Neutrino Physics with the Novel LiquidO Technology

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Abstract

Current liquid scintillator experiments heavily rely on statistics and passive methods to tackle their inherently limited ability to eliminate background. LiquidO breaks with tradition and proposes the novel idea of using a translucent detector - effectively slowing the passage of scintillation light, confining it to a smaller volume. This results in an improved spatial resolution which allows for powerful active background rejection, thus reducing the need for shielding. The innate translucency requirement in this detector simultaneously defeats some of the (previously) limiting factor of doping concentration, clearing the way for inexpensive and efficient investigation into rare decay and neutrino physics. This poster presents the possible capabilities of LiquidO technology