

## Poster Session I. April 23, 2019

### Section 4. Nanophotonics, Spectroscopy, Microcavities, Optics, Plasmonics

#### Poster # 4-1

**Slot and Hybrid plasmonic micro-ring resonators**

*Ali Butt*

*Samara, Russian Federation*

#### Poster # 4-2

**Polarization properties of single-walled carbon nanotube thin film on silicon substrate in terahertz frequency range**

*Anatoly Kvitsinskiy*

*St. Petersburg, Russian Federation*

#### Poster # 4-3

**The polarized two-photon excited fluorescence of NADH in solution of different viscosity and polarity**

*Joanna Gorbunova*

*St. Petersburg, Russian Federation*

#### Poster # 4-4

**Upconversion luminescence of CaF<sub>2</sub>:Er and SrF<sub>2</sub>:Er,Tm phosphors upon excitation of the 4I<sub>13/2</sub> level of Er<sup>3+</sup> ions**

*Sergey Gushchin*

*Saransk, Russian Federation*

#### Poster # 4-5

**Coherent dynamics of excitons in InGaAs/GaAs quantum well with low inhomogeneous broadening of the excitonic resonance**

*Iskander Yanibekov*

*St. Petersburg, Russian Federation*

#### Poster # 4-6

**Vertical Shift of Magneto-optical Hysteresis Loop in Magneto-plasmonic Nanocomposite. Spectral Features**

*Sergey Tomilin*

*Simferopol, Russian Federation*

#### Poster # 4-7

**Synthesis, structure and spectroscopy of Fe<sup>2+</sup>:MgAl<sub>2</sub>O<sub>4</sub> transparent ceramics**

*Liza Basyrova*

*St. Petersburg, Russian Federation*

#### Poster # 4-8

**Photo- and electroluminescence of polychrome InGaN/GaN LEDs**

*Andrey Ivanov*

*St. Petersburg, Russian Federation*

#### Poster # 4-9

**Interface Layers of Niobium Nitride Thin Films**

*Vladimir Iachuk*

*Moscow, Russian Federation*

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**Study of the effect of carbon nanotube lengths on their conductivity in the terahertz frequency range during optical pumping**

*Roza Baimagambetova*

*St. Petersburg, Russian Federation*

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**Flat-top laser distributions over an extended range**

*Naresh KumarReddy Andra*

*Rehovot, Israel*

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**Total reflection of near infrared range wave from subwavelength silicon 1D photonic crystal with small packing density**

*Ramil Minnullin*

*Dolgoprudny, Russian Federation*

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**Development of subwavelength diffractive optical elements manufacturing process for photonic devices**

*Sergey Fomchenkov*

*Samara, Russian Federation*

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**Electron affinity evolution on the GaAs(Cs,O) surfaces under thermal cycling**

*Andrey Zhuravlev*

*Novosibirsk, Russian Federation*

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**Calculation of radiation propagation in the photoresist layer to create a growth mask**

*Lily Dvoretckaia*

*St. Petersburg, Russian Federation*

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**On the need to control the state of the flowing media by the values of relaxation constants**

*Nikita Myazin*

*St. Petersburg, Russian Federation*

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**Spectroscopic study of defect states in CdSe nanoplatelets**

*Maksim Miropoltsev*

*St. Petersburg, Russian Federation*

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**Optical properties of Fe- and Nd-doped ZnSe crystals measured by pump-probe spectroscopy**

*Maria Zhukova*

*St. Petersburg, Russian Federation*

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**Excitation of unidirectional propagating plasmon in a periodic graphene structure**

*Konstantin Mashinsky*

*Saratov, Russian Federation*

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**Numerical simulation of a nitride SQW laser with a separate confinement heterostructure**

*Ekatrina Medvedeva*

*St. Petersburg, Russian Federation*

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**All-dielectric silicon/phase-change optical metasurfaces with active control of resonant modes**

*Pavel Trofimov*

*St. Petersburg, Russian Federation*

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**Energy transfer in hetero nuclear rare gas clusters under multiphoton excitation and ionization**

*Ivan Balmaev*

*St. Petersburg, Russian Federation*

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**Numerical modelling of an error of manufacturing of ion- exchange waveguide for the tasks of quantum computations**

*Vladislav Gerasimenko*

*St. Petersburg, Russian Federation*

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**Influence of neutron irradiation on optoelectronic properties of structures with the InAs/GaAs quantum dots**

