

Arakelian S. M., Korostelev V. F., Kutrovskya S. V., Kucherik A. O., Kirilina A. N. *Nanoindentation of Carbon Nanotubes, Impregnated by Liquid Aluminium under Pressure* 2

In the given work the process of compactation is carried out by impregnation of the capsule filled UNT, in liquid aluminum at temperature 8500 °C under the pressure of 400 MPa. For research of properties by a method of nanoindentation the scanning probe microscope (SPM) Solver NEXT, manufactures NT-MDT Zelenograd city of Moscow region was used.

Results of the measurements are resulted. Their comparison with the literary data, gives the important information for synthesis of new materials.

Keywords: a technique of resonant self-oscillations, isostatic pressing in liquid metal, properties of a surface, formation of fragments of nanostructure

Nepomnashy O. V., Alekminsky S. Yu. *Problems of Project Verification During the trough Designing of Computer Systems on Chip* 4

The article deals with modern problems of functional and system verification of very large scale integrated (VLSI) circuits and systems on a chip in particular. There is a review of existing methods of verification and propose ways to solve the aforesaid problems.

Keywords: functional verification, system verification, CAD, VLSI, system on chip

Zhuravleva L. M., Plekhanov V. G. *Isotopical Nanotechnology Low Dimensional Structures.* 8

In our paper we are shown the perspectives of the new direction of nanoscience — isotoptronics. Isotoptronics bases on the method of the neutron irradiation of isotope — mixed crystals. The main subject of the isotoptronics is creation and investigation of the low — dimensional structures which used at the transmission and elaboration of the information. In this paper there are briefly described the results of the application of the isotoptronics in nano- and optoelectronics.

Keywords: isotopes, nanotechnology, low-dimensional structures, information

Shautsukov A. G., Hatukaev H. M. *Application of Processes Ion Doping 2-Drifts ADD Diodes with a Flat and Step Profile Doping.* 13

In work it is offered to obtain 2-drifts of structure silicon ADD with using epitaxial normalization in reactor of the lowered pressure, multiple ion doping, implantation of doping impurity through a tape photon annealing ion doped later. The application of the developed technology provides serial release of a sort perspective 2-drifts ADD mm-range.

Keywords: perspective 2-drifts ADD mm-range, ion doping, method epitaxial normalization

Smolin V. K. *Thin-Film Resistive Elements of Sensors Primary Converters* 16

Review of design characteristics of sensors primary converters production for different functionality, using thin-film resistors as sensing elements.

Keywords: resistor, thermal resistor, resistive-strain sensor, adsorption sensitive resistor, magnetoresistor, thin film, formation technology, primary converters

Bobrov A. A., Dyuzhev N. A., Mednikov A. M., Makhiboroda M. A., Popkov A. F., Shkuropat I. G., Matveeva N. K. *Analysis of the Gas Flow Membrane Anemometer output Signal in Stationry and Pulse Heating Mode.* 23

Construction and functioning principles of the developed thermoresistive gas flow sensor of the membrane type are described un the paper. Results of studying of differential output signal measurements of the this anemometer in a stationary and pulse mode regimes are discussed. Estimations of its dynamic range of flow measurements

and resource of its working in the autonomic regime are presented.

Keywords: MEMS-technology, gas flow sensor, temperature-compensated membrane, dynamic range of measurements, flow speed

Abramov I. I. *Problems and Principles of Physics and Simulation of Micro- and Nanoelectronics Devices. VIII. Nanoscale MOSFETs* 27

The models of silicon nanoscale metal-oxide-semiconductor field-effect transistors (MOSFETs) were analyzed. The perspectives of electronics beyond MOSFET "era" were considered.

Keyword: nanotransistors, metal-oxide-semiconductor, nanoelectronics

Pivonenkov B. I. *The New Type of Piezoresistive Sensors* 38

There are suggested the new type of piezoresistive sensors with essentially better characteristics and more simple technology of manufacture by author.

There are described constructions of sensors, are given results of calculation there characteristics in different versions of manufacture. Sensors have essentially better characteristics and minimal dispersion sensitivity.

Keywords: sensor of mechanical quantities, piezoresistive sensor, sensitive element, MEM (microelectromechanical), energy of deformation, microminiaturization, nanosensor

Voitsekhovskii A. V., Kokhanenko A. P., Korotaev A. G., Grigor'ev D. V., Kulchitsky N. A., Melnikov A. A. *Radiation Effects in HgCdTe Photodetectors* 48

Radiation effects in MCT photonic detectors are observed. Electron and γ -ray irradiation are in consideration. The radiation hardness HgCdTe detectors with various surface passivations is compared.

Keywords: mercury cadmium telluride, radiation effects, photonic detector

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