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SESSIONS LOCATION

Monday, October 2, 2023

TIME (MSK)	CONFERENCE HALL	AUDITORIUM A	AUDITORIUM B
15.00 – 16.20	Hi-Tech Companies Presentations	----------	----------

Tuesday, October 3, 2023

8.50. Conference Hall. WELCOME REMARKS

TIME (MSK)	CONFERENCE HALL	AUDITORIUM A	AUDITORIUM B
9.00 – 11.00	**Plenary Session I.** Novel Approaches to Device Technologies	----------	----------
11.30 – 13.30	**Plenary Session II**. Quantum Informatics I	Session 1. Physics of Advanced Devices	Session 2. Lithography: Materials and Methods
14.30 – 16.20	Session 3. Non-volatile Memory: Structures & Devices I	Session 4. Device Modeling & Simulation	Session 5 Quantum Informatics II
16.40 – 18.20	Session 6. Non-volatile Memory: Structures & Devices II	Session 7. Plasma Etching and Related Processes	Session 8. Quantum Informatics III

Wednesday, October 4, 2023

TIME (MSK)	CONFERENCE HALL	AUDITORIUM A	AUDITORIUM B
9.00 – 11.00	**Plenary Session III** Novel Electronic Component Base	----------	----------
11.20 – 13.10	Session 9. MEMS & Sensors I: Simulation & Modeling	Session 10. BEOL Technologies	Session 11. Quantum Informatics IV
14.20 –16.00	Session 12. MEMS & Sensors Technologies & Devices II	Session 13. 2D-Materials for Nanoelectronics	Session 14. Quantum Informatics V

TIME (MSK)	Foyer in Entertainment Center
16.20 – 18.40	POSTER SESSION I

NEWS: Auditorium A, 17.30 ROUND TABLE with Korean Hi-Tech manufacturers of technological equipment for R&D.

Thursday, October 5, 2023

TIME (MSK)	CONFERENCE HALL	AUDITORIUM A	AUDITORIUM B
9.00 – 10.40	Session 15. Optoelectronic Microstructures & Devices	Session 16. Heterostrutures and Thin Films	Session 17. Quantum Informatics VI
11.00 - 12.50	Session 18. Magnetic Materials & Structures I	Session 19. Thin & 2D Films	Session 20. Quantum Informatics VII
14.00 – 15.40	Session 21. Magnetic Materials & Structures II	Session 22. Metrology & Diagnostics for Devices	Session 23. Quantum Informatics VIII

TIME (MSK)	Foyer in Entertainment Center
16.00 – 18.20	POSTER SESSION II

16.00. ROUND TABLE. To the 80th anniversary of the NRC “Kurchatov Institute” and 35th anniversary of the Valiev Institute of Physics and Technology RAS.

18.30. Conference Hall. CLOSING CONFERENCE REMARKS

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Oral Sessions

Monday, October 2, 2023

9.00 Registration & Accommodation
13.00-14.00 Lunch

Conference Hall
Special Session. Presentations of Hi-Tech Companies

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

15.00 S1-01 Scanning atomic-force microscope NT-MDT VEGA for nanostructures investigations from micro and nanoelectronics up to biomaterials. *V.A. Bykov, An.V. Bykov, A.A. Bykov, Yu.A. Bobrov, V.V. Kotov, S.I. Leesment, V.V. Polyakov*. NT-MDT Company, Moscow, Russia**.**

15.20 S1-02 Technoinfo: technological equipment for micro- and nanoengineering of materials for semiconductor, optoelectronics, MEMS and other applications. *K. Kuvaev*. *TechnoInfo, Ltd., Moscow, Russia***.**

15.50 S1-03 *To be announced later*.

16.20-16.40 Coffee break

18.00 Welcome Party
19.00 Dinner

8.00 Breakfast

Conference Hall

8.50 WELCOME REMARKS

V.F. Lukichev, Program Committee Co-Chair, *Valiev Institute of Physics and Technology of RAS, Moscow, Russia***.**

Plenary Session I. Novel Approaches to Device Technologies

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

9.00 L1-01 **INVITED: Ion Implantation Technology for Silicon Photonics.** ***F. Komarov[1]*, O. Milchanin[1], I. Parkhomenko[2], I. Romanov[2], M. Mokhovikou[1], E. Wendler[3].*** *1. Institute of Applied Physical Problems of Belarusian State University, Minsk, Belarus. 2. Belarusian State University, Minsk, Belarus. 3. Friedrich-Schiller-Universität, Jena, Germany.*

9.30 L1-02 **INVITED: Surface engineering for the enhancement of interfacial thermal transport in micro- and nanoelectronics.** ***X. Liu, Q. Wang, Z. Huang, X. Liu.*** *Institute of Micro/Nano Electromechanical System and Integrated Circuit, College of Mechanical Engineering, State Key Laboratory for Modification of Chemical Fibers and Polymer Materials, Donghua University, Shanghai, China.*

10.00 L1-03 **INVITED: CSD techniques: mechanisms of porous and crystalline structure control.** ***K. Vorotilov, A. Sigov.*** *MIREA – Russian Technological University (RTU MIREA), Moscow, Russia.*

10.30 EXTRA **INVITED: Advances in terahertz and infrared detection with 2d material transistors.** ***D.A. Svintsov[1], D.A. Mylnikov[1], D.A. Bandurin[2], K.S. Novoselov[2].*** *1. Center for Photonics and 2D Materials, Moscow Institute of Physics and Technology, Dolgoprudny, Russia. 2. Institute for Functional Intelligent Materials, National University of Singapore, Singapore, Singapore.*

11.00-11.20 Coffee break

Conference Hall
Plenary Session II. Quantum Informatics I

Session Chairman: Yuri Bogdanov, *Valiev Institute of Physics and Technology of RAS, Moscow, Russia.*

11.20 qL1-01 **INVITED: On the Gaussian optimizers hypothesis for bosonic Gaussian channel.** ***A.S. Holevo*.*** *Steklov Mathematical Institute of RAS, Moscow, Russia.*

11.50 qL1-02 **INVITED: Towards quantum simulations with ultracold thulium atoms at an optical lattice formed by 1064 nm laser light.** ***D.A. Pershin[1,2], V.A. Khlebnikov[1], D.A. Kumpilov[1,3], I.A. Pyrkh[1,4], A.E. Rudnev[1,3], E.A. Fedotova[1,3], D.V. Gaifudinov[1,3], I.S. Cojocaru[1,2], K.A. Khoruzhii[1,3], P.A. Aksentsev[1,4], A.K. Zykova[1], V.V. Tsyganok[1], A.V. Akimov[1,2,5].*** *1. Russian Quantum Center, Skolkovo, Russia. 2. PN Lebedev Institute of RAS, Moscow,*

Russia. 3. Moscow Institute of Physics and Technology, Dolgoprudny, Russia. 4. Bauman Moscow State Technical University, Moscow, Russia.

12.20 qL1-03 **INVITED: Towards three-qubit quantum gates with single rubidium Rydberg atoms in an array of optical dipole traps.** ***I.I. Ryabtsev*[1,2]*, I.I. Beterov[1,2], I.N. Ashkarin[1,2,3], E.A. Yakshina[1,2], D.B. Tretyakov[1,2], V.M. Entin[1], S. Lepoutre[3], P. Pillet[3], P. Cheinet[3].*** *1. Rzhanov Institute of Semiconductor Physics, Novosibirsk, Russia. 2. Novosibirsk State University, Novosibirsk, Russia. 3. Laboratoire Aime Cotton, CNRS, Univ. Paris-Sud, Orsay, France.*

12.50 qL1-04 **INVITED: Quantum sensors.** ***S. Kulik[1,2]*.*** *1. Quantum Technology Center, M.V. Lomonosov Moscow State University, Moscow, Russia. 2. Laboratory of Quantum Engineering of Light, South Ural State University, Chelyabinsk, Russia.*

Auditorium A
Session 1. Physics of Advanced Devices

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

11.20 O1-01 **Strain-induced photoconductive THz detectors for high-speed spectroscopy and imaging.** ***D. Ponomarev[1], D. Lavrukhin[2], A. Yachmenev[1], R. Khabibullin[1], Yu. Goncharov[2], K. Zaytsev[2].*** *1. V.G. Mokerov Institute of Ultra-High Frequency Semiconductor Electronics of RAS, Moscow, Russia. 2. Prokhorov General Physics Institute of RAS, Moscow, Russia.*

11.40 O1-02 **Dispersion of waveguide modes in a quantum cascade laser with double metal waveguide.** ***B. Zhmud[1,2], A. Sobolev[2], R. Khabibullin[1,2].*** *1. V.G. Mokerov Institute of Ultra-High Frequency Semiconductor Electronics of RAS, Moscow, Russia. 2. Moscow Institute of Physics and Technology (National Research University), Moscow, Russia.*

12.00 O1-03 **Galvanomagnetic plasmon modes in two-dimensional electron systems.** ***A.S. Petrov.*** *Center for Photonics and 2D Materials, Moscow Institute of Physics and Technology, Dolgoprudny, Russia.*

12.20 O1-04 **Single-electron reservoir network based on single impurity atoms in silicon.** ***A.S. Andreeva[1], S.A. Korovnikov[1], I.V. Sapkov[1], D.E. Presnov[1, 2], A.S. Trifonov[1], V.V. Shorokhov[1], O.V. Snigirev[1], V.A. Krupenin[1].*** *1. Cryoelectronics Laboratory, Faculty of Physics, Lomonosov Moscow State University, Moscow, Russia. 2. Skobeltsyn Institute of Nuclear Physics, Lomonosov Moscow State University, Moscow, Russia.*

