

Abstract Submitted
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Finding a Material with a Low Energy Threshold for Charged-Current Neutrino Interactions¹ THOMAS RICHARDS, University of Alabama, KATE SCHOLBERG, Duke University — We calculated the thresholds for charged-current electron neutrino and antineutrino interactions for most of the stable isotopes. Looking at the isotopes with the lowest thresholds, we found that tantalum-181 (^{181}Ta) and gadolinium-160 (^{160}Gd) are reasonable candidates for low-threshold neutrino detectors, with thresholds at 0.188 MeV and 0.105 MeV respectively. These materials are both metals, have relatively high natural abundance, and are not frequently found in conjunction with radioactive substances, making them potentially viable for this task. Using the SNOwGLOBES software library, we computed estimated cross sections and event rates for supernova fluxes in these two materials.

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