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PROSPECT: The Precision Reactor Oscillation and Spectrum experiment

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PROSPECT is a short-baseline reactor antineutrino experiment with primary goals of performing a search for sterile neutrinos and making a precise measurement of 235U reactor antineutrino spectrum from the High Flux Isotope Reactor at Oak Ridge National Laboratory. Using a ~ 4-ton segmented PSD-capable 6Li-loaded liquid scintillator detector, the PROSPECT detector will provide excellent background rejection in a high background and limited overburden environment. By covering the baselines of 7-12 m, the PROSPECT experiment will be able to probe eV-scale sterile neutrino oscillations suggested by the previous reactor experiments model-independently. With excellent energy resolution, PROSPECT will also be able to address the spectral anomaly recently observed by Θ13 experiments. This presentation will give an overview of the experimental program, detector design and physics reach of the PROSPECT experiment.

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