Contribution ID : 54 Type : not specified

Pion condensate versus chiral density wave at zero temperature

Tuesday, 26 June 2018 16:00 (30)

The quark-meson model is often used as an effective low-energy model for QCD to study the chiral transition at finite temperature T, baryon chemical potential \mu and isospin chemical potential \mu_I. We determine the model parameters to one-loop order and express them in terms of the physical meson and quark masses, as well as the pion decay constant using on-shell renormalization. We study the existence of different phases at zero temperature. In particular, we investigate the competition between an inhomogeneous chiral condensate and a pion condensate. We show that due to our parameter fixing, the onset of pion condensation takes place exactly at \mu_I = $m_{\dot{p}i/2}$ in accordance with exact results. Furthermore the existence of an inhomogeneous phase at large \mu in a certain parameter window is shown.

Primary author(s): KNESCHKE, Patrick (University of Stavanger)

Presenter(s): KNESCHKE, Patrick (University of Stavanger)

Session Classification: Parallel