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## Neutrinos in direct detection experiments: obstacle or aid to new physics?

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The expected signal from solar and atmospheric neutrinos looms as a future background for direct dark matter experiments. Misinterpreting this background would have huge implications for dark matter searches. This is because possible modifications to neutrino interactions remain possible. By measuring neutrinos at direct detection experiments we will be able to probe these modifications proving an independent test of physics beyond the Standard Model. In Eur. Phys. J. C81 (2021) 861., collaborators and I showed that direct detection experiments will be pivotal in confirming the  $U(1)_{L_\mu-L_\tau}$  solution to the measured tension in the muon's anomalous magnetic moment. These experiments will provide us with unique information for neutrino physics, and the principle is more far-reaching than this one timely example. I will present ongoing work which assesses the impact upcoming direct detection experiments will have on non-standard neutrino interactions more generally.

This talk will follow Eur. Phys. J. C81 (2021) 861. and an upcoming paper.

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