

Large area photodetectors in photon detection for large-scale neutrino physics experiments: single large area PMTs and multi small PMTs approaches.

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More than 40 years ago beginning of works on deep underwater high energy neutrino telescope projects (DUMAND and Baikal) inspired development of new photon detectors: large area photomultipliers (PMTs), multi small PMT optical modules, small PMTs equipped with wavelength shifting plates and rods and even small area solid state photon detectors for such kind application. Now days we witness rebirth of the multi small PMT approach and it started to compete quite successfully with a single large area photon detector approach. The latter have been reigning supreme for almost half century. But recent developments of astroparticle physics experiments demonstrated good competitiveness of the “multi small PMTs” idea. Several projects of astroparticle physics experiments may serve as good examples, Km3NET project and coming JUNO experiment among them. We present pros and cons of both approaches.

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