

Optical module calibration for the Pacific Ocean Neutrino Experiment

Tuesday, 18 June 2024 17:30 (2 hours)

P-ONE (Pacific Ocean Neutrino Experiment) is a future cubic-kilometre scale water Cherenkov neutrino telescope that will be located in the Pacific Ocean off the coast of Canada. P-ONE has a broad program including various topics in neutrino astronomy, oceanography and climate monitoring. The detector itself will be made of 70 lines consisting of 20 P-OMs (P-ONE optical modules) and connected to the existing infrastructure built by Ocean Networks Canada (ONC). The P-OM is a light detection unit that consists of 16 PMTs (Photomultiplier tubes) encased in a glass pressure housing. The first line of the detector is currently under development and planned to be deployed in 2025. Characterization of P-OM is a crucial part for estimating the performance and sensitivity of the future detector as a whole. A dedicated automatic calibration setup is currently under development at the Technical University of Munich. This setup will automatically calibrate the assembled optical modules for the usage anticipated in the deep sea, such as detection of neutrinos or bioluminescence in the Ocean. This contribution discusses the optical module features and the setup preliminary performance, planned operations, as well as some initial implementations of the measurements into the simulation toolkit.

Poster prize

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Session Classification: Poster session and reception 1

Track Classification: Astrophysical neutrinos