Saratov Fall Meeting

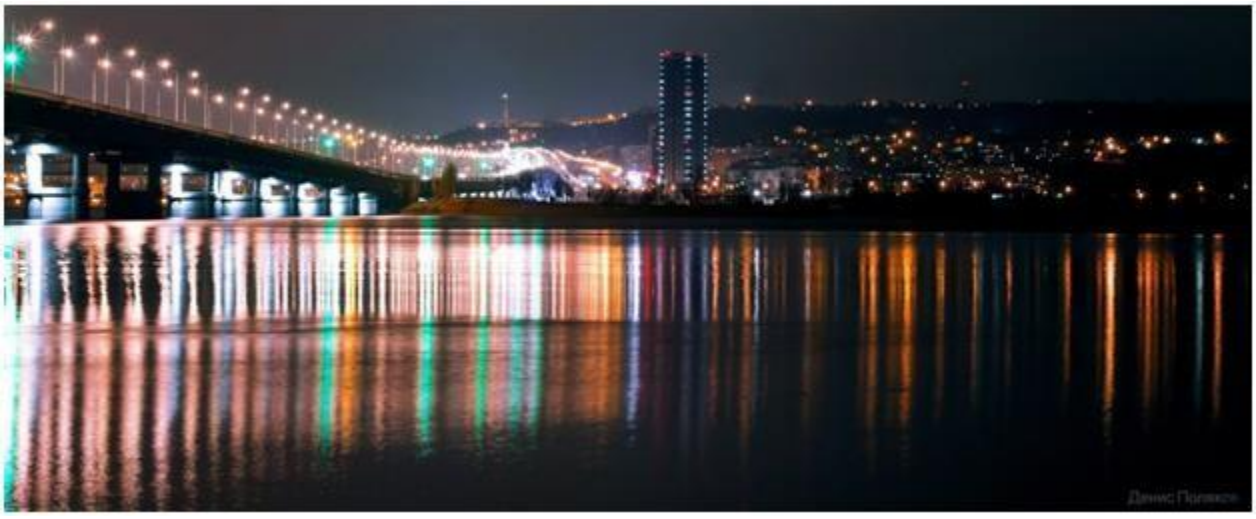
SFM'25

13th International Symposium "Optics and Biophotonics"

29th International School for Junior Scientists and Students on Optics, Laser Physics &Biophotonics

Chinese-Russian Workshop on Biophotonics and Biomedical Optics-2025

BRICS Workshop on Biophotonics IV – 2025



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BioVitrum company has been operating in the Russian market of medical and laboratory equipment since 2001. Currently, company is a representative of the world's leading manufacturers of diagnostic equipment and consumables. To create and introduce the best quality and technology products, services, and solutions that help physicians, laboratory technicians, and health care administrators provide reliable diagnosis and effective disease treatment. **https://biovitrum.ru**

The Active Photonics company was founded in 2022 as an innovative project to create a modern production site for the development and production of scientific and technological equipment. In four years, we have become leaders in the field of Raman spectroscopy: our equipment provides competitive technical characteristics and meets high international standards. **https://active-photon.com**

Scientific and Production Enterprise "Nanostructured Glass Technology" LLC is open to cooperation with anyone who is interested in conducting research in the field of micro- and nanostructured glass. Various options for cooperation are possible, from the manufacture of custom-made products to joint research and subsequent commercialization of products. **NGT website**

ИНЖЕКТ

РОСАТОМ

Scientific and Production Enterprise "Inject" LLC is one of the leading Russian enterprises that conducts research and development of critical microelectronic laser technologies and mass-produces high–tech products of world technical level - semiconductor lasers, superluminescent diodes, photodiodes, ultra-bright light-emitting diodes of red and blue glow, etc., as well as original optoelectronic devices based on based on them. The "Inject" company has a full technological cycle of manufacturing laser semiconductor emitters, starting with the manufacture of semiconductor substrates from epitaxial growth of layers of semiconductor structures to planar, assembly, measuring and testing lines, using domestic materials in production. НПП "ИНЖЕКТ"

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Schedule of SFM-25/CRW-25/BRICS-25

Saratov time UTC+4		
September 29, Monday		
11.00-14.00	**REGISTRATION OF THE PARTICIPANTS OF SFM-25/CRW-25/BRICS-25/ OPTICAL CHEMO- AND BIOSENSORS**	*Building 3, 1st floor*
13.30-14.00	**Coffee break**	*Building 3, 1st floor*
14.00-18.00	**INVITED LECTURE/ ORAL SESSION OPTICAL CHEMO- AND BIOSENSORS I** **Chairs: Irina Yu. Goryacheva, Tatiana Yu. Rusanova,** Saratov State Univ., Russia	*Building 1, Main Conf Hall*
September 30, Tuesday		
09.00-13.00	**INVITED LECTURE/ ORAL SESSION OPTICAL CHEMO- AND BIOSENSORS II** **Chairs: Irina Yu. Goryacheva, Tatiana Yu. Rusanova,** Saratov State Univ., Russia	*Building 1, Main Conf Hall*
9.30-13.00	**REGISTRATION OF THE PARTICIPANTS OF SFM-25/CRW-25/BRICS-25/ OPTICAL CHEMO- AND BIOSENSORS**	*Building 3, 1st floor*
9.20-9.40	**WORDS OF WELCOME TO THE PARTICIPANTS OF CRW-25** **Valery V. Tuchin,** Saratov State Univ., Russia; **Dan Zhu**, Huazhong Univ. of Science and Technology, China https://onlinessu.ktalk.ru/v4p1rves4d6o	*Online*
9.40-12.40	**ON-LINE CHINESE-RUSSIAN INVITED LECTURE SESSION I** **Chairs: Valery V. Tuchin**, Saratov State Univ., Russia; **Dan Zhu**, Huazhong Univ. of Science and Technology, China	*Building 3, Room 8 Online*
13.50-18.30	**PLENARY SESSION I** **Chairs: Valery V. Tuchin**, Saratov State Univ.; **Alexander V. Priezzhev**, Lomonosov Moscow State Univ., Russia; **Dan Zhu**, Huazhong Univ. of Science and Technology, China https://onlinessu.ktalk.ru/v4p1rves4d6o	***Building 3, Big Physical Hall/Online***
13.50-14.00	**WORDS OF WELCOME TO THE PARTICIPANTS OF SFM-25 / CRW-25/BRICS-25** **Valery V. Tuchin**, Saratov State Univ.	
14.00-14.40	**TISSUE OPTICAL CLEARING FOR IMAGING BRAIN** **Dan Zhu,** Huazhong University of Science and Technology, China	

14.40-15.20	**IN VIVO OPTICAL MICROSCOPY AND ITS BIOMEDICAL APPLICATIONS** **Ling Fu,** Hainan University, China		
15.20-16.00	**LOOKING BACK AT 35 YEARS OF SINGLE-MOLECULE OPTICS** **Michel Orrit,** Leiden University, Netherlands		
16.00-16.30	**Coffee break**		***Building 3, 2nd floor***
16.30-17.10	**LUMINESCENCE LIFETIME IMAGING: FROM FUNDAMENTALS TO APPLICATIONS AND CLINICAL RELEVANCE** **Vladislav Shcheslavskiy,** Institute of Experimental Oncology and Biomedical Technologies, Privolzhsky Research Medical University, Nizhny Novgorod, Russia, Becker&Hickl GmbH, Berlin, Germany		***Building 3, Big Physical Hall/Online***
17.10-17.50	**SEEING LIFE IN A NEW LIGHT: FROM SIMPLE CLASSICAL PHYSICS TO QUANTUM-ENHANCED IMAGING, Vladislav V. Yakovlev,** TAMU, USA	**9.10-9.50** **Texas time**	
17.50-18.30	**PHOTOACOUSTIC, LIGHT-SPEED, AND QUANTUM IMAGING** **Lihong V. Wang,** Caltech, USA	**6.50-7.30** **California time**	
18.30-18.50	**SPONSOR SESSION I** *https://onlinessu.ktalk.ru/v4p1rves4d6o*		
18.30-18.50	**MODERN INSTRUMENTS AND METHODS FOR NON-DESTRUCTIVE SURFACE INSPECTION AND LOCAL CHEMICAL ANALYSIS USING SCANNING PROB MICROSCOPY AND OPTICAL SPECTROSCOPY** **Leonid R. Yusupov,** LLC "ACTIVE PHOTONICS", Moscow, Zelenograd, Russia		
19.00-22.00	**WELCOME PARTY**		*Building 11*
October 1, Wednesday			
10.00-12.00	**SFM PLENARY SESSION II** **Chairs: Valery V. Tuchin**, Saratov State Univ.; **Vladislav Shcheslavskiy,** Institute of Experimental Oncology and Biomedical Technologies, Privolzhsky Research Medical University, Nizhny Novgorod, Russia, Becker&Hickl GmbH, Berlin, Germany *https://onlinessu.ktalk.ru/v4p1rves4d6o*		***Building 10,***
10.00-10.40	**PHOTONICS WORKS TOGETHER WITH NANO- AND MICROSTRUCTURED MATERIALS FOR BIOMEDICAL APPLICATIONS** **Dmitry A. Gorin,** Skolkovo Institute of Science and Technology, Skoltech, Moscow, Russia		
10.40-11.20	**PHOTOTHERMAL SPECTROSCOPY IN ANALYTICAL AND APPLIED CHEMISTRY** **Mikhail A. Proskurnin,** Lomonosov Moscow State University, Russia		
11.20-12.00	**A NEW PARADIGM IN QUANTUM BIOPHOTONICS: PRESERVING ORBITAL ANGULAR MOMENTUM IN SCATTERING TISSUES** **Igor V. Meglinski,** Aston University, UK		

12.00-13.00	**SPONSOR SESSION II** https://onlinessu.ktalk.ru/v4p1rves4d6o			***Main Hall***
12.00-12.20	**EXPANDING THE POSSIBILITIES OF CONFOCAL MICROSCOPY: CRESTOPTICS EXPERIENCE"** **Igor I. Kireev,** A.N. Belozersky Research Institute of Physicochemical Biology and LLC "BioVitrum", Moscow, St. Petersburg, Russia			
12.20-12.40	**LASER SYSTEMS AND ANALYTICAL EQUIPMENT FOR SCIENTIFIC RESEARCH** **Eugene Belousov,** "SOLAR LS" ZAO, Minsk, Belarus			
12.40-13.00	**ANALYSIS SYSTEMS IN BIOPHOTONICS USING THE EXAMPLE OF REAL RESEARCH** **Anton Kiian,** LLC INSCIENCE SOLUTIONS, St.Petersburg, Russia			
13.00-14.00	**LUNCH**			
14.00-19.00	**INVITED LECTURE/ORAL SESSION NANOBIOPHOTONICS I** **Chair: Nikolai G. Khlebtsov,** IBPPM RAS, Saratov State Univ., Russia	*Building 9, Conf. Hall*	**INVITED LECTURE/ ORAL SESSION MACHINE LEARNING I** **Chairs: Igor K. Lednev,** Univ. at Albany, USA, **Yury V.Kistenev,** Tomsk State Univ., Russian Federation	*Online*
10.00-16.00	**ON-LINE / ORAL SESSION LOW-DIMENSIONAL STRUCTURES I** **Chair: Olga Glukhova,** Saratov State Univ., Russia	*Building 8, Room 318*	**INVITED LECTURE/ORAL SESSION ROUND TABLE OF HIGH TECHNOLOGIES COMMERCIALIZATION** **Chairs: Daniil Bratashov, Andrey Rytik,** Saratov State Univ., Russia	*Building 6, Room 204*
16.30-18.20	**ON-LINE INVITED LECTURE/ORAL SESSION ENDOGENOUS BIOPHOTONICS** **Chairs: Ilya V. Volodyaev,** Moscow State Univ., European Medical Center, **Elena V. Naumova,** Rzhanov Inst. of Semiconductor Physics, Siberian Branch of Russian Academy of Sciences, Russia		**ON-LINE INVITED LECTURE/ORAL SESSION QUANTUM SCIENCE AND TECHNOLOGIES** **Chairs: Aleksey K. Fedorov, and Evgeniy O. Kiktenko,** Russian Quantum Center, Russia; National University of Science and Technology "MISIS" (Russia)	*Online*
14.00-16.00	**INVITED LECTURE/ORAL/ON-LINE SESSION BIOPHYSICS I / INTERNET BIOPHOTONICS I / BRICS WORKSHOP I** **Chair: Alexander V. Priezzhev, Andrei E. Lugovtsov,** M.V. Lomonosov Moscow State University, Russia https://onlinessu.ktalk.ru/v4p1rves4d6o			***Building 10, Main Hall***
14.00-19.00	**ROUND-TABLE DISCUSSION EDUCATION** Chair: **Boris A. Medvedev**, Saratov State Univ., Russia			*Scientific Library Conf. Hall*
14.00-19.30	**INVITED LECTURE/ORAL/ON-LINE SESSION LASER PHYSICS AND PHOTONICS** Chair: **Vladimir L. Derbov**, Saratov State Univ., Russia	*Building 10, Hall 503*	**INVITED LECTURE/ ORAL SESSION MACHINE LEARNING II** **Chairs: Igor K. Lednev,** Univ. at Albany, USA, **Yury V.Kistenev,** Tomsk State Univ., Russian Federation	*Online*

14.00-15.30	**POSTER SESSION OPTICAL CHEMO- AND BIOSENSORS** **Chairs: Irina Yu. Goryacheva, Tatiana Yu. Rusanova,** Saratov State Univ., Russia	*Building 1, Main Conf Hall*
15.30-18.00	**INVITED LECTURE/ORAL ON-LINE SESSION OPTICAL CHEMO- AND BIOSENSORS III** **Chairs: Irina Yu. Goryacheva, Tatiana Yu. Rusanova,** Saratov State Univ., Russia	*Building 1, Main Conf Hall*
16.00-16.30	**Coffee break**	***Building 10, 2nd floor***
16.30-19.00	**INVITED LECTURE/ORAL/ON-LINE SESSION BIOPHYSICS II / INTERNET BIOPHOTONICS II/BRICS WORKSHOP II** **Chair: Elina Genina,** Saratov State Univ., Russia https://onlinessu.ktalk.ru/v4p1rves4d6o	***Building 10, Main Hall***
18.00-19.00	**ON-LINE ROUND TABLE DICUSSION ENDOGENOUS BIOPHOTONICS** **Chairs: Ilya V. Volodyaev,** Moscow State Univ., European Medical Center, **Elena V. Naumova**, Rzhanov Inst. of Semiconductor Physics, Siberian Branch of Russian Academy of Sciences, Russia https://us06web.zoom.us/j/89624952112?pwd=taAbN5zl5gciDrmhX1GiQ4Aisd2wmx.1	*Online*
15.00-18.30	**ON-LINE INVITED LECTURE /ORAL SESSION SPECTROSCOPY AND MOLECULAR MODELING I** **Chair: Lev M. Babkov,** Saratov State Univ., Russia	*Building 8, Room 216*
19.00-19.30	**Coffee break**	**In Boat trip**
20.00-23.00	**EVENING BOAT TRIP - THE LIGHTS OF SARATOV**	
October 2, Thursday		
9.00-13.00	**INVITED LECTURE/ ORAL SESSIONS BIOPHYSICS III/ BRICS WORKSHOP III** **Chairs: Valery V. Tuchin, Polina A. Timoshina,** Saratov State Univ., Russia, **Li Dongyu**, Huazhong Univ. of Science and Technology, Wuhan, China https://onlinessu.ktalk.ru/v4p1rves4d6o	***Building 10, Main Hall***
9.00-20.00	**INVITED LECTURE/ ORAL SESSION OPTICAL CHEMO- AND BIOSENSORS IV** **Chairs: Irina Yu. Goryacheva, Tatiana Yu. Rusanova,** Saratov State Univ., Russia	*Building 1, Bottom audience/ Rooms 13, 21,29,40,43*

12.00-17.30	**INVITED LECTURE/ORAL SESSION NANOBIOPHOTONICS II** **Chair: Nikolai G. Khlebtsov,** IBPPM RAS, Saratov State Univ., Russia			*Building 9, Conf. Hall*
10.00-18.00	**ON-LINE INVITED LECTURE/ORAL SESSION QUANTUM SCIENCE AND TECHNOLOGIES** **Chairs: Aleksey K. Fedorov, and Evgeniy O. Kiktenko,** Russian Quantum Center, Russia; National University of Science and Technology "MISIS" (Russia)			*Online*
11.30-12.00	**Coffee break**			***Building 10, 2nd floor***
11.30-17.30	**ON-LINE / ORAL SESSION LOW-DIMENSIONAL STRUCTURES / ORAL SESSION ELECTROMAGNETICS** **Chair: Olga Glukhova,** Saratov State Univ., Russia **/ Michael V. Davidovich**, Saratov State University, Russia			*Building 8, Room 318*
10.00-15.00	**INVITED LECTURE/ORAL SESSIONS** **TERAHERTZ OPTICS & BIOPHOTONICS/ ADVANCED MATERIALS** **Chairs: Kirill I. Zaytsev**, **Arsenii A. Gavdush, Nikita V. Chernomyrdin**, Prokhorov General Physics Institute of RAS, Bauman Moscow State Technical Univ., Russia			*Online*
10.00-18.10	**ON-LINE INVITED LECTURE/ORAL SESSION ENDOGENOUS BIOPHOTONICS** **Chairs: Andrey V. Budagovsky,** Michurin Federal Research Center, **Vladimir L. Voeikov,** Lomonosov Moscow State University, Faculty of Biology, **Ilya V. Volodyaev,** Lomonosov Moscow State University, European Medical Center, **Elena V. Naumova,** Rzhanov Institute of Semiconductor Physics, Siberian Branch of Russian Academy of Sciences, Pushchino, Institute of Cell Biophysics RAS https://us06web.zoom.us/j/89624952112?pwd=taAbN5zI5gciDrmhX1GiQ4Aisd2wmx.1			*Online*
13.00-14.00	**LUNCH**			
14.00-15.00	**PUBLIC LECTURE SESSION MODERN OPTICS** **Chair: Georgy V. Simonenko,** Saratov State Univ.			*Building 3, Big Physical Hall*
14.00-19.00	**ROUND-TABLE DISCUSSION EDUCATION** **Chair: Boris A. Medvedev**, Saratov State Univ., Russia			*Scientific Library Conf. Hall*
15.00-18.00	**ON-LINE INVITED LECTURE /ORAL SESSION SPECTROSCOPY AND MOLECULAR MODELING I** **Chair: Lev M. Babkov,** Saratov State Univ., Russia	*Building 8, Room 216*	**INVITED LECTURE/ ORAL SESSIONS BIOPHYSICS IV/ BRICS WORKSHOP IV** **Chairs: Igor Fufurin, Igor Golyak,** Bauman Moscow State Technical Univ., Russia *https://onlinessu.ktalk.ru/v4p1rves4d6o*	***Building 10, Main Hall***

15.00-18.00	**INVITED LECTURE/ORAL SESSIONS** **TERAHERTZ OPTICS & BIOPHOTONICS/ ADVANCED MATERIALS** **Chairs: Kirill I. Zaytsev**, **Arsenii A. Gavdush, Nikita V. Chernomyrdin**, Prokhorov General Physics Institute of RAS, Bauman Moscow State Technical Univ., Russia	*Online*
14.00-16.00	**ORAL SESSION NONLINEAR DYNAMICS** **Chairs: Galina I. Strelkova**, **Andrei V. Slepnev**, Saratov State Univ., Russia	*Building 3, Room 38*
18.10-20.00	**ROUND-TABLE ENDOGENOUS BIOPHOTONICS** **Chairs: Ilya V. Volodyaev,** Moscow State Univ., European Medical Center, **Elena V. Naumova**, Rzhanov Inst. of Semiconductor Physics, Siberian Branch of Russian Academy of Sciences, Russia https://us06web.zoom.us/j/89624952112?pwd=taAbN5zI5gciDrmhX1GiQ4Aisd2wmx.1	*Online*
18.00-18.30	**Coffee break**	*Building 3, 2nd floor*
18.15-20.30	**JOINT POSTER/INTERNET SESSION** **Chairs: Ivan V. Fedosov**, **Daria K. Tuchina**, Saratov State Univ., Russia Moderators: **Ivan V. Fedosov, Michael M. Slepchenkov, Alexander I. Dubrovsky,** Saratov State Univ., Russia	*Building 3*
October 3, Friday		
9.30-12.30	**INVITED LECTURE/ ORAL SESSIONS BIOPHYSICS V** **Chairs: Valery V. Tuchin, Elina Genina,** Saratov State Univ., Russia *https://onlinessu.ktalk.ru/v4p1rves4d6o*	***Building 3, Big Physical Hall***
10.00-13.00	**INVITED LECTURE/ORAL SESSIONS** **TERAHERTZ OPTICS & BIOPHOTONICS/ ADVANCED MATERIALS** **Chair: Kirill I. Zaytsev**, **Arsenii A. Gavdush, Nikita V. Chernomyrdin**, Prokhorov General Physics Institute of RAS, Bauman Moscow State Technical Univ., Russia	*Online*
10.00-16.00	**PRACTICAL WORKSHOP IN THE FRAME OF ENDOGENOUS BIOPHOTONICS** **Chairs: Andrey V. Budagovsky**, Michurinsk State Agrarian University and Michurin Federal Scientific Center, Michurinsk, Tambov Region, Russia, **Yury A. Nikolaev**, The Federal Research Centre “Fundamentals of Biotechnology” of the Russian Academy of Sciences, Moscow, Russia	*Pushchino, Institute of Cell Biophysics RAS*
14.00-18.00	**OUTDOOR ROUND-TABLE DISCUSSIONS AND THE CONCLUSION OF SFM-25**	*Open Air Meeting*

Chinese-Russian Workshop on Biophotonics and Biomedical Optics-2025

Chairs: **Dan Zhu**, Ph.D, Professor, SPIE/OPTICA Fellow, Deputy Director of Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, China

Valery V. Tuchin, Corr.-member of the RAS, Doc. of Sci., Professor, SPIE/OPTICA Fellow, Head of Optics and Biophotonics Department and Science Medical Center, Saratov State University; Head of Laboratory of Laser Diagnostics of Technical and Living Systems, Institute of Precision Mechanics and Control, FRC "Saratov Scientific Centre of the Russian Academy of Sciences"; Supervisor of Lab. of Biophotonics, Tomsk State University, Tomsk, Russia

Secretaries: **Tingting Yu**, Ph.D, Associate Professor, Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, China

Polina A. Timoshina, Ph.D, Associate Professor, Optics and Biophotonics Department, Saratov State University, Saratov, Russia

September 30, Tuesday

ON-LINE INVITED/ORAL LECTURES

Conference Hall 8, Building 3

Link to connect in Kontur Talk:

https://onlinessu.ktalk.ru/v4p1rves4d6o

Chairs: Valery V. Tuchin, Saratov State University, Russia; **Dan Zhu,** Huazhong University of Science and Technology, China

Saratov time/China time

9:20-9:30/13:20-13:30
Welcome speech from the chairs of the Chinese-Russian Workshop on Biophotonics and Biomedical Optics-2025
Dan Zhu, Huazhong University of Science and Technology, Wuhan, China
Valery V. Tuchin, Saratov State University, Russia

9:30-9:50/13:30-13:50
Internet Invited
3D surface laser speckle imaging of blood flow
Pengcheng LI, School of Biomedical Engineering, Hainan University, China

9:50-10:10/13:50-14:10
Internet Invited
Optical assessment of blood microrheology and microcirculation alterations in the cardiovascular system at age-associated diseases
Alexander V. Priezzhev[1], Danila A. Umerenkov1, Alexei V. Muravyov[2], Irina A. Tikhomirova2, Andrey E. Lugovtsov[1], Larisa I. Dyachuk[3], Yuri I. Gurfinkel[2]
[1]Faculty of Physics, Lomonosov Moscow State University, Moscow, Russia[1], Ushinsky Yaroslavl State Pedagogical University, Yaroslavl, Russia, [3]Medical Scientific and Educational Institute, Lomonosov Moscow State University, Moscow, Russia

10:10-10:30/14:10-14:30
Internet Invited
Dual-wavelength laser feedback system for the treatment of vascular skin diseases
Viktor Chuchin[1,2], Andrey Belikov[1] [1]Institute of Laser Technologies, ITMO University, Russia [2]"NPP VOLO" LLC, Russia

10:30-10:50/14:30-14:50
Internet Invited
High-throughput live-cell super-resolution imaging
Haoyu LI, School of Instrumentation Science and Engineering, Harbin Institute of Technology, Harbin, China

10:50-11:10/14:50-15:10
Internet Invited
Ultrafast filtered back-projection for photoacoustic computed tomography
Chao TIAN, School of Engineering Science, University of Science and Technology of China, Hefei, China

11:10-11:30/15:10-15:30
Internet Invited
Effect of optical clearing agents on blood microrheology
Andrei E. Lugovtsov[1], Pavel A. Moldon1, Matvey K. Maksimov[1], Jiachi Hong[2], Yuri I. Gurfinkel[1], Pengcheng Li[2], Alexander V. Priezzhev[1]; [1] M.V. Lomonosov Moscow State University; [2]Huazhong University of Science and Technology, Wuhan, China

11:30-11:50/15:30-15:50
Internet Invited
Structured illuminations in biomedical microscopy with diffractive optics
Jingjing Zhao, Institute of Medical Equipment Science and Engineering, Huazhong University of Science and Technology, Wuhan, China

11:50-12:10/15:50-16:10
Internet Invited
Fast volumetric imaging of two-photon microscopy
Wei Zheng, Shenzhen Institutes of Advanced Technology Chinese Academy of Sciences, Shenzhen, China

12:10-12:30/16:10-16:30
Internet Invited
Early detection of Alzheimer's disease based on plasma markers
Haiming LUO, School of Biomedical Engineering, Hainan University, China

12.30-12.50/16:30-16:50
Internet Invited
Diffuse reflectance spectroscopy for collagen quantification in tumors extracellular matrix
Ryabova A.V.[1,2], Romanishkin I.D.[1], Vasilieva D.2, Savelieva T.A.[1,2], Pominova D.V.[1,2] [1]Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia; [2]Institute of Engineering Physics for Biomedicine, National Research Nuclear University MEPhI, Moscow, Russia

