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Dr. Vladimir V'yurkov - Chair of the Workshop SOI-2012
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SESSIONS LOCATION

Monday, October 1st, 2012

TIME	CONFERENCE HALL	AUDITORIUM A	AUDITORIUM B
16.00 – 18.00	Hi-Tech Companies Presentations	-----	-----

Tuesday, October 2nd, 2012

8.50. Conference Hall. WELCOME REMARKS

TIME	CONFERENCE HALL	AUDITORIUM A	AUDITORIUM B
9.00 – 11.40	Plenary Session I	-----	-----
12.00 – 14.00	Plenary Session II. Quantum Informatics I	-----	-----
14.40 – 16.40	Session 1. Micro- and Nanodevices I	Session 2. Quantum Informatics II	Session 3. Simulation and Modeling I
17.00 – 18.50	Session 4. Superconducting Structures and Devices	Session 5. Quantum Informatics II	Session 6. Simulation and Modeling II

Wednesday, October 3rd 2012

TIME	CONFERENCE HALL	AUDITORIUM A	AUDITORIUM B
9.00 – 11.00	Plenary Session III	-----	-----
11.20 – 13.10	Session 7. Advanced Lithography	Session 8. Quantum Informatics IV	Session 9. Workshop on SOI I
14.00 – 16.10	Session 10. Workshop on SOI II	Session 11. Quantum Informatics V	Session 12. Magnetic Micro- and Nanostructures

TIME	ENTRESOL	BOTTOM HALL
16.30 – 18.30	POSTER SESSION I	EXHIBITION

Thursday, October 4th 2012

TIME	CONFERENCE HALL	AUDITORIUM A	AUDITORIUM B
9.00 – 11.00	Session 13. Micro- and Nanodevices II	Session 14. Metrology and Characterization	Session 15. Micro- and Nanoelectronics Structures I
11.20 - 13.20	Session 16. Plasma and Ion Beam Technologies I	Session 17. Quantum Informatics VI	Session 18. Micro- and Nanoelectronics Structures II
14.00 – 16.10	Session 19. Micro- and Nanoelectromechanical Systems	Session 20. Quantum Informatics VII	Session 21. Plasma and Ion Beam Technologies II

TIME	ENTRESOL	BOTTOM HALL
16.30 – 18.30	POSTER SESSION II	EXHIBITION

18.30. Conference Hall. CLOSING CONFERENCE REMARKS

ICMNE-2012 SCIENTIFIC PROGRAM

Oral Sessions

Monday, October 1st, 2012

9.00 - ...Registration & Accommodation

13.00-14.00 Lunch

Conference Hall

Special Session. Presentations of Hi-Tech Companies

- 16.00 S1-01** SemiTEq technological equipment for nanoelectronics. *S.I. Petrov¹, A.N. Alexeev¹, D.M. Krasovitsky², V.P. Chaly²*. 1. SemiTEq JSC, Saint-Petersburg, Russia. 2. Svetlana-Rost JSC, Saint-Petersburg, Russia.
- 16.20 S1-02** Structural diagnostics, elemental and characteristic analysis of modern micro- and nanosystems using analytical SEM/FIB tools. *A. Tagachenkov¹, E. Zenova¹, Y. Anufriev¹, V. Dubrovinskiy²*. 1. Institute of Nanotechnology of Microelectronics, Russian Academy of Sciences, Moscow, Russia. 2. JSC "NPO Sernia", Moscow, Russia.
- 16.40 S1-03** Ultra High Resolution AFM Imaging. *M. Minin*. INTERTECH Corp., Moscow, Russia.
- 17.00 S1-04** Oxford Instruments Plasma Technology equipment for the micro- and nano-engineering of materials for semiconductor, optoelectronics, MEMS and other applications. *K. Kuvaev, A. Krynin*. Technoinfo Limited, Moscow, Russia.
- 17.20 S1-05** Novel Vion Plasma FIB system for nano- and micro- electronics application by FEI Company. *A. Poletaev, I. Bredikhin*. Technoinfo Limited, Moscow, Russia.
- 17.40 S1-06** Modern semiconductor equipment for metrology and failure analysis by Hitachi High Technologies. *E. Kremer*. JSC InterLab, Moscow, Russia.

18.00

Welcome Party

19.00

Dinner

Tuesday, October 2nd, 2012

8.15 Breakfast

Conference Hall

8.50.

WELCOME REMARKS

E.P. Velikhov, Conference Chair, RSC "Kurchatov Institute", Moscow
A.A. Orlikovsky, Program Committee Chair, IPT RAS, Moscow

Plenary Session I

Session Chairman: Vladimir Lukichev, *Institute of Physics and Technology, RAS, Russia*

- 9.00 L1-01 **INVITED: New materials and structures in future ULSI generation.** A. Orlikovsky, V. Vyurkov. *Institute of Physics and Technology, Russian Academy of Sciences, Moscow, Russia.*
- 9.40 L1-02 **INVITED: New devices and materials for ultra low power operation.** F. Balestra. *Sinano Institute, IMEP-Minatec (CNRS-Grenoble INP, UJF), France.*
- 10.20 L1-03 **INVITED: SiGe and Ge: selective epitaxial growth and application in advanced MOS devices.** A. Hikavyy, B. Vincent, W. Vanherle, J. Dekoster, L. Witters, H. Bender, A. Thean, R. Loo. *IMEC, Leuven, Belgium.*
- 11.00 L1-04 **INVITED: Bumpless interconnects technology for wafer-based three-dimensional integration (3DI).** T. Ohba. *Institute of Engineering Innovation, Graduate School of Engineering, The University of Tokyo.*

11.40-12.00 Coffee break. Winter garden

Conference Hall

Plenary Session II. Quantum Informatics I

Session Chairman: Vladimir Lukichev, *Institute of Physics and Technology, RAS, Russia*

- 12.00 qL-01 **INVITED: Dressed state amplification by a superconducting qubit.** G. Oelsner^a, P. Macha^a, E. Ilichev^a, U. Huebner^a, H.-G. Meyer^a, M. Grajcar^b, O. Astafiev^c. ^a*Institute of Photonic Technology, Jena, Germany.* ^b*Department of Experimental Physics, Comenius University, Bratislava, Slovakia,* ^c*NEC Nano Electronics Research Laboratories. Tsukuba, Ibaraki, Japan.*
- 12.30 qL-02 **INVITED: Quantum correlations: entanglement and discord in the simplest physical systems.** E.B. Fel'dman, E.I. Kuznetsova, M.A. Yurishchev, A.I. Zenchuk. *Institute of Problems of Chemical Physics, Chernogolovka, Russia.*
- 13.00 qL-03 **INVITED: Fingerprinting based algorithms for quantum branching programs.** F. Ablayev^{1,2}. 1. *Institute for Informatics of Tatarstan Academy of Sciences, Kazan, Russia.* 2. *Kazan Federal University, Kazan, Russia.*
- 13.30 qL-04 **INVITED: Mathematical modeling of quantum noise and the quality of hardware components of quantum computers.** Yu.I. Bogdanov¹, A.Yu. Chernyavskiy¹, A.S. Holevo², V.F. Luckichev¹, S.A. Nuyanzin^{1,3}, A.A. Orlikovsky¹. ¹ *Institute of Physics and Technology, Russian Academy of Sciences.* ² *Steklov Mathematical Institute, Russian Academy of Sciences.* ³ *National Research University of Electronic Technology MIET.*

14.00-14.40 Lunch

Conference Hall

Session 1. Micro- and Nanodevices I

Session Chairman: Vladimir Vuyrkov, *Institute of Physics and Technology, RAS, Russia*

- 14.40 O1-01 INVITED: Qualification of deep-submicron OTP poly-fuse memory.** N. Belova¹, D. Allman¹, S. Tibbitts². 1. ON Semiconductor, Phoenix, AZ, USA. 2. Jet City Electronics Inc., Seattle, WA, USA.
- 15.10 O1-02 Recording of information in nanostructures of transition metal silicides.** A.S. Sigov¹, B.M. Darinskiy³, L.A. Bityutskaya², O.V.Ovchinnikov², M.S.Smirnov², M.V.Grechkina², A.P.Lazarev³, G.A.Veligura⁴, A.V.Tuchin³, E.V.Bogatikov³. 1. MIREA, Moscow, Russia. 2. VSU, Voronezh, Russia. 3. Rosbiokvant Ltd., Voronezh, Russia. 4. Scientific Research Institute of Electronic Engineering, Voronezh, Russia.
- 15.30 O1-03 Study of the resistive switching mechanism in Pt/ZrO_x/HfO₂/p⁺⁺-Si stacks by hard X-ray photoelectron spectroscopy.** Yu. Matveyev¹, A. Zenkevich¹, Yu. Lebedinskii¹, S. Thiess², W. Drube². 1. NRNU "Moscow Engineering Physics Institute", Moscow, Russia. 2. Deutsches Elektronen-Synchrotron DESY, Hamburg, Germany.
- 15.50 O1-04 Switching of domains in ferroelectric domain boundary.** B.M. Darinskiy¹, A.P. Lazarev², A.S. Sigov³. 1. VSU, Voronezh, Russia. 2. Rosbiokvant Ltd., Voronezh, Russia. 3. MIREA, Moscow, Russia.

Auditorium A

Session 2. Quantum Informatics II

Session Chairman: Sergey Kulik, *Moscow State University, Russia*

- 14.40 q1-01 Quantum correlations (entanglement, discord), quantum phase transitions, and magnetic toroidal states in an anti-ferromagnetic XXZ chain of spins $S = 1/2$ in the presence of an inhomogeneous transverse magnetic field.** A.A. Kokin. *Institute of Physics and Technology, Russian Academy of Sciences, Moscow, Russia*
- 15.10 q1-02 INVITED: Quantum and classical correlations in high temperature dynamics of two coupled large spins.** V.E. Zobov. *L.V. Kirensky Institute of Physics, Russian Academy of Sciences, Siberian Branch, Krasnoyarsk, Russia.*
- 15.40 q1-03 Quantum computer on multi-atomic ensembles in quantum electrodynamic cavity.** F.M. Ablayev^{1,2}, S.N. Andrianov^{1,2,3}, S.A. Moiseev^{1,2,3}, A.V. Vasiliev^{1,2}. 1. Institute for Informatics of Tatarstan Academy of Sciences, Kazan, Russia. 2. Kazan Federal University, Kazan, Russia. 3. Kazan Physical and Technical Institute, Kazan, Russia
- 16.00 q1-04 Quantum addressing in photon echo based quantum random access memory.** S.A. Moiseev^{1,2}, E.S. Moiseev². 1. Kazan Physical-technical Institute of Russian Academy of Sciences, Kazan, Russia. 2. Kazan Federal University, Kazan, Russia.

