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Status and Results of the Water-based Liquid Scintillator R&D facility at Brookhaven National Lab

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Water-based liquid scintillators (WbLS) are attractive neutrino detector materials because they allow the separation of Cherenkov and scintillation signals. Using WbLS large-scale neutrino experiments can benefit from both directional reconstruction and enhanced low-energy efficiency. Brookhaven National Lab (BNL) has long-standing expertise in developing WbLS and metal-doped liquid scintillators. We recently constructed and commissioned a 1-ton WbLS detector with excellent photo-sensor coverage and a capable data acquisition system. We will use this detector as a testbed for WbLS R&D. In this talk I will give a brief overview of the BNL WbLS R&D program, followed by an exhibit of the early data and results from the 1-ton detector. The 1-ton detector also serves as a testbed for the next 30-tonne WbLS demonstrator currently under construction at BNL.

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