12.50-13.05/16:50-17:05
Internet oral report
Wearable optical devices for investigation of the reaction of cosmonauts microcirculatory-issue systems to the effects of simulated spaceflight factors
Loktionova Yu.I.[1], Kireev K.S.[1,2], Zharkikh E.V.1, Lutsevich D.N.[2], Yanusnin V.S.[1], Sidorov V.V.3, Dunaev A.V.1; [1] Orel State University named after I.S. Turgenev, Orel, Russia; [2] State Organization "Gagarin Research and Test Cosmonaut Training Center", Zvyozdny gorodok, Russia; [3] SPE "LAZMA" Ltd., Moscow, Russia

13.05-13.20/17:05-17:20
Internet oral report
Monitoring refractive index kinetics of optical clearing agents in synthetic opal phantoms
Arsenii P. Fashchevskii[1], Yuriy I. Surkov[1], Isabella A. Serebryakova[1], Arsen K. Zotov[2], Anna S. Kycheryavenko[3], Gleb M. Katyba[3], Valery V, Tuchin[1,4,5],[1]Saratov State University, Saratov, Russia, [2]Prokhorov General Physics Institute RAS, Moscow, Russia, [3]Osipyan Institute of Solid State Physics RAS, Chernogolovka, Russia, [4]Tomsk State University, Tomsk, Russia, [5]Institute of Precision Mechanics and Control, FRC "Saratov Scientific Centre of the RAS," Saratov, Russia

Conference on Optical Technologies in Biophysics & Medicine XXVII

Chairs: **Valery V. Tuchin,** Saratov State University, Institute of Precision Mechanics and Control of FRC "Saratov Scientific Centre of the RAS", Tomsk State University, **Polina A. Timoshina, Elina A. Genina,** Saratov State University; Tomsk State University (Russia)

Secretary: **Isabella A. Serebryakova,** Saratov State University (Russia)

International Program Committee: **Heidi Abrahamse**, University of Johannesburg (RSA); **Mohammad Ali Ansari**, Shahid Beheshti University, Tehran (Iran); **Vanderlei Salvador Bagnato**, University of São Paulo (Brazil); **Walter Blondel**, University of Lorraine (France); **Ivan A. Bratchenko,** Samara University (Russia); **Wei Chen**, University of Central Oklahoma (USA); **Santhosh Chidangil**, Manipal Academy of Higher Education (India);**Kishan Dholakia**, University of St. Andrews (UK); **Maria Farsari**, FORTH-IESL (Greece); **Paul M.W. French**, Imperial College of Science, Technology and Medicine (UK); **Elina A. Genina**, Saratov State University (Russia); **Mikhail Yu. Kirillin** Institute of Applied Physics RAS, Nizhny Novgorod (Russia); **Yury V. Kistenev**, Tomsk State University (Russia); **Kirill V. Larin**, University of Houston (USA); **Ekaterina N. Lazareva**, Saratov State University (Russia); **Qingming Luo**, Hainan University (China); **Luís M. Oliveira**, Polytechnic of Porto – School of Engineering (Porto, Portugal); **Roberto Pini**, National Research Council of Italy (CNR) (Italy); **Juergen Popp**, Inst. of Photonic Technology, Jena (Germany); **Alexander V. Priezzhev**, Moscow State University (Russia); **Vladislav Shcheslavskiy**, Privolzhsky Research Medical University, Nizhny Novgorod (Russia), Becker&Hickl GmbH (Germany); **Evgeny A. Shirshin**, Research and Educational School "Photonic and Quantum Technologies. Digital Medicine," Lomonosov Moscow State University (Russia); **Lihong Wang**, Caltech (USA); **Ruikang K. Wang**, University of Washington (USA); **Vladimir Yu. Zaitsev**, FRC A.V. Gaponov-Grekhov Institute of Applied Physics of the RAS, Nizhny Novgorod (Russia); **Valery P. Zakharov**, Samara State University (Russia); **Zeev Zalevsky**, Bar Ilan University, Tel Aviv (Israel).

BRICS Workshop on Biophotonics

Chairs: **Heidi Abrahamse**, University of Johannesburg (RSA); **Vanderlei Salvador Bagnato**, University of São Paulo (Brazil), **Santhosh Chidangil**, Manipal Academy of Higher Education (India); **Qingming Luo**, Hainan University (China); **Valery V. Tuchin,** Saratov State University, Institute of Precision Mechanics and Control of FRC "Saratov Scientific Centre of the RAS", Tomsk State University (Russia)

Secretaries: **Li Dongyu,** MOE Key Laboratory for Biomedical Photonics, Wuhan National Laboratory for Optoelectronics - Advanced Biomedical Imaging Facility, Huazhong University of Science and Technology, School of Optical Electronic Information, Huazhong University of Science and Technology, Wuhan, Hubei (China), **Natalia M. Inada**, University of São Paulo, Brazil, **Jijo Lukose**, MAHE, Manipal, India, **Sathish Kumar,** University of Johannesburg, RSA, **Polina A. Timoshina,** Saratov State University; Tomsk State University (Russia).

International Program Committee: **Dan Zhu**, Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan (China); **Elina A. Genina** (SSU, Russia), **Cristina Kurachi** (Univ. of São Paulo, Brazil), **Nirmalya Gosh** (Indian Inst. of Sci., Edu. and Research, Kolkata, India), and **Michael Hamblin** (Univ. of Johannesburg, RSA), **Daria K. Tuchina** (SSU, Russia); **Dmitry A. Gorin** (Skoltech, Russia); **Qian Liu** (Hainan University, China), **Qingyu Lin** (Sichuan University, China); **Sebastião Pratavieira, Fernanda Alves, Lilian Moriyama** (University of São Paulo, Brazil); **Nirmal Mazunder, Jijo Lukose** (MAHE, Manipal, India).

October 1, Wednesday

INVITED LECTURE/ORAL/
ON-LINE SESSION
BIOPHYSICS I
(Building 10, Main Hall)
Link to connect in Kontur Talk:
https://onlinessu.ktalk.ru/v4p1rves4d6o

Chairs:-**Alexander V. Priezzhev, Andrei E. Lugovtsov,** M.V. Lomonosov Moscow State University, Russia
Moderator: **Isabella Serebryakova,** Saratov State University, Russia

Saratov time/Moscow time/

14:00-14:20/13:00-13:20
Invited
Optical methods of exhaled air analysis for the diagnosis of human diseases
Igor Fufurin[1], Andrey Morozov[1], Alexander Apolonski[2]; [1]Bauman Moscow State Technical University, [2]Institute of Automation and Electrometry of the Siberian Branch of the Russian Academy of Sciences, Russia

14:20-14:40/13:20-13:40
Invited
Surgery guidance with biophotonics and its clinical translation
Evgeny Shirshin, Lomonosov Moscow State University, Russia

14:40-15:00/13:40-14:00
Invited
Label-free optical imaging of tissue metabolism
Viktor Dremin, Orel State University, Orel, Russia; Aston University, Birmingham, UK

15:00-15:20/14:00-14:20
Invited
Monitoring Microcirculatory Changes During Photodynamic Therapy
Anastasia Guryleva[1], Alexander S. Machikhin1, Tatiana G. Grishacheva[2], Nikolay N. Petrishchev[2] [1]Scientific and Technological Centre of Unique Instrumentation of RAS, Moscow, Russia [2]Pavlov First Saint Petersburg State Medical University, Saint Petersburg, Russia

15:20-15:40/14:20-14:40
Invited
Hybrid nanomaterials for optical heating and temperature monitoring in biological objects
Elena Gerasimova, Mikhail Zyuzin, ITMO University, St. Petersburg, Russia

15:40-16:00/14:40-15:00
Invited
Refining Interpretability Accuracy in Machine Learning Models for Infrared Spectroscopy
Igor Golyak, A.S. Safayan, Bauman Moscow State Technical University, Moscow, Russia

16:00-16:30/15:00-15:30
Coffee break

INVITED LECTURE/ORAL/
ON-LINE SESSION
BIOPHYSICS II/
INTERNET BIOPHOTONICS/ BRICS I
(Building 10, Main Hall)
Link to connect in Kontur Talk:
https://onlinessu.ktalk.ru/v4p1rves4d6o

Chair: **Elina Genina,** Saratov State University,
Moderator: **Isabella Serebryakova,** Saratov State University, Russia

16:30-16:50/15:30-15:50
Invited
Metabolic imaging of patients' lymphocytes for personalized assessment of immunotherapy efficiency
Diana V Yuzhakova[1], Daria A. Sachkova[1, 2], Anna V. Izosimova[1], Konstantin S. Yashin[1, 3], Varvara V. Dudenkova[1], Vadim V. Elagin[1], Vladislav I Shcheslavskiy[1, 4], Irina S. Shumskaya[5], Sergey V. Gamayunov[5], Marina V. Shirmanova [1; 1] Institute of Experimental Oncology and Biomedical Technologies, Privolzhsky Research Medical University;[2] Institute of Biology and Biomedicine, Lobachevsky State University of Nizhny Novgorod, Nizhny Novgorod, Russia; [3] Department of Neurosurgery, Privolzsky Research Medical University; [4] R&D Department, Becker&Hickl GmbH, Berlin, Germany; [5] Nizhny Novgorod Regional Oncology Dispensary, Nizhny Novgorod, Russia

16:50-17:10/15:50-16:10/18:20-18:40 (Indian time)

BRICS

Invited

Storage effect on human blood components probed by Raman tweezers spectroscopy

Santhosh Chidangil, Centre of Excellence for Biophotonics, Manipal Institute of Applied Physics, Manipal Academy of Higher Education, Manipal, India

17:10-17.30/16:10-16:30

BRICS

Invited

Optical techniques to quantitatively assess changes in blood supply during surgery

Alexei Kamshilin, Institute of Automation and Control Processes FEB RAS, Vladivostok, Russia

17:30-17.50/16:30-16:50

Invited

***IN VIVO* measurement strategy for NIR noninvasive glucose detection**

Han Tongshuai, School of Precision Instrument and Optoelectronics Engineering, Tianjin University, China

17:50-18.10/16:50-17:10/19:20-19:40 (Indian time)

BRICS

Online Invited

Advanced in multimodal nonlinear optical microscopy for biomedical research advanced in multimodal nonlinear optical microscopy for biomedical research

Nirmal Mazumder, Department of Biophysics, Manipal School of Life Sciences, Manipal Academy of Higher Education, Manipal, Karnataka, India

18:10-18.30/16:50-17:10/19:40-20:00 (Indian time)

BRICS

Online Invited

Polarized optical pathways towards next generation optical techniques for biomedical imaging and diagnosis

Nirmalya Ghosh, Indian Institute of Science Education and Research Kolkata, India

18:30-18.40/16:50-17:10/11:30-11:45 (Brazilian time)

BRICS

Online Oral

SVM-Assisted FTIR Spectroscopic Analysis of Ampicillin and Amoxicillin under Degradation Conditions

Vinicius Anjos[1]**,** Daniella Pereira[1], Rafael De Góes[2], Denise Zezell[1]; [1]University of São Paulo, São Paulo, Brazil; Federal University of Technology - Paraná, Curitiba, Brazil.

18:40-18.50/17:40-17:50/20:10-20:20 (Indian time)

BRICS

Online Oral

Enhancing endometriosis classification: feature selection strategy with Fourier transform infrared spectroscopy and high-performance liquid chromatography of blood plasma data

Sanoop Pavithran M[1], Rekha Upadhya[2], Anjali M[3], Santhosh Chidangil[1], [1]Manipal Institute of Applied Physics, Manipal Academy of Higher Education, Manipal, Karnataka, India, [2]Department of Obstetrics & Gynaecology, Kasturba medical college-Manipal, Manipal Academy of Higher Education, Karnataka, India [3]Department of Reproductive Medicine, Kasturba medical college-Manipal, Manipal Academy of Higher Education, Karnataka, India

October 2, Thursday

INVITED LECTURE/ ORAL REPORT SESSIONS BIOPHYSICS III/ BRICS II

(Building 10, Main Hall)
Link to connect in Kontur Talk:
https://onlinessu.ktalk.ru/v4p1rves4d6o

Chairs: **Valery V. Tuchin,** Saratov State Univ., Russia; **Li Dongyu**, Huazhong Univ. of Science and Technology, Wuhan, China
Moderator: **Isabella Serebryakova,** Saratov State University, Russia

09:00-09:20/08:00-08:20/13:00-13:20

BRICS

Invited

Impact of diabetes mellitus duration on urokinase thrombolytic efficacy in ischemic stroke

Li Dongyu, MOE Key Laboratory for Biomedical Photonics, Wuhan National Laboratory for Optoelectronics - Advanced Biomedical Imaging Facility, Huazhong University of Science and Technology, School of Optical Electronic Information, Huazhong University of Science and Technology, Wuhan, Hubei, China

09:20-09:40/08:20-08:40/13:20-13:40(Chinese time)

BRICS

Online Invited

Fast segmentation and multiplexing imaging of organelles in live cells

Li Meiqi, School of Life Science, Peking University, China

09:40-10:00/08:40-09:00/13:40-14:00(Chinese time)

BRICS

Online Invited

High axial resolution and imaging speeds three-dimensional live cell imaging

Huang Xiaoshuai, Institute of Advanced Clinical Medicine, Peking University, Beijing, China

10:00-10:20/09:00-09:20/14:00-14:20 (Chinese time)

BRICS

Online Invited

Super-resolution imaging cross scales

Weisong Zhao, Harbin Institute of Technology, China

10.20-10.40/09:20-09:40/11:50-12:10 (Indian time)

BRICS

Online Invited

Nano-Biophotonics for the management of Alzheimer's Disease

Jayasree R S, Sree Chitra Thirunal Institute for Medical Sciences and Technology, Trivandrum, Kerala, India

10:40-11:00/09:40-10:00

Invited

Ultrawideband high density polymer-based spherical array for real-time functional optoacoustic micro-angiography

Pavel V. Subochev, Institute of Applied Physics RAS, Nizhny Novgorod, Russia

11:00-11:15/10:00-10:15

Oral Report

PVDF-TrFE ring-shaped piezopolymer detector for optical-resolution optoacoustic microscopy with extended imaging depth and enhanced sensitivity

Alexey A. Kurnikov[1], Maxim B. Prudnikov[1], Daria A. Voitovich[1], Anna M. Glyavina[1], Anna G. Orlova[1], Marina A. Sirotkina[2], Wei Liu[3], Daniel Razansky[4,5], Pavel V. Subochev[1,2]; [1]Institute of Applied Physics, Russian Academy of Sciences, Nizhny Novgorod, Russia; [2]Institute of Experimental Oncology and Biomedical Technologies, Privolzhsky Research Medical University, Nizhny Novgorod, Russia; [3]Optical Imaging Laboratory, Harbin Institute of Technology, China; [4]Institute for Biomedical Engineering and Institute of Pharmacology and Toxicology, Faculty of Medicine, UZH Zurich, Switzerland; [5]Institute for Biomedical Engineering, Department of Information Technology and Electrical Engineering, ETH Zurich, Switzerland

11:15-11:30/10:15-10:30

Oral Report

Local laser fluence estimation model in optical resolution optoacoustic microscopy

Daria Voitovich[1,2], Alexey Kurnikov[1], Anna Orlova[1,2], Liubov Shimolina[2], Anastasia Komarova[2], Marina Shirmanova[2], Yu-Hang Liu[3,4], Daniel Razansky[3,4] Pavel Subochev[1,2] [1]Institute of Applied Physics, Russian Academy of Sciences, Nizhny Novgorod, Russia, [2]Institute of Experimental Oncology and Biomedical Technologies, Privolzhsky Research Medical University, Nizhny Novgorod, Russia, [3] Institute for Biomedical Engineering and Institute of Pharmacology and Toxicology, Faculty of Medicine, Zurich, Switzerland, [4]Institute for Biomedical Engineering, Department of Information Technology and Electrical Engineering, Zurich, Switzerland

11.30-12.00
Coffee break

12:00-12:15/11:00-11:15

Oral Report

In Vivo Optoacoustic Angiography of Normal and Diseased Superficial Tissues

Anna G. Orlova[1], Ksinia G. Akhmedzhanova[1,2], Aleksey A. Kurnikov[1], Anna M. Glyavina[1,2], Dmitry A. Khochenkov3, Yulia A. Khochenkova[3], Anna V. Maslennikova[1,2,4], Svetlana V. Nemirova[1,4], Ilya V. Turchin[1], Pavel V. Subochev[1]; [1]A.V. Gaponov-Grekhov Institute of Applied Physics of RAS, Russia; [2]N.I. Lobachevsky State University of Nizhny Novgorod, Russia; [3]N.N. Blokhin National Medical Research Center of Oncology, Russia; [4]Privolzhsky Research Medical University, Russia

12:15-12:30/11:15-11:30

Oral Report

The prospects of optical coherence tomography angiography for monitoring microcirculatory disorders in critically ill patients

Anton A. Plekhanov[1], Elena B. Kiseleva[1], Sergey V. Panfilov[2], Alexander A. Moiseev[3], Natalia V. Zarechnova[2], Marina A. Sirotkina[1], Sergey V. Gamayunov[2], Grigory V. Gelikonov[3], Evgeniy V. Grigoryev[4], Natalia D. Gladkova[1]; [1]Privolzhsky Research Medical University, Nizhny Novgorod, Russia; [2]Nizhny Novgorod Regional Oncological Hospital, Nizhny Novgorod, Russia; [3]A.V. Gaponov-Grekhov Institute of Applied Physics RAS, Nizhny Novgorod, Russia; [4]Research Institute for Complex Issues of Cardiovascular Diseases, Kemerovo, Russia

12:30-12:45/11:30-11:45
Oral Report
Ex vivo autofluorescence analysis of gliomas and brain tissues of patients using macroscopic time-resolved fluorescence imaging
Daria A. Sachkova[1], Marina V. Shirmanova[1], Elena B. Kiseleva[1], Ludmila S. Kuhnina[2], Artem S. Grishin[3], Ilya D. Shchechkin[1], Vladislav I. Shcheslavskiy[1], , Konstantin S. Yashin[2] [1]Institute of Experimental Oncology and Biomedical Technologies, Privolzhsky Research Medical University, Nizhny Novgorod, Russia [2]Department of Neurosurgery, Privolzhsky Research Medical University, Nizhny Novgorod, Russia [3]Department of Pathology, Privolzhsky Research Medical University, Nizhny Novgorod, Russia

12:45-13:00/11:45-12:00
Oral Report
New Markers of Thermoregulation in the Human Body Assessed Using Imaging Photoplethysmography
Natalia P. Podolyan[1], Irina A. Mizeva[2], Anastasiia V. Sakovskaia[3], Maria E. Vasilieva[4], Oleg V. Mamontov[5], Viktor A. Kashchenko[4], Roman V. Romashko[1] and Aleksey A. Kamshilin[1]; [1]Institute of Automation and Control Processes FEB RAS, Vladivostok, Russia; [2]Institute of Continuous Media Mechanics, Perm, Russia; [3]Institute of Therapy and Instrumental Diagnostics, Pacific State Medical University, Vladivostok, Russia; [4]North-Western District Scientific and Clinical Center Named After L.G. Sokolov, FMBA, Saint Petersburg, Russia; [5]Pavlov First Saint Petersburg State Medical University, Saint Petersburg, Russia

13:00-13:15/12:00-12:15
Oral Report
Circular Polarization Filtering in Imaging Photoplethysmography to Reduce the Influence of Specular Reflections
M.A. Asalkhanova, N.P. Podolyan, V.V. Zaytsev, T.A. Efimov, R.V. Romashko, A.A. Kamshilin Institute of Automation and Control Processes FEB RAS, Vladivostok, Russia

INVITED LECTURE/ ORAL REPORT SESSIONS BIOPHYSICS IV/ BRICS III

(Building 10, Main Hall)
Link to connect in Kontur Talk:
https://onlinessu.ktalk.ru/v4p1rves4d6o

Chairs: **Igor Fufurin, Igor Golyak,** Bauman Moscow State Technical Univ., Russia
Moderator: **Isabella Serebryakova,** Saratov State University, Russia

15:00-15:20/14:00-14:20 (Abu Dhabi time 15:00-15:20)
BRICS
Online Invited
Light-based Smart Technologies: From Laser Surgery to Enhanced Biosensing
Azhar Zam[1,2], [1]Engineering Division, New York University Abu Dhabi, Abu Dhabi, UAE; [2]NYU Tandon School of Engineering, New York, USA

15:20-15:40/14:20-14:40/13:20-13:40 (Munich time)
Online Invited
Clinical investigations using hyperspectral imaging
Ronald Sroka, LIFE-Center at Department of Urology at Hospital of University of Munich, Munich, Germany

15:40-16:00/14:40-15:00
Invited
Multidisciplinary study of gene therapy-induced adipocyte reprogramming
Boychenko S.S.[1], Yunin M.A.[1], Elagin, V.V.[2], Muravyev G.S.[1], Dudenkova V.V.[2], Shcheslavskiy V.I.[2], **Egorov Alexander[1],** [1]Research Center for Translational Medicine, Sirius University of Science and Technology, Sirius, Russia, [2]Laboratory of Optical Spectroscopy and Microscopy, Institute of Experimental Oncology and Biomedicine, Privolzhsky Research Medical University, Nizhny Novgorod, Russia

16.00-16.15/15:00-15:15
Oral Report
Laser-Based Infrared Spectroscopy of Human Breath for Non-Invasive Detection of Metabolic Disorders
Olga A. Nebritova, Andrey N. Morozov, Igor L. Fufurin, Bauman Moscow State Technical University, Moscow, Russia

16:15-16:30/15:15-15:30
Oral Report
Non-antibiotic bactericidal titanium surface via laser oxidation
Yulia Yu. Karlagina, Valery V. Khmelevsky, Nikita A. Afanasiev, Svetlana A. Ulasevich, Galina V. Romanova[1] and Vadim P. Veiko; ITMO University, Saint-Petersburg, Russia

16:30-16:45/15:30-15:45
Oral Report
Surface plasmon resonance on laser-modified titanium for optical sensors
Michael S. Kuritskij, Anna V. Tsibulnikova, Ivan I. Lyatun, Andrey Y. Zyubin, Alena A. Kostrina, Ilia G. Samusev; Immanuel Kant Baltic Federal University, Kaliningrad, Russia

16.45-17.00/15:45-16:00
Oral Report
Optical properties of polymer-dispersed liquid crystal films as basic elements of imitation measures for calibration of photoplethysmographic devices
Denis G. Lapitan, Andrey P. Tarasov, Lev S. Kapustin, Dmitry A. Rogatkin; Moscow Regional Research and Clinical Institute ("MONIKI"), Moscow, Russia

17.00-17.15/16:00-16:15
Oral Report
Infrared and visible range FLIM/PLIM system combined with Superconducting Single Photon Detector
V. Andreev[1,2], P. Morozov[1], G. Goltsman[1,2] [1]Moscow Pedagogical State University, Moscow, Russia, [2]National Research University Higher School of Economics, Moscow, Russia

17.15-17.30/16:15-16:30
Oral Report
Evaluation of Photoplethysmogram Responses to Occlusion and Local Thermal Tests in Diabetes Patients with Micro- and Macrovascular Dysfunction
Alexey A. Glazkov[1], Denis G. Lapitan[1], Xiaoman Xing[2,3], Ksenya A. Krasulina[1], Yulia A. Kovaleva[1], Roman N. Larkov[1], Sergey S. Zagarov[1], Dmitry A. Rogatkin[1] [1]Moscow Regional Research and Clinical Institute ("MONIKI"), Moscow, Russia; [2]School of Biomedical Engineering (Suzhou), Division of Life Sciences and Medicine, University of Science and Technology of China, Suzhou, China; [3]Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences, Suzhou, China

17.30-17.40/16:30-16:40
BRICS
Online Oral
New Fluorescent Labels for Controlled Optical Activation of Platelets
Naumenko M.B.[1], Panfilov M.A.[1,2], Vorobyev A.Yu.[1,2], Moskalenksy A.E.[1] [1]Novosibirsk State University, Novosibirsk, Russia; [2]Vorozhtsov Institute of Organic Chemistry, Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia

17.40-17.50/16:40-16:50
BRICS
Online Oral
Local infrared neural stimulation of non-anesthetized primate brain through a fiber-optic laser-brain interface
Alexey Harauzov[1], Boris Nyushkov[2], Igor Korel[2], Liubov Ivanova1, Daria Podvigina1, Yuri Shelepin[1]; [1]Pavlov Institute of Physiology, Russian academy of sciences, Saint Petersburg, Russia; [2]Novosibirsk State Technical University, Novosibirsk, Russia

17.50-18.00/16:50-17:05
Online Oral
Optical indication of the stages of collagen denaturation during local pulsed laser heating of the biological tissues
Natalia Y. Ignatieva[1], Olga L. Zakharkina[2], **Yulia K. Sedova**[2], Alexander P. Sviridov[2] [1] M. V. Lomonosov Moscow State University, Moscow, Russia [2] Institute of Photon Technologies Kurchatov Complex of Crystallography and Photonics NRC "Kurchatov Institute", Troitsk, Moscow, Russia

18.00-18.10/17:00-17:10
Online Oral
Study of the effect of photodynamic therapy on the optical properties of mouse tumor models
Inessa V. Markova[1,2], Daria V. Pominova[1,2], Alexey S. Skobeltsin[1,2], Igor D. Romanishkin1, Anastasia V. Ryabova[1,2]; [1]Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia; [2]Institute of Engineering Physics for Biomedicine, National Research Nuclear University MEPhI, Moscow, Russia

18.10-18.20/17:10-17:20
Online Oral
Application of diffuse scattering spectroscopy for intraoperative assessment of blood supply to the gastric tissues
Anna A. Krivetskaya[1,2], Daniil M. Kustov[1], Vladimir V. Levkin[3], Sergey S. Kharnas[3], and Tatiana A. Savelieva[1,2] [1]Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia [2]Institute of Engineering Physics for Biomedicine, National Research Nuclear University MEPhI, Moscow, Russia [3] Department of Faculty Surgery No. 1, I.M. Sechenov First Moscow State Medical University, Moscow, Russia

