PROSPECT: The Precision Reactor Oscillation and Spectrum Experiment

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The PROSPECT experiment is designed to probe short-baseline neutrino oscillations and precisely measure the $^{235}$U reactor antineutrino spectrum. Using a ~4-ton segmented $^6$Li-loaded liquid scintillator detector, PROSPECT will probe the sterile neutrino best fit region to $4\sigma$ within one year of operation at distances of 7-12 meters from the High Flux Isotope Reactor (HFIR). Additionally, the measurement of the $^{235}$U spectrum at $4.5\%/\sqrt{E}$ will address the 4-6MeV spectral bump observed in recent measurements by the $\theta_{13}$ experiments. This talk will discuss the design, experimental program, backgrounds, and discovery potential of PROSPECT.

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