

Abstract Submitted
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Neutron-Gamma Discrimination in Emerging Scintillators via Digital Signal Processing T. HARRINGTON, S. LAKSHMI, P. CHOWDHURY, University of Massachusetts Lowell — In this research, we report the results of neutron/ γ -ray discrimination performed with two newly developed scintillator crystals provided by Radiation Monitoring Devices Inc. capable of both neutron and γ -ray detection, $Cs_2LiLaBr_6$ (CLLB) and Cs_2LiYCl_6 (CLYC). Neutron-gamma discrimination was performed by digitizing the pulse waveforms, from a PuBe source enclosed in paraffin, with a 1 GHz Lecroy Digital Oscilloscope. By exploiting the pulse shape differences between neutron and γ -ray waveforms in these new crystals, the neutron and γ -ray signals can be distinguished from one another. The Pulse Shape Discrimination method executed through custom software to discriminate between neutron and γ -ray waveforms will be discussed. The most recent results obtained using the CLYC and CLLB scintillator crystals coupled to a photomultiplier tube, which includes the optimization of the integration windows, will be presented and discussed.

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