Abstract Submitted
for the APR16 Meeting of
The American Physical Society

Characterizing and validating the PROSPECT segmented scintillator detector design DANIELLE NORCINI, Yale University, PROSPECT COLLABORATION — The PROSPECT experiment will use two segmented liquid scintillator detectors positioned 7-20m from the High Flux Isotope Reactor (HFIR) core to perform a search for eV-scale sterile neutrinos and measure the antineutrino spectrum of uranium-235. A multi-year R&D program focused on background studies at the HFIR reactor, lithium-loaded liquid scintillator development, and characterization of multiple prototype detectors has culminated in the design of a segmented, 3-ton liquid scintillator detector for PROSPECT Phase I. This detector design is being validated with a 50 liter, 2-segment prototype detector, PROSPECT-50. We will report results of on-going performance and calibration studies and discuss implications for the PROSPECT physics program.

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Date submitted: 08 Jan 2016 Electronic form version 1.4