BRICS
Invited recorded
AI-based 3D Realtime Cardiac Magnetic Resonance Imaging and Its Novel Applications
Fumin GUO, Wuhan National Laboratory for Optoelectronics , Huazhong University of Science and Technology, Wuhan, China
https://disk.yandex.ru/d/P8zH-enfcsikMA

BRICS
Invited recorded
Towards mesoscopic all-optical closed-loop neuroscience research in deep brain
Biqin Dong, College of Biomedical Engineering, Fudan University, China

BRICS
Invited recorded
High-throughput volumetric imaging of synaptic transmission and microcirculations in the brain
Wei Chen, Huazhong University of Science and Technology, China
https://disk.yandex.ru/i/gxWgMsV1cAvJcA

BRICS
Invited recorded
Fluorescent imaging of genomic DNA with high specificity in live cells
Shiqi Mao, School of Optical Electronic Information, Huazhong University of Science and Technology, Wuhan, Hubei, China, Department of Biomedical Engineering, College of Future Technology, Peking University, Beijing, China
https://disk.yandex.ru/i/hCUR-stmIdFv7w

JOINT INTERNET/POSTER SESSION BIOPHYSICS (B)

(Building 3, 3rd floor Hall)

Chairs (*B*): **Ivan V. Fedosov**, Saratov State Univ., Russia

18:00-20:00

1B. Prevention and early diagnosis of diabetic skin complications using optical and biophotonic imaging in Niger Adamou Soli Idrissa[1], Mahamane Sani M. Aminou[1,4], Moussa Issoufou Djibrillou[1,2], Mamane Barga Aboubacar[1,4], Salissou Laouali[2,3], Ali Ada[5]; [1]Radio-isotopes Institute, Abdou Moumouni University, Niamey, Niger; [2]Faculty of Health Sciences, Abdou Moumouni University, Niamey, Niger; [3]National Hospital of Niamey, Niamey, Niger; [4]Reference General Hospital of Niamey, Niamey, Niger; [5]Magori Policlinic of Niamey, Niamey, Niger

2B. Investigation of the vascular bed of tumors under the combined effects of antiangiogenic and radiation therapy A.M. Glyavina[1,2], D.A. Voytovich[1], A.A. Kurnikov[1], Y.A. Khochenkova[3], D.A. Khochenkov[3], A.V. Maslennikova[1,2], I.V. Turchin[1], P.V. Subochev[1], A.G. Orlova[1]; [1]Federal Research Center A.V. Gaponov-Grekhov Institute of Applied Physics of the Russian Academy of Sciences (IAP RAS), Nizhny Novgorod, Russia; [2]Lobachevsky State University of Nizhny Novgorod, Nizhny Novgorod, Russia; [3]National Medical Research Center of Oncology named after N.N. Blokhin, Moscow, Russia

3B. Detection of breast cancer metastatic lymph nodes by fluorescence lifetime macro-imaging A.A. Plekhanov[1], M.V. Shirmanova[1], A. Gaier[2], V.V. Dudenkova[1], A.L. Potapov[1], A.Yu. Vorontsov[3], E.A. Shirshin[4], W. Becker[5], R. Cicchi[6], J.L. Lagarto[7], V.V. Yakovlev[8], S.V. Gamayunov[3], V.I. Shcheslavskiy[1,5]; [1]Privolzhsky Research Medical University, Nizhny Novgorod, Russia; [2]École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland; [3]Nizhny Novgorod Regional Oncological Hospital, Nizhny Novgorod, Russia; [4]M.V. Lomonosov Moscow State University, Moscow, Russia; [5]Becker & Hickl GmbH, Berlin, Germany; [6]National Institute of Optics (CNR-INO), Florence, Italy; [7]Champalimaud Foundation, Biophotonics Platform, Lisbon, Portugal; [8]Texas A&M University, College Station, Texas, USA

4B. Fiber-optic temperature sensor based on Fabry-Perot interferometer M.A. Chesnokova, D.I. Nurmukhametov, R.S. Ponomarev; Laboratory of Integral Photonics, Perm State University, Russia

5B. Assessment of corneal burn severity by analyzing spatially-resolved maps of optical attenuation extracted from images of ophthalmic optical coherence tomography Peter A. Chizhov[1], Alexander A. Sovetsky[1], Alexander L. Matveyev[1], Lev A. Matveev[1], Nadezhda A. Pozdeeva[2], Irina N. Grigoryeva[2], Maxim G. Ryabkov[3], Vladimir Y. Zaitsev[1]; [1]A.V. Gaponov-Grekhov Institute of Applied Physics, Nizhny Novgorod, Russia; [2]S.N. Fyodorov Eye Microsurgery Federal State Institution, Cheboksary, Russia; [3]Privolzhsky Research Medical University, Nizhny Novgorod, Russia

6B. Study of the interaction of optical clearing agents with tissue phantoms based on synthetic opals A.P. Fashchevskii[1], Yu.I. Surkov[1], I.A. Serebryakova[1], A.K. Zotov[2], A.S. Kycheryavenko[3], G.M. Katyba[3], V.V. Tuchin[1,4,5]; [1]Saratov State University, Saratov, Russia; [2]Prokhorov General Physics Institute, Moscow, Russia; [3]Osipyan Institute of Solid State Physics RAS, Chernogolovka, Russia; [4]Tomsk State University, Tomsk, Russia; [5]Institute of Precision Mechanics and Control, FRC "Saratov Scientific Centre of the RAS", Saratov, Russia

7B. Morphometric characterization of red blood cells in healthy and tumor-affected rats: toward quantitative markers of systemic pathology Arsenii P. Fashchevskii[1], Irina Y. Yanina[1], Ekaterina N. Lazareva[1]; [1]Saratov State University, Saratov, Russia

8B. Machine Learning–Driven Recognition of Basal Cell Carcinoma via Multimodal Ultrasound and Optical Imaging Isabella A. Serebryakova[1], Yuriy I. Surkov[1], Elina A. Genina[1], Yana K. Kuzinova[3], Olga M. Konopatskova[3], Valery V. Tuchin[1,2,4]; [1]Saratov State University, Saratov, Russia; [2]Tomsk State University, Tomsk, Russia; [3]Saratov State Medical University, Saratov, Russia; [4]FRC "Saratov Scientific Centre of the Russian Academy of Sciences", Saratov, Russia

9B. PCA-LSCT: Software-Implemented Laser Speckle Contrast Tomography Yuriy I. Surkov[1], Isabella A. Serebryakova[1], Arseniy P. Fashchevskiy[1], Polina A. Timoshina[1], Elina A. Genina[1], Valery V. Tuchin[1]; [1]Saratov State University, Saratov, Russia

10B. Optical Clearing of Biological Tissue Phantoms by Tartrazine Solutions Vasilii M. Kovalenko, Roman V. Sheptitsky, Isabella A. Serebryakova, Yuriy I. Surkov, Elina A. Genina; Saratov State University, Saratov, Russia

11B. Diffusion coefficient measurements in ex vivo murine brain tissue via fluorescence recovery after photobleaching A.I. Dubrovsky[1], A.V. Dmitrenko[2], I.V. Fedosov[1], O.V. Semyachkina-Glushkovskaya[2], S.B. Venig[1]; [1]Institute of Physics, Saratov State University, Saratov, Russia; [2]Department of Biology, Saratov State University, Saratov, Russia

12B. In vivo study of statistics of polarization laser speckle fields from human skin during immersion optical clearing with glucose solutions Anton A. Kharchenko[1], Polina A. Timoshina[1,2], Valery V. Tuchin[1,2,3]; [1]Saratov State University, Saratov, Russia; [2]Tomsk State University, Tomsk, Russia; [3]Institute of Precision Mechanics and Control, FRC "Saratov Scientific Center of the Russian Academy of Sciences", Saratov, Russia

13B. RGB analysis in optical clearing of muscle tissue Yakov Razumov[1], Anton A. Kharchenko[1], Valery V. Tuchin[1,2.3]; [1]Saratov State University, Saratov, Russia; [2]Tomsk State University, Tomsk, Russia; [3]Institute of Precision Mechanics and Control RAS, Saratov, Russia

14B. Analysis of the effectiveness of magnetic resonance and X-ray contrast agents in reducing skin scattering under pathological development Alexander D. Kovalev[1], Yuri I. Surkov[1], Mikhail V. Syrov[1], Polina A. Timoshina[1], Valery V. Tuchin[1,2,3]; [1]Saratov State University, Saratov, Russia; [2]Tomsk State University, Tomsk, Russia; [3]Institute of Precision Mechanics and Control RAS, Saratov, Russia

15B. Speckle contrast imaging of the vascular system in the context of the development of an experimental model of type 1 diabetes Mikhail V. Syrov[1], Alexander D. Kovalev[1], Polina A. Timoshina[1,2], Valery V. Tuchin[1,2,3]; [1]Saratov State University, Saratov, Russia; [2]Tomsk State University, Tomsk, Russia; [3]Institute of Precision Mechanics and Control RAS, Saratov, Russia

16B. A Compact Device for Non-Invasive Sleep Monitoring Aleksandr O. Kashichkin, Ivan V. Fedosov; Saratov State University, Saratov, Russia

17B. Antioxidant defence system dynamics in human fibroblast spheroids after continuous wave 1265 nm lase Anna Khokhlova[1], Irina Kolodii[1], Valeria Ribenek[1], Yury Saenko[1], Elena Yurova[1], Aigul Gilmutdinova[1], Sergei Sokolovski[2], Edik Rafailov[2], Dmitrii Stoliarov[2], Dmitriy Korobko[1], Andrei Fotiadi[1,3]; [1]S.P. Kapitsa Scientific Technological Research Institute, Ulyanovsk State University, Ulyanovsk, Russia; [2]Optoelectronics and Biomedical Photonics Group, School of Engineering and Applied Science, Aston University, Birmingham, UK; [3]Electromagnetism and Telecommunication Department, University of Mons, Mons, Belgium

18B. Determination of arterial vascular resistance by the slope angle of photoplethysmograms D.G. Verkhov, S.Yu. Dobdin, A.V. Antonov, A.A. Sagaidachny, A.V. Skripal; Saratov State University, Saratov, Russia

19B. Analysis of optical properties of the skin in the context of the development of an experimental model of melanoma Maksim A. Stepanov[1], Maksim A. Volkov[1], Polina E. Timoshina[1,2], Valery V. Tuchin[1,2,3]; [1]Saratov State University, Saratov, Russia; [2]Tomsk State University, Tomsk, Russia; [3]Institute of Precision Mechanics and Control RAS, Saratov, Russia

20B. Investigation of the effect of upconversion nanoparticles on the optical properties of tumor tissue. Prospects for PDT Victoriia A. Kovalenko[1], Nikita A. Navolokin[2], Artyom M. Mylnikov[2], Irina Yu. Yanina[1]; [1]Saratov State University, Saratov, Russia; [2]Saratov State Medical University named after V.I. Razumovsky, Saratov, Russia

21B. Study of the influence of tumor tissue development on blood flow using Dopplerography and microscopy methods E.N. Lazareva[1], A.P. Fashchevskii[1], A.M. Mylnikov[2], N.A. Navolokin[1,2,3], I.Yu. Yanina[1,4]; [1]Saratov State University, Saratov, Russia; [2]V.I. Razumovsky Saratov State Medical University, Saratov, Russia; [3]Yu.Ya. Gordeev Saratov City Clinical Hospital No. 1, Saratov, Russia; [4]Tomsk State University, Tomsk, Russia

22B. Experimental validation of innovative optical clearing agents for in vivo optical coherence tomography Pavel A. Moldon[1], Danila A. Umerenkov[1], Polina A. Timoshina[2], Yuri I. Surkov[2], Andrei E. Lugovtsov[1], Aleksandr V. Priezzhev[1]; [1]Lomonosov Moscow State University, Moscow, Russia; [2]Saratov State University, Saratov, Russia

23B. Machine learning implementation for identifying microhemorheological biomarkers in cardiovascular pathology Danila A. Umerenkov[1], Matvei K. Maksimov[1], Pavel A. Moldon[1], Andrei E. Lugovtsov[1], Aleksandr V. Priezzhev[1]; [1]Lomonosov Moscow State University, Moscow, Russia

24B. Brain photobiomodulation device designed for MRI compatibility Sergey V. Popov[1], Egor V. Ilyukov[1], Ivan V. Fedosov[1], Oksana V. Semyachkina-Glushkovskaya[2]; [1]Institute of Physics, Saratov State University, Saratov, Russia; [2]Department of Biology, Saratov State University, Saratov, Russia

25B. Computer-guided optical clearing for transcranial laser speckle imaging of cortical blood flow through synergistic tartrazine-induced cranial bone transparency I.A. Uvakin[1], Yu.I. Surkov[1], P.A. Timoshina[1], N.V. Shushunova[1], A.V. Konovalov[2,3], I.S. Kozlov[2], G.A. Piavchenko[2], D.E. Telyshev[2,4], I.V. Meglinski[2,5], S.A. Kuznetsov[2], E.A. Genina[1], V.V. Tuchin[1,6]; [1]Saratov State University, Saratov, Russia; [2]I.M. Sechenov First Moscow State Medical University, Moscow, Russia; [3]Burdenko Neurosurgery Institute, Moscow, Russia; [4]National Research University of Electronic Technology, Zelenograd, Moscow, Russia; [5]Aston University, Birmingham, UK; [6]Tomsk State University, Tomsk, Russia

26B. Sleep improves the photo-therapeutic effects on ageing brain V.V. Adushkina[1], D.A. Zlatogorskaya[1], A.S. Evsyukova[1], A.A. Shirokov[2], O.V. Semyachkina-Glushkovskaya[1]; [1]Saratov State University, Saratov, Russia; [2]Institute of Biochemistry and Physiology of Plants and Microorganisms, Saratov, Russia

27B. The effectiveness of photobiomodulation of the brain decreases with age Andrey V. Terskov[1], Alexander A. Shirokov[1,2], Inna A. Blokhina[1], Daria A. Zlatogorskaya[1], Viktoria V. Adushkina[1], Anastasiia I. Semyachkina-Glushkovskaya[1], Ivan V. Fedosov[1], Arina S. Evsyukova[1], Oxana V. Semyachkina-Glushkovskaya[1]; [1]Saratov State University, Saratov, Russia; [2]Institute of Biochemistry and Physiology of Plants and Microorganisms, Russian Academy of Sciences, Saratov, Russia

28B. Novel calibration method for biomedical spectral systems Eugine O. Raskin[1], Alexander V. Ilinskii[1], Nadezhda K. Maltseva[1]; [1]ITMO University, Saint Petersburg, Russia

29B. Optimization of metal-enhanced fluorescence of self-similar colloidal nanoantennas for single molecule detection Sergey V. Zarkov[1,2], Yuri A. Avetisyan[1], Garif G. Akchurin[1,3], Alexander N. Yakunin[1], Valery V. Tuchin[1,3,4]; [1]Institute of Precision Mechanics and Control, Federal Research Centre "Saratov Scientific Centre of the Russian Academy of Sciences", Saratov, Russia; [2]Institute of Biochemistry and Physiology of Plants and Microorganisms, Russian Academy of Sciences, Saratov, Russia; [3]Department of Optics and Biophotonics and Science Medical Center, Saratov State University, Saratov, Russia; [4]Laboratory of Laser Molecular Imaging and Machine Learning, Tomsk State University, Tomsk, Russia

30B. Investigation of the possibility of using SERS for therapeutic drug monitoring Elizaveta A. Demishkevich[1], Svetlana A. Stefanova[1], Andrey Y. Zyubin[1], Vladimir V. Rafalskiy[1], Aleksandr S. Zozulya[1], Denis O. Evtifeev[1], Ilia G. Samusev[1]; [1]Immanuel Kant Baltic Federal University, Kaliningrad, Russia

31B. Development of a protocol for simultaneous study of tumor metabolism and oxygenation in vivo using FLIM and PLIM microscopy, Anastasia D. Komarova[1,2], Leonid N. Bochkarev[3],Vladislav I. Shcheslavskiy[1,4], Marina V. Shirmanova[1]; [1]Privolzhskiy Research Medical University, Nizhny Novgorod, Russia, [2]Lobachevsky State University of Nizhny Novgorod, Nizhny Novgorod, Russia [3]G.A. Razuvaev Institute of Organometallic Chemistry of the Russian Academy of Sciences, Nizhny Novgorod, Russia [4] Becker & Hickl GmbH, Berlin, Germany

October 3, Friday

INVITED LECTURE/ ORAL REPORT SESSIONS BIOPHYSICS V/ BRICS IV

(Building 3, Big Physical Hall)
Link to connect in Kontur Talk:
https://onlinessu.ktalk.ru/v4p1rves4d6o

Chairs**: Ekaterina Lazareva, Elina Genina,** Saratov State Univ., Russia
Moderator: **Isabella Serebryakova,** Saratov State University, Russia

09:45-10:00/8:45-09:00
Oral Report
Creation of a differential diagnosis system in the class of non-Hodgkin's lymphomas through the construction and implementation of pattern recognition algorithms
Matvey V. Sedykh, Julia A. Brodskaya; Gagarin's State Technical University of Saratov, Saratov; Russia

10.00-10.15/09:00-09:15
Oral Report
Tissue differentiation based on analysis of changes in attenuation coefficient under mechanical stress estimated with optical coherence tomography
Evgeny P. Sherstnev, Alexander A. Moiseev, Grigory V. Gelikonov; Institute of Applied Physics of the Russian Academy of Sciences, Nizhny Novgorod, Russia

10.15-10.30/09:15-09:30
Oral Report
Application of neural network methods for blood smear analysis
Nikita V. Nakleskin[1], Evgeniy G. Tsybrov[1], Sergey Yu. Nikitin[2]; [1]Lomonosov Moscow State University Faculty of Computational Mathematics and Cybernetics, Moscow, Russia; [2]Lomonosov Moscow State University, Faculty of Physics

10:30-10:45/09:30-09:46
Oral Report
Optical parameters of blood flow measured by optical coherence tomography to assess the microcirculatory changes in urethral tissues
Elena B. Kiseleva[1], Olga S.Streltsova[1,2], Alexander A. Sovetsky[3], Anton S. Kuyarov[1,2], Svetlana Yu. Zubova[2], Vladimir Y. Zaitsev[3], Peter A. Chizhov[3], Grigory V. Gelikonov[3], Natalia A. Konova[1,4], Natalia D. Gladkova[1]; [1]Privolzhsky Research Medical University, Nizhny Novgorod, Russia; [2]Nizhny Novgorod Regional Clinical Hospital named after N.A. Semashko, Nizhny Novgorod, Russia; [3]Institute of Applied Physics of the RAS, Nizhny Novgorod, Russia; [4]Lobachevsky State University of Nizhny Novgorod, Nizhny Novgorod, Russia

10:45-11:00/09:45-10:00
Oral Report
Shear wave optical coherence elastography with modulation-division multiplexing of sensing probes
Zoya A. Erovenko, Aleksandr A. Markvart, Ulyana A. Makarenko, Maksim S. Makarenko, Leonid B. Liokumovich, **Nikolai A. Ushakov**; Peter the Great St.Petersburg Polytechnic University, Saint-Petersburg, Russia

11:00-11:15/10:00-10:15
Oral Report
Characterization of Tumor Progression and Vascular Remodeling in an Orthotopic Model of Renal Cell Carcinoma
Elizaveta Petrova[1], Alexandra Y. Sain[1], Oleg A. Kulikov[2], Gleb B. Sukhorukov[1,3], Olga A. Sindeeva[1]; [1]Skolkovo Institute of Science and Technology, Moscow, Russia; [2]N.P. Ogarev National Research Mordovia State University, Saransk, Russia; [3]LIFT Center LLC, Moscow, Russia

11:15-11:30/10:15-10:30
Oral Report
Imaging Photoplethysmography in Real-time: Development of a Hardware-Software Complex for Vital Signs Monitoring
Valeriy V. Zaytsev [1,] Serguei V. Miridonov [2], Victor A. Kashchenko [3,4,5], Alexei A. Kamshilin[1]; [1] Institute of Automation and Control Processes Russian Federation; [2]Optics Department, Centro de Investigación Cientfica y de Educación Superior de Ensenada, Baja California, Mexico; [3] North-Western District Scientific and Clinical CenterNamed After L.G. Sokolov, FMBA, Saint Petersburg,Russia; [4]Saint Petersburg State University, Saint Petersburg,Russian Federation; [5] Beloostrov Clinic, Vsevolozhsk District, Leningrad Region,Russian Federation;

11:30-11:45/10:30-10:45
Oral Report
Model and method for optimizing metal-enhanced fluorescence of TagRFP fluorophore molecules taking into account their spectral properties
Sergey V. Zarkov[1], Yuri A. Avetisyan[1], Garif G. Akchurin[1,2], Alexander N. Yakunin[1], Valery V. Tuchin[1,2,3]; [1]Institute of Precision Mechanics and Control, Federal Research Centre "Saratov Scientific Centre of the Russian Academy of Sciences", Saratov, Russia; [2]Department of Optics and Biophotonics and Science Medical Center, Saratov State University, Saratov, Russia; [3]Laboratory of Laser Molecular Imaging and Machine Learning, Tomsk State University, Tomsk, Russia

11:45-12:00/10:45-11:00
Oral Report
Effect of riboflavin and blue laser radiation on cell death of melanoma cells B16F10
Aigul Gilmutdinova, Elena Yurova, Anna Khokhlova, Dmitriy Sugak, Yury Saenko; S.P. Ulyanovsk State University, Ulyanovsk, Russia

12:00-12:15/11:00-11:15
Oral Report
Comparative photobiological effects of laser radiation in 2D and 3D cell cultures
Anna Khokhlova[1], Irina Kolodii[1], Valeria Ribenek[1], Yury Saenko[1], Aigul Gilmutdinova[1], Sergei Sokolovski[2], Edik Rafailov[2], Dmitrii Stoliarov[2], Dmitriy Korobko[1], and Andrei Fotiadi[1,3]; [1]S.P. Kapitsa Scientific Technological Research Institute, Ulyanovsk State University, Ulyanovsk, Russia; [2]Optoelectronics and Biomedical Photonics Group, School of Engineering and Applied Science, Aston University, UK; [3]Electromagnetism and Telecommunication Department, University of Mons, B-7000 Mons, Belgium

12:15-12:30/11:15-11:30
Oral Report
The development of an advanced hydroxyapatite biomaterial with antibacterial properties for regenerative medicine application
Anastasia A. Kabanova[1,2], Anastasia E. Rezvanova[3], Boris S. Kudryashov[3], Ekaterina A. Nosova[4], Olga Y. Kochetkova[5]; [1]Samara State Medical University, Samara, Russia, [2]Samara State Technical University, Samara, Russia, [3]Institute of Strength Physics and Materials Science of the Siberian Branch of the Russian Academy of Sciences, Tomsk, Russia, [4]Samara University, Samara, Russia, [5]Institute of Theoretical and Experimental Biophysics, Russian Academy of Sciences, Pushchino, Russia.

INTERNET POSTERS

1. **Raman spectroscopy for the diagnosis of the state of the compact substance of the femoral bone in phlegmon** E.S. Semibratova[1], E.V. Timchenko[1,2], P.E. Timchenko[1], D.G. Glubokov[2], I.V. Bazhutova[2]; [1]Samara National Research University, Samara, Russia; [2]Samara State Medical University, Samara, Russia
2. **Application of optical methods for studying the composition of fruit puree mixtures for baby food** P.I. Pyataeva[1], E.V. Timchenko[1]; [1]Samara National Research University, Samara, Russia
3. **Raman spectroscopy for assessing the composition of water used in biotechnical laboratories** P.E. Timchenko[1], A.D. Volov[2], E.V. Timchenko[1,3], L.T. Volova[3], A.A. Chernukhin[1]; [1]Samara State Aerospace University, Samara, Russia; [2]Samara State Technical University, Samara, Russia; [3]Samara State Medical University, Samara, Russia
4. **Raman spectroscopy for evaluation of decellularized grafts in burn injury treatment** Yu.D. Ityaksov[1], E.V. Timchenko[1], P.E. Timchenko[1], O.O. Frolov[1], I.V. Novikov[2], E.S. Milyudin[2], L.T. Volova[2]; [1]Samara National Research University named after Academician S.P. Korolev, Samara, Russia; [2]Samara State Medical University, Russia
5. **Selection of the optimal dataset to improve the efficiency of skin Raman spectra identification** K.E. Tomnikova, I.A. Matveeva; Samara University, Samara, Russia
6. **Comparison of Inceptionv3, DenseNet201 and ResNet50 convolutional neural networks for skin lesion classification** N.K. Zakharov, I.A. Matveeva; Samara University, Samara, Russia

7. **Integration of Raman scattering and machine learning methods for improving the sensitivity of chronic heart failure stage diagnosis** Mikhail Dolzhenko[1], Yulia Khristoforova[1], Maria Skuratova[2], Petr Lebedev[3], Ivan Bratchenko[1]; [1]Samara National Research University, Samara, Russia; [2]Samara City Clinical Hospital No. 1 named after N.I. Pirogov, Samara, Russia; [3]Samara State Medical University, Samara, Russia
8. **Automation of chronic heart failure diagnosis using Raman spectroscopy and machine learning methods** Irina A. Pimenova, Irina A. Matveeva; Samara University, Samara, Russia
9. **Application of infrared spectroscopy to the study of biopsies of patients with glial brain tumors** Vera E. Sitnikova[1], Shokhzoda A. Tukhtaeva[2], Sergey V. Voloshin[3],[4], Dmitry A. Petrenko[5], Liudmila V. Plotnikova[6]; [1]ITMO University, Saint Petersburg, Russia; [2]Tashkent Medical Academy, Tashkent, Uzbekistan; [3]Kirov Military Medical Academy, Saint Petersburg, Russia; [4]Leningrad Regional Clinical Hospital, Saint Petersburg, Russia; [5]Saint Petersburg Mining University, Saint Petersburg, Russia; [6]St. Petersburg State University, St. Petersburg, Russia
10. **LED-based compact illuminator design for effective photodynamic therapy**
    Alexandra Yu. Sain[1], Arkady S. Abdurashitov[1,2], Pavel I. Proshin[1,2], Daria A. Terentyeva[1,3], Gleb B. Sukhorukov[1,2], and Olga A. Sindeeva[1]; [1] Vladimir Zelman Center for Neurobiology for Brain Rehabilitation, Skolkovo Institute of Science and Technology, Moscow Russia; [2] Life Improvement by Future Technologies (LIFT) Center, Moscow, Russia; [3] Center for Photonic Science and Engineering, Skolkovo Institute of Science and Technology, Moscow, Russia

Conference on Internet Biophotonics XVIII

Chairs: **Daria K. Tuchina, Ivan V. Fedosov**, Saratov State University, Saratov, Russia.

