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Kinetic freeze-out properties with Tsallis Blast Wave from the RHIC Beam Energy Scan

In this talk, we investigate the kinetic freeze-out properties in relativistic heavy ion collisions at different collision energies. We present a study of standard blast-wave fits and Tsallis blast-wave fits performed on the transverse momentum spectra of positive and negative pions, kaons and protons obtained in Au+Au collisions at collision energies of $\sqrt{s_{NN}}$ =7.7-200GeV at Relativistic Heavy Ion Collider (RHIC), and in Pb+Pb collisions at collision energies of $\sqrt{s_{NN}}$ =2.76TeV at the Large Hadron Collider (LHC). The effect of strange and multi-strange particles at $\sqrt{s_{NN}}$ =62.4GeV is also investigated. We found that the TBW function describes the RHIC data better than the BW one as the collision energy increases, while the degree of non-equilibrium of the produced system is found to increase. The kinetic freeze-out temperature at the same centrality is almost constant at the collision energy of $7.7-200$GeV, then decreases at LHC energy with the increase of the degree of non-equilibrium of the produced system. The centrality dependence of the freeze-out temperature from TBW fits is less pronounced as the BW fits with the increase of the collision energy.

Primary author: 陈, 佳 (Shandong University)

Presenter: 陈, 佳 (Shandong University)