

## The KM3NeT project: Towards a km<sup>3</sup>-scale neutrino telescope in the Mediterranean Sea

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In recent decades we have gained a tremendous amount of knowledge on our Universe. However, up to now astronomical observations have been restricted to the electromagnetic spectrum. The detection of cosmic high-energy neutrinos ( $> 1$  TeV) will complement the information from these observations and at the same time provide completely new insights. The low interaction probability, which renders neutrinos perfect cosmic messengers, also poses a large challenge for their detection. Calculations indicate that neutrino telescopes of km<sup>3</sup>-scale are necessary to detect neutrino fluxes from Galactic or extra-Galactic objects such as supernova remnants or gamma-ray bursts which are thought to produce neutrinos up to the PeV scale. KM3NeT, which is currently in the design phase, targets to instrument at least one km<sup>3</sup> of deep-sea water in the Mediterranean Sea, its field of view complementing the IceCube neutrino telescope at the South Pole and exceeding it in sensitivity by a substantial factor. The presentation reports on the current status of the KM3NeT project and on possible solutions for the various technical challenges encountered when building an off-shore detector in water depths of several kilometers. It will also discuss first estimates of the expected sensitivity of the detector for different source classes.

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