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**Yurkov A. S.** *On the Optical Transitions in Quantum Dots* . . . . . 2

This paper describes theoretically optical transitions in quantum dots accompanied by annihilation or birth of an electron-hole pair for different orbital states in these pairs. It is shown that taking into account the finite wave length of optical radiation makes the probability of such optical transitions noticeable. The corresponding radiation can only be observed at an angle to the axis of symmetry of a quantum dot. A numerical comparison of probabilities of ss- and sp-transitions is presented for typical parameters of quantum dots.

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Topology of testing plate with high density of printed wiring for estimation electrical and physical parameters of thin film arrangement in multilevel commutation-conversion devices for multicrystal micromodules is developed. Manufacture process is offered and characteristics of multilevel structure on the base of metallization "vanadium—aluminum" with polyimide interlayer insulation are evaluated.

**Sidorov N. V., Chufyrev P. G., Palatnikov M. N., Kalinnikov V. T.** *Defects, Photorefractive Properties and an Oscillatory Spectrum of Crystals Lithium Niobate of Different Structure* . . . . . 12

The Raman spectra application in studies of the structural units ordering in the cation sublattice and the photorefractive properties of lithium niobate single crystals of dissimilar compositions, i. e. nominally pure ones with varying Li/Nb ratios and crystals alloyed with nonphotorefractive cations,  $Gd^{3+}$  and  $Y^{3+}$  is discussed. It is shown that at small,  $Gd^{3+}$  and  $Y^{3+}$  concentrations the photorefractive effect value is essentially controlled by the structural units ordering in the cation sublattice. It is found that the line intensity corresponding to bridge valent vibrations of oxygen atoms in  $NbO_6$  octahedra is sensitive to the cation sublattice dipole ordering.

**Pavlov S. V.** *Dielectric Permittivity of Composite with Ferroelectric Inclusions* . . . . . 17

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**Altukhov V. I., Rostova A. T., Kazarov B. A.** *The Phonon Scattering on the Point Structural Defects, Complexes — Nanoparticles and Typical Peculiarities of the Thermal Conductivity Resistance of Real Ferroelectric Crystals. Part I. The Quasi-Elastic Scattering of Phonon and Critical Indexes for the Ferroelectric Crystals* . . . . . 19

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**Starkov V. V.** *Monolithic Polymer Electrolyte on the Basis of Silicon* . . . . . 26

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**Despotuli A. L., Andreeva A. V., Vedenev V. V., Aristov V. V., Malsev P. P.** *High-Capacitance Capacitors for Ultra-Dense Surface Mount* . . . . . 30

On the basis of the analysis of development tendencies of integrated electronics, nano(micro)system engineering and techniques of ultra-dense surface mount, the challenge of creation of low-voltage ( $\sim 0,5$  V) microcapacitors (the 01005 case with sizes  $0,4 \text{ mm} \times 0,2 \text{ mm} \times 0,2 \text{ mm}$ ) with capacity density higher  $10 \mu\text{F mm}^{-3}$  for mid-frequencies ( $10^3$ — $10^6$  Hz) applications is revealed. The experimental data on the developed innovative nanoionic supercapacitors (NSCs) with special design of the functional advanced superionic conductor (ASIC)/electronic conductor heterojunctions are presented. A further progress in the NSC development will allow create the capacitor storage devices with required high frequency — capacity and energy-power characteristics.

**Yashin K. D., Lazapnev E. V.** *The Terminological English-Russian Mems&Nems Dictionary* . . . . . 37

In dictionary are given the terms and most widely used phrases and abbreviations of micro- and nanosystems and their fabrication.

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