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Organic Electronic-based Neutron Detectors

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We report on the potential use of organic electronic devices applied to radiation detection applications. In recent decades organic electronics has entered the mainstream of consumer electronics. Driven by innovations in scalability and low power applications, and low-cost fabrication methods. The potential for using organic semiconductor electronic devices as radiation detectors, and in particular for neutron detection is reported. We report results of laboratory tests using α, β, and γ sources, and results on response to neutrons using the National Physical Laboratory Van de Graff generator. GEANT4 simulations are being used to provide a detailed understanding of the performance and potential of this emerging technology for radiation detection. Some preliminary results of those simulations are also reported.

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