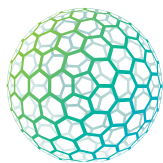


IV International Scientific Conference



STRANN

2014

April 22 – 25
Saint-Petersburg

State-of-the-art
Trends of Scientific
Research of
Artificial and
Natural
Nanoobjects



Organizers:



OPTEC
Connecting solutions

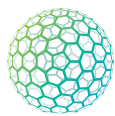


IV International Scientific Conference



State-of-the-art Trends of Scientific Research of Artificial and Natural Nanoobjects





STRANN

2014

Sessions

22.04.2014

Hall «Vedensky», Hotel Vedensky, 37, Bolshoy prospect

16.00 Start of registration

18.00 Welcome party

23.04.2014

State of the art trends in fundamental and applied research of nanoobjects

Palace of Grand Duke Vladimir Alexandrovich (House of Scientists) on Palace Embankment,
26, Dvortsovaya Naberezhnaya

10:00 Conference Opening		Chair: Alexander Uliyanenkov
10:15	Harald Rose PhD, Technical University Darmstadt, Professor Darmstadt, Germany	INVITED From micrometer to sub-Angstrom resolution- the development of the electron microscope
11:00	Sergei Rouvimov PhD, University of Notre Dame, Research Associate Professor Portland, United States	INVITED Transmission electron microscopy of nanostructures
11:30	Alexei Vinogradov PhD, Togliatti State University Togliatti, Russia	INVITED Complex instrumented in-situ mechanical testing in a scanning electron microscope
12:00 Coffee-break		Chair: Peter Gnauk
12:20	Nina Kasiyanenko PhD, Saint-Petersburg State University, Professor Saint-Petersburg, Russia	INVITED DNA Nanostructures. Reality and prospects
13:05	George Shevelev PhD Student, Institute of Chemical Biology and Fundamental Medicine of SB RAS Novosibirsk, Russia	DNA-based self-organized nanostructures: filaments, networks and rings
13:25	Dmitry Klinov PhD, Institute of Bioorganic Chemistry of RAS Moscow, Russia	INVITED High resolution scanning probe microscopy of biomolecules
13:55	Mikhail Zhukov ITMO University Saint-Petersburg, Russia	Study of biological objects by method of atomic force microscopy with specialized nanowiskers probes
14:05 Coffee-break		Chair: Nina Kasiyanenko
15:00	Barak Lavi El-Mul (Electron and Ion detecting solutions), Business Development Manager Rehovot, Israel	INVITED WETSEM technique in bio sciences
15:30	Andreas Schertel Carl Zeiss Microscopy GmbH, Senior Scientist Application Development Training Oberkochen, Germany	INVITED (Cryo-) FIB-SEM microscopy: Volume imaging of cellular ultrastructure in resin embedded and in native frozen biological specimen
16:00	Rawil Fakhrollin PhD, Kazan (Idel buye/Volga region) Federal University, Senior Lecturer Kazan, Russia	INVITED Hyperspectral imaging and high-resolution dark-field microscopy for cyborg cells imaging and nanotoxicity studies
16:30	Alla Krasikova PhD, Saint-Petersburg State University Saint-Petersburg, Russia	Ultrathin structure of the surface of nuclear bodies and giant chromosomes from avian and amphibian growing oocytes
16:50	Nina Gabarayeva PhD, Komarov Botanical institute of Russian Academy of Sciences, Leading scientific researcher Saint-Petersburg, Russia	Participation of self-assembly in pollen wall development and its experimental modelling
17:10 Poster session		

24.04.2014

Advanced microscopy and analytical techniques, nanofabrication

Palace of Grand Duke Vladimir
Alexandrovich (House of Scientists) on Palace Embankment,
26, Dvortsovaya Naberezhnaya

