

26th International Conference on Supersymmetry and Unification of Fundamental Interactions (SUSY2018)



Contribution ID: 267

Type: **Posters** (last call deadline 30th June)

Spontaneous supersymmetry breaking induced by particle mixing

It is conjectured that flavor mixing furnishes a universal mechanism for the spontaneous breaking of supersymmetry. The conjecture is proved explicitly for the mixing of two chiral $N = 1$ supermultiplets and arguments for its general validity are given. That is an instance of the O'Raifeartaigh Lagrangian for which there is no tree-level nor perturbative breaking. Nonetheless, the dynamical breaking occurs due to the vacuum condensate, a mixing-induced nonperturbative effect that lifts the zero point energy.

Parallel Session

Dark Matter, Astroparticle Physics

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