Auditorium B

Session 3. Simulation and Modeling I

Session Chairman: Igor Abramov, *Belarus State University of Informatics and Radioelectronics, Minsk, Belarus*

- 14.40 O1-05 **Theoretical study of terahertz plasma instability in asymmetric double-grating-gate transistor structures.** *A. Satou¹, H. Shida¹, T. Otsuji¹, V.V. Popov². 1. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan. 2. Kotel'nikov Institute of Radio Engineering and Electronics (Saratov Branch), Russian Academy of Sciences, Saratov, Russia.*
- 15.00 O1-06 **Voltage-controlled surface plasmon-polaritons in double-graphene structures.** *D. Svintsov¹, I. Semenikhin¹, V. Vyurkov¹, V. Ryzhii², T. Otsuji². 1. Institute of Physics and Technology, Russian Academy of Sciences, Moscow, Russia. 2. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan.*
- 15.20 O1-07 **Advanced impact ionization current model for MOS devices including heat effects.** *T. Krupkina, D. Rodionov. National Research University 'MIET', Moscow, Russia.*
- 15.40 O1-08 **Electric instability in GaAs/Al_xGa_{1-x}As superlattices with barrier layers non-transparent for tunneling.** *V. Gergel¹, G. Galiev¹, E. Il'ichev², A. Verhovtseva¹, N. Gorshkova¹, A. Zelenyi¹, I. Altukhov¹, S. Paprotskiy¹. 1. Kotel'nikov Institute of Radio Engineering, RAS, Moscow, Russia. 2. National Research University of Electronic Technology (MIET), Moscow, Russia.*
- 16.00 O1-09 **Ionization energy oscillations in metallic and semiconducting nanotubes of ultra small diameters.** *A. Ganin, E. Bormontov, L. Bitytskaya. Voronezh State University, Voronezh, Russia.*
- 16.20 O1-10 **The brain is a nanoelectronic object.** *I.I. Abramov. Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus.*

16.40-17.00 Coffee break. Winter garden.

Conference Hall

Session 4. Superconducting Structures and Devices

Session Chairman: Mikhail Kupriyanov, *Skobelitsin Institute of Nuclear Physics, Lomonosov Moscow State University, Russia*

- 17.00 O1-11 **Boundary conditions for the contact between normal metal and multiband superconductors with unusual types of pairing.** *I. Devyatov, A. Burmistrova. Lomonosov Moscow State University, Skobelitsin Institute of Nuclear Physics, Moscow, Russia.*
- 17.20 O1-12 **New method for calculation of the electron transport in heterostructures with different unusual types of superconducting pairing.** *A. Burmistrova, I. Devyatov. Lomonosov Moscow State University, Skobelitsin Institute of Nuclear Physics, Moscow, Russia.*

- 17.40 O1-13 **Superconducting quantum arrays as electrically small antennas.** I. Soloviev¹, N. Kolotinsky², N. Klenov², A. Sharafiev², V. Kornev², O. Mukhanov³. 1. Skobeltsyn Institute of Nuclear Physics, Moscow State University, Moscow, Russia. 2. Physics Department, Moscow State University. 3. HYPRES, Inc., Elmsford, USA.
- 18.00 O1-14 **Combined magnetic field sensor with superconductive magnetic field concentrator.** L.P. Ichkitidze. National Research University of Electronic Technology “MIET”, MIET, Zelenograd, Moscow, Russia.
- 18.20 O1-15 **Comparative parameters of superconductor-based sensors of weak magnetic fields.** L.P. Ichkitidze¹, M.L. Gavryushina². 1. National Research University of Electronic Technology “MIET”, Zelenograd, Russia. 2. Bazovye Technologii JSC, Moscow, Russia.

Auditorium A

Session 5. Quantum Informatics III

Session Chairman: Sergey Moiseev, *Kazan Physical and Technical Institute, RAS, Kazan, Russia*

- 17.00 q1-05 **INVITED: Spatial structure of two-photon and thermal light.** S.P. Kulik, S.S. Straupe, I. Bobrov. Faculty of Physics, Moscow M.V. Lomonosov State University, Moscow, Russia.
- 17.30 q1-06 **Biphoton spectrum control.** N. Borschevskaya¹, I. Dyakonov¹, K. Katamadze^{1,2}, S. Kulik¹, A. Paterova¹. 1. Moscow State University, Moscow, Russia, 2. Institute of Physics and Technology, Russian Academy of Sciences, Moscow, Russia.
- 17.50 q1-07 **Quantization effects observed in asymmetric rings.** V.L. Gurtovoi, A.I. Ilin, A.V. Nikulov, V.A. Tulin. Institute of Microelectronics Technology, Russian Academy of Sciences, Chernogolovka, Moscow District, Russia.
- 18.10 q1-08 **Quantum communication with Bose-Einstein condensates.** A.N. Pyrkov, T. Byrnes. National Institute of Informatics, Tokyo, Japan.
- 18.30 q1-09 **Effect of image charges on a space qubit evolution,** V. Vyurkov, M. Rudenko, S. Filippov. Institute of Physics and Technology, RAS, Moscow, Russia.

Auditorium B

Session 6. Simulation and Modeling II

Session Chairman: Vladimir Vyurkov, *Institute of Physics and Technology, RAS, Russia*

- 17.00 O1-16 **A dynamic simulation model for functionally-integrated injection laser-modulator.** B. Konoplev¹, E. Ryndin², M. Denisenko¹. 1. Taganrog Institute of Technology - Southern Federal University, Taganrog, Russia. 2. Souther Scientific Center of RAS, Rostov-na-Donu, Russia.
- 17.20 O1-17 **Computationally efficient methods for optical simulation of solar cells and their applications.** M. Zanucoli¹, I. Semenikhin², V. Vyurkov², E. Sangiorgi¹, C. Fiegna¹. 1. ARCES-DEI University of Bologna & IUNET, Cesena (FC), Italy. 2. Institute of Physics and Technology, RAS, Moscow, Russia.
- 17.40 O1-18 **Optical absorption of silicon layer with incorporated nano-voids and metal nanoparticles.** V. Shautsova, P. Gaiduk. Belarusian State University, Minsk, Belarus.

- 18.00 O1-19 Simulation of resonant tunneling devices based on different materials.** *I.I. Abramov, N.V. Kolomejtseva, I.A. Romanova, A.G. Klimovich. Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus.*
- 18.20 O1-20 Electronic structure of magnetic nanoclusters of cobalt and nickel silicides.** *A. Tuchin¹, L. Bityutskaya¹, A. Lazarev², A. Sigov³. 1. Voronezh State University, Voronezh, Russia. 2. "Rosbiokvant" Ltd., Voronezh, Russia. 3. MIREA, Moscow, Russia.*

19.00 Dinner

Wednesday, October 3rd 2012

8.15 Breakfast

**Conference Hall
Plenary Session III**

Session Chairman: Vladimir Lukichev, Institute of Physics and Technology, RAS, Russia

- 09.00 L2-01 INVITED: Graphene-based infrared and terahertz detectors: Concepts, features, and comparison.** V. Ryzhi¹, T. Otsuji¹, M. Ryzhi², V. Mitin³, M.S. Shur⁴.
¹ Tohoku University, Sendai, Japan. ² University of Aizu, Aizu-Wakamatsu, Japan. ³ University at Buffalo, SUNY, Buffalo, USA, ⁴ Rensselaer Polytechnic Institute, Troy, USA.
- 09.40 L2-02 INVITED: Terahertz-wave generation using graphene - toward the creation of graphene injection lasers.** T. Otsuji¹, A. Satou¹, S.A. Boubanga Tombet¹, M. Ryzhi², V. Ryzhi¹.
1. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan. 2. Computational Nano-Electronics Laboratory, University of Aizu, Japan.
- 10.20 L2-03 INVITED: Perspective applications for 3C-SiC on silicon technology.** F. Iacopi, L. Wang, G. Walker, L. Hold, B. Cuning, J. Han, P. Tanner, A. Iacopi, S. Dimitrijević.
Queensland Micro and Nanotechnology Facility, Griffith University, Australia.

11.00 - 11.20 Coffee break

**Conference Hall
Session 9. Advanced Lithography**

Session Chairman: Vladimir Lukichev, Institute of Physics and Technology, RAS, Russia

- 11.20 O2-01 INVITED: Carbon nanotubes and nanostructures - multifunctional materials for emission electronics.** Yu.V. Gulyaev.
Kotel'nikov Institute of Radio Engineering and Electronics, RAS, Russia.
- 11.50 O2-02 INVITED: Research activity in field of Projection XEUV Lithography in IPM RAS.** N.N. Salashchenko, N.I. Chkhalo.
Institute for Physics of Microstructures, RAS, Russia.

- 12.20 O2-03 **Next Generation Lithography – fundamental problems.** S.I. Zaitsev. *IMT RAS, Chernogolovka, Russia.*
- 12.40 O2-04 **NANOMAKER - the electron lithography tool for ultimate resolution.** B.N. Gaifullin¹, *I.S. Stepanov*¹, *A.A. Svintsov*², *S.I. Zaitsev*². 1. *Interface Ltd, Moscow, Russia.* 2. *Institute of Microelectronics Technology, RAS, Chernogolovka, Russia.*

Auditorium A

Session 8. Quantum Informatics IV

Session Chairman: Leonid Fedichkin, *Institute of Physics and Technology, RAS, Moscow, Russia*

- 11.20 q2-01 **Quantum information and spectroscopy of cold Rydberg atoms.** I.I. Ryabtsev, *I.I. Beterov*, *D.B. Tretyakov*, *V.M. Entin*, *E.A. Yakshina*. *Institute of Semiconductor Physics, SB RAS, Novosibirsk, Russia.*
- 11.40 q2-02 **Creating a single-atom array for quantum computation using Rydberg blockade in an atomic ensemble.** D.B. Tretyakov, *I.I. Beterov*, *V.M. Entin*, *E.A. Yakshina*, and *I.I. Ryabtsev*. *Institute of Semiconductor Physics, SB RAS, Novosibirsk, Russia.*
- 12.00 q2-03 **Integrated diamond nanostructures for quantum informatics.** V.P. Popov¹, *L.N. Safronov*¹, *V.A. Antonov*¹, *S.N. Podlesnyi*¹, *A.V. Shishaev*¹, *I.I. Ryabtsev*¹, *N. Kupriyanov*², *Yu.N. Pal'yanov*². 1. *Rzhanov Institute of Semiconductor Physics, Russian Academy of Sciences, Novosibirsk, Russia.* 2. *Sobolev Institute of Geology and Mineralogy, SB RAS, Novosibirsk, Russia.*
- 12.20 q2-04 **Color centers in nanodiamonds of different origin.** I.I. Vlasov¹, *V.G. Ralchenko*¹, *O. Shenderova*², *A.A. Shiryayev*³, *A.A. Khomich*¹, *V.S. Sedov*¹, *M.S. Komlenok*¹, *V.S. Pavelyev*^{4,5}, *K.N. Tukmakov*⁵, *S. Turner*⁶, *F. Jelezko*⁷, *J. Wrachtrup*⁸, *V.I. Konov*¹. ¹*General Physics Institute, RAS, Moscow, Russia.* ²*International Technology Centre, Raleigh, USA.* ³*Institute of Physical Chemistry, RAS, Russia.* ⁴*Image Processing Systems Institute RAS, Samara, Russia.* ⁵*Samara State Aerospace University, Samara, Russia.* ⁶*EMAT, University of Antwerp, Antwerpen, Belgium.* ⁷*Institute for Quantum Optics, Ulm University, Ulm, Germany.* ⁸*Physical Institute and Research Center SCOPE, Stuttgart University, Stuttgart, Germany.*
- 12.40 q2-05 **Quantum register based on structured diamond waveguide with NV centers.** A.V. Tsukanov, *I.Yu. Kateev*, *A.A. Orlikovsky*. *Institute of Physics and Technology, Russian Academy of Science, Moscow, Russia.*

Auditorium B

Session 7. Workshop Silicon-on-Insulator I

Session Chairmen: Alexander Orlikovsky, *Institute of Physics and Technology, RAS, Russia*

- 11.20 W2-01 **INVITED: Random telegraph noise diagnostics of nanowire SOI MOSFETs.** A.N. Nazarov¹, *I. Ferain*², *R. Yu*², *A. Kranti*², *P. Razavi*². 1. *V. Lashkaryov Institute of Semiconductor Physics, National Academy of Science of Ukraine, Kiev, Ukraine.* 2. *Tyndall National Institute, Cork, Ireland.*

