Abstract Submitted
for the DNP12 Meeting of
The American Physical Society

Pulse Digitization: Distinguishing between single and multiple gamma ray events with Sodium Iodide Crystals NEAL ANDERSON, University of Michigan, ART CHAMPAGNE, STEPHEN DAIGLE, University of North Carolina Chapel Hill — Gamma ray detection using analog signal processing techniques retains energy information at the expense of information about the type of interaction. However, by digitizing signals from gamma-ray detectors, we can distinguish events on the basis of interaction type, which can be used to reduce background noise. In particular, we would like to isolate single gamma-ray events from multiple gamma-ray events, which may sum in coincidence. We used a 14 bit 100MS/s digitizer to store time, energy, and waveform information from a position sensitive NaI detector, using a Co-60 source to provide both single- and double-gamma-ray events. We compared the waveforms from the individual cascade lines and the waveforms of the associated sum-peak to explore the difference in pulse shape between single- and double- gamma-ray events.

Neal Anderson
University of Michigan

Date submitted: 03 Aug 2012 Electronic form version 1.4