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Gamma Ray Interactions in Planar Germanium Strip Detectors[1]

E.G. JACKSON, S. LAKSHMI, P. CHOWDHURY, A.Y. DEO, C.J. GUESS, S. HOTA, UMass Lowell, C.J. LISTER, Argonne National Laboratory — The position resolution of the interaction point of a gamma ray within the volume of a planar germanium crystal is under investigation. A 16x16 planar double-sided strip detector of high-purity germanium, measuring 92x92x20mm, with 16 horizontal strips on one face and 16 vertical strips on the other, is used. Comparing the strongest strip signal from each side of the detector allows for a X-Y pixelation of the gamma ray interaction in the crystal. Energy and efficiency calibrations are performed with standard ^{152}Eu and ^{133}Ba sources placed at fixed distances from the detector face. The measured efficiency of each pixel is compared to calculated geometric efficiencies. Next steps involve the analysis of two-pixel events which pick out Compton scatters within the planar crystal. Results and status report will be presented.

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