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Background and Detector Response Studies With PROSPECT Prototype Detectors

Monday, 8 June 2015 13:45 (15 minutes)

PROSPECT, the Precision Reactor Oscillation and Spectrum Experiment, is a short baseline experiment to measure the reactor antineutrino spectrum from a highly-enriched U-235 reactor. For this purpose, PROSPECT will utilize an antineutrino target composed of optically segmented Li-6 loaded liquid scintillator cells with one PMT on each end of each cell. Recently, two meter-long, 23 liter rectangular prototypes were deployed to study the performance of the PROSPECT unit scintillator cell as well as to make in-situ background radiation measurements at the intended PROSPECT deployment location near the High Flux Isotope Reactor at Oak Ridge National Laboratory. The light collection and pulse-shape discrimination are charaterized for different reflector, PMT, and DAQ configurations using varied gamma and spontaneous fission calibration sources at several positions along the cells. This talk will focus on the measurement of backgrounds and study of PSD and light collection of these prototype cells

Is this an abstract for a New Perspectives presentation?

NP presentation

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