

QUANTUM WELLS DEGRADATION AND MODIFICATION OF ENERGY SPECTRA IN SEMICONDUCTORS UNDER IRRADIATION

G. V. Vertsimakha, V. V. Mykhaylovskyy, V. Y. Sugakov

The influence of high-energy particles radiation on the spatial distribution of atom concentration in multicomponent semiconductors with quantum wells was considered. The calculations was made for manganese concentration in CdMnTe. The initial distribution of manganese concentration was taken as in Cd_{1-x}Mn_xTe/CdTe quantum well. Further dynamics was simulated with kinetic equations. Defect creations by irradiation, their recombination and drift to surface as well as manganese diffusion with vacancies and interstitials were taken into account in the kinetic equations. It was shown that irradiation causes the intermixing of compound's components and the quantum well spreading. The influence of external irradiation on the potential for electrons and holes, their spectra and exciton spectra was analyzed. Time dependences of exciton level were calculated for different temperatures and irradiation intensity.