*Natalya Volkova*

*Nizhny Novgorod, Russian Federation*

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**The size reducing of the focal spot with focusing short pulses**

*Dmitry Savelyev*

*Samara, Russian Federation*

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**The use of Bragg reflectors to enhance Purcell factor of Si micropillar resonator in BIC regime**

*Stanislav Kolodny*

*St. Petersburg, Russian Federation*

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**Large active area superconducting single photon detector**

*Maria Moshkova*

*Moscow, Russian Federation*

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**Fabrication and optical properties of nanocomposite Au:SiO<sub>2</sub> films**

*Igor Ilkiv*

*St. Petersburg, Russian Federation*

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**Au@Ag nanorods for Surface Enhanced Resonance Raman spectroscopy**

*Anna Matsukovich*

*Minsk, Belarus*

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**Gold nanoantennas for enhancement of photon emission from STM contact**

*Vitaliy Shkoldin*

*St. Petersburg, Russian Federation*

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**Realisation of a programmable two-qubit quantum processor by unipolar subnanometric pulses**

*Marina Bastrakova*

*Nizhny Novgorod, Russian Federation*

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**Microdisk resonators as high-sensitive devices for biodetection**

*Mikhail Mikhailovskii*

*St. Petersburg, Russian Federation*

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**Analysis of the charge state of nitrogen-vacancy centers in diamond during excitation using infrared radiation**

*Maksim Smirnov*

*Kazan, Russian Federation*

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**Spectral and luminescent properties of co-doped Er-Yb fluorophosphate glasses with small content of phosphate**

*Oleg Bogdanov*

*St. Petersburg, Russian Federation*

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**Simulation of infrared photonic crystal fibers based on crystals system AgBr – TlBr<sub>0.46</sub>I<sub>0.54</sub>**

*Dmitrii Salimgareev*

*Ekaterinburg, Russian Federation*

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**Dynamics of cluster structures in the near-surface layer of distilled water under laser excitation**

*Natalia Shostka*

*Simferopol, Russian Federation*

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**Superconducting photon counter for nanophotonics applications**

*Nadegda Manova*

*Moscow, Russian Federation*

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**Second harmonic generation and relaxation of poled glasses**

*Ilya Reshetov*

*St. Petersburg, Russian Federation*

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**Growth and spectroscopy of orthorhombic Yb:KY(MoO<sub>4</sub>)<sub>2</sub> laser crystal with a layered structure**

*Anna Volokitina*

*St. Petersburg, Russian Federation*

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**Bifocal Autofocused Airy Beam Metasurfaces**

*Mahdieh Hashemi*

*Fasa, Iran*

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**Interaction of the exciton mode with the microresonator modes**

*Aleksei Belonovskii*

*St. Petersburg, Russian Federation*

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**Towards an efficient light-emitting source based on self-implanted silicon with dislocation-related luminescence**

*Dmitry Korolev*

*Nizhny Novgorod, Russian Federation*

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**Two-photon absorption and photoluminescence of a thin-film hybrid material based on CdSe/ZnS/CdS/ZnS semiconductor quantum dots**

*Darya Dyagileva*

*Moscow, Russian Federation*

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**Development of efficient polymer films with upconversion particles**

*Maksim Chernov*

*Saransk, Russian Federation*

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**The research of temperature instability influence of fiber optic communication line in phase direction finder canals on peleng accuracy**

*Ekaterina Sinicyna*

*St. Petersburg, Russian Federation*

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**Comparative study of SERS-active substrates based on meso- and macroporous silicon coated with gold**

*Siarhei Zavatski*

*Minsk, Belarus*

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**Optomechanical coupling in GaN-based nanobeam cavity**

*Konstantin Morozov*

*St. Petersburg, Russian Federation*

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*Anna Dragunova*

*St. Petersburg, Russian Federation*

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**Topological plasmon-polariton on a Dirac magnet helical state**

*Gulnaz Rakhmanova*

*St. Petersburg, Russian Federation*

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**The iron concentration influence on the cathodoluminescence kinetics in mid-IR range in ZnSe crystals**

*Sergey Mironov*

*Moscow, Russian Federation*

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**Numerical modelling of the spectral and spatial distribution of the electromagnetic modes in a tunable microcavity for investigation of the light-matter interaction.**

*Maxim Lednev*

*Moscow, Russian Federation*

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**Discrete smoothing for quantum random numbers**

*Nikolay Perminov*

*Kazan, Russian Federation*

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**Ultra high-speed all-optical coherent memory cell**