- 11.45 W2-02 **INVITED: SOI structure with Si-nanoclusters embedded in the oxide layer prepared by low-dose co-implantation.** V. Litovchenko, B. Romanyuk, V. Melnik, O. Oberemok, V. Popov, A. Sarikov. *V. Lashkarev Institute of Semiconductor Physics, NAS of Ukraine, Kiev, Ukraine.*
- 12.10 W2-03 **Quantum noise in field-effect nanotransistors.** V. Vyurkov, S. Filippov, I. Semenikhin, A. Orlikovsky. *Institute of Physics and Technology, RAS, Moscow, Russia.*
- 12.30 W2-04 **Revision of interface coupling in ultra-thin body SOI MOSFETs.** T. Rudenko¹, A. Nazarov¹, V. Kilchytska², D. Flandre². *1. Institute of Semiconductor Physics, National Academy of Ukraine, Kyiv, Ukraine. 2. ICTEAM Institute, Universite catholique de Louvain.*
- 12.50 W2-05 **Noise characteristics of nanoscaled SOI MOSFETs.** N. Lukyanchikova¹, N. Garbar¹, V. Kudina¹, A. Smolanska¹, E. Simoen², C. Claeys^{2,3}. *1. V. Lashkaryov Institute of Semiconductor Physics, National Academy of Science of Ukraine, Kiev, Ukraine. 2. IMEC, Leuven, Belgium. 3. KU Leuven, Belgium.*

13.10-14.00 Lunch

Conference Hall

Session 10. Workshop Silicon-on-Insulator II

Session Chairmen: Alexey Nazarov, *Institute of Semiconductor Physics, NASU, Kyiv, Ukraine*

- 14.00 W2-06 **INVITED: Threshold voltage of advanced MOSFETs: Physical criteria and experimental extraction methods.** T. Rudenko¹, A. Nazarov¹, V. Kilchytska², D. Flandre². *1. Institute of Semiconductor Physics, National Academy of Ukraine, Kyiv, Ukraine. 2. ICTEAM Institute, Universite catholique de Louvain.*
- 14.30 W2-07 **Electrical characterization of high-k gate dielectrics for future CMOS technology.** Y.Y. Gomeniuk¹, Y.V. Gomeniuk¹, A.N. Nazarov¹, I.P. Tyagulskii¹, V.S. Lysenko¹, K. Cherkaoui², S. Monaghan², P.K. Hurley². *1. V. Lashkaryov Institute of Semiconductor Physics, National Academy of Science of Ukraine, Kiev, Ukraine. 2. Tyndall National Institute, University College Cork, Lee Maltings, Ireland.*
- 14.50 W2-08 **The mobility models for TCAD simulation of extremely thin nanoscale SOI MOSFETs.** Y. Chaplygin, A. Krasjukov, T. Krupkina, I. Titova. *National Research University of Electronic Technology, Moscow, Russia.*
- 15.10 W2-09 **SOI CMOS RadHard SRAM 256K, 1M, and 4M.** N. Alieva¹, A. Belous¹, V. Bondarenko², L. Dolgyi², E. Lozitskyi¹, S. Soroka¹, G. Usov¹, A. Turzevich¹, S. Shvedov¹. *1. "Integral" Joint Stock Company, Minsk, Belarus. 2. Belarussian State University of Informatics and Radioelectronics, Minsk, Belarus.*
- 15.30 W2-10 **Carrier mobility in SOI layers with bonded interface.** O.V. Naumova, B.I. Fomin, V.P. Popov. *Institute of Semiconductor Physics, RAS, Novosibirsk, Russia.*

Auditorium A

Session 11. Quantum Informatics V

Session Chairman: Eduard Fel'dman, *Institute of Problems of Chemical Physics, RAS, Russia*

- 14.00 q2-06 **INVITED: Charge pumping with Coulomb blockade devices.** Yu.A. Pashkin. *Physics Department, Lancaster University, United Kingdom, NEC Smart Energy Research Laboratories and RIKEN Advanced Science Institute, Tsukuba, Japan.*
- 14.30 q2-07 **Quantum discord in Materials with electron and nuclear spins.** M.A. Yurishchev. *Institute of Problems of Chemical Physics, RAS, Chernogolovka, Russia.*
- 14.50 q2-08 **On the time-optimal implementation of quantum Fourier transformation for qudits represented by quadrupole nucleus.** V.P. Shauro, V.E. Zobov. *L. V. Kirensky Institute of Physics, Siberian Branch of Russian Academy of Sciences, Krasnoyarsk, Russia.*
- 15.10 q2-09 **A spin chain under the pulse conditions as a quantum data channel.** M.M. Kutcherov. *Institute of Space and Information Technology, Siberian Federal University, Krasnoyarsk, Russia.*
- 15.30 q2-10 **A unitary invariant measure of quantum correlations.** A.I. Zenchuk. *Institute of Problems of Chemical Physics, RAS, Chernogolovka, Russia.*
- 15.50 q2-11 **Quantum correlations in a nanopore filled with a gas of spin-carrying molecules (atoms) in a strong magnetic field.** E.B. Fel'dman, E.I. Kuznetsova, M.A. Yurishchev. *Institute of Problems of Chemical Physics, RAS, Chernogolovka, Russia.*

Auditorium B

Session 12. Magnetic Micro- and Nanostructures

Session Chairman: Mikhail Chuev, *Institute of Physics and Technology, RAS, Russia*

- 14.00 O2-05 **INVITED: On the thermodynamics of antiferromagnetic nanoparticles and macroscopic quantum effects observed by Mössbauer spectroscopy.** M.A. Chuev. *Institute of Physics and Technology, RAS, Moscow, Russia.*
- 14.30 O2-06 **Characterization of nanoparticles in a media using multilevel models of magnetic dynamics.** I. Mischenko¹, M. Chuev¹, V. Cherepanov², M. Polikarpov², V. Panchenko². *1. Institute of Physics and Technology, RAS, Moscow, Russia. 2. National Research Centre "Kurchatov Institute", Moscow, Russia.*
- 14.50 O2-07 **The effect of technological factors on micromagnetic states of magnetic nanostructures.** O.S. Trushin¹, V.V. Naumov¹, V.F. Bochkarev¹, N. Barabanova², V.A. Paporkov². *1. Yaroslavl Branch of the Institute of Physics and Technology, RAS, Yaroslavl, Russia. 2. Yaroslavl State University, Yaroslavl, Russia.*
- 15.10 O2-08 **Magnetoresistance of multilayer ferromagnetic nanoparticles.** S.N. Vdovichev, B.A. Gribkov, S.A. Gusev, A.Yu. Klimov, V.L. Mironov, I.M. Nefedov, V.V. Rogov, A.A. Fraerman, I.A. Shereshevskii. *Institute for Physics of Microstructures, RAS, Nizhniy Novgorod, Russia.*

- 15.30 O2-09 **Magnetic logical cells based on domain wall pinning effects in ferromagnetic nanowire-nanoparticles systems.** V.L. Mironov, O.L. Ermolaeva, E.V. Skorohodov, A.Yu. Klimov. *Institute for Physics of Microstructures, RAS, Nizhniy Novgorod, Russia.*
- 15.50 O2-10 **Field-induced transitions in ferrimagnetic chain of spins: stability of ferromagnetic and antiferromagnetic phases.** M. Kostyuchenko. *Yaroslavl State Technical University, Yaroslavl, Russia.*

16.10-16.30 Coffee break

16.30-18.30 Entresol. POSTER SESSION I
Bottom hall. EXHIBITION

19.00 Dinner

Thursday, October 4th 2012

08.15 Breakfast

Conference Hall
Session 13. Micro- and Nanodevices II

Session Chairman: Vladimir Vuyrkov, *Institute of Physics and Technology, RAS, Russia*

- 9.00 O3-01 **Current state and new prospects of semiconductor infrared photoelectronics.** V. Ponomarenko^{1,2}, A. Filachev¹. 1. R&P Association "Orion", Moscow, Russia. 2. MIPT, Dolgoprudny, Russia.
- 9.20 O3-02 **Silicon nanowire field effect transistor with highly doped leads.** S. Amitonov¹, D. Presnov^{1,2}, K. Rudenko³, V. Rudakov³, V. Krupenin¹. 1. Laboratory of Cryoelectronics, Moscow State University, Moscow, Russia. 2. Nuclear Physics Institute, Moscow State University, Moscow, Russia. 3. Institute of Physics and Technology, RAS, Moscow, Russia.
- 9.40 O3-03 **Electronic band alignment and electron transport in Cr/BaTiO₃/Pt ferroelectric tunnel junctions.** A. Zenkevich¹, M. Minnekaev¹, Yu. Matveyev¹, Yu. Lebedinskii¹, K. Bulakh², A. Chouprik², A. Baturin², S. Thiess², W. Drube². 1. National Research Nuclear University "Moscow Engineering Physics Institute", Moscow, Russia. 2. Moscow Institute of Physics and Technology, Dolgoprudny, Russia. 3. Deutsches Elektronen-Synchrotron DESY, Hamburg, Germany.
- 10.00 O3-04 **A gold free fully copper metalized GaAs pHEMT for the high frequency applications.** E. Erofeev¹, V. Kagadei¹, A. Kazimirov². 1. Research and Production Company "Micran", Tomsk, Russia. 2. Scientific Research Institute of Electrical Communication Systems, Tomsk, Russia.

Auditorium A

Session 14. Metrology and Characterization

Session Chairman: Konstantin Rudenko, *Institute of Physics and Technology, RAS, Russia*

- 09.00 O3-05** Measurement of thickness of a layer of natural silicon oxide being on a test relief pitch structure, created on a substrate of monocrystalline silicon. M.N. Filippov^{a,b,c}, V.P. Gavrilenko^{a,c}, A.A. Kuzin^{a,c}, A.Yu. Kuzin^c, A.A. Kuzmin^{a,c}, V.B. Mityukhlyaev^a, A.V. Rakov^a, P.A. Todua^{a,c}, A.V. Zablotkiy^{a,c}. ^aCenter for Surface and Vacuum Research, Moscow, Russia; ^b N.S. Kurnakov Institute of General and Inorganic Chemistry, Moscow, Russia; ^c National Research University "Moscow Institute of Physics and Technology", Dolgoprudny, Moscow Region, Russia.
- 09.20 O3-06** Characterization of graphene layers grown using Ni/a-SiC bi-layer as a precursor. A.V. Vasin¹, S.A. Gordienko¹, P.M. Lytvyn¹, V.V. Strelchuk¹, A.S. Nikolaenko¹, A.N. Nazarov¹, A.V. Rusavsky¹, V.S. Lysenko¹, V. Popov². 1. Lashkaryov Institute of Semiconductor Physics, NAS of Ukraine, Kiev, Ukraine. 2. Institute of Rzhanov Institute of Semiconductor Physics, Siberian Branch of RAS, Novosibirsk, Russia.
- 9.40 O3-07** Characterization of semiconductor heterostructures using Dynamic Secondary Ion Mass Spectrometry. B. Ber^{1,2}, A. Merkulov³. 1. A.F. Ioffe Physical-Technical Institute, RAS, St Petersburg, Russia; 2. Center of Multi-User Equipment "Material Science and Characterization for Advanced Technologies", St Petersburg, Russia. 3. CAMECA SAS, Gennevilliers, Cedex, France.
- 10.00 O3-08** Determination of the state of non-volatile memory cell with the floating gate by using scanning probe microscopy. D. Hanzit¹, E. Kelm², N. Luapunov², R. Milovanov², G. Molodcova², M. Yanul¹, D. Zubov². 1. NT-MDT, Zelenograd, Russia. 2. Institute of Nanotechnology of Microelectronics, RAS, Moscow, Russia.
- 10.20 O3-09** Mechanisms of image formation in SEM. Yu.V. Larionov, Yu.A. Novikov. *A.M. Prokhorov General Physics Institute, RAS, Moscow, Russia.*
- 10.40 O3-10** Virtual scanning electron microscope. Yu.V. Larionov, Yu.A. Novikov. *A.M. Prokhorov General Physics Institute, RAS, Moscow, Russia.*

