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Chiral symmetry restoration from the hadronic regime

Tuesday, 30 August 2016 16:00 (20 minutes)

We will present recent results regarding chiral symmetry restoration and other hadronic properties at finite temperature. In particular, we will discuss the interpretation of the temperature dependence of lattice screening masses through Ward identities relating pseudoscalar susceptibilities and quark condensates. Such identities are derived for two and three flavours and studied within the $SU(2)$, $SU(3)$ and $U(3)$ frameworks of Chiral Perturbation Theory, including axial anomaly and η' corrections. We will also examine chiral degeneration patterns and the role of the $f_0(500)$ or σ state in the saturation of the scalar susceptibility, where our results are consistent with lattice data. The $f_0(500)$ thermal state is generated dynamically from pion scattering and thermal unitarity, both within unitarized ChPT and in other schemes such as that with large number of Goldstone Bosons. Aspects regarding external magnetic fields could also be discussed. Recent references: JHEP 1603 (2016) 186, Phys.Rev. D93 (2016) no.3, 036001.

Summary

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