Hard Probes 2018: International Conference on Hard & Electromagnetic Probes of High-Energy Nuclear Collisions

Contribution ID: **224** Type: **2a) Jets and high-pT hadrons (TALK)**

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 $R_{\rm AA}$ 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. 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 ($\Delta\phi \to 0$ region) suffers more energy loss than away side ($\Delta\phi \to \pi$ 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