12.40 O1-05 **Investigation of the characteristics of a wireless communication system consisting of metal nanoantennas in 50μm TSV channel.** ***D. Serov*, I. Khorin.*** *Valiev Institute of Physics and Technology of RAS, Moscow, Russia.*

13.00 O1-06 **Strontium Iridate as a barrier material for Josephson heterostructures.** ***Yu. Kislinskii[1], K.Y. Constantinian[1], I.E. Moskal[1], K.E. Nagornykh[1], A.M. Petrzhik[1], A.V. Shadrin[1,2], G.A. Ovsyannikov[1].*** *1. Kotelnikov Institute of Radio Engineering and Electronics of RAS, Moscow, Russia. 2. Moscow Institute of Physics and Technology, Dolgoprudny, Russia.*

Auditorium B
Session 2. Lithography: Materials and Methods

Session Chairman: Alexander Rogozhin, *Valiev Institute of Physics and Technology of RAS.*

11.20 O1-07 **Some results of development of anti-reflective coatings, photoresists, acid photogenerators for photolithography and surfactant for metal-free developer.** ***G.V. Malkov*[1], *V.G. Kurbatov*[1], *A.V. Akkuratov*[1], *A.E. Tarasov*[1], *N.A. Kuznetsova*[2], *N.V. Malimonenko*[2], *T.A. Pugacheva*[1], *D.A Varlamov*[3], *E.R. Badamshina*[1].** *1. Federal Research Center of Problems of Chemical Physics and Medicinal Chemistry of RAS, Chernogolovka, Russia. 2. Research Institute of Organic Intermediates and Dyes (JSC "NIOPIK"), Moscow, Russia. 3. Molecular Electronics Research Institute (JSC MERI), Moscow, Russia***.**

11.40 O1-08 **Rescheduled to Poster Session II.**

O1-09 **Rescheduled to Session 10 "BEOL Technologies".**

12.00 O1-10 **Monte-Carlo approach to simulation of resist profile in grayscale electron-beam lithography.** ***F. Sidorov*, *A. Rogozhin.*** *Valiev Institute of Physics and Technology of RAS, Moscow, Russia***.**

12.20 O1-11 **Optimization of the formation of photonics structures using the AR-N 7520 resist.** ***K.A. Fetisenkova*, *O.G. Glaz, A.E. Melnikov, V.A. Kiselevskiy, A.V. Miakonkikh, A.E. Rogozhin, A.A. Tatarintsev***. *Valiev Institute of Physics and Technology of RAS, Moscow, Russia*.

13.30-14.30 Lunch

Conference Hall
Session 3. Non-volatile Memory: Structures & Devices I

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

14.30 O1-12 **Memristors based on $GeSi_xO_y$ glass films on p^+-Si substrate.** ***V.A. Volodin*[1,2], *I.D. Yushkov*[1,2], *G.N. Kamaev*[1,2], *M. Vergnat*[3]**. *1. Rzhanov Institute of Semiconductor Physics of SB RAS, Novosibirsk, Russia. 2. Novosibirsk State University, Novosibirsk, Russia. 3. Université de Lorraine, CNRS, IJL, Nancy, France*.

14.50 O1-13 **Influence of different oxide layers on resistive switching parameters in HfO_x-based multilayer structures.** ***A.G. Isaev*[1,2], *O.O. Permyakova*[1,2], *A.E. Rogozhin*[1]**. *1. Valiev Institute of Physics and Technology of RAS, Moscow, Russia. 2. Moscow Institute of Physics and Technology, Dolgoprudny, Russia*.

15.10 O1-14 **The effect of Ar^+ plasma immersion ion implantation on the electroforming voltage of HfO_2-based structures.** ***O. Permyakova*[1,2], *P. Zvonov*[1,3], *S. Pankratov*[1,4], *A. Miakonkikh*[1], *A.E. Rogozhin*[1]**. *1. Valiev Institute of Physics and Technology of RAS, Moscow, Russia. 2. Moscow Institute of Physics and Technology, Dolgoprudny, Russia. 3. Moscow Power Engineering Institute, Moscow, Russia. 4. Lomonosov Moscow State University, Moscow, Russia*.

15.30 O1-15 **Electrical characteristics of memristors based on open TiN-SiO_2-Mo sandwich structures.** ***E.S. Gorlachev**, *V.M. Mordvintsev, S.E. Kudryavtsev***. *Valiev Institute of Physics and Technology of RAS, Yaroslavl Branch, Yaroslavl, Russia*.

15.50 O1-16 Dynamical memristors based on ferro- and antiferroelectric materials. ***A. Khanas*[1], *C. Hebert*[2], *L. Becerra*[2], *N. Sizykh*[1], *N. Zhidkov*[1], *N. Jedrecy*[2], *A. Zenkevich*[1].** *1. Moscow Institute of Physics and Technology (National Research University), Dolgoprudny, Russia. 2. Institut des Nano Sciences de Paris (INSP), CNRS UMR 7588, Sorbonne Université, Paris, France*.

Auditorium A
Session 4. Device Modeling & Simulation

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

14.30 O1-17 Accounting for carrier mobility reduction due to the normal field in the saturation current modeling of extrinsic MOSFETs. ***V. Turin*[1], *Y. Ilyushina*[1], *M. Shcherbina*[1], *B. Rakhmatov*[2], *G. Zebrev*[3], *S. Kokin*[4], *S. Makarov*[4].** *1. Orel State University named after I.S. Turgenev, Orel, Russia. 2. Tajik National University, Dushanbe, Tajikistan. 3. National Research Nuclear University MEPHI, Moscow, Russia. 4. Integrated Solutions LLC, Zelenograd, Russia***.**

14.50 O1-18 Calculation of electrophysical characteristics of semiconductor quantum wire device structures with one-dimensional electron gas. ***D.V. Pozdnyakov*, *A.V. Borzdov, V.M. Borzdov.*** *Belarusian State University, Minsk, Belarus***.**

15.10 O1-19 Application of the Dirichlet-to-Neumann map for solving the Schrödinger equation in nanostructures. ***I.A. Semenikhin***. *Valiev Institute of Physics and Technology of RAS, Moscow, Russia*.

15.30 O1-20 Atomistic analysis of ballistic electron transport through a nanosized vacuum gap in field-emission metal nanostructures. ***B.V. Lobanov*, *G.D. Demin, N.A. Djuzhev*.** *National Research University of Electronic Technology (MIET), Zelenograd, Russia***.**

O1-21 Rescheduled to Quantum Informatics III.

15.50 O1-26 Development of a mathematical apparatus with an imagery representation of information for neuromorphic systems. ***N. Simonov***. *Valiev Institute of Physics and Technology of RAS, Moscow, Russia*.

Auditorium B
Session 5. Quantum Informatics II

Session Chairman: Alexander Pechen, *Steklov Mathematical Institute of RAS, Moscow, Russia.*

14.30 q1-01 **Quantum computing on cold Ca ions.** ***K. Lakhmanskiy.*** *Russian Quantum Center, Moscow, Russia.*

14.50 q1-02 **Microring resonators for coherent computing, soliton generation, and quantum light sources via a dual-pump approach.** ***A.E. Shitkov[1], N.Yu. Dmitriev[1], N.S. Tatarinova[1,2], A.K. Vorobyev[1,2], A.N. Danilin[1,3], V.E. Lobanov[1], I.A. Bilenko[1,3], D.A. Chermoshentsev[1,2,4].*** *1. Russian Quantum Center, Skolkovo, Russia. 2. Moscow Institute of Physics and Technology, Dolgoprudny, Russia. 3. Faculty of Physics, M.V. Lomonosov Moscow State University, Moscow, Russia. 4. Skolkovo Institute of Science and Technology, Moscow, Russia.*

15.10 q1-03 **Data-driven analysis of non-Markovian quantum dynamics.** ***I. Luchnikov[1,2,3], E. Kiktenko[1,3,4], M. Gavreev[1,3], H. Ouerdane[2], S. Fillipov[3,4,5], A. Fedorov[1,3].*** *1. Russian Quantum Center, Skolkovo, Moscow, Russia. 2. Center for Energy Science and Technology, Skolkovo Institute of Science and Technology, Moscow, Russia. 3. Moscow Institute of Physics and Technology, Dolgoprudny, Russia. 4. Department of Mathematical Methods for Quantum Technologies, Steklov Mathematical Institute of RAS, Moscow, Russia. 5. Valiev Institute of Physics and Technology of RAS, Moscow, Russia.*

q1-04 **Rescheduled to Quantum Informatics III.**

15.30 q1-10 **Comparative study of LQU and LQFI measures of quantum correlation in two-spin-1/2 Heisenberg systems.** ***M.A. Yurischev****. *Federal Research Center of Problems of Chemical Physics and Medicinal Chemistry of RAS, Chernogolovka, Russia.*

15.50 q1-05 **Constant-depth algorithm for quantum hashing.** ***A. Vasiliev[1,2]*.*** *1. Kazan Federal University, Kazan, Russia. 2. Kazan E.K. Zavoisky Physical-Technical Institute of the Kazan Scientific Center of RAS, Kazan, Russia.*

16.20-16.40 Coffee break

Conference Hall
Session 6. Non-volatile Memory: Structures & Devices II

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

16.40 O1-22 **Ultra-flexible ferroelectric $Hf_{0.5}Zr_{0.5}O_2$ memory on a biocompatible platform.** ***A.A. Chouprik, V.V. Mikheev, I.G. Margolin, E.B. Kalika, M.V. Spiridonov, D.V. Negrov.*** *Moscow Institute of Physics and Technology (National Research University), Dolgoprudny, Russia.*

17.00 O1-23 **Electron beam-induced current imaging of ferroelectric domains and polarization reversal in $Hf_{0.5}Zr_{0.5}O_2$.** ***E. Korostylev, V. Mikheev, A. Chernikova, M. Zhuk, A. Chouprik, D. Negrov.*** *Moscow Institute of Physics and Technology, Dolgoprudny, Russia.*

17.20 O1-24 **The impact of the top electrode deposition conditions on functional properties of ferroelectric $H_{0.5}Z_{0.5}O_2$-based memory capacitors. *I.A. Mutaev, A.A. Chouprik.*** *Moscow Institute of Physics and Technology (National Research University), Dolgoprudny, Russia*.

