# DETERMINATION OF THE LO PHONON LIFETIME IN GaN

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S u m m a r y

The work presents results of experimental investigations of the heating and energy losses of hot electrons localized in the conduction channels of $Al_{0.33}Ga_{0.67}N/GaN$ heterostructures in carrier-heating electric fields up to 150 kV/cm. The results were obtained by means of the application of electric-field pulses lasting for 10–30 ns to the structures at a temperature of 4.2 K. The analysis of the results of transport measurements yielded the optical phonon energy for gallium nitride $\hbar\omega_{\rm LO} = 90$ meV, the time of its spontaneous emission $\tau_0 = 27$ fs, and the optical phonon lifetime $\tau_{\rm LO}$. The decay time of the optical phonon $\tau_{\rm LO} = 85$ fs obtained in the work is less by one order of magnitude as compared to the existing results of measuring $\tau_{\rm LO}$ with the help of optical research methods and theoretical calculations.