Abstract Submitted
for the DNP13 Meeting of
The American Physical Society

Systematic Effects in the Measurement of "a" with the aCORN Apparatus[1] ALEXANDER KOMIVES, DePauw University, ACORN COLLABORATION — Systematic effects that might cause an error in the measurement of "a", the electron-antineutrino correlation from free neutron decay, with the aCORN apparatus will be discussed. Because the experiment is dependent on both electron and proton detection, anything that can alter the motion of either particle is being examined. Among the effects discussed will be non-uniform magnetic and electric fields, residual gas in the vacuum chamber, the focusing efficiency of the proton detector system, the veto efficiency of backscattered electrons in the beta spectrometer, and the detection of scattered electrons. Ancillary measurements and simulations will be presented to characterize the sensitivity of "a" to these effects.

[1]This work is supported by the National Institute of Standards and Technology and by a grant from the National Science Foundation.

Alexander Komives
DePauw University

Date submitted: 28 Jun 2013 Electronic form version 1.4