

Chernov V. A., Palagushkin A. N., Prudnikov N. V., Sergeev A. P., Sigeikin G. I., Leonova E. A. *Manufacture and Investigations of Nanostructures for Direct Nuclearelectrical Energy Converting Based on Secondary Electrons* .2
Requirements to nanostructures metal—isolator—metal (MIM-structures) for direct nuclear-electrical energy converting based on secondary electrons are proved. Methods for MIM-structures manufacture — method of magnetron ionic-plasma dispersion and electronic beam dispersion method are described. Properties of made MIM-structures $W-Al_2O_3-Al$ with thickness of layers 10, 100 and 10 nanometers, accordingly, are stated.

Keywords: direct nuclear-electrical energy conversion, secondary electrons, metal—isolator—metal structures, method of magnetron ionic-plasma dispersion, electronic beam dispersion method

Gerus S. V., Guljaev Yu. V., Lobanov B. S., Mitjagin A. Yu., Sokolovsky A. A., Temirjazevá M. P., Fesenko M. V., Hlopov B. V. *Influence of External Magnetic Fields on Information Magnetic Structure of Modern Hard Disks* 10
Experimental researches of magnetic structure of fragments record on hard disks of various capacity are considered and its stability to influence of a magnetic field of various intensity and orientation is studied. The conditions defining stability of hard disks to external magnetic fields, coercivity of applied magnetic materials and degree of shielding of a pulse magnetic field the case and constructive elements of a hard disk.

Keywords: electromagnetic fields, scanning microscopy, the store on a rigid magnetic disk

Maltsev P. P., Fedorov Yu. V., Galiev G. B., Bugaev A. S., Senichkin A. P., Gnatyuk D. L. *Development of Ultra High Frequency Nanoelectronics* 14
Engineering of UHF heterostructural transistors and monolithic integrated circuits is described.

Keywords: ultra high frequency nanoelectronics, nanoheterostructures, nanotechnology

Mitko V. N., Panich A. A., Motin D. V., Panich A. E., Kramarov Yu. A. *Sensor Vibration Modelling on Shear Piezoeffect* 17
The article considers vibration sensor on shear piezoeffect. The sensible element is lanthanum gallium tantalate crystals ($La_3Ga_{5,5}Ta_{0,5}O_{14}$ — LGT) Y- cut of piezocrystal. The vibration sensitivity of sensor models by finite element method.

Keywords: piezoelectric, shear piezoeffect, lanthanum gallium tantalate crystals, vibration sensor, finite element method, vibration sensitivity

Teplova T. B., Gridin O. M., Solovev V. V., Ashkinazy E. E., Ralchenko V. G. *Modelling of Process Quasi-Plastic of Superficial Processing of Firm Fragile Materials of Electronic Technics* 20

There is a growing interest in use of very hard crystalline materials like sapphire or diamond in microelectronics. These applications require a very good quality surface finish and minimal defects in subsurface layer. Quasi-plastic level-by-level destruction of a superficial layer of the hard materials is promising for fine processing, in our experiments.

Keywords: leikosapphire, microelectronics, quasi-plastic grinding, base layers,, roughness

Eganova E. M. *Electrical Conductivity of Glassy Films As_2Se_3* 23

In this paper we report the observation of the microplasma in films As_2Se_3 , one of the wide-CGS, and the study of their properties. Despite the fact that some properties of the microplasma in amorphous films similar to those of the microplasma in $p-n$ junctions, there are differences that were not observed in crystalline materials.

Keywords: CGS, microplasma, conductivity, breakdown, the high field

Anufriev Yu. V., Zenova E. V., Kondratyev P. K., Rachnikov D. A. *Manufacturing Flow of Nonvolatile Phase Change Memory Nanoscale Cell with Application of Dual-Beam Research System NOVANanoLab600* 26

Possible fabrication technique of phase change nonvolatile RAM array prototype is described. Dual-beam research system NOVANanoLab600 application as main processing equipment was considered. Path flow and flow features applied in this paper are expounded.

Keywords: nonvolatile nanoscale memory, phase RAM, dual-beam, FEI

Abramov I. I. *Problems and Principles of Physics and Simulation of Micro- and Nanoelectronics Devices. VIII. Nanoscale MOSFETs* 29
 The models of silicon nanoscale metal-oxide-semiconductor field-effect transistors (MOSFETs) were analyzed. The perspectives of electronics beyond MOSFET "era" were considered.

Keywords: nanotransistors, metal-oxide-semiconductor, nanoelectronics

Pivonenkov B. I., **Shkolnikov V. M.** *Triaxial Piezoresistive MEM-accelerometer* 43
 There are described Triaxial MEM-accelerometer with single sensitive element and with are damping and stops of inertial mass shift.

There are described calculated optimum characteristic of accelerometer: the inner dimensions for different thickness of sensitive element, length and width of bridge, are specified requirements to the piezoresistors, are given optimal characteristic of accelerometer for range 10 g with two substrates thickness: 450 and 600 microns.

There are given propositions for serial manufacturer of accelerometers.

Keywords: piezoresistive accelerometer, sensitive element, MEMS (Micro-Electro-Mechanical Systems), Triaxial MEM-accelerometer

Kondrashin A. A., **Sleptsov V. V.**, **Lyamin A. N.** *OLED/PLED Illumination's High Technologies* 47
 In article the basic advantages of light-emitting diode means of illumination (LED and OLED/PLED) before traditional are presented. The basic advantages organic light-emitting diodes and their lacks are revealed. The most widespread technologies of reception of white colour on the basis of light-emitting diodes are considered. The forecast of development of technical parametres OLED/PLED for the next 5 years is presented.

Keywords: organic light-emitting diodes OLED/PLED. Technologies of reception of white colour. The forecast of technical parametres

Belkin M. E., **Belkin L. M.** *Research of VCSEL's Turn-on Delay Features* 51

A simple turn-on delay testing method for semiconductor laser with direct current modulation based on the digital oscilloscope's comparison of the wavefronts between device-under-test input impulse and the impulse after electro-optical and opto-electrical conversions is proposed. The principles, measure technology, and results of VCSEL's turn-on delay feature measurements are described. The measurements accuracy is estimated.

Keywords: long-wavelength vertical-cavity surface-emitting laser (VCSEL), turn-on delay measurement

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