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Title: Three-Dimensional Position-Sensitive Room-Temperature Semiconductor Gamma-Ray Spectrometers & Imagers

Abstract:

Zhong He's research group has been working on the advancement of high resolution 3-dimensional position-sensitive room-temperature semiconductor gamma-ray spectrometers and imagers capable of neutron detection. These detectors have been used for national security, nuclear power industry, safeguard, international nuclear non-proliferation, space exploration and medical imaging.

The principle of UM 3-dimensional position-sensing (3D) readout technology will be introduced, as well as its unique capabilities on high energy resolution, real-time gamma-ray imaging and new semiconductor material development. Examples of recent applications using 3D CdZnTe (CZT) detectors in nuclear security and nonproliferation will be summarized, and new development on perovskite semiconductor gamma-ray detectors will be introduced.