



Poster session 3 – Wednesday 6 July

P3.002 Background Studies at the Spallation Neutron Source for the COHERENT Experiment

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The COHERENT experiment is attempting a first measurement of the unobserved coherent elastic neutrino-nucleus scattering ($CE\nu NS$) at the Oak Ridge Spallation Neutron Source (SNS). $CE\nu NS$ is a standard model process that is important in understanding supernova neutrinos, the structure of the weak interaction, and backgrounds for dark matter searches. COHERENT is placing a suite of three detector technologies in a basement location at the SNS: point contact germanium detectors, CsI[Na] crystals, and 100-kg liquid xenon. Previous attempts to measure the $CE\nu NS$ process have grappled with very high rates of backgrounds. One class of troublesome backgrounds is accelerator-correlated neutrons because a simple accelerator on/off background subtraction procedure fails to remove these backgrounds. COHERENT features background measurements from the SciBath detector and the Sandia Neutron Scatter Camera (NSC). This poster discusses important neutron background measurements from both SciBath and NSC in the SNS basement where the three detector technologies for COHERENT will be placed.