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Phenomenology of axion-meson mixing and scattering processes

Saturday, 27 June 2026 15:00 (2 hours)

We investigate axion-meson mixing and its consequences for low-energy scattering and decay processes within the framework of Chiral Perturbation Theory (χPT). Starting from the most general effective Lagrangian, we derive mixing terms between a general axion-like-particle (ALP) and light pseudoscalar mesons and compute their impact on 4-body, axion-meson amplitudes, including isospin breaking contributions. We also do a full perturbative calculation of the ALP mass up to second order in the decay constant. This study contributes to bridging theoretical models of axion physics with potential experimental observables in the flavor sector.

Collaboration

Primary author: DUARTE GONZALEZ, Noe (IFAE, Barcelona)

Co-authors: SANCHEZ-PUERTAS, Pablo (IFAE, Barcelona); ESCRIBANO, Rafel (Autonomous University of Barcelona)

Presenter: DUARTE GONZALEZ, Noe (IFAE, Barcelona)

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