

Abstract Submitted
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Pulse Shape Simulation for the NCD Phase of the Sudbury Neutrino Observatory NOAH OBLATH, University of Washington, SUDBURY NEUTRINO OBSERVATORY COLLABORATION — In the third phase of the Sudbury Neutrino Observatory (SNO) experiment an array of ^3He proportional counters has been used to make a measurement of the total solar neutrino flux. This Neutral-Current Detection (NCD) Array detected the neutrons from the neutral-current interaction of neutrinos with deuterium. Before we can determine the neutrino flux we must separate the neutron-capture pulses from the background pulses due to alpha particles. We have created a unique, detailed simulation of the current pulses from the proportional counters that includes energy straggling, ion drift, electron diffusion, space charge, and electronics effects. We intend to use the simulation to fit the data pulses to separate neutron-capture and alpha pulses. With this method the differences between pulse characteristics can be associated directly with the physical mechanisms of track formation and motion in the counter gas. The detailed pulse simulations will also be used as reference data sets for other methods of signal extraction. This work is conducted under DOE grant DE-FG02-97ER41020.

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