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The PROSPECT reactor neutrino experiment: Highlights and future opportunities

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The PROSPECT experiment is a small project success story from the last P5/Snowmass cycle. A first-generation detector called PROSPECT-I, located on the Earth's surface roughly 7 m from the 85 MW, compact, highly-enriched High Flux Isotope Reactor (HFIR) at Oak Ridge National Laboratory, took data in 2018 and 2019. The results obtained from this experimental campaign have been of significant scientific impact by placing stringent limits on short baseline neutrino oscillations at the eV scale, setting new direct limits on boosted dark matter models, and providing a precision U spectral measurement, all while providing excellent professional development opportunities for young scientists. Following the success of PROSPECT-I, the collaboration is now preparing for its second phase, called PROSPECT-II. With an upgraded detector design, PROSPECT-II will allow us to expand beyond the current analyses, with improved sensitivity and statistics providing unique inputs to the U.S. neutrino frontier.

Please select if remarks will be in person or on zoom

In person

Do you describe your self as early career?

yes

Please add details of experiment/project that this abstract corresponds to?

PROSPECT

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