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Neutrino astronomy with the Antares detector and perspectives for KM3NeT-ARCA

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Antares, the largest deep-underwater Cherenkov neutrino telescope in the Northern hemisphere, has been taking data continuously since 2007. Its primary goal is the search for astrophysical neutrinos in the TeV-PeV range. Antares, thanks to its excellent angular resolution, has performed dedicated searches for promising neutrino source candidates and several interesting regions like the Galactic Plane and the Fermi Bubbles have been explored. The location and the high quality of the data provided by Antares, despite of the modest size of the detector if compared to IceCube, have permitted to reach competitive results. This allowed Antares to develop a manifold multi-messenger program: latest experimental results from searches of neutrinos from Gamma Ray Burst sources or neutrinos correlated with the recently discovered gravitational wave signals will be reported. So far, no significant correlation with external observations has been detected. The Antares results demonstrate the tremendous potential of the new, much larger array, KM3NeT-ARCA that is being built in the Mediterranean see. The status and the perspectives of the KM3NeT-ARCA project for neutrino astronomy will be discussed.

Collaboration name

Antares and KM3NeT Collaborations

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