

Evolution of Temperature Distribution Initiated by a Pulse Laser Radiation in Semiconductor Structures

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Investigations of photoacoustic effects in condensed media allow understanding the nature of the phenomena, occurring in the “*light – heat – sound*” process of energy conversion. The use of thermal waves as carriers of information regarding properties of the substance studied is a key-point of these investigations. It creates the unique possibility to diagnose subsurface properties of the material studied, which is very important for the decision of many problems of material science, first of all for semiconductors (heterostructures, ion-implanted, epitaxial and porous materials, etc). In the present work, the process of formation of temperature profiles in spatially non-uniform structures on the basis of Si is considered at their irradiation by a short ($\tau=20$ ns) laser impulse is considered. The influence of structure of the sample on the evolution of an absolute value of temperature on its surfaces is shown here. The cases of spatial and temperature dependences of thermal diffusivity on the formation of time distributions of temperature on the surface of modeling samples are also analyzed.