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**Simulating the NaI [Tl] Detector for the COHERENT Project** SHALANE HAIRSTON, North Carolina Central University, COHERENT COLLABORATION — The COHERENT Collaboration plans to deploy a two ton NaI [Tl] detector at the Spallation Neutron Source at the Oak Ridge National Laboratory to measure Coherent Elastic Neutrino-Nucleus Scattering ( CEvNS). We are developing a GEANT4 Monte Carlo based simulation of the whole apparatus to investigate background rates, especially from muons and neutrons, and to characterize the detector. We have performed initial simulations of individual NaI detectors for thecalibration measurements.Simulation results and comparisons to the calibration analysis will be presented.

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