

R&D on Water-based Liquid Scintillator for the Theia experiment

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Recent developments in the field of liquid scintillator chemistry and fast-timing photosensors paved the way for a new generation of large-scale detectors, such as Theia, capable of tackling a broad range of physics issues. Water-based Liquid Scintillator (WbLS) is a novel detection medium that combines the advantages of pure water, including low attenuation, accurate direction reconstruction, and low cost, and those of liquid scintillator, including high light yield and low-threshold detection. A lot of effort is currently being put into developing WbLS and understanding its intrinsic properties.

This poster will focus on two major R&D focuses: the continuous recirculation and filtration of WbLS using nanofiltration and the separation of Cherenkov and scintillation light, both emitted by WbLS thanks to its water and scintillator components, and its use as an energy reconstruction and particle identification tool.

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