ID de Contribution: **33** Type: **Experimental**

Status and Recent Results from the KM3NeT Neutrino Telescope

jeudi 21 août 2025 13:50 (15 minutes)

The KM3NeT neutrino telescope is a next-generation research infrastructure currently under construction in the Mediterranean Sea. It aims to address fundamental questions in neutrino and astroparticle physics. The facility consists of two deep-sea detectors: ARCA (Astroparticle Research with Cosmics in the Abyss) and ORCA (Oscillation Research with Cosmics in the Abyss). ARCA is located offshore from Sicily at a depth of 3500 metres and optimized for detecting high-energy cosmic neutrinos in the TeV–PeV range. ORCA is deployed near Toulon, France, at a depth of 2500 metres. It is designed for precision studies of atmospheric neutrinos in the GeV range.

Both detectors consist of vertical detection units, each supporting 18 Digital Optical Modules (DOMs) — pressure-resistant glass spheres housing 31 photomultiplier tubes capable of detecting Cherenkov light induced by charged particles resulting from neutrino interactions in the surrounding seawater.

Though still under construction, both ARCA and ORCA are already operational in partial configurations and acquiring data. Early results highlight their growing capabilities and potential to contribute broadly to neutrino and astroparticle physics.

This presentation will summarize the current status of KM3NeT, showcase recent results from ARCA and ORCA, and outline the future scientific capabilities of the telescopes.

Auteur: PAPALASHVILI, Gogita (INFN - Sezione di Bari)

Orateur: PAPALASHVILI, Gogita (INFN - Sezione di Bari)

Classification de Session: Neutrino Physics

Classification de thématique: Neutrino Physics