

# PROSPECT-II Physics Goals and Detector Design

*Friday, 21 June 2024 17:30 (2 hours)*

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, PROSPECT-II, to increase the detector's statistics and physics sensitivity. In this poster, I will describe the major design features of the PROSPECT-II detector, highlighting improved design elements concerning the first-generation PROSPECT-I detector and discuss how these improvements will add to the first-generation oscillation and spectrum results.

## Poster prize

Yes

## Given name

Ohana

## Surname

Benevides Rodrigues

## First affiliation

Illinois Institute of Technology

## Second affiliation

## Institutional email

obenevidesrodrigues@iit.edu

## Gender

Female

## Collaboration (if any)

PROSPECT

**Primary author:** BENEVIDES RODRIGUES, Ohana (Illinois Institute of Technology)

**Presenter:** BENEVIDES RODRIGUES, Ohana (Illinois Institute of Technology)

**Session Classification:** Poster session and reception 2

**Track Classification:** Sterile neutrinos