

Underground studies and R&D towards a water Čerenkov Megaton detectors in Europe.

MEMPHYS is a 0.5 Mton scale Water Čerenkov detector proposed for a deep underground installation - possible sites are under study in the European FP7 design study LAGUNA. It is dedicated to nucleon decay, neutrinos from supernovæ, solar and atmospheric neutrinos, as well as neutrinos from a future super-beam or beta-beam. Its performance with neutrino beams includes the possibility of measuring the mixing angle θ_{13} , the CP violating phase δ and mass hierarchy. One R&D item currently being carried out is MEMPHYNO, a small-scale prototype with the main purpose of serving as a test bench for new photodetection and data acquisition solutions, such as grouped readout and systems. In this poster we review the MEMPHYS physics reach and present the status of the MEMPHYNO prototype.

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