

Dark Matter annihilation inside the Sun

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The annihilation of dark matter particles captured by the Sun can lead to a neutrino flux observable in neutrino detectors. Considering the fact that these dark matter particles are non-relativistic, if a pair of dark matter annihilates to a neutrino pair, the spectrum of neutrinos will be monochromatic. We show that in this case, even after averaging over production point inside the Sun, the oscillatory terms of the oscillation probability do not average to zero. This leads to interesting observable features in the annual variation of the number of muon track events. We point out the possibility of studying the initial flavor composition of neutrinos produced by the annihilation of dark matter particles via measuring the annual variation of the number of muon-track events in neutrino telescopes.