

(CdZn)Te bulk single crystals for room-temperature X-ray and gamma-ray detectors

(CdZn)Te bulk single crystals or thin films are widely used in many applications. Room temperature X-ray and Gamma-ray (CdZn)Te detectors, thin-film CdTe/CdS solar cells or electro-optical modulators are already commercially available. During last decades, (CdZn)Te detectors have played an ever-growing role in various aspects of human life. The field of applications of these detectors extends from health and medicine to nuclear security and imaging of energetic ions, and likely will extend further.

High collection efficiency of free carriers generated by irradiation at room temperature represents the main advantage of (CdZn)Te detectors. This ability critically depends upon the high resistivity of this material and good charge transport properties.

In this talk material properties, which are necessary for production of the high charge collection efficiency detectors, will be discussed and the methods of detector preparation and characterization will be presented.