

Saratov Fall Meeting - SFM'14



SCIENTIFIC PROGRAM

International Symposium

Optics and Biophotonics-II

September 23 – 26, 2014

Saratov, Russia



CONFERENCES:

Optical Technologies in Biophysics & Medicine XVI

Laser Physics and Photonics XVI

Spectroscopy and Molecular Modeling XV

Nanobiophotonics X



Microscopic and Low-Coherence Methods in Biomedical and Non-Biomedical Applications VII

Internet Biophotonics VII

Nonlinear Dynamics V

Low-Dimensional Structures IV

Biomedical Spectroscopy



Advanced Polarization Technologies in Biomedicine and Material Science

Computational Biophysics and Analysis of Biomedical Data

18th International School for Junior Scientists and Students on Optics, Laser Physics & Biophotonics

September 22 – 26, 2014

Saratov, Russia



WORKSHOPS:

Modern Optics XIII

English as a Communicative Tool in the Scientific Community XIII

Management of High Technologies Commercialization and Regional Innovation Systems XI

History, Methodology and Philosophy of the Optical Education VII

Telemedicine IX



SPECIAL EVENTS DURING THE MEETING:

U.M.N.I.K.: Special session on student reports on Optics, Laser Physics and Biophotonics, awarded by the Russian Foundation on Innovations

Presentation of Journal of Biomedical Photonics & Engineering



SHORT COURSES

FOUNDATION "DYNASTY"/OSA/SPIE

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SFM'14

International Symposium Optics and Biophotonics-II

18th International School for Junior Scientists and Students on Optics, Laser Physics & Biophotonics

Organized by

N.G. Chernyshevsky Saratov State University

Research-Educational Institute of Optics and Biophotonics at Saratov State University

Research-Educational Center of Nonlinear Dynamics & Biophysics (REC-006) of CRDF and Ministry of Education and Science of RF

International Research-Educational Center of Optical Technologies for Industry and Medicine "Photonics" at Saratov State University

Institute of Biochemistry and Physiology of Plants and Microorganisms, Russian Academy of Sciences, Saratov State University

Institute of Precise Mechanics and Control, Russian Academy of Sciences

Saratov State Medical University n.a. V.I. Razumovsky

Yuri Gagarin State Technical University of Saratov

Volga Region Center of New Information Technologies at Saratov State University

Biomedical Photonics Committee of Chinese Optical Society

University of Oulu, Finland

SPIE Student Chapter

OSA Student Chapter

Saratov/Penza IEEE Chapter

In cooperation with

Academy of Natural Sciences, Saratov Regional Division

Russian Society for Photobiology

Saratov Science Center of the Russian Academy of Sciences

Photonics4Life Consortium of EC FP7: Network of Excellence for Biophotonics

Biophotonics4Life Worldwide Consortium (BP4L) and BiophotonicsWorld.org

Co-sponsored by

RFBR – Russian Foundation for Basic Research

RAS - Russian Academy of Sciences

SPIE – The International Society of Photo-Optical Instrumentation Engineers

OSA – Optical Society of America

IEEE - Institute of Electrical and Electronics Engineers

LLC SPE Nanostructured Glass Technology, Saratov

Russian Technology Platform “The Medicine of the Future”

Russian Technology Platform “Photonics”

Government of the Russian Federation (grant №14.Z50.31.0004 to support scientific research projects implemented under the supervision of leading scientists at Russian institutions and Russian institutions of higher education)

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Juergen Popp, Institute of Photonic Technology, Jena, Germany

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Internet group

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Ivan V. Fedosov, Saratov State University

Members

Mikhail M. Stolnitz, Saratov State University
Alexey V. Shabunin, Saratov State University
Andrey V. Slepnev, Saratov State University
Maxim A. Kurochkin, Saratov State University

Schedule of SFM-14
International Symposium “Optics and Biophotonics-II”
18th International School for Junior Scientists and Students on Optics, Laser Physics & Biophotonics

