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Performances of scintillators applied to Special Nuclear Material (SNM) measurements in the field of Nuclear Safeguards, material verification and Nuclear Security

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OLD

Recent developments on scintillators together with fast digital signal processing, allowed the implementation of techniques that facilitate their use in applications that required excellent Pulse Shape Discrimination and FOM such as the identification of Special Nuclear Material through both combined gammas counting / spectrometry and neutron counting with time stamp correlated information. This work is presenting extensive tests executed with many radionuclides in agreement with ANSI Standards, SNM (Pu, U, HEU, HEPu) and n-alpha neutron sources measurements and the technical solutions implemented for the realization of two nuclear measurement systems dedicated to nuclear safeguards and nuclear security applications.

NEW

Recent developments on scintillators together with fast digital signal processing enables the implementation of innovative techniques for the identification and accountancy techniques of Special Nuclear Material through both combined gammas counting and spectrometry, and neutron counting with time stamp correlated information. Those techniques leverage the combined and excellent Pulse Shape Discrimination and Time-of-Flight measurements that can be recently obtained. This work is presenting extensive tests executed with many radionuclides in agreement with ANSI Standards, SNM (Pu, U, HEU, HEPu) and n-alpha neutron sources measurements and the technical solutions implemented for the realization of two nuclear measurement systems dedicated to nuclear safeguards and nuclear security applications.

Collaboration

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