

CdZnTe based detectors for X and gamma ray spectroscopic imaging.

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CdZnTe crystals are largely exploited for the production of room temperature operating x and gamma ray spectroscopic imaging detectors operating in the 10 keV-1 MeV. This is because of CdZnTe large x-ray stopping power (large mean atomic number), high room temperature electrical resistivity (large enough band gap), good energy resolution (reasonable carrier transport properties).

In this paper, the last results about the realization and characterization of CdZnTe detectors at IMEM-CNR in collaboration with several groups are presented. The detectors are developed for several applications such as industrial non-destructive testing, spectroscopic imaging at Synchrotron facilities, decommissioning, environmental control, high energy physics and astrophysics.

The presentation will focus on the preparation of the detectors as well as on the improvements in the read out electronics and signal processing.

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