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Neutrinos from captured dark matter annihilation in a galactic population of neutron stars

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Particulate dark matter captured by a population of neutron stars distributed around the galactic center while annihilating through long-lived mediators can give rise to an observable neutrino flux. We examine the prospect of an idealised gigaton detector like IceCube/KM3NeT in probing such scenarios. Within this framework, we report an improved reach in spin-dependent and spin-independent dark matter nucleon cross-sections below the current limits for dark matter masses in the TeV-PeV range.

Session

Astroparticle Physics and Cosmology

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