Abstract Submitted
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Surface reflectance and material studies for the PROSPECT Experiment[1] ALYSSA BOWES, Illinois Institute of Technology, PROSPECT COLLABORATION — The PROSPECT Experiment aims to probe the existence of sterile neutrino oscillations by measuring the energy spectrum of antineutrinos emanating from nuclear reactors in a matrix of optically separated target scintillator cells at a variety of reactor-detector baselines. By measuring the absolute spectrum we also learn about reactors and what isotopes they produce. In order to properly model and optimise PROSPECT's energy resolution and background rejection capabilities, the reflective properties of the cell surfaces must be well understood. To address this, a study of various reflective surfaces under consideration to be used in the detector was conducted at non-normal incident angles through liquid using a custom-built laser-based reflectance measurement system. This presentation will describe the apparatus, reflectance measurements, and implications for the PROSPECT optical cell performance. Future plans to incorporate measurements into existing optical simulations will also be discussed.

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