



Contribution ID: 1147

Type: Poster

Freezeout conditions and dynamical fluctuations within UrQMD and HRG approaches at high density

Monday, August 8, 2016 6:30 PM (2 hours)

The dependence of different particle ratios on nucleus-nucleus center-of-mass energy, which can be related to the chemical potential, is studied within the hadron resonance gas (HRG) and Ultra-relativistic Quantum Molecular Dynamic (UrQMD) approach. For UrQMD two different types of phase transitions are taken into consideration, namely crossover and first order, while HRG implements fully statistical aspects in describing the particle production and their correlations, restrictively in the hadron phase. The calculations cover energies ranging from 3 to 39 GeV. The freezeout parameters, temperature (T) and baryon chemical potential, are deduced by fitting the particle ratios estimated from hybrid UrQMD with the calculation from HRG at [11.5, 19.6, 27 and 39] GeV, which are chosen to compare with STAR beam energy scan. The results agree well with the parameters which are independently determined from statistical fitting of the experimentally measured particle ratios. Furthermore, the net-charge fluctuations for UrQMD ratios K/π , P/π and K/P , and from HRG are compared with the available STAR and NA49 measurements. The good agreement justifies the conclusion that both UrQMD and HRG are suitable to explain both freezeout parameters and the dynamical net-charge fluctuations.

Primary author: TAWFIK, Abdel Nasser (ENHEP Egyptian Network of High Energy Physics (EG))

Co-authors: Dr SHALABY, Asmaa (Lectuer); Prof. ABOUSALEM, Loutfy (Professor); Mr NASSAR, Mahmoud (Assistant Lecturer)

Presenter: TAWFIK, Abdel Nasser (ENHEP Egyptian Network of High Energy Physics (EG))

Session Classification: Poster Session

Track Classification: Strong Interactions and Hadron Physics