September 22, Monday

12.00-14.00	Registration	<i>Building 10, Foyer</i>
14.00-14.10	Opening of 18th International School on Optics, Laser Physics & Biophotonics Valery V. Tuchin, Chair, Saratov State University, Russia	<i>Building 10, Hall 503</i>
14.10-15.30	FOUNDATION “DYNASTY” SHORT COURSE The spectroscopy, surface modification and bio/medical applications of nanodiamond Chia-Liang Cheng, National Dong Hwa University, Taiwan	<i>Building 10 Hall 503</i>
15.30-16.00	Coffee break	
16.00-17.30	FOUNDATION “DYNASTY” SHORT COURSE The spectroscopy, surface modification and bio/medical applications of nanodiamond Chia-Liang Cheng, National Dong Hwa University, Taiwan	<i>Building 10 Hall 503</i>

September 23, Tuesday

9.00-14.00	Registration	<i>Building 3, Foyer</i>
9.30-11.00	OSA SHORT COURSE Towards Deep Tissue Luminescence Imaging Using Upconverting Nanoparticles Stefan Andersson-Engels, Lund University, Sweden	<i>Building 10, Hall 503</i>
11.00-11.30	Coffee break	
11.30-13.00	OSA SHORT COURSE Towards Deep Tissue Luminescence Imaging Using Upconverting Nanoparticles Stefan Andersson-Engels, Lund University, Sweden	<i>Building 10, Hall 503</i>
13.00-14.00	Lunch	
14.00-14.10	Opening of International Symposium "Optics and Biophotonics-II" Valery V. Tuchin, Chair, Saratov State University, Russia	<i>Building 10 Main Conference Hall</i>
14.10-15.30	PLENARY SESSION I Chair: Valery V. Tuchin, Saratov State University, Russia Recent Developments on Nanodiamond for Bio/Medical Applications, Chia-Liang Cheng , National Dong Hwa University, Taiwan Optical Coherence Elastography - Methods and Applications, Kirill V. Larin , University of Houston, USA	<i>Building 10 Main Conference Hall</i>
15.30-16.00	Coffee break	
16.00-17.55	PLENARY SESSION II Chair: Chia-Liang Cheng, National Dong Hwa University, Taiwan Structural and Functional Imaging with a Microscope-in-a-Needle for Medicine and Biology, David D. Sampson , University of Western Australia, Australia When Nanotechnology Meets Microbiology, Aleš Lapanje , Institute of Metagenomics and Microbial Technologies, Slovenija Multimodal Early Detection of Cancer, Valery P. Zakharov , Samara State Aerospace University, Russia	<i>Building 10 Main Conference Hall</i>
17.55-18.00	SPECIAL EVENT Presentation of Journal of Biomedical Photonics & Engineering, Valery P. Zakharov , Samara State Aerospace University, Russia	
18.30-21.00	Welcome Party	<i>University campus</i>

September 24, Wednesday

9.00-10.20	<p>PLENARY SESSION III Chair: Igor V. Meglinski, University of Otago, Dunedin, New Zealand</p> <p>Prospective Studies to Determine the Carotenoid Status in Human Skin, Jürgen M. Lademann, Charite - Universitaetsmedizin Berlin, Germany</p> <p>Slow light nanophotonics at the surface of an optical fiber, Mikhail Sumetsky, Aston University, UK</p>						<i>Building 10 Main Conference Hall</i>	
10.20-10.50 Coffee break								
10.50-12.10	<p>PLENARY SESSION IV Chair: Jürgen M. Lademann, Charite - Universitaetsmedizin Berlin, Germany</p> <p>Deep Tissue Imaging Using Nd-Codoped Upconverting Nanoparticles and Pulsed Excitation, Stefan Andersson-Engels, Lund University, Sweden</p> <p>Polarized Light Propagation in Turbid Media, Igor V. Meglinski, University of Otago, Dunedin, New Zealand</p>						<i>Building 10 Main Conference Hall</i>	
12.10-13.00	<p>INVITED/ORAL SESSION BIOPHYSICS I Chair: Kirill V. Larin, University of Houston, USA</p>	<i>Building 10 Main Conference Hall</i>	<p>ORAL SESSION LOW-DIMENSIONAL STRUCTURES Chair: Olga Glukhova, Saratov State University, Russia</p>	<i>Building 10, Hall 503</i>	<p>INVITED/ORAL SESSION BIOMEDICAL SPECTROSCOPY Chair: Vyacheslav I. Kochubey and Alexander B. Pravdin, Saratov State University, Russia</p>	<i>Building 3, Room 34</i>	<p>ORAL SESSION NONLINEAR DYNAMICS Chair: Vadim S. Anishchenko, Saratov State University, Russia</p>	<i>Building 3, Room 38</i>
13.00-14.00 Lunch								
15.00-17.00 Social program (Volga boat trip)								

