XXIV QUARK MATTER
DARMSTADT 2014

Contribution ID: **321** Type: **Poster**

Beam energy scan using a 3+1D viscous hydro+cascade model

Tuesday 20 May 2014 16:30 (2 hours)

Following the BES program at BNL RHIC, we perform a similar collision energy scan using a 3+1D viscous hydrodynamics coupled to the UrQMD hadron cascade. We study how the collision energy affects the bulk observables: rapidity distributions and m_T-spectra of identified particles, elliptic flow, directed flow and HBT radii, including azimuthally-sensitive HBT. In our calculations we use an equation of state for finite baryon density and averaged or event-by-event initial conditions from UrQMD.

We show that the final observables are sensitive to the initial state fluctuations and its granularity, as well as to the shear viscosity in the hydrodynamic stage. Fortunately the simultaneous reproduction of rapidity/m_T distributions from NA49 and newer elliptic flow data from STAR can constrain both the granularity of the initial state and shear viscosity in hydrodynamic phase. We also explore the impact of different equations of state on final observables, and the possibility to discriminate between them.

Author: Dr KARPENKO, Iurii (Frankfurt Institute for Advanced Studies, Germany; Bogolyubov Institute for Theoretical Physics, Kiev, Ukraine)

Co-authors: Prof. PETERSEN, Hannah (Frankfurt Institute for Advanced Studies; Institut für Theoretische Physik, Johann Wolfgang Goethe-Universität, Frankfurt am Main, Germany); Prof. BLEICHER, Marcus (Frankfurt Institute for Advanced Studies; Institut für Theoretische Physik, Johann Wolfgang Goethe-Universität, Frankfurt am Main, Germany); Dr HUOVINEN, Pasi (Institut für Theoretische Physik, Johann Wolfgang Goethe-Universität, Frankfurt am Main, Germany)

Presenter: Dr KARPENKO, Iurii (Frankfurt Institute for Advanced Studies, Germany; Bogolyubov Institute for Theoretical Physics, Kiev, Ukraine)

Session Classification: Poster session

Track Classification: Collective Dynamics