

## Transverse Momentum Balance and Angular Distribution of $b\bar{b}$ Dijets in Pb+Pb collisions

Tuesday 2 October 2018 17:05 (20 minutes)

The productions of inclusive b-jet and  $b\bar{b}$  dijets in Pb+Pb collisions have been investigated by considering the heavy quark and the light quark in-medium evolution simultaneously. The initial hard processes of inclusive b-jet and  $b\bar{b}$  dijets productions are described by a next-to-leading order (NLO) plus parton shower Monte Carlo (MC) event generator SHERPA which can be well matched with the experimental data in p+p collisions. 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 bottom and light quarks. We compare the theoretical simulation of inclusive jet and inclusive b-jet  $R_{AA}$  in Pb+Pb collisions at  $\sqrt{S_{NN}} = 2.76$  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. At last, the prediction of the normalized azimuthal angle distribution of the  $b\bar{b}$  dijet in Pb+Pb collisions at 5.02 TeV has been reported. The medium induced energy loss effect of the  $b\bar{b}$  dijets will overall suppress its production, but the near side ( $\Delta\phi \rightarrow 0$  region) suffers more energy loss than away side ( $\Delta\phi \rightarrow \pi$  region), therefore lead to the suppression on the near side and the enhancement on the away side in the normalized azimuthal angle distribution.

### Summary

**Primary authors:** WANG, Sa (Central China Normal University); Dr DAI, Wei (China University of Geosciences); Mr ZHANG, Shanliang (Central China Normal University); ZHANG, Ben-Wei (Central China Normal University); WANG, Enke (Central China Normal University)

**Presenter:** WANG, Sa (Central China Normal University)

**Session Classification:** Parallel 2