

Abstract Submitted
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Neutrinoless Double Beta Decay Sensitivity in Water-based Liquid Scintillator Detectors ANDREW MASTBAUM, University of Pennsylvania, ADVANCED SCINTILLATOR DETECTOR CONCEPT (ASDC) TEAM — The recent development of Water-based Liquid Scintillators (WbLS) and high-resolution photosensors opens up new possibilities for large-scale detectors with sensitivity to a broad range of interesting physics. In particular, by optimizing the concentration of scintillator in a WbLS, it may be possible to achieve Water Cherenkov-like direction reconstruction with dramatically improved energy resolution. Studies by the ASDC interest group suggest that a single, large WbLS detector in a long-baseline beam could simultaneously achieve good sensitivity to the mass hierarchy; CP violation; several proton decay modes; solar, geo- and supernova neutrinos; and neutrino-less double-beta decay ($0\nu\beta\beta$). We present here a preliminary study of the $0\nu\beta\beta$ sensitivity of such WbLS detectors.

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