Auditorium B

Session 15. Micro- and Nanoelectronic Structures I

Session Chairman: Igor Neizvestnyi, *A.V. Rzhanov Institute of Semiconductor Physics, SB RAS, Novosibirsk, Russia*

- 09.00 O3-11** Formation mechanism and properties of Ge quasicrystalline nanoclusters in SiO_x matrix. Yu.N. Kozyrev¹, M.Yu. Rubezhanska¹, V.S. Lysenko², S.V. Kondratenko³, V.P. Kladko², Yu.V. Gomeniuk², Ye.Ye. Melnichuk³. 1. O.O. Chuiko Institute of Surface Chemistry, Kyiv, Ukraine. 2. Institute of Semiconductor Physics, Kyiv, Ukraine. 3. Taras Shevchenko national University of Kyiv, Ukraine.
- 09.20 O3-12** Photoluminescence of Si layers on grown SiO₂ and optical resonant structures. A.A. Shklyaev^{1, 2}, D.V. Gulyaev¹, D.E. Utkin¹, A.V. Tsarev¹, A.V. Dvurechenskii¹, A.V. Latyshev^{1,2}. 1. A.V. Rzhanov Institute of Semiconductor Physics, Siberian Branch of Russian Academy of Sciences, Novosibirsk, Russia. 2. Novosibirsk State University, Novosibirsk, Russia.

- 9.40 O3-13 Influence of metamorphic buffer design on electrophysical and structural properties of MHEMT nanoheterostructures $\text{In}_{0.7}\text{Al}_{0.3}\text{As}/\text{In}_{0.7}\text{Ga}_{0.3}\text{As}/\text{In}_{0.7}\text{Al}_{0.3}\text{As}/\text{GaAs}$. S.S. Pushkarev^{1,2}, G.B. Galiev¹, E.A. Klimov¹, D.V. Lavrukhin¹, I.S. Vasil'evskii², R.M. Imamov³, I.A. Subbotin³, O.M. Zhigalina³, V.G. Zhigalina³, P.A. Buffat⁴, B. Dwir⁴, E.I. Suvorova^{3,4}. 1. Institute of Ultrahigh Frequency Semiconductor Electronics, RAS, Moscow, Russia. 2. National Nuclear Research University "MEPHI", Moscow, Russia. 3. A.V. Shubnikov Institute of Crystallography of RAS, Moscow, Russia. 4. Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland.**
- 10.00 O3-14 GaN layers with low dislocation density and high electron mobility grown by high-temperature ammonia-MBE. S.I. Petrov¹, A.N. Alexeev¹, D.M. Krasovitsky², V.P. Chaly², V.V. Mamaev¹. 1. SemiTEq JSC, Saint-Petersburg, Russia. 2. Svetlana-Rost JSC, Saint-Petersburg, Russia.**
- 10.20 O3-15 Formation, optical, electrical, and thermoelectrical properties of silicon nanocomposites with embedded Mg_2Si nanocrystallites. K.N. Galkin¹, S.V. Vavanova¹, N.G. Galkin¹, R. Kudrawiec², E. Zielony², A. Misiewicz². 1. Institute of Automation and Control Processes, Far Eastern Branch of RAS, Vladovostok, Russia. 2. Institute of Physics, Wrocław University of Technology, Wrocław, Poland.**
- 10.40 O3-16 Laser pulse crystallization and optical properties of Si/SiO_2 and $\text{Si}/\text{Si}_3\text{N}_4$ multilayer nano-heterostructures. V.A. Volodin¹, S.A. Arzhannikova¹, A.A. Gismatulin¹, G.N. Kamaev¹, A.H. Antonenko¹, S.G. Cherkova¹, S.A. Kochubei¹, A.A. Popov², H. Rinnert³, and M. Vergnat³. 1. Institute of Semiconductor Physics, RAS; Novosibirsk State University, Novosibirsk, Russia. 2. Yaroslavl Department of FTI RAS, Yaroslavl, Russia. 3. Institut Jean Lamour UMR CNRS - Nancy Université - UPV Metz, Faculté des Sciences et Technologies, Vandœuvre-lès-Nancy Cedex, France.**

11.00-11.20 Coffee break

Conference Hall

Session 16. Plasma and Ion Beam Technologies I

Session Chairman: Konstantin Rudenko, Institute of Physics and Technology, RAS, Russia

- 11.20 O3-17 INVITED: Fundamentals and applications of Plasma ALD in nanoelectronics. Ch. Hodson. Oxford Instruments Plasma Technology, UK.**
- 11.50 O3-18 INVITED: Applications of Plasma Immersion Ion Implantation for advanced micro/nano electronics: Challenges and case samples using IBS PULSION® Tool. F. Torregrosa¹, J. Duchaine¹, S. Spiegel¹, G. Borvon¹, F. Milesi², K. Hassouni³, K. Maury³. 1. IBS, ZI Peynier Rousset, Peynier, France. 2. CEA-Leti MINATEC Campus, Grenoble Cedex 9, France. 3. Laboratoire des Sciences des Procédés et des Matériaux, LSPM, CNRS-UPR3407 Université Paris 13, Villetaneuse, France.**
- 12.20 O3-19 Comparative investigation of ultra-shallow boron implantation into bulk silicon and SOI structures by PIII technique. A. Miakonkikh¹, K. Rudenko¹, V. Rudakov², A. Orlikovsky¹. 1. Institute of Physics and Technology, RAS, Moscow, Russia. 2. Yaroslavl Branch of Institute of Physics and Technology, RAS, Yaroslavl, Russia.**

12.40 O3-20 Etching characteristics of GaAs in $\text{CCl}_2\text{F}_2/\text{Ar}$ inductively coupled plasma. *D.B. Murin, V.I. Svetsov, A.M. Efremov, A.E. Leventsov. Ivanovo State University of Chemical Technology, Ivanovo, Russia.*

13.00 O3-21 The effects of additive gases (Ar , N_2 , H_2 , Cl_2 , O_2) on HCl plasma parameters and composition. *A. Efremov, A. Yudina, A. Davlyatshina, V. Svetsov. Ivanovo State University of Chemistry and Technology, Ivanovo, Russia.*

Auditorium A

Session 17. Quantum Informatics VI

Session Chairman: Farid Ablayev, *Institute for Informatics of Tatarstan Academy of Sciences, Kazan, Russia*

11.20 q3-01 **INVITED: Entanglement in a system of harmonic oscillators.** Yu. Ozhigov. *Moscow State University; Institute of Physics and Technology RAS, Moscow, Russia.*

11.50 q3-02 **The strong influence of weak observers on the electron dynamics in large coupled quantum dots clusters.** L. Fedichkin^{1,2,3}. 1. *Institute of Physics and Technology, Russian Academy of Sciences, Moscow, Russia.* 2. *Moscow Institute of Physics and Technology, Dolgoprudny, Russia.* 3. *NIX, Moscow, Russia.*

12.10 q3-03 **Analysis of quantum processes: methods and results.** A.Yu. Chernyavskiy^{1,2}. 1. *Institute of Physics and Technology, Russian Academy of Sciences, Moscow, Russia.* 2. *Moscow State University, Moscow, Russia.*

12.30 q3-04 **Entanglement-annihilating quantum dynamical processes.** S.N. Filippov^{1,2}. 1. *Institute of Physics and Technology of the Russian Academy of Sciences, Moscow, Russia.* 2. *Moscow Institute of Physics and Technology, Dolgoprudny, Moscow Region, Russia.*

12.50 q3-05 **Euclidean qubits versus conventional quantum circuits.** A.Yu. Vlasov^{1,2}. 1. *Federal Radiology Center, IRH, St.-Petersburg, Russia.* 2. *A. Friedmann Laboratory for Theoretical Physics, St.-Petersburg, Russia.*

Auditorium B

Session 18. Micro- and Nanoelectronic Structures II

Session Chairman: Oleg Trushin, *Yaroslavl Branch of the Institute of Physics and Technology, RAS, Yaroslavl, Russia*

11.20 O3-22 **The conductive layers on the base of multiwalled carbon nanotubes.** L.P. Ichkitidze¹, B.M. Putrya¹, S.V. Selishchev¹, E.V. Blagov², A.A. Pavlov², V.A. Galperin³, E.P. Kitsyuk³, Yu.P. Shaman³. 1. *National Research University of Electronic Technology "MIET", MIET, Zelenograd, Moscow, Russia.* 2. *Institute of Nanotechnology of Microelectronics, RAS, Moscow, Russia.* 3. *Scientific-Manufacturing Complex "Technological Centre", MIET, Zelenograd, Moscow, Russia.*

11.40 O3-23 **Investigation of nucleation and field emission characteristics of carbon nanowalls grown on porous silicon.** *S. Evlashin, Y. Mankelevich, A. Pilevskii, V. Borisov, P. Shevnin, A. Stepanov, N. Suetin, A. Rakhimov. Skobeltsyn Institute of Nuclear Physics, Moscow, Russia.*

- 12.00 O3-24 **Properties of thin HfO₂ gate dielectric formed by plasma ALD process.** A. Miakonkikh, A. Rogozhin, K. Rudenko, A. Orlikovsky. *Institute of Physics and Technology, RAS, Moscow, Russia.*
- 12.20 O3-25 **Effect of nanodimensional polyethylenimine layer on surface potential barriers of hybrid structures based on silicon single crystal.** I.V. Malyar, D.A. Gorin, S.V. Stetsyura. *Saratov State University, Saratov, Russia.*
- 12.40 O3-26 **Possible influence of nanoobjects on properties of nanomaterials.** S.P. Timoshenkov, I.M. Britkov, O.M. Britkov, S. Evstafiev, A.S. Timoshenkov, B.M. Simonov, E.P. Prokopev. *Federal State Budgetary Institution of Higher Education "National Research University "MIET", Zelenograd, Russia.*

13.20-14.00 Lunch

Conference Hall

Session 19. Micro- and Nanoelectromechanical Systems

Session Chairman: Sergey Timoshenkov, *National Research University of Electronic Technology, Microelectronics Dept., Zelenograd, Moscow, Russia.*

- 14.00 O3-27 **INVITED: The physical and technological problems in design of pressure sensors with nano-scale piezoresistors.** I. Neizvestnyi¹, G. Kamaev¹, V. Gridchin², A. Cherkaev². ¹A.V. Rzhhanov Institute of Semiconductor Physics, SB RAS, Novosibirsk, Russia; ²Novosibirsk State Technical University, Novosibirsk, Russia.
- 14.30 O3-28 **Design and fabrication of piezoelectric MEMS.** S. Timoshenkov, V. Vodopyanov, N. Korobova. *National Research University of Electronic Technology, Department of Microelectronics, Zelenograd, Moscow, Russia.*
- 14.50 O3-29 **New electronic system converter linear acceleration with custom output characteristics.** S. Timoshenkov, A. Timoshenkov, A. Shalimov. *National Research University of Electronic Technology, Microelectronics Dept., Zelenograd, Moscow, Russia.*
- 15.10 O3-30 **Resonance properties of multilayer metallic nanocantilevers.** I. Uvarov, V. Naumov, I. Amirov. *Yaroslavl Branch of the Institute of Physics and Technology, RAS, Yaroslavl, Russia.*
- 15.30 O3-31 **Modeling of two-axis micromechanical gyroscope-accelerometer.** I.E. Lysenko. *Taganrog Institute of Technology - Southern Federal University, Taganrog, Russia.*
- 15.50 O3-32 **Matrix propulsion microthruster for nanosatellites.** V. Bondarenko¹, K. Dobrego², L. Dolgyi¹, A. Klushko¹, E. Chubenko¹, S. Futko². 1. *Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus.* 2. *A.V. Luikov Heat and Mass Transfer Institute, National Academy of Sciences of Belarus, Minsk, Belarus.*