September 25, Thursday

9.30-11.00	SPIE SHORT COURSE Skin Spectra and Colour Calculator: On-Line Object Oriented GPU Accelerated Monte Carlo Tool Igor V. Meglinski , University of Otago, Dunedin, New Zealand		<i>Building 10, Hall 503</i>	LECTURE/ORAL SESSION EDUCATION I Co-chairs: Boris A. Medvedev and Vladimir P. Ryabukho , Saratov State University, Russia		<i>Scientific Library Conference Hall</i>		
11.00-11.30	Coffee break							
11.30-13.00	SPIE SHORT COURSE Skin Spectra and Colour Calculator: On-Line Object Oriented GPU Accelerated Monte Carlo Tool Igor V. Meglinski , University of Otago, Dunedin, New Zealand		<i>Building 10, Hall 503</i>	LECTURE/ORAL SESSION EDUCATION II Co-chairs: Boris A. Medvedev and Vladimir P. Ryabukho , Saratov State University, Russia		<i>Scientific Library Conference Hall</i>		
13.00-14.00	Lunch							
14.00-16.00	INVITED/ORAL SESSION BIOPHYSICS II Chair: Alexander V. Priezzhev , Moscow State University, Russia	<i>Building 10 Main Conference Hall</i>	ORAL SESSION NANOBIO-PHOTONICS I Chair: Nikolai G. Khlebtsov , IBPPM RAS, Saratov State University, Russia	<i>Building 9 Small Conference Hall</i>	LECTURE SESSION MODERN OPTICS Chair: Vladimir P. Ryabukho , Saratov State University, Russia	<i>Building 3, Big Physical Hall</i>	ROUND-TABLE DISCUSSION EDUCATION Co-chairs: Boris A. Medvedev and Vladimir P. Ryabukho , Saratov State University, Russia	<i>Scientific Library Conference Hall</i>
	ORAL SESSION PHOTONICS I Chair: Vladimir L. Derbov , Saratov State University, Russia	<i>Building 10, Hall 503</i>			ORAL SESSION SPECTROSCOPY Co-chairs: Valentin I. Berezin , and Lev M. Babkov , Saratov State University, Russia	<i>Building 3, Room 34</i>		
16.00-16.30	Coffee break							
16.30-17.30	PLENARY SESSION INTERNET BIOPHOTONICS Chair: Valery V. Tuchin , Saratov State University, Russia Chromophore based analyses of steady-state diffuse reflectance spectroscopy: current status and perspectives for clinical adoption , Henricus J. C. M. Sterenborg , Department of Biomedical Engineering and Physics, Academic Medical Center – Amsterdam, The Netherlands Multiphoton tomography of human skin , Karsten König , JenLab GmbH, Jena, Department of Biophotonics and Laser Technology, Saarland University, Saarbrücken, Germany					<i>Building 3, Big Physical Hall</i>		
17.30-19.30	JOINT POSTER/INTERNET SESSION AND INTERNET DISCUSSION Moderators: Dmitry Agafonov , Ivan V. Fedosov , Saratov State University, Russia					<i>Building 3, 3^d floor Hall</i>		

