QPT 2019

Enshi, China

Contribution ID: **114** Type: **not specified**

# Medium modification of heavy flavor jets in HIC

## Summary

In the talk, we present the recent theoretical development of the heavy flavor jets, mainly focus on the observables of $b\bar{b}$ dijets production and the radial distribution of $D^0$ meson in jets. It requires a simultaneous description of both the heavy quark and the light quark in-medium evolution. A next-to-leading order (NLO) plus parton shower Monte Carlo (MC) event generator SHERPA is used to provide the p+p baseline events. The framework combines the Langevin transport model to describe the evolution of bottom quark also its collisional energy loss and the higher-twist description to consider the radiative energy loss of both the bottom and light quarks. We compare the theoretical simulation of inclusive jet and inclusive b-jet $R_{\rm AA}$ in Pb+Pb collisions at $\sqrt{S_{\rm NN}} = 2.76$˜TeV with the experimental data, and then present the theoretical simulation of the momentum balance of the $b\bar{b}$ dijet in Pb+Pb collisions at $5.02$˜TeV with the recent CMS data for the first time. A similar trend as that in dijets has been observed in $b\bar{b}$ dijets, the production-distribution shifted to smaller $x_J$ due to the jet quenching effect. We also find that, at low $D^0$ meson pT, the radial distribution significantly shifts to larger radius indicating a strong diffusion effect which is consistent with the recent experimental data. We demonstrate that the angular deviation of charm quarks declines with pT and is very sensitive to the collisional more than radiative interaction at pT<5˜GeV. At least, we also give relevant predictions.

**Primary author:** Dr DAI, Wei (China University of Geosciences)

**Co-authors:** Prof. ZHANG, Ben-Wei (Central China Normal University); Mr WANG, Sa (CCNU)

**Presenter:** Dr DAI, Wei (China University of Geosciences)