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# Solar and atmospheric neutrinos as background sources for the direct dark-matter search

In direct dark-matter search experiments, neutrinos coherently scattering off nuclei can produce similar events as Weakly Interacting Massive Particles (WIMPs). Calculations show, that in such experiments, for solar neutrinos a count rate of a few events per ton of target mass and year of exposure are expected. This count rate strongly depends on the nuclear recoil-energy thresholds achieved in the WIMP-search experiments. We demonstrate that solar neutrinos can be a serious background: To reach sensitivities better than ˜1*exp(-10) pb for the WIMP-nucleon cross section, the solar neutrino events have to be rejected by cuts with nuclear recoil-energy thresholds of approximately >2 keV for calcium tungstate, >3 keV for xenon, >5 keV for germanium, and >8 keV for argon as target material. Next-generation experiments should not only focus on a reduction of the present energy thresholds but mainly on an increase of the target masses. Atmospheric neutrinos limit the achievable sensitivity for background-free direct dark matter search to >1*exp(-12) pb.

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