September 26, Friday

9.30-11.00	ORAL SESSION BIOPHYSICS III Chair: Ivan V. Fedosov , Saratov State University, Russia	<i>Building 10 Main Conference Hall</i>	ORAL SESSION MANAGEMENT I U.M.N.I.K.: Special session on student reports on Optics, Laser Physics and Biophotonics Co-chairs: Valery V. Tuchin Saratov State University and Julia S. Skibina , Saratov State University, SPE "Nanostructured Glass Technology" Ltd., Russia	<i>Building 10, Hall 503</i>	ORAL SESSION POLARIZATION Co-chairs: Dmitry A. Zimnyakov , Saratov State University, Russia, Igor V. Meglinski , University of Otago, Dunedin, New Zealand	<i>Building 3, Room 34</i>	ORAL SESSION ENGLISH Co-chairs: Alexander B. Pravdin , Svetlana V. Eremina , Saratov State University, Russia	<i>Scientific Library Conference Hall</i>	
	ORAL SESSION NANOBIO-PHOTONICS II Chair: Nikolai G. Khlebtsov , IBPPM RAS, Saratov State University, Russia	<i>Building 9 Small Conference Hall</i>							
11.00-11.30	Coffee break								
11.30-13.00	ORAL SESSION PHOTONICS II Chair: Vladimir L. Derbov , Saratov State University, Russia	<i>Building 10 Main Conference Hall</i>	INVITED/ORAL SESSION MICROSCOPY AND LOW-COHERENCE METHODS Chair: Kirill V. Larin , University of Houston, USA	<i>Building 10, Hall 503</i>	ORAL SESSION BIOCOMPUTING Chair: Dmitry E. Postnov , Saratov		<i>Scientific Library Conference Hall</i>		
	ORAL SESSION NANOBIO-PHOTONICS III Chair: Nikolai G. Khlebtsov , IBPPM RAS, Saratov State University, Russia	<i>Building 9 Small Conference Hall</i>			ORAL SESSION TELEMEDICINE Co-chairs: Elena V. Karchenova , ISfTeH and Saratov Alfa-Health-centre, and Valery V. Bakutkin , Saratov Research Institute of Rural Hygiene, Russia		<i>Dr. Paramonov's Clinics</i>		
14.00-17.00	Round-table discussions and closing of the School and The Symposium								

PLENARY LECTURES

September 23, Tuesday

PLENARY SESSION I

Chair: **Valery V. Tuchin**, Saratov State University,
Russia

14.10-14.50

Recent Developments on Nanodiamond for Bio/medical Applications

Chia-Liang Cheng, National Dong Hwa University, Taiwan

14.50-15.30

Optical Coherence Elastography - Methods and Applications

Kirill V. Larin, University of Houston, USA

15.30-16.00

Coffee break

PLENARY SESSION II

Chair: **Jürgen M. Lademann**, Charite -
Universitaetsmedizin Berlin, Germany

16.00-16.40

Structural and Functional Imaging with a Microscope-in-a-Needle for Medicine and Biology

David D. Sampson, University of Western Australia, Australia

16.40-17.20

When Nanotechnology Meets Microbiology

Aleš Lapanje, Institute of Metagenomics and Microbial Technologies, Slovenija

17.20-17.55

Multimodal Early Detection of Cancer

Valery P. Zakharov, Samara State Aerospace University, Russia

September 24, Wednesday

PLENARY SESSION III

Chair: **Igor V. Meglinski**, University of Otago,
Dunedin, New Zealand

9.00-9.40

Prospective Studies to Determine the Carotenoid Status in Human Skin

Jürgen M. Lademann, Charite -
Universitaetsmedizin Berlin, Germany

9.40-10.20

Slow Light Nanophotonics at the Surface of an Optical Fiber

Mikhail Sumetsky, Aston University, UK

10.20-10.50

Coffee break

PLENARY SESSION IV

Chair: **Chia-Liang Cheng**, National Dong Hwa University, Taiwan

10.50-11.30

Deep Tissue Imaging Using Nd-Codoped Upconverting Nanoparticles and Pulsed Excitation

Stefan Andersson-Engels, Lund University, Sweden

11.30-12.10

Polarized Light Propagation in Turbid Media

Igor V. Meglinski, University of Otago, Dunedin, New Zealand

September 25, Thursday

**PLENARY SESSION
INTERNET BIOPHOTONICS**

Chair: **Valery V. Tuchin**, Saratov State University,
Russia

Moderators: **Dmitry Agafonov**, **Ivan V. Fedosov**,
Saratov State University, Russia

