

**XVIII Workshop on Neutrino Telescopes  
Palazzo Franchetti – Istituto Veneto  
Venice, 18-22 March 2019**

**Poster Session  
Submission of Abstract**

-----

**Submitter:** Evangelisti Andrea, INFN Naples, aevangelisti@na.infn.it

**Author:** Evangelisti Andrea

**Co-Author/s:** A. Boiano, A. Evangelisti, C. Riccio, R. Rocco, A.C. Ruggeri, G. Tortone (INFN, Naples), M. Mongelli (INFN, Bari)

**Title of the Poster:** A multi-PMT photodetector system for future water Cherenkov detectors

**Abstract Text: (no longer than 800 characters)**

Photodetection in water Cherenkov detectors requires large area photon counting detectors with timing capability at nanosecond level to suppress background, as well as high efficiency and low cost per channel.

A significant increase of detector sensitivities can be achieved from the employment of novel optical sensors. One of the most promising new designs is based on the multiPMT (mPMT) concept, an array of small size PMTs, inside a transparent pressure vessel, firstly used in the KM3Net experiment. Other experimental projects are considering the mPMT as photodetection system, as the HyperKamiokande Project. In this contribution, the development of a mPMT optical module prototype, housing an array of 3'' size PMTs, Front-end electronics and digitization inside an acrylic pressure vessel will be described.

**Summary: (no longer than 400 characters. Insert a tag, key word, topic, etc.)**

The development of a multiPMT optical module prototype at INFN laboratories will be described. Results on optical, radioactivity contamination and mechanical test realized for commercial acrylics to be used for the pressure vessel will be discussed as well as the electronic read-out system based on discrete components and a Sample&Hold +ADC approach.

key words: Photodetector, neutrino experiments, particle physics, electronics

-----

Kindly follow the instructions above and send the abstract (.pdf file) to <mailto:salente@pd.infn.it> by February 22nd 2019.

Response will be sent to the submitter's e-mail address indicated above, by March 1<sup>st</sup>.

Posters will be exhibited all week long at the workshop site. Discussion will take place on Thursday March 21st, during the Poster Party. At least one author must be available for "question-answer" time.

Best 3 posters will be awarded on Friday 22nd, during the closing plenary session of the workshop.