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Recent results from ANTARES & Status and perspectives of KM3NeT

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Neutrinos constitute an alternative to photons and cosmic rays to explore the high-energy sky, as they can emerge from dense media and travel across cosmological distances without being deflected by magnetic fields nor absorbed by ambient matter and radiation. The recent results by IceCube have given a great boost to the efforts towards the detection of high energy astrophysical neutrinos. If the origin of the events observed by IceCube is galactic, a detector located in the Northern hemisphere is well suited for their observation.
The ANTARES neutrino telescope is installed in the Mediterranean Sea at a water depth of about 2500m, 42 km from Toulon, France, and consists of a three dimensional array of 885 10-inch photomultiplier tubes, distributed along twelve vertical lines. It is optimized to detect neutrinos in the TeV/PeV range. The detector exploits various signatures like a high energy excess over the atmospheric neutrino flux, searches for localized neutrino sources of various extensions and multi-messenger analyses based on time and/or space coincidences with other cosmic probes.
As a successor to Antares, the KM3NeT Collaboration aims at building a multi-site cubic kilometre scale neutrino telescope. New technologies have been developed and validated with two prototype projects. The phase-1 of the construction of KM3NeT has been funded and will be completed by the end of 2016. Following this phase, a project called KM3NeT 2.0 is proposed with an upgraded physics program including the measurement of the neutrino mass hierarchy off-shore Toulon, France (KM3NeT/ORCA). Astrophysical high energy neutrinos will be studied with KM3NeT/ARCA, deployed off-shore Capo Passero, Italy. The KM3NeT/ARCA sensitivity will allow to detect the flux measured by IceCube within less than one year of observation, while within about four years of observation KM3NeT/ARCA could give indications at 3-sigma level on some candidate galactic point-like sources.

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