

KM3NeT: a next-generation undersea neutrino telescope

KM3NeT is a distributed undersea research infrastructure in the Mediterranean Sea that will host two next-generation neutrino telescopes, ORCA and ARCA. Both consist of a regular 3D array of Digital Optical Modules (DOMs) equally spaced along flexible lines anchored on the seabed.

Built upon the expertise acquired with the currently operating ANTARES telescope, KM3NeT integrates significant technological improvements, among which a novel DOM design with 31 small (3") photomultipliers, leading to improved directional information and a smarter exploitation of the good optical properties of seawater. Data are sent to shore via an optical network supporting rates up to O(100) Gbps, then filtered by a flexible on-line software trigger system, also able to generate and receive external triggers in the context of multimessenger astronomy.

This contribution presents the design and status of the infrastructure, including the results obtained with the first detection units.

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