16.30-17.00

**Chromophore based analyses of steady-state
diffuse reflectance spectroscopy: current
status and perspectives for clinical adoption**

Henricus J. C. M. Sterenborg, Department of
Biomedical Engineering and Physics, Academic
Medical Center – Amsterdam, The Netherlands

17.00-17.30

Multiphoton tomography of human skin

Karsten König, JenLab GmbH, Jena, Department
of Biophotonics and Laser Technology, Saarland
University, Saarbrücken, Germany

International Symposium Optics and Biophotonics - II

Workshop on Optical Technologies in Biophysics & Medicine XVI

Workshop Co-chairs: **Elina A. Genina**, Saratov State University (Russia); **Igor V. Meglinsky**, Otago Univ. (New Zealand); and **Valery V. Tuchin**, Saratov State University, Institute of Precision Mechanics and Control RAS (Russia), University of Oulu (Finland)

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September 24, Wednesday

INVITED LECTURE/ORAL SESSION I

Chair: **Kirill V. Larin**, University of Houston, USA

12.10-12.30

Invited

Laser-optic assessment of red blood cells aggregation in vitro and in vivo Alexander V. Priezzhev^{1,2}, A.E. Lugovtsov², Kisung Lee¹, V.B. Koshelev³, O.E. Fadyukova³, M.D. Lin³, Yu. I. Gurfinkel⁴, ¹Department of Physics, ²International Laser Center, ³Faculty of Medicine of Lomonosov Moscow State University; ⁴Research Clinical Center of Russian Railways, Moscow, Russia

12.30-12.45

Enhanced ability of LSCI for monitoring blood flow dynamics in vivo with tissue optical clearing method Rui Shi, Yang Zhang, Yanjie Zhao, Dan Zhu, Britton Chance Center for Biomedical Photonics, Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, China

12.45-13.00

The correlation between morphological changes in the brain tissues and cerebral blood flow over time in newborn rats with stress-induced stroke Oxana Semyachkina-Glushkovskaya¹, Pengcheng Li², Qin Huang², Zheng Zhou², Olga Bibikova¹, Sergey Sindeev¹, Ekaterina Zinchenko¹, Artem Gekaluyk¹, Maria Ulanova¹, Ilana Agranivich¹, Dan Zhu², Qingming Luo², Valery Tuchin¹, ¹Saratov State University, Russia; ²Britton Chance Center for Biomedical Photonics, Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, China

September 25, Thursday

INVITED LECTURE/ORAL SESSION II

Chair: **Alexander V. Priezzhev**, Moscow State University, Russia

14.00-14.20

Invited

Optical biopsy of cutaneous tumors – clinical applications Ekaterina Borisova¹, Aleksandra Zhelyazkova¹, Latchezar Avramov¹, Elmira Pavlova², Petranka Troyanova², Todor Kundurjiev³, ¹Institute of Electronics, Bulgarian Academy of Sciences; ²University hospital “Queen Jiovanna-ISUL”; ³Faculty of Public Health, Medical University-Sofia, Sofia, Bulgaria

14.20-14.40

Invited

Digital capillaroscopy, as important tool for early diagnostics of an arterial hypertension Yury Gurfinkel, Research Clinical Center of Russian Railways, Moscow, Russia

14.40-14.55

Scan-pattern and signal processing for microvasculature visualization with complex SD-OCT: Tissue-motion artifacts robustness and decorrelation time – blood vessel characteristics Lev A. Matveev^{1,2}, Vladimir Yu. Zaitsev^{1,2}, Grigory V. Gelikonov^{1,2}, Alexandr L. Matveyev^{1,2}, Alexander A. Moiseev¹, Sergey Ksenofontov¹, Valentin M. Gelikonov^{1,2}, Valentin Demidov³, Alex Vitkin^{2,3}, ¹Institute of Applied Physics RAS; ²Nizhny Novgorod Medical Academy, Russia; ³University of Toronto, Canada

14.55-15.10

Ultimate possibilities of displacement tracking by digital image correlation in optical coherence elastography: Combined opto-mechanical modeling and experimental demonstrations Vladimir Y. Zaitsev, L.A. Matveev, A.L. Matveyev, G.V. Gelikonov, V.M. Gelikonov, Institute of Applied Physics RAS, Nizhny Novgorod, Russia

