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Investigating the background neutron flux for COHERENT with MARS[1] REBECCA RAPP, Carnegie Mellon University, COHERENT COLLABORATION — The COHERENT collaboration has made the first observations of coherent elastic neutrino-nucleus scattering (CEvNS) in multiple detectors. These observations depend on the pion decay-at-rest neutrino production at the Spallation Neutron Source (SNS) at Oak Ridge National Laboratory, but must contend with substantial neutron production from the SNS. With small nuclear recoils as the only CEvNS observable, our detectors are sensitive to neutron interactions that cause a similar recoil signal. To characterize this background, we use a dedicated neutron monitoring system: the Multiplicity and Recoil Spectrometer (MARS). As a mobile, gadolinium-doped plastic scintillator, MARS is capable of mapping out the neutron flux within the space constraints of the basement hallway housing the COHERENT detectors. This talk will cover the current data, our characterization of the MARS detector as we develop a response matrix, and our plans for the future as COHERENT progresses towards precision CEvNS measurements.

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