

Neutrino floor in the light dark matter sector with isospin violating interactions

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The neutrino floor is a theoretical lower limit on dark matter-nucleon scattering cross-section computed in WIMP-like dark matter models that are being probed in direct detection experiments. Neutrino floor, which defines the extent of the neutrino background, can be modified in a BSM set up that is important from the DM detection perspective. We work in a BSM set up which is very natural like a SM-type isospin violating set up, albeit in the dark sector. Here both the dark matter and neutrino interaction happen through isospin violating interactions. In a significant portion of the parameter space, we observe the neutrino nucleus scattering cross section goes down, eventually lowering the neutrino floor in this setup. This reduction of the neutrino floor opens up a new window for the DM direct detection in future experiments.

Track type

Dark Matter

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