

Abstract Submitted
for the DNP10 Meeting of
The American Physical Society

Proton Accelerator for Calibration of Silicon Detectors for Neutron Decay MARK ABOTOSSAWAY, JEFF MARTIN, University of Winnipeg, DAVID HARRISON, MICHEAL GERICKE, KUMAR SHARMA, GRAHAM SCHELLENBERG, University of Manitoba — There is a new generation of neutron beta-decay experiments being conducted where both decay electrons and protons will be detected. The Nab Experiment at the Spallation Neutron Source (in Oak Ridge, TN) is an example of one such experiment. In Nab, protons resulting from the decay will be post-accelerated to 30-keV by a static electric field. Custom segmented silicon detectors with a very thin dead layer are being manufactured to detect the protons. For testing and calibration of the Si detectors, and proton detectors in general, a 30 kV proton accelerator has been constructed at the University of Manitoba. The accelerator is based on the Manitoba II double focusing mass spectrometer, which was modified for our purposes. Details of the modifications will be presented along with a discussion of future work. Results collected with a commercial Si Surface Barrier detector and radioactive sources investigating Si detector resolutions in the tens of keV range will also be presented.

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Date submitted: 02 Aug 2010

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