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# Pseudo-Nambu-Goldstone Dark Matter from Non-Abelian Gauge Symmetry

*Thursday, 30 November 2023 11:00 (15 minutes)*

Weakly-Interacting Massive Particle (WIMP), a strong candidate for dark matter (DM), faces the dilemma of being severely constrained by DM direct detection experiments when trying to explain DM relic abundance. One WIMP model that avoids this dilemma is the pseudo-Nambu-Goldstone dark matter model (pNGB DM model). The pNGB DM requires explicit global symmetry breaking, but all realistic and UV-completed models so far have allowed DM to decay.
In our study, we have succeeded in introducing a stable pNGB DM. We impose a new dark SU(2) gauge symmetry on the theory and introduce new scalar fields. This model in fact has an accidental global symmetry larger than the dark SU(2) (in the same way as the custodial symmetry of the Standard Model). This subgroup of global symmetries guarantees the stability of the pNGB DM. We also present benchmarks that allow us to avoid the current experimental constraints coming from direct detection experiments and Higgs invisible decay. This presentation is based on Phys. Rev. D 106, 115033 (2022).

## You are

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