

## GRAPPA @ 5: Celebrating 5 years of astroparticle physics and cosmology in Amsterdam



Contribution ID: 30

Type: **not specified**

### ANTARES highlights and KM3NET prospects

*Wednesday, 18 October 2017 13:15 (15 minutes)*

ANTARES, the 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. After the discovery of a cosmic neutrino diffuse flux by the IceCube telescope, ANTARES has searched for neutrino sources in the Southern Sky at TeV energies and set constraints on the origin of the discovered cosmic neutrino flux. Thanks to its excellent angular resolution, ANTARES has performed dedicated searches for promising neutrino source candidates and several interesting regions like the Galactic Plane or the Fermi Bubbles have been explored, using for the first time its sample of cascade events with a median angular resolution of about 3 degrees.

ANTARES has also provided results on the searches for dark matter, the limits obtained for the spin-dependent WIMP-nucleon cross section surpassing those of current direct detection experiments.

The results on the indirect search for Dark Matter with the ANTARES detector, looking for neutrinos from the center of Galaxy, from the Sun and from the center of the Earth will be presented and discussed.

ANTARES is actively developing 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 high quality of the data provided by ANTARES and the competitiveness of the results achieved, despite the modest size of the detector if compared to IceCube, demonstrate the tremendous potential of the new, much larger array, KM3NeT. The status and the perspectives of the KM3NeT project will be reported.

**Primary author:** Prof. CAPONE, Antonio

**Presenter:** Prof. CAPONE, Antonio

**Session Classification:** Contributed talk - High-energy astrophysics