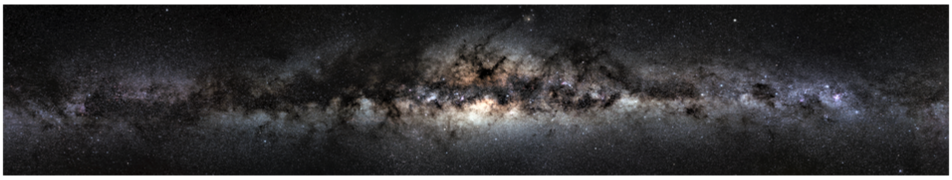

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Results From a Search for Dark Matter Using 6 years of IceCube Data

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The IceCube neutrino observatory is the to-date largest neutrino telescope installed in the Antarctic ice. It consists of 5,160 photomultiplier-tubes spread among 86 vertical strings making a total detector volume of more than a cubic kilometer. It detects neutrinos via Cherenkov light of charged relativistic particles from neutrino interactions with the detector volume. IceCube is, due to its size and photosensor spacing, particularly sensitive to high-energy neutrinos. In this analysis we search for dark matter that annihilates into a metastable mediator that subsequently decays into Standard Model particles. These models yield an enhanced high-energy neutrino flux from dark matter annihilation inside the Sun compared to models without a mediator. Neutrino signals that are produced directly inside the Sun are strongly attenuated at higher energies due to interactions with the solar plasma. In the models considered here, the mediator can escape the Sun before producing any neutrinos, thereby avoiding attenuation. IceCube, due to its module spacing and sensitivity to high energy neutrinos, is ideal to search for this enhanced high-energy neutrino signal. We present the results of an analysis of six years of IceCube data looking for dark matter in the Sun. In this contribution we will present the results of a search for secluded dark matter using 6 years of IceCube data with dark matter masses of up to 75 TeV.

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