

# PROSPECT-II Physics Goals and Detector Design

*Monday, 16 September 2024 16:05 (1 hour)*

The Precision Reactor Oscillation and SPECTrum (PROSPECT) experiment is a short-baseline reactor experiment with the goal of measuring the antineutrino spectrum from the High Flux Isotope Reactor (HFIR). It searches for potential short-baseline oscillations and the existence of sterile neutrinos. PROSPECT has already set new limits on the existence of eV-scale sterile neutrinos while achieving the highest signal-to-background ratio on any surface antineutrino detector. The collaboration has developed an upgraded detector design, called PROSPECT-II, which will increase the detector's statistics and physics sensitivity. In this poster I will describe major design features of the PROSPECT-II detector, highlighting improved design elements with respect to the first-generation PROSPECT-I detector and discuss how these improvements will add to the first-generation oscillation and spectrum results.

## Working Group

WG 6: Detectors

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