

Development and Testing of Multi-Radiation Systems for the Characterisation of Nuclear Facilities.

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A compact scintillation detector system based on SiPM and GAGG:Ce crystals has been developed to provide a small γ -spectroscopy system for the deployment in pipe-work with suspected nuclear contamination. The sensor also shows very good performance in the detection of β -particles.

An energy resolution of 7% for $E_\gamma = 662\text{keV}$ has been achieved with a peak-to-total ratio of 34% at this energy.

The radiation hardness of the material was studied for the first time by examining the photo-luminescence spectrum for a variety of doses up to 100 kGy, delivered by a calibrated ^{60}Co -source. A deterioration of 15% has been found.

The presentation will detail the design, tests and performance of the system and compare this to the requirements of nuclear and environmental science.

Funding information

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