

INFLUENCE OF THE PLASMON-PHONON  
COUPLING ON THE REFLECTANCE  
COEFFICIENT IN ONE-AXIS POLAR  
ZnO SEMICONDUCTOR

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S u m m a r y

For the first time, the reflectance coefficients of ZnO single crystals in the IR spectral range are investigated with taking into account vibrations of three coupled subsystems: electromagnetic waves, optical vibrations of the lattice, and plasmon vibrations of free charge carriers. It is shown that the leading phonon anisotropy and insignificant plasmon anisotropy lead to some peculiarities of the spectrum of connected vibrations and regions of transparency. In the case  $\theta \neq 0, \pi/2$ , four regions of the total reflection and four minima are observed in reflectance spectra. The conditions under which it is possible to experimentally investigate the transparency regions are determined.