Auditorium A

Session 20. Quantum Informatics VII

Session Chairman: Yuri Ozhigov, *Moscow State University, Moscow, Russia*

- 14.00 q3-06 **On the validity of neoclassical theory of the Compton effect for revision and reformulation of the standard quantum mechanics interpretation.** V.V. Aristov. *Institute of Microelectronics Technology and High Purity Materials, Russian Academy of Sciences, Chernogolovka, Russia.*
- 14.20 q3-07 **Why quantum computing can be real only in multiple universes.** V.V. Aristov, A.V. Nikulov. *Institute of Microelectronics Technology, Russian Academy of Sciences, Chernogolovka, Russia.*
- 14.40 q3-08 **Simulations of adiabatic and nonadiabatic chemical reactions in condensed media.** K. Arakelov. *Moscow State University, Moscow, Russia.*
- 15.00 q3-09 **Quantum implication and strategies for multi-agent models.** A.A. Ezhov, A.G. Khromov, S.S. Terentyeva. *Science Research Center of Russian Federation Troitsk Institute for Innovation and Fusion Research, city district Troitsk, Moscow, Russia.*

Auditorium B

Session 21. Plasma and Ion Beam Technologies II

Session Chairman: Alexander Efremov, *Ivanovo State University of Chemical Technology, Ivanovo, Russia*

- 14.00 O3-33 **INVITED: Formation of Nanoscale Structures by Inductively Coupled Plasma Etching.** C. Welch. *Oxford Instruments Plasma Technology, UK.*
- 14.30 O3-34 **Plasma etching of silicon for MEMS and optical applications: Comparison of RIE, Bosch and cryogenic processes.** I. Amirov¹, V. Lukichev¹, V. Yunkin². *1. Institute of Physics and Technology, RAS, Moscow, Russia. 2. Institute of Microelectronics Technology, RAS, Chernogolovka, Russia.*
- 14.50 O3-35 **Low-temperature synthesis of carbon nanotubes by plasma enhanced chemical vapor deposition.** V.A. Galperin, A.A. Pavlov, Yu.P. Shaman, A.A. Shamanaev, S.N. Skorik. *Scientific-Manufacturing Complex "Technological Centre", Moscow, Russia.*
- 15.10 O3-36 **Photovoltaic properties of porous-Si:He/Si structure produced by plasma immersion ion implantation.** A. Rogozhin, A. Miakonkikh, K. Rudenko. *Institute of Physics and Technology, RAS, Moscow, Russia.*
- 15.30 O3-37 **On a way to fabrication technology of ultra thin Si on sapphire.** V. Chernysh¹, A. Shemukhin², Yu. Balakshin¹, N. Egorov³, V. Goncharov³, S. Golubkov³, A. Sidorov³, B. Malukov³, V. Statsenko⁴, V. Chumak⁴. *1. Faculty of Physics, Moscow State University, Moscow, Russia. 2. Institute of Nuclear Physics, Moscow State University, Moscow, Russia. 3. Research Institute of Material Science and Technology, Zelenograd, Russia. 4. Epiel Joint Stock Company, Zelenograd, Russia.*

15.50 O3-38 Nonlinear waves and structures induced by ion bombardment of solids.
S. Krivelevich¹, D. Korshunova², N. Pron². 1. Yaroslavl Branch of the Institute of Physics and Technology, RAS, Yaroslavl, Russia. 2. Yaroslavl State University, Yaroslavl, Russia.

16.10-16.30 Coffee break

16.30-18.30 Entresol. POSTER SESSION II
Bottom hall. EXHIBITION

18.30. Conference Hall. CLOSING CONFERENCE REMARKS
A.A. Orlikovsky, Program Committee Chair,
Institute of Physics and Technology, Russian Academy of Sciences, Moscow, Russia

19.30 CONFERENCE DINNER

Friday, October 5th, 2012

09.00 Breakfast

10.00 DEPARTURE

ICMNE-2012 SCIENTIFIC PROGRAM

POSTER SESSIONS

Wednesday, October 3rd 2012

Entresol

16.30 – 18.30

Poster session I

Simulation and Modeling I

- P1-01** A universal model for single-electron device simulation. *I.I. Abramov, A.L. Baranoff, I.A. Romanova, I.Y. Shcherbakova. Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus.*
- P1-02** Monte Carlo simulation of charge carrier transport in deep submicron Si MOSFET. *A.V. Borzdov¹, V.M. Borzdov¹, D.V. Pozdnyakov¹, D.S. Speransky¹, V.V. V'yurkov², A.A. Orlikovsky². 1. Belarusian State University, Minsk, Belarus. 2. Institute of Physics and Technology, RAS, Moscow, Russia.*
- P1-03** Thermal simulating of thin-film SOI MOSFET. *Yu. Chaplygin, A. Krasukov, E. Artamonova. National Research University of Electronic Technology (MIET) Moscow, Russia.*
- P1-04** Ultimate sub-threshold slope of Schottky barrier field-effect transistors. *Ye. Chaplygin, D. Svintsov, V. Vyurkov, A. Orlikovsky. Institute of Physics and Technology, RAS, Moscow, Russia.*
- P1-05** Transient processes in the resonant tunneling diode, taking into account the electron-electron interaction. *V. Elesin¹, I. Kateyev², A. Sukochev¹. 1. National Research Nuclear University, Moscow, Russia. 2. Institute of Physics and Technology, RAS, Moscow, Russia.*
- P1-06** Effect of emitter spacer level of resonant tunneling diode on I-V curves. *V. Elesin, M. Remnev. National Nuclear Research University "MEPhI", Moscow, Russia.*
- P1-07** Gold nanoparticle single-electron transistor simulation. *Y.S. Gerasimov, V.V. Shorokhov, E.S. Soldatov, O.V. Snigirev. Faculty of Physics, Moscow State University, Moscow, Russia.*
- P1-08** TCAD analysis of self heating effects in bulk silicon and SOI n-MOSFETs. *K. Petrosyants¹, E. Orekhov², I. Kharitonov¹, D. Popov¹. 1. Moscow State Institute of Electronics and Mathematics (Technical University), Moscow, Russia. 2. Institute for Design Problems in Microelectronics, RAS, Zelenograd, Moscow, Russia.*
- P1-09** Terahertz oscillations from nanowires. *A. Pilgun¹, V. Vyurkov¹, L. Fedichkin^{1,2}, V. Borzdov³, A. Orlikovsky¹. 1. Institute of Physics and Technology, RAS, Moscow, Russia. 2. Computer company NIX, Moscow, Russia. 3. Belarusian State University, Minsk, Belarusia.*
- P1-10** Modeling low-volt nanometer merged MOS devices. *V. Rakitin. Scientific Research Institute of Physical Problems, Moscow, Russia.*

- P1-11** Nonlinear model of an LDMOS transistor for an RF power amplifier with output power 30 Watt in the frequency range 1.20 - 1.32 GHz. *E.M. Savchenko^{1,2}, A.S. Budyakov^{1,3}, A.D. Pershin^{1,2}, S.M. Romanovsky¹*. 1. FSUE "S&PE "Pulsar", Moscow, Russia. 2. MSTU MIREA, Moscow, Russia. 3. N.E. Bauman MSTU, Moscow, Russia.
- P1-12** Modeling of the silicon complementary bipolar technology process with germanium implantation. *E.M. Savchenko^{1,2}, D.G. Drozdov¹*. 1. FSUE "S&PE "Pulsar", Moscow, Russia. 2. MSTU MIREA, Moscow, Russia.
- P1-13** Tunnel graphene field-effect transistor. *D. Svintsov¹, V. Vyurkov¹, A. Burenkov², R. Oechsner², V. Lukichev¹, A. Orlikovsky¹*. 1. Institute of Physics and Technology, RAS, Moscow, Russia. 2. Fraunhofer Institute of Integrated Systems and Device Technology, Erlangen, Germany.
- P1-14** Numerical model of parallel nano-FET on Coulomb blockade in M₅₅ "magic" crystals. *V.A. Zhukov¹, V.G. Maslov², N.T. Bagraev³*. 1. St. Petersburg Institute of Information Science and Automation, RAS, St. Petersburg, Russia. 2. St. Petersburg National Research University of Information Technologies, Mechanics and Optics, St. Petersburg, Russia, 3. Ioffe Physical Technical Institute, RAS, St. Petersburg, Russia.
- P1-15** A model to describe the hump-like feature observed in the accumulation branch of CV-characteristics of MOS capacitors with oxide-hosted Si nanoparticles. *V. Stuchinsky, G. Kamaev, M. Efremov, S. Arzhannikova*. Institute of Semiconductor Physics, RAS, Novosibirsk, Russia.
- P1-16** MCT photodiodes spectral response. *K.O. Boltar^{1,2}, A.V. Nikonov^{1,2}, N.I. Iakovleva¹*. 1. State Scientific Center of Russian Federation "RD&P Center ORION", Moscow, Russia. 2. Moscow Institute of Physics and Technology, Moscow, Russia.

Magnetic Micro- and Nanostructures

- P1-17** Changing of magnetic properties in magneto-photonic crystals by light influence. *D.E. Afanas'eva¹, A.N. Kuprianov², A.V. Paporkov¹, A.V. Prokaznikov^{1,2}*. 1. Yaroslavl State University, Institute of Semiconductor Physics, Yaroslavl, Russia. 2. Yaroslavl Branch of the Institute of Physics and Technology, Russia.
- P1-18** Comparative study of ultrathin Co films grown by ion-plasma and magnetron sputtering. *V.F. Bochkarev¹, O.S. Trushin¹, V.V. Naumov¹, S.V. Vasiliev², and V.A. Paporkov²*. 1. Yaroslavl Branch of the Institute of Physics and Technology, RAS, Yaroslavl, Russia. 2. Yaroslavl State University, Yaroslavl, Russia.
- P1-19** Fabrication of epitaxial tunnel magnetic junctions Fe/MgO/Fe(001) using pulse laser deposition. *A. Chernikh, V. Vinnechenko, L. Fomin, I. Malikov, and G. Mikhailov*. Institute of Microelectronics Technology and High Purity Materials, RAS, Chernogolovka, Russia.
- P1-20** Experimental observation and simulation of a spin-polarized current effect on magnetic structure of epitaxial Fe (001) quadratic microstructures. *L.A. Fomin, I.V. Malikov, K.M. Kalach, S.V. Pyatkin, G.M. Mikhailov*. Institute of Microelectronics Technology and High Purity Materials, RAS, Chernogolovka, Russia.

