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MINER Reactor Neutrino Experiment for CENNS and ALP Searches

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The Mitchell Institute Neutrino Experiment at Reactor (MINER) experiment at the Nuclear Science Center at Texas A&M University is searching for coherent elastic neutrino-nucleus scattering within close proximity (2-5 meters) of a 1 MW TRIGA nuclear reactor core using phonon mediated low threshold solid state detectors . Given the Standard Model cross section of the scattering process and the proposed experimental proximity to the reactor, as many as 5 to 20 events/kg/day are expected. In this talk we will present an overview of the experiment, the science projections, along with a variety of very low-threshold, low-background detector technologies that are currently deployed in the MINER setup. The MINER experiment also has a new experimental direction for ALP probes via their production by the intense gamma ray flux available from the reactor through Primakoff-like or Compton-like channels. The existing low-threshold detectors in close proximity to the core will have visibility to ALP decays and inverse Primakoff and Compton scattering, providing world-leading sensitivity to the ALP-photon and ALP-electron couplings.

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