*Igor Chekhonin*

*St. Petersburg, Russian Federation*

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**Optical trapping and arrangement with reconfigurable “bottle” beam for digital holographic microscopy**

*Bogdan Sokolenko*

*Simferopol, Russian Federation*

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**Nanostructures with magneto-optical and plasmonic response for optical sensors and nanophotonic devices**

*Tatyana Mikhailova*

*Simferopol, Russian Federation*

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**Formation of catalytic centers for the growth of carbon nanostructures for nanophotonics devices**

*Alexey Rezyan*

*Taganrog, Russian Federation*

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**Vibrational spectroscopy of BaGa<sub>2</sub>GeSe<sub>6</sub> nonlinear crystals**

*Ivan Budkin*

*Troitsk, Russian Federation*

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**Synthesis of SiO<sub>2</sub>@Ag core-shell photonic crystals for SERS application**

*Matin Ashurov*

*Moscow, Russian Federation*

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**Extracting hot-spot correlation length from SNSPD tomography data**

*Margarita Polyakova*

*Moscow, Russian Federation*

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**Investigation of metamorphic InAlAs/GaAs heterostructures by the photoluminescence method**

*Galya Denisova*

*St. Petersburg, Russian Federation*

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**Static light scattering for determination of physical parameters of macro- and nanoparticles**

*Ilya Kolokolnikov*

*St. Petersburg, Russian Federation*

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**SERS induced by Au/ZnO plasmonic nanorods coupled to Au nanoparticles**

*Vladimir Kaydashev*

*Dolgoprudny, Russian Federation*

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**Electron-microscopy study of ordered silver nanoparticles synthesized in a ZnO:Al polycrystalline film**

*Liliia Sokura*

*St. Petersburg, Russian Federation*

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**Investigation of functional properties of metal surfaces after laser radiation treatment**

*Julia Ruzankina*

*St. Petersburg, Russian Federation*

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**Surface plasmon-phonon polaritons in heavily doped GaAs based microstructures**

*Alexander Artemyev*

*St. Petersburg, Russian Federation*

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*Mikhail Rogoznyi*

*St. Petersburg, Russian Federation*

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*Pavel Khorin*

*Samara, Russian Federation*

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*Oleg Vasiliev*

*St. Petersburg, Russian Federation*

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*Olga Petrova*

*Syktvykar, Russian Federation*

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*Alexey Mokhov*

*Moscow, Russian Federation*

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*Anton Zhuravlev*

*St. Petersburg, Russian Federation*

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*Xinrui Liu*

*St. Petersburg, Russian Federation*

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*Marina Fetisova*

*St. Petersburg, Russian Federation*

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**CWDM demultiplexer using the anti-reflection, contra-directional couplers based on silicon nitride rib waveguide**

*Evgenia Zubkova*

*Moscow, Russian Federation*

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*Zoya Zabalueva*

*St. Petersburg, Russian Federation*

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*Sophia Komrakova*

*Moscow, Russian Federation*

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*Alexey Kuzin*

*Moscow, Russian Federation*

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*Maxim Masyukov*

*St. Petersburg, Russian Federation*

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*Lada Ignateva*

*St. Petersburg, Russian Federation*

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*Elizaveta Bystrova*

*St. Petersburg, Russian Federation*

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*Azat Gubaydullin*

*St. Petersburg, Russian Federation*



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*Sergey Scherbak*

*St. Petersburg, Russian Federation*

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*Sergey Krasnoborodko*

*Moscow, Russian Federation*

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**Magneto-optical properties of terbium-doped metaphosphate and borate glasses**

*Ekaterina Kuljpina*

*St. Petersburg, Russian Federation*

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**Spin waves edge modes in chains of ferromagnetic pillars**

*Sergey Osokin*

*Moscow, Russian Federation*

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*Anastasia Pestova*

*Yaroslavl, Russian Federation*

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*Nazar Lugovskoy*

*Simferopol, Russian Federation*

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*Vladimir Tikhomirov*

*St. Petersburg, Russian Federation*

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**Developing of normally-off p-GaN gate HEMT**

*Olga Kukhtyaeva*

*Zelenograd, Russian Federation*

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**Simulation of induction heating of a titanium sample in a container with a carbon-containing medium**

*Aleksey Voyko*

*Saratov, Russian Federation*

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**Quantum-mechanical models for calculating the electrical characteristics of semiconductor 2-d structures for technological optimization of nanoelectronics devices based on them**