Secretary: **Ksenia O. Merkulova,** Saratov State University, Saratov, Russia.

International Program Committee: **Heidi Abrahamse,** University of Johannesburg (RSA), **Vanderlei Salvador Bagnato,** University of São Paulo (Brazil)**, Walter Blondel,** University of Lorraine (France)**, Wei Chen,** University of Central Oklahoma (USA), **Santhosh Chidangil,** Manipal Academy of Higher Education (India), **Cornelia Denz**, Physikalisch-Technische Bundesanstalt (PTB) (Germany), **Kishan Dholakia,** University of St. Andrews (UK), **Maria Farsari,** FORTH-IESL (Greece), **Paul M.W. French,** Imperial College of Science, Technology and Medicine (UK), **Elina A. Genina**, Saratov State University (Russia), **Mikhail Yu. Kirillin,** Institute of Applied Physics RAS, Nizhny Novgorod (Russia), **Yury V. Kistenev,** Tomsk State University (Russia), **Kirill V. Larin,** University of Houston (USA), **Andrew L. Lopez, III**, University of Houston (USA), **Qingyu Lin,** Sichuan University (China); **Qingming Luo,** Hainan University (China), **Luís M. Oliveira,** Polytechnic of Porto – School of Engineering (Porto, Portugal), **Roberto Pini,** National Research Council of Italy (CNR) (Italy), **Juergen Popp,** Inst. of Photonic Technology, Jena (Germany), **Alexander V. Priezzhev,** Moscow State Univ. (Russia)**, Edik Rafailov,** Aston University (UK), **Valery V. Tuchin,** Saratov State University; Institute of Precision Mechanics and Control, FRC SSC RAS; Tomsk State University (Russia), **Lihong Wang,** Caltech (USA), **Ruikang K. Wang,** University of Washington (USA), **Valery P. Zakharov,** Samara State University (Russia), **Zeev Zalevsky,** Bar Ilan University, Tel Aviv (Israel).

INTERNET INVITED LECTURES

Ultraviolet transparency window created by bonding tartrazine molecules to tissue proteins
Ana R. Guerra[1,2], Luís R. Oliveira[1,2], Gonçalo O. Rodrigues[2,3], Maria R. Pinheiro[2,4], Maria I. Carvalho[2,4], Valery V. Tuchin[5,6,7], Luís M. Oliveira[2,3]; [1]Polytechnic Institute of Porto – School of Health, Porto, Portugal, [2]Institute for Systems and Computer Engineering, Technology and Science (INESC TEC), Porto, Portugal, [3]Polytechnic Institute of Porto – School of Engineering, Porto, Portugal, [4]Faculty of Engineering – Porto University, Porto, Portugal [5]Institute of Physics and Science Medical Center, Saratov State University, Saratov, Russia, [6] Tomsk State University, Tomsk, Russia, [7]Institute of Precision Mechanics and Control, FRS "Saratov Scientific Centre of the RAS", Saratov, Russia.
https://sfmconference.org/sfm25/conferences_workshops/internet-biophotonics-xviii/preliminary/3242

Detection of human clear cell renal cell carcinoma through spectral optical properties
Maria R. Pinheiro[1,2], Maria I. Carvalho[1,2], Valery V. Tuchin[3,4,5], Luís M. Oliveira[1,6]; [1] Institute for Systems and Computer Engineering, Technology and Science (INESC TEC), Porto, Portugal, [2] Faculty of Engineering – Porto University, Porto, Portugal, [3] Institute of Physics and Science Medical Center, Saratov State University, Saratov, Russia, [4]Tomsk State University, Tomsk, Russia, [5]Institute of Precision Mechanics and Control, FRS "Saratov Scientific Centre of the RAS", Saratov, Russia, [6] Polytechnic Institute of Porto – School of Engineering, Porto, Portugal.
https://sfmconference.org/sfm25/conferences_workshops/internet-biophotonics-xviii/preliminary/3243

INTERNET REPORT

Electrically conductive hybrid carbon nanomaterials for biointerfaces
Uliana E. Kurilova[1,2], Denis T. Murashko[2], Victoria V. Suchkova[1,2], Irina A. Suetina[3], Marina V. Mezentseva[3], Leonid I. Russu[3], Alexander Yu. Gerasimenko[1,2]; [1]Sechenov First Moscow State Medical University, Moscow, Russia; [2]National Research University of Electronic Technology MIET, Zelenograd, Moscow, Russia; [3]National Research Center for Epidemiology and Microbiology Named after the Honorary Academician N.F. Gamaleya, Moscow, Russia.
https://sfmconference.org/sfm25/conferences_workshops/internet-biophotonics-xviii/preliminary/3376/

Fluorescence imaging method for diagnosis of oral mucosa pathologies
Ekaterina O. Bryanskaya, Vitalina D. Zakrzhevskaya, Andrey Y. Vinokurov, Andrey V. Dunaev; Research and Development Center of Biomedical Photonics, Orel State University, Orel, Russia.
https://sfmconference.org/sfm25/conferences_workshops/internet-biophotonics-xviii/preliminary/3452/

INTERNET POSTERS

(Available during the conference via your own laptop, smartphone or computer)
Link:
https://sfmconference.org/sfm25/conferences_workshops/internet-biophotonics-xviii/preliminary

1. The photodynamic therapy of transplanted colorectal carcinoma in normal and immunodeficient mice

Alla B. Bucharskaya[1,2], Nikita N. Navolokin[1,2], Vadim D. Genin[2], Galina N. Maslyakova[1], Natalya A. Shushunova[1,2], Olga I. Guslyakova[2], Olga A. Inozemtseva[2], Elina A. Genina[2], Valey V. Tuchin[2,3,4]; [1]Saratov State Medical University, Saratov, Russia, [2]Saratov State University, Saratov, Russia, [3]Institute of Precision Mechanics and Control RAS, Saratov, Russia, [4]Tomsk State University, Tomsk, Russia.

2. Detection of veterinary antibiotics in water and soil using spectral approaches

Anastasia P. Kiryushina[1], Konstantin P. Serikov[1,2], Yulia G. Sokolovskaya[2], Vera A. Terekhova[2], Svetlana V. Patsaeva[2]; [1]Institute of Ecology and Evolution Problems, Russian Academy of Sciences, Moscow, Russia; [2]Lomonosov Moscow State University, Moscow, Russia.

3. Spectral properties of CDOM in a stratified reservoir with redox potential varying with depth

Yulia G. Sokolovskaya[1], Elena D. Krasnova[1], Dmitry A. Voronov[2], Sergey A. Burikov[1], Tatiana A. Dolenko[1], Svetlana V. Patsaeva[1]; [1]Lomonosov Moscow State University, Moscow, Russia; [2]Kharkevich Institute for Information Transmission Problems, Russian Academy of Sciences, Moscow, Russia.

4. On the influence of size factors and spectral properties of plasmonic nanorods for hot electron generation in optically modulated current sources

Alexander N. Yakunin[1], Sergey V. Zarkov[1], Yuri A. Avetisyan[1], Garif G. Akchurin[1,2], Valery V. Tuchin[1,2,3]; [1]Institute of Precision Mechanics and Control, FRS "Saratov Scientific Centre of the RAS", Saratov, Russia, [2]Institute of Physics and Science Medical Center, Saratov State University, Saratov, Russia; [3]Tomsk State University, Tomsk, Russia

5. Optical clearing of skin using enhancers of tissue permeability in a wide spectral range

Daria K. Tuchina[1], Valery V. Tuchin[1,2,3]; [1]Institute of Physics and Science Medical Center, Saratov State University, Saratov, Russia, [2]Tomsk State University, Tomsk, Russia, [3]Institute of Precision Mechanics and Control, FRS "Saratov Scientific Centre of the RAS", Saratov, Russia.

6. The effect of the dose of nanocomplexes administered on morphological changes in the internal organs of white laboratory mice

Artyom M. Mylnikov[1], Nikita A. Navolokin[1], Irina Yu. Yanina[2]; [1]Saratov State Medical University, Saratov, Russia; [2]Saratov State University, Saratov, Russia.

7. Photosensitizer-functionalized silver nanoparticles as potential agents for antibacterial photodynamic therapy

Anastasiya O. Dushina[1,2,3], Anna M. Kolchenko[3], Polina A. Demina[2,3,4], Maxim E. Stepanov[3], Tatiana V. Egorova[3], Evgeniy V. Khaydukov[3,4], Alla N. Generalova[1,2]; [1]National Research Nuclear University MEPhI, Moscow, Russia; [2]Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry RAS, Moscow, Russia; [3]Moscow State Pedagogical University, Moscow, Russia; [4]National Research Center "Kurchatov Institute", Moscow, Russia

8. Spectrophotometric determination of the distribution of phototrophic microorganisms in meromictic reservoirs of the White Sea in 2025

Yulia G. Sokolovskaya[1], Daria A. Ivanova[1], Elena A. Labunskaya[1], Elena D. Krasnova[1], Dmitry A. Voronov[2], Svetlana V. Patsaeva[1]; [1]Lomonosov Moscow State University, Leninskie Gory, Moscow, Russia; [2]Kharkevich Institute for Information Transmission Problems, Russian Academy of Sciences, Moscow, Russia

9. Spectral analysis of the limitation of different taxonomic groups of phototrophic organisms in the semi-isolated lake Skurcha on the Black Sea Coast

Anastasiia S. Nagaeva[1], Elena A. Labunskaya[1], Irina G. Radchenko[1], Elena D. Krasnova[1], Dmitry A. Voronov[2], Valentin I. Lobyshev[1], Sevastiana S. Soloveva[1], Aleksandr N. Vasilenko[1]; [1]Lomonosov Moscow State University, Leninskie Gory, Moscow, Russia; [2]Kharkevich Institute for Information Transmission Problems, Russian Academy of Sciences, Moscow, Russia

Workshop on
Laser Physics and Photonics XXVII

Workshop Chair: **Vladimir L. Derbov,** Saratov State University (Russia)

*Secretary:***Svetlana V. Churochkina,** Saratov State University (Russia)

International Program Committee **Vladimir L. Derbov** (Chair), Saratov State University (Russia), **Alexander V. Gorokhov**, Samara University (Russia), **Bogos B. Joulakian**, University of Metz (France), **Alexander P. Kuznetsov**, Institute of Radio-Engineering of RAS (Russia), **Marian Marciniak**, National Institute of Telecommunications (Poland), **Leonid A. Melnikov**, Yuri Gagarin State Technical University of Saratov (Russia), **Yuri V. Popov**, Lomonosov Moscow State University (Russia), **Vladimir P. Ryabukho**, Saratov State University, IPM&C RAS (Russia), **Alexander P. Nizovtsev**, Institute of Physics of NASB (Belarus), **Sergue I. Vinitsky**, Joint Institute for Nuclear Research (Russia), **Aleksey M. Zheltikov**, Lomonosov Moscow State University (Russia), **Ivan A. Shcherbakov**, Prokhorov General Physics Institute of RAS (Russia), **Dmitry V. Churochkin**, Saratov State University (Russia)

October 1, Wednesday

INVITED LECTURE / ORAL SESSION
PHOTONICS / ONLINE ORAL REPORT

Link to connect in Kontur Talk:
https://sgulive.ktalk.ru/mtxm3qiuw1fx?pinCode=8157
Pin code: 8157
(Building 10, Hall 503)

Chair: **Vladimir L. Derbov**, Saratov State University, Russia

14.00-14.20 / 13.00-13.20
Electromagnetically induced transparency of picosecond probe laser pulses
Oleg M. Parshkov; Yuri Gagarin State Technical University of Saratov, Saratov, Russia

14.20-14.40 / 13.20-13.40
Effect of band gap on high-frequency harmonic generation during interaction of laser pulses with structural analogs of graphene
Anatolii D. Panferov; Saratov State University, Saratov, Russia

14.40-15.00 / 13.40-14.00
Femtosecond laser synthesis of composite magnetic nanoparticles based on iron in liquid
Anton S. Chernikov, Dmitriy A. Kochuev, Maria A. Dzus, Ruslan V. Chkalov, Elena I. Shingareva, Kirill S. Khorkov; Vladimir State University named after Alexander and Nicolay Stoletovs, Vladimir, Russia

15.00-15.20 / 14.00-14.20
Method of calculation of the wave propagation characteristics in the anisotropic two-components slab with hyperbolic type of dispersion
Olga N. Kozina[1], Leonid A. Melnikov[2]; [1]Kotel'nikov Institute of Radio-Engineering and Electronics of Russian Academy of Science, Saratov Branch, Saratov, Russia; [2]Yuri Gagarin State Technical University of Saratov, Saratov, Russia

15.20-15.40 / 14.20-14.40
Controll of secondary instabilities in broad-area lasers by external influence
Anton A. Krents[1,2], Nonna E. Molevich[1,2], Elizaveta A. Yarunova[1,2]; [1]Samara University, Samara, Russia; [2]Levedev Physical Institute, Samara, Russia

15.40-16.00 / 14.40-15.00
Control of photon-number correlations in squeezed vector optical solitons
Andrey I. Konyukhov; Saratov State University, Saratov, Russia

16.00-16.30 / 15.00-15.30
Coffee Break

ONLINE ORAL REPORT
Link to connect in Kontur Talk:
https://sgulive.ktalk.ru/mtxm3qiuw1fx?pinCode=8157
Pin code: 8157
(Building 10, Hall 503)

Chair: **Vladimir L. Derbov**, Saratov State University, Russia

16.30-16.50 / 15.30-15.50
Online Oral Report
Laser therapy for cognitive diseases: Prospects for optical clearing technology of head tissue (review)
Alaa Sabeeh Shanshool[1,2], Asmaa Hadi Mohammed[1], Ekaterina N. Lazareva[2,3], Polina A. Timoshina[2,3], Valery V. Tuchin[2,3,4]; [1]College of Science, Al-Nahrain University, Baghdad, Iraq; [2]Saratov State University, Saratov, Russia; [3]Tomsk State University, Tomsk, Russia; [4]Institute of Precision Mechanics and Control, FRC "Saratov Scientific Center of the Russian Academy of Sciences", Saratov, Russia

16.50-17.10 / 15.50-16.10
Online Oral Report
Electric field control of ultrashort pulse dynamics in polymer-carbon nanotube composites
Natalia N. Konobeeva; Volgograd State University, Volgograd, Russia

17.10-17.30 / 16.10-16.30
Online Oral Report
Stationary pulse generation due to self-gain modulation in rare-earth-doped fiber lasers
Boris N. Nyushkov[1], Maksim D. Radchenko[1,2], Igor I. Korel[1,2]; [1]Novosibirsk State Technical University, Novosibirsk, Russia; [2]Institute of Laser Physics, Siberian Branch of Russian Academy of Sciences, Novosibirsk, Russia

October 2, Thursday

JOINT POSTER/INTERNET SESSION

Chair (P): **Elina D. Nikolaeva,** Saratov State University, Russia
18.15-20.30 / 17.15-19.30
INTERNET POSTERS

1P. **Optical frequency doubling in bulk glass patterns** Liubov I. Vostrikova[1,2]; [1]Rzhanov Institute of Semiconductor Physics SB RAS, Novosibirsk, Russia; [2]Novosibirsk State University of Economics and Management, Novosibirsk, Russia

2P. **Thermal entanglement in three-qubit Tavis-Cummings model with manyphoton transitions** Alexander R.Bagrov, Eugene K. Bashkirov; Samara University, Samara, Russia

3P. **Entanglement between two multiphoton Tavis-Cummings qubits and isolated qubit** Eugene K. Bashkirov, Alexander R. Bagrov; Samara University, Samara, Russia

4P. **Longitudinal spatial and spatiotemporal coherence of a light wave field with wide angular and frequency spectra: mathematical simulation** Lyudmila A. Maksimova, Natalya Yu. Mysina, Vladimir P. Ryabukho; IPTMU RAS - Separate structural subdivision of FRC "Saratov Scientific Center of the Russian Academy of Sciences", Saratov, Russia

5P. **Distribution in channels for frequency doubling of laser radiation upon volumetric optical poling** Igor A. Kartashev[1], Liubov I. Vostrikova[1,2]; [1]Rzhanov Institute of Semiconductor Physics SB RAS, Novosibirsk, Russia; [2]Novosibirsk State University of Economics and Management, Novosibirsk, Russia

6P. **Dynamics of manylevel atoms in nonideal cavities** Alexander V. Gorokhov, Samara University, Samara, Russia

7P. **Influence of initial qubits coherence and Izing coupling on the dynamics of Tavis-Cummings model** Ali Othman; Samara University, Samara, Russia

8P. **Formation of miniature converters on all-optically inserted nonlinear modification** Liubov I. Vostrikova[1,2]; [1]Rzhanov Institute of Semiconductor Physics SB RAS, Novosibirsk, Russia; [2]Novosibirsk State University of Economics and Management, Novosibirsk, Russia

POSTER SESSION
(Building 3, 3rd floor Hall)

1P. **Quasiclassical and quantum radiation from the graphene** Vladislav A. Tseryupa, Stanislav A. Smolyansky, Vadim V. Dmitriev, Dmitriy V. Churochkin; Saratov State University, Saratov, Russia

2P. **Non-destructive testing of tableted medicinal products using digital colorimetry and near IR spectroscopy** Oleg E. Emelianov, Vasiliy G. Amelin; Vladimir State University named after Alexander and Nicolay Stoletovs, Vladimir, Russia

3P. **Femtosecond laser synthesis of nonstoichiometric molybdenum oxide nanoparticles** Anton S. Chernikov, Dmitriy A. Kochuev, Maria A. Dzus, Ruslan V. Chkalov, Elena I. Shingareva, Kirill S. Khorkov; Vladimir State University named after Alexander and Nicolay Stoletovs, Vladimir, Russia

4P. **Nonreciprocal propagation of spin waves in a bilayer ferrite-garnet structure** Andrey S. Ptashenko, Alexander V. Sadovnikov; Saratov State University, Saratov, Russia

5P. **Modeling the shape of a laser autodyne signal in pressure pulse wave measurements of resistive vessels** Maksim G. Inkin, Sergey Yu. Dobdin, Anatoly V. Skripal; Saratov State University, Saratov, Russia

6P. **Determination of geometrical thickness or refractive index of microobjects using a laser interferometer with sharply focused beams** Artem A. Gres[1], Dmitry V. Lyakin[2], Vladimir V. Derbov[1]; [1]Saratov State University, Saratov, Russia; [2]Institute of Precision Mechanics and Control, Saratov Federal Scientific Centre of the RAS, Saratov, Russia

7P. **Development of the scanning laser Doppler microscope with structured illumination** Victoria P. Fomicheva, Ivan V. Fedosov; Saratov State University, Saratov, Russia

8P. **Visualization model of spatial distributions waves in a dispersive system based on the Monte Carlo method and Jones formalism** Anna A. Isaeva[1], Elena A. Isaeva[1], Dmitry A. Zimnyakov[1,2]; [1]Yuri Gagarin State Technical University of Saratov, Saratov, Russia; [2]Institute of Precise Mechanics and Control RAS, Saratov, Russia

9P. **Speckle correlometry and acoustic approach for the diagnostic of non-stationary foam-like structure** Elena A. Isaeva[1], Anna A. Isaeva[1], Dmitry A. Zimnyakov[1,2]; [1]Yuri Gagarin State Technical University of Saratov, Saratov, Russia; [2]Institute of Precise Mechanics and Control RAS, Saratov, Russia

10P. **Observation of radiation-controlled linewidth narrowing in disordered TiO_2: Dye media** Leonid A. Kochkurov[1], Dmitry A. Zimnyakov[1,2]; [1]Yury Gagarin State Technical University of Saratov, Saratov, Russia; [2]Precision Mechanics and Control Institute of Russian Academy of Sciences, Saratov, Russia

11P. **Intrinsic limitations of fluorescence emission in laser-pumped random media** Irina A. Plekhanova[1], Dmitry A. Zimnyakov[1,2,3]; [1]Yury Gagarin State Technical University of Saratov, Saratov, Russia; [2]Precision Mechanics and Control Institute of Russian Academy of Sciences, Saratov, Russia; [3]Saratov State University, Saratov, Russia

12P. **Synthesis and optical properties of highly reflective coatings based on hydroxyapatite composites** Dmitry A. Vereshagin[1], Alexander V. Pivovarov[2], Sergey Ya. Pichkhidze[2], Dmitry A. Zimnyakov[1,2,3]; [1]Saratov State University, Saratov, Russia; [2]Yury Gagarin State Technical University of Saratov, Saratov, Russia; [3]Precision Mechanics and Control Institute of Russian Academy of Sciences, Saratov, Russia

Conference on Low-Dimensional Structures XIV

Workshop Chair: **Olga E. Glukhova**, Saratov State University (Russia)

Secretaries: **Pavel V. Barkov,** Saratov State University (Russia), **Dmitry A. Kolosov,** Saratov State University (Russia)

International Program Committee: **Ming-Fa Lin**, National Cheng Kung University, Tainan, Taiwan,**Albert G. Nasibulin**, Skolkovo Institute of Science and Technology, Russia, **Zhang Gang**, Institute of High Performance Computing, Agency for Science, Technology and Research, Singapore, **Tatiana R. Prytkova**, Cloud Pharmaceuticals, USA, **Irina V. Zaporotskova**, Volgograd State University, Volgograd, Russia, **Galina N. Maslyakova**, Saratov State Medical University named after V.I. Razumovsky, Saratov, Russia, **Igor S. Nefedov**, Aalto University, Espoo, Finland

October 1, Wednesday

ORAL SESSION/INTERNET REPORTS

(Building 8, Room 318)

Chair: **Olga E. Glukhova**,
Saratov State University
Russia

Link to connect in Kontur Talk:
https://dpf8bfnc.ktalk.ru/f4oy5v41g5om

10.00-10.15
Electrophysical properties of all-carbon films
Mikhail M. Slepchenkov[1], Olga E. Glukhova[1,2]; [1]Saratov State University, Saratov, Russia; [2]I.M. Sechenov First Moscow State Medical University, Russia

10.15-10.30
Fabrication of electrode arrays with nanoscale direct laser writing: first results
Sergey D. Poletayev[1,2]; [1]Image Processing Systems Institute, NRC "Kurchatov Institute" Samara, Russia, [2]Samara National Research University, Samara, Russia

10.30-10.45
Nanocellulose-stabilized Pickering emulsions for microencapsulation of phase-change materials
Nina E. Zaytseva[1], Alexandra S. Vishnevich[1], Egor M. Smirnov[1], Denis V. Voronin[1]: [1]National University of Oil and Gas «Gubkin University», Moscow, Russia

10.45-11.00
Quasiclassical and quantum radiation in the graphene under the action of t-step field
Vladislav A. Tseryupa[1], Vadim V. Dmitriev[1], Dmitry V. Churochkin[1], Stanislav A Smolyansky[1]; [1]Saratov State University, Saratov, Russia

11.00-11.15
Effect of laser power on the time dependence of the sample self-assembly process under the action of radiation
Mikhail S. Savelyev[1,2], Pavel N. Vasilevsky[1], Ekaterina P. Otsupko[1], Alexander Yu. Gerasimenko[1,2]; [1]National Research University of Electronic Technology, MIET, Zelenograd, Moscow, Russia; [2]I.M. Sechenov First Moscow State Medical University, Sechenov University, Moscow, Russia

11.15-11.30
Graphene-Modified $LiCoO_2$ Cathodes: A DFT Study of Carbon Content Effects
Vladislav V. Shunaev[1], Alexandr A. Petrunin[1], Semyon G. Levitsky[1], Olga E. Glukhova[1,2]; [1]Saratov State University, Saratov, Russia; [2]I.M. Sechenov First Moscow State Medical University

11.30-11.45
Room-Temperature Hybrid Gas Sensor Based on InAs Nanowires and SWCNT Film
Dmitry M. Mitin[1], Alexander Pavlov[1], Fedor S. Fedorov[2], Alexander Vorobyev[1], Alexey Mozharov[1], Albert G. Nasibulin[2], Ivan Mukhin[1] [1]Alferov University (St. Petersburg Academic University), St. Petersburg, Russia; [2]Skolkovo Institute of Science and Technology, Moscow, Russia

11.45-12.00
Chiral and non-chiral boron nanotubes: investigation of electronic properties
Dmitry A. Kolosov[1], Olga E. Glukhova[1,2]; [1]Saratov State University, Saratov, Russia; [2]I.M. Sechenov First Moscow State Medical University, Moscow, Russia

12.00-12.15
Development of the Slater-Koster parameterization for Cu-X (X = Cu, O, C, H) within the SCC-DFTB method to improve the accuracy of in-silico investigations of electronic properties
Olga E. Glukhova[1,2], Pavel A. Kolesnichenko[1]; [1]Saratov State University, Saratov, Russia; [2]I.M. Sechenov First Moscow State Medical University, Russia

October 2, Thursday

ORAL SESSION/INTERNET REPORTS

(Building 8, Room 318)
Chair: **Olga E. Glukhova**,
Saratov State University
Russia
Link to connect in Kontur Talk:
https://dpf8bfnc.ktalk.ru/f4oy5v41g5om

