Abstract Submitted
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UCNA 2011-2013 Data Update MICHAEL BROWN, Univ of Kentucky, UCNA COLLABORATION — The UCNA Experiment at the Ultracold Neutron facility at LANL uses polarized ultracold neutrons (UCN) to determine the neutron β-decay asymmetry parameter A_0, the angular correlation between the neutron spin and the decay electron's momentum. A_0 further determines $\lambda = g_A/g_V$, which, when combined with the neutron lifetime, permits extraction of the CKM matrix element V_{ud} solely from neutron decay. In the UCNA experiment, UCN are produced in a pulsed, spallation driven solid deuterium source, polarized using a 7 T magnetic field, and transported through an Adiabatic Fast Passage (AFP) spin flipper prior to storage within a 1 T solenoidal spectrometer housing electron detectors at each end. The spin-flipper allows one to form a super-ratio of decay rates for neutron spins aligned parallel and anti-parallel to the 1 T magnetic field, eliminating to first order errors due to variations in the decay rate and detector efficiencies. Previous UCNA results from data taken in 2010 and earlier were limited by systematic uncertainties, particularly those from the UCN polarization, calibration of the electron energy, and electron backscattering and acceptance effects. Recent work addressing these systematics for data from run periods in 2011-2013 will be presented.

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