

Abstract Submitted
for the DNP13 Meeting of
The American Physical Society

Stabilization of a 30 keV Proton Source NICHOLAS ROANE, STEFAN BAESSLER, AMERICO SALAS, CARL WHITAKER, AARON ROSS, University of Virginia — Our group has constructed a small accelerator as a stable, low-intensity source of 30-keV protons to characterize the detection efficiency of a large-area, thick, 127-hexagonal segmented silicon detector, which we will use in the Nab experiment at SNS, Oak Ridge National Laboratory. Accelerated electrons emitted from a tantalum cathode ionize residual gas at a pressure of 10^{-8} -mbar, producing H^+ (protons) and H_2^+ which we accelerate across 30 kV. A bending magnet separates the ion species into two beams which are detected in the present setup with separate microchannel plate detectors. For detector efficiency studies of the silicon detector, we require correlation between and minimal fluctuation in the ion beam intensities. We will present our efforts toward configuring an accelerator system with these characteristics.

Nicholas Roane
University of Virginia

Date submitted: 31 Jul 2013

Electronic form version 1.4