

Virtual segmentation of a small contact HPGe detector

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Exploring hit positions of recorded events can help to understand and suppress backgrounds in rare event searches. We propose a pulse shape analysis method to discriminate single-site events (SSEs) in the inner and outer layer of a small contact P-type germanium detector (HPGe). Our method uses the rise time of the charge pulse (T_Q) and current pulse (T_I) for event discrimination. A Th-228 experiment is conducted to determine the boundaries between the two layers. Our method could be used to suppress surface background like electrons from Ar-42 decay in $0\nu\beta\beta$ experiments using germanium detectors immersed in liquid argon.

Collaboration (if any)

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