

Abstract Submitted  
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**Background Studies at the Spallation Neutron Source for the COHERENT Experiment**<sup>1</sup> MATTHEW HEATH, Indiana University, COHERENT COLLABORATION — The COHERENT experiment is attempting a first measurement of coherent elastic neutrino-nucleus scattering (CEvNS) at the Spallation Neutron Source (SNS) at Oak Ridge National Lab. CEvNS is a standard model process that is important in understanding supernova neutrinos, the structure of the weak interaction, and as a background for dark matter searches. COHERENT is placing a suite of four detector technologies in a basement location at the SNS: point contact germanium detectors, CsI[Na] crystals, NaI[Tl] crystals, and single phase liquid argon. Previous attempts to measure the CEvNS process have grappled with very high rates of backgrounds due to the low energy thresholds required. Accelerator-correlated neutrons are the most troublesome background for COHERENT because a simple accelerator on/off background subtraction procedure fails to remove them. To understand these backgrounds, COHERENT features measurements from the SciBath detector and the Sandia Neutron Scatter Camera (NSC). Important neutron measurements from both SciBath and the NSC, as well as gamma measurements from the SNS basement location where the four detector technologies for COHERENT will be placed will be discussed.

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