17.40 O1-25 **Mitigating the depolarization field and improvement of the information storage time in functional FeFET structures based on $Hf_{0.5}Zr_{0.5}O_2$. *I.A. Savichev, I.G. Margolin, A.A. Chouprik.*** *Moscow Institute of Physics and Technology (National Research University), Dolgoprudny, Russia*.

O1-26 **Rescheduled to Session 4 "Device Modeling & Simulation".**

18.00 O3-09 **Effect of a thin TiO_2 sublayer at the HZO/TiN on ferroelectric properties of HZO-based capacitors. *R.R. Khakimov, A.G. Chernikova, A.M. Markeev.*** *Moscow Institute of Physics and Technology, Dolgoprudny, Russia*.

Auditorium A
Session 7. Plasma Etching and Related Processes

Session Chairman: Andrey Miakonkikh, *Valiev Institute of Physics and Technology of RAS.*

16.40 O1-27 **On possibilities to control etching/polymerization effects in CF_4-, CHF_3- and C_4F_8-based plasmas. *A. Efremov[1]*, A. Bobylev[1], K-H. Kwon[2].*** *1. Ivanovo State University of Chemistry & Technology, Ivanovo, Russia. 2. Korea University, Sejong, Republic of Korea.*

17.00 O1-28 **Ruthenium etching in three-component plasma $Cl_2/O_2/Ar$. *I. Amirov[1], M. Izyumov[1], D. Lopaev[2], A. Zotovich[2], S. Ziryanov[2], T. Rakhimova[2].*** *1. Valiev Institute of Physics and Technology of RAS, Yaroslavl Branch, Yaroslavl, Russia. 2. Skobeltsyn Institute of Nuclear Physics, Lomonosov Moscow State University, Moscow, Russia.*

17.20 O1-29 **Approach to atomic layer etching of high-k dielectrics in conventional plasma etching tool. *V. Kuzmenko, A. Miakonkikh, K. Rudenko.*** *Valiev Institute of Physics and Technology of RAS, Moscow, Russia*.

17.40 O1-30 **Investigation of gas condensation in pores of nanoporous dielectrics in cryogenic etching conditions. *R. Gaydukasov[1,2], A. Miakonkikh[1].*** *1. Valiev Institute of Physics and Technology of RAS, Moscow, Russia. 2. Moscow Institute of Physics and Technology (National Research University), Moscow, Russia.*

18.00 O1-31 **Technological approaches for formation of high-density integral capacitors: deep etching and atomic layer deposition. *A. Miakonkikh, S. Pankratov, V. Kuzmenko, K. Rudenko.*** *Valiev Institute of Physics and Technology of RAS, Moscow, Russia*.

Auditorium B
Session 8. Quantum Informatics III

Session Chairman: Ilya Lazarev. *Federal Research Center of Problems of Chemical Physics and Medicinal Chemistry of RAS, Chernogolovka, Russia*.

~~**q1-06 Probability representation of quantum states-examples of qubits and oscillator. *V.I. Manko.*** *Lebedev Physical Institute of RAS, Moscow, Russia.*~~ **(canceled)**

16.40 q1-07 Control of quantum systems for quantum technologies. *A.N. Pechen*[1,2]. *1. Steklov Mathematical Institute of RAS, Moscow, Russia. 2. University of Science and Technology MISIS, Moscow, Russia*.

17.00 q1-08 Gradient method for optimal control problems in one- and two-qubit systems. *V. Petruhanov*[1,2], *A. Pechen*[1,2]. *1. Steklov Mathematical Institute of RAS, Moscow, Russia. 2. University of Science and Technology MISIS, Moscow, Russia*.

17.20 q1-09 Traps in quantum control landscapes. *B. Volkov*[1,2], *A. Pechen*[1,2]. *1. Department of Mathematical Methods for Quantum Technologies, Steklov Mathematical Institute of RAS, Moscow, Russia. 2. Quantum Engineering Research and Education Center, University of Science and Technology MISIS, Moscow, Russia.*

q1-10 Rescheduled to Quantum Informatics II.

17.40 q1-04 Quantum register based on double quantum dots in a field-effect transistor channel. *D. Drozhzhin*[2], *L. Fedichkin*[1,2], *V. Vyurkov*[1,2]. *1. Valiev Institute of Physics and Technology of RAS, Moscow, Russia. 2. Moscow Institute of Physics and Technology (National Research University), Dolgoprudny, Russia*.

18.00 O1-21 A mass-in-mass chain and the generalization of the Dirac equation with an eight-component wave function and with optical and acoustic branches of the dispersion relation. *V. Turin, Y. Ilyushina, P. Andreev, A. Cherepkova, D. Kireev, I. Nazritsky.* *Orel State University named after I.S. Turgenev, Orel, Russia*.

19.00 Dinner

8.15 Breakfast

Conference Hall
Plenary Session III. Novel Electronic Component Base

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

9.00 L2-01 **INVITED: Electronic component base and sensors on heterostructures with silicon and new materials.** ***V.P. Popov, V.A. Antonov, F.V. Tikhonenko, M.S. Tarkov, A.V. Miakonkikh, K.V. Rudenko****. Rzhanov Institute of Semiconductor Physics of SB RAS, Novosibirsk, Russia.*

9.30 L2-02 **INVITED: Spin and charge transport in ultra-scaled MRAM cells.** ***V. Sverdlov[1], M. Bendra[1,2], B. Pruckner[1], N. Jorstad[1], T. Hadamek[1], J. Ender[1,2], R. Orio[2], W. Goes[3]****. 1. Christian Doppler Laboratory for Nonvolatile Magnetoresistive Memory and Logic at the 2. Institute for Microelectronics, TU Wien, Vienna, Austria at 3. Silvaco Europe Ltd. Cambridge, United Kingdom.*

10.00 L2-03 **INVITED: 2D ferromagnets and their heterostructures with graphene.** ***D.V. Averyanov, I.S. Sokolov, O.E. Parfenov, A.N. Taldenkov, A.M. Tokmachev, V.I. Storchak****. National Research Center "Kurchatov Institute", Moscow, Russia.*

10.30 L2-04 **INVITED: Single-atom single-electron devices.** ***V. Shorokhov[1], D. Presnov[1,2], S. Pankratov[1], I. Kopchinskii , V. Krupenin[1], A. Trifonov[1], O. Snigirev[1]****. 1. Quantum Technology Centre, Faculty of Physics, M.V. Lomonosov Moscow State University, Moscow, Russia. 2. Skobeltsyn Institute of Nuclear Physics, M.V. Lomonosov Moscow State University, Russia.*

11.00 – 11.20 Coffee break

Conference Hall
Session 9. MEMS and Sensors I: Simulation & Modeling

Session Chairman: Ildar Amirov, *Valiev Institute of Physics and Technology of RAS, Yaroslavl Branch.*

11.20 O2-01 **Simulation of the silicon sensitive element of capacitive accelerometer using the analytical model.** ***P. Soe Thu*, V.V. Kalugin, E.S. Kochurina****. Institute of Nano- and Microsystem Technology, Moscow, Russia.*

11.40 O2-02 **Modeling of a combined resistive-capacitive MEMS switch.** ***M.O. Morozov[1,2], I.V. Uvarov[1]****. 1. Valiev Institute of Physics and Technology of RAS, Yaroslavl Branch, Russia. 2. P.G. Demidov Yaroslavl State University, Yaroslavl, Russia.*

12.00 O2-03 **Improving the performance of a MEMS energy harvester by proof mass optimization.** ***P.S. Shlepakov*, I.V. Uvarov****. Valiev Institute of Physics and Technology of RAS, Yaroslavl Branch, Yaroslavl, Russia.*

12.20 O2-04 **A force-enhanced MEMS switch with a compact cantilever.** ***I.A. Belozerov, I.V. Uvarov.*** *Valiev Institute of Physics and Technology of RAS, Yaroslavl Branch, Yaroslavl, Russia.*

12.40 O2-05 Development of a toroidal microinductor made by self-assembly using residual mechanical stress. ***A. Babushkin, R. Selyukov.*** *Valiev Institute of Physics and Technology of RAS, Yaroslavl Branch, Yaroslavl, Russia*.

Auditorium A
Session 10. BEOL Technologies

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

~~**O2-06 On the interconnection of strength and electromigration properties of interface bonded materials.** ***T. Makhviladze, M. Sarychev**.*** ~~*Valiev Institute of Physics and Technology of RAS, National Research Center "Kurchatov Institute", Moscow, Russia*~~**.** **(canceled)**

11.20 O2-07 Ruthenium for subtractive and semi-damascene processes of interconnects formation. ***A. Rogozhin[1], O. Glaz[1, 2], A. Miakonkikh[1], A. Lomov[1], K. Rudenko[1].*** *1. Valiev Institute of Physics and Technology of RAS, Moscow, Russia. 2. Moscow Power Engineering Institute, Moscow, Russia*.

