

The minimal scenario for singlet fermion dark matter

Tuesday 5 December 2023 09:45 (20 minutes)

We propose and study a new and simple extension of the Standard Model in which the dark matter is a singlet Dirac fermion. The only other particle present in the model is a singlet scalar that mixes with the Higgs boson and couples to the dark matter. The model is based on a Z_6 discrete symmetry that is spontaneously broken by the vev of the scalar, which generates the dark matter mass. We show that the model is phenomenologically viable and that it can be tested in current and future experiments.

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