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At first, the emission capability of the infinite bamboo-like carbon nanotubes with the smallest diameter was investigated. The bamboo-like carbon nanotube emission properties were calculated using the tight-binding quantum-chemical method. It was shown that the infinite bamboo-like nanotube with a specific distance between the bridges (2,811 nm) has a better emission property in comparison with the hollow ones. It was established that the aforementioned properties of the bamboo-like carbon nanotubes were improved by doping them with the potassium atoms. It should be mentioned that the potassium atoms concentration should exceed 0,59 %. The work function of the infinite bamboo-like carbon nanotubes with the added potassium atoms has reduced to 0,178 eV.

Keywords: bamboo-like nanotubes, the potassium atoms, the ionization potential, nanoemittery, emission capability, the work function

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Kristallogeometrichesky, thermodynamic and nanostructural aspects of the theory of crystallization are considered.

It is established that increase of the pressure imposed on melt from 400 to 500 MPa provides decrease in density of dislocations thanks to formation of nanocrystals with the sizes 12...40 nm with almost faultless structure.

Data on change of a limit of fluidity and the module the Ship's boy are provided.

Keywords: appearing-through electronic microscopy, a structure of borders of grains, crystallization model, interatomic communications and interactions, structure formation from nanocrystals

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Keywords: semiconductors, nanocrystallites, hydrogenated silicon, electrical conductivity

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Keywords: micromechanical devices, tests, gages, gages of angular speed, acceleration gages

Voronin O. G., Konishcheva E. V., Zorin N. A., Fedotenkov F. A., Karyakina E. E., Karpacheva G. P., Orlov A. V., Kiseleva S. G., Karyakin A. A. Modification of the Electrode Surface with Analogues of Hydrogenase Substrates for Highly Active Fuel Bioelectrocatalysts Development 15

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Keywords: biofuel cell, hydrogenase, enzyme electrode, hydrogen

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Keywords: HEMT, InAlAs/InGaAs, InP substrate, quantum well, energy band diagram

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Keywords: conductance, sensitivity, vacancy, hemoresistive processes, sol-gel technology, fractals

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Keywords: electrostatic micro actuator, parallel-sided structure, independent functions of control and monitoring

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Keywords: RFID, SAW, IDT, lift-off lithography, photoresist

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Keywords: magnetic field sensor, Ampere force, piezoelectric effect, lead zirconate titanate

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Keywords: gas chemical nanosensor, sensing element, polymer, constructional characteristic, metrological characteristic

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Keywords: photodetector, coordinate photosensitivity, photoeffect

Abramov I. I. The Brain is an Object of Organic Hybrid Nanoelectronics, or Another Point of View. Part III. 45

A new interpretation of human brain as an organic hybrid nanoelectronics object created by Nature is presented. The nearest analogue in artificial electronics is an integrated circuit of micro- and nanoelectronics. Therefore the comparison of the neuronal circuits of the brain with integrated circuits was made and their basic differences were determined. The proposed interpretation and its consequences allow, on the one hand, to analyze the principles of the brain functioning more deeply, and, on the other — to suggest a complex approach of brain investigation, based on multilevel simulation combined with experimental methods. In the part III the answers to the following questions are presented: "Is quantum mechanics enough for description of the brain functioning, including consciousness, thought, and its other mental functions? How to investigate the brain farther?"

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 Professor Petr P. Maltsev, Deputy Editor-in-Chief Michael S. Shur (USA), Victor V. Luchinin

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 18.03.2012. Подписано в печать 26.04.2013. Формат 60×88 1/8. Заказ МС513.

Цена договорная

Оригинал-макет ООО «Авансед солюшнз».

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