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Shifting the neutrino fog in Isosopin Violating Dark Matter models

Content

Dark matter direct detection experiments have recently detected solar neutrinos for the first time through the process called coherent elastic neutrino-nucleus scattering. This milestone makes understanding the so-called "neutrino fog", an irreducible background that can mimic dark matter signals, more important than ever. The neutrino fog is not universal: it varies depending on the detector material, experimental conditions, and, as our work has highlighted, the specific dark matter model being tested. In this talk, we focus on a class of models known as Isospin-Violating Dark Matter (IVDM), where dark matter interacts differently with protons and neutrons. We present concrete model examples, analyse in detail how IVDM assumptions reshape the neutrino fog, and discuss the conditions under which this background could potentially be suppressed.

Summary

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