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Results from the ANTARES neutrino telescope

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A primary goal of a deep-sea neutrino telescopes as ANTARES is the search for astrophysical neutrinos in the TeV-PeV range. ANTARES has been running in its final configuration since 2008; it comprise an array of 885 photomultipliers tubes housed in optical modules, detecting the Cherenkov light induced by charged particles produced by neutrino interactions in and around the instrumented volume. ANTARES is today the largest neutrino telescope in the Northern hemisphere.
After the discovery of a cosmic neutrino diffuse flux by the IceCube, the understanding of its origin has become a key mission in high-energy astrophysics. ANTARES makes a valuable contribution for sources located in the Southern sky thanks to its excellent angular resolution in both the muon channel and the cascade channel (induced by all neutrino flavours).
The sensitivity is sufficient to constrain the origin of the IceCube excess from regions extended up to 0.2 sr in the Southern sky. Assuming various 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.
In parallel, by adopting a multimessenger approach, based on time and/or space coincidences with other cosmic probes, the sensitivity of such searches can be considerably augmented. As an example of multi-messenger searches, ANTARES has participated 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. ANTARES has also performed indirect searches for Dark Matter, yielding limits for the spin-dependent WIMP-nucleon cross-section that improve upon those of current direct-detection experiments.
The latest results from the various physics analyses are presented.

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