- P1-21** Size and magnetic anisotropy effect of micromagnetic states in rectangular epitaxial Fe (011) microstructures. *L.A. Fomin, I.V. Malikov, S.V. Pyatkin, G.M. Mikhailov. Institute of Microelectronics Technology and High Purity Materials, RAS, Chernogolovka, Russia.*
- P1-22** Epitaxial film growth for Fe₃O₄/MgO/Fe (001) tunnel magnetic junctions fabrication. *I.V. Malikov, V.Yu. Vinnichenko, L.A. Fomin, G.M. Mikhailov. Institute of Microelectronics Technology and High Purity Materials, RAS, Chernogolovka, Russia.*

Nanomaterials and Nanostructures Technologies

- P1-23** Development technology of creation sensor nanomaterials based on ZnO. *O.A. Ageev, E.G Zamburg, Z.E. Vakulov, A.V. Shumov, D.E. Vakulov, M.N. Ivonin, V.V. Ptashnik. Taganrog Institute of Technology, Sothern Federal University, Taganrog, Russia.*
- P1-24** Specificity of the synthesis of carbon nanotubes using the combined catalyst. *S. Basaev, V.A. Galperin, A.A. Pavlov, Yu.P. Shaman, A.A. Shamanaev. Scientific-Manufacturing Complex "Technological Centre", Moscow, Russia.*
- P1-25** Method of fabricating nanopores in silicon wafer via P⁺ and O₂⁺ co-implantation and non-isothermal annealing. *Yu.I. Denisenko. Yaroslavl Branch of the Institute of Physics and Technology, RAS, Yaroslavl, Russia.*
- P1-26** Investigation of dependence of morphology and fractal characteristics of porous silicon on anodizing conditions. *D. Gaev¹, A. Boyko², S. Timoshenkov². 1. Kabardino-Balkarian State University, Nalchik, Russia. 2. National Research University of Electronic Technology, Moscow, Russia.*
- P1-27** The study of water suspensions of nanomaterials containing carbon nanotubes. *L.P. Ichkitidze¹, S.V. Selishchev¹, E.V. Blagov², V.A. Galperin³, Y.P. Shaman³, L.V. Tabulina⁴, B.G. Shulitski⁴. 1. National Research University of Electronic Technology "MIET", MIET, Zelenograd, Moscow, Russia. 2. Institute of Nanotechnology of Microelectronics, RAS, Moscow, Russia. 3. Scientific-Manufacturing Complex "Technological Centre", MIET, Zelenograd, Moscow, Russia. 4. Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus.*
- P1-28** Features of nanostructures formed in solid substrates. *E. Il'ichev, A. Kozlitin, D. Migunov, O. Sakharov, A. Trifonov, G. Petruchin, G. Richkov. Scientific Research Institute of Physical Problems named after F.V. Lukin, Moscow, Russia.*
- P1-29** Carbon nanotubes-silicon composite material as anode structure in lithium batteries. *E.P. Kitsyuk¹, V.A. Galperin¹, Y.P. Shaman¹, D.G. Gromov², A.M. Skundin³, E.K. Tuseeva³. 1. Scientific-Manufacturing Complex "Technological Centre", Moscow, Russia. 2. National Research University of Electronic Technology, Moscow, Russia. 3. A.N. Frumkin Institute of Physical Chemistry and Electrochemistry RAS, Moscow, Russia.*
- P1-30** Formation of nanoelectrodes for high temperature single-electron sensors. *A. Parshintsev, E. Soldatov. Department of Physics, Moscow State University, Moscow, Russia.*

- P1-31** Research of resolution of masking layers of the molybdenum structured on technologies of laser thermochemical record. *S. Poletaev^{1,2}, O. Moiseev². 1. S.P. Korolyov Samara State Aerospace University (National Research University), Samara, Russia. 2. Image Processing Systems Institute, RAS, Samara, Russia.*
- P1-32** Formation of CNT ordered array, as source of electrons. *A. Shuliatyev, D. Gromov, A. Zaycev, A. Shamanaev. National Research University of Electronic Technology, Zelenograd, Russia.*
- P1-33** Fabrication of integrated electrodes of molecular transistor electrodes by lithographic techniques and electromigration. *A.S. Stepanov¹, E.S. Soldatov², O.V. Snigirev². 1. Skobeltsyn Institute of Nuclear Physics, M.V. Lomonosov Moscow State University, Moscow, Russia. 2. Department of Physics, M.V. Lomonosov Moscow State University, Moscow, Russia.*
- P1-34** Narrowing of nanogaps for purpose of molecular single-electronics. *I.V. Sapkov, E.S. Soldatov. Department of Physics, Moscow State University, Russia.*
- P1-35** Electron Multiplier on Diamond-Coated Silicon Membrane. *E.A. Il'ichev, A.E. Kuleshov, N.K. Metveeva, G.N. Petrukhin, R.M. Nabiev, G.S. Rychkov, F.V. Lukin State Research Institute of Physical Problems, Zelenograd, Russia.*

Device Structures I

- P1-36** Mechanism of sensitivity of a three-collector magnetotransistor. *V.V. Amelichev, A.A. Cheremisinov, S.A. Polomoshnov, R.D. Tikhonov. SMC "Technological Centre" MIET.*
- P1-37** The observation of conduction quantization of metallic nanojunctions at normal conditions. *L. Fedichkin^{1,2,3}, A. Borisov², M. Chernyshev², V. Rubaev². 1. Institute of Physics and Technology, RAS, Moscow, Russia. 2. Moscow Institute of Physics and Technology, Dolgoprudny, Russia. 3. NIX, Moscow, Russia.*
- P1-38** The novel THz generation and detection possibilities of resonant-tunneling based semiconductor multiple-quantum well nanostructures. *A.L. Karuzskii, V.V. Kapaev, V.N. Murzin, Yu.A. Mityagin, S.A. Savinov, A.V. Perestoronin, A.M. Tshovrebov, N.A. Volchkov, I.P. Kazakov, V.I. Egorkin, S.S. Shmelev, P.N. Lebedev Physical Institute of RAS, Moscow, Russia.*
- P1-39** Suspended silicon single-electron transistor. *V. Krupenin¹, D. Presnov^{1,2}, S. Amitonov¹, K. Rudenko³, V. Rudakov³. 1. Laboratory of Cryoelectronics, Moscow State University, Moscow, Russia. 2. Nuclear Physics Institute, Moscow State University, Moscow, Russia. 3. Institute of Physics and Technology, RAS, Moscow, Russia.*
- P1-40** Optimization of topological parameters of triode with cold cathode based on ordered array of (9,9) carbon nanotubes with open ends. *D.V. Pozdnyakov¹, A.V. Borzdov¹, V.M. Borzdov¹, V.A. Labunov². 1. Belarusian State University, Minsk, Belarus. 2. Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus.*

- P1-41** Experimental and theoretical study of nanowire FET based on SOI. *I.I. Soloviev¹, I.A. Devyatov¹, P.A. Krutitskiy², S.V. Amitonov³, D.E. Presnov³, V.A. Krupenin³. 1. D.V. Skobeltsyn Institute of Nuclear Physics, Moscow State University, Moscow, Russia. 2. M.V. Keldish Institute of Applied Mathematics, Moscow, Russia 3. Physics Faculty, Moscow State University, Moscow, Russia.*
- P1-42** Instability-driven terahertz emission and injection locking behavior in an asymmetric dual-grating-gate HEMT with a vertical cavity structure. *T. Watanabe, T. Fukushima, Y. Kurita, A. Satou, T. Otsuji. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan.*

Plasma Processing

- P1-43** Formation of 3D high aspect ratio micro- and nanostructures in Si by plasma etching and thermal oxidation. *I. Amirov¹, V. Lukichev², M. Izyumov¹, E. Zhikharev², V. Kal'nov². 1. Yaroslavl Branch of the Institute of Physics and Technology, RAS, Yaroslavl, Russia. 2. Institute of Physics and Technology, RAS, Moscow, Russia.*
- P1-44** Kinetic characteristics of electron impact processes in BCl₃. *A. Efremov, V. Plotnikov, V. Svetsov. Ivanovo State University of Chemistry & Technology, Ivanovo, Russia.*
- P1-45** Plasma emission spectra in CCl₂F₂/Ar gas mixture. *D.B. Murin, V.I. Svetsov, A.M. Efremov, A.E. Leventsov. Ivanovo State University of Chemical Technology, Ivanovo, Russia.*
- P1-46** Poly- and nanocrystalline silicon films formed by PECVD for micro- and nanodevices. *E. Gusev, R. Velichko. Taganrog Institute of Technology – Southern Federal University, Taganrog, Russia.*
- P1-47** Etching characteristics and mechanisms of Mo and Al₂O₃ thin films in inductively coupled Cl₂/O₂/Ar plasmas. *K.-H. Kwon¹, K. Kim¹, Y.-H. Ham¹, A. Efremov². 1. Korea University; Sogang University. 2. Ivanovo State University of Chemistry & Technology, Russia.*
- P1-48** Instrumented wafer as a Langmuir multiprobe tool for lateral plasma homogeneity measurements in processing plasma reactors. *A. Miakonkikh, S. Lisovsky, M. Rudenko, K. Rudenko. Institute of Physics and Technology, RAS, Moscow, Russia.*
- P1-49** Method of saturable absorber fabrication by PECVD of carbon nanostructures on optical fibers. *A.E. Mironov, S.V. Dubkov, D.G. Gromov. National Research University of Electronic Technology, Moscow, Russia.*
- P1-50** Plasma molding in deep silicon reactive ion etching. *O. Morozov. Institute of Physics and Technology, RAS, Yaroslavl Branch, Yaroslavl, Russia.*
- P1-51** Investigation of plasma etching of Si and SiO₂ through electron resist ZEP-7000. *Yu. Shikolenko¹, A. Antonovich¹, D. Lapin¹, V. Lukichev^{1,2}. 1. MSTU MIREA, Moscow, Russia. 2. Institute of Physics and Technology, RAS, Moscow, Russia.*

Micro- and Nanostructures Characterization

- P1-52** **Determination of alloy composition in $\text{Ge}_x\text{Si}_{1-x}/\text{SiO}_2/\text{Si}$ microstructures.** *B.Ya. Ber, E.I. Belyakova, D.Yu. Kazanzhev, L.S. Kostina, A.N.Smirnov, N.M. Shmidt. Ioffe Physical Technical Institute, RAS, Petersburg, Russia.*
- P1-53** **Monitoring of resonant-tunneling diode growth by reflectance anisotropy spectroscopy.** *I.P. Kazakov. P.N. Lebedev Physical Institute RAS, Moscow, Russia.*
- P1-54** **Quality control of SOS structures by means of surface photovoltage.** *S.V. Kozlov, V.M. Maslovsky. The company OJSC "Angstrom", Zelenograd, Russia.*
- P1-55** **Effective probe for scanning electron microscope.** *Yu.V. Larionov, Yu.A. Novikov. A.M. Prokhorov General Physics Institute, RAS, Moscow, Russia.*
- P1-56** **Distortion of relief profile of a test object with nanometer sizes due to contamination in SEM.** *Yu.V. Larionov, Yu.A. Novikov. A.M. Prokhorov General Physics Institute, RAS, Moscow, Russia.*
- P1-57** **An improved detection of the locally doped semiconductor regions with the scanning electron microscope.** *N.A. Orlikovsky¹, E.I. Rau², A.M. Tagachenkov³, I.P. Vasyuk⁴. 1. Institute of Physics and Technology, RAS, Moscow, Russia. 2. Moscow State University Physical Department, Moscow, Russia. 3. Institute of Nanotechnology and Microelectronics RAS, Moscow, Russia. 4. Kharkov National University, Kharkov, Ukraine.*
- P1-58** **The development of method for measuring of current density distribution in micro- and nanosystems.** *I. Rudnev, A. Podlivaev, S. Pokrovskiy, A. Menushenkov. National Nuclear Research University, "MEPHI", Moscow, Russia.*
- P1-59** **Determination of the content in $\text{Al}_x\text{Ga}_{1-x}\text{As}$ alloys by secondary ion mass spectrometry.** *V.V. Saraykin¹, I.S. Vasil'evskii², A.N. Vinichenko², K.D. Scherbachev³. 1. Scientific Research Institute of Physical Problems named after F.V.Lukin, Moscow, Russia. 2. National Research Nuclear University «MEPhI», Moscow, Russia. 3. National University of Science and Technology «MISiS», «Material science and Metallurgy» Center, Moscow, Russia.*
- P1-60** **Atomic force microscopy for line edge roughness measurements.** *A. Sosnina, A. Miakonkikh, A. Rogozhin. Institute of Physics and Technology, RAS, Moscow, Russia.*