11.40 O2-08 Effect of methyl-contain precursor on the structure of ethylene-bridged PMO low-k films. ***D. Vorotyntsev*, A. Vishnevskiy, D. Seregin, E. Pushkarskaya, K. Vorotilov.*** *MIREA – Russian Technological University (RTU MIREA), Moscow, Russia*.

12.00 O2-09 Atmospheric pressure ellipsometric porosimetry: limitations and methods to enhance data validity. ***A. Vishnevskiy, V. Yakushev, I. Dydykin, K. Vorotilov.*** *MIREA – Russian Technological University (RTU MIREA), Moscow, Russia*.

12.20 O2-10 Technology of metallization of the structure of a semiconductor device by a composition of nanosized metal layers. ***A. Shakhmayeva*, E. Kazalieva****. Dagestan State Technical University, Makhachkala, Russia*.

12.40 O1-09 Modeling and experimental study of reactive magnetron deposition of $MoSi_xO_yN_z$ phase-shifting layers for photomasks. ***D.D. Butmanov[1], V.D. Gromov[1], R.M. Ryazanov[2], O.V. Novikova[3], M.V. Silibin[1], E.A. Lebedev[1,2]*, D.G. Gromov[1].*** *1. National Research University of Electronic Technology, Zelenograd, Russia. 2. Scientific-Manufacturing Complex "Technological Centre", Zelenograd, Russia. 3. MIET Core facilities center "MEMSEC", Zelenograd, Russia*.

Auditorium B
Session 11. Quantum Informatics IV

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

11.20 q2-01 One-excitation state transfer along homogeneous closed spin-1/2 chain governed by XX-Hamiltonian. ***E. Fel'dman, E. Kuznetsova, A. Zenchuk****. Federal Research Center of Problems of Chemical Physics and Medicinal Chemistry of RAS, Chernogolovka, Russia*.

11.40 q2-02 Applicability of nearest neighbor approximation to spin-dynamics under XX-Hamiltonian. ***E.B. Fel'dman, A.I. Zenchuk*.*** *Federal Research Center of Problems of Chemical Physics and Medicinal Chemistry of RAS, Chernogolovka, Russia*.

12.00 q2-03 Entanglement generation between atomic BEC qubits with the use of quantum optimal control and QuTip software. ***I.D. Lazarev, A.N. Pyrkov**.*** *Federal Research Center of Problems of Chemical Physics and Medicinal Chemistry of RAS, Chernogolovka, Russia.*

12.20 q2-04 Efficiency of quantum Otto cycle in spin dimer with KSEA interaction. ***E.I. Kuznetsova, M.A. Yurischev.*** *Federal Research Center of Problems of Chemical Physics and Medicinal Chemistry of RAS, Chernogolovka, Russia.*

12.40 q2-05 Discord-like measures of quantum correlations in two-spin-1/2 Heisenberg chain with DM and KSEA interactions. ***A.V. Fedorova, M.A. Yurischev****. Federal Research Center for Problems of Chemical Physics and Medicinal Chemistry of RAS, Chernogolovka, Russia.*

13.10-14.10 Lunch

Conference Hall
Session 12. MEMS and Sensors II: Technologies and Devices

Session Chairman: Vladimir Popov, *Rzhanov Institute of Semiconductors Physics of SB RAS*

14.20 O2-11 Membrane piezoelectric nano-devices based on ultrathin ferroelectric $Hf_{0.5}Zr_{0.5}O_2$ films. ***A.A. Chouprik, E.A. Guberna, I.G. Margolin, E.B. Kalika, M.Y. Zhuk, S.S. Margolin****. Moscow Institute of Physics and Technology (National Research University), Dolgoprudny, Russia.*

14.40 O2-12 Piezoelectric zinc oxide films and polysilicon on isolator structures for MOEMS. ***E. Gusev[1], S. P. Avdeev[1], P. Kislyak[1]*, M. Sukhanov[1], R. Gaydukasov[2], X. Ren[3], D. Chen[3], L. Han[4], W. Zhang[3,4], O. Ageev[1,5].*** *1. Southern Federal University, Institute of Nanotechnologies, Electronics and Equipment Engineering, Taganrog, Russia. 2. Valiev Institute of Physics and Technology of RAS, Moscow, Russia. 3. School of Optoelectronic Engineering, Qilu University of Technology (Shandong Academy of Sciences), Jinan, China. 4. Laser Institute, Qilu University of Technology (Shandong Academy of Sciences), Jinan, China. 5. Research and Education Center "Nanotechnologies" of Southern Federal University, Taganrog, Russia.*

15.00 O2-13 SOI-FET Sensors with Dielectrophoretic Control. ***O. Naumova, E. Zaytseva, V. Kostyuchenko****. Rzhanov Institute of Semiconductor Physics of SB RAS, Novosibirsk, Russia.*

O2-14 Rescheduled to Session 16. Heterostrutures and Thin Films.

15.20 D1-01 Analysis of the electrophysical characteristics of the RF MEMS switch taking into account the influence of the substrate material. ***A.M. Belevtsev[1], I.K. Epaneshnikova[1], V.L. Kruchkov[1], I.O. Dryagin[1]*, V.F. Lukichev[2]****. 1. Moscow Aviation Institute (National Research University), Moscow, Russia. 2. Valiev Institute of Physics and Technology of RAS, Moscow, Russia.*

15.40 O2-15 Explosive operation of the fast electrochemical actuator: the first results. ***P.S. Shlepakov[1]*, I.V. Uvarov[1], V.B. Svetovoy[2].*** *1. Valiev Institute of Physics and Technology of RAS, Yaroslavl Branch, Yaroslavl, Russia. 2. Frumkin Institute of Physical Chemistry and Electrochemistry of RAS, Moscow, Russia.*

Auditorium A
Session 13. 2D-Materials for Nanoelectronics

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

14.20 O2-16 Models of nanoelectronic devices based on graphene and other 2D-materials of system NANODEV. *I. Abramov, V. Labunov, N. Kalameitsava, I. Romanova, I. Shcherbakova*. *Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus.*

14.40 O2-17 Natural edge bilayer graphene transistor. *I. Domaratskiy, D. Mylnikov, D. Svintsov*. *Moscow Institute of Physics and Technology, Dolgoprudny, Russia*.

15.00 O2-18 MoS_2-graphene Van-der-Waals heterostructures modified with femtosecond laser photoluminescence research. *L.A. Barsukov, N.P. Nekrasov, I.I. Bobrinetskiy.* *National Research University of Electronic Technology, Moscow, Russia***.**

15.20 O2-19 Investigation of the removal of residual PMMA polymer in the graphene transfer method. *K.G. Nikitin, K.A. Tsarik, A.V. Romashkin.* *National Research University of Electronic Technology, Moscow, Russia***.**

15.40 O2-20 Controlling carbon nanotube light-inducing gating by green fluorescent protein via chromophore fluorescence quenching. *A. Kudriavtseva, N. Nekrasov, I. Bobrinetskiy.* *National Research University of Electronic Technology, Moscow, Russia***.**

Auditorium B
Session 14. Quantum Informatics V

Session Chairman: Eduard Fel'dman, *Federal Research Center of Problems of Chemical Physics and Medicinal Chemistry of RAS, Chernogolovka, Russia*.

14.20 q2-06 On the decoherence in large NMR quantum registers. *V.E. Zobov[1], A.A. Lundin[2].* *1. Kirensky Institute of Physics, Federal Research Center KSC SB RAS, Krasnoyarsk, Russia. 2. Semenov Institute of Chemical Physics of RAS, Moscow, Russia*.

14.40 q2-07 Transferring states of a special form along a communication line consisting of several spin-1/2 chains. *G.A. Bochkin, E.B. Fel'dman, A.I. Zenchuk.* *Federal Research Center of Problems of Chemical Physics and Medicinal Chemistry of RAS, Chernogolovka, Russia*.

15.00 q2-08 Nonequilibrium diagram technique applied to the electron transport in semiconductor quantum dots. *I. Kopchinskii.* *Quantum Technology Centre, Faculty of Physics, M.V. Lomonosov Moscow State University, Moscow, Russia***.**

15.20 q2-09 Quantum resource estimation via generalized skew information: application to multiparticle entanglement analysis. *I.D. Lazarev[1,2].* *1. Federal Research Center of Problems of Chemical Physics and Medicinal Chemistry of RAS, Chernogolovka, Russia. 2. M.V. Lomonosov Moscow State-University, Moscow, Russia*.

15.40 q2-10 Bio-sensing with nanodiamonds: detection of temperature variations in neurons. ***E. Moreva*[1]*, *G. Petrini*[2], *G. Tomagra*[4,5], *E. Bernardi*[1], *P. Traina*[1], *C. Stella*[3], *I.P. Degiovanni*[1], *V. Carabelli*[4,5], *P.K. Kvaková*[6,7], *P. Cígler*[7], *M. Genovese*[1].**
1. Istituto Nazionale di Ricerca Metrologica, Turin, Italy. 2. Physics Department, Università degli studi di Torino, Turin, Italy. 3. DISAT, Politecnico di Torino, Turin, Italy. 4. Department of Drug and Science Technology, Università degli studi di Torino, Turin, Italy. 5. NIS Inter-departmental Centre, Turin, Italy. 6. Institute of Medical Biochemistry and Laboratory Diagnostics, Prague, Czech Republic. 7. Institute of Organic Chemistry and Biochemistry of the Czech Academy of Sciences, Prague.

