

Abstract Submitted
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Transmission Line Properties of Nickel-Bodied Proportional Counters JENNIFER RYU, Georgia Tech, SNO COLLABORATION — Simultaneous measurements of neutral current and charged current neutrino scattering events allowed the Sudbury Neutrino Observatory (SNO) to demonstrate definitively neutrino oscillation. The three phases of the SNO detector are distinguished by different techniques of detecting the neutrons produced by neutral current neutrino scattering. In the final phase, nickel-bodied proportional counters filled with ^3He were used as neutral current detectors (NCDs) by observing the charged particles produced by neutron capture on ^3He . If we can understand the electrical transmission properties of the NCDs, we can use the different pulse shapes produced by neutron captures compared to those of alphas to distinguish these events and gain more sensitivity to the neutral current events. We found that because of the ferromagnetism of the nickel, standard calculations provided for proportional counters are not accurate enough. To obtain a better calculation, we directly measured the electrical properties of the transmission line as a function of frequency. This is a presentation of our results.

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