15.10-15.25

Experimental research of the wave front distortions caused by AOTF-based spectral imagers for biomedical applications Alexander Machikhin¹, Vladislav Batshev², Yulia Firsenkova², ¹Scientific and Technological Center of Unique Instrumentation RAS; ²Bauman Moscow State Technical University, Russia

15.25-15.40

Sun-protection and thermal effect of ZnO and TiO₂ sunscreen nanoparticles upon

their application onto human skin: A Monte Carlo study Ilya Krasnikov¹, Alexey Seteikin¹, Alexey Popov², ¹Amur State University, Blagoveshchensk, Russia; ²University of Oulu, Finland

15.40-15.55

Investigation of optical properties of rabbit sclera under influence of ophtalmological gel contained deer velvet antlers components V. Petrov, V. Kochubey, I. Bakutkin, Valery V. Bakutkin, Paracels, Saratov Research Institute of Rural Hygiene, Russia

16.00-16.30

Coffee break

POSTER SESSION

Co-chairs (B): **Alexander Kalyanov**, **Ilya Smirnov**, Saratov State University (Russia)

17.30-19.30

- 1B. **The role of transcription factors NF-KB and AP-1 in photodynamic damage of neurons and glial cells** Elena V. Berezhnaya, M. A. Neginskaya, V. D. Kovaleva, M. V. Rudkovskii, A. B. Uzdensky, Southern Federal University, Rostov-on-Don, Russia
- 2B. **On the involvement of p53 in death of isolated crayfish mechanoreceptor neuron and satellite glial cells induced by axotomy and photodynamic impact** Svetlana Sharifulina, Mikhail Rudkovskii, Maxim Komandirov, Anatoly Uzdensky, Southern Federal University, Rostov Research Institute of Oncology, Russia
- 3B. **The role of NO in photoinduced damage of neurons and glial cells** Vera Kovaleva, E. Berezhnaya, M. Rudkovskii, A. Uzdensky, Southern Federal University, Rostov-on-Don, Russia
- 4B. **Photodynamic effect of radachlorin on nerve and glial cells** Maria Neginskaya¹, Elena Berezhnaya¹, Michail Rudkovskii², Anatoly Uzdensky², ¹Kogan Research Institute for Neurocybernetics SFU; Southern Federal University, Rostov-on-Don, Russia
- 5B. **Comparative survival study of glial and blood vessels wall cells in crustacean ventral nerve cord after photodynamic treatment** Mikhail Kolosov, Elena Shubina, Southern Federal University, Rostov-on-Don, Russia