Chair: Sergey Rouvimov

10:00	Zhihai Cheng PhD, National Center for Nanoscience and Technology, Associate Professor Beijin, China	INVITED	Direct imaging the atomic structures of molecules and low-dimensional materials by atomic force microscopy
10:45	Barak Lavi El-Mul (Electron and Ion detecting solutions), Business Development Manager Rehovot, Israel	INVITED	WETSEM technique in material sciences
11:15	Marc Chaussidon PhD, CRPG-CNRS, Université de Lorraine, CNRS researcher Vandoeuvre, France	INVITED	Examples of applications of high precision or high resolution ion probe measurements in Earth and planetary sciences
11:45	Alexander Soldatov PhD, Southern Federal University of Russia, Head of the research center, Professor Rostov-on-Don, Russia		Nanoscale atomic and electronic structure diagnostics by XANES spectroscopy
12:10	Coffee-break		Chair: Oleg Vyvenko
12:30	Armin Goelzhaeuser PhD, Bielefeld Institute for BioPhysics & NanoScience (BINAS), Professor Bielefeld, Germany	INVITED	Carbon Nanomembranes (CNMs): Two-dimensional functional materials visualized by Helium Ion Microscopy (HIM)
13:00	Georgiy Cirilin PhD, Academic University of Physics and Technology of RAS Saint-Petersburg, Russia	INVITED	III-V nanowires: growth, properties and applications
13:30	Andrey Babichev St Petersburg Academic University, Research Associate Saint-Petersburg, Russia		Wide bandgap nanowire ultraviolet photodetectors with a graphene transparent contact
13:50	Coffee-break		Chair: Alexander Golubok
15:00	Alexey Krasavin PhD, King's College London, Research Associate London, United Kingdom	INVITED	Photonics at the nanoscale: from novel phenomena to promising applications
15:30	Vladimir Krupenin PhD, Moscow State University Moscow, Russia	INVITED	Nanostructures based on SOI for different applications: single-electron transistors, nanowires, biosensors
16:00	Alexey Ustinov PhD, National University of Science and Technology «MISIS», Professor Moscow, Russia	INVITED	Superconducting metamaterials: Reducing losses down to nanoscale
16:30	Yuri Latyshev PhD, Kotelnikov Institute of Radio Engineering and Electronics of RAS Moscow, Russia	INVITED	Aharonov-Bohm resistance magneto-oscillations on single-nanohole graphite and graphene structures
17:00	Alexander Ankudinov Ioffe Physical Technical Institute Saint-Petersburg, Russia		Scanning near field microscopy of light emitting semiconductor nanostructures using cantilevers with nanoaperture
17:20	Poster session		

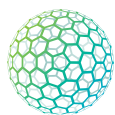
25.04.2014

Interdisciplinary Resource
Center for Nanotechnology,
Uljanovskaya 1, Petrodvorets

Extreme imaging and nanofabrication: helium-ion microscopy and ion-assisted revolutionary new nanofabrication techniques of nanostructured and functional nanoobjects

Chair: Yuri Chizhov

10:00	Peter Gnauk PhD, Carl Zeiss Microscopy GmbH, Senior Manager Business Development Oberkochen, Germany	INVITED	The Orion Nanofab: Extending the frontiers of nanotechnology
10:45	Paul Alkemade PhD, The Kavli Institute of Nanoscience of the Delft University of Technology, Professor Delft, Netherlands	INVITED	Focused helium ion beam materials processing at the nanometer scale
11:30	Yuri Petrov PhD, Interdisciplinary Resource Center for Nanotechnology of Saint-Petersburg State University Saint-Petersburg, Russia		Retarding field method for different imaging modes in the helium ion microscope
11:50	Yury Kapitonov Saint-Petersburg State University Saint-Petersburg, Russia		Spectrally selective diffractive optical elements based on InGaAs/GaAs quantum wells implanted by He+ ion beam
12:10	Coffee-break		Chair: Kirill Atlasov
12:30	Sven Bauerdick PhD, Raith GmbH, Product Manager Dortmund, Germany	INVITED	Lithography meets FIB – advanced focused ion beam nanofabrication with gallium and beyond
13:15	Andrey Denisyuk PhD, ITMO University Saint-Petersburg, Russia		FIB/SEM advanced nanofabrication
13:35	Ekaterina Solonitsina Kazan National Research Technical University named after A.N.Tupolev Kazan, Russia		Research of the influence of the tip geometry for near-field optical spectroscopy
13:55	Igor Kukhtevich PhD, ITMO University Saint-Petersburg, Russia		Microfluidic chips with traps for study of microparticles
14:05	Coffee-break		
15:00	Visit to Interdisciplinary Resource Center for Nanotechnology: Overview presentation of Helium-Ion Microscope ORION Plus		



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Poster
sessions

23.04.2014 Poster session 1

State of the art trends in fundamental and applied research of nanoobjects

Palace of Grand Duke Vladimir
Alexandrovich (House of Scientists)
on Palace Embankment,
26, Dvortsovaya Naberezhnaya

Tamara Shatskikh

Voronezh State University
Voronezh, Russia

Luminescence properties of hybrid associates of colloidal CDS and ag2s quantum dots with methylene blue molecules