16.00-16.20 Coffee break

16.20-18.40 POSTER SESSION I

19.00 Dinner

08.15 Breakfast

Conference Hall
Session 15. Optoelectronic Microstructures & Devices

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

9.00 O3-01 **Photovoltaic effect in ITO/germanosilicate glass/Si structures.** ***V.A. Volodin*** [1,2]**,** ***G.N. Kamaev*** [1,2]**,** ***G.A. Hamoud*** [2]**,** ***I.D. Yushkov*** [1,2]**,** ***M. Vergnat*** [3]. *1. Rzhanov Institute of Semiconductor Physics of SB RAS, Novosibirsk, Russia. 2. Novosibirsk State University, Novosibirsk, Russia. 3. Université de Lorraine, CNRS, IJL, Nancy, France*.

9.20 O3-02 **Optical properties of ZnO-$LiNbO_3$ and ZnO-$LiNbO_3$:Fe structures.** ***Sh.B. Utamuradova, Z.T. Azamatov*, M.A. Yuldoshev****. Institute of Semiconductor Physics and Microelectronics, National University of Uzbekistan, Tashkent, Uzbekistan***.**

9.40 O3-03 **Nanophotonics devices functioned in frame of the X-ray waveguide-resonance propagation phenomenon.** ***V. Egorov*** [1]**,** ***E.V. Egorov*** [1,2,3]**.** *1. Institute of Microelectronics Technology of RAS, Chernogolovka, Russia. 2. Institute of Radio Engineering and Electronics of RAS, Fryazino, Russia. 3. Financial University under the Government of the Russian Federation, Moscow, Russia***.**

10.00 O3-04 **Interaction of electromagnetic radiation with a semiconductor nanolayer in the case of an arbitrary main axis orientation of a constant energy ellipsoid.** ***O.V. Savenko, I.A. Kuznetsova****. P.G. Demidov Yaroslavl State University, Yaroslavl, Russia*.

10.20 O3-05 **Bound states in the continuum in Fabry-Pérot resonators within quantum-mechanical and optical waveguides.** ***N.M. Shubin*** [1,2]**,** ***V.V. Kapaev*** [1,2]**,** ***A.A. Gorbatsevich*** [1,2]**.** *1. P.N. Lebedev Physical Institute of RAS, Moscow, Russia. 2. National Research University of Electronic Technology, Zelenograd, Russia***.**

Auditorium A
Session 16. Heterostrutures and Thin Films

Session Chairman: Vladimir Popov, *Rzhanov Institute of Semiconductors Physics of SB RAS.*

9.00 O3-06 **SOS pseudo-FeFETs after rapid thermal annealing and oxidation thinning.** ***V.P. Popov*** [1]**,** ***V.A. Antonov*** [1]**,** ***A.A. Lomov*** [2]**,** ***A.V. Miakonkikh*** [2]**,** ***K.V. Rudenko*** [2]. *1. Rzhanov Institute of Semiconductor Physics of SB RAS, Novosibirsk, Russia. 2. Valiev Institute of Physics and Technology of RAS, Moscow, Russia*.

9.20 O3-07 **Correspondence between power approximations of electron mobility and scattering mechanisms in thin SOI films.** ***E. Zaytseva, O. Naumova****. Rzhanov Institute of Semiconductor Physics of SB RAS, Novosibirsk, Russia*.

9.40 O3-08 Study of the traps in SiO_2 and Si_3N_4 generated by low-energy electron irradiation and hydrogen plasma treatment using capacitance-voltage and thermally stimulated current techniques. ***O.A. Soltanovich[1], R. Aliasgari Renani[1,2], S.V. Koveshnikov[1], M.A. Knyazev[1], A.V. Kovalchuk[1], S.Yu. Shapoval[1].*** *1. Institute of Microelectronics Technology of RAS, Chernogolovka, Russia. 2. Moscow Institute of Physics and Technology, Dolgoprudny, Russia***.**

O3-09 Rescheduled to Session 6. Non-volatile Memory: Structures & Devices II.

10.00 O3-10 Carbon impurities in HfO_2 layers deposited by ALD: model and verification. ***A. Fadeev[1], A. Miakonkikh[1], E. Smirnova[1], S. Simakin[2], K. Rudenko[1].*** *1. Valiev Institute of Physics and Technology of RAS, Moscow, Russia. 2. Yaroslavl Branch of the Valiev Institute of Physics and Technology of RAS, Yaroslavl, Russia***.**

10.20 O2-14 Fabrication of nanostructured colored layer of amorphous silicon for different applications. ***I. Amirov, M. Izuymov, A. Kupriyanov****. Valiev Institute of Physics and Technology of RAS, Yaroslavl Branch, Yaroslavl, Russia.*

Auditorium B
Session 17. Quantum Informatics VI

Session Chairman: Alexander Vasiliev, *Kazan Federal University, Kazan, Russia.*

9.00 q3-01 Estimation of distortion of quantum information states. ***L. Fedichkin[1], E. Pankovec[1,2].*** *1. Valiev Institute of Physics and Technology of RAS, Moscow, Russia. 2. Moscow Institute of Physics and Technology (National Research University), Dolgoprudny, Russia.*

9.20 q3-02 Quantum algorithm for intersection for two sets search. ***K. Khadiev*, E. Krendeleva.*** *Kazan Federal University, Kazan, Russia.*

9.40 q3-03 Quantum hashing algorithm implementation. ***A. Khadieva[1,2]*.*** *1. Kazan Federal University, Kazan, Russia. 2. University of Latvia, Riga, Latvia.*

10.00 q3-04 Optimization of lithium niobate nanowaveguide geometry to obtain the maximum spectrum width of the two-photon quantum state. ***O. Ermishev*, M. Smirnov, N. Arslanov.*** *Kazan National Research Technical University named after A.N. Tupolev – KAI, Kazan Quantum Center, Kazan, Russia.*

10.20 q3-05 Quantum circuit for random forest prediction. ***L. Safina*, K. Khadiev, I. Zinnatullin, A. Khadieva.*** *Kazan Federal University, Kazan, Russia.*

10.40-11.00 Coffee break

Conference Hall
Session 18. Magnetic Materials & Structures I

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

11.00 O3-11 **Micromagnetic analysis of the sensitivity of thin-film magneto-impedance structure based on [FeNi/Ti]$_4$-Al-[FeNi/Ti]$_4$ stack.** ***G. Demin**, A. Fedina, N. Djuzhev**. *National Research University of Electronic Technology (MIET), Zelenograd, Russia*.

11.20 O3-12 **Atypical Raman scattering on magnetic junctions in metallic nanowires.** ***V. Krishtop**[1,2], V. Korepanov[1], L. Fomin[1], D. Zagorskiy[3], I. Doludenko[3]*. *1. Institute of Microelectronic Technology and High Purity Materials of RAS, Chernogolovka, Russia. 2. Moscow Institute of Physics and Technology, Dolgoprudny, Russia. 3. FRC "Crystallography and Photonics" of RAS, Moscow, Russia*.

11.40 O3-13 **Artificial magnetism in theory of wave multiple scattering by random ensemble of non-magnetic spheres with negative dielectric permittivity.** ***M.Yu. Barabanenkov**[1,2], A.G. Italyantsev[1].* *1. JSC Molecular Electronics Research Institute, Zelenograd, Moscow, Russia. 2. Institute of Microelectronics Technology and High Purity Materials of RAS, Chernogolovka, Russia*.

12.00 O3-14 **Different forms of magnetic anisotropy revealed in the Mössbauer spectra of magnetic nanoparticles.** ***M. Chuev***. *Valiev Institute of Physics and Technology of RAS, Moscow, Russia*.

~~**O3-15** **Remote detection of magnetic nanoparticles in the biological medium.** ***L.P. Ichkitidze**[1,2], O.V. Filippova[1], M.V. Belodedov[3], G.Yu. Galechian[1], A.Yu. Gerasimenko[1,2], M.S. Savelev[1,2], D.V. Telyshev[1,2], S.V. Selishchev[2].*~~ ~~*1. Institute for Bionic Technologies and Engineering, I.M. Sechenov First Moscow State Medical University, Moscow, Russia. 2. Institute of Biomedical Systems, National Research University of Electronic Technology (MIET), Zelenograd, Moscow, Russia. 3. Bauman Moscow State Technical University, Moscow, Russia.*~~ **(canceled)**

Auditorium A
Session 19. Thin & 2D Films

Session Chairman: Andrey Miakonkikh, *Valiev Institute of Physics and Technology of RAS.*

11.00 O3-16 **Modeling, technology and characterization of 2D materials La–Ga–X (X = S, Se).** ***S.N. Mustafayeva[1], M.M. Asadov**[2,3]*, S.S. Huseynova[1], V.F. Lukichev[4]*. *1. Institute of Physics, Baku, Azerbaijan. 2. Nagiyev Institute of Catalysis and Inorganic Chemistry, Baku, Azerbaijan. 3. Scientific Research Institute of Geotechnological Problems of Oil, Gas and Chemistry, Baku, Azerbaijan. 4. Valiev Institute of Physics and Technology of RAS, Moscow, Russia*.

11.20 O3-17 **Modeling the growth of REE-doped 2D $TlInS_2$ crystals, electronic structure and physical properties of samples.** ***S.M. Asadov**[1,2]*, S.N. Mustafayeva[3], S.S. Huseynova[3], V.F. Lukichev[4]*. *1. Scientific Research Institute of Geotechnological Problems of Oil, Gas and Chemistry, Baku, Azerbaijan. 2. Nagiyev Institute of Catalysis and Inorganic Chemistry, Baku, Azerbaijan. 3. Institute of Physics, Baku, Azerbaijan. 4. Valiev Institute of Physics and Technology of RAS, Moscow, Russia*.

