

Recent results from the ANTARES neutrino telescope

ANTARES, the largest underwater neutrino telescope, has been continuously operating since 2007 in the Mediterranean Sea. The transparency of the water allows for a very good angular resolution in the reconstruction of neutrino events of all flavors. This results in an unmatched sensitivity for neutrino source searches, in a large fraction of the Southern Sky at TeV energies. As a consequence, ANTARES provides valuable constraints on the origin of the cosmic neutrino flux discovered by the IceCube Collaboration.

Based on an all-flavor dataset spanning nine years of operation of the detector, we will present the latest results of ANTARES searches for neutrino point sources, and for diffuse neutrino emission from the entire sky as well as from several interesting regions such as the Galactic Plane and the Fermi bubbles. Several results, which will be presented, have been obtained through a joint analysis with the IceCube Collaboration.

An overview of the rich multi-messenger program of ANTARES will be given, with e.g. optical and X-ray follow-up observations of promising neutrino candidates, and searches for neutrinos in coincidence with interesting transient astrophysical events such as Gamma-Ray Burst triggers, Fast Radio Bursts and the gravitational wave signals recently discovered by LIGO-Virgo. Follow-up searches of IceCube alerts will also be covered.

ANTARES is also sensitive to more exotic phenomena, such as magnetic monopoles. Of particular relevance are the strong constraints on the dark matter arising from the search of neutrinos from potential WIMP annihilation in massive objects like the Sun and the Galactic Center.

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