- 6B. **Study of multiple Doppler scattering effect in LASCA measurements using biological tissue phantom** Alexander Turygin, Ivan Fedosov, Valery Tuchin, Saratov State University, Russia
- 7B. **Spectroscopic study of green sulfur bacteria, inhabitants of water basins separating from the White Sea** Anastasia V. Kharcheva¹, Elena D. Krasnova², Nikolai Pertsov², Dmitry A. Voronov³, Svetlana V. Patsaeva¹, ¹Faculty of Physics, Lomonosov Moscow State University; ²White Sea Biological Station, Faculty of Biology, Lomonosov Moscow State University; ³Institute for Information Transmission Problems of RAS, Moscow, Russia
- 8B. **Mapping research of the tumor tissue using Raman spectroscopy** Julia A. Khristoforova¹, Valery P. Zakharov¹, Ivan A. Bratchenko¹, Dmitriy N. Artemev¹, Oleg O. Myakinin¹, Sergey V. Kozlov², Alexandr Moryatov², ¹Samara State Aerospace University; ²Samara State Medical University, Russia
- 9B. **Autofluorescence analysis of skin cancer pathologies in the visible region** Maria Vrakova, Ivan Bratchenko, Valeriy Zaharov, Samara State Aerospace University, Samara, Russia
- 10B. **Optical methods for ecological monitoring of hydrogen concentration in Samara area** E.V. Timchenko, P.E. Timchenko, L.A. Taskina, Ekaterina A. Selezneva, N.V. Tregub, Samara State Aerospace University, Russia
- 11B. **Study of bioindicators for biosphere monitoring by optical methods** E.V. Timchenko, P.E. Timchenko, L.A. Taskina, Anna A. Asadova, L.A. Shamina, Samara State Aerospace University, Russia
- 12B. **Research of organo-mineral structure and integration of cells into grafts using optical methods** E.V. Timchenko, P.E. Timchenko, L.T. Volova, L.A.Taskina, S.V. Pershutkina, N.V. Belousov, Samara State Aerospace University, Russia
- 13B. **Investigation of density separated red blood cells aggregation in plasma by optical trapping** Kisung Lee¹, Anna V. Danilina¹, V.Yu Leonov¹, A.V. Priezzhev^{1,2}, M. Kinnunen³, A.V. Karmenyan⁴, ¹Department of Physics, Lomonosov Moscow State University; ²International Laser Center, Lomonosov Moscow State University, Russia; ³Optoelectronics and Measurement Techniques Laboratory, University of Oulu, Finland; ⁴Biophotonics and Molecular Imaging Research Center, National Yang-Ming University, Taiwan
- 14B. **Mathematical modeling of terahertz radiation propagation in skin tumors under local heating by laser-irradiated nanoparticles** Mikhail Stolnitz¹, Aleksey Kudryashov², ¹Saratov State University, Russia ²Head of Technical Department Perinatal Center of Saratov region, Russia
- 15B. **Cerebral blood flow monitoring in rat cortex using histogram analysis of laser speckle contrast image** Arkady Abdurashitov, Lychagov V. V., Olga Bibikova, Semyachkina-Glushkovskaya O.V., National Research Saratov State University, Russia
- 16B. **Experimental studies of the relationship parameters of microcirculation and redox ratio** Victor V. Dremine¹, I.N. Novikova¹, S. Zhu², A.P. Baklanova³, A.V. Dunaev¹, V.V. Sidorov³, ¹SEC "Biomedical engineering" State University ESPC, Russia; ²University of Dundee, UK; ³SPE "LAZMA" Ltd, Russia
- 17B. **Shadow scanning optical lensless microscope with low-coherent light source** Alexey Manturov, Eugeny Blushtein, Yuri Gagarin State Technical University of Saratov, Russia
- 18B. **Inhibition of photodynamic haemolysis by the Gratiola officinalis L. extract** Natalie Tkachenko¹, Alexander Pravdin¹, George Terentyuk¹, Nikita Navolokin², Maria Kurchatova², Natalia Polukonova², ¹Saratov State University; ²Saratov State Medical University, Russia
- 19B. **Measurement of diffusion coefficient of PEG-400 in skin tissue** Vadim D. Genin, Alexey N. Bashkatov, Elina A. Genina, Valery V. Tuchin, Saratov State University, Russia
- 20B. **Resolving power of the acousto-optical blood typing method for different techniques to process photoimages** Valery A. Doubrovski, Maria F. Medvedeva, Saratov State Medical University n. a. V.I. Razumovsky, Russia
- 21B. **Acousto-optical method for registration of erythrocytes agglutination reaction - hemagglutinating sera color influence on the resolving power** Valery A. Doubrovski, Maria F. Medvedeva, Stanislav O. Torbin, Saratov State Medical University n. a. V.I. Razumovsky, Russia
- 22B. **Digital photo registration of red blood cells and platelets grouping by standing ultrasonic wave** Valery A. Doubrovski, Maria F. Medvedeva, Stanislav O. Torbin, Saratov State Medical University n. a. V.I. Razumovsky, Russia