11.40 O3-18 Sublimation mechanism for polishing silicon carbide wafers by electron beam. ***A. Atamanchuk*[1]*, S. Avdeev[1], E. Gusev[1], O. Ageev[1,2].*** *1. Southern Federal University, Institute of Nanotechnologies, Electronics and Equipment Engineering, Taganrog, Russia. 2. Research and Education Center "Nanotechnologies" of Southern Federal University, Taganrog, Russia*.

12.00 O3-19 Morphology and optical properties of porous Al films. ***O. Naumova, A. Petin, E. Zaytseva, A. Yaroshevich, M. Demyanenko, S. Ponomarev***. *Rzhanov Institute of Semiconductor Physics of SB RAS, Novosibirsk, Russia*.

12.20 O3-20 Formation of wave-like porous nanorelief of Ge surface using Ga^+ focused ion beam. ***M. Smirnova*, V. Bachurin, M. Lebedev, K. Lobzov, L. Mazaletsky, D. Pukhov, A. Churilov.*** *Valiev Institute of Physics and Technology of RAS, Yaroslavl Branch, Yaroslavl, Russia*.

12.40 O3-21 Effect of vacuum annealing on orientation of fluorite films on tilted-axes substrates. ***P.B. Mozhaev*[1]*, J. Bindslev Hansen[2], C.S. Jacobsen[2]***. *1. Valiev Institute of Physics and Technology of RAS, Moscow, Russia. 2. Technical University of Denmark, Physics Dept., Kgs. Lyngby, Denmark*.

Auditorium B
Session 20. Quantum Informatics VII

Session Chairman: Boris Bantysh, *Valiev Institute of Physics and Technology of RAS, Moscow, Russia.*

11.00 q3-06 Information approach to the study of the influence of quantum noise on the quality of implementation of quantum teleportation and dense coding algorithms. ***Yu.I. Bogdanov[1,2], N.A. Bogdanova[1,2], I.K. Golyshev[2], V.F. Lukichev[1].*** *1. Valiev Institute of Physics and Technology of RAS, Moscow, Russia. 2. National Research University of Electronic Technology MIET, Zelenograd, Russia*.

11.20 q3-07 Efficient implementation of amplitude form of quantum hashing using state-of-art quantum processors. ***I. Zinnatullin*, K. Khadiev, A. Khadieva.*** *Kazan Federal University, Kazan, Russia*.

11.40 q3-08 A method to compute QAOA fixed angles. ***A. Chernyavskiy[1,2], B. Bantysh[1,2].*** *1. Valiev Institute of Physics and Technology of RAS, Moscow, Russia. 2. Russian Quantum Center, Skolkovo, Moscow, Russia*.

q3-09 Rescheduled to Session 23. Quantum Informatics VIII.

12.00 q3-14 Correction of quantum state readout statistics using the fuzzy measurement model. ***I.A. Dmitriev[1,2], Yu.I. Bogdanov[1,2], B.I. Bantysh[1,2], N.A. Bogdanova[1,2], V.F. Lukichev[1].*** *1. Valiev Institute of Physics and Technology of RAS, Moscow, Russia. 2. National Research University of Electronic Technology MIET, Moscow, Russia*.

12.20 q3-10 Quantum models of magnetic orientation and magnetoreception in biology, taking into account the influence of decoherence and noise. ***N.A. Bogdanova[1,2], Yu.I. Bogdanov[1,2], A.Yu. Chernyavskiy[1], V.F. Lukichev[1].*** *1. Valiev Institute of Physics and Technology of RAS, Moscow, Russia. 2. National Research University of Electronic Technology MIET, Zelenograd, Russia*.

12.40 q3-11 Efficiency analysis of qudits analogues of the basic quantum algorithms with decoherence consideration. ***D.V. Fastovets****, Yu.I. Bogdanov, V.F. Lukichev.* *Valiev Institute of Physics and Technology of RAS, Moscow, Russia***.**

13.00-14.00 Lunch

Conference Hall
Session 21. Magnetic Materials & Structures II

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

14.00 O3-22 Controlled nanostructuring of magnetic films by oblique angle deposition. ***O.S. Trushin*[1]*, I.S. Fattakhov*[1]*, A.A. Popov*[1]*, L.A. Mazaletsky*[2,1]*, A.A. Lomov*[3]*, D.M. Zakharov*[3]*, R.A. Gaydukasov*[3]*, A.V. Miakonkikh*[3]*, L.A. Shendrikova*[4]*.* *1. Valiev Institute of Physics and Technology of RAS, Yaroslavl Branch, Yaroslavl, Russia. 2. Demidov Yaroslavl State University, Yaroslavl, Russia. 3. Valiev Institute of Physics and Technology of RAS, Moscow, Russia. 4. Lomonosov Moscow State University, Moscow, Russia.*

14.20 O3-23 Computer simulation of thin film nanostructuring at oblique angle deposition. ***I.S. Fattakhov, O.S. Trushin.*** *Valiev Institute of Physics and Technology of RAS, Yaroslavl Branch,Yaroslavl, Russia***.**

14.40 O3-24 Magnetic properties of Ni nanowires in porous anodic alumina matrix. ***E. Grushevsky*[1]*, N. Savinsky*[1]*, O. Trushin*[1]*, L. Shendrikova*[2]**.** *1. Valiev Institute of Physics and Technology of RAS, Yaroslavl Branch, Yaroslavl, Russia. 2. M.V. Lomonosov Moscow State University, Moscow, Russia***.**

~~**O3-25 Magnetic field concentrator based on a thin superconducting film.** ***L.P. Ichkitidze*[1,2]*, A.Yu. Lysenko*[2]*, D.V. Telyshev*[1,2]*, S.V. Selishchev*[2]**.** *1. Institute for Bionic Technologies and Engineering, I.M. Sechenov First Moscow State Medical University, Moscow, Russia. 2. Institute of Biomedical Systems, National Research University of Electronic Technology, Zelenograd, Russia.*~~ (**canceled**)

Auditorium A
Session 22. Metrology & Diagnostics for Devices

Session Chairman: Alexander Rogozhin, *Valiev Institute of Physics and Technology of RAS.*

14.00 O3-26 Ion beams and X-ray methods for the planar nanostructures diagnostics. ***V. Egorov*[1]*, E.V. Egorov*[1,2,3]*.*** *1. Institute of Microelectronics Technology of RAS, Chernogolovka, Russia. 2. Institute of Radio Engineering and Electronics of RAS, Fryazino, Russia. 3. Financial University under the government of the Russian Federation, Moscow, Russia.*

14.20 O3-27 Technique of time depend dielectric breakdown for the wafer-level testing of thin dielectrics of MIS devices. ***D.V. Andreev*[1]*, V.M. Maslovsky*[2]*, V.V. Andreev*[1]*.*** *1. Bauman Moscow State Technical University, Kaluga branch, Kaluga, Russia. 2. Moscow Institute of Physics and Technology (State University), Dolgoprudny, Russia.*

14.40 O3-28 Digital shearograph for detecting defects in materials. ***Z.T. Azamatov*[1]*, A.B. Bakhromov[1], V.E. Gaponov[2], A.A. Zheenbekov[3].*** *1. Research Institute of Physics of Semiconductors and Microelectronics at the National University of Uzbekistan. 2. Snezhinsk Institute of Physics and Technology, National Research Nuclear University, Moscow Engineering Physics Institute (SPTI NRNU MEPhI). 3. Institute of Physics named after Academician Zh. Zheenbaev of the National Academy of Sciences of the Kyrgyz Republic*.

15.00 O3-29 Analysis of allotropic modifications of carbon by decoding energy spectra from X-ray photoelectron spectroscopy. ***V. Afanas'ev, L. Lobanova, M. Semenov-Shefov.*** *National Research University MPEI, Moscow, Russia*.

15.20 O3-30 Study of topographic features, shape, and mechanical stresses in microelectronic structures using geomorphometric techniques. ***A. Dedkova[1,2]*, I. Florinsky[2].*** *1. National Research University of Electronic Technology (MIET), Zelenograd, Russia. 2. Institute of Mathematical Problems of Biology, Keldysh Institute of Applied Mathematics of RAS, Pushchino, Russia*.

Auditorium B
Session 23. Quantum Informatics VIII

Session Chairman: Andrey Chernyavskiy, *Valiev Institute of Physics and Technology of RAS, Moscow, Russia.*

14.00 q3-12 Reconstructing programmable linear optical interferometers with intensity-only measurements. ***B. Bantysh[1,2], A. Chernyavskiy[1,2], Yu. Bogdanov[1,2].*** *1. Valiev Institute of Physics and Technology of RAS, Moscow, Russia. 2. Russian Quantum Center, Skolkovo, Moscow, Russia*.

14.20 q3-13 Generation of electromagnetic pulses by an array of Josephson qubits with hybrid coupling with a resonator. ***A.A. Semenov, A.M. Satanin.*** *National Research University Higher School Economics, Moscow, Russia*.

q3-14 Rescheduled to Session 20. Quantum Informatics VII.

14.40 q3-09 On optimizing coherent and incoherent controls in some open quantum systems. ***O.V. Morzhin.*** *1. Department of Mathematical Methods for Quantum Technologies, Steklov Mathematical Institute of RAS, Moscow, Russia. 2. Quantum Engineering Research and Education Center, University of Science and Technology MISIS, Moscow, Russia*.

15.00 q3-15 High-precision quantum measurements of qudits taking into account the influence of amplitude and phase relaxation. ***K.B. Koksharov[1,2], Yu.I. Bogdanov[1,2], N.A. Bogdanova[1,2], Yu.A. Kuznetsov[1,2], V.F. Lukichev[1].*** *1. Valiev Institute of Physics and Technology of RAS, Moscow, Russia. 2. National Research University of Electronic Technology MIET, Moscow, Russia*.

