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Highlights from the ANTARES neutrino telescope (20' + 5')

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The ANTARES experiment has been running in its final configuration since 2008. It is the largest neutrino telescope in the Northern hemisphere. After the discovery of a cosmic neutrino diffuse flux by the IceCube detector, the search for its origin has become a key mission in high-energy astrophysics to which ANTARES can bring a valuable contribution.

The ANTARES sensitivity is large enough to constrain the origin of the IceCube excess from regions extended up to 0.2 sr in the Southern sky. Assuming different spectral indexes for the energy spectrum of neutrino emitters, the Southern sky and in particular central regions of our Galaxy are studied searching for point-like objects and for extended regions of emission. The search program also includes multi-messenger analyses requiring time and/or space coincidences with other cosmic probes, for instance gamma rays as detected by Fermi. Recently, ANTARES has participated, with IceCube, to a high-energy neutrino follow-up of the gravitational wave signal GW150914, providing the first constraint on high energy neutrino emission from a binary black hole coalescence.

Finally, ANTARES has also provided performed indirect searches for Dark Matter: the limits obtained for the spin-dependent WIMP-nucleon cross section overcome that of existing direct-detection experiments.

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