

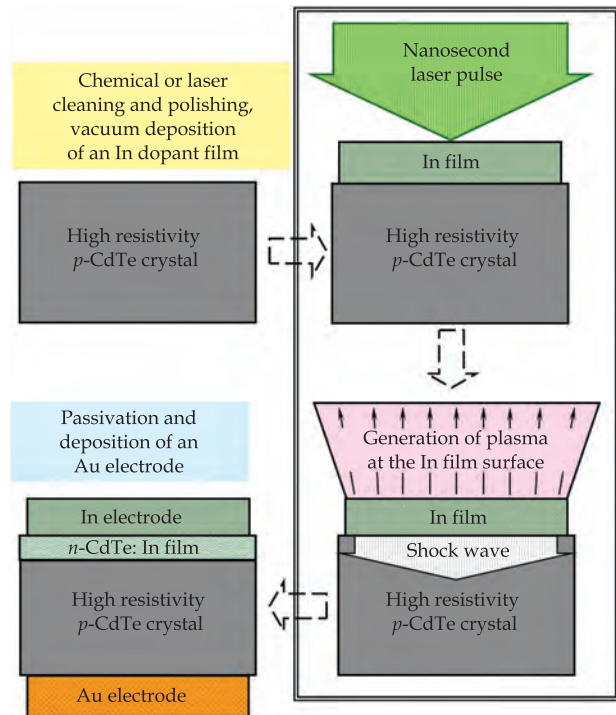
## CdTe-BASED M-*p-n* SENSOR DIODE STRUCTURES WITH HIGH RESOLUTION

### Areas of Application

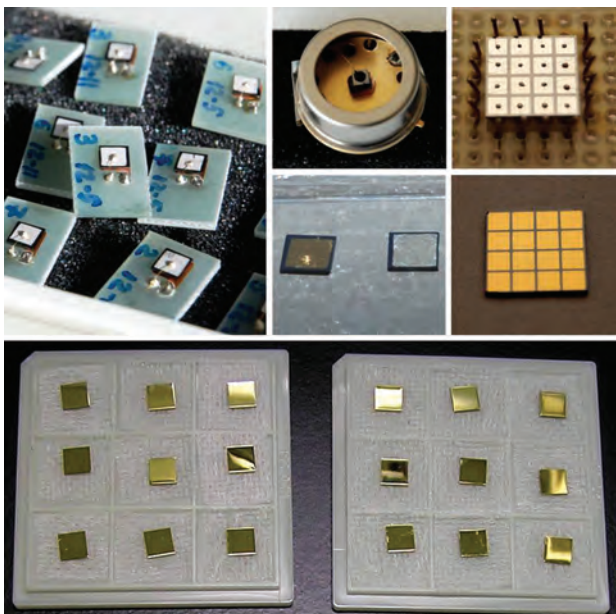
The In/CdTe/Au M-*p-n* sensor structures with a high energy resolution are to be used in X/γ-ray radiation detectors for localization and identification of radioactive sources and for visualization of objects in nuclear energetics, ecology, industry, medicine, etc.

### Specification

Thicknesses of <i>p</i> -CdTe crystal, mm,	0.5–1
<i>n</i> -CdTe:In doped layer, nm	40
and In and Au electrodes in	300–500
In/CdTe/Au M- <i>p-n</i> structure, μm	
Electrons concentration, cm <sup>3</sup>	~10 <sup>19</sup>
Mobility in <i>n</i> -CdTe:In layer, cm <sup>2</sup> /V·s	~140
Resistivity of <i>p</i> -CdTe crystal, Ω·cm,	10 <sup>9</sup>
and <i>n</i> -CdTe:In layer, Ω·cm	10 <sup>-3</sup>
Source current density, nA/cm <sup>2</sup>	<10
	(at 200 V)
Energy resolution, %	0.7–1.0
(T = 300 K)	(FMHW at 662 keV)



Procedures and mechanisms of M-*p-n* diode structures formation using laser-induced doping



Samples of In/CdTe/Au M-*p-n* sensor diode structures

### Advantages

There are no analogs in Ukraine. The In/CdTe/Au M-*p-n* diode structures with a low source current have a high energy resolution of 0.7–1.0% (FMHW at 662 keV), versus 2–5% of the foreign commercial analogs

### Stage of Development. Suggestions for Commercialization

IRL4, TRL5  
Manufactured upon request

### IPR Protection

IPR2, IPR3

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