

## Contents

- 5 **Electronic band structure and magnetic susceptibility of  $\text{Ge}_{1-x}\text{Si}_x$  solid solutions**  
*V.G. Deibuk, S.I. Shakhovtsova, V.A. Shenderovski, V.M. Tsmots*
- 9 **Urbach's rule peculiarities in structures with  $\text{CdS}_x\text{Se}_{1-x}$  nanocrystals**  
*V.P. Kumets, N.R. Kulish, Vas. P. Kumets, M.P. Lisitsa*
- 16 **Atomic and electronic structure of  $\alpha\text{-SiC}$**   
*V.I. Ivashchenko, V.I. Shevchenko*
- 25 **Influence of  $\gamma$ -irradiation on photoluminescence spectra of  $\text{CdTe:Cl}$**   
*N.D. Vakhnyak, S.G. Krylyuk, Yu.V. Kryuchenko, I.M. Kupchak*
- 31 **Properties and application of ultrasonic Lamb waves in  $\text{Cd}_x\text{Hg}_{1-x}\text{Te}$  plates**  
*I.O. Lysiuk, V.F. Machulin, Ya.M. Olikh*
- 36 **Divergent-beam X-ray structural studies of a disturbed surface layer in silicon plates**  
*V.N. Tkach*
- 39 **Interface roughness induced intrasubband scattering in a quantum well under an electric field**  
*G.B. Ibragimov*
- 42 **Instability of homogeneous composition of highly strained quantum wells in heterostructures  $\text{GaAs/In}_x\text{Ga}_{1-x}\text{As/GaAs}$**   
*A.I. Klimovskaya, N.N. Grigor'ev, E.G. Gule, Yu.A. Dryha, V.G. Litovchenko*
- 46 **Current flow mechanisms in  $p$ - $i$ - $n$  structures based on cadmium telluride**  
*P.M. Gorley, M.V. Demych, V.P. Makhniy, Zs. J. Horvath, V.A. Shenderovsky*
- 51 **Production and investigation of Cu/thin intermediate tunnel-transparent dielectric oxide layer/ $n\text{-Pb}_{0.935}\text{Sn}_{0.065}\text{Te}_{0.243}\text{Se}_{0.757}/\text{In}$  Schottky barrier structures**  
*A.I. Tkachuk, O.N. Tsarenko, S.I. Ryabets*
- 58 **On origin of rapid portion of luminance-voltage dependence of  $\text{ZnS:Mn}$  TFEL devices and its aging behavior**  
*N.A. Vlasenko, Z.L. Denisova, Ya.F. Kononets, L.I. Veligura, M.M. Chumachkova, Yu.A. Tsyrukunov, E.L. Soininen, R.O. Tornqvist, K.M. Vasame*
- 63 **III-V material solar cells for space applications**  
*T.V. Torchynska, G. P. Polupan*
- 71 **Silicon carbide LED**  
*S.I. Vlaskina*
- 76 **Study of supercapacitors with a double electrical layer based on activated carbon materials**  
*I.M. Budzulyak, Z.D. Kovalyuk, F.V. Motsnyi, V.B. Orletskyi*
- 78 **Dielectric, ferroelectric and piezoelectric properties of sputtered PZT thin films on Si substrates: influence of film thickness and orientation**  
*T. Haccart, E. Cattan, D. Remiens*
- 89 **Thin film PZT-Si structure with quadrant-diagonal electrode system as an element of position sensitive pyroelectric detector**  
*S.L. Bravina, E. Cattan, N.V. Morozovsky, D. Remiens*
- 95 **Reststrahlen spectroscopy of  $\text{MgAl}_2\text{O}_4$  spinel**  
*N.N. Boguslavskaya, E.F. Venger, N.M. Vernidub, Yu.A. Pasechnik, K.V. Shportko*

- 101 Borophosphosilicate glass component analysis using secondary neutrals mass spectrometry (SNMS)**  
*O. Oberemok, P. Lytvyn*
- 106 Multilevel computer-generated holograms for reconstructing 3-D images in combined optical-digital security devices**  
*V.I. Girnyk, S.O. Kostyukevych,  
A.V. Kononov, I. S. Borisov*
- 115 Allowable deviation of LC layer thickness in cholesteric LCDs**  
*A. Rybalochka, V. Sorokin, A. Sorokin*
- 119 Static realization of reliable positional indication**  
*A.V. Bushma, G.A. Sukach*