

Jet energy loss in hadronic re-scattering of Pb+Pb collisions with $\sqrt{s_{NN}} = 5.02$ TeV and $\sqrt{s_{NN}} = 2.76$ TeV at the LHC

In this work, we explore the interplay between soft (low- p_T) and hard (high- p_T) particles in the hadronic phase of Pb+Pb collisions with $\sqrt{s_{NN}} = 5.02$ TeV and $\sqrt{s_{NN}} = 2.76$ TeV at the LHC. The partonic jet energy loss is handled by MARTINI in our simulations, given that the bulk dynamics of the QCD medium is calculated with the IP-Glasma pre-thermalization dynamics and the second-order viscous hydrodynamics. The jet-medium interaction in the hadronic stage is handled by the the UrQMD model which governs the post-particlization dynamics. It is found that the mini-jets and their interaction with medium become crucial as one extends the hybrid approach toward the intermediate and higher p_T regime. Description of the particle spectra can be improved with mini-jets and their energy loss. We present results for the p_T -spectra, nuclear modification factor R_{AA} and the p_T -differential flow harmonics of charged and identified (non-strange and strange) hadrons, with an emphasis on the collisional energy loss of jets in the hadronic phase. In addition, it will be demonstrated that inclusion of the hadronic collisions can change determination of the jet-medium interaction, such as the strong coupling α_S , in QGP phase.

Preferred Track

Jets and High p_T Hadrons

Collaboration

Not applicable

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