

# Indirect dark matter searches with neutrinos from the Galactic Centre region with the ANTARES and KM3NeT telescopes

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An anomalous flux of neutrinos produced in hypothetical annihilations or decays of dark matter inside a source would produce a signal observable with neutrino telescopes. As suggested by observations, a conspicuous amount of dark matter is believed to accumulate in the Centre of our Galaxy, which is in neat visibility for the Mediterranean underwater telescopes ANTARES and KM3NeT. Searches have been conducted with a maximum likelihood method to identify the presence of a dark matter signature in the neutrino flux measured by ANTARES. Results of all-flavour searches for WIMPs with masses from  $50 \text{ GeV}/c^2$  up to  $100 \text{ TeV}/c^2$  over the whole operation period from 2007 to 2020 are presented here. Alternative scenarios which propose a dark matter candidate in the heavy sector extensions of the Standard Model would produce a clear signature in the ANTARES telescope, that can exploit its view of the Galactic Centre up to high energies. Limits on heavy dark matter decay rates computed using ANTARES public data are also discussed. The presentation of Galactic Centre searches is completed with ongoing analyses and future potential of the KM3NeT telescope, in phased construction in the Mediterranean Sea.

## Keywords

neutrino, indirect detection, dark matter

## Collaboration

KM3NeT

## other Collaboration

ANTARES

## Subcategory

Experimental Results

**Primary authors:** GOZZINI, Sara Rebecca (IFIC); FOR THE ANTARES AND KM3NET COLLABORATIONS

**Presenter:** GOZZINI, Sara Rebecca (IFIC)

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