Contribution ID: **0**   Type: **not specified**

Nucleon Properties in the Polyakov Quark Meson Model

We study the nucleon as a nontopological soliton in a quark medium as well as in a nucleon medium in terms of the Polyakov quark meson (PQM) model with two flavors at finite temperature and density. The constituent quark masses evolving with the temperature at various baryon chemical potentials are calculated and the equations of motion are solved according to the proper boundary conditions. The PQM model predicts an increasing size of the nucleon and a reduction of the nucleon mass in both hot environment. However, the phase structure is different from each other in quark and nucleon mediums. There is a crossover in the low-density region and a first-order phase transition in the high-density region in quark medium, whereas there exists a crossover characterized by the overlap of the nucleons in nucleon medium.

Primary author: Mr MAO, Hong (Hangzhou Normal University)

Presenter: Mr MAO, Hong (Hangzhou Normal University)