## The IR-laser Treatment of Solid Solution PbGeTe : Mn

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The results of an experimental study of the electrophysical properties and ESR of the $Pb_{1-x}Ge_xTe$ ($x = 0.03$) doped with Mn, and of laserinduced transformations of intrinsic and impurity defects under the influence of IR-laser light are present.

The power density (W) of the laser radiation is always below threshold and the thermal transformation of defects. Applying the IR laser radiation it is possible to order the native and impurities defects and destroy the enriched regions in the lattices of the bulk crystals. The laser - stimulated changes of the samples are of a bulk nature. It was shown that under the IR laser treatment one can not only the carrier concentration in this of crystals, but also the type of conductivity in them cause by redistribution of intrinsic and impurities components in lattices and compensations of electrically active vacancies. After the laser treatment the mobility of free carriers was grown up to several times and was equal to that one observed in perfect single crystals. Observation of hyperfine and superhyperfine interactions in PbGeTe solid solution doped by Mn after laser treatment testify to homogeneous distribution of such kind of impurities in metal sublattice of crystals. In the case of Mn doped crystals, which were not exposed to laser radiation, the ESR spectra consisted of six isotropic hyperfine structure lines due to the interaction between the $3d^5$ electrons of $Mn^{2+}$ with an intrinsic nuclear moment ($I = 5/2$) of the $^{55}Mn$ isotope. Interaction of laser radiation with crystals resulted eventually in an increase in the integral intensities of isolated hyperfine structure lines in the ESR spectrum

The constants of the spin Hamiltonian of the interstitial and site Mn in the PbGeTe lattice were determined.