

## ELECTROREFLECTANCE OF $n$ -GaP AND $n$ -GaAs EPITAXIAL FILMS

*E.F. Venger, P.O. Gentsar, L.A. Matveeva*

V.E. Lashkarev Institute of Semiconductor Physics,  
Nat. Acad. Sci. of Ukraine  
(45, Nauky Ave., Kyiv 03028, Ukraine;  
e-mail: matveeva@isp.kiev.ua)

### S u m m a r y

Electroreflectance (ER) spectra of homoepitaxial  $n$ -GaP (111) films with the concentration of electrons  $n = (1 \div 5) \times 10^{22} \text{ m}^{-3}$  and homoepitaxial  $n$ -GaAs (100) films with  $n = 10^{23} \div 10^{24} \text{ m}^{-3}$  have been studied. The former films were studied in the spectral range 2.5–3.2 eV using the electrolytic technique, and the latter in the spectral range 1.3–1.65 eV using the Schottky barrier method. Measurements were carried out at room temperature and using unpolarized light. From the quantitative analysis of the ER spectra, the following parameters were obtained: the electrooptical energy  $\hbar\theta$ , the surface electrical field  $F_s$ , the collisional broadening parameter  $\Gamma$ , and the relative phase factor  $\psi$ . The connection between the periods of Franz–Keldysh oscillations  $\Delta E_m$  and the electrooptical energy  $\hbar\theta$  has been analyzed.