## Isospin Violating Dark Sector: Direct Detection Prospects

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"Dark matter direct detection is now standing at an interesting juncture, where the SM neutrino background and the upper bound on dark matter signal cross section are starting to overlap in a region of DM mass  $\sim 10$  GeV.

The neutrino floor, which defines the extent of the neutrino background, can get modified in different BSM set up. We work in a BSM set up that is a very natural dark sector extension of the SM visible sector where isospin violation is already established. In this isopsin violating dark sector, both the dark matter and neutrino interaction have isospin violating interactions, through a newly added U(1) gauge boson (Z'). In a parts of the parameter space we see the neutrino nucleus scattering (CE $\nu$ NS) cross section goes down, while it goes up in some parameter space. Amount of isospin violation plays a crucial role in determining the allowed parameter space as we take into account the re-scaling of the DM experimental upper bound due to the isospin violation. We discuss different scenarios related to dark matter detection prospects. "

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