Sergey Antipov

Voronezh State University
Voronezh, Russia

Vladislav Melekhov

Institute for Biological Instrumentation of RAS
Pushchino, Russia

Designing and assembling of the elementary branched structures based on DPS protein and synthetic oligonucleotids

Polina Gervas

Cancer Research Institute of Siberian Branch
of the Russian Academy of Medical Sciences
Tomsk, Russia

Morphological portrait of EGFR -mutated non-small cell lung cancer

Andrey Machulin

Institute of Biochemistry and Physiology of Microorganisms
Russian Academy of Science
Pushchino, Russia

Investigation of bimodal silicate-organic sol-gel matrix in cell immobilization process with scanning electron microscopy

Alexandra Suvorova

Saint-Petersburg State University
Saint-Petersburg, Russia

Reverse transcription polymerase chain reaction using microchip analyzer with lyophilized reagents

Anastasiia Zlobina

FBSI "FSC for Medical and Preventive Health Risk
Management Technologies"
Perm, Russia

A study of sub-micron objects in blood of workers

Olga Polschikova

All-Russian Research Institute
for Optical and Physical Measurements
Moscow, Russia

Calibration of scale factor and determination of resolution of scanning near-field optical microscope in the study of biological objects

Natalya Denissova

D. Serikbayev East Kazakhstan State Technical University
Ust-Kamenogorsk, Kazakhstan

Methods for computer simulation shifts cooperative complexes atoms interfacial bimetals Ni-Al, Ni-Fe and Pt-Al

Jurij Grecenkov

Saint-Petersburg Academic University
Saint-Petersburg, Russia

The advantages of including group v element concentration in the modelling of iii-v nanowire growth

Andrey Petrov

Saint-Petersburg State University
Saint-Petersburg, Russia

Computer simulation of proton transport in nanocomposites based on nafion and polyhydroxyfullerens

Elena Ivan'kova

Institute of Macromolecular Compounds RAS
Saint-Petersburg, Russia

Investigation of porous structure formation of chitosan sponges by cryo-SEM

Elena Tolstopjatova

Saint-Petersburg State University
Saint-Petersburg, Russia

Synthesis of PEDOT/Pd and PEDOT:PSS/Pd nanocomposites and their application for hydrazine sensing

Aleksei Bykov

Saint-Petersburg State University
Saint-Petersburg, Russia

Nanoaggregate formation in polyelectrolyte/surfactant adsorption layers

Aleksandra Nizhegorodova

Saint-Petersburg State University
Saint-Petersburg, Russia

Nanostructured pedot-manganese dioxide electrodes for supercapacitor application

Daria Pominova

Prokhorov General Physics Institute RAS
Moscow, Russia

The investigation of the upconversion nanoparticles luminescence kinetics depending on the nanoparticles composition and biological microenvironment

Elena Alekseeva

Saint-Petersburg State University
Saint-Petersburg, Russia

In situ hydrolysis of polymeric metal complexes leads to formation nickel hydroxide nanoparticles for fuel cell's catalyst

Alexei Nemeryuk

The Federal State Unitary Enterprise The State Scientific Research Institute of Chemical Reagents and High Purity Chemical Substances
Moscow, Russia

Synthesis of nanoparticles of titanium and tantalum oxides in the polymer matrix as a modification method of UHMW polyethylene

Leonid Shuyskiy

Institute of Cytology, Russian Academy of Sciences
Saint-Petersburg, Russia

The role of actin cytoskeleton-binding proteins and sodium ion channels in the regulation of the murine collecting duct cells migration

Ilvina Safina

Kazan National Research Technical University named after A.N. Tupolev
Kazan, Russia

Investigation of photosensitive nanoparticles in multilayer photographic film



24.04.2014 Poster session 2

Advanced microscopy and analytical techniques, nanofabrication

Palace of Grand Duke Vladimir
Alexandrovich (House of Scientists)
on Palace Embankment,
26, Dvortsovaya Naberezhnaya

