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Constraining the QCD phase diagram

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Lattice simulations of QCD at finite temperature are prohibited by a strong sign problem, so that little first principles information is available on the QCD phase diagram.

However, over the last two decades, lattice as well as functional methods have collected increasingly abundant and reliable information about the phase structure of QCD $\,$

with parameters tunedd away from the physical point. In particular, the order of the QCD thermal transitioon at zero density and in the chiral limit is now settled. Taken together, these results provide increasingly stringent constraints on the location of a possible critical point for physical QCD.

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