



Contribution ID: 32

Type: not specified

## A new RMF based quark-nuclear matter EoS

Wednesday 30 September 2015 16:30 (30 minutes)

The aim of our work is to develop a unified equation of state (EoS) for nuclear and quark matter for a wide range in temperature, density and isospin so that it becomes applicable for heavy ion collisions as well as for the astrophysics of neutron stars, their mergers and supernova explosions.

As a first step we use improved EoS for the hadronic and quark matter phases (with particular focus on phase space occupation effects) and join them via Maxwell construction.

This gives a solid fundament for further improvements which aim at a unified description of the phase transition on a more fundamental basis by a cluster virial expansion, which should then allow for predictions of the critical line in the three-dimensional QCD phase diagram.

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