

Abstract Submitted  
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**Simulating the MARS Detector Response to a Cf-252 Source**

DUY HOANG<sup>1</sup>, REBECCA RAPP<sup>2</sup>, DIANA PARNO<sup>3</sup>, COHERENT Collaboration, COHERENT COLLABORATION COLLABORATION — The COHERENT experiment is designed to measure neutrino scattering at tens of MeV on various nuclear targets. COHERENT is the first experiment that has successfully measured the coherent elastic neutrino-nucleus scattering interaction in multiple detectors using neutrinos produced by the Spallation Neutron Source at Oak Ridge National Laboratory. However, neutron signals are a background for the COHERENT detectors. To address this, there is a dedicated neutron monitoring system: the Multiplicity and Recoil Spectrometer (MARS). This work describes an effort to model the Cf-252 neutron source as a calibration source using a GEANT4 simulation. The simulation generates neutron and gamma energy deposit data for the MARS neutron-monitoring detector to compare to previously collected calibration data to model the MARS detector's response.

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