

Abstract Submitted  
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**Effectiveness of Digital Pulse Processing Using a Slow Waveform Digitizer** ADAM ANTHONY, Juniata College, MOHAMMAD AHMED, MARK SIKORA, Duke University — Using a waveform digitizer, one can replace nearly all of the analog electronics typically involved in processing pulses from a detector by directly digitizing the signal and processing it using digital algorithms. Algorithms for timing filter amplification, constant fraction discrimination, trapezoidal pulse shaping, peak sensing with pileup rejection, and charge integration were developed and implemented. The algorithms and a digitizer with a sampling rate of 62.5 MS/sec were used to calculate the energy and timing resolution of a various scintillation and solid state detectors. These resolutions are compared against both a traditional charge to digital (QDC), and the analog to digital (ADC) data acquisition setup in use at the High Intensity Gamma Source at Duke University. Preliminary results are presented.

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