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Data acquisition system for the hydrophone array of KM3NeT-Italia: quest for acoustic UHE neutrino searches

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In the framework of the KM3NeT-Italia activities, 8 towers, each equipped with 84 large area PMTs for neutrino Cherenkov detection and 29 hydrophones, will be installed. Hydrophones are fully embedded in the electronics and data transport system of the Cherenkov array and are time-synchronised. A data acquisition system (DAQ) on shore has been developed to receive the acoustic stream from sea and search on-line for a number of known signals i.e. the acoustic pulses emitted from the long baseline array of beacons used for acoustic positioning. Together with this principal goal, the DAQ system has a flexible design capable to recognise biological signals and neutrino-induced acoustic pulses. Continuous monitoring of acoustic background and unfiltered data storage - under proper conditions - is also implemented. The system is designed to scale in view of possible extensions of the acoustic array.

Summary

Author: SIMEONE, Francesco

Co-authors: NICOLAU, Carlo Alessandro (INFN - National Institute for Nuclear Physics); PELLEGRINO, Carmelo (INFN); THE KM3NET ITALIA, Collaboration (INFN); Dr AMELI, Fabrizio; RICCOBENE, Giorgio (INFN); VIOLA, Salvatore (INFN); PULVIRENTI, Sara Rita (INFN - National Institute for Nuclear Physics); DE LUCA, Vincenzo (INFN-LNS)

Presenters: SIMEONE, Francesco; VIOLA, Salvatore (INFN)

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