Contribution ID: **597** Type: **Oral Presentation**

Probing the partonic degree of freedom in high multiplicity p-Pb at $\sqrt{s}$= 5.02 TeV collisions.

Tuesday, 5 November 2019 11:40 (20 minutes)

The collective flow and the possible formation of the Quark-Gluon Plasma (QGP) in the small colliding systems are hot research topics in the heavy-ion community. Recently, ALICE, ATLAS and CMS collaborations have measured the elliptic flow and the related number of constituent quark (NCQ) scaling of identified hadrons in p+Pb collisions at $\sqrt{s}$ = 5.02 TeV, which are important observables to probe the partonic degree of freedom in the created small system.

In this talk, we focus on the coalescence model calculations for the NCQ scaling of at intermediate p_T for the high multiplicity p+Pb collisions, which includes thermal-thermal, thermal-jet and jet-jet partons recombinations, using the thermal partons from hydrodynamics and jet partons after the energy loss of the Linear Boltzmann Transport (LBT) model. Such coalescence model calculations have also been smoothly connected with the low hydrodynamic calculation and with high jet fragmentation. Within such combined framework, we present a nice description of the spectra and elliptic flow over the p_T range from 0 to 6 GeV, and obtain the approximately NCQ scaling at intermediate p_T as measured in experiment. We also switch off the coalescence process of partons and find that without such coalescence, one can not describe the differential elliptic flow and related NCQ scaling at intermediate p_T. Such comparison calculations also demonstrate the importance of the partonic degree of freedom and indicate the possible formation of QGP in the high multiplicity p+Pb collisions.

Primary authors: ZHAO, Wenbin (Peking University); SONG, Huichao; QIN, Guang-You (Central China Normal University); KO, Che-Ming

Presenter: ZHAO, Wenbin (Peking University)

Session Classification: Parallel Session - Small systems II

Track Classification: Small systems