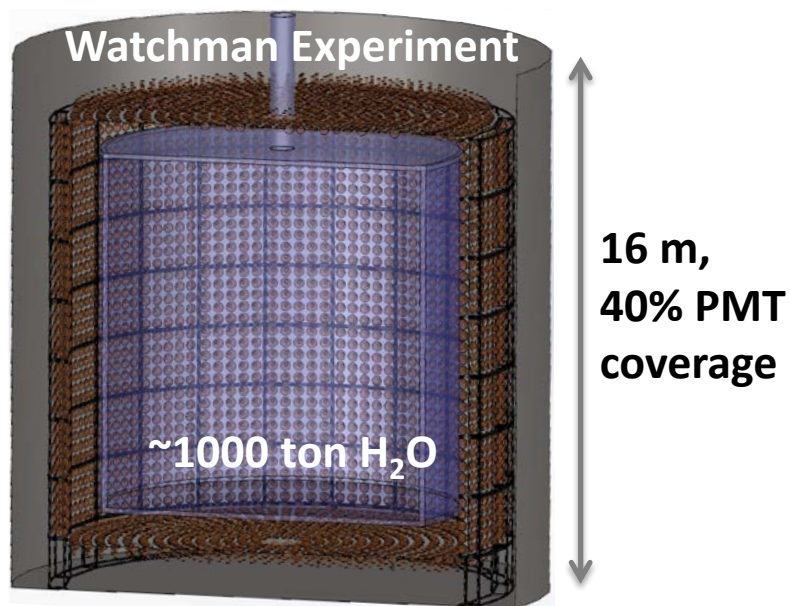


# WATCHMAN: Water Cherenkov Monitor for Antineutrinos

## Research Overview

- WATCHMAN will demonstrate  $\bar{\nu}$  detection from 25 km at the Perry reactor in Ohio
- Scaling to 100-1000 km detection possible
- Rich basic physics from supernova sensitivity to sterile neutrino searches.



## Potential Collaborations

- Help to design, test, deploy and operate a kiloton-scale antineutrino detector
- Study signal sensitivity to the *direction* of antineutrinos
- Perform nonproliferation analyses using the WATCHMAN detector
- Assess the sensitivity of WATCHMAN to galactic supernovae and other physics

## Recent WATCHMAN Dissertation

“Measurement of the High-Energy Neutron Flux Above and Below Ground”  
Caleb Roecker (UC Berkeley, NSSC) 2016,

WATCHMAN is a collaboration of LLNL, UCB Davis, Irvine and 10 international groups

Contact: Adam Bernstein, [bernstein3@llnl.gov](mailto:bernstein3@llnl.gov) (Rare Event Detection Group)