

Towards the phase diagram of QCD

Lattice computations as well as ab initio continuum QCD calculations show a broad crossover for both chiral symmetry restoration and the deconfinement transition at vanishing density. Particularly, the change of the order parameter for deconfinement, the Polyakov loop, occurs in a rather broad temperature interval. In contrast, current Polyakov loop extended effective models show steeper slopes in a smaller transition region. Moreover, the critical temperatures show some dependence on the chosen Polyakov loop potential. We qualitatively improve these models towards full QCD by adjusting the Polyakov loop potential to the full glue potential of continuum ab initio computations. We present results for the phase structure of QCD at finite density derived from these improved models.

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