



High Energy Physics - Phenomenology

QCD phase diagram from finite energy sum rules

Alejandro Ayala, Adnan Bashir, C. A. Dominguez, Enif Gutierrez, M. Loewe, Alfredo Raya

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We study the QCD phase diagram at finite temperature and baryon chemical potential by relating the behavior of the light-quark condensate to the threshold energy for the onset of perturbative QCD. These parameters are connected to the chiral symmetry restoration and the deconfinement phase transition, respectively. This relation is obtained in the framework of finite energy QCD sum rules at finite temperature and density, with input from Schwinger-Dyson methods to determine the light-quark condensate. Results indicate that both critical temperatures are basically the same within some 3% accuracy. We also obtain bounds for the position of the critical end point, $\mu_{\{B\}} > \sim 300$ MeV and $T_c < \sim 185$ MeV.

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