

Abstract Submitted
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Status of the ^{45}Ca beta spectrum measurement at Los Alamos National Laboratory NOAH BIRGE, University of Tennessee — Although the Standard Model describes fundamental particle interactions to high precision, neutrino flavor oscillations, the observed baryon asymmetry, and complete absence of gravity from the model make it clear that there is important physics it does not describe, so called beyond the standard model (BSM). A nonzero Fierz interference term for beta decay is one candidate for BSM physics. This effect essentially manifests in the form of a distortion of the beta decay electron energy spectrum. ^{45}Ca is a particularly appealing nucleus to attempt a measurement of the interference term, as it is a pure beta emitter. A program is in progress to perform this measurement at the Los Alamos National Lab. The 2017 run incorporates cold helium gas to cool the two detector systems. A similar system will be implemented in the Nab experiment, so this experiment also serves as an early prototype for Nab. Results of cooling tests and their effects on detector performance using a waveform analysis and preliminary energy spectra will be presented.

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