

Discussion K to pi a decay within large N_C chiral perturbation theory

The decay $K \rightarrow \pi a$ provides the most stringent particle-physics constraints on ALPs with masses below 300 MeV. Previous studies have been performed within SU(3) chiral perturbation theory, where the η_0 is integrated out. However, the explicit η_0 may play an important role, since the ALP and the η_0 belong to the same flavor-singlet sector. In this talk, we discuss the $K \rightarrow \pi a$ decay in U(3) chiral perturbation theory, focusing on the explicit η_0 contribution, the new weak operator, and the large- N_C behavior of the decay amplitude.

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