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Segment Energy Calibrations for Segmented Germanium Detectors R.P. NORRIS, K. STAROSTA, D. WEISSHAAR, P. ADRICH, A. CHESTER, A. DUNOMES, D. MILLER, V. MOELLER, C. VAMAN, P. VOSS, Michigan State University — In the Segmented Germanium Array at the National Superconducting Cyclotron Laboratory, Germanium detectors are electronically segmented into 32 sections and a central contact. Segment calibrations for this device face several obstacles, including inter-segment coupling for events in which the total energy is shared by more than one segment and cross talk between the electronics that record the events. While often these cases are corrected in methods that do not separate events in multiple segments, this can reduce the available data. In response, a computerized method for calibrating segments has been developed. An offline program matches spectra with a fourth order polynomial fit, correcting for the effects of the nonlinear relation between energy and channel caused by cross-talk. In addition, the program creates parameters for situations resulting from inter-segment coupling. For events in which a γ-ray is recorded in one segment, parameters for all 32 segments are produced in the calibration. For those in which two segments record the same event, 32x31/2 parameters are produced. This procedure can lead to a 70% improvement in statistics.

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