Contribution ID : **36** Type : **poster**

Thermodynamic instabilities in hot and dense nuclear matter

Saturday, 4 June 2016 16:00 (1:30)

Collaboration

Abstract content

We investigate the presence of thermodynamic instabilities in a hot and dense nuclear medium where a phase transition from a gas of massive hadrons to a nearly massless baryon, antibaryon plasma can take place. The analysis is performed by requiring the global conservation of baryon number and zero net strangeness in the framework of an effective relativistic mean field theory with the inclusion of the $\Delta(1232)$-isobars, hyperons and the lightest pseudoscalar and vector meson degrees of freedom. Similarly to the low density nuclear liquid-gas phase transition, we show that such a phase transition is characterized by both mechanical instability (fluctuations on the baryon density) that by chemical-diffusive instability (fluctuations on the strangeness concentration). It turns out that, in this situation, phases with different values of antibaryon-baryon ratios and strangeness content may coexist altering significantly different meson-antimeson ratios.

Primary author(s) : LAVAGNO, Andrea (Politecnico di Torino and INFN (Italy))

Co-author(s) : PIGATO, Daniele (Politecnico di Torino (Italy))

Presenter(s) : LAVAGNO, Andrea (Politecnico di Torino and INFN (Italy))

Session Classification : Poster Session