15.20 q3-16 Enhancing Efficiency of the Fast Quantum Memory on Single-Atom in Cavity. ***Yu. Kharlamova*, N. Arslanov, S. Moiseev.*** *Kazan National Research Technical University named after A.N. Tupolev – KAI, Kazan Quantum Center, Kazan, Russia*.

15.40-16.00 Coffee break

16.00-18.20 POSTER SESSION II

16.00 ROUND TABLE. To the 80th anniversary of the NRC “Kurchatov Institute” and 35th anniversary of the Valiev Institute of Physics and Technology RAS.

18.30. Conference Hall. CLOSING CONFERENCE REMARKS

V.F. Lukichev, Program Committee Chair
Valiev Institute of Physics and Technology of RAS, Moscow, Russia

19.30 CONFERENCE DINNER

09.00 Breakfast

10.00 DEPARTURE

ICMNE-2023 SCIENTIFIC PROGRAM

POSTER SESSIONS

Wednesday, October 4, 2023

16.20 – 18.40 Poster session I

Memory: Devices, Materials, Technologies

P1-01 **Resistive switching process in MIM structures based on transition metal oxides.** ***E. Ganykina*[1,2], *A. Rezvanov*[1], *S. Zyuzin*[1,2], *E. Gornev*[1].** *1. JSC Molecular Electronics Research Institute, Zelenograd, Russia. 2. Moscow Institute of Physics and Technology (National Research University), Dolgoprudny, Russia.*

P1-02 **The effect of the TiO_x buffer layer on the parameters of the HfO_2 functional layer of ferroelectric non-volatile memory.** ***A.A. Reznik*[1,2], *A.A. Rezvanov*[1,2], *S.S. Zyuzin*[1,2].** *1. JSC Molecular Electronics Research Institute, Zelenograd, Russia. 2. Moscow Institute of Physics and Technology (National Research University), Dolgoprudny, Russia.*

P1-03 **Novel higher-k HZO-based dielectrics for memory and logic devices.** ***A. Chernikova, R. Khakimov, M. Kozodaev, D. Kuzmichev, A. Markeev.*** *Moscow Institute of Physics and Technology, Dolgoprudny, Russia.*

P2-12 **Computer modeling of plasma-enhanced atomic layer deposition of HfO_2 and ZrO_2.** ***S. Zyuzin*[1,2], *A. Rezvanov*[1,2], *Ya. Zasseev*[3], *V. Gvozdev*[1], *E. Ganykina*[1,2], *E. Gornev*[1].** *1. JSC Molecular Electronics Research Institute, Zelenograd, Moscow, Russia. 2. Moscow Institute of Physics and Technology (National Research University), Dolgoprudny, Russia. 3. JSC Research Institute of Precision Machine Manufacturing, Zelenograd, Moscow, Russia.*

Sensors and MEMS: Devices, Materials, Technologies

P1-04 **Rescheduled to Poster Session II.**

P1-05 **Modeling of heat transfer for a three-dimensional microelectromechanical mirror element with consideration of its packaging features.** ***S. Evstafyev, V. Samoylikov, D. Vertyanov.*** *National Research University "MIET", Zelenograd, Russia.*

P1-06 **On-chip integrated thermoregulation system for biosensors based on a field-effect transistor with a nanowire channel.** ***G.V. Nibudin*[1], *I.I. Tsiniaikin*[1], *G.V. Presnova*[2], *M.Yu. Rubtsova*[2], *A.S. Trifonov*[1], *O.V. Snigirev*[1], *V.A. Krupenin*[1], *D.E. Presnov*[1,3].** *1. Faculty of Physics, Moscow State University, Moscow, Russia. 2. Faculty of Chemistry, Moscow State University, Moscow, Russia. 3. Nuclear Physics Institute, Moscow State University, 119991 Moscow, Russia.*

P1-07 **Variable frequency nanomechanical systems based on suspended silicon nitride nanowires.** ***P.O. Mikhailov*[1,2], *A.A. Dorofeev*[1,2], *G.O. Snigirev*[1], *A.S. Trifonov*[1,2], *D.E. Presnov*[1,2,3], *O.V. Snigirev*[1,2], *V.A. Krupenin*[1,2].** *1. Faculty of Physics, Moscow State University, Moscow, Russia. 2. Quantum Technology Center, Moscow State University, Moscow, Russia. 3. Skobeltsyn Institute of Nuclear Physics, Moscow State University, Moscow, Russia.*

P1-08 **Geometrical parameters of asymmetric plasmonic crescent-shaped nanostructures fabricated with colloid nanolithography followed by ion beam sputtering.** ***V.P. Kudrya*****.** *Valiev Institute of Physics and Technology of RAS, Moscow, Russia*.

P2-18 **Research and analysis of thermomechanical stresses in the structure of a wafer with embedded ICs with consideration of temperature effects in manufacturing process route.** ***S. Evstafyev, I. Solovyev, M. Kochergin, D. Vertyanov.*** *National Research University "MIET", Zelenograd, Russia*.

Other Devices

P1-09 **Bi-SQUID versus dc SQUID in flux driven traveling-wave parametric amplifier.** ***A.N. Nikolaeva, V.K. Kornev, N.V. Kolotinskiy.*** *M.V. Lomonosov Moscow State University, Faculty of Physics, Moscow, Russia*.

P1-10 **Tuning coupling between molecular electron system and electrodes: variation of anchor group and Coulomb interaction effects.** ***Yu.A. Uspenskii[1], A.V. Emelianov[1], N.M. Shubin[1,2], A.A. Gorbatsevich[1,2].*** *1. P.N. Lebedev Physical Institute of RAS, Moscow, Russia. 2. National Research University of Electronic Technology, Zelenograd, Russia*.

P1-11 **Tunneling matrix element estimation in a terpyridine compound with two allocated charge centers.** ***S.A. Pankratov, D.E. Presnov, V.A. Krupenin, O.V. Snigirev, V.V. Shorokhov.*** *M.V. Lomonosov Moscow State University, Moscow, Russia*.

P1-12 **Investigation of the influence of the buffer layer design in a GaN HEMT transistor on the breakdown characteristics.** ***D.M. Kurbanbaeva, K.A. Tsarik, A.V. Lashkov.*** *National Research University of Electronic Technology (MIET), Zelenograd, Russia*.

P1-13 **Changes in gate control of graphene channel with polymer residuals removal and modification by focused ion beam.** ***N.P. Nekrasov, A.V. Romashkin, L.A. Barsukov, K.G. Nikitin, D.D. Levin, V.K. Nevolin.*** *National Research University of Electronic Technology, Moscow, Russia*.

Quantum Informatics

P1-14 **Blockwise maximization of the secret key with signal breaks in satellite-based quantum key distribution.** ***E. Ivchenko[1,2,3,4], A. Chernov[1,2,3,4], A. Khmelev[1,2,3], V. Kurochkin[1,2,3,4].*** *1. Moscow Institute of Physics and Technology, Dolgoprudny, Russia. 2. Russian Quantum Center, Moscow, Russia. 3. QSpace Technologies, Moscow, Russia. 4. MISIS, Moscow, Russia*.

P1-15 **Polarization dynamics of a single-mode vertical cavity laser with optical feedback.** ***V.N. Chizhevsky[1], M.V. Lahmitski[1], E. Dedkov[2], R. Shakhovoy[3], V. Kurochkin[4], S.Ya. Kilin[1].*** *1. B.I Stepanov Institute of Physics, NASB, Belarus. 2. Moscow Institute of Physics and Technology, Dolgoprudniy, Russia. 3. Qrate, Moscow, Russia. 4. MISIS, Moscow, Russia*.

P1-16 **Polarization-resolved spectra of VCSEL.** ***E. Dedkov[1], V. Kurochkin[2], V.N. Chizhevsky[3], M.V. Lahmitski[3], S.Ya. Kilin[3], R. Shakhovoy[4].*** *1. Moscow Institute of Physics and Technology, Dolgoprudniy, Russia. 2. MISIS, Moscow, Russia. 3. B.I Stepanov Institute of Physics, NASB, Belarus. 4. QRate, Moscow, Russia.*

P1-17 **Continuous variable non-Gaussian state generation on the basis of squeezed state.** ***E. Bashmakova*[1], *S. Korolev*[1,2], *T. Golubeva*[1].** *1. St. Petersburg State University, St. Petersburg, Russia. 2. Laboratory of Quantum Engineering of Light, South Ural State University, Chelyabinsk, Russia*.

P1-18 **Compare of teleportation protocols with non-Gaussian operations.** ***E. Zinatullin*[1], *S. Korolev*[1,2], *T. Golubeva*[1].** *1. St. Petersburg State University, St. Petersburg, Russia. 2. South Ural State University, Chelyabinsk, Russia*.

P1-19 **Implementation of adiabatic clustering quantum algorithm on system of five spins $S = 1$.** ***I. Pichkovskiy, V. Zobov.*** *Kirensky Institute of Physics, Federal Research Center KSC SB RAS, Krasnoyarsk, Russia*.

P1-20 **Basic quantum gates for ion trap quantum computer.** ***D. Shaposhnikov*[1,2], *L. Fedichkin*[1,2].** *1. Moscow Institute of Physics and Technology (National Research University), Dolgoprudny, Russia. 2. Valiev Institute of Physics and Technology of RAS, Moscow, Russia*.

