

Global fit of pseudo-Nambu-Goldstone Dark Matter

Monday 2 December 2019 14:50 (20 minutes)

We perform a global fit of the pseudo-Nambu-Goldstone (pNG) dark matter (DM) that arises in a complex scalar singlet model with a softly broken global U(1) symmetry. The resulting pNG boson is massive and serves as a viable DM candidate. More importantly, as the pNG DM-nucleon cross-section is momentum-suppressed at tree-level, it provides a natural way of explaining the null results from current direct detection experiments. In our fit, we include constraints from perturbative unitarity, DM relic density, Higgs invisible branching ratio, electroweak precision observables, and latest Higgs searches at colliders in order to explore the viable regions of the model parameter space. We present our results in both frequentist and Bayesian statistical approaches. In addition, our post-processed samples are confronted against strong indirect detection limits from Fermi-LAT dwarf spheroidal galaxies

Primary authors: ARINA, Chiara (CP3 UCLouvain); BENIWAL, Ankit (CP3, Université catholique de Louvain); DEGRANDE, Celine; Dr HEISIG, Jan (Université catholique de Louvain (UCL)); SCAFFIDI, Andre

Presenter: SCAFFIDI, Andre

Session Classification: Parallel

Track Classification: Dark matter