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Type: **Parallel Talk**

Sterile neutrino dark matter in the super-weak model

Friday, 8 July 2022 09:00 (15 minutes)

The *super-weak model* is a particle physics model which extends the Standard Model (SM) by a new $U(1)$ gauge symmetry. In addition to the new mediator Z' , a scalar particle χ is added to deal with the meta-stability of the SM vacuum, and right-handed neutrinos are introduced to account for the non-vanishing neutrino masses. In this talk, we investigate the cosmological implications of such an extension with our main focus being on dark matter production. We find that a light – mass of $\mathcal{O}(10)$ MeV – sterile neutrino can play the role of dark matter with a non-vanishing parameter space. We investigate present experimental bounds on the model parameters, both from particle physics experiments as well as from astrophysical observations.

In-person participation

Yes

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