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PROSPECT: The Precision Reactor Oscillation and Spectrum Experiment

Wednesday, 21 June 2017 12:45 (15 minutes)

The PROSPECT experiment is designed to probe short-baseline neutrino oscillations and precisely measure the 235U reactor antineutrino spectrum. Using a ~4-ton segmented 6Li-loaded liquid scintillator detector, PROSPECT will probe the sterile neutrino best-fit region to 4 σ within one year of operation at distances of 7-12 meters from the High Flux Isotope Reactor (HFIR). Additionally, the measurement of the 235U spectrum at 4.5%/√E will address the 4-6MeV spectral "bump" observed in recent measurements by the θ13 experiments. This talk will discuss the design, experimental program, backgrounds, and discovery potential of PROSPECT with particular emphasis on reactor backgrounds and their mitigation.

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