Entresol

16.45 – 18.30 **Poster session II**

Superconducting Structures and Devices

- P2-01** Josephson ϕ -device based on complex nanostructures with normal metal/ferromagnet bilayer. *S.V. Bakurskiy^{1,2}, N.V. Klenov¹, T.Yu. Karminskaya², A.A. Golubov³, M.Yu. Kupriyanov²*. 1. Faculty of Physics, Moscow State University, Moscow, Russia. 2. Institute of Nuclear Physics, Moscow State University, Moscow, Russia. 3. Faculty of Science and Technology, University of Twente, Enschede, Netherlands.
- P2-02** Macroscopic quantum effects in transmission of signals along the superconducting microwave slotline. Towards quantum transmission lines. *M.A. Dresvyannikov, A.L. Karuzskii, A.V. Perestoronin, A.M. Tshovrebov, N.A. Volchkov, L.N. Zherikhina. P.N. Lebedev Physical Institute, RAS, Moscow, Russia.*
- P2-03** Manifestation of long-range triplet superconducting correlations in F1-SF1F2-F1 structures. *T. Karminskaya¹, M. Kupriyanov¹, A. Golubov²*. 1. MSU, Institute of Nuclear Physics, Moscow, Russia. 2. Institute of nanotechnology, University of Twente, Netherlands.
- P2-04** Jitter in ballistic read-out circuit based on Josephson transmission line. *I.I. Soloviev^{1,2}, N.V. Klenov^{1,3}, A.L. Pankratov¹, E.V. Il'ichev⁴, L.S. Kuzmin^{1,5}*. 1. Laboratory of Cryogenic Nanoelectronics, NNSTU, Russia. 2. D.V. Skobeltsyn Institute of Nuclear Physics, Moscow State University, Moscow, Russia. 3. Physics Faculty, Moscow State University, Moscow, Russia. 4. Institute of Photonic Technology, Jena, Germany 5. Chalmers University of Technology, Sweden.
- P2-05** Noise in bi-SQUID. *I. Soloviev¹, N. Klenov², A. Sharafiev², V. Kornev²*. 1. Skobeltsyn Institute of Nuclear Physics, Moscow, Russia. 2. Moscow State University, Physics Department, Moscow, Russia.

Quantum Informatics

- P2-06** Adequacy, completeness, and accuracy of quantum measurement protocols. *Yu.I. Bogdanov, A.K. Gavrichenko*. Institute of Physics and Technology, RAS, Moscow, Russia.
- P2-07** Polarization quantum operations in an anisotropic medium with dispersion. *Yu.I. Bogdanov¹, A.A. Kalinkin^{2,3}, S.P. Kulik⁴, E.V. Moreva^{2,5}, V.A. Shershulin^{1,2,6}*. 1. Institute of Physics and Technology, RAS, Moscow, Russia. 2. International Laser Center of Moscow State University, Moscow, Russia. 3. Zavoisky Physical-Technical Institute, RAS, Kazan, Russia. 4. Faculty of Physics, Moscow State University, Moscow, Russia. 5. National Research Nuclear University "MEPHI", Moscow, Russia. 6. National Research University of Electronic Technology MIET, Moscow, Russia.

- P2-08** Experimental study of echo effect in polarization transformations of qubits. *Yu. Bogdanov¹, A. Kalinkin^{2,3}, S. Kulik⁴, E. Moreva^{2,5}, V. Shershulin^{1,2,6}*. 1. Institute of Physics and Technology, RAS, Moscow, Russia. 2. International Laser Center of Moscow State University, Moscow, Russia. 3. Zavoisky Physical-Technical Institute RAS, Kazan, Russia. 4. Faculty of Physics, Moscow State University, Moscow, Russia. 5. National Research Nuclear University "MEPHI", Moscow, Russia. 6. National Research University of Electronic Technology MIET, Moscow, Russia.
- P2-09** Mathematical modeling of polarization echo in optically anisotropic media. *Yu.I. Bogdanov¹, A.A. Kalinkin^{2,3}, S.P. Kulik⁴, E.V. Moreva^{2,5}, V.A. Shershulin^{1,2,6}, L.V. Belinsky^{1,6}*. 1. Institute of Physics and Technology, RAS, Moscow, Russia. 2. International Laser Center of Moscow State University, Moscow, Russia. 3. Kazan Physical-Technical Institute, RAS, Kazan Russia. 4. Faculty of Physics, Moscow State University, Moscow, Russia. 5. National Research Nuclear University "MEPHI", Moscow, Russia. 6. National Research University of Electronic Technology MIET, Moscow, Russia.
- P2-10** Quantum interferometer with compressed coherent states. *A. Karuzskii¹, A. Tskhovrebov¹, V. Prijmachenko², L. Zherikhina¹*. 1. P.N. Lebedev Physical Institute, RAS, Moscow, Russia. 2. Moscow Institute of Physical Engineering.
- P2-11** Tradeoff analysis of ballistic detector for Josephson qubits. *N.V. Klenov¹, A.V. Sharafiev¹, V.K. Kornev¹*. Physics Faculty, Moscow State University, Moscow, Russia.
- P2-12** Quantum error correction in Si double dot charge qubits. *A. Melnikov^{1,2}, L. Fedichkin^{1,2,3}*. 1. Institute of Physics and Technology, RAS, Moscow, Russia. 2. Moscow Institute of Physics and Technology, Dolgoprudny, Russia. 3. NIX, Moscow, Russia.
- P2-13** Could we believe that the moon is there? *A.V. Nikulov*. Institute of Microelectronics Technology, RAS, Chernogolovka, Russia.
- P2-14** Measurement of charge and spin qubits in a transistor channel. *M. Rudenko, V. Vyurkov, S. Filippov, A. Orlikovsky*. Institute of Physics and Technology, RAS, Moscow, Russia.

Device Structures II

- P2-15** Atomic force microscopy studies of ferroelectric and electrical properties in epitaxial BaTiO₃/Pt heterostructures. *A. Baturin¹, A. Chouprik¹, K. Bulakh¹, A. Kuzin¹, A. Zenkevich², M. Minnekaev²*. 1. Moscow Institute of Physics and Technology, Dolgoprudny, Russia. 2. National Research Nuclear University "Moscow Engineering Physics Institute", Moscow, Russia.
- P2-16** Formation of Ag clusters for resistive memory cells from thin film. *A. Belov¹, D. Gromov¹, O. Pyatilova¹, O. Sakharov², A. Trifonov²*. 1. National Research University of Electronic Technology MIET, Moscow, Russia. 2. Scientific Research Institute of Physical Problems named after F.V. Lukin, Moscow, Russia.
- P2-17** Memory cells on the basis of metal-insulator-semiconductor of structure with multilayer dielectric with same nanometer layers. *A.E. Berdnikov, A.A. Popov, A.A. Mironenko, V.D. Chernomordick, A.V. Perminov*. Yaroslavl Branch of Institute of Physics and Technology, RAS, Yaroslavl, Russia.

- P2-18** A resistive switching effect with memristive behavior in $\text{Hf}_x\text{Al}_{1-x}\text{O}_y$ layers grown by atomic layer deposition. *A.A. Chouprik¹, K.V. Egorov¹, I.P. Grigal¹, Yu.Yu. Lebedinskii², A.M. Markeev¹, A.V. Zenkevich²*. 1. Moscow Institute of Physics and Technology, Dolgoprudny, Russia. 2. NRNU Moscow Engineering Physics Institute, Moscow, Russia.
- P2-19** Atomic layer deposition of $\text{Hf}_x\text{Al}_{1-x}\text{O}_y$ dielectric layers for memory devices. *I.P. Grigal¹, A.A. Chouprik¹, K.V. Egorov¹, Yu.Yu. Lebedinskii², A.M. Markeev¹*. 1. Moscow Institute of Physics and Technology, Dolgoprudny, Russia. 2. NRNU Moscow Engineering Physics Institute, Moscow, Russia.
- P2-20** Influence of heating on electrical properties and morphology of indium-doped $\text{Ge}_2\text{Sb}_2\text{Te}_5$ thin films for phase change memory devices. *P. Lazarenko¹, S. Kozuykhin², A. Sherchenkov¹, A. Babich¹, A. Vargunin², O. Pyatilova¹*. 1. National Research University of Electronic Technology, Moscow, Russia. 2. Kurnakov Institute of General and Inorganic Chemistry, RAS, Moscow, Russia.
- P2-21** Effect of the moist porous silicon oxide layer on the electrical characteristics of memory cells. *V. Levin, V. Mordvintsev, S. Kudryavtsev*. Yaroslavl Branch of the Institute of Physics and Technology, RAS, Yaroslavl, Russia.
- P2-22** Influence of thermocycling on the properties of Ge-Te system materials for application in nanoscale phase change memory cells. *A. Sherchenkov¹, S. Kozuykhin², M. Michailova¹, A. Babich¹, P. Lazarenko¹*. 1. National Research University of Electronic Technology. 2. Kurnakov Institute of General and Inorganic Chemistry, RAS.

Lithography Techniques

- P2-23** Formation of nanomask with 10-20 nm elements using self-organizing processes in diblock-copolymers films. *M.A. Bruk¹, E.N. Zhikharev², V.A. Kalnov², A.V. Spirin¹, I.I. Amirov²*. 1. Karpov Institute of Physical Chemistry, Moscow, Russia. 2. Institute of Physics and Technology, RAS, Moscow, Russia.
- P2-24** The new method of image formation by direct electron-beam etching of polymer resist. *M.A. Bruk¹, E.N. Zhikharev², D.R. Streltsov¹, V.A. Kalnov², A.V. Spirin¹*. 1. Karpov Institute of Physical Chemistry, Moscow, Russia. 2. Institute of Physics and Technology, RAS, Moscow, Russia.
- P2-25** The charging of PMMA-film resist in electron beam lithography. *E.N. Evstafjeva, M.A. Knjazev, E.I. Rau, A.A. Svintsov, A.A. Tatarintsev, S.I. Zaitsev*. Institute of Microelectronic Technology and High Purity Materials, RAS, Chernogolovka, Russia.
- P2-26** Micropattern formation of diamond films. *E.A. Il'ichev, A.E. Kuleshov, N.K. Matveeva, G.N. Petrukhin, R.M. Nabiev, G.S. Rychkov, F.V. Lukin* State Research Institute of Physical Problems, Zelenograd, Russia.