Dmitry Albot Saint-Petersburg State University Saint-Petersburg, Russia	Simplified technique for nanowire contact preparation by gridding with ion-beam-etched markers
Alexey Kucherik Stoletov's Vladimir State University Vladimir, Russia	Laser-induced self-assembling of the surface PbX thin films
Airat Badrutdinov Kazan National Research Technical University named after A.N. Tupolev Kazan, Russia	The development of methods of forming single-electron structures
Irina Chuvashova M.V. Lomonosov Moscow State University Moscow, Russia	Synthesis and morphology of Y ₂ -xGd _x O ₃ spherical particles
Vasily Danilevich Shemyakin and Ovchinnikov Institute of Bioorganic Chemistry RAS Moscow, Russia	Unusual morphology and properties of micro- and nanoparticles consisting of magnesium pyrophosphate produced by thermal cycling
Mstislav Dobrotvorskii Saint-Petersburg State University Saint-Petersburg, Russia	Study of deposited thin films containing metal hydride phase
Alexandr Dobrotvorskii Saint-Petersburg State University Saint-Petersburg, Russia	Identifying the causes and mechanisms of petrochemical equipment failure at micro- and nano-level of metals and alloys structure
Sergey Gusev Institute for Physics of Microstructures RAS Nizhny Novgorod, Russia	Complex nanolithography and study of magnetic nanostructures
Rinat Ismagilov M.V. Lomonosov Moscow State University Moscow, Russia	Synthesis, properties and potential application of needle-like single crystal diamonds
Evgeniia Khairullina Saint-Petersburg State University Saint-Petersburg, Russia	Laser-induced deposition of nickel: reduction using ligands (tartrate and EDTA)
Valeriia Khristolubova Kazan National Research Technological University Kazan, Russia	Formation of diffusive nanostructured layers on a surface of metals and their alloys
Ilya Kolesnikov Saint-Petersburg State University Saint-Petersburg, Russia	Concentration effect on structural and luminescent properties of YVO ₄ :Nd ³⁺ nanophosphors
Sergei Kusmanov Nekrasov Kostroma State University Kostroma, Russia	Formation of diffusion layers during anodic plasma electrolytic nitrocarburizing of steel
Yulia Parkaeva Nekrasov Kostroma State University Kostroma, Russia	
Stella Kutrovskaya Vladimir State University Vladimir, Russia	Laser formation of colloidal system with the noble nanoparticles and deposition of the bimetallic Au-Ag clusters on the glass substrate

Liudmila Lysyakova

University of Potsdam / Saint-Petersburg State University
Potsdam, Germany

Light control over plasmon properties of gold nano-particles

Alisa Manukhova

Saint-Petersburg State University
Saint-Petersburg, Russia

Transient stage of nanopillar growth by focused electron beam induced deposition of carbon

Vladimir Polischuk

ITMO University
Saint-Petersburg, Russia

Growth of nanowhiskers of the silver on silver iodite film

Anastasia Povolutckaia

Saint-Petersburg State University
Saint-Petersburg, Russia

Synthesis and functional properties of hybrid C-Au-Ag nanostructures

Alena Samokhina

Kazan National Research Technical University
named after A.N. Tupolev
Kazan, Russia

Research and diagnostics of Kamaz tri-metal inserts

Anatoliy Smolovich

Kotel'nikov Institute of Radio Engineering and Electronics
of the RAS, Senior Researcher
Moscow, Russia

Proximity effect in periodic arrays of superconducting nanoislands on thin graphite layer

Ilya Soshnikov

A.F. Ioffe Physico-Technical Institute
of RAS/ Saint-Petersburg Academic University
Saint-Petersburg, Russia

Fabrication of GaAs ordered arrays self-catalytic nanowires using electron-beam lithography

Andrey Stepanov

Kazan Physical-Technical Institute Russian Academy of Sciences
Kazan, Russia

Synthesis of porous silicon with implanted metal nanoparticles

Viktor Zakharov

ITMO University
Saint-Petersburg, Russia

Holograms in fluorite crystals studied by confocal scanning microscopy

Egor Semenov

Lobachevsky State University of Nizhni Novgorod,
Nizhni Novgorod, Russia

Chemical and phase composition of GaMnAs/GaAs/InGaAs spin light emitting diodes

Vera Shikhova

Ural Federal University
Ekaterinburg, Russia

Micro- and nano-domain structures formation during switching polarization in ferroelectrics single crystals of strontium-barium niobate

Oleg Medvedev

Saint-Petersburg State University
Saint-Petersburg, Russia

Combined CL-EBSD investigation of strains in bulk gan crystal

Andrew Gadzhala

Saint-Petersburg State University
Saint-Petersburg, Russia

Diagnostics of bilayer insulators on silicon by luminescence technique

Dmitrii Chezganov

Ural Federal University
Ekaterinburg, Russia

Study of domain switching under electron beam irradiation of z+ polar surface in lithium niobate

Denis Presnov

Moscow State University, Moscow, Russia

Field effect transistor with nanowire channel for biosensor applications



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