

# Thermal hadron resonances and Ward Identities: results for the QCD phase diagram

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I will present relevant results for the QCD phase diagram, within a combined framework of Ward Identities (WI) and Unitarized Effective Theories. On the one hand, WI provide model-independent results for susceptibilities with direct consequences on the relation between chiral and  $U(1)_A$  restoration, key to understand the nature of the transition. Those WI also allow to derive scaling laws around  $T_c$  which can be checked with lattice screening masses. On the other hand, thermal resonances  $f_0(500)$  and  $K_0^*(700)$ , generated within Unitarized Chiral Perturbation Theory  $\pi\pi$  and  $K\pi$  scattering at finite temperature, play a key role regarding chiral and  $U(1)_A$  restoration, through saturated scalar susceptibilities in those channels. Novel results for effective theories at nonzero isospin density and nonzero chiral imbalance would also be discussed.

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