Contribution ID: **466** Type: **Poster sterile**

Liquid Scintillator for the PROSPECT Antineutrino Detector

PROSPECT (Precision Reactor Oscillation and Spectrum) is a short-baseline reactor antineutrino experiment currently operating at the High-Flux Isotope Reactor (HFIR) at Oak Ridge National Laboratory (ORNL). PROSPECT is designed to make a high-statistics high-resolution measurement of both the antineutrino energy spectrum and flux from HFIR's compact U-235 core. PROSPECT is situated approximately 7 m from the HFIR core under very little overburden; thus background mitigation is critical to a successful measurement and strongly influenced the design. PROSPECT consists of an 11 x 14 array of optically separated segments immersed in roughly 4-tons of Pulse Shape Discrimination (PSD) capable 6Li-doped liquid scintillator (LS). We will discuss LS properties, production, and performance and illustrate how the LS plays a key role in the experiment design, ultimate energy resolution, and background mitigation.

Authorship annotation

for the PROSPECT collaboration

Session and Location

Monday Session, Poster Wall #146 (Hölderlin-Room)

Poster included in proceedings:

yes

Primary author: MUMM, Hans (National Institute of Standards and Technology)

Presenter: MUMM, Hans (National Institute of Standards and Technology)

Track Classification: Poster (not participating in poster prize competition)