11.30-12.00
Laser-induced hybrids of carbon nanomaterials for the formation of wearable and implantable electronic biointerfaces
Alexander Yu. Gerasimenko[1,2]; [1]National Research University of Electronic Technology (MIET), Zelenograd, Moscow, Russia; [2]I.M. Sechenov First Moscow State Medical University, Moscow, Russia

12.00-12.15
Dry electrodes based on hybrid nanostructures of carbon nanotubes and reduced graphene oxide for ECG monitoring
A.V. Kuksin[1], A.S. Morozova[1], A.Yu. Gerasimenko[1,2]; [1]National Research University of Electronic Technology MIET, Shokin Square 1, 124498 Zelenograd, Moscow, Russia; [2]I.M. Sechenov First Moscow State Medical University, Bolshaya Pirogovskaya street 2-4, 119991 Moscow, Russia

12.15-12.30
Formation of multiscale structures based on organic and inorganic nanomaterials for creating passive and active implantable devices stimulating nerve tissues
Denis T. Murashko[1], Evgeny P. Kitsyuk[2], Mikhail A. Saurov[2], Alexander Yu. Gerasimenko[1,3]; [1]National Research University of Electronic Technology MIET, Shokin Square 1, 124498 Zelenograd, Moscow, Russia; [2]Scientific-Manufacturing Complex “Technological Centre”, Shokin Square 1, Zelenograd, 124498 Moscow, Russia; [3]I.M. Sechenov First Moscow State Medical University, Bolshaya Pirogovskaya street 2-4, 119991 Moscow, Russia

12.30-12.45
A theoretical investigation of the decoration of the fullerene C60 with iron oxides
Anton R. El Zanin[1], Sergey V. Boroznin[1]; [1]Volgograd State University, Volgograd, Russia

12.45-13.00
Investigation of the sorption of gases onto a carbon nanotube with substituted nitrogen atoms-title
Aleksander D. Grigoriev[1], Irina V. Zaporotskova[1], Sergei V. Boroznin[1]; [1]Volgograd State University, Volgograd, Russia

13.00-13.15
Thin films formation of electrically conductive carbon nanostructures with laser modification for hypersensitive biocompatible strain sensors to register obstructive sleep apnea syndrome
Anastasia S. Morozova[1], Alexander Yu. Gerasimenko[1,2]; [1]National Research University of Electronic Technology, Moscow, Zelenograd, Russia, [2]I.M. Sechenov First Moscow State Medical University, Moscow, Russia

13.15-13.30
Functionalization of carbon nanotubes by copper and nickel atoms: a theoretical study
Dmitry F. Sergeev[1,2], Natalia P. Boroznina[1], Sergey V. Boroznin[1], Irina V. Zporotskova[1]; [1]Volgograd State University, Volgograd, Russia; [2]Vniktineftekhimoborudovanie JSC, Volgograd, Russia

13.30-13.45
Optimizing Carbon Nanotube Dispersions for High-Performance Neural Interface Electrodes
Kristina D. Popovich[1,2], Evgenia A. Kuznetsova[1], Pavel N. Vasilevsky[1], Alexander Yu. Gerasimenko[1,2]; [1]Institute of Biomedical Systems National Research University of Electronic Technology Zelenograd, Moscow, Russia; [2]Institute for Bionic Technologies and Engineering I.M. Sechenov First Moscow State Medical University, Moscow, Russia

13.45-14.00
Torsional Deformation and COOH Concentration Effects on HIF-1α Release from N-MWCNTs
Nadezda G. Bobenko[1], Vladislav V. Shunaev[2], Tatiana A. Sapezhinskaya[1], Olga E. Glukhova[1,2,3]; [1]Institute of Strength Physics and Materials Science SB RAS, Akademichesky Ave. 2/4, Tomsk, Russia; [2]Saratov State University named after N.G. Chernyshevsky, Astrakhanskaya St. 83, Saratov, Russia; [3]First Moscow State Medical University named after I.M. Sechenov, Trubetskaya St. 8, Bldg. 2, Moscow, Russia

14.00-14.15
Electronic transport properties of low-dimensional carbon materials with structural short-range order
Anna A. Belosludtseva Institute of Strength Physics and Materials Science SB RAS, Tomsk, Russia

JOINT POSTER

(Building 3, 3d floor Hall)

Chair (L): **Olga E. Glukhova**, Saratov State University Russia

18.00-20.00

1L. **Study of Morphology and Piezoelectric Properties of Polyvinylidene Fluoride Langmuir-Blodgett Films Using Piezoresponse Force Microscopy**
Gorbachev Ilya A.[1], Kolesov Vladimir V.[1]; [1]IRE Kotelnikova RAS

2L. **Optics and photonics of quasicrystals**
Vitaliy A. Danilin[1], Leonid A. Chernozatonskii[1]; [1]Emanuel Institute of Biochemical Physics of Russian Academy of Sciences

3L. **Spin Wave Propagation in Three-Dimensional Irregular Ferromagnetic Structures**
Aleksandr A. Martyshkin[1], Alexandr A. Sadovnikov[1]; [1]Saratov State University, Saratov, Russia

4L. **Two-dimensional Monolayer from Organic Molecules F4-TCNQ via DFT Calculations**
Anastasia V. Korovina[1], Dmitry G. Kvashnin[1]; [1]IBCP RAS

5L. **In silico analysis of mechanical properties of multi-walled chiral carbon nanotubes with different numbers of walls with chirality indices (m, 2m)**
M.M. Slepchenkov, P.A. Kolesnichenko, O.E. Glukhova, Saratov State University, Saratov, Russia

6L. **First-Principles Investigation of Electronic and Electrical Properties of C=O Groups Decorated Graphene Nanomesh**
Pavel V. Barkov[1], Mikhail M. Slepchenkov[1], Olga E. Glukhova[1,2]; [1]Saratov State University, Saratov, Russia; [2]I.M. Sechenov First Moscow State Medical University, Russia

7L. **Influence of geometric parameters on the electronic and optical properties of perforated graphene**
Pavel V. Barkov[1], Mikhail M. Slepchenkov[1], Olga E. Glukhova[1,2]; [1]Saratov State University, Saratov, Russia; [2]I.M. Sechenov First Moscow State Medical University, Russia

8L. **Electronic properties of composite materials based on borophene and boron nanotubes**
Dmitry A. Kolosov[1], Olga E. Glukhova[1,2]; [1]Saratov State University, Saratov, Russia; [2]I.M. Sechenov First Moscow State Medical University, Moscow, Russia

9L. **Chemoresistive response of SnO2 thin films to dissociative adsorption of alcohols and ketones**
Alexander A. Petrunin[1], Olga E. Glukhova[1,2]; [1]Saratov State University, Saratov, Russia; [2]I.M. Sechenov First Moscow State Medical University, Moscow, Russia

10L. **Electronic and energy characteristics of graphene-nanotube quasi-2D films containing point defects**
E.A. Prudnikova, M.M. Slepchenkov Saratov State University, Saratov, Russia

INTERNET SESSION AND INTERNET DISCUSSION

Chair (L): **Olga E. Glukhova**, Saratov State University Russia

1L. **Composite polymer materials doped with carbon nanotubes for use in regenerative medicine**
Lusine S. Elbakyan[1], Irina V. Zaporotskova[1], Mariia F. Chesheva[1]; [1]Volgograd State University, Volgograd, Russia

2L. **Mechanical properties of graphynes under uniaxial tension**
Angelina Kh. Akhunova, Julia A. Baimova; Institute for Metals Superplasticity Problems of the Russian Academy of Sciences, Ufa, Russia

3L. **Features of photoelectric characteristics of CdS:Fe samples obtained using various technologies**
Svetlana V. Stetsyura, Polina G. Kharitonova, Saratov State University, Saratov, Russia

4L. **Influence of Liquid Crystal Ligands on the Optical and Monolayer Properties of CdSe Quantum Dots**
A. J. Al-Alwani[1], E. G. Glukhovskoy[2]; [1]Al-Furat Al-Awsat Technical University, [2]Saratov State University

5L. **The influence of metal oxide nanoparticles on the energy and electrophysical characteristics of quasi-2D graphene-nanotube film**
Michael M. Slepchenkov[1], Vladislav V. Shunaev[1], Pavel V. Barkov[1], Semyon G. Levitsky[1], Olga E. Glukhova[1,2]; [1]Saratov State University, Saratov, Russia; [2]I.M. Sechenov First Moscow State Medical University, Moscow, Russia

Workshop on Nonlinear Dynamics XVI

Workshop Co-Chairs: **Galina I. Strelkova,** Saratov State University (Russia), **Andrei V. Slepnev,** Saratov State University (Russia)

Secretary: **Andrei V. Slepnev,** Saratov State University (Russia), **Elena V. Rybalova,** Saratov State University (Russia)

International Program Committee: *Jürgen Kurths, Humboldt University, Berlin, Germany; Alexander Neiman, Ohio University, USA; Igor Khovanov, Warwick University, UK; Olga Sosnovtseva, University of Copenhagen, Denmark; Alexey N. Pavlov, Saratov State University, Russia; Tatiana E. Vadivasova, Saratov State University, Russia; Alexey V. Shabunin, Saratov State University, Russia; Dmitry E. Postnov, Saratov State University, Russia*

October 2, Thursday

ORAL SESSION NONLINEAR DYNAMICS XVI
(Building 3, Room 38)
Chairs: **Galina I. Strelkova**, **Andrei V. Slepnev**, Saratov State Univ., Russia

Saratov time/Moscow time

14:00-14:15/13:00-13:15
Oral Report
Neural Network Adaptations during Sleep in Apnea: Between Change and Constancy
Konstantin Sergeev[1], Maxim Zhuravlev[1,2], Anastasiya Runnova[1,3]; [1]Saratov State University, Saratov, Russia; [2]National Medical Research Center for Therapy and Preventive Medicine, Moscow, Russia; [3]Saratov State Medical University, Saratov, Russia

14:15-14:30/13:15-13:30
Oral Report
Control of wavefront propagation in bistable delayed-feedback oscillators
Vladimir V. Semenov; Saratov State University, Saratov, Russia

14:30-14:45/13:30-13:45
Oral Report
Age-related aspects in coordination among brain rhythms during sleep-wake cycles
German A. Guyo, Alexey N. Pavlov; Saratov State University, Saratov, Russia

14:45-15:00/13:45-14:00
Oral Report
Applying nonlocal coupling for coherence resonance control
Aleksey A. Ryabov, Elena V. Rybalova, Andrei V. Bukh, Tatiana E. Vadivasova, Vladimir V. Semenov; Institute of Physics, Saratov State University, Saratov, Russia

15:00-15:15/14:00-14:15
Oral Report
The influence of heterogeneous interlayer couplings on the dynamics of a two-layer network of FitzHugh–Nagumo neuron rings
Nataliia N. Nikishina, Elena V. Rybalova, Tatiana E. Vadivasova; Saratov State University, Saratov, Russia

15:15-15:30/14:15-14:30
Oral Report
The impact of internal noise on the performance and training of hardware artificial neural networks. Prospects for hardware spiking networks
Nadezhda I. Semenova, Ivan D. Kolesnikov, Daniil A. Maksimov; 1Saratov State University, Saratov, Russia

15:30-15:45/14:30-14:45
Oral Report
Noise-induced extreme events in the ring of FitzHugh–Nagumo neurons
Andrei Bukh, Nataliya Nikishina; Saratov State University, Russia

JOINT INTERNET/POSTER SESSION NONLINEAR DYNAMICS (ND)
(Building 3)

Chairs: **Andrei V. Slepnev**, Saratov State Univ., Russia

18.15-20.30
1ND.The Minimal Circuitry for FitzHugh-Nagumo neuron model with a Low Power Consumption and Optical I/O Interface
Alexey O. Manturov[1], Olga V. Drogaitseva[2]; [1]Russian Presidential Academy of National Economy and Public Administration; [2]Saratov State Technical University

2ND. Modeling and evaluation of noise effects on the performance of hardware neural networks

I.D. Kolesnikov, N.I. Semenova; Saratov State University, Saratov, Russia

3ND. Changes in EEG and ECG signal connectivity during tilt-table testing in healthy males

Mikhail Yu. Novikov[1], Maxim O. Zhuravlev[1,2], Anton R. Kiselev[1]; [1]National Medical Research Center for Therapy and Preventive Medicine, Moscow, Russia; [2]Saratov State University, Saratov, Russia

4ND. Analysis of electrophysiological ECG/PPG recordings in a six-minute walk test in older adults

Anastasiya E. Runnova[1]; Maxim O. Zhuravlev[2,1]; Natalya S. Akimova[1]; Larisa E. Konshina[1]; Elizaveta P. Emelyanova[1,2]; [1]Saratov State Medical University, Saratov, Russia; [2]Saratov State University, Saratov, Russia

5ND. Wavelet detection of continuous heart rate in elderly patients with some types of arrhythmias

Natalya S. Akimova[1]; Maxim O. Zhuravlev[2,1]; Larisa E. Konshina[1]; Elizaveta P. Emelyanova[1,2]; [1]Saratov State Medical University, Saratov, Russia; [2]Saratov State University, Saratov, Russia

6ND. Quantitative indices for monitoring mental fatigue based on heart rate variability analysis methods

Sergey E. Burmistrov, Elena V. Navrotskaya, Aleksandr V. Kurbako, Borys P. Bezruchko; Saratov State University, Saratov, Russia

Conference on Nanobiophotonics XXI

Workshop Chair: **Nikolai G. Khlebtsov**, Institute of Biochemistry and Physiology of Plants and Microorganisms, Saratov Scientific Centre of the Russian Academy of Sciences (IBPPM RAS); Saratov State University

Secretary: **Vitaly A. Khanadeev**, Institute of Biochemistry and Physiology of Plants and Microorganisms, Saratov Scientific Centre of the Russian Academy of Sciences (IBPPM RAS); Saratov State University of Genetics, Biotechnology, and Engineering named after N. I. Vavilov

International Program Committee: **Roberto Pini**, Institute of Applied Physics (IFAC-CNR) National Research Council of Italy; **Jian Ye**, School of Biomedical Engineering & Med-X Research Institute Shanghai Jiao Tong University, China; **Boris Khlebtsov**, Saratov Scientific Centre of the Russian Academy of Sciences, Director (Russia); **Dmitry Gorin**, Scoltech, Saratov State University (Russia); **Irina Goryacheva**, Saratov State University (Russia); **Lev Dykman**, Institute of Biochemistry and Physiology of Plants and Microorganisms, Saratov Scientific Centre of the Russian Academy of Sciences (IBPPM RAS, Russia); **Alexey Kononov**, Department of Molecular Biophysics and Polymer Physics, Saint Petersburg State University (Russia);

October 1, Wednesday

ORAL/INVITED SESSION NANOBIOPHOTONICS

(Building 9, Conference Hall)

Chair: **Nikolai G. Khlebtsov,** IBPPM RAS, Saratov State University, Russia

Link to connect in Yandex Telemost:
https://telemost.yandex.ru/j/12336616765999

14.00 – 14.20
Invited
Template synthesis of plasmonic nanoparticles in solution and in 2D ensembles
Olga V. Dement'eva, Frumkin Institute of Physical Chemistry and Electrochemistry of Russian Academy of Sciences, Moscow, Russia

14.20 – 14.40
Invited
Sensing mechanisms of luminescent metal nanoclusters
Alexei I. Kononov, Saint Petersburg State University, Saint Petersburg, Russia

14.40 – 15.00
Invited
Nanobiointerfaces: Composition and functionality of complexes between nanoparticles and bioreceptors
Anatoly V. Zherdev, A.N. Bach Institute of Biochemistry, Research Center of Biotechnology of the Russian Academy of Sciences, Moscow, Russia

15.00 – 15.20
Invited
New features in the theoretical description of the optical properties of plasmon-exciton nanostructures
Alexey D. Kondorskiy, P. N. Lebedev Physical Institute of the Russian Academy of Sciences, Moscow, Russia

15.20 – 15.35
Oral
Plasmonic nanostructures core/shell/fluorophore: how to control optical properties
Dmitriy M. Kravchinskiy[1], Maria E. Kartseva[1]; [1]A.N. Frumkin Institute of Physical Chemistry and Electrochemistry of the Russian Academy of Sciences, Moscow, Russia

15.35 – 15.50
Oral
Fluorescent gold nanoclusters (AuNCs) as powerful tools for microbial diagnostics
Daniil S. Chumakov[1], Stella S. Evstigneeva [1,2,3], Nikolai G. Khlebtsov[1,2]; [1]Institute of Biochemistry and Physiology of Plants and Microorganisms, Saratov Scientific Centre of the Russian Academy of Sciences (IBPPM RAS), Saratov, Russia; [2]Saratov State University, Saratov, Russia; [3]Saratov State Medical University of V.I. Razumovsky, Ministry of Health of the Russian Federation, Saratov, Russia

16.00–16.30
Coffee break

16.30 – 16.45
Oral
Application of nanoluminophores based on NaYF4:Yb3+/Tm3+ complexes as temperature sensors
Kirill A. Buzanov[1], Kirill A. Laptinskiy[1,2], Tatiana A. Dolenko[1], Sergey A. Burikov[1]; [1]Lomonosov Moscow State University, Moscow, Russia; [2]Skobeltsyn Institute of Nuclear Physics, Lomonosov Moscow State University, Moscow, Russia

16.45 – 17.00
Oral
Biodegradable carriers for the delivery of glucocorticoids into hair follicles
Yulia I. Svenskaya, Mariia S. Saveleva, Polina A. Demina, Yury I. Surkov, Isabella A. Serebryakova, Roman A. Verkhovskii, Roman Anisimov, Elina A. Genina, Valery V. Tuchin, Saratov State University, Saratov, Russia

17.00 – 17.15
Oral
Machine Learning-Enhanced Glucose Sensing via Dual-Synthesis AgNP SERS Substrates: From High-Throughput Fabrication to Clinical Detection
Ekaterina Prikhozhdenko[1], Viktoriia Bakal[2], Olga Gusliakova[2], Anastasia Kartashova[2], Mariia Saveleva[2], Valentina Plastun[2], Polina Demina[2], Ilya Kozhevnikov[2], Evgenii Ryabov[2], Daniil Bratashov[1,2], Alexey Serdobintsev[2]; [1]Moscow Institute of Physics and Technology, Dolgoprudny, Moscow region, Russia; [2]Saratov State University, Saratov, Russia

17.15 – 17.30
Oral
Quenching luminescense of CdZnSeS/ZnS quantum dots with doxorubicin: an insight into quenching
Danila A. Kornilov, Daria V. Tsyupka, Daniil D. Drozd, Irina Yu. Goryacheva; Saratov State University, Russia

17.30 – 17.45
Oral
Minimally Invasive Endovascular Delivery of PLGA Nanoparticles to the Different Organs and Tissues
Olga A. Sindeeva[1], Lyubov I. Kazakova[2], Aleksandra Sain[1], Olga I. Gusliakova[1,3], Oleg A. Kulikov[4], Daria Terenteva[1], Irina A. Gololobova[4], Gleb B. Sukhorukov[1,2]; [1]Skolkovo Institute of Science and Technology, Moscow, Russia; [2]Life Improvement by Future Technologies Center, Moscow, Russia; [3]Saratov State University, Saratov, Russia; [4]National Research Ogarev Mordovia State University, Saransk, Russia

17.45 – 18.00
Oral
Strategies for Enhancing Nanozyme-Based Colorimetric Immunoassays
Pavel Khramtsov[1]; [1]Institute of Ecology and Genetics of Microorganisms, Perm Federal Research Center, Ural Branch of RAS, Perm, Russia

18.00 – 18.15
Oral
Strategies for Synthesizing and Tuning Properties of Gold Nanorods for Specific Biomedical Applications
Vitaly A. Khanadeev[1,2], Andrey V. Simonenko[1,3], Andrey M. Burov[1], Boris N. Khlebtsov[1], Nikolai G. Khlebtsov[1]; [1]IBPPM RAS, Saratov, Russia; [2]Saratov State University of Genetics, Biotechnology and Engineering Named after N. I. Vavilov, Saratov, Russia; [3]Saratov State University, Saratov, Russia;

18.15 – 18.30
Online Oral
Development of Carbon Nanotube-Based Nanocomposite Materials for Seamless Vascular Repair
Victoria V. Suchkova[1,2], Kristina D. Popovich[1,2], Dmitry I. Ryabkin[1,2], Ilya N. Sorokvasha[3], Ekaterina V. Blinova[2,3], Dmitry V. Telyshev[1,2], Sergey V. Selishchev[1], Alexander Yu. Gerasimenko[1,2]; [1]National Research University of Electronic Technology (MIET), Moscow, Russia; [2]I.M. Sechenov First Moscow State Medical University, Moscow, Russia; [3]National Research Nuclear University MEPHI, Moscow, Russia

18.30 – 18.45
Online Oral
Structure and physico-mechanical properties of ceramic composite material hydroxyapatite-multi-walled carbon nanotubes
A.E. Rezvanova[1], B.S. Kudryashov[1], V.Y. Pogudin[1,2]; [1]Institute of Strength Physics and Materials Science SB RAS, Tomsk, Russia; [2]Tomsk State University of Control Systems and Radioelectronics, Tomsk, Russia

October 2, Thursday

JOINT POSTER/INTERNET SESSION
(Building 3, 3rd floor Hall)

Chair (N): **Vitaly A. Khanadeev**, IBPPM RAS; Saratov State University of Genetics, Biotechnology, and Engineering named after N.I. Vavilov

18.15-20.30

1NB. Optical control of gradient sedimentation fractionation of anisotropic plasmon resonance nanoparticles
Daniil A. Puzanov[1], Vladimir A. Bogatyrev[1,2], [1]Institute of Biochemistry and Physiology of Plants and Microorganisms, Russian Academy of Sciences (IBPPM RAS), Saratov, Russia; [2]Saratov State University, Saratov, Russia

2NB.The therapeutic effect of intrafollicular delivery of vaterite carriers loaded with a glucocorticoid in a psoriasis-like dermatitis in rats in vivo

Mariia S. Saveleva[1], Yury I. Surkov[1], Polina A. Demina[1], Mikhail E. Lobanov[1], Isabella A. Serebryakova[1], Yulia I. Svenskaya[1]; [1]Saratov State University, Saratov, Russia

3NB.Statistical Experimental Planning Methods in Quantum Dots Spectral Range Tuning

Artyom K. Skvortsov, Victoria D. Gorlo, Danila A. Kornilov, Daniil D. Drozd, Irina Yu. Goryacheva; Saratov State University,

4NB. Hydrophobic ligand Influence on optical properties and hydrophilization process of core-shell quantum dots

Ivan S. Matlakhov[1], Svetlana A. Meshcheryakova[1], Danila A. Kornilov[1], Daniil D. Drozd[1]; [1]Saratov State University, Saratov, Russia

Conference on Spectroscopy and Molecular Modeling XXVI

Workshop Chairs: Lev M. Babkov, Kirill V. Berezin, Alexander B. Pravdin, Saratov State University (Russia), **Inna L. Plastun**, Saratov State Technical University (Russia).

Secretary: Anna A. Doronkina, Saratov State University (Russia)

International Program Committee: Lev M. Babkov, Saratov State University (Russia), Dmitry S. Umreiko, Belarus State University (Minsk, Belorussia), Nadezda A. Davydova, Institute of Physics, NAS of Ukraine, Tatiana G. Bourova, Saratov State Pedagogical Institute (Russia), Alexander V. Burenin, Institute of Applied Physics RAS (Moscow, Russia), Victor L. Furer, Kazan Civil Engineer Academy (Russia), Alexander V. Gorohov, Samara State University (Russia)

October 1, Wednesday

ON-LINE INVITED LECTRURE/ORAL SESSION I

Link to connect in Yandex Telemost:
https://telemost.yandex.ru/j/92850429240792
(Building 8, Room 216)

Co-chairs: **Lev M. Babkov[1], Kirill V. Berezin[1], Alexander B. Pravdin[1], Inna L. Plastun[2]**
[1]Saratov State University, Russia
[2]Saratov State Technical University

14.30-14.45
Oral
Modelling of the Raman spectra drug-target interaction for human platelet P2Y12 receptor and COX-1 enzyme
Andrey Y. Zyubin, Anna A. Kundalevich, Anastasiya I. Kapitunova, Ilia G. Samusev; Immanuel Kant Baltic Federal University, Kaliningrad, Russia.

14.45 - 15.00
Oral
Hydrogen bonding in monohydrates of saturated triglycerides: MD and DFT modeling
K. V. Berezin[1], E. Yu. Stepanovich[2], K. N. Dvoretsky[3], E. M. Antonova[4], A. M. Likhter[2], I. Yu. Yanina[1,5]; [1]Saratov State National Research University named after N.G. Chernyshevsky, Saratov, Russia, [2]Astrakhan State University named after V.N. Tatishchev, Astrakhan, Russia, [3]Saratov State Medical University named after V.I. Razumovsky, Saratov, Russia, [4]Astrakhan State Medical University, Astrakhan, Russia, [5]National Research Tomsk State University, Tomsk, Russia.

15.00 - 15.15
Oral
Immersion skin clearing with aqueous urea solution: OCT data and molecular modeling
E. Yu. Stepanovich[1], K. V. Berezin[2], A. M. Likhter[1], K. N. Dvoretsky[3], E. V. Grabarchuk[1], I. Yu. Yanina[2,4], V. V. Tuchin[2,4,5]; [1]Astrakhan State University, Astrakhan, Russia, [2]Saratov State National Research University, Saratov, Russia, [3]Saratov State Medical University, Saratov, Russia, [4]National Research Tomsk State University, Tomsk, Russia, [5]Institute of Precision Mechanics and Control, Federal Research Center "Saratov Scientific Center of the Russian Academy of Sciences," Saratov, Russia.

15.15 - 15.30
Oral
Comparison of dimensionality reduction algorithms for solving the inverse problem of fluorescence spectroscopy using machine learning methods
Ivan S. Abramov[1], I. V. Isaev[2], S. A. Dolenko[2]; [1]M. V. Lomonosov Moscow State University Moscow, Russia, [2] D. V. Skobeltsyn Institute of Nuclear Physics, M. V. Lomonosov Moscow State University, Moscow, Russia.

