

Abstract Submitted  
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**Searching for Fierz Interference in Beta Decay of Ultracold Neutrons** KEVIN HICKERSON, California Institute of Technology, UCN COLLABORATION — It is theorized that contributions to scalar and tensor interactions from physics beyond the Standard Model could be detectable in the spectrum of neutron beta decay, manifest as a nonzero value for the so-called Fierz interference parameter,  $b$ . Some minimally supersymmetric models may have  $b$  as large as  $10^{-3}$ , which is within reach for measurement, but below the current limits set by superallowed  $0+ \rightarrow 0+$  nuclear  $\beta$  decays. We present a new experiment that uses the ultracold neutron (UCN) source at LANSCE for measuring  $b$ , in which UCN are guided into a shielded  $4\pi$  calorimeter. The decay volume is a box with scintillator walls that both trap UCN and measure beta energy. The low background environment and high neutron density allows this experiment to set an improved upper limit of the Gamow-Teller component of  $b$  for the free neutron.

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