

# EFFECT OF NEUTRON IRRADIATION ON THE ELECTRONIC AND OPTICAL PROPERTIES OF ALGAAS/INGAAS-BASED QUANTUM WELL STRUCTURES

The effect of neutron irradiation on the structural, optical, and electronic properties of doped strained heterostructures with AlGaAs/InGaAs/GaAs and AlGaAs/InGaAs/AlGaAs quantum wells was experimentally studied. Heterostructures with a two-dimensional electron gas of different layer constructions were subjected to neutron irradiation in the reactor channel with the fluence range of  $2 \cdot 10^{14} \text{ cm}^{-2} \div 1.2 \cdot 10^{16} \text{ cm}^{-2}$ . The low-temperature photoluminescence spectra, electron concentration and mobility, and high-resolution X-ray diffraction curves were measured after the deactivation. The paper discusses the effect of neutron dose on the conductivity and optical spectra of structures based on InGaAs quantum wells depending on the doping level. The limiting dose of neutron irradiation was also estimated for the successful utilization of AlGaAs/InGaAs/GaAs and AlGaAs/InGaAs/AlGaAs heterostructures in electronic applications.

## Section

Energy and materials science (Section 2)

**Primary author:** YSKAKOV, Almas (JINR/INP Kazakhstan)

**Presenter:** YSKAKOV, Almas (JINR/INP Kazakhstan)

**Track Classification:** The V International Scientific Forum “Nuclear Science and Technologies”: Energy and materials science (Section 2)