*Andrey Koziy*

*Moscow, Russian Federation*

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**Determination of  $dV/dt$  values for domestic SiC Schottky diodes**

*Sergey Sedykh*

*Bryansk, Russian Federation*

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**Ti/4H-SiC Schottky diode with breakdown voltage up to 3 kV**

*Dmitry Knyagin*

*Bryansk, Russian Federation*

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**Optimization of electrodes for the fast electrochemical actuator**

*Pavel Shlepakov*

*Yaroslavl, Russian Federation*

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**Control electrically conductive of thin films by using subminiature eddy current transducers**

*Vladimir Malikov*

*Barnaul, Russian Federation*

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**Size effect in the electronic transport properties of Bi<sub>2</sub>Se<sub>3</sub>**

*Vasiliy Chistyakov*

*Ekaterinburg, Russian Federation*

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**Multicaloric effect in barium titanate nanotube**

*Vladislav Volcheck*

*Minsk, Belarus*

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**Effect of oxygen on the properties of Ga<sub>2</sub>O<sub>3</sub>:Si thin films**

*Aleksei Almaev*

*Tomsk, Russian Federation*

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**Wireless software-hardware complex for testing semiconductor structures**

*Sergey Loganchuk*

*Novocherkassk, Russian Federation*

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**Aviation kerosene sensors based on nanocrystalline SnO<sub>2</sub> thin films with various catalysts**

*Bogdan Kushnarev*

*Tomsk, Russian Federation*

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**Magnetic-field-driven electron transport in SOI back-gate device**

*Lev Shanidze*

*Krasnoyarsk, Russian Federation*

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**Contact resistance and lifecycle of an ohmic MEMS switch with single and multiple contact bumps**

*Nikita Marukhin*

*Yaroslavl, Russian Federation*

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**Modeling of transparent electromagnetic interference shielding materials based on a silver nanowires network**

*Pavel Shiriaev*

*Moscow, Russian Federation*

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**Electronic transport properties of microcrystalline GaP**

*Alexander Uvarov*

*St. Petersburg, Russian Federation*

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**Carbon nanotube based terahertz radiation detectors**

*Nadezhda Titova*

*Moscow, Russian Federation*

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**Investigation of the surface modification effect of aligned carbon nanotubes on their memristor properties**

*Marina Ilina*

*Taganrog, Russian Federation*

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**Investigation of current generation in a vertically aligned carbon nanotube under the strain gradient**

*Andrey Guryanov*

*Taganrog, Russian Federation*

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**The effect of ion implantation and annealing on forming process in Al<sub>2</sub>O<sub>3</sub>/HfO<sub>2</sub>/Al<sub>2</sub>O<sub>3</sub> memristor structure**

*Olga Permyakova*

*Moscow, Russian Federation*

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**Microwave low mass-dimensional frequency standard on Hg-199 ions**

*Nikita Lukashev*

*St. Petersburg, Russian Federation*

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**Features of transmission bearing and heterodyne receivers for signals in fiber-optic communication line in active phased array antenna**

*Angelina Moroz*

*St. Petersburg, Russian Federation*

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**The effect of nano-inclusions on the magnetic properties of thin YBCO films**

*Andrei Kudriashov*

*St. Petersburg, Russian Federation*

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**Formation of out-of-plane film micro arch by methods of technological control of internal stress**

*Yakov Enns*

*St. Petersburg, Russian Federation*

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**Investigation of the piezoresistive properties and temperature coefficient of resistance of epitaxial GaN layers for sensor applications**

*Yakov Enns*

*St. Petersburg, Russian Federation*

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**MFМ probe development with selected geometry and composition for improving measurement quality**

*Mikhail Zhukov*

*St. Petersburg, Russian Federation*

## 7. Other Aspects of Nanotechnology

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*Nadejda Begletsova*

*Saratov, Russian Federation*

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**Ammonia gas sensing properties of individual polyaniline/N-CNT nanofiber**

*Denis Sokolov*

*Omsk, Russian Federation*

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**Laser sintering of silver nanoparticles deposited by dry aerosol printing**

*Kirill Khabarov*

*Dolgoprudny, Russian Federation*

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**Different orientations SiC ion implantation**

*Aleksei Nezhentsev*

*Moscow, Russian Federation*

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**Structure and hardness of titanium after laser processing in graphite**

*Vladimir Koshuro*

*Saratov, Russian Federation*

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**Synthesis, Raman enhancement, and chemical stability of CaCO<sub>3</sub> microparticles with copper coating**