15.30 - 15.45
Oral
Development of a Spectral Method for Qualitative and Quantitative Determination of the Surface Group Composition of Carbon
Kirill A. Kozhushnyy, A.M.Vervald, T.A.Dolenko; Lomonosov Moscow State University, Moscow, Russia.

15.45 - 16.00
Oral
Electronic spectra of non-canonical DNA bases
Galina N. Ten, Saratov State University, Saratov, Russia.

16.00 - 16.15
Oral
Changes in Raman spectra of bone tissue as an indicator for absolute dating.
Dmitrii V. Abramov[1], Oleg V. Danilov[2], Viktoriya A. Bykova[1,2], Kristina M. Stankevich[1], Kirill S. Khorkov[1]; [1]Vladimir State University, Vladimir, Russia; [2]State Center for the Conservation, Use and Restoration of Cultural Objects and Cultural Heritage, Vladimir, Russia

16.15 - 16.30
Oral
Spectral Manifestations of Chromium Picolinate under Polymorphic Modification
Pavel D. Filin[1], Pavel A. Zhulidin[1], Inna L. Plastun[1], Ruslan Y. Yakovlev[2]; [1]Yuri Gagarin State Technical University of Saratov, Saratov, Russia, [2]OOO "NC RTA",Moscow, Russia

16.30 - 16.45
Oral
The Role of Synthetic Data Proportion in Improving Spectroscopy-Based Determination of Ion Concentrations
Anastasia S. Mushchina[1,2], Isaev I.V.[1], Sarmanova O.E.[1], Dolenko T.A.[1,2], Dolenko S.A.[1]; [1]D.V.Skobeltsyn Institute of Nuclear Physics, M.V.Lomonosov Moscow State University, [2]Faculty of Physics, M.V.Lomonosov Moscow State University

20.30-23.00

Evening boat trip - the lights of Saratov

October 2, Thursday

ORAL SESSION SPECTROSCOPY II
Link to connect in Yandex Telemost:
https://telemost.yandex.ru/j/92850429240792
(Building 8, Room 216)

Co-chairs: **Lev M. Babkov[1], Kirill V. Berezin[1], Alexander B. Pravdin[1], Inna L. Plastun[2]**
[1]Saratov State University, Russia
[2]Saratov State Technical University

14.30-14.45
Oral
Investigation of intermolecular interaction affecting the flavonoids antioxidant activity
Inna L. Plastun, Pavel A. Zhulidin, Pavel D. Filin; Yuri Gagarin State Technical University of Saratov, Saratov, Russia.

14.45 -15.00
Oral
Investigation of intermolecular interactions in the amino acid chains of the tumor necrosis factor receptor (TNFb)
Egor V. Nazarev, Inna L. Plastun; Saratov State Technical Univercity, Saratov, Russia.

15.00 -15.15
Oral
Modeling of the intermolecular interactions of the TNF ligand amino acid sequence
Bogdan A. Mishunin, Inna L. Plastun; Yuri Gagarin State Technical University of Saratov, Saratov, Russia.

15.15 -15.30
Oral
Evolution of Raman spectra in the 2700-3100 1/cm region following the thermal degradation of omega-3 dietary supplements
Dmitry D. Vasimov[1,2], S.M. Kuznetsov[1], V.S. Novikov[1], E.A. Sagitova[1]; [1]Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia; [2]Moscow Institute of Physics and Technology, Dolgoprudny, Moscow Region, Russia.

15.30 -15.45
Oral

Raman study of lactide oligomer structure: molecular architecture, arm length and number, enantiomeric composition, crystallinity degree

Alena N. Bortsova[1,2], L.Yu. Kozlova[2], S.O. Liubimovskii[2], A.A. Puchkov[3,4], K.T. Kalinin[3,4], V.S. Novikov[2], S.M. Kuznetsov[2]; [1]Mendeleev University of Chemical Technology of Russia, Moscow, Russia; [2]Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia;[3] National Research Center «Kurchatov Institute»;[4] N.S. Enikolopov Institute of Synthetic Polymeric Materials of the Russian Academy of Sciences, Moscow, Russia.

15.45 - 16.00
Oral

Conformational features of D-xylose and their influence on the interpretation of vibrational spectra

Artem. S. Filatov[1], K. V. Berezin[1], V.V. Nechaev[2]; [1]Saratov State National Research University named after N.G. Chernyshevsky, Saratov, Russia, [2]Saratov State Technical University named after Yuri Gagarin, Saratov, Russia.

16.00–16.30
Coffee break

16.30–16.45
Oral

Spectral manifestations of the HAEE tetrapeptide with aliphatic and aromatic amino acids

Kirill A. Bryksin[1], Inna L. Plastun[1], Ruslan Yu. Yakovlev[2], Sergey A. Kozin[2]; [1]Saratov State Technical University, Saratov, Russia; [2]Proteonics LLC, Moscow, Russia.

16.45–17.00
Oral

Molecular modeling of triacetine interaction with aqueous environment by the DFT method: IR bands of O-H vibrational hydrogen-bonded water molecules

Kirill V. Berezin[1], E. Yu. Stepanovich[1], K. N. Dvoretsky[3], E. M. Antonova[4], A. M. Likhter[2], I. Yu. Yanina[1,5], V.V. Nechaev[6]
[1]N.G. Chernyshevsky Saratov State National Research University, Saratov, Russia,[2]V.N. Tatishchev Astrakhan State University, Astrakhan, Russia, [3]V.I. Razumovsky Saratov State Medical University, Saratov, Russia, [4]Astrakhan State Medical University, Astrakhan, Russia, [5]National Research Tomsk State University, Tomsk, Russia,[6]Saratov State Technical University named after Yuri Gagarin, Saratov, Russia.

17.00–17.15
Online Oral Report

Study of the effect of methylene blue on tumor cell metabolism in vitro

Daria V. Pominova[1,2], Anastasia V. Ryabova[1,2], Inessa V. Markova[1,2], Igor D. Romanishkin[1]; [1]Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia; [2]Institute of Engineering Physics for Biomedicine, National Research Nuclear University MEPhI, Moscow, Russia.

17.15–17.30
Online Oral Report

Raman spectroscopy for estimating collagen content in tumor extracellular matrix

Elena D. Antipova[1], Igor D. Romanishkin[2], Tatiana A. Savelieva[1,2], Anastasia V. Ryabova[1,2]; [1]NRNU MEPhI, Moscow, Russia, [2]Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia.

October 2, Thursday

JOINT POSTER/INTERNET SESSION
SPECTROSCOPY (S)
(Building 3, 3rd floor Hall)
Co-chairs: **Lev M. Babkov[1], Kirill V. Berezin[1], Alexander B. Pravdin[1], Inna L. Plastun[2]**
[1]Saratov State University, Russia
[2]Saratov State Technical University

18.00-20.00

1S Spectral methods in the study of the structure of chromencarbonitriles, spiroindolinpyrrolizidinecarbonitriles and their transformation products Andrey S. Kochukov[1], Anna A. Meshcheryakova[1], Alexander V. Nikulin[1], Anna E. Sklyar[1], Ekaterina A. Konstantinova[2], K.-J. Ayena[1], Nikolay I. Davydov[1], Nikita A. Plotnikov[1], Dmitry P. Vozyagin[1], Nikita V. Oprishchenko[1], Svetlana V. Borisova[3], Adel P. Krivenko[1], Vitaly V. Sorokin[1]; [1]Saratov State University, Saratov, Russia; [2]Institute of Biochemistry and Physiology of Plants and Microorganisms Russian Academy of Sciences, Saratov, Russia; [3]Saratov State Medical University named after V.I. Razumovsky, Saratov, Russia.

2S Conformational cis- and trans- transitions in the ir spectra of behenic acid Mikhail D. Moskvitin[1], Lev M. Babkov[2], Alexey V. Larionov[2]; [1]Yuri Gagarin Saratov State University, Saratov, Russia, [2]Nikolay Chernyshevsky Saratov State University, Saratov, Russia.

3S Influence of Hydrogen Bonding in the IR Spectra of Cresol Lev M. Babkov[1], Nadegda. A. Davydova[2], Irina V. Ivlieva-Peretokina[1]; [1]Saratov State University, Saratov, Russia, [2]National Academu of Science, Kiev, Ukraine.

4S IR Spectrum and Geometrical Srtucture of Chromenopyrimidines Lev M. Babkov, Irina V. Ivlieva-Peretokina, Anna A. Metcheryakova, Vitaly V. Sokokin; Saratov State University, Saratov, Russia.

5S Molecular modeling of fatty acid triglyceride dimers and their aqueous complexes by DFT: thermodynamic association analysis Ekaterina Yu. Stepanovich[1], K. V. Berezin[2], K. N. Dvoretsky[3], E. M. Antonova[4], A. M. Likhter[1], I. Yu. Yanina [2,5]; [1]Astrakhan State University named after V.N. Tatishchev, Astrakhan, Russia, [2]Saratov State National Research University named after N.G. Chernyshevsky, Saratov, Russia, [3]Saratov State Medical University named after V.I. Razumovsky, Saratov, Russia, [4]Astrakhan State Medical University, Astrakhan, Russia, [5]National Research Tomsk State University, Tomsk, Russia.

6S Improving the diagnostics of male fertility through Raman spectroscopy of seminal plasma Elena Rimskaya[1,2], Alexey Gorevoy[1], Aleksandra Yakimova[2], Natalia Makarova[2]; [1]Lebedev Physical Institute, Moscow, Russia; [2]National Medical Research Center for Obstetrics, Gynecology and Perinatology named after Academician V.I.Kulakov, Moscow, Russia.

7S Spectral identification features of flavone I. V. Pulin, Saratov State Technical University, Saratov, Russia, E.V. Ryzhova, Saratov State Agricultural University, Saratov, Russia, T.Yu. Surinskaya, Saratov State Agricultural University, Saratov, Russia, O.V.Pulin, P.M. Elkin,Saratov State Technical University, Saratov, Russia.

8S Structural-dynamic models and spectral identification of dihydroxytoluene I.F.Pulin, Saratov State Technical University, Saratov, Russia, E.V. Ryzhova, Saratov State Agricultural University, Saratov, Russia,T.Yu. Surinskaya, Saratov State Agricultural University, Saratov, Russia O.V. Pulin,Saratov State Technical University, Saratov, Russia, P.M. Elkin, Saratov State Technical University, Saratov, Russia

9S Using optical physics methods in environmental monitoring of s-trinitrotriazine I.F. Pulin, Saratov State Technical University, SarE.V. Ryzhova, Saratov State Agricultural University, Saratov, Russia, T.Yu. Surinskaya, Saratov State Agricultural University, Saratov, Russia, O.V. Pulin, Saratov State Technical University, Saratov, Russia, P.M. Elkin, Saratov State Technical University, Saratov, Russiaatov, Russia

10S Electron excitation energy transfer spectroscopy in the study of structural changes in glycated transport proteins Alexander R. Milkin[2], Alexander B. Pravdin[1], Andrey G. Melnikov[2]; [1]Saratov State University, Saratov, Russia, [2]Yuri Gagarin State Technical University of Saratov

INTERNET POSTERS

1 FEM Solver Coulomb Two Center Problem A.I. Muratova[1], A.A. Gusev[2], O. Chuluunbaatar[2], S.I. Vinitsky[2], V. L. Derbov[3], L. L. Hai[4], [1]Tver State University, Tver, Russia; [2]Joint Institute for Nuclear Research, Dubna, Moscow Region, Russia; [3]Saratov State University, Saratov, Russia; [4]Ho Chi Minh city University of Education, Ho Chi Minh City, 72711, Viet Nam.

2 **Identification of collagen-containing gel in mesh endoprostheses using Raman spectroscopy** P.V. Shulepov[1], L.T. Volova[1], N.A. Ryabov[2,1], P.E. Timchenko[1,2], E.V. Timchenko[1,2], S.S. Ivanov[1,2]; [1]Samara State Medical University, Institute of Experimental Medicine and Biotechnology, Samara, Russia, [2]Samara National Research University named after Academician S.P. Korolev, Samara, Russia.

Workshop on Electromagnetics of Microwaves, Submillimeter and Optical Waves XXV

Workshop Chair: Michael V. Davidovich, Saratov State University

Secretaries: **Alexander N. Savin***,* Istok, Fryazino. (Russia), **Kirill A. Sayapin,** Saratov State University, , Saratov (Russia)

International Program Committee:
Nikita M. Ryskin, Kotel'nikov Institute of Radio-Engineering of RAS (Russia); **Igor S. Nefedov,** Aalto University, Espoo (Finland); **Georgi N. Georgiev,** "Sts. Cyril and Methodius" University, Veliko Tirnovo, (Bulgaria); **Andrei D. Grigoriev,** St. Petersburg Electrotechnical University LETI (Russia); **Josef Modelsky,** Warsaw University of Technology (Poland); **Alexander M. Lerer**, South Federal University, Rostov-Don (Russia), **Vyacheslav V. Popov,** Kotel'nikov Institute of Radio-Engineering of RAS (Russia)

Thursday, October 2

Online Oral Report Session
(Building 8, 3rd floor, Room 318, SSU)
Chair (EM): **Michael V. Davidovich**, Saratov State University, Russia
Link:
https://dpf8bfnc.ktalk.ru/f4oy5v41g5om

15.00–15.15
Diffraction of monochromatic waves and ultrashort pulses on magnetized graphene lattices
Lerer A.M.[1], Makeeva G.S.[2], Ivanova I.N.[1], Kravchenko V.I.[1]. [1]Southern Federal University., Rostov-on-Don, Russia, [2]Penza State University, Penza, Russia

15.15–15.30
Modeling and electrodynamic analysis of a tunable microwave filter with high attenuation in the attenuation band
Konoplev A., Nathin I.[1], Serdyuk V. Southern Federal University, Rostov-on-Don, Russia

15.30–15.45
Волноводный полосно-пропускающий фильтр с подавлением гармоник на прямоугольном волноводе
Епишева О.К., Крутиев С.В..Южный федеральный университет, Ростов-на-Дону, Россия

15.45–16.00
Миниатюрный HMSIW-фильтр с высокой избирательностью и широкой полосой заграждения
Bukin S.P., Krutiev S.V.. Southern Federal University, Rostov-on-Don, Russia

16.00-16.15
Квазиэллиптический волноводный фильтр со сложной структурой связи
Крутиев С.В., Корж В.Н. ЮФУ, Ростов-на-Дону.

16.15-16.30
Метод расчета электрически длинной антенной решетки оптического диапазона на основе слабоконстрастных материалов
Moshichenko S.D., Kleshenkov A.B. Southern Federal University, Rostov-on-Don, Russia

ORAL SESSION ELECTROMAGNETICS
(Building 8, 3rd floor, Room 318, SSU)
Chair: **Michael V. Davidovich**, Saratov State University, Russia

16.30–16.50
Bandpass Filters Based on Dual-Mode Modified Cylindrical Resonators
Kats B.M., Sayapin K.A.[1,2], Golubtsov M.E.[1]. [1]Waveguide-based Systems LLC, Dmitrov, Russia; [2]Saratov State University, Saratov, Russia

16.50–17.10
Van Kampen's approach for the Casimir force in multilayer structures
Davidovich M.V., Saratov Statate University, Saratov, Russia

17.10–17.30
Nonlinear electromagnetic response of graphene in tight-binding model
Davidovich M.V., Saratov Statate University, Saratov, Russia

JOINT POSTER/INTERNET SESSION
(Building 3, 3rd floor Hall)
Chairs: **Ivan V. Fedosov, Daria K. Tuchina,**
Saratov State Univ., Russia
Moderators: Ivan V. Fedosov, Michael M. Slepchenkov, Alexander I. Dubrovsky,
Saratov State Univ., Russia
Chair (EM): **Michael V. Davidovich**, Saratov State University, Russia

Thursday September 26
18.-00–20.-00

1. **Directional spin-wave coupling in an orthogonal magnetic waveguide system**
   Andrey A. Grachev, Fedor E. Garanin, Alexandr V. Sadovnikov; Saratov State University, Saratov, Russia
2. **Study of the dynamics of a sheet electron beam in miniature W-band TWT with permanent magnet focusing systems**
   Alina D. Tolstykh[1,2], Roman A. Torgashov[1,2]; [1]Saratov Branch Kotel'nikov Institute of Radioengineering and Electronics RAS, Russia; [2]Saratov State University
3. **STUDY OF FILTRATION MODES IN A CROSS-SHAPED MICROWAVEGUIDE BASED ON A YIG FILM WITH MAGNETITE NANOPARTICLES**
   Fedor E. Garanin[1], Alexander V. Sadovnikov[1], Maria V. Lomova[1]; [1]Saratov State University, Saratov, Russia
4. **PHASE RESOLUTION OF SPIN WAVE PROPAGATION IN YIG FILM WITH LINEARLY VARYING WIDTH.**
   V.A. Gubanov[1], F.E. Garanin[1], A.V. Sadovnikov[1]; [1]Saratov State University, Saratov, Russia
5. **Development of electron gun for miniaturized millimeter-band traveling-wave tube**
   Dmitry A. Nozhkin[1,2], Roman A. Torgashov[1,2], Dmitry A. Bessonov[1,3], Igor A. Navrotsky[1,3], Nikita M. Ryskin[1,2]; [1]Saratov Branch, Institute of Radio-Engineering of RAS, Saratov, Russia; [2]Saratov State University, Saratov, Russia; 3 RPE “Almaz”,Saratov, Russia
6. **Gap solitons in magnonic crystals with loads**
   V.A. Ochkina[1], M.A. Morozova[1]; [1]Saratov State University, Saratov, Russia
7. **Пространственно-частотная селекция сигналов в ЖИГ-структуре с крестообразной конфигурацией волноводов и центральным кольцевым резонатором**
   Anna A. Manysheva[1], Karina E. Zhumabekova[1], Nikita Y. Yasnev[1], Alexandr V. Sadovnikov[1]; 1Saratov State University, Saratov, Russia
8. **Design of a K-band Waveguide Bandpass Filter with Cross-Coupling**
   Kirill A. Sayapin; Saratov State University, Saratov, Russia; Waveguide-based Systems LLC, Dmitrov, Russia
9. **Promising design of an inline filter for multiplexing systems**
   Nikita M. Gerasimov[1], Nikita A. Shkunov[1], Kirill A. Sayapin[1,2], Boris M. Kats[1]; [1]Waveguide-based Systems LLC, Saratov, Russia; [2]Saratov State University, Saratov, Russia
10. **C-Band Combline Bandpass Filter with Enhanced Selectivity: Implementation and Analysis of Complex Coupling Schemes**
    Nikita A. Shkunov[1], Nikita M. Gerasimov[1], Boris M. Kats[1], Kirill A. Sayapin[1,2]; [1]Waveguide-based Systems LLC, Dmitrov, Russia; [2]Saratov State University, Saratov, Russia
11. **Features of Spin Wave Propagation in a Ring YIG Microresonator with Non-Uniform Internal Magnetic Field Distribution**
    N.Yu. Yasnev[1], A. A. Manysheva[1], K.E. Zhumabekova[1], A. V. Sadovnikov[1]; [1]Saratov National Research State University named after N.G. Chernyshevsky
12. **Study of the effect of the width of a ZIG microwave guide on the spectra of surface and inverse bulk spin waves**
    Karina E. Zhumabekova, Pavel A. Zhironkin, Anna A. Manysheva, Aleksandr V. Sadovnikov. Saratov State University, Saratov, Russia
13. **Spatial-frequency signal selection based on spin-wave propagation effects in a YIG structure with intersecting waveguides and resonators**
    Alexey. A. Solyanov, Pavel A. Zhironkin, Vladislav D. Klusov, Alexandr V. Sadovnikov. Saratov State University, Saratov, Russia

Conference on Endogenous Biophotonics: Ultra-Weak Luminescence from Biological Systems IV

Chairs: **Ilya V. Volodyaev**, Lomonosov Moscow State University, European Medical Center, Moscow, Russia, **Elena V. Naumova**, Rzhanov Institute of Semiconductor Physics, Siberian Branch of Russian Academy of Sciences, Novosibirsk, Russia.

Secretary: **Elena V. Naumova**, Rzhanov Institute of Semiconductor Physics, Siberian Branch of Russian Academy of Sciences, Novosibirsk, Russia

International Program Committee:

Yury A. Vladimirov, Honourable Member of the Program Committee, Lomonosov Moscow State University, Pirogov Russian National Research Medical University, Moscow, Russia); **Andrey V. Budagovsky**, Michurinsk State Agrarian University, Michurin Federal Scientific Center, Michurinsk, Tambov Region, (Russia); **Cristiano de Mello Gallep**, University of Campinas, Campinas, (Brazil); **Alexander A. Krasnovsky,** Federal Research Center of Biotechnology, Bach Institute of Biochemistry RAS, (Russia); **Elena V. Naumova,** Rzhanov Institute of Semiconductor Physics SB RAS, Novosibirsk Akademgorodok, (Russia); **Vitaly Yu. Plavskii**, B.I. Stepanov Institute of Physics of the National Academy of Sciences of Belarus, Minsk, Belarus; **Felix Scholkmann**, University of Zurich, Zurich, (Switzerland); **Kharlampy P. Tiras**, Institute of Theoretical and Experimental Biophysics RAS, Pushchino, Moscow Region, (Russia); **Aleksei V. Trofimov**, Emanuele Institute of Biochemical Physics RAS, Moscow, (Russia); **Raif G. Vasilov**, Kurchatov Complex of NBICS-Technologies, National Research Center «Kurchatov Institute», Moscow, (Russia); **Vladimir L. Voeikov**, Lomonosov Moscow State University, (Russia);
Ilya V. Volodyaev, Lomonosov Moscow State University, European Medical Centre, Moscow, Russia

October 1, Wednesday

INVITED/ ON-LINE INVITED/ ORAL/ ON-LINE ORAL REPORT SESSION ENDOGENOUS BIOPHOTONICS I

(Pushchino, Institute of Cell Biophysics RAS)
Link to connect in Zoom:
https://us06web.zoom.us/j/89624952112?pwd=taAbN5zI5qciDrmhX1GiQ4Aisd2wmx.1
ID: 896 2495 2112
Code: 942245

Chairs: **Ilya V. Volodyaev**, Moscow State University, European Medical Center, Moscow, Russia; **Elena V. Naumova**, Rzhanov Institute of Semiconductor Physics, SB RAS, Novosibirsk, Russia
Moderator: **Alexey B. Petrov,** Institute of Theoretical and Experimental Biophysics RAS, Pushchino, Moscow region, Russia

Saratov time/Moscow time

14:30-14:35/13:30-13:35
Welcome words by Ilya V. Volodyaev and Elena V. Naumova

14:35-15:20/13:35-14:20
Online Invited
Cancer and cellular electromagnetic field /In memory of Jiří Pokorný
Jan Pokorny, Institute of Physics of the Czech Academy of Sciences, Prague, Czech Republic

15:20-15:40/14:20-14:40
Oral Report
Luminescent properties of blood in oncological diseases: searching for the first tumour marker
Elena V. Naumova[1], Ilya V. Volodyaev[2]; [1]Rzhanov Institute of Semiconductor Physics SB RAS, Novosibirsk, Russia; [2]Moscow State University, Moscow. Russia

15:40-16:10/14:40-15:10
Invited
The development of cancer and metastases The role of A. Gurwitsch's concepts of mitogenetic radiation in tumor nodes in these processes
Victor A. Ovsyannikov, Russia

16:10-16:25/15:10-15:25
Coffee break

16:25-16:55/15:25-15:55
Online Invited
Ultraweak photon emission and the role of DNA: experiments and interpretations
József Bódis[1,2,3], József Berke[1,4], István Gulyás[1], Ilya V. Volodyaev[5]; [1]National Laboratory on Human Reproduction, University of Pécs, Pécs, Hungary; [2]HUN-REN-PTE Human Reproduction Scientific Research Group, Pécs, Hungary; [3]Department of Obstetrics and Gynecology, Medical Scholl, University of Pecs, Pécs, Hungary; [4]Dennis Gabor University, Department of Drone Technology and Image Processing, Budapest, Hungary; [5]Moscow State University, Moscow. Russia

16:55-17:20/15:55-16:20
Online Oral
Modeling DNA Resonance
Max Myakishev-Rempel; DNA Resonance Research Foundation, San Diego, CA, USA

17:20-17:40/16:20-16:40
Oral
Radiofrequency emission from water solutions prepared using gradual technology is modulated by a magnetic field
German O. Stepanov[1], Natalya N. Rodionova[1], Anastasia O. Petrova[1], Vadim V. Novikov[2], Elena V. Yablokova[2], Dmitry Yu. Chernikov[3], Andrey V. Minakov[3], Elena M. Dobychina[4], Mihaill V. Snastin[4]; [1]OOO "NPF "MATERIA MEDICA HOLDING"; [2]Institute of Cell Biophysics of the Russian Academy of Sciences; [3]Siberian Federal University; [4]Moscow Aviation Institute (National Research University)

October 2, Thursday

INVITED/ ON-LINE INVITED/ ORAL/ ON-LINE ORAL REPORT SESSION ENDOGENOUS BIOPHOTONICS II (in Russian and English)

(Pushchino, Institute of Cell Biophysics RAS)
Link to connect in Zoom:
https://us06web.zoom.us/j/89624952112?pwd=taAbN5zl5gciDrmhX1GiQ4Aisd2wmx.1
ID: 896 2495 2112
Code: 942245

Chair: **Andrey V. Budagovsky,** Michurin Federal Research Center, Michurinsk, Russia; Michurinsk State Agrarian University, Michurinsk, Russia
Moderator: **Ilya V. Volodyaev;** Moscow State University, Moscow. Russia

Saratov time/Moscow time

09:00-09:30/10:00-10:30
Invited (In Russian)
Non-chemical distant interactions of biological objects at different levels of organization
Alexandr B. Burlakov, Olga V. Burlakova; Dep. of Embryology, Faculty of Biology, Lomonosov Moscow State University, Moscow, Russia

