

Abstract Submitted
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A highly stable 30 keV proton accelerator for studies of angular detection efficiency on Si detectors AMERICO SALAS BACCI, STEFAN BAESSLER, PETER CARR, THOMAS HEFELE, DINKO POCANIC, NICHOLAS ROANE, AARON ROSS, R. SLATER, ALEXANDER SMITH, CSABA TOTH, DANE WARNER, SHAWN ZAMPERINI, PANAIOT ZOTEV, Univ of Virginia, NAB EXPERIMENT COLLABORATION — The Nab experiment at the SNS measures the electron-neutrino correlation parameter and the Fierz interference term in free neutron beta decay by measuring in coincidence the electron energy and proton momentum in a magnetic spectrometer with two Si detectors. These large area, thick, and 127-hexagonal segmented Si detectors have to be carefully characterized for optimal performance and for control of systematic errors. The angular detection efficiency of 30 keV proton incident on Si is an important part of this studies. We will present the design, simulation, operation, and detection of 30 keV H^+ and H_2^+ as well as results to control the beam stability by the correlation of both detected ion signals. At present we have reached beam stability of $(1.2 \pm 1.3)E-7/\text{sec}$.

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