

Aleksandrov P. A., Baranova E. K., Baranova I. V., Budaragin V. V., Litvinov V. L., Svechnikov A. B. *Differences between the Effect of Radiation on Nanoelectronic Materials, Devices and Circuits, and on their Microelectronic Analogues*. 2

The work provides a systematic analysis of the effects which should be taken into account in investigation of radiation effects in nanoelectronic materials/devices. The physical differences of the influence of radiation on these objects as compared with their microelectronic analogues are considered. The analysis is supported by theoretical and experimental results published in the literature, as well as estimates. Some practical recommendations are given and tasks that require special study are formulated.

Keywords: nanoelectronics, radiation damage, electronic materials

Yashin K. D., Terpinskaya T. I., Osipovich V. S., Lemesh R. G., Gavnerko G. K., Zilberman R. D., Petrovich V. S. *Technology of Creation Medical Nanobioinformation Diagnostic System on Semiconductor Nanocrystals* 11

The design of fluorescent nanobiomarkers suitable for imaging of tumor cells in vitro is considered. The development is intended to indicate tumor cells in medical diagnosis.

Keywords: nanobioinformation system, fluorescent nanobiomarkers, nanoparticle, diagnosis of tumors, the semiconductor nanocrystals

Rathkeen L. S. *Nanotechnological Schools of Russia: Stages of Development & International Cooperation* . 15
October 5—7, 2011 at Academician physical-technological university — scientific & educational centre of nanotechnologies of Russian academy of sciences (Sankt-Petersburg) under the Chairmanship of the President of Russian nanotechnological society (RNS) Victor A. Bykov, Doctor of Science (Tech.), was organized scientific & practical conference of RNS "Russian nanotechnologies on world market: experience of success & cooperation, problems & prospective", on which were presented reports by different directions of brunch development in Russia.

Keywords: Russian academy of sciences (RAS), Russian nanotechnological society (RNS), nanomaterials, nanotechnologies, nanoeducation, nanoindustry, surface-active meanings (SAM), nanotubes, nanoparticles, nanocomposites

Belozubov E. M., Belozubova N. E., Vasil'ev V. A. *Increasing to Stability of Thin-Film Nano- and Microelectromechanical Systems of Pressure Sensors for Systems of Checking Measuring and Diagnostics of Technically Complex Objects* 21

Increasing to stability of thin-film nano- and microelectromechanical systems of pressure sensors for systems of checking measuring and diagnostics of technically complex objects are considered.

Keywords: thin-film nano- and microelectromechanical systems (NaMEMS), time stability, temperature, deformation, criterion, pressure sensor, identical tensometric element

Soloviev A. N., Alexeev V. E. *Gyro-Free Inertial Navigation System Based on Distributed Set of Accelerometers* 26

Implementation of gyro-free inertial navigation system (INS) on basis of distributed set of 12 accelerometers is proposed. If compared to the classic INS implemented on basis of 6-sensors model the proposed 12-sensors variant has more accurate characteristics of navigation parameters calculation (coordinates and angle velocity).

Keywords: inertial navigation systems, gyro-free inertial navigation systems

Afonin S. M. *Characteristics of Composite Piezoactuators for Nano- and Micrometric Movement for Parallel and Coded Control* 32

Mechanical and regulational characteristics for simple and composite a piezoactuators for parallel and coded control are proposed. Transfer functions of a piezomotors for parallel and coded control are obtained.

Keywords: mechanical and regulational characteristics, simple and composita piezoactuator, parallel and coded control, transfer functions

Koroleva V. A., Boltunov D. V., Zhukov A. A. *Estimaiton of Characteristics Microdimensional Lamellar Executive Elements of Devices of Microsystem Technics* 42

Design-experiment estimations are made of actuator characteristics for MEMS applications: deformation is bearing load followed by calculations of electrostatic actuator bending rigidity, Young's modulus of construction material and actuating voltage. It is shown that the thicker the nickel layer — the higher the design-experiment actuator bending rigidity. It is determined, that the actuating voltage is lowering under the nickel layer shrinking. The values measured exceed the design ones, which can be concerned with peculiarities of manufacturing method.

Keywords: microsystem technics, bending rigidity of an executive element, deformation, measuring dynamic indentation, dependence "loading-deformation"

Maltsev P. P., Matveenko O. S., Gnatyuk D. L., Lisitskiy A. P., Fedorov Yu. V., Bunegina S. L., Krapuchin D. V. *Review of Implementation of Planar X-Band Antennas with Two Metallization Layers* . . 45

Development results of flat antennas with double-sided metallization for ultra wide band systems are examined. Realization of flat dipoles and Uda—Yagi antennas is analyzed. It is demonstrated that the most effective way to reduce antenna size is optimization of topology of patch and ground conductor.

Keywords: UWB antenna, X-band, planar antenna, monopole, coplanar, Uda—Yagi antenna, fractal, meta-material

For foreign subscribers:

Journal of "NANO and MICROSYSTEM TECHNIQUE" (Nano- i mikrosistemnaya tekhnika, ISSN 1813-8586)

The journal bought since november 1999.

Editor-in-Chief Ph. D. Petr P. Maltsev

ISSN 1813-8586.

Address is: 4, Stromynsky Lane, Moscow, 107076, Russia. Tel./Fax: +7(499) 269-5510.

E-mail: nmst@novtex.ru; http://novtex.ru/nmst/

Адрес редакции журнала: 107076, Москва, Стромьинский пер., 4. Телефон редакции журнала (499) 269-5510. E-mail: nmst@novtex.ru
Журнал зарегистрирован в Федеральной службе по надзору за соблюдением законодательства
в сфере массовых коммуникаций и охране культурного наследия.
Свидетельство о регистрации ПИ № 77-18289 от 06.09.04.

Дизайнер Т. Н. Погорелова. Технический редактор Е. М. Патрушева. Корректор Е. В. Комиссарова

Сдано в набор 20.02.2012. Подписано в печать 22.03.2012. Формат 60×88 1/8. Заказ МС412.

Цена договорная

Оригинал-макет ООО «Авансед солюшнз».

Отпечатано в ООО «Авансед солюшнз». 105120, г. Москва, ул. Нижняя Сыромятническая, д. 5/7, стр. 2, офис 2.