

Indirect searches for dark matter in the Galactic Centre with IceCube

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Even though there are strong astrophysical and cosmological indications to support the existence of dark matter, its exact nature remains unknown. We expect dark matter to produce standard model particles when annihilating or decaying, assuming that it is composed of Weakly Interacting Massive Particles (WIMPs). These standard model particles could in turn yield neutrinos that can be detected by the IceCube neutrino telescope. The Milky Way is expected to be permeated by a dark matter halo with an increased density towards its centre. This halo is expected to yield the strongest dark matter annihilation signal at Earth coming from any celestial object, making it an ideal target for indirect searches. In this contribution, we present the sensitivities of two indirect searches for dark matter in the Galactic Centre using IceCube data. Together, these searches allow us to cover dark matter masses ranging from 5 GeV to 40 TeV. The sensitivities of both searches show considerable improvements over previous IceCube results in their respective energy range.

Keywords

Dark matter; Neutrino telescope; IceCube; Neutrino; Galactic Centre

Collaboration

IceCube

other Collaboration

Subcategory

Experimental Results

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