09:30-09:50/10:30-10:50
Oral Report (In Russian)
Challenges of evidence and reproducibility in experiments on distant biological interactions
Ilya V. Volodyaev[1], Elena V. Naumova[2]; [1]Moscow State University, European Medical Center, Moscow, Russia; [2]Rzhanov Institute of Semiconductor Physics SB RAS, Novosibirsk, Russia

09:50-10:20/10:50-11:20
Invited (In Russian)
Experimental study of the effects of biogenic electromagnetic and acoustic radiation on seed germination: interpretation of the mitogenetic effect through statistical physics and information theory
Yuriy M. Gorovoy, Yaroslavl State Technical University, Yaroslavl, Russia

10:20-10:40/11:20-11:40
Oral Report (In Russian)
Study of an effect of photo bio modulation on human gut microbiota in vitro under normal conditions and after cryopreservation
Robert N. Khramov[1], Liubov V. Zalomova[2], Eugeny E. Fesenko (Jr.)[2]; Institute of Biophysis PSCBR RAS, Pushchino, Moscow region; 2Institute of Theoretical and Experimental Biophysics RAS, Pushchino, Moscow region L.V. Zalomova[2], E.E. Fesenko (Jr.)[2]; [1]Institute of Biophysis PSCBR RAS, Pushchino, Moscow region; [2]Institute of Theoretical and Experimental Biophysics RAS, Pushchino, Moscow region, Russia

10:40-11:15/11:40-12:15
Invited (In Russian)
On the way from exogenous photoregulation to endogenous biophotonics
Andrey V. Budagovsky[1,2], Olga N. Budagovskaya[1,2], Ivan A. Budagovsky[3], Natalya V. Solovykh[1]; [1]Michurin Federal Research Center, Michurinsk, Russia; [2]Michurinsk State Agrarian University, Michurinsk, Russia; [3]P.N. Lebedev Physics Institute, Moscow, Russia

11:15-11:30/12:15-12:30
Coffee break

Chair: **Victor D. Lakhno**, Institute of Mathematical Problems of Biology RAS - the Branch of Keldysh Institute of Applied Mathematics of Russian Academy of Sciences
Moderator: **Elena V. Naumova**, Rzhanov Institute of Semiconductor Physics, SB RAS, Novosibirsk, Russia

11:30-12:00/12:30-13:00
Invited (In Russian)
Quantum bioinformatics based on DNA and quadruplexes
Victor D. Lakhno, Institute of Mathematical Problems of Biology RAS - the Branch of Keldysh Institute of Applied Mathematics of Russian Academy of Sciences

12:00-12:20/13:00-13:20
Online Invited (In Russian)
Highly sensitive low-noise vacuum photodetectors and prospects of their application in studies of ultra-weak luminescence of biological objects and (bio-) chemical systems
Oleg E. Tereshchenko[1], Heinrich E. Scheibler[1], Kirill V. Merkulin[1], Vasily V. Bakin[1], Stanislav A. Rozhkov[1], Vadim S. Rusetsky[1,2], Vladimir A. Golyashov[1], Danil A. Kustov[1], Elena V. Naumova[1], Alexander Y. Demin[2]; [1]A.V. Rzhanov Institute of Semiconductor Physics SB RAS, Novosibirsk, [2]CJSC EKRAN-FEP, Novosibirsk, Russia

12:20-12:40/13:20-13:40
Online Oral Report (In Russian)
Localization of acupuncture points by optical method and results of experiments
Leonid G. Navrotsky[1], Liliya I. Lisitsyna[2], Svetlana V. Belavskaya[2], Alexander A. Blokhin[2]; [1]Institute of Laser Physics SB RAS, Novosibirsk, Russia; [2]Novosibirsk State Technical University, Novosibirsk Russia

12:40-13:10/13:40-14:10
Invited (In English)
Electrodynamic Contribution to Chemiluminescence Enhancement by Metallic Nanoparticles
Gleb R. Simonenko[1], Igor Yu. Nikitin[1], Lubov N. Borodina[1], Nikita S Petrov[1], Alena V. Palekhova[1], Danila V. Kononov[1], Daler R. Dadadzanov[1], Nikita B. Leonov[1], Anton S. Bukatin[2,3], N.A. Filatov[1,3], Sargis Pinamyan[4], Andrey V. Veniaminov[1], Tigran A. Vartanyan[1]; [1]IR&EC PhysNano, ITMO University, St. Petersburg, Russia; [2]Institute for Analytical Instrumentation of the Russian Academy of Sciences, Saint-Petersburg, Russia; [3]Alferov University, St. Petersburg, Russia; 4ZAO "Geokosmos", Erevan, Armenia

13:10-13:40/14:10-14:40
Online Invited (In English)
Stochastic focusing from 3D to 2D reveals ultra-weak luminescence
Ibtissame Khaoua[1,2], Guillaume Graciani[1,3], Francois Amblard[1,4]; [1]Institute for Basic Science-Center for Soft and Living Matter, Ulsan, South Korea, [2]Centre hospitalier régional universitaire de Lille, France, [3]Institut Polytechnique de Paris, Telecom SudParis, France, [4]Department of Physics, Ulsan National Institute of Science and Technology, Ulsan, South Korea.

13:40-14:40/14:40-15:40
Lunch

Chair: **Vladimir L. Voeikov,** Lomonosov Moscow State University, Faculty of Biology, Moscow, Russia
Moderator: **Alexey B. Petrov,** Institute of Theoretical and Experimental Biophysics RAS, Pushchino, Moscow region, Russia

14:40-15:20/15:40-16:20
Invited (In Russian)
The emission of photons from aqueous systems, testifies to their stable presence in the electron-excited state, characteristic of living matter
Vladimir L. Voeikov, Ekaterina V. Buravleva; Lomonosov Moscow State University, Faculty of Biology, Moscow, Russia

15:20-15:50/16:20-16:50
Invited (In English)
Spectroscopy of intrinsic IR radiation. Adaptation of the method for studying living systems
Nikita V. Penkov, Nadezhda A. Penkova; Pushchino Scientific Center for Biological Research of the Russian Academy of Sciences

15:50-16:20/14:50-15:20
Invited (In English)
Regulatory lipidomics in cytochrome c-dependent mechanisms of cell death. The role of phosphatidic acid and hydroperoxides in the initiation and switching from pro-apoptotic processes to pro-ferroptotic reactions
German O. Stepanov[1], Aitalina A. Struchkova[1], Elizaveta D. Rumyantseva[1], Vitaly V. Volkov[1], Arkady Yu. Makarov[2], Daria S. Nefedova[1], Valentina I. Melikhova[1], Anatoly N. Osipov[1,2]; [1]Department of General and Medical Biophysics, Institute of Biomedicine, N.I. Pirogov Russian National Research Medical University, Moscow, Russia; [2]Department of Medical Biophysics, Institute of Profilactic Medicine, N.I. Pirogov Russian National Research Medical University, Moscow, Russia

16:20-16:50/17:20-17:50
Internet Invited (In English)
Macro and micro enhancers of the 8-anilino-1-naphthalenesulfonate (ANS) fluorescence. Is ANS indeed a hydrophobic probe?
Yurii .B. Tsaplev, Maria G. Semenova, Aleksei V. Trofimov; Emanuel Institute of Biochemical Physics RAS, Moscow, Russia

16:50-17:10/17:50-18:10
Oral Report (In Russian)
Planarians and ultraweak luminescence
Kharlampy P. Tiras, Institute of Theoretical and Experimental Biophysics, Pushchino State Institute of Natural Science

ROUND TABLE DICUSSION ON ENDOGENOUS BIOPHOTONICS

(Pushchino, Institute of Cell Biophysics RAS)
Link to connect in Zoom:
https://us06web.zoom.us/j/89624952112?pwd=taAbN5zl5gciDrmhX1GiQ4Aisd2wmx.1
ID: 896 2495 2112
Code: 942245

Moderators: **Ilya V. Volodyaev**, Moscow State University, European Medical Center, Moscow, Russia; **Elena V. Naumova**, Rzhanov Institute of Semiconductor Physics, SB RAS, Novosibirsk, Russia

Saratov time/Moscow time

17:10-19:00/18:10-20:00

Workshop on Medical Applications of Laser Molecular Imaging and Machine Learning

Co-chairs: **Igor K. Lednev**, University at Albany, USA; Tomsk State University, Russian Federation, **Yury V. Kistenev**, Tomsk State University, Russian Federation

Secretary: **Tatiana B. Lepekhina**, Tomsk State University, Tomsk, Russian Federation

International Program Committee: Arnaud Coussiet, Université du Littoral Côte d'Opale, France, **Vladimir L. Vaks**, Institute of Applied Physics of RAS, Nizhny Novgorod, Russian Federation, **Olga P. Cherkasova**, Institute of Laser Physics of SB of RAS, Russian Federation, **Denis A. Vrazhnov**, Tomsk State University, Russian Federation, **Alexey V. Borisov**, Tomsk State University, Russian Federation

October 1, Wednesday

ON-LINE INVITED LECTURE/ORAL SESSION MACHINE LEARNING I & INVITED LECTURE/ ORAL SESSION MACHINE LEARNING II *(On-line)*

https://e-class.tsu.ru/#join:ta64f21f3-20e1-444a-b3ab-6e0d3314b413

Chairs: Yury Kistenev, Denis Vrazhnov, Igor Lednev
Moderator: Denis A. Vrazhnov

14.00-14.20 (Tomsk time 17.00-17.20)
Online Invited Lecture
Quantitative and qualitative analysis of IR spectra for medical and ecological applications
Yury V. Kistenev[1], Denis A. Vrazhnov[1], Viktor V. Nikolaev[1], Akim A. Tretyakov[1], Georgy K. Raspopin[1], Didar R. Makashev[1], Alexey V. Borisov[1] [1]LMIML Laboratory, Tomsk State University, Tomsk, Russia

14.20-14.40
Online Invited Lecture
Raman spectroscopy for the detection of non-infectious diseases
Ivan Bratchenko[1,2], Lyudmila Bratchenko[1,2], Alexander Zakharov[3], Anna Neupokoeva[3], Maria Skuratova[4], Peter Lebedev[3]
[1]Samara National Research University, Samara, Russia; [2]Immanuel Kant Baltic Federal University, Kaliningrad, Russia; [3]Samara State Medical University, Samara, Russia; [4]Samara Clinics named after NI Pirogov, Samara, Russia

14.40-14.55
Online Oral Report
Avoiding overestimation in multivariate analysis of Raman spectra of biological objects: Interpretation with the SP-LIME algorithm
Lyudmila A. Bratchenko[1,2], Yulia A. Khristoforova[1], Maria A. Skuratova[3], Petr A. Lebedev[4], Ivan A. Bratchenko[1,2]; [1]Samara University, Samara, Russia; [2]Immanuel Kant Baltic Federal University, Kaliningrad, Russia; [3]Samara City Clinical Hospital №1 named after N. I. Pirogov, Samara, Russia; [4]Samara State Medical University, Samara, Russia

14.55-15.10 (Tomsk time 17.55-18.10)
Online Oral Report
Informative feature selection for machine learning predictive models based on THZ and IR data
Denis A. Vrazhnov[1], Alexey V. Borisov[1], Viktor V. Nikolaev[1], Georgy K. Raspopin[1], Didar R. Makashev[1], Yuri V. Kistenev[1]; [1]Tomsk State University, Tomsk, Russia

15.10-15.25 (Tomsk time 18.10-18.25)
Online Oral Report
Modified high convergence genetic algorithm for numerical optimization tasks solving in the field of THZ-IR spectroscopy
Akim K. Tretyakov[1], Yury V. Kistenev1[2], Viktor V. Nikolaev[1]; [1]Tomsk State University, Tomsk, Russia; [2]V.E. Zuev Institute of Atmospheric Optics of Siberian Branch of the Russian Academy of Sciences, Tomsk, Russia

15.25-15.40 (Tomsk time 18.25-18.40)
Online Oral Report
Optical coherence tomography as a method for investigating porous materials made of titanium nickelide
Tatiana B. Lepekhina[1], Viktor V. Nikolaev[1], Georgii V. Malkin[1];[1]Tomsk State University, Tomsk, Russia

15.40-15.55 (Tomsk time 18.40-18.55)
Online Oral Report
Phasor Approach for identifying molecular concentration in gas absorption spectra
David A. Lopez Guardado[1], Viktor V. Nikolaev[1], Yury V. Kistenev[1]; [1]Tomsk State University, Tomsk, Russia

INTERNET POSTERS

1. **An Arduino based laser wavelength tuning system for TDLAS of carbon dioxide**

Georgii K. Raspopin[1], Andrei A. Boyko[2], Oleg A. Romanovskii[3], Olga V. Kharchenko[3], Yury V. Kistenev[1]
[1]Tomsk State University, Tomsk, Russia
[2]Institute of Laser Physics SB RAS, Novosibirsk, Russia
[3]Institute of Atmospheric Optics SB RAS, Tomsk, Russia

Workshop on Quantum Science and Technologies VI

Co-Chairs: **Aleksey K. Fedorov**, **Evgeniy O. Kiktenko**, Russian Quantum Center (Russia); National University of Science and Technology “MISIS” (Russia)
Secretary: **Alena S. Mastiukova**, Russian Quantum Center (Russia); National University of Science and Technology “MISIS” (Russia)
(a.mastiukova@rqc.ru, +7 (906) 747-72-29)

International Program Committee:
Vladimir L. Derbov, Saratov State University (Russia); **Igor V. Meglinski,** Aston University, Birmingham (UK), Sechenov University, Moscow (Russia); **Lingyan Shi**, University of California San Diego (USA); **Georgy Shlyapnikov**, LPTMS, University of Paris-Sud (France), University of Amsterdam (The Netherlands), Russian Quantum Center (Russia); **Lihong Wang**, Caltech, Pasadena (USA); **Aleksei M. Zheltikov**, Lomonosov Moscow State University, Russian Quantum Center (Russia), Texas A&M University (USA)

October 3, Friday

ORAL SESSION

Campus of the Skolkovo Institute of Science and Technology
Conference hall G7.300-B
Zoom Meeting
Идентификатор конференции: 823 4483 8746
Код доступа: 740583
https://us06web.zoom.us/j/82344838746?pwd=qybyELDwkAQbsCTqcEXYTbGtPqatyn.1

Chair: Evgeniy O. Kiktenko, Russian Quantum Center (Russia)

13:30 – 13:35
Aleksey Fedorov and Evgeniy O. Kiktenko, Opening Ceremony and Welcoming Words

13:40 – 14:00
Ivan V. Dyakonov, Single photon source based on SPDC process aided with time multiplexing

14:05 – 14:25
Евгений Киктенко, Ядерные методы в квантовом машинном обучении

14:30 – 14:50
Денис Дрожжин, Разложение унитарной матрицы в кудите с произвольными разрешенными переходами

14:55 – 15:15
Максим Гавреев, Квантовые сети Колмогорова-Арнольда

15:20 – 15:50
Coffee Break

15:50 – 16:10
Денис Куликов, Исследование вычислительной сложности различных модификаций алгоритма QAOA

16:15 – 16:35
Всеволод Яшин, Симуляция стабилизаторных схем методом переписывания в классические схемы

16:40 – 17:00
Александр Аверьянов, Транспиляция классических алгоритмов в квантовые оракулы

17:05 – 17:25
Olga A. Goryacheva, Approaches to the functionalization of cerium oxide nanoparticles (Zoom Oral Report)

29th International School for Junior Scientists and Students on Optics, Laser Physics & Biophotonics

Workshop on Modern Optics XXIV

Lectures on Optics for University Students, Postgraduate Students and High School Students

Chair: **Georgy V. Simonenko**, Saratov State University

Secretary: **Ekaterina N. Lazareva**, Saratov State University, Tomsk State University

Moderator: **Isabella Serebryakova**, Saratov State University

International Program Committee: **Ivan V. Fedosov**, **Alexander B. Pravdin**, **Valery V. Tuchin**, **Sergey B. Venig**, Saratov State University, **Alexander V. Priezzhev**, Moscow State University

September 29, Monday

PUBLIC LECTURE SESSION MODERN OPTICS
(Building 3, Big Physical Hall)
Chair: **Georgy V. Simonenko**, Saratov State University

14.00-15.00
Interaction of optical radiation with biological objects: learning from nature to help it
Dmitry A. Gorin, Skolkovo Institute of Science and Technology, Skoltech, Moscow, Russia

October 2, Thursday

PUBLIC LECTURE SESSION MODERN OPTICS
(Building 3, Big Physical Hall)
Chair: **Georgy V. Simonenko**, Saratov State University

14.00-14.40
Unvisible man – new in medicine
Valery V. Tuchin, Saratov State Univ., Russia

14.40-15.00
Light Detectives: How Polarized & Twisted Light Read Biological Tissues
Igor V. Meglinski, Light Polarization and Quantum Technologies, University of Aston, UK, Sechenov University, Russia (on-line)

Workshop on History, Methodology and Philosophy of the Optical Education XVIII

Workshop Chairs: **Boris A. Medvedev, Irina Yu. Yanina**, Saratov State University, Russia

Secretary: **Anton A. Kharchenko**, Saratov State University, Russia

International Program Committee **Vladimir L. Derbov**, Saratov State University, Russia; **Alexander V. Priezzhev**, M.V. Lomonosov Moscow State University, Russia; **Alexander V. Gorokhov**, Samara State University, Russia; **Valery V. Tuchin**, Saratov State University, Russia;

October 1, Wednesday

ORAL SESSION /ROUND TABLE (Scientific Library, Conf. Hall)

Co-chairs: **Boris A. Medvedev, Irina Yu. Yanina**,
Saratov State University, Russia

Saratov time

14:00-14:30
Zoom Oral Report
Theoretical Physics at Saratov University
Lev M. Babkov;
Saratov State University, Saratov, Russia

14:30-14:45
Oral Report
Episodes of the history of scientific research at Saratov State University
Valery M. Anikin;
Saratov State University, Saratov, Russia

14:45-15:00
Oral Report
Student of the SSU Physics Department Lev Pitaevsky
Svetlana V. Churochkina, Dmitry V. Churochkin, Valery M. Anikin;
Saratov State University, Saratov, Russia

15:00-15:15
Oral Report
Paradoxes of special relativity
Nataliya A. Boykova, Bogdan S. Rezepov;
Saratov State University, Saratov, Russia

15:15-15:30
Zoom Oral Report
Site-specific insect fluorescence in courtship displays
Matvey I. Nikelshparg[1], Evelina I. Nikelshparg[1], Vasily V. Anikin[2];
[1]Ben-Gurion University of the Negev, Beer Sheva, Israel, [2]Saratov State University, Saratov, Russia

15:30-15:45
Oral Report
Conic Sections and Optical Lens
Michael M. Stolnitz;
Saratov State University, Saratov, Russia

15:45-16:00
Oral Report
Study of statistics of laser speckle fields during immersive clearing of human skin with glucose solutions in polarized light
Anton A. Kharchenko[1], Polina A. Timoshina[1,2], Valery V. Tuchin[1,2,3]
[1]Saratov State University, Saratov, Russia
[2]Tomsk State University, Tomsk, Russia
[3]Institute of Precision Mechanics and Control, FRC "Saratov Scientific Center of the Russian Academy of Sciences", Saratov, Russia

16:00-16:15
Oral Report
Approaches to building an automated diagnostic system for diseases of the lower extremities using pattern recognition methods
Artem E. Radin, Julia A. Brodskaya; Gagarin's State Technical University of Saratov, Saratov, Russia

16:15-16:30
Oral Report
Pattern recognition algorithms for the diagnosis of skin mycoses and onychomycosis
Andrey M. Alekseev, Julia A. Brodskaya; Gagarin's State Technical University of Saratov, Saratov, Russia

16:30-16:50
Coffee break

ROUND TABLE
Man and light in natural and art treatment of the Universe

Panel members:
Valery V. Tuchin[a], Vladimir L. Derbov, Victor V. Rozen[a], Oleg V. Shimelfenig[a], Lev M. Babkov[a], A. V. Gorokhov[b], Dmitry A. Zimnyakov[c], Leonid A. Melnikov[c], Julia M. Duplinskay[c], Oleg M. Parshkov[c], A. V. Priezzhev[d], [a]Saratov State University, Saratov, Russia; [b]Samara University, Samara, Russia, [c]Yuri Gagarin State Technical University of Saratov, Russia, [d]M.V. Lomonosov Moscow State University, Moscow, Russia

16:20-16:40
The phenomenon of immortality in artistic works through the lens of natural sciences
Vitaliy V. Sorokin[1], Vladimir V. Orlov[2];
[1]Saratov State University, Saratov, Russia; [2]Saratov State Conservatory, Saratov, Russia

16:40-17:00
On the idea of the synthesis of arts in A. Scriabin's Mysterium
Vasily S. Igonin;
Saratov State Conservatory, Saratov, Russia

17:00-17:20
The Golden Ratio and other harmony options in academic music
Lev A. Brodsky[1], Julia A. Brodskaya[2];
[1]Lyceum of Mathematics and Computer Science, Saratov, Russia;[2]Gagarin's State Technical University of Saratov, Saratov, Russia

17:20-17:40
On the 550th Anniversary of the Birth of Michelangelo Buonarroti
Boris A. Medvedev[1], Mariya I. Kharkovenko[2];
[1]Saratov State University, Saratov, Russia;
[2]The State Autonomous Cultural Institution of the Vladimir region. A.E. Markin Classical Music Center, Vladimir, Russia

October 2, Thursday

ROUND TABLE
Man and light in natural and art treatment of the Universe

(Scientific Library, Conf. Hall)
Co-chairs: **Boris A. Medvedev, Irina Yu. Yanina**,
Saratov State University, Russia

Panel members:
Valery V. Tuchin[a], Vladimir L. Derbov, Victor V. Rozen[a], Oleg V. Shimelfenig[a], Lev M. Babkov[a], A. V. Gorokhov[b], Dmitry A. Zimnyakov[c], Leonid A. Melnikov[c], Julia M. Duplinskay[c], Oleg M. Parshkov[c], A. V. Priezzhev[d], [a]Saratov State University, Saratov, Russia; [b]Samara University, Samara, Russia, [c]Yuri Gagarin State Technical University of Saratov, Russia, [d]M.V. Lomonosov Moscow State University, Moscow, Russia

Saratov time

14:00-14:30
PLENARY LECTURE
Using metabarcoding in entomology
Vasily V. Anikin;
Saratov State University, Saratov, Russia

14:30-14:50
On the 140th anniversary of the birth of Niels Bohr (1885-1962). The light and life of a thinker
Boris A. Medvedev;
Saratov State University, Saratov, Russia

14:50-15:10
Some aspects of the phenomenon of mentoring: from Aristotle to A. Badiou
Natal'ya V. Dovgalenko;
Saratov State Technical University, Saratov, Russia

15:10-15:30
Infinity problems in mathematics and physics
Victor V. Rozen;
Saratov State University, Saratov, Russia

12:00-12:30
Number systems from the Nile to Setun
Boris L. Faifel;
Saratov State Technical University, Saratov, Russia

15:30-15:50
Coffee break

15:50-16:10
Quantum Optics and Groundworks for Modern Quantum Information Theory
Alexander V. Gorokhov;
Samara State University, Saratov, Russia

16:10-16:30
Wave and Stone..." (On the 100th Anniversary of the Creation of Quantum (Matrix) Mechanics)
Michael M. Stolnitz;
Saratov State University, Saratov Russia

16:30-16:50
Top down education concept for hi-tech and natural sciences
Ivan V. Fedosov;
Saratov State University, Saratov, Russia

16:50-17:10
The phenomenon of mathematical intuition: are there "shortest paths" in cognition?
Yuliya M. Duplinskya;
Saratov State University, Saratov, Russia

17:10-17:30
Quantum transition time and photon coherence
Valery I. Tsoy;
Saratov State University, Saratov, Russia
17:30-17:50
Do conflicts in Nature and society contradict the principle of plot complementarity?
Oleg V. Schimelfenig;
Saratov State University, Saratov, Russia

JOINT POSTER/INTERNET SESSION AND INTERNET DISCUSSION
(Online)

1H. Comparative optical analysis of the composition of apples under different processing conditions
Elena V. Timchenko[1], Lidiia P. Timchenko[2], Anna P. Kudrysheva[2];
[1]Samara University, Samara, Russia; [2]MBOU "Technical Lyceum", Samara, Russia

2H. Search for neutrinos with energies above 200 TeV at the Baikal neutrino telescope
Andrew D. Yankevich;
Moscow State University, Moscow, Russia

Joint session of

Terahertz Optics and Biophotonics VIII & Advanced Materials for Optics and Biophotonics VIII

Chairs: **Nikita V. Chernomyrdin**, Prokhorov General Physics Institute RAS, Russian Federation; **Arseniy A. Gavdush**, Prokhorov General Physics Institute RAS (Russia); **Mariya V. Ponarina**, Prokhorov General Physics Institute RAS, (Russia); **Stanislav O. Yurchenko**, Bauman Moscow State Technical University (Russia); **Egor V. Yakovlev**, Bauman Moscow State Technical University (Russia); **Irina N. Dolganova**, Osipyan Institute of Solid State Physics RAS (Russia); **Vladimir N. Kurlov**, Osipyan Institute of Solid State Physics RAS (Russia); **Kirill I. Zaytsev**, Prokhorov General Physics Institute RAS (Russia)

Secretary: **Vladislav A. Zhelnov**, Prokhorov General Physics Institute RAS (Russia), E-mail: vleder.zel@mail.ru; **Polina V. Aleksandrova**, Prokhorov General Physics Institute RAS (Russia), E-mail: *aleksandrovapolina98@gmail.com*

