

Abstract Submitted
for the DNP15 Meeting of
The American Physical Society

UCNB and Nab Detector Development BRYAN ZECK, Los Alamos Natl Lab, UCNB COLLABORATION, NAB COLLABORATION — The UCNB and Nab experiments, designed to measure correlations in neutron beta decay, will detect the charged decay particles with segmented, large area, thick silicon detectors with thin dead layers. Development of the detector mount and the associated preamplifier and data acquisition system has been ongoing at Los Alamos National Laboratory using the LANSCE Ultracold Neutron facility. A 24 channel prototype preamplifier and data acquisition system has been demonstrated to meet performance specifications, including a 10 keV trigger threshold (required to detect the decay protons), a 3 keV FWHM particle kinetic energy resolution (required to measure the decay electron energy spectrum to sufficient accuracy), and a 40 ns pulse rise time (required to identify the direction of travel of decay electrons). Results of timing and coincidence studies, a report on progress to a fully instrumented detection system, and a final design for the detector mount compatible with the Nab experimental setup will be presented.

Bryan Zeck
Los Alamos Natl Lab

Date submitted: 01 Jul 2015

Electronic form version 1.4