

POLARIZATION OF SUBMILLIMETER RADIATION
EMITTED BY HOT CARRIERS IN GaAs/In_xGa_{1-x}As
HETEROSTRUCTURES AT HELIUM
TEMPERATURES

P.M. Tomchuk, V.M. Bondar, Yu.M. Gudenko

Institute of Physics, Nat. Acad. of Sci. of Ukraine
(46, Nauka Ave., Kyiv 03680, Ukraine)

S u m m a r y

The results of our studies of polarization dependences of spontaneous submillimeter radiation emitted by hot carriers in GaAs/In_xGa_{1-x}As heterostructures at liquid helium temperatures are reported. The polarization vector was selected to be perpendicular to the electric field direction, the current through the heterostructure, and the longitudinal axis of a specimen. The radiation polarization is explained by the influence of a strong electric field on the electron distribution function. The conventional diffusion approximation cannot describe the observed phenomenon theoretically. This can be done only going beyond the framework of the diffusion approximation, in particular, by taking the third term in the distribution function expansion into account.