

MECHANISMS OF MASS TRANSFER OF INDIUM
IN CdTe UNDER NANOSECOND LASER
IRRADIATION

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S u m m a r y

The mechanisms of pulsed laser solid-phase doping of CdTe with indium to produce diode structures for X-ray and gamma radiation detectors are considered. It is shown that the indium mass transfer in CdTe under nanosecond laser irradiation of the In–CdTe structure below the melting threshold of CdTe takes place by the barodiffusion mechanism due to a considerable stress gradient. We have calculated the mass transfer coefficients of indium and estimated the mean drift velocity of indium atoms in CdTe under irradiation of the In–CdTe structure with the 30-nm-thick In film by a nanosecond excimer laser pulse at $E = 100 \text{ mJ/cm}^2$ being the optimal energy density for the doping.