Contribution ID: **125** Type: **Poster**

Nuclear modification of jet structure in proton-lead collisions at the LHC

Tuesday 29 September 2015 16:30 (2 hours)

The collective anisotropic flows observed in high-multiplicity proton-lead collisions at the LHC and the agreement with hydrodynamic calculations strongly support that a hot and dense QGP may be formed in such small collisions systems. However, the current experimental measurement showed no indication of nuclear modification on the production of large transverse momentum hadrons and jets in minimum-bias proton-lead collisions. As is well known, jet quenching has been one of the most important evidences for the formation of QGP in relativistic nucleus-nucleus collisions at RHIC and the LHC. Thus, the search for the signature of jet modification is essential to our understanding of high-multiplicity proton-lead collisions at the LHC.

We study the nuclear modification of full jets and their structure in proton-lead collisions at the LHC. The evolution of full jet shower in dense QCD matter is simulated via a pQCD-based Monte-Carlo transport model which includes the medium effects from both radiative and collisional processes. The space-time evolution of the hot and dense nuclear matter produced in proton-lead collisions at the LHC is simulated utilizing a (3+1)-dimensional ideal hydrodynamics with fluctuating initial conditions as obtained from a Monte-Carlo Glauber-based energy deposition model, from which we calculate the anistropic flows and compare to the experimental data. We are particularly interested in the multiplicity dependence and the rapidity dependence for the nuclear modification of the inner structure of single inclusive jets and photon-triggered jets in proton-lead collisions. Comparing to the single inclusive hadron or jet spectra, the modification of full jet structure is more sensitive to the details of jet-medium interaction. We argue that the multiplicity and rapidity dependences for the nuclear modification of full jet structure, once observed, should clearly signal the formation of QGP in high-multiplicity proton-lead collisions at the LHC.

On behalf of collaboration:

NONE

Author: QIN, Guang-You (Central China Normal University)

Presenter: QIN, Guang-You (Central China Normal University)

Session Classification: Poster Session

Track Classification: Jets and High pT Hadrons