Abstract Submitted
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Determination of the position resolution of a segmented HPGe detector using a collimated source[1] M. CROMAZ, I.Y. LEE, A.O. MACCHIAVELLI, M. WIEDEKING, R.M. CLARK, M.A. DELEPANQUE, P. FALLON, S. GROS, F. STEPHENS, H.B. JEPPESEN, J.R. PAVAN, Lawrence Berkeley National Laboratory, D. RADFORD, K. LAGERGREN, Oak Ridge National Laboratory — New techniques in the use of highly-segmented HPGe detectors enable the tracking of the path of a scattered gamma ray in the detector. This enables precision Doppler correction of gamma rays emitted from fast-moving sources for high-resolution spectroscopy at radioactive beam facilities. Critical to these applications is a knowledge of the position resolution to which the scattering points can be determined. We directly measured the position resolution of using a highly collimated Cs source. Signal decomposition was used to determine the position and charge deposition of the interaction points from the scattered gamma ray in the crystal, followed by tracking to identify the first interaction point. The set of first interaction points form a line through the detector and their dispersion gives the position resolution of the crystal in two dimensions. Such a measurement was performed with the 36-way segmented GRETINA P3 prototype detector the position resolution was found to be $\sigma_x = 1.5$ mm and $\sigma_y = 1.7$ mm.

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