P1-21 **Continuous-time quantum walks on the Clebsch graph.** ***L. Fedichkin*[1,2], *T. Fakhrutdinov*[2].** *1. Valiev Institute of Physics and Technology of RAS, Moscow, Russia. 2. Moscow Institute of Physics and Technology, Dolgoprudny, Russia*.

P1-22 **Image data representation for quantum advantage prediction task.** ***D. Tarpanov*[1,2], *L. Fedichkin*[1,2].** *1. Moscow Institute of Physics and Technology, Dolgoprudny, Russia. 2. Valiev Institute of Physics and Technology of RAS, Moscow, Russia*.

P1-23 **Quantum operations for triple-quantum dot charge qubits.** ***Z. Sayapin*[1,2], *L. Fedichkin*[1,2].** *1. Moscow Institute of Physics and Technology (National Research University), Do;goprudny, Russia. 2. Valiev Institute of Physics and Technology of RAS, Moscow, Russia*.

P1-24 **Quantum bits based on silicon FIN structures.** ***A.E. Berdashkevich*[1], *L.E. Fedichkin*[1,2].** *1. Moscow Institute of Physics and Technology, Dolgoprudny, Russia. 2. Valiev Institute of Physics and Technology of RAS, Moscow, Russia*.

P1-25 **Performance improvement of a random number generator based on InGaAs p-i-n photodiode in a homodyne circuit.** ***M. Sibgatullin, L. Gilyazov, D. Mavkov, N. Arslanov.*** *Kazan National Research Technical University named after A.N. Tupolev – KAI, Kazan Quantum Center, Kazan, Russia*.

P1-26 **Silicon nitride photonic crystal nanobeam resonator for resonant state generation.** ***A. Garifullin, N. Arslanov.*** *Kazan National Research Technical University named after A.N. Tupolev – KAI, Kazan Quantum Center, Kazan, Russia*.

P1-27 **Modeling and enhancing optical beam splitter performance.** ***V. Boldysheva, L. Gilyazov, N. Arslanov.*** *Kazan National Research Technical University named after A.N. Tupolev – KAI, Kazan Quantum Center, Kazan, Russia*.

16.00 – 18.20 Poster session II

Thin Film Materials and Structures

P2-01 **Nitrogen-doped carbon nanotubes as a functional material for a piezoelectric nanogenerator.** ***O.I. Soboleva, M.R. Polyvianova, D.I. Selivanova, O.I. Il`in, M.V. Il`ina.*** *Southern Federal University, Institute of Nanotechnologies, Electronics and Electronic Equipment Engineering Taganrog, Russia***.**

P2-02 **Methods of control, diagnostics and characterization of nanographite and multigraphene flakes materials produced by electrochemical exfoliation of graphite.** ***A. Khramov, N. Savinski.*** *Valiev Institute of Physics and Technology of RAS, Yaroslavl Branch, Yaroslavl, Russia***.**

P2-03 **Application of composite nanoparticles G:BN and FG/V_2O_5 to the surface of a nanostructured polymer substrate.** ***I.V. Antonova[1,2], V.A. Seleznev[1], N.A. Nebogatikova[1], A.I. Ivanov[1], V. Tumashev[1].*** *1. Rzhanov Institute of Semiconductor Physics of SB RAS, Novosibirsk, Russia. 2. Novosibirsk State Technical University, Novosibirsk, Russia***.**

P2-04 **Micromagnetic modeling of skyrmions in thin film structures.** ***N.I. Barabanova, O.S. Trushin.*** *Valiev Institute of Physics and Technology of RAS, Yaroslavl Branch, Yaroslavl, Russia***.**

P2-05 **Mechanical properties of nanostructures produced by oblique angle deposition.** ***M.M. Chebokhin, A.A Popov.*** *Valiev Institute of Physics and Technology of RAS, Yaroslavl Branch, Yaroslavl, Russia***.**

P2-06 **Effect of surfactant and solvent on the pores structure of organosilica glass film.** ***A. Vishnevskiy, D. Seregin, P. Mokrushev, K. Vorotilov.*** *MIREA – Russian Technological University (RTU MIREA), Moscow, Russia***.**

P2-07 **Investigation of Rhenium effect nature in thin tungsten films.** ***A. Timakov, V. Shevyakov.*** *National Research University of Electronic Technology, Moscow, Russia***.**

P2-08 **Investigation of the features of metallization formation for n-MOS transistor structures with a vertical channel.** ***V.S. Gornostay-Polsky, V.I. Shevyakov.*** *National Research University of Electronic Technology, Moscow, Russi*a**.**

P2-09 **Formation and morphological evolution investigation of the Pt particles/porous silicon layers structures.** ***O. Volovlikova[1], D. Goroshko[2], E. Lazorkina[1], S. Gavrilov[1].*** *1. National Research University of Electronic Technology, Zelenograd, Moscow, Russia. 2. Institute of Automation and Control Processes FEB RAS, Vladivostok, Russia***.**

~~**P2-10** **Flexible electrically conductive films based on the composite nanomaterial.** ***L.P. Ichkitidze[1,2], A.V. Kuksin[1], D.T. Murashko[1], A.Yu. Gerasimenko[1,2], D.V. Telyshev[1,2], S.V. Selishchev[1].*** *1. Institute of Biomedical Systems of National Research University of Electronic Technology, MIET, Zelenograd, Moscow. 2. Scientific and Technological Park of Biomedicine of I.M. Sechenov First Moscow State Medical University, Sechenov University, Moscow, Russia***.**~~ **(canceled)**

P1-04 **Finite-element simulation of the performance of a temperature-compensated membrane-based thermal flow sensor.** ***G. Demin, V. Koshelev, V. Ryabov, M. Chinenkov, N. Djuzhev.*** *National Research University of Electronic Technology (MIET), Zelenograd, Russia*.

P2-11 **Multilayer thermite materials CuO/Al as the basis of new thermal electrical switches.** ***M.E. Shiryaev[1], A.V. Sysa[2], R.M. Ryazanov[2], E.A. Lebedev[1,2].*** *1. National Research University of Electronic Technology, Zelenograd, Russia. 2. Scientific-Manufacturing Complex "Technological Centre", Zelenograd, Russia*.

P2-12 **Rescheduled to Poster Session I.**

O1-08 **Electrostatic-assisted ultrasonic spray-coating for nanotechnology applications.** ***V. Petukhov, N. Struchkov, S. Borzakov.*** *National Research University of Electronic Technology – MIET, Zelenograd, Russia.*

Micro- and Nanoelectronic Technologies

P2-13 **Simulating longitudinal temperature bistability in a silicon wafer during thermal treatment in a lamp chamber.** ***V. Ovcharov, V. Prigara, A. Kurenya.*** *Valiev Institute of Physics and Technology of RAS, Yaroslavl Branch, Yaroslavl, Russia*.

P2-14 **Mask Erosion Suppression and Etch Profile Correction in the Adapted Three-Step Deep Reactive Ion Etching of Silicon.** ***O.V. Morozov.*** *Valiev Institute of Physics and Technology of RAS, Yaroslavl Branch, Yaroslavl, Russia*.

P2-15 **New applications for thermomigration processes in semiconductor technology and optoelectronics.** ***Ed. Buchin, Yu. Denisenko.*** *Valiev Institute of Physics and Technology of RAS, Yaroslavl Branch, Yaroslavl, Russia*.

P2-16 **Ion-assisted magnetron deposition of AlN films.** ***R. Selyukov, V. Naumov.*** *Valiev Institute of Physics and Technology of RAS, Yaroslavl Branch, Yaroslavl, Russia*.

P2-17 **Tapered plasma etching of SiO_2.** ***A. Melnikov[1,2], V. Kuzmenko[1], A. Miakonkikh[1].*** *1. Valiev Institute of Physics and Technology of RAS, Moscow, Russia. 2. M.V. Lomonosov Moscow State University, Moscow, Russia*.

P2-18 **Rescheduled to Poster Session I.**

P2-19 **He^+ ions irradiation induced functionalization of MoS_2 crystal surface for high-k dielectrics ALD enhancement.** ***I.V. Zabrosaev, M.G. Kozodaev, Yu.Yu. Lebedinskii, R.I. Romanov, A.M. Markeev.*** *Center of Shared Facilities in Nanotechnology, Moscow Institute of Physics and Technology (National Research University), Dolgoprudny, Russia*.

Metrology and Characterization

P2-20 **Application of Machine Learning approach to spectral ellipsometry.** ***R. Gaydukasov[1,2],*** ***A. Miakonkikh[1].*** *1. Valiev Institute of Physics and Technology of RAS, Moscow, Russia. 2. Moscow Institute of Physics and Technology (National Research University), Moscow, Russia*.

P2-21 **Informational analytical platform for operating the technological route of manufacturing of microelectronic devices.** ***K.S. Balizh, A.V. Dobrodeev, N.V. Ermakov, I.A. Orlov, E.A. Simakhina.*** *JSC «Scientific Research Institute «Submicron», Zelenograd, Russia***.**

P2-22 **Proposals for development of the prospective system for optical quality control of the assembly of microelectronic devices.** ***K.S. Balizh, P.M. Eremeev, E.A. Simakhina.*** *JSC «Scientific Research Institute «Submicron», Zelenograd, Russia***.**

P2-23 **Some properties of argon as an actinometric atom. I. Metastable levels excitation.** ***V.P. Kudrya*****.** *Valiev Institute of Physics and Technology of RAS, Moscow, Russia***.**

P2-24 **Some properties of argon as an actinometric atom. II. Metastable levels quenching.** ***V.P. Kudrya*****.** *Valiev Institute of Physics and Technology of RAS, Moscow, Russia***.**