

CONTENTS

Zablotskiy A. V., Melentiev P. N., Sheshin E. P., Baturin A. S., Balykin V. I., Korostilev E. V., Lapshin D. A., Kuzin A. A. *Application of Virtual Scanning Electron Microscope for Parameters Characterization of Atomic Nanolithograph Microlenses* 2

In this paper we present results of geometrical parameters' measurements of objects which size is comparable with SEM electron probe diameter — open aperture with diameter about 50 nm made in ultra thick membrane (with a thickness less than 50 nm), having use as a microlense in the atom projection nanolithograph. For the first time in microscopy of such objects we have implemented an approach based on supplementing experimental data of standard SEM by computer simulated results of "virtual SEM".

Keywords: SEM, nanometrology, atomic optic, nanolithography.

Akopyan V. A., Panich A. A., Rozhkov E. V., Shevtsov S. N. *Measuring-Informative Complex for Modeling and Damping of the Aircraft Element Oscillation* 7

The scheme and construction of the measuring-informative complex for active control and damping of the aircraft element oscillations have presented. It has been used for selection of optimal parameters of the oscillation control. Some characteristics of process of the oscillation damping for decreased model of helicopter Mi-2A blade have been investigated.

Keywords: measuring-informative complex, MEMS, modeling, oscillations, damping, piezoelectric actuators, sensors.

Gureev A. V., Voronin S. E. *Triangular Pulse Shaping Method for Ultra Wideband system* 14

In this article proposed controlled triangular impulse generator with feedback. Examination of a noise in this system, perform calculation of spectral concentration triangular pulse and equivalent noise sequence this impulse, value of amplitude difference got from CAD "Cadence", in simulation generator.

Keywords: ultra wide band, triangular puls, transmitter, gaussian (pulse).

Vetrov S. I., Gorokhov V. S., Skvortsov A. V., Chmyr D. A., Skvortsova D. A. *System Approach for Designing Distributed Nanotechnological Production Systems* 17

Article describes prerequisites for nanotechnological productions development in conditions of globalization of market economy and full automation of production based on networking and informational technologies. Nanocutting processes characteristics and principles of organizing of distributed production systems and virtual enterprises based on technological hyperenvironment with the help of CALS and PLM-technologies are examined. System aspects of creating of virtual enterprises and their common informational space for manufacturing nanotechnological production are described.

Keywords: flexible nanotechnological module, nanocutting, distributed production environment, virtual enterprise, common informational space.

Kondrashin A. A., Sleptsov V. V., Ljamin A. N. *The Colour Image Formation by Organic Light-Emitting Diodes* 27

This article is about an analysis of the main types of organic light-emitting diodes (OLED and PLED), basic work principles and the main advantages in comparison with LCD, PD and LED technologies. The comparison of color image formation technologies in organic light-emitting diodes, their advantages and disadvantages are presented in the article. The nearest scientific and technical tasks, the solving of which is necessary for the prompt application of organic light-emitting diodes in various spheres of economic activities are mentioned.

Keywords: organic light-emitting diodes, technology OLED, technology PLED, color image formation, development prospects.

Belkin M. E., Belkin L. M. *Research of Semicondutor Laser Productivity for Microwave-band Subcarrier Multiplexed Analog Signal Transmission* 32

Experimental investigation principles and specialties of the semiconductor laser characteristics with the goal of microwave-band subcarrier multiplexed analog signals transmission quality estimation by such a source are highlighted. The investigation approach, procedures, and results of signal-to-noise, related intensity noise, and signal-to-intermodulation noise characteristics measurements are presented that confirm the productivity of the designed laser with power-to-bandwidth product of more than 300 mW · GHz for subcarrier multiplexed analog signal transmission with the modulation bandwidth up of 10 GHz.

Keywords: semiconductor laser, subcarrier multiplexed microwave-band analog signal transmission characteristics, fiber optic systems.

- Belozubov E. M., Belozubova N. E.** *Thin-Film Strain Gauge Microelectromechanical Systems with Identical Strain-Sensing Elements and Solid Center Diaphragms*. 38
Thin-film strain gauge microelectromechanical systems (TSMEMS) with identical strain-sensing elements and solid center diaphragms are studied. We show merits and new capabilities of such TSMEMS under transient temperatures.
Keywords: thin-film strain gauge microelectromechanical systems (TSMEMS), strain-sensing element, diaphragm, solid center.
- Gulyaev Yu. V., Lobanov B. S., Mityagin A. Yu., Fesenko M. V., Hlopov B. V.** *Flash Memory Degausser* . . . 42
The questions of the development and making the instrument for destruction of information with carriers on base of the microcircuits with nonvolatile memory are discussed. In base of the functioning the instrument lies the multifunction way of the influence by pulsed electromagnetic floor and presenting of high power.
Keywords: degausser, flash memory, electromagnetic fields, high power.
- Ivannikov D. I.** *Pattern Recognition Theory Application in Chemical Membranes Designing*. 46
It is described recognition theory application of designing chemical membranes in the article. Possibility of such application is reached by means of theoretically well-founded area "displaying" of substance division problems by means of chemical membranes on the theory of pattern recognition and image analysis.
The membrane is considered as the qualifier, and particles getting on it — objects for recognition. It is shown, how it is possible to use such decision at designing of multistage system of filters, membrane reactors and the membranes capable to training.
Keywords: pattern recognition, qualifier, membranes.
- Alfimov S. M.** *Concerning the Introduction of Microsystem Techniques* 50
The principal concepts, terms and definitions for products of microsystem technology with indication of microsystems forms and functional devices are presented.
Keywords: microsystem techniques, definitions, terms, concepts.
- Gubarev V. A.** *Algorithm Execution Time Simulation (Modeling) for Digital System Models (Devices) Based on SOC VLSI Circuits* 52
Inclusion of TLMs (transaction-level models) in system requirements specification for COS VLSI circuit models development may significantly decrease development risk for real system programmers and reduce SOC VLSI circuits development time.
The purpose of this paper is to describe methods of algorithm execution time simulation for SOC VLSI models, developed with SystemC modeling language in module-type development.
Keywords: SOC VLSI circuit, system model, execution time simulation (modeling).

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://www.microsystems.ru>**

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 Т. В. Пчелкина

Сдано в набор 15.09.2009. Подписано в печать 20.10.2009. Формат 60×88 1/8. Бумага офсетная. Печать офсетная.
Усл. печ. л. 6,86. Уч.-изд. л. 8,39. Заказ 965. Цена договорная

Отпечатано в ООО "Подольская Периодика", 142110, Московская обл., г. Подольск, ул. Кирова, 15