*Alexey Markin*

*Saratov, Russian Federation*

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**Study of plates with a combined "steel base – (titanium, oxide) coating" structure and preliminary tests of its wear resistance**

*Ivan Egorov*

*Saratov, Russian Federation*

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**Induction heat treatment of steel punches with Zr-containing coatings and preliminary results of FLD characteristics when drawing C45 carbon steel**

*Aleksandr Fomin*

*Saratov, Russian Federation*

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**Magnetic-force microscopy of thin Bi:IG films for thermomagnetic recording**

*Yury Vysokikh*

*Moscow, Russian Federation*

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**The optical method for condition control of flowing medium**

*Nikita Prasolov*

*St. Petersburg, Russian Federation*

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**Analysis of the micromechanical three-axis accelerometer**

*Olga Ezhova*

*Taganrog, Russian Federation*

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**Formation of a Corrugated Graphene Substrate on the Paraffin Surface**

*Sergei Votyakov*

*Tyumen, Russian Federation*

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**Analysis of doping distribution in horizontal GaAs nanowires with axial p-n junction by the conductive atomic force microscopy**

*Bogdan Borodin*

*St. Petersburg, Russian Federation*

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**Influence of carbon in the Sp1 state on the Schottky transition Si-Cd**

*Anna Kokshina*

*Cheboksary, Russian Federation*

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**Formation of graphene-protected iron silicide on silicon carbide surface**

*Georgy Grebenyuk*

*St. Petersburg, Russian Federation*

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**Sensitive elements of microelectronic sensors of fast variable and static pressure**

*Andrey Fimin*

*Penza, Russian Federation*

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**A new method for the molecular geometry optimization during the quantum-chemical modeling of chemical and biochemical reactions.**

*Olesia Diginasheva*

*St. Petersburg, Russian Federation*

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**Influence of annealing temperature and activation time on the catalytic centers formation for carbon nanostructures growth**

*Oleg Ilin*

*Taganrog, Russian Federation*

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**Heterophase mechanism in self-organization of nanocarbon particles in a flame**

*Olga Vasilyeva*

*Cheboksary, Russian Federation*

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**Investigation of resistive switching of gallium oxide nanostructures for RRAM and neuromorphic system elements manufacturing**

*Nikita Polupanov*

*Taganrog, Russian Federation*

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**Phase inversion of THz emission from silicon nanostructures**

*Konstantin Taranets*

*St. Petersburg, Russian Federation*

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**Hopping transport on fractal superlattices of graphene quantum dots**

*Kate Morozova*

*Ulyanovsk, Russian Federation*

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**Fabrication of nanosized vacuum field emission cells using focused ion beam**

*Ivan Panchenko*

*Rostov-on-Don, Russian Federation*

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**The research of ultrafast silicon-carbide current switch features as a part of the soft x-ray radiation source based on capillary plasma**

*Kirill Sergushichev*

*St. Petersburg, Russian Federation*

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**Features of construction of the scheme of fiber-optic communication system for transmission of analog signals in the frequency range from 0.135 to 40 GHz**

*Varvara Fadeenko*

*St. Petersburg, Russian Federation*

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**Simulation of quantum transport in nanodiodes based on carbon nanotubes for optical nanoantenna application**

*Diana Timkaeva*

*Ulyanovsk, Russian Federation*

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**Selection of the design of a hot heat exchanger of an automotive thermoelectric generator for an urban driving cycle**

*Konstantin Shishov*

*Moscow, Russian Federation*

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**The conductivity of the graphene-like carbon films in the 80 – 120 K temperature range**

*Anna Kovalchuk*

*Petrozavodsk, Russian Federation*

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**Optimization of the processes of obtaining bilayer superconducting films based on niobium nitride and gold (NbN / Au) to create a superconducting single-photon detector**

*Michael Davydchenko*

*Moscow, Russian Federation*

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**Detailed Monte-Carlo simulation of PMMA chain scissions in e-beam lithography**

*Fedor Sidorov*

*Yaroslavl, Russian Federation*



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**Strength and structural properties of AlN films grown on SiC/Si substrates synthesized by atomic substitution**

*Alexander Grashchenko*

*St. Petersburg, Russian Federation*

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**Effect of ion irradiation on the resistive switching in metal-oxide memristive nanostructures**

*Svetlana Gerasimova*

*Nizhny Novgorod, Russian Federation*