

Design of a Remote Radiation Sensing Module Based on Portable Gamma Spectrometer

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Abstract : A personal gamma spectrometer has to be sensitive, pocket-sized, and carriable on the users. To serve these requirements, we developed the SiPM-based portable radiation detectors. The prototype uses a Ce:GAGG scintillator coupled to a silicon photomultiplier and a radio frequency(RF) module to measure gamma-ray, and can be accessed wirelessly or remotely by mobile equipment. The prototype device consumes roughly 4.4W, weighs about 180g (including battery), and measures 5.0 7.0. It is able to achieve 5.8% FWHM energy resolution at 662keV.

Keywords : Ce:GAGG, gamma-ray, radio frequency, silicon photomultiplier

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