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## (POS-52) The THEIA Detector

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New developments in liquid scintillators, fast photon detectors and chromatic photon sorting open the possibility for the next-generation hybrid neutrino experiment Theia. Capable to discriminate Cherenkov and scintillation signals, Theia will observe particle direction and species using Cherenkov photons, will offer excellent energy resolution and the low threshold of a scintillator detector, and add new background discrimination capabilities unique to the hybrid detection technique. The present contribution discusses the physics potential of Theia when situated in a new large cavern extending SNOLab. The scientific program will include spectroscopy of low- and high-energy solar neutrinos, observations of diffuse supernova neutrinos and neutrinos from a galactic supernova burst, sensitive searches for nucleon decay and, ultimately, a search for NeutrinoLess Double Beta Decay (NLDBD) with sensitivity reaching the normal ordering regime of neutrino mass phase space. I will also comment on the possibility of using Theia for accelerator neutrino beam physics.

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