



Contribution ID: 20

Type: **Poster presentation**

Readout System for a Prototype n/γ Detector Based on NaI Scintillator

A real-time n/γ detection prototype system using NaI scintillator is presented in this paper. The use of Silicon photomultipliers (SiPMs) array enables low-power and compact-geometry applications. A high-speed waveform sampling board based on analog-to-digital converter (ADC) is employed, and a discrimination algorithm is implemented in the FPGA of the sampling board. Gamma detection test using ^{22}Na , ^{137}Cs , and ^{60}Co shows that NaI has same gamma performance with standard NaI:Tl. Differences between the gamma and neutron signal are showed using pulse shape discrimination algorithm with an americium/beryllium (AmBe) source.

Minioral

No

IEEE Member

No

Are you a student?

Yes

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Session Classification: Poster Session - C

Track Classification: Real Time System Architectures and Intelligent Signal Processing