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Study of the angular acceptance of a km³ telescope in the Mediterranean Sea

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The KM3NeT collaboration aims to realize in the Mediterranean Sea a high energy neutrino telescope that will be optimized for muon neutrinos in the energy range between 1 TeV and 1 PeV. From 1 TeV to several tens of TeV only up-going neutrinos can be unambiguously identified due to the overwhelming presence of the atmospheric muons. However, at energies larger than 100 TeV, neutrinos are absorbed by the Earth, while the atmospheric flux vanishes, therefore the most energetic neutrinos can be detected only above the horizon. Moreover, the reconstruction accuracy for atmospheric muons affects the rejection capability, thus minimizing the percentage of muons mis-reconstructed as up-going, but also the detection of the moon shadow that represents an important reference for the absolute pointing of the telescope. In this frame, the PMT orientation represent a crucial issue. In this contribution, the influence of the PMT orientation, for a km³ detector made of 10⁷ PMTs, is investigated.

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