

Abstract Submitted
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Development of a neutron detector with broad dynamic range and multi-hit capability IWONA PAWELCZAK, JAN TÖKE, YUN-TSE TSAI, W. UDO SCHRÖDER, University of Rochester Departments of Chemistry and Physics — A new type of Gd-loaded plastic neutron detector with a broad dynamic range (from thermal to MeV range) and multi-hit capability has been designed and subjected to series of tests. The device consists of a stack of alternating plastic scintillator (Saint Gobain BC-408) slabs and thin radiator films (PDMS – SYLGARD 184) loaded with 0.5% of Gd per weight, viewed by a photomultiplier tube. The scintillator functions as neutron moderator, provides a prompt integrated neutron energy signal, and detects delayed n capture by Gd nuclei via associated capture γ -rays. The design, Monte Carlo simulations carried out with an extended code DENIS(E), as well as first measurements with the detector will be discussed.

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