Materials for Photonics and Optoelectronics

- P2-27** Formation of buried Ge nanocrystals and Cr (Mn) disilicides in Si by combination of ion implantation and MBE methods. *N.G. Galkin¹, E.A. Chusovitin¹, K.N. Galkin¹, S.A. Dotsenko¹, S.V. Vavanova¹, R.I. Batalov², R.M. Bayazitov²*. 1. Institute of Automation and Control Processes, Far Eastern Branch of RAS, Vladivostok, Russia. 2. Kazan Physical-Technical Institute, Kazan, Russia.
- P2-28** Electroluminescence and photovoltage properties of Si-p/ β -FeSi₂ NC/Si-p/Si(100)-n mesa-diodes. *N.G. Galkin¹, E.A. Chusovitin¹, D.L. Goroshko¹, A.V. Shevlyagin¹, T.S. Shamirzaev²*. 1. Institute of Automation and Control Processes, Far Eastern Branch of RAS, Vladivostok, Russia. 2. Kazan Physical-Technical Institute, Kazan, Russia.
- P2-29** Formation and properties of Ca silicide films and Si-Ca silicide-Si double heterostructures on Si(111) substrate. *N.G. Galkin¹, S.A. Dotsenko¹, D.V. Bezbabny², K.N. Galkin¹, D.L. Goroshko¹, R. Kudrawiec³, E. Zielony³, A. Misiewicz³*. 1. Institute of Automation and Control Processes, Far Eastern Branch of RAS, Vladivostok, Russia. 2. Amur State University, Blagoveshchensk, Russia. 3. Institute of Physics, Wroclaw State technical University, Wroclaw, Poland.
- P2-30** Hydro chemical deposition method nanofilms ZnS_{1-x}Se_x. *M.A. Jafarov, E.F. Nasirov, S.A. Jahangirova*. Baku State University, Baku, Azerbaijan.
- P2-31** Solar sell on the bazis heterojunctions p-CdS/p-CdTe/CdZnS, obtained by chemical deposition. *M.A. Jafarov, E.F. Nasirov, S.A. Jahangirova*. Baku State University, Baku, Azerbaijan.
- P2-32** STM study of single tetrapod-shaped CdTe and CdTe/CdSe nanocrystal. *A.S. Trifonov¹, R.B. Vasiliev², I.S. Ezubchenko³, M.S. Sokolikova², D.R. Britov⁴, D.E. Presnov¹, O.V. Snigirev⁴*. 1. Lomonosov Moscow State University, Skobeltsyn Institute of Nuclear Physics, Moscow, Russia. 2. Department of Materials Science, Moscow State University, Moscow, Russia. 3. National Research Centre «Kurchatov Institute», Moscow, Russia. 4. Faculty of Physics, M.V.Lomonosov Moscow State University, Moscow, Russia.
- P2-33** Luminescent properties of carbon incorporated porous silicon oxide. *A. Vasin¹, S. Gordienko¹, A. Rusavsky¹, A. Nazarov¹, V.S. Lysenko¹, Yu. Piryatinski², I. Blonsky², E. Makila³, J.Salonen³, S. Prucnal⁴, L. Rebohle⁴, W. Skorupa⁴*. 1. Lashkaryov Institute of Semiconductor Physics, Kiev, Ukraine. 2. Institute of Physics, Kiev, Ukraine. 3. Department of Physics, University of Turku, Turku, Finland. 4. Institut fur Ionenstrahlphysik und Materialforschung, Dresden, Germany.

Electronic Materials and Thin Films

- P2-34** Germanium substrates for molecular-beam epitaxy. *I.D. Burlakov, A.L.Sizov, N.I. Iakovleva, E.D. Korotaev, A.E. Mirofianchenko*. State Scientific Center of Russian Federation “RD&P Center ORION”, Moscow, Russia.
- P2-35** Direct wafer bonding of SiGe and Si crystalline wafers for high-power bipolar devices and SGOI. *I.V. Grekhov¹, L.S. Kostina¹, T.S. Argunova^{1,2}, E.I. Belyakova¹, N.M. Shmidt¹, J.H. Je²*. 1. Ioffe Physical Technical Institute, RAS, Petersburg, Russia. 2. Pohang University of Science and Technology, Pohang, Republic of Korea.

- P2-36** Copper germanium alloys formation by the low temperature atomic hydrogen treatment. A. Kazimirov¹, E. Erofeev², V. Kagadei². 1. Scientific Research Institute of Electrical Communication Systems, Tomsk, Russia. 2. Research and Production Company "Micran", Tomsk, Russia.
- P2-37** Fabrication and structural study of In_xGa_{1-x}As layers on porous GaAs(001) substrates. A. Lomov¹, J. Grym², D. Nohavica², E. Hulcius³, J. Pangrác³, A. Orehov⁴, A. Vasiliev⁴. 1. Institute of Physics and Technology, RAS, Moscow, Russia. 2. Institute of Photonics and Electronics of Academy of Science of Czech Republic, Prague, Czech Republic. 3. Institute of Physics of Academy of Science of Czech Republic, Prague, Czech Republic. 4. National Research Centre "Kurchatov Institute", Moscow, Russia.
- P2-38** Conductive Langmuir-Blodgett films based on poly (p-phenylenevinylene) derivatives. N.K. Matveeva, E.A. Ilichev. Federal State Unitary Enterprise "Research Institute of Physical Problems named after F.V.Lukin", Zelenograd, Russia.
- P2-39** Features of formation of high-k dielectric layer in the W/ultrathin HfO₂/Si (100) structures under annealing. V. Rudakov, E. Bogoyavlenskaya, Yu. Denisenko, V. Naumov. Yaroslavl Branch of the Institute of Physics and Technology, RAS, Yaroslavl, Russia.
- P2-40** Temperature oscillations in a silicon wafer under constant power of incoherent irradiation by heating lamps in a thermal chamber of RTP set up. V. Rudakov, A. Kurenaya, V. Ovcharov, V. Prigara. Institute of Physics and Technology, Yaroslavl Branch, RAS, Yaroslavl, Russia.
- P2-41** Hopping conductivity in Ge-SiO_x-Si structures with Ge nanoclusters. S.V. Kondratenko¹, Yu.N. Kozyrev², M.Yu. Rubezhanska², V.S. Lysenko³, Y.V. Gomeniuk³. 1. Taras Shevchenko national University of Kyiv, Ukraine. 2. Chuiko Institute of Surface Chemistry, Kyiv, Ukraine. 3. V. Lashkarev Institute of Semiconductor Physics, NAS of Ukraine, Kiev, Ukraine.

Simulation and Modeling II

- P2-42** Modeling the influence of internal mechanical stresses on spatial distribution of oxygen during its precipitation in silicon. R. Goldstein¹, T. Makhviladze², M. Sarychev². 1. Institute for Problems in Mechanics, RAS, Moscow, Russia. 2. Institute of Physics and Technology, RAS, Moscow, Russia.
- P2-43** Modeling the electromigration and mechanical stresses in conductor lines containing impurities. T. Makhviladze, M. Sarychev. Institute of Physics and Technology, RAS, Moscow, Russia.
- P2-44** The numerical model of simplest FIB on ions of rare gases for nano diagnostics and nano patterning. V.A. Zhukov¹, N.V. Badenko², P.V. Shpartko². 1. St. Petersburg Institute of Information Science and Automation, RAS, St. Petersburg, Russia. 2. St. Petersburg State Polytechnic University, St. Petersburg, Russia.
- P2-45** Molecular dynamics simulations of the low energy Ar ion-plasma sputtering of copper nanostructures. A. Kupriyanov, O. Trushin, I. Amirov. Yaroslavl Branch of the Institute of Physics and Technology, RAS, Yaroslavl, Russia.

- P2-46** Mechanisms of strain relief in Cu/Ni(100) heteroepitaxy. *O. Trushin¹, T. AlaNissila², S-C. Ying³, E. Granato⁴*. 1. Yaroslavl Branch of the Institute of Physics and Technology, RAS, Yaroslavl, Russia. 2. Aalto University, Helsinki, Finland. 3. Brown University, Providence, USA. 4. Instituto Nacional de Pesquisas Espaciais, Sao Jose dos Campos, SP Brasil.
- P2-47** Modeling of profile evolution at the low-energy ion sputtering in Ar plasma. *A.S. Shumilov, I.I. Amirov*. Yaroslavl Branch of the Institute of Physics and Technology, RAS, Yaroslavl, Russia.
- P2-48** Numerical calculations of the concentration profile for InGaAs/GaAs heterostructures with δ -doping layers. *S.V. Khazanova, V.E. Degtyarev*. Lobachevskiy Nizhnii Novgorod University, Nizhni Novgorod, Russia.

Plasma and Ion Beam Processing

- P2-49** Formation of silicon oxide layer on the surface of mono-Si wafer by means of ion beam irradiation. *B. Gurovich, K. Prikhodko, A. Taldenkov, D. Komarov, L. Kutuzov*. National Research Center "Kurchatov Institute", Moscow, Russia.
- P2-50** The quantum-size Si dots formed in PECVD Si/SiO₂ multilayers by irradiation with swift heavy ions. *G. Kamaev^{1,2}, S. Cherkova^{1,2}, A. Antonenko^{1,2}, G. Kachurin¹, A. Gismatulin¹, D. Marin^{1,2}, V. Volodin^{1,2}, A. Cherkov^{1,2}, V. Skuratov³*. ¹A.V. Rzhanov Institute of Semiconductor Physics, SB RAS, Novosibirsk, Russia; ²Novosibirsk State University, Novosibirsk, Russia; ³Joint Institute for Nuclear Research, Dubna, Russia.
- P2-51** The study of nanostructures formation on AlSi thin film surface under ion-plasma sputtering. *V. Bachurin, I. Amirov, M. Izyumov, V. Naumov, S. Simakin*. Yaroslavl Branch of the Institute of Physics and Technology, RAS, Yaroslavl, Russia.
- P2-52** Efficiency of fast neutral particle beam sources based on gas-phase charge exchange processes. *V.P. Kudrya*. Institute of Physics and Technology, RAS, Moscow, Russia.

Micro- and Nanoelectromechanical Systems and Sensors

- P2-53** Piezoelectric generator with filled space between the ZnO nanowires. *D.G. Gromov¹, A.M. Kozmin¹, M.U. Nazarkin¹, S.P. Timoshenkov¹, S.A. Gavrillov¹, A.I. Kozlitin²*. ¹National Research University of Electronic Technology, Moscow, Russia. ²Joint research center "Synchrotron", Moscow, Russia.
- P2-54** Simulation of ZnO piezocantilever deflection for a contact AFM. *E. Gusev, Yu. Eroshina*. Taganrog Institute of Technology – Southern Federal University, Taganrog, Russia.
- P2-55** NO₂, CO and CO₂ gas sensor based on magnetron deposited n- and p-type ZnO films. *E. Gusev, A. Mikhno, V. Gamaleev, O. Mironenko*. Taganrog Institute of Technology – Southern Federal University, Taganrog, Russia.
- P2-56** The mode matching technology for MEMS gyroscope with mutually spaced eigenfrequencies. *O. Morozov¹, A. Postnikov¹, I. Kozin¹, A. Soloviev², A. Tarasov²*. 1. Yaroslavl Branch of the Institute of Physics and Technology, RAS, Yaroslavl, Russia. 2. Federal state Unitary Enterprise "Center for Ground-Based Space Infrastructure Facilities Operation", Moscow, Russia.

- P2-57** Principal physical and technological problems and technical solutions for creating a new generation of high-temperature microelectromechanical SOIMT strain sensors. *L. Sokolov¹, N. Parfenov², S. Igochin³*. 1. Branch of MAI (TU) "Strela", Zhukovsky, Russia. 2. MAI (TU), Moscow, Russia. 3. JSC "Interlab", Moscow, Russia.
- P2-58** MEMS angular rate sensors and roll sensors. *A. Timoshenkov, S.M. Naing, D. Daniltsev, V. Kalugin*. National Research University of Electronic Technology, Department of Microelectronics, Moscow, Russia.
- P2-59** Technology development for the creation of conformal multilayer wiring boards based on polymers. *A. Titov, Yu. Dolgovykh, K. Tikhonov, S. Timoshenkov*. National Research University of Electronic Technology, Department of Microelectronics, Moscow, Russia.