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Magnetized Effective QCD Phase Diagram

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Content

Using the linear sigma model coupled to quarks, we discuss the influence of an external magnetic field on the QCD phase diagram in the temperature vs.chemical potential plane. Provided the plasma screening is properly accounted, we show that the critical temperature for the phase transition, chiral symmetry restoration, decrease with increasing magnetic field (inverse magnetic catalysis). The location of the critical end point (CEP) in the phase diagram moves toward lower values of the critical quark chemical potential and larger values of the critical temperature. The CEP approaches the temperature axis for large values of the magnetic field. We argue that a similar behavior is to be expected in QCD.

Area of contribution

Theory and Phenomenology

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