

The high density QCD phase diagram: of heavy ion collisions and neutron star mergers

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I will discuss the limits of current methods to calculate the equation of state of QCD matter at finite baryon density. All methods based on expanding lattice QCD results show to be limited to $\mu_B/T < 3$ a region where contributions from the net baryon density are negligible. Therefore I will show how it is possible to use constraints from astrophysical observations of neutron stars and their mergers, as well as observables from heavy ion collisions, to constrain the features of the QCD EoS at densities up to 10 times nuclear saturation density and Temperatures up to 200 MeV.

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