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Search for Neutrinos from Dark Matter Annihilation in the Galactic Center with IceCube

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Dark matter may self-annihilate, and produce a flux of final-state particles, including neutrinos. Indirect dark matter searches target regions of increased dark matter density, and thus increased expected flux, with the Galactic center being the most prominent target region in the Milky Way.

IceCube is a cubic-kilometer-scale neutrino detector embedded in glacial ice at the South Pole. The low-energy in-fill array DeepCore reduces the energy threshold to about 10 GeV. The use of parts of IceCube as veto against a background of atmospheric muon makes the southern hemisphere, and thus the Galactic center accessible for neutrino astronomy.

We present results from two analyses of data taken with the 79-string configuration of IceCube. These analyses were optimized independently to cover a wide range of dark matter masses from 30 GeV to 10 TeV.

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