Contribution ID: **66** Type: **Parallel Session**

Parametrized Equation of State for QCD from 3D Ising Model

Monday 7 August 2017 17:00 (30 minutes)

The only first principle knowledge of the QCD equation of state at finite baryonic density is given from Lattice QCD as a Taylor expansion around $\mu_B = 0$. The coefficients of such an expansion are currently available up to order $calO(\mu_B^6)$. The expected critical behavior of QCD is in the same static universality class as the 3D Ising model. By means of a suitable parametrization for the scaling equation of state of 3D Ising and a parametrized map to connect to QCD, we present an equation of state matching first principle Lattice QCD calculations, which spans the values of baryonic densities explored in the BES-II program, and includes the correct scaling behavior in the proximity of the critical point.

This EoS can serve as an important ingredient for the fluid dynamical simulations of heavy ion collisions at BES energies needed as a basis for the calculation of observables. Future comparisons between such calculations and BES-II data can constrain the parameters in the EoS – including the parameters that describe the location of the critical point.

This contribution reports on work done within the Fluctuations/Equation of State working group of the BEST Collaboration.

Author: PAROTTO, Paolo (University of Houston)

Presenter: PAROTTO, Paolo (University of Houston)

Session Classification: Parallel 1

Track Classification: Parallel Session