

Abstract Submitted  
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**MINER's Sensitivity to Coherent Neutrino Nucleus Scattering in Electron Neutrinos** SHIV AKSHAR YADAVALLI, University of Texas at Austin, MINER COLLABORATION<sup>1</sup> — Mitchell Institute Neutrino Experiment at Reactor (MINER) is a short-baseline neutrino experiment at the Nuclear Science Center (NSC) at Texas A&M University. MINER proposes to probe (neutrino physics) coherent elastic neutrino-nucleus scattering (CNS) using ultra-low energy threshold cryogenic germanium detectors. Though CNS is a strong theoretical prediction of the Standard Model (SM), it has only been observed recently due to ultra-low recoil energy deposition in detectors, and never observed  $\nu_e$ . Taking into account the experimental setup, detector properties, statistical and systematic uncertainties, the viability of the experiment was assessed. The statistical analysis of MINER's sensitivity illustrates that within reasonable experimental constraints, MINER can discover CNS in  $\nu_e$  and determine its cross-section within a few months worth of runtime. Deviations of CNS from the standard model would be windows to possible new physics beyond the standard model. The ultra-low threshold detectors in this reactor setup can also be used to probe such processes. So as a follow-up to this analysis, I am looking at MINER's sensitivity to hypothetical 4<sup>th</sup> sterile neutrino oscillations and neutrino decay processes.

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