

Suppression of large transverse momentum hadrons in central Pb+Pb collision at LHC

Quenching of high transverse momentum hadrons formed in Pb+Pb collisions at the center-of-mass energy of 2.76 TeV is studied within A MultiPhase Transport (AMPT) model. The initial conditions for quark and gluon jet production are obtained from the recently updated HIJING 2.0 model that invokes the latest parton distribution function as well as an energy dependent cut off momentum parameter p_0 for jet production in the two-component model. Once the parameters of the model has been fixed by reproducing the measured charged particle spectra in p+p collisions at the LHC energy regime, we shall demonstrate that the centrality dependence of charged particle multiplicity in Pb+Pb collisions is mostly controlled by the gluon shadowing at small transverse momentum. We shall show within the AMPT model that simultaneous reproduction of the measured centrality dependence of charged hadrons and the quenching of high transverse momentum hadrons, quantified by the nuclear modification factor $R_{\{AA\}}$, could further constrain the parton-parton scattering cross section to a rather small value at the LHC energy.

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