

Laser pulse detector based on Sn-doped indium oxide films

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Abstract. Sn-doped indium oxide (ITO) films have been investigated for fast rise time laser pulse detection for the first time. The detector was tested for different wavelengths in the UV (280 nm, resulting in inter-band transitions of electrons) and NIR (1.06 μm , resulting in free carrier absorption) region. Characteristics of laser induced voltages for the ITO films with different compositions have been studied for both excitation wavelengths. The voltage pulse generated by NIR-excitation was delayed in time at least by 100 ns as compared with that generated by UV-excitation. Responsivity of the films is larger for the UV-excitation than for the NIR-excitation.

PACS. 78.66.Bz Metals and metallic alloys – 42.70.Gi Light-sensitive materials – 85.60.Gz Photodetectors (including infrared and CCD detectors)