

Abstract Submitted
for the HAW09 Meeting of
The American Physical Society

Systematics of the UCNA Experiment ROBERT PATTIE, N.C. State University, UCNA COLLABORATION — The UCNA experiment measures the β -asymmetry parameter in free neutron β -decay using polarized ultracold neutrons (UCN). UCN created in the spallation source at LANSCE are polarized by a 7 T magnetic field in transit to a $2 \times 2\pi$ spectrometer where the emitted electrons are measured. During the 2008 run cycle the major systematics were investigated, including neutron depolarization, electron scattering and energy loss, and neutron generated backgrounds. The asymmetry was measured in three geometries designed to maximize or minimize the effect of scattering and energy loss, *in situ* and *ex situ* measurements of the neutron depolarization were performed, and by blocking the β 's from neutron decay, limits were placed on the gamma flux from neutron capture in the spectrometer. Results of these tests will be presented in the context of a $< 1\%$ measurement of the β -asymmetry.

Robert Pattie
N.C. State University

Date submitted: 01 Jul 2009

Electronic form version 1.4