

Abstract Submitted  
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**A Brief Exploration of Low-Threshold, Gas-Filled Detectors<sup>1</sup>**

KIROLLOS MASOOD, University of Florida, TUNL — Low-threshold detectors possess a wide variety of uses, such as detecting inverse  $\beta$  decay. Additionally, with a sufficiently low threshold and low background, they could be sensitive enough for Coherent, Elastic Neutrino-Nucleus Scattering (CEvNS) and spin-dependent WIMP searches. Our aim was to explore prototypes and operating conditions of such gas-filled detectors. We have successfully operated at pressures from 1-30 psi (above atmosphere), and biases from 2-4 kV. These settings can be adjusted according to the desired energy range. Using an  $^{55}\text{Fe}$  source for calibration, we have achieved a threshold of 150 eV, under preliminary optimal conditions. As a result of moderate shielding, background radiation has been easily reduced to no more than 1000 counts  $\text{kg}^{-1}\text{keV}^{-1}\text{day}^{-1}$ .

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