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Performance Studies for the KM3NeT Neutrino Telescope

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KM3NeT is a future deep-sea neutrino telescope in the Mediterranean Sea with an instrumented volume of a few km³. Its goal is to detect cosmic neutrinos from sources such as supernova remnants, active galactic nuclei and gamma ray bursts by recording the Cherenkov light generated by secondary particles produced during interactions of those neutrinos. To optimize its sensitivity, detailed Monte Carlo simulations with varying detector parameters have been performed. In particular, the focus was on a new detector design using many small photomultiplier tubes per light detection unit instead of a single large one.

Results of these studies will be presented and the sensitivity of KM3NeT to expected neutrino fluxes will be discussed.

Primary author: Dr KOPPER, Claudio (Nikhef)

Presenter: Dr KOPPER, Claudio (Nikhef)

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