



Contribution ID: 604

Type: Poster

Hadronic Resonance States in an Effective Chiral Model

Thursday, August 16, 2012 4:00 PM (2 hours)

With an effective hadronic chiral flavor $SU(3)$ model we investigate properties of QCD matter for a wide range of temperatures and baryochemical potentials. With our model, including all hadronic resonances up to masses of 2.6 GeV, we show that the strengths of the resonance couplings to the attractive scalar and the repulsive vector fields have a major impact on the order and location of the chiral phase transition. Reasonable vector couplings, found by comparing model data to recent lattice QCD results, limit the phase transition to a smooth cross over and therefore rule out the possible existence of a critical end point.

Furthermore, we study fluctuations of conserved charges at the phase transition and present related (strange) quark number fluctuations and their associated susceptibility coefficients both at zero baryochemical potential and when crossing the phase transition at different regions in the T - μ plane. We show that susceptibility ratios get significantly suppressed at non-vanishing baryochemical potentials.

Primary author: Mr RAU, Philip (Goethe University Frankfurt, Germany)

Co-authors: Prof. STÖCKER, Horst (GSI Helmholtzzentrum für Schwerionenforschung GmbH, Germany); Dr STEINHEIMER, Jan (Lawrence Berkeley National Laboratory); Prof. SCHRAMM, Stefan (FIAS Frankfurt, Germany)

Presenter: Mr RAU, Philip (Goethe University Frankfurt, Germany)

Session Classification: Poster Session Reception

Track Classification: Exploring the QCD phase diagram