

Wavelength-Shifting Performance of Polyethylene Naphthalate Films in a Liquid Argon Environment

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Liquid argon is commonly used as a detector medium for neutrino physics and dark matter experiments in part due to its copious scintillation light production in response to its excitation and ionization by charged particle interactions. As argon scintillation appears in the vacuum ultraviolet (VUV) regime and is difficult to detect, wavelength-shifting materials are typically used to convert VUV light to visible wavelengths more easily detectable by conventional means. Here we present the results of recent investigations into the wavelength-shifting and optical properties of polyethylene naphthalate (PEN), a proposed alternative to tetraphenyl butadiene (TPB), the most widely-used wavelength-shifter in argon-based experiments.

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No, this is an entirely new submission.

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Author: Dr DORRILL, Ryan (Fermi National Accelerator Laboratory)

Co-author: LITTLEJOHN, Bryce (Illinois Institute of Technology)

Presenter: Dr DORRILL, Ryan (Fermi National Accelerator Laboratory)

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