Abstract Submitted
for the APR18 Meeting of
The American Physical Society

Pulse Shape Discriminating ^{6}Li-Doped Liquid Scintillator for the PROSPECT Experiment[1] RICHARD ROSERO, Brookhaven National Laboratory, PROSPECT COLLABORATION — PROSPECT is a reactor antineutrino experiment consisting of a segmented ^{6}Li-doped liquid scintillator antineutrino detector. The experiment, located at the High Flux Isotope Reactor (HFIR) at Oak Ridge National Laboratory, will begin physics data-taking in early 2018. To enable the reduction of copious cosmogenic backgrounds to the inverse beta decay antineutrino interaction signal, the PROSPECT collaboration has developed and produced a custom ^{6}Li-doped liquid scintillator with powerful pulse-shape discrimination capabilities. In this talk, we will report the properties of the PROSPECT liquid scintillator and production of 5 tons of scintillator necessary for the operation of the PROSPECT experiment. We will also describe a novel ^{227}Ac doping mechanism for in situ energy calibration and measurement of the relative efficiency of detector segments.

[1]PROSPECT is supported by Department of Energy, Office of High Energy Physics and the Heising-Simons Foundation. The work conducted at Brookhaven National Laboratory was partially supported by the U.S. Department of Energy under contract DE-AC02-98CH10886

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Date submitted: 12 Jan 2018 Electronic form version 1.4