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Readout, Monitoring, and Calibration of the Heavy Water Cherenkov detector system in the COHERENT experiment

The COHERENT experiment at the Spallation Neutron Source (SNS) at Oak Ridge National Laboratory consists of several detectors designed to measure coherent elastic neutrino nucleus scattering from a pion-decay-atrest neutrino source. A significant source of uncertainty in these results is the 10% estimated uncertainty in the neutrino flux from the SNS target. To reduce this uncertainty to 2-3%, we deployed a two-module Cherenkov detector system at the SNS. The first module contains heavy water as the neutrino target, whereas the second module uses light water. This talk will provide an overview of the detectors, discuss the readout and monitoring system, and describe the calibration process using a low-intensity light source.

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