

The Theia experiment

Wednesday, May 11, 2022 5:35 PM (20 minutes)

The advent of novel scintillators, such as Water-based Liquid Scintillator (WbLS), fast photon detectors, and spectral sorting offer the exciting possibility of combining the benefits of both water Cherenkov and organic scintillation detection methods into a single experiment. This groundbreaking technology yields the prospect of deployment in the 25 kTon THEIA-25 detector. In doing so, THEIA will have the capability to become one of the most wide-ranging next generation neutrino detectors - allowing for the study of low energy physics such as neutrinoless double beta decay, geoneutrinos and nucleon decay, astrophysical properties such as supernovae events, and high-energy questions such as the level of leptonic CP-violation. This talk will highlight the current status of WbLS, ongoing R&D, and introduce THEIA as an exciting, synergistic and complementary approach to probe a wide array of unknown problems in the neutrino sector as part of the Module of Opportunity.

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Session Classification: DUNE Module of Opportunity - Parallel

Track Classification: DUNE Module of Opportunity