

Workshop on Advanced Radiation Detector and Instrumentation in Nuclear and Particle Physics (Online)



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Charge Collection properties of Double Sided Germanium Strip Detector

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The position sensitivity of a double-sided germanium strip detector has been studied using the coincidence method. The coincidences were demanded between an imaging scanner and a position-sensitive planar segmented germanium detector, comprising 10x10 electrical segmentation in orthogonal directions, using a positron source. The imaging scanner consists of a LYSO scintillation crystal coupled to a position-sensitive photomultiplier tube. The coincidence data have been analyzed by employing the Positron Annihilation Correlation (PSA) principle. The primary objective of this work is to study the charge carrier transportation for gamma-ray interaction inside the germanium detector, which has been studied using the pulse shape analysis procedure. The analysis has been performed to locate the gamma-ray interaction using the rise-time response of the detector for single interaction events along the depth of the germanium detector. The 2-dimensional image generated from the imaging scanner has been used to characterize the planar strip detector. Detailed scanning procedures and analysis of the present work will be presented at the conference.

References

- [1] C. Domingo-Pardo et al., Nucl. Instru. Methods in Physics Research, 643 (2011) 79.
- [2] J. Sethi, R. Palit, S. Saha, B. Naidu, AIP Conference Proceedings 1524 (2013) 287.

What is your experiment?

Study response of segmented germanium detector

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