Abstract Submitted
for the SES20 Meeting of
The American Physical Society

Detector Characterization and Data Acquisition System Development for the Nab Neutron Beta Decay Experiment[1] DAVID MATHEWS, University of Kentucky, NAB COLLABORATION — The Nab neutron decay correlation experiment will measure the electron-neutrino correlation coefficient a and by extension test the unitarity of the CKM matrix. This coefficient will be determined through measurements of coincident protons and electrons on a pair of 127-pixel silicon detectors. In order to understand the response of the detectors to protons, the detector behavior will be tested with a 30keV proton beam at the University of Manitoba. These tests will be examining a variety of detector response features including charge sharing between pixels and the effect of radially dependent depletion voltages. In order to facilitate these tests, a new data acquisition system has been developed. This presentation will discuss the goals of the proton beam tests as well as the design of the new data acquisition system.

[1]This material is based upon work supported by the U.S. Department of Energy, Office of Science, Office of Nuclear Physics, under Award Number DE-SC0014622

David Mathews
University of Kentucky

Date submitted: 19 Oct 2020 Electronic form version 1.4