

Advances on the QCD phase diagram from Ward Identities and Hadron Effective Theories

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I will review recent advances on the QCD phase diagram, regarding mostly the nature of the chiral phase transition and its interplay with $U(1)_A$ restoration. Ward Identities and Hadron Effective Theories will be the main theoretical tools. The former allow to establish the thermal behaviour of chiral and $U(1)_A$ partners whereas the latter turns out to be quite fruitful for certain observables of interest such as scalar and topological susceptibilities or to study chiral imbalance. Comparison to recent lattice data will be one of our main guidelines.

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