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## Dark Matter decay to neutrinos

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Dark matter (DM) particles are predicted to decay into Standard Model particles which would produce signals of neutrinos, gamma-rays, and other secondary particles. Neutrinos provide an avenue to probe astrophysical sources of DM particles. We review the decay of dark matter into neutrinos over a range of dark matter masses from MeV/c2 to ZeV/c2. We examine the expected contributions to the neutrino flux at current and upcoming neutrino and gamma-ray experiments, such as Hyper-Kamiokande, DUNE, CTA, TAMBO, and IceCube Gen-2. We consider galactic and extragalactic signals of decay processes into neutrino pairs, yielding constraints on the dark matter decay lifetime that ranges from tau  $\sim 1.2 \times 10^{\circ}21$  s at 10 MeV/c2 to  $1.5 \times 10^{\circ}29$  s at 1 PeV/c2.

## **Collaboration name**

Author: DELGADO LOPEZ, Diyaselis (Harvard University (US))

Presenter: DELGADO LOPEZ, Diyaselis (Harvard University (US))

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