

Abstract Submitted
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Precision Nuclear Beta Spectroscopy as a Probe for BSM Physics

AARON SPROW, University of Kentucky — The shape of nuclear beta decay spectra is sensitive to new physics such as scalar and tensor currents, and weak magnetism. By selecting an appropriate nuclear species, it is possible to disentangle these effects. ^{45}Ca , which undergoes a predominantly Gamow-Teller transition with an end-point energy of 256 keV, is an excellent probe for tensor couplings. Recently, the ^{45}Ca beta decay spectrum was measured in the Caltech/UCNA 4π magnetic spectrometer instrumented with large, highly-pixelated Si detectors at the Los Alamos National Laboratory UCN facility. This detection system, in conjunction with an extremely thin foil source preparation, allows for a full reconstruction of events to build a precise spectrum. Preliminary results of the analysis of this data will be presented.

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