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In search for BSM Physics in the beta decay of ^{45}Ca

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The Standard Model (SM) has become one of the most complete theories encapsulating fundamental particle interactions. Despite its far ranging success, neutrino flavor oscillations, the observed baryon asymmetry, the dark matter puzzle, and complete absence of gravity from the theory makes it clear that there must exist interactions and particles beyond the standard model (BSM). A nonzero Fierz interference term in beta decay is one such candidate to test BSM physics. The Fierz term results from scalar and tensor interactions not included in the SM. The strength of the coupling manifests in the form of a distortion of the beta decay electron energy spectrum. A set of beta spectrum measurements for ^{45}Ca was completed at the Los Alamos Neutron Science Center in 2017 and I will present details of analysis along with preliminary results.

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