hard scattering of elementary collisions are obtained by an event generator POWHEG+PYTHIA, which matches the next-to-leading (NLO) matrix elements with parton showering, and energy loss of fast parton traversing in hot/dense QCD medium is calculated by Monte Carlo simulation within Higher-Twist formalism of jet quenching in heavy-ion collisions.
We present the model calculations of normalized $p_T D$ distributions for inclusive jets in p+p and Pb+Pb collisions at $\sqrt{s} = 2.76$˜TeV, which give nice descriptions of ALICE measurements. It is shown that the $p_T D$ distributions of inclusive jets in Pb+Pb significantly shifts to higher $p_T D$ region relative to that in p+p. Thus the nuclear modification ratio of $p_T D$ distributions for inclusive jets is smaller than unity at small $p_T D$ region, while larger than one at large $p_T D$ region. This behavior results from more uneven p_T distribution of jet constituents as well as the fraction alteration of quark/gluon initiated jets in heavy-ion collisions. The difference of $p_T D$ distributions between groomed and ungroomed jets in Pb+Pb collisions are also discussed.

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