

24th International Workshop on Next Generation Nucleon Decay & Neutrino Detectors (NNN25)

NNN25

International Workshop on Next Generation
Nucleon Decay and Neutrino Detectors

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Very Cool Measurements of Very Hot Reactors: CEvNS goes Nuclear

Friday, October 3, 2025 9:30 AM (25 minutes)

Coherent Elastic Neutrino-Nucleus Scattering (CEvNS) offers a unique window into neutrino interactions at low energies, with implications for fundamental physics, astrophysics, nuclear nonproliferation, and other applied technologies. While the first observation by the COHERENT collaboration in 2017 and the recent detection by CONUS+ at a nuclear reactor marked significant milestones, this talk will focus on the next frontier: precision CEvNS measurements at reactors using cryogenic detectors. I will discuss the exciting prospects of experiments such as NUCLEUS and RICOCHET, which aim to enhance sensitivity to new physics and perform the first precision measurement of the CEvNS spectrum. The talk will also explore new ideas for scaling to larger detectors, including the HONEYCOMB concept—a modular cryogenic detector array designed to achieve 1-10 kg masses while maintaining ultra-low thresholds and background levels. These efforts represent a rapidly evolving area in neutrino physics, combining cutting-edge detector development with potential access to Beyond-the-Standard-Model physics.

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