



Contribution ID: 277

Type: Poster

LiquidO: a Novel Neutrino Detection Concept

Liquid Scintillator (LS) detectors have been a workhorse for low energy neutrino physics ever since the discovery of these elusive particles. In the most common implementation of these detectors, the light produced by particle interactions propagates across transparent scintillator volumes to surrounding photo-sensors. This poster introduces a new detector concept called LiquidO that departs from the conventional transparency-based approach in at least two significant ways: the use of an opaque liquid scintillator that confines light near its creation point, and the collection of light from within the LS volume through a dense fiber array. The result is a detector that has a high affinity for loading and that, by preserving the precious topological information of particle interactions lost in conventional LS detectors, has unprecedented capabilities for event identification and background rejection. The main ideas behind LiquidO, as well as its expected performance, will be covered in this poster.

Mini-abstract

LiquidO is a promising new detector concept using opaque scintillator

Experiment/Collaboration

LiquidO proto-collaboration

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Session Classification: Poster Session 1