

Abstract Submitted
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Fierz Interference in Beta Decay of Ultracold Neutrons¹ KEVIN HICKERSON, California Institute of Technology, UCBB COLLABORATION — We discuss the status of the UCNb experiment that uses the ultracold neutron (UCN) source at LANSCE. The UCNb apparatus is being designed to test contributions to scalar and tensor interactions from physics beyond the Standard Model, manifest as a nonzero value for the neutron Fierz interference parameter, $b_n = (b_F - 3\lambda b_{GT})/(1 + 3\lambda^2)$, in the β energy spectrum of neutron decay. Some models may have b_n as large as 10^{-3} , but below the current limits on the Fermi component, b_F , set by superallowed $0+ \rightarrow 0+$ nuclear β decays. Neutron decay has the advantage of sensitivity to the Gamow-Teller component of b , b_{GT} . We present data from UCN test runs from 2010 that help set limits on systematic backgrounds from β decay of spallation produced ${}^6\text{He}$ and from UCN generated γ backgrounds. We also discuss test plans and upgrades for 2011 and beyond.

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