

Abstract Submitted
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Investigation of Plastic Scintillator Detector Configurations for Neutron Studies¹ CATALIN MATEI, Oak Ridge Associated Universities, D.W. BARDAYAN, J.C. BLACKMON, Oak Ridge National Laboratory, J.A. HOWARD, Tennessee Technological University, J.A. CIZEWSKI, P.D. O'MALLEY, S.D. PAIN, W.A. PETERS, Rutgers University, R.K. GRZYWACZ, K.L. JONES, S.N. LID-DICK, University of Tennessee — Plastic scintillation products are widely used for detecting nuclear radiation. Measurements of the response of plastic scintillator detectors to different radiations are important in the design phase of a detection system and as an initial input in Monte Carlo simulation codes. We performed test measurements of the light response, attenuation length, time and position resolution, and detection efficiency of Bicron BC408 plastic scintillator. Four plastic scintillator bars of dimensions $2.9 \times 2.9 \times 60$ cm³ and $5 \times 5 \times 200$ cm³ have been developed to be used in (d,n) and beta-delayed neutron studies. The detectors were constructed with different reflecting materials, optical couplings and photomultiplier tube assemblies. Measurements are compared with predictions from the Monte Carlo simulation code GEANT4. Details of the experimental configuration and results will be presented.

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