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Me-ZnP2 diodes sensible to optical gyration

Abstract

Spatial dispersion in ZnP2-D 4 8 has been studied. The spectral dependences of the refractive index $n_c(E_{llc}, k_{lla})$, $n_a(E_{lla}, k_{llc})$ and $n_b(E_{llb}, k_{llc})$ had been determined. It was shown that the dispersion is positive $n_c(E_{llc}, k_{lla})$, $n_a(E_{lla}, k_{llc}) > n_b(E_{llb}, k_{llc})$ in $\lambda > \lambda_0$ region, the dispersion is negative $n_c(E_{llc}, k_{lla})$ at $\lambda < \lambda_0$, and $\Delta n = n_c - n_b = 0$ at $\lambda = \lambda_0$. The LIV characteristics of Me-ZnP2-D 4 8 diodes had been studied at different temperatures, the temperature dependences of the "imperfection" factor δ for different Schottky barriers. Capacitance voltage characteristics of Me-ZnP2-D 4 8 photodiodes obtained by electrochemical deposition of metal

and by thermo-chemical spraying in vacuum had been studied. The influence of birefringence and gyration on spectral characteristics of p-n photodiodes and Schottky diodes had been revealed. The ability of controlling photodiodes' characteristics was obtained using the gyration particularities in ZnP₂-D 4 8 crystals.