International Program Committee: **Maria G. Burdanova**, Moscow Institute of Physics and Technology (Russia); **Nikita V. Chernomyrdin**, Prokhorov General Physics Institute RAS (Russia); **Gleb M. Katyba**, Osipyan Institute of Solid State Physics RAS (Russia); **Arseniy A. Gavdush**, Prokhorov General Physics Institute RAS (Russia); **Sergey V. Garnov**, Prokhorov General Physics Institute RAS (Russia); **Gennady A. Komandin**, Prokhorov General Physics Institute RAS (Russia); **Olga P. Cherkasova**, Institute of Automation and Electrometry SB RAS, Institute of Laser Physics SB RAS (Russia); **Vladimir M. Masalov**, Osipyan Institute of Solid State Physics RAS (Russia); **Irina N. Dolganova**, Osipyan Institute of Solid State Physics RAS (Russia); **Vladimir N. Kurlov**, Osipyan Institute of Solid State Physics RAS (Russia); **Dmitry S. Ponomarev**, NRC "Kurchatov Institute" (Russia); **Igor V. Reshetov**, Sechenov University, Academy of Postgraduate Education FSCC FMBA (Russia); **Stanislav O. Yurchenko**, Bauman Moscow State Technical University (Russia**); Egor V. Yakovlev**, Bauman Moscow State Technical University (Russia)

September 29, Monday

INVITED LECTURE/ORAL/
ON-LINE SESSION
(Cluster for Engineering for Life Sciences, Centre for Soft Matter and Physics of Fluids, BMSTU)

Link to connect in Yandex Telemost:
https://telemost.yandex.ru/j/13727231683664

Chairs: **Arsenii A. Gavdush,** Prokhorov General Physics Institute RAS, Russia

Saratov time/Moscow time/

9:30-10:00 / 8:30-9:00
Welcome coffee break

10:00-10:45 / 9:00-9:45
Invited
Broadband spectroscopy of astrophysical ice analogues
Arsenii Gavdush; Prokhorov General Physics Institute RAS, Russia

10:45-11:00 / 9:45-10:00
Oral
THz pulsed solid immersion microscopy with subwavelength resolution
Vladislav Zhelnov[1], Demyan Rybnikov[1,2], Vladislav Ulitko[3], Maksim Skorobogatiy[3], Kirill Zaytsev[1] and Nikita Chernomyrdin[1]; [1]Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia; [2]Bauman Moscow State Technical University, Moscow, Russia; [3]Polytechnique Montreal, Montreal, Canada

11:00-11:15 / 10:00-10:15
Oral
Terahertz scattering in biological tissues: spherical and cylindrical scatterers
Anna Kucheryavenko[1,2], Irina Dolganova[1,2], Nikita Chernomyrdin[1] and Kirill Zaytsev[1]; [1]Prokhorov General Physics Institute of the Russian Academy of Sciences, Russia; [2]Osipyan Institute of Solid State Physics of the Russian Academy of Sciences, Russia

11:15-11:30 / 10:15-10:30
Oral
THz birefringence of different tissue types probed by polarization-sensitive THz solid immersion microscopy
Darya Il'enkova[1,2], Demyan Rybnikov[1,2], Anna Alekseeva[3], Kirill Zaytsev[1] and Nikita Chernomyrdin[1]; [1]Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia; [2]Bauman Moscow State Technical University, Moscow, Russia; [3]Research Institute of Human Morphology, Moscow, Russia

11:30-11:45 / 10:30-10:45
Oral
Features of the interaction of terahertz radiation with polymer models of diatom frustules
Maria Reshetova[1,2], Julijana Cvjetinovic[1], Gleb Katyba[3], Arina Radivon[4], Kirill Zaytsev[5], Sergey Dyakov[1], Dmitry Gorin[1], Evgeniy Epifanov[2] and Nikita Minaev[2]; [1]Skolkovo Institute of Science and Technology, Moscow, Russia; [2]Institute of Photon Technologies (Troitsk) Kurchatov Complex of Crystallography and Photonics NRC "Kurchatov Institute", Troitsk, Moscow, Russia; [3]Institute of Solid State Physics of RAS, Chernogolovka, Russia; [4]Moscow Institute of Physics and Technology, Dolgoprudny, Russia; [5]Prokhorov General Physics Institute of RAS, Moscow, Russia

11:45-12:00 / 10:45-11:00
Coffee break

12:00-12:15 / 11:00-11:15
Oral
Optical pump-terahertz probe of smooth ultrathin gold films
Maksim Paukov[1], Dmitry Yakubovsky[1,2], Shuang Sun[3,4], Aleksandr Marakulin[1], Gennady Komandin[5], Andrey Vyshnevyy[1,2], Kirill Zaitsev[5] and Aleksey Arsenin[2], Yan Zhang[3,4] and Maria Burdanova[1,5,6]; [1]Center for Photonics and 2D Materials, MIPT, Phystech, Dolgoprudny, Russia; [2]Emerging Technologies Research Center, XPANCEO, Dubai, United Arab Emirates; [3]Beijing Key Laboratory for Metamaterials and Devices, Key Laboratory of Terahertz Optoelectronics, Ministry of Education of China, Beijing, China; [4]Beijing Advanced Innovation Center for Imaging Technology, Department of Physics, Capital Normal University, Beijing, China; [5]Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia; [6]Osipyan Institute of Solid State Physics of the Russian Academy of Sciences, Chernogolovka, Russia

12:15-12:30 / 11:15-11:30
Oral
Stretching-tunable diffractive elements based on single-walled carbon nanotubes for the terahertz frequency range
Arina Radivon[1,2,3], Gleb Katyba[2,3], Nikita Raginov[4], Aleksey Chernykh[5], Maksim Paukov[1], Gennady Komandin[2], Kirill Zaytsev[2], Yuriy Gladush[4], Nikolay Petrov[5,6], Albert Nasibulin[4], Aleksey Arsenin[1], Dmitry Krasnikov[4] and Maria Burdanova[1,2]; [1]Center for Photonics and 2D Materials, Moscow Institute of Physics and Technology, Dolgoprudny, Russia; [2]Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia; [3]Institute of Solid State Physics of the Russian Academy of Sciences, Chernogolovka, Russia; [4]Skolkovo Institute of Science and Technology, Moscow, Russia; [5]ITMO University, St. Petersburg, Russia; [6]Qingdao Innovation and Development Center, Harbin Engineering University, Qingdao, China

12:30-12:45 / 11:30-11:45
Oral
Assessment of Orientational Order in Multilayer Aligned Carbon Nanotubes Using THz and Optical Spectroscopy
Egor Chepurov[1], Alexander Marakulin[1], Artur Ishteev[2], Oksana Shapovalova[2], Gennady Komandin[3], Nikolay Pak[1] and Maria Burdanova[1]; [1]Center for Photonics and 2D Materials, MIPT, Phystech; [2]Semenov Federal Research Center for Chemical Physics of the Russian Academy of Sciences, Moscow, Russia; [3]Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

12:45-13:00 / 11:45-12:00
Online Oral Report
Device based on surface acoustic waves to monitor an active THz diffraction grating based on VO_2
Maxim Ochkurov, Gevork Karapetyan and Vladimir Kaydashev; Laboratory of Nanomaterials, Southern Federal University, Rostov-on-Don, Russia

13:00-14:00 / 12:00-13:00
Coffee break

INVITED LECTURE/ORAL/ ON-LINE SESSION

(Cluster for Engineering for Life Sciences, Centre for Soft Matter and Physics of Fluids, BMSTU)

Link to connect in Yandex Telemost:

https://telemost.yandex.ru/j/13727231683664

Chairs:-**Irina N. Dolganova,** Osipyan Institute of Solid State Physics RAS, Chernogolovka, Russia

14:00-14:45 / 13:00-13:45
Invited
Using amorphous microwire-based GMI sensors to suppress fNIRS artifacts and improve the reliability of cognitive measurements
Oleg Aksenov, Artem Fuks and Alexandr Aronin; Osipyan Institute of Solid State Physics of the Russian Academy of Sciences, Chernogolovka, Russia

14:45-15:00 / 13:45-14:00
Oral
Application of microsecond pulse laser systems for ablation of biological tissues
Polina Aleksandrova[1], Arsen Zotov[1], Anna Alekseeva[2], Yuri Suchkov[1], David Kochiev[1] and Irina Dolganova[3]; [1]Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia, [2]Avtsyn Research Institute of Human Morphology of Federal State Budgetary Scientific Institution "Petrovsky National Research Centre of Surgery", Moscow, Russia, [3]Osipyan Institute of Solid State Physics of the Russian Academy of Science, Chernogolovka, Russia

15:00-15:15 / 14:00-14:15
Oral
Cascading cavitation bubble, induced by microsecond laser
Oleg Pokhodyaev[1], Nikita Kryuchkov[1], Arsen Zotov[2], Kseniya Feklisova[2], Kirill Zaytsev[1] and Egor Yakovlev[1]; [1]Bauman Moscow State Technical University, Moscow, Russia, [2]Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

15:15-15:30 / 14:15-14:30
Oral
Photosensitive analogs of epinephrine for modulation of biological processes by light
Alexander Moskalensky[1], Mikhail Panfilov[1,2] and Alexey Vorob'ev[1,2]; [1]Novosibirsk State University, Novosibirsk, Russia, [2]Novosibirsk Institute of Organic Chemistry, Novosibirsk, Russia

15:30-15:45 / 14:30-14:45
Oral
Monitoring of tissue optical parameters using compact sapphire probe based on diffuse reflectance analysis
Alina Platonova[1], David Kochiev[1], Yuri Suchkov[1], Kirill Zaytsev[1], Vladimir Kurlov[2] and Irina Dolganova[2]; [1]Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia, [2]Osipyan Institute of Solid State Physics of the Russian Academy of Science, Chernogolovka, Russia

15:45-16:00 / 14:45-15:00
Oral
Tissue-mimicking phantom of liver with tunable optical properties for laser thermotherapy
Sophia Mirzaeva[1], Polina Aleksandrova[1], Irina Dolganova[2], Yuri Suchkov[1], David Kochiev[1] and Arsen Zotov[1]; [1]Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia, [2]Osipyan Institute of Solid State Physics of the Russian Academy of Science, Chernogolovka, Russia

16:00-16:15 / 15:00-15:15
Coffee break

16:15-16:30 / 15:15-15:30
Oral
Optical phantoms containing ICG and IJA encapsulated in vaterites for optoacoustic and fluorescence lifetime visualization
Timothy Torokhov[1,2], Sergei Perkov[1], Maksim Mokrousov[1], Ekaterina Prikhozhdenko[3], Mikhail Shlykov[4], Eugene Maksimov[5], Igor Sergeev[1], Sergey Korchagin[6], Egor Ershov[6], Vladislav Shcheslavskiy[7,8] and Dmitry Gorin[1]; [1]Center for Photonic Science and Engineering, Skolkovo Institute of Science and Technology, Moscow, Russia, [2]Prokhorov General Physics Institute, Moscow, Russia, [3]Science Medical Center, Saratov State University, Saratov, Russia, [4]Baikov Institute of Metallurgy and Materials Science, Moscow, Russia, [5]Department of Biophysics, School of Biology, Moscow State University, Moscow, Russia, [6]Institute for Information Transmission Problems, Moscow, Russia, [7]Institute of Experimental Oncology and Biomedical Technologies, Privolzhsky Research Medical University, Nizhny Novgorod, Russia, [8]Becker&Hickl GmbH, Berlin, Germany

16:30-16:45 / 15:30-15:45
Oral
Fabrication of hollow SiO2 particles and artificial 3D lattice based on them
Aysiena-Ekaterina Protopopova, Nadezhda Sukhinina, Vladimir Masalov, Aleksei Kaledin, Vladimir Kurlov and Gleb Katyba; Osipyan Institute of Solid State Physics of the Russian Academy of Sciences, Chernogolovka, Russia

16:45-17:00 / 15:45-16:00
Oral
Efficient SERS sensor platforms based on novel composite materials
Olesya Kapitanova and Irina Veselova; Lomonosov Moscow State University, Moscow, Russia

17:00-17:15 / 16:00-16:15
Oral
Plasmon-enhanced photorelease of nitric oxide from light-sensitive donors on silver island films
Danil Shershnev[1,2], Natalia Virts[1], Igor Gladskikh[3], Pavel Geydt[2], Mikhail Panfilov[1,4], Alexey Vorob'ev[2,4] and **Alexander Moskalensky**[1,2]; [1]Sirius University of Science and Technology, Sirius, Russia, [2]Novosibirsk State University, Novosibirsk, Russia, [3]ITMO University, St. Petersburg, Russia, [4]N.N. Vorozhtsov Novosibirsk Institute of Organic Chemistry SB RAS, Novosibirsk, Russia

17:15-17:30 / 16:15-16:30
Oral
Effect of photodissolution of iron oxide nanoparticles on lipid droplet formation in diatoms
Anastasiia Ivleva, Dmitrii Tsiurko, Igor Sergeev, Maria Blindman, Ekaterina Moiseeva, Sergei German, Julijana Cvjetinovic and Dmitry Gorin; Center for Photonic Science and Engineering, Skolkovo Institute of Science and Technology, Moscow, Russia

17:30-17:45 / 16:30-16:45
Online Oral Report
Monitoring refractive index kinetics of optical clearing agents in synthetic opal phantoms
Arsenii Fashchevkii[1], Yuriy Surkov[1], Isabella Serebryakova[1], Arsen Zotov[2], Anna Kycheryavenko[3], Gleb Katyba[2] and Valery Tuchin[1,4,5]; [1]Saratov State University, Saratov, Russia, [2]Prokhorov General Physics Institute, Moscow, Russia, [3]Osipyan Institute of Solid State Physics of the Russian Academy of Science, Chernogolovka, Russia, [4]Tomsk State University, Tomsk, Russia, [5]Institute of Precision Mechanics and Control, FRC "Saratov Scientific Centre of the RAS," Saratov, Russia

September 30, Tuesday

INVITED LECTURE/ORAL/ ON-LINE SESSION

(Cluster for Engineering for Life Sciences, Centre for Soft Matter and Physics of Fluids, BMSTU)

Link to connect in Yandex Telemost:
https://telemost.yandex.ru/j/13727231683664

Chairs:-**Alla B. Salmina**, Brain Science Institute, Research Center of Neurology, Moscow, Russia
and
Vladimir V. Salmin, Moscow Institute of Physics and Technology, MIPT, Dolgoprudny, Russia

Saratov time/Moscow time/

10:00-10:45 / 9:00-9:45
Invited
Laser lithotripsy: current state of research and development
David Kochiev; Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

10:45-11:00 / 9:45-10:00
Oral
The resistance of brain microvascular endothelial cells to the development of reductive stress *in vitro*
Svetlana Novikova[1], Nataliya Kolotyeva[1], Arseny Berdnikov[1], Nataliya Rozanova[1], R. Mudarisova[1], Vladimir Makarov[1,2], Anastasia Ryabova[2] and Alla Salmina[1]; [1]Brain Science Institute, Research Center of Neurology, Moscow, Russia, [2]Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

11:00-11:15 / 10:00-10:15
Oral
Novel approach to the in vivo assessment of BBB integrity and brain tissue clearance with the optofiber photometry
Arseny Berdnikov[1], Alla Stavrovskaya[1], **Ilia Potapenko**[1], Victoria Zhdankina[1], Alexandra Lukyanchuk[1], Yulia Komleva[1], Vladimir Salmin[2] and Alla Salmina[1]; [1]Russian Center of Neurology and Neuroscience, Moscow, Russia, [2]Bauman Moscow State Technical University, Moscow, Russia

11:15-11:30 / 10:15-10:30
Oral
Machine learning for spectral data processing in biospectroscopy. Application to Parkinson's disease diagnostics
Nikita Bainaev-Mangilev[1], Vladimir Salmin[1,2], Viktor Loschenov[3,4], A. Ochirova[3], Maxim Andreev[5], Ekaterina Fedotova[5], Alla Salmina[5] and Sergei Illarioshkin[5]; [1]Moscow Institute of Physics and Technology (National Research University), Moscow, Russia, [2]Bauman Moscow State Technical University (National Research University), [3]National Research Nuclear University MEPhI, [4]Federal Research Center A.M. Prokhorov General Physics Institute of the Russian Academy of Sciences, [5]Federal State Budgetary Scientific Institution "Neurology Research Center"

11:30-11:45 / 10:30-10:45
Oral
Immunocytochemical and morphometric analysis of hiPSC-derived neurospheres and their conglomerates in Parkinson and Alzheimer disease
Anna Kopylova[1], Roman Shumilin[1], Daria Volegova[1], Elizaveta Pereplitsa[2], Anna Blagova[2], Ksenia Salina[1], Ilya Lanikin[1], Petr Kupriyanov[1], Anna Zubova[2], Marina Kapkaeva[2], Ivan Simkin[1], Alla Salmina[1,2], Stanislav Yurchenko[1] and Sergei Illarioshkin[2]; [1]Laboratory of Cellular Technologies and Tissue Engineering, Center “Soft Matter and Physics of Fluids,” Bauman Moscow State Technical University, Moscow, Russia, [2]Laboratory of Neurobiology and Tissue Engineering, Brain Science Institute, Research Center of Neurology, Moscow, Russia

11:45-12:00 / 10:45-11:00
Coffee break

12:00-12:15 / 11:00-11:15
Oral
Syneresis as a side process during gelation of cellulose nanocrystals and gelatin and its suppression
Anastasia Belyaeva, Ivan Kushnir, Stanislav Yurchenko and Sofia Morozova; Centre for Soft Matter and Physics of Fluids, Bauman Moscow State Technical University, Moscow, Russia

12:15-12:30 / 11:15-11:30
Oral
Problems of cell visualization in three-dimensional hydrogel matrices and ways to solve them
Ksenia Salina[1], Anastasia Belyaeva[1], Anna Kopylova[1], Daria Volegova[1], Anton Averchuk[1,2], Alla Salmina[1,2], Sofia Korsakova[1] and Stanislav Yurchenko[1]; [1]Centre for Soft Matter and Physics of Fluids, Bauman Moscow State Technical University, Moscow, Russia, [2]Russian Center of Neurology and Neurosciences, Moscow, Russia

12:30-12:45 / 11:30-11:45
Oral
Diffusion in Brain Parenchyma: A Physical Model of Molecular Transport
Leonid Polynkin[1], Pavel Libet[1], Nikita Kryuchkov[1], Alla Salmina[1,2], Pavel Tregub[2] and Stanislav Yurchenko[1]; [1]Bauman Moscow State Technical University, Moscow, Russia, [2]Brain Science Institute, Research Center of Neurology, Moscow, Russia

12:45-13:00 / 11:45-12:00
Oral
Investigation of method of aberrant protein potentiation using self-assembly of colloidal particles in external rotating fields
Anastasia Shirokova[1], Aksinya Bondareva[1], Ivan Kushnir[1], Viktoriya Zhdankina[2], Ekaterina Petrushko[2], Stanislav Yurchenko[1], Nataliya Kolotieva[1,2] and Egor Yakovlev[1]; [1]Bauman Moscow State Technical University, Moscow, Russia, [2]Research center of neurology, Moscow, Russia

13:00-14:00 / 12:00-13:00
Coffee break

INVITED LECTURE/ORAL/ ON-LINE SESSION
(Cluster for Engineering for Life Sciences, Centre for Soft Matter and Physics of Fluids, BMSTU)
Link to connect in Yandex Telemost:
https://telemost.yandex.ru/j/13727231683664

Chairs:-**Stanislav O. Yurchenko,** and **Egor V. Yakovlev**, Bauman Moscow State Technical University, Moscow, Russia

14:00-14:45 / 13:00-13:45
Invited
Non-invasive diagnosis of physical urticaria by photoplethysmography-based techniques
Alexandr Machikhin; Scientific and Technological Centre of Unique Instrumentation of the Russian Academy of Sciences, Moscow, Russia

14:45-15:30 / 13:45-14:30
Online Invited
Studying the composition of urine thermal decomposition products of patients with prostate tumors (pilot study) by high-resolution terahertz gas spectroscopy
Vladimir Vaks[1,2]; Vagif Atduev[3,4], Anna Maslennikova[1,4], Elena Domracheva[1,2], Maria Chernyaeva[1,2], Vladimir Anfertev[2], Kurban Atduev[3], Mikhail Rodionov[1,2], Mauro Fernandes Pereira[5]; [1]Lobachevsky State University, Nizhny Novgorod, Russia; Institute for Physics of Microstructures of RAS, Nizhny Novgorod, Russia; [2]Institute for Physics of Microstructures of RAS, Nizhny Novgorod, Russia; [3]Privolzhsky District Medical Center of the Federal Medical and Biological Agency of Russia, Nizhny Novgorod,Russia; [4]Privolzhsky Research Medical University, Nizhny Novgorod, Russia; [5]Khalifa University of Science and Technology, Abu Dhabi, UAE

15:30-15:45 / 14:30-14:45
Oral
Electric field driven hierarchical self-assembly of polydisperse colloidal emulsion
Ivan Simkin[1], Ivan Kushnir[1], Anastasia Shirokova[1], Egor Yakovlev[1], Sofia Korsakova[1], Maria Lomova[2], Anton Shevtsov[1], Stanislav Yurchenko[1] and Nikita Kryuchkov[1]; [1]Soft Matter and Physics of Fluids Centre, Bauman Moscow State Technical University, Moscow, Russia; [2]Science Medical Centre, Saratov State University, Saratov, Russia

15:45-16:00 / 14:45-15:00
Oral
Self-assembly of polydisperse systems near the critical point
Raniya Nafikova, Nikita Kryuchkov, Ivan Simkin and Stanislav Yurchenko; Bauman Moscow State Technical University, Moscow, Russia

16:00-16:15 / 15:00-15:15
Oral
Time-dependent interactions for directed self-assembly of 2D colloidal crystals
Alina Krasina and Nikita Kryuchkov; Bauman Moscow State Technical University, Moscow, Russia

16:15-16:30 / 15:15-15:30
Oral
A novel regularity in transport phenomena: linear mobility of colloids from the triple to critical point
Ivan Kushnir, Daniil Bystrov, Egor Yakovlev, Sofia Korsakova, Nikita Kryuchkov and Stanislav Yurchenko; Bauman Moscow State Technical University, Moscow, Russia

16:30-16:45 / 15:30-15:45
Oral
Energy-entropy transition in defect distribution of melting colloidal monolayers with tunable interactions
Daniil Bystrov, Sofia Korsakova, Nikita Krychkov, Egor Yakovlev and Stanislav Yurchenko; Centre for Soft Matter and Physics of Fluids, Bauman Moscow State Technical University, Moscow, Russia

16:45-17:00 / 15:45-16:00
Coffee break

17:00-17:15 / 16:00-16:15
Oral
ML-based analysis of 3D colloidal self-assembly induced by rotating magnetic fields
Anton Shvetsov, Ivan Simkin, Anastasia Shirokova, Aksinya Bondareva, Maxim Dragun, Oleg Pokhodyaev, Aleksandra Kohanovskaya, Nikita Kryuchkov and Egor Yakovlev; Bauman Moscow State Technical University, Moscow, Russia

17:15-17:30 / 16:15-16:30
Oral
Dynamics of a 3D colloidal suspension in a conical magnetic field
Aksinya Bondareva, Anastasia Shirokova, Maxim Dragun, Oleg Pokhodyaev, Aleksandra Kohanovskaya, Egor Yakovlev, Anton Shvetsov and Ivan Simkin; Bauman Moscow State Technical University, Moscow, Russia

17:30-17:45 / 16:30-16:45
Oral
The system for controlling the dynamics of particles and cells using rotating conical electric fields
Aleksandra Kokhanovskaia, Maxim Dragun, Oleg Pokhodyaev and Egor Yakovlev; Bauman Moscow State Technical University, Moscow, Russia

17:45-18:00 / 16:45-17:00
Oral
Interpolation method for pair correlation function from two-dimensional crystals to three-dimensional liquids
Artur Nasyrov and Nikita Kryuchkov; Bauman Moscow State Technical University, Moscow, Russia

18:00-18:15 / 17:00-17:15
Oral
Dependence of the self-diffusion coefficient on the q-gap value in fluids
Konstantin Zhukov, Nikita Kryuchkov and Stanislav Yurchenko; Bauman Moscow State Technical University, Moscow, Russia

Round Table of High Technologies Commercialization and Regional Innovation Systems XIX

Workshop Chairs: **Julia S. Skibina** LLC SPE “Nanostructured Glass Technology”, Russia, **Andrey Shuvalov** LLC SPE “Nanostructured Glass Technology”, Russia, **Sergey N. Sokolov,** RME “Inject” LLC, Saratov, Russia, **Daniil N. Bratashov** MIPT and Saratov State University, Russia**, Andrey P. Rytik**, Saratov State University, Russia

October 1, Wednesday
ORAL SESSION /ROUND TABLE
(Building 6, Room 204)

Saratov State University, Russia

Saratov time

10:00-10:20
Oral Report
Commercialization of High-Performance Ultrasonic Antennas for Biomedical Optoacoustics (Photoacoustics)
Pavel V. Subochev;
BARI-NN Ltd, Nizhny Novgorod, Russia (www.photoacoustics.ru)

10:20-10:40
Oral Report
Wavelength-tunable near-infrared LiCAF:Cr lasers for biochemistry and substance detection
Alexey S. Nizamutdinov[1], Radik D. Aglyamov[1], Alexander K. Naumov[1], Alexey A. Shavelev[1], Oleg A. Morozov[1,2], Andrey A. Sergeev[3], Anastasiya P. Pogoda[3], Vadim V. Semashko[1,2];
[1]Kazan Federal University, Kazan, Russia;
[2]Kazan Scientific Center of RAS, Zavoisky Physical-Technical Institute, Kazan, Russia
[3]Baltic State Technical University “VOENMEH” named after D. F. Ustinov, Saint-Petersburg, Russia

10:40-11:00
Oral Report
Drug-eluting coatings. From history to practice
Olga A. Sindeeva[1], Arkady S. Abdurashitov[1,2], Pavel I. Proshin[2], Gleb B. Sukhorukov[1,2];
[1]Skolkovo Institute of Science and Technology, Moscow, Russia;
[2]Life Improvement by Future Technologies Center, Moscow, Russia

11:00-11:20
Oral Report
Optomed Aurora IQ handheld fundus camera in medical practice
Ivan O. Riasik. Private Laboratory of Medical Biophysics

11:20-11:40
Oral Report
Development of biomedical photoacostics devices for glucose sensing and circulating tumor cells detection based on natural contrast
Daniil N. Bratashov[1,2];
[1]Moscow institute of physics and technologies, Dolgoprudnyi, Russia;
[2]Saratov state university, Saratov, Russia