

X-Ray Sensing Properties of Solution-Grown Cadmium Iodide (CdI_2) Crystals

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Abstract: *The effect of doping on the X-ray sensing properties of solution-grown cadmium iodide crystals is examined in this work. Indium (In), Thallium (Tl), and Bismuth (Bi) were among the dopants added to CdI_2 crystals during the solution growth procedure. X-ray diffraction (XRD), UV-Vis spectroscopy, and current-voltage (I-V) measurements were used to assess the doped crystals' structural, optical, and electrical characteristics. Sensitivity, response time, and stability under various radiation levels were measured in order to assess the efficacy of X-ray sensing. The findings show that doping greatly improves the X-ray sensing capabilities of CdI_2 crystals, with the maximum sensitivity and shortest reaction times found in bi-doped samples. This study offers important new information on how to optimize CdI_2 -based X-ray detectors by controlled doping, opening the door to better security screening and medical imaging applications*

Keywords: X-ray sensing.

