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Searching for Dark Matter Annihilation in the Sun with the IceCube Upgrade

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The upcoming IceCube Upgrade will provide unprecedented sensitivity to dark matter particles that accumulate and annihilate in the core of the Sun. In this talk, I will present our recent study showing that the upgrade will enable tests of parameter space beyond the reach of existing direct detection experiments. This improvement applies in particular to dark matter candidates with spin-dependent couplings to nuclei that annihilate significantly to tau leptons or neutrinos. After discussing the expected sensitivity of the IceCube Upgrade, I will introduce two classes of dark matter models that could be targeted by this experiment.

Authors: HOOPER, Dan (University of Wisconsin, Madison); VASSALLO, Fabrizio (University of Wisconsin–Madison)

Presenter: VASSALLO, Fabrizio (University of Wisconsin–Madison)

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