

Dynamical position and orientation calibration of the KM3NeT telescope

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KM3NeT is an underwater neutrino telescope which detects the Cherenkov radiation created by the products of neutrino interactions. To accurately reconstruct neutrino events, a precise determination of the position and orientation of the optical modules, which detect the Cherenkov radiation, is required. As the detector elements sway with the deep sea currents, a continuous tracking of the positions and orientations is necessary. A network of acoustic emitters and receivers is used to position the optical modules. Their orientation is determined by compasses placed in each optical module. In this contribution we want to present the methods to perform the position and orientation calibration of the KM3NeT telescope. The positions of the optical modules need to be resolved with an accuracy of better than 20 cm in order to achieve the envisaged angular resolution of the KM3NeT/ARCA telescope of 0.05 degrees. The orientations of the optical modules need to be resolved with an accuracy of about 3 degrees in order to not compromise the quality of the event reconstruction.

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