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Precision Measurements with UCNA SIMON SLUTSKY, California Institute of Technology, UCNA COLLABORATION — UCNA is the only experiment to use ultracold neutrons (UCN) to measure the free neutron β-decay correlation parameter, "A", between the neutron spin and β momentum. This parameter yields a sensitive measurement of the ratio of axial-vector and vector coupling constants, $\lambda = g_A/g_V$, and λ can be combined with the neutron lifetime to give a value for the CKM matrix element V_{ud}. UCNA is operated at the Los Alamos Neutron Science Center, where UCN are produced in a solid deuterium source. The β-decays are observed in a solenoidal spectrometer with a combined multi-wire proportional chamber and plastic scintillator detector for position and energy reconstruction, respectively. Improvements to energy calibration, neutron polarimetry, and statistics are expected to improve the precision in the UCNA value for A from 1% to about 0.6%.

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