



**International Center
for Hadron Astrophysics**
ICEHAP CHIBA UNIVERSITY

ICEHAP Seminar

Date **May 8 Wed. 15 : 00~16 : 30**

Location **[ICEHAP Office \(Engineering Research Bldg.1 Room609-1\)](#)**

By **Dr. Sonia EL HEDRI**

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Title

『Astrophysical neutrinos at sea: from ANTARES to KM3NeT』

Abstract

During the past two years, the discovery by IceCube of neutrinos emitted from the NGC1068 galaxy and from the galactic plane has demonstrated the capability of current and upcoming neutrino experiments to identify and characterise specific neutrino sources, thus opening a new research program. Two key components of this program, the ANTARES and KM3NeT experiments, are water Cherenkov neutrino telescopes located in the Mediterranean Sea. ANTARES had been operating from 2008 to 2022, providing close to 15 years of data which are currently being analysed. KM3NeT is currently both under construction and taking data at two sites, ARCA and ORCA, with the ARCA detector targeting TeV-PeV astrophysical neutrinos. When completed in 2027, KM3NeT will survey 1km^3 of water and become the neutrino telescope most sensitive to the Southern sky, including the plane of the Milky Way. In this seminar, I will discuss KM3NeT's potential to identify high-energy astrophysical neutrinos and pinpoint their origins, showing results from ANTARES and early KM3NeT configurations as well as sensitivity projections. Additionally, I will show how to leverage both KM3NeT's large instrumented volume and its novel optical module technology to detect MeV neutrinos from galactic core-collapse supernovae.