

Initial state fluctuations at RHIC and LHC: hadronic or partonic origin?

Thursday, May 26, 2011 4:00 PM (20 minutes)

This talk will discuss how triangular flow measurements in Pb+Pb collisions at the LHC can be used to constrain the origin of initial state fluctuations. We explore the energy dependence of elliptic and triangular flow within a (3+1)-dimensional hybrid framework starting from a non-equilibrium initial state with event-by-event fluctuations and including an ideal hydrodynamical expansion phase followed by hadronic Boltzmann transport. This approach has been shown to describe well the existing RHIC and LHC data on bulk observables such as particle yields, spectra and elliptic flow. The initial energy deposition can be modeled either in a partonic or a hadronic picture using, respectively, a parton cascade or the hadronic transport model UrQMD. We present a detailed comparison between the shape and fluctuations of the two initial conditions prior to the hydrodynamical evolution. Our analysis then compares the differences in final state observables such as triangular flow in order to identify sensitivities to the degrees of freedom driving the energy deposition.

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