

A multi-PMT photodetector system for the Hyper-Kamiokande experiment

Friday, July 6, 2018 2:48 PM (12 minutes)

Hyper-Kamiokande (Hyper-K), a proposed one-megaton water Cherenkov detector to be built in Japan, is the logical continuation of the highly successful Super-Kamiokande experiment. Its broad physics programme includes neutrinos from astronomical sources, nucleon decay, with the main focus the determination of leptonic CP violation.

To detect the weak Cherenkov light generated by neutrino interactions or proton decay, the employment of the multi-PMT concept, first introduced in the KM3NeT detector, is considered as possible solution. A multi-PMT Optical Module based on a pressure vessel instrumented with multiple small diameter photosensors, readout electronics and power, offers several advantages as higher sensitive surface, weaker sensitivity to Earth's magnetic field, increased granularity and directional information with an almost isotropic field of view. In this contribution the development of a multi-PMT module for Hyper-K is discussed.

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Session Classification: Detector: R&D for Present and Future Facilities

Track Classification: Detector: R&D for Present and Future Facilities