

Abstract Submitted  
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**GEANT4 Monte Carlo Modeling of the Nab Segmented Silicon Detectors**<sup>1</sup> EMIL FRLEZ, University of Virginia, NAB COLLABORATION — The Nab Collaboration has proposed to measure the correlation parameters  $a$  and  $b$  in neutron  $\beta$ -decay at Oak Ridge National Laboratory using a novel detector design. Two large area 2-mm thick hexagonal silicon detectors segmented into 127 pixels per detector will be used to detect the proton and electron from cold neutron decay. We present the GEANT4 simulation of the Si detector energy and timing responses both to the final state protons and electrons as well as the expected photon, cold neutron, and fast neutron backgrounds. The methods for an individual pixel energy gain calibrations and timing offset adjustments are presented. The expectations are compared to data acquired with a prototype detector at Los Alamos National Laboratory.

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