

Abstract Submitted
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Characterization of Silicon Photomultiplier based detectors with digital electronics¹ HADYN DAUGHERTY, STEVEN TAYLOR, ADAM HASSE, ROBERT GRZYWACZ, University of Tennessee — Due to their compact design and good timing performance Silicon Photomultipliers (SiPMT) were chosen to be used to readout the light from the plastic scintillator detector used as a trigger for the Versatile Array of Neutron Detectors at Low Energy (VANDLE) [1,2]. Prior to development of the new system, we have performed proof of principle studies, to demonstrate that the SiPMT, provided by Sensl [3] is a viable replacement for the conventional photomultiplier. We have build a prototype detector, develop electronics readout chain and characterized its performance using the Digital Data Acquisition system at the University of Tennessee. This experience led to construction of segmented trigger detector which will be used in future VANDLE experiments. *This research was sponsored in part by the National Nuclear Security Administration under the Stewardship Science Academic Alliances program through DOE Cooperative Agreement No. DE-FG52-08NA28552 and the DOE Office of Nuclear Physics.

[1] C. Matei et al., Proceedings of Science, NIC X, 138 (2008).

[2] S. Paulauskas et al., NIM A 737, 22 (2014).

[3] <http://sensl.com/products/silicon-photomultipliers/>

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