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Sterile neutrino dark matter: detection perspectives in ground based experiments

What if the dark matter content of the universe was made up of sterile neutrinos with a mass of the order of keV?

Currently, constraints from the measured relic abundance of dark matter and from observations in the X-ray band threaten the possibility of finding in terrestrial experiments a signal of such sterile neutrinos produced through oscillation and collisions in the early universe.

We look at two scenarios in which the simple hypothesis of

- a low reheating temperature
- a new contribution to the sterile neutrino decay process

naturally relax these constraints and give new vigor to the hope of getting in the near future a proof of the existence of these elusive Dark Matter candidates in experiments such as KATRIN and ECHo.

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