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Status on the search for new currents in the beta decay of ultracold neutrons KEVIN HICKERSON, University of California Los Angeles, UCNA COLLABORATION, UCNb COLLABORATION — There is growing interest in the search for new charged flavor changing currents not predicted by the Standard Model. The beta decay of neutrons is sensitive to tensor currents, for example, that are not ruled out by other systems without the need for nuclear correction calculations. These tensor currents alter beta-decay correlation coefficients, where, in particular, the Fierz interference term, b, becomes non-zero. We report on the status of understanding the systematic errors that dominated previous limits of the Fierz interference term for the free neutron, b_n, using ultracold neutrons (UCN), as measured using the UCNA experiment at the Los Alamos Neutron Science Center. UCNA was designed to measure the energy dependence of the electron beta decay asymmetry, $A(E)$, for different neutron polarizations, but b_n can skew the peak of the beta spectrum and modify the energy dependence of the asymmetry, both measured by UCNA, so investigation of b_n is possible. We will present how analysis of UCNA data collected from 2011-2013, paying close attention to systematic errors associated with energy calibration and linearity, may help improve present limits on b_n. We will also discuss other possible experimental approaches that may improve those limits further still.

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