

Abstract Submitted
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Sub-segment position measurement in 32-fold segmented high-purity germanium detectors D.-C. DINCA, C.M. CAMPBELL, J.M. COOK, T. GLASMACHER, Department of Physics and Astronomy and National Superconducting Cyclotron Laboratory, Michigan State University, East Lansing, MI 48824, USA — Sub-segment position resolution of gamma-ray interactions has been demonstrated for the cylindrically-symmetric 32-fold segmented HPGe detectors of the NSCL/MSU Segmented Germanium Array (SeGA) using digital electronics. Flash ADCs sampled waveforms at 100 MHz to measure both real and induced charges from the outer contact segments of a SeGA detector. To bypass issues with computation and bandwidth, integral quantities based on short (1-2 μ sec) waveform samples were used. Analysis of induced charges on segments neighboring those with real charge deposition allowed for sub-segment position resolution along both the crystal's linear axis and the azimuthal angle. Multiple measures of the real charge signal's rise time allowed for determination of the radial position.

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