- 23B. **Microstructured and photonic crystal waveguides in hemanalysis** Anastasiya Zanishevskaya^{1,2}, Andrey Shuvalov^{1,2}, Julia Skibina^{1,2}, Valery Tuchin^{1,3,4}, ¹Saratov State University; ²LLC SPE Nanostructured Glass Technology; ³Institute of Precise Mechanics and Control RAS, Russia; ⁴University of Oulu (Finland)
- 24B. **Covering internal structure of microstructured waveguides with polymer for making an optical pH-sensor** Andrey Shuvalov^{1,2}, Anastasiya Zanishevskaya^{1,2}, Julia Skibina^{1,2}, Valery Tuchin^{1,3,4}, ¹Saratov State University; ²LLC SPE Nanostructured Glass Technology; ³Institute of Precise Mechanics and Control RAS, Russia; ⁴University of Oulu, Finland
- 25B. **Employment of mechanical compression for improvement of long-term OCT-monitoring of skin treatment** Pavel Agrba¹, Mikhail Kirillin², Dmitry Ellinsky³, ¹University of Nizhni Novgorod; ²Institute of Applied Physics of RAS; ³Nizhny Novgorod State Medical Academy, Russia
- 26B. **Laser Doppler velocimetry method for blood microcirculation studies** Maria A. Borozdova, Ivan V. Fedosov, Valery V. Tuchin, Saratov State University, Russia
- 27B. **Water transport in human skin in vivo under external mechanical compression** Inara A. Nakhaeva, Olga A. Zyuryukina, Mohammad R. Mohammad, Yury P. Sinichkin, Saratov State University, Russia
- 28B. **Dynamic of the human skin blood oxygenation during external mechanical compression** Olga A. Zyuryukina, Mikhail M. Stolnitz, Inara A. Nakhaeva, Mohammad R. Mohammad, Yury P. Sinichkin, Saratov State University, Russia
- 29B. **The use of porphyrins and their derivatives in photodynamic action on Staphylococci** Maria V. Korchenova¹, Elena S. Tuchina¹, Grigor V. Gyulhandanyan², Robert K. Kazarian³, Anna Gyulhandanyan², ¹Saratov State University, Russia; ²Institute of Biochemistry of the National Academy of Sciences of Armenia; ³Pharmaceutical Faculty of Yerevan State Medical University, Armenia
- 30B. **Photowhitening of glycation-stained dentine** Alexander B. Pravdin, Natalia I. Kazadaeva, Leonid E. Dolotov, Alexander A. Kudryavtsev, Saratov State University, Russia
- 31B. **On-phantom spatially resolved detection of fluorescence of layered biotissue under the conditions of optical clearing** Marina E. Shvachkina, Svetlana P. Chernova, Alexander B. Pravdin, Saratov State University, Russia
- 32B. **Spectral and dimensional dependencies of the temperature photo-induced by nanoparticles** Yury A. Avetisyan^{1,2}, A.A. Bykov², S.A. Yakovlev², A.N. Yakunin^{1,2}, V.V. Tuchin^{1,2}, ¹Institute of Precise Mechanics and Control, RAS; ²Saratov State University, Russia
- 33B. **Application of color image processing and a low-coherent optical computer tomography in evaluation of adhesive interfaces of dental restorations** Nadezda Bessudnova^{1,2}, Elina Genina¹, Olga Shlyapnikova¹, Alexandr Sadovnikov¹, Sergey Venig¹, ¹Saratov State University; ²Moscow Central Research Institute of Dentistry, Russia
- 34B. **Research of registration and reconstruction distances nonconformance for digital particles hologram** Victor V. Dyomin, Denis V. Kamenev, Tomsk State University, Russia
- 35B. **Investigation of the stability and degradation of the microcapsules with fluorescent quantum dots under the influence of ultrasound** Anna Vostrikova, I.Y. Goryacheva, A.A. Bakal, National Research Saratov State University, Russia
- 36B. **Remote image analysis of infectious allergic reactions to human skin** Valery Bakutkin¹, Ilya Bakutkin¹, Leonid Melnikov², ¹Saratov Research Institute of Hygiene; ²The Yuri Gagarin State Technical University of Saratov, Russia
- 37B. **Solid-surface fluorescence of hydrophilic dyes on different polysaccharide matrices** Anna Strashko¹, Svetlana Rogacheva¹, Tamara Gubina¹, Anna Shipovskaya², Elena Volkova¹, Andrey Melnikov¹, ¹Saratov State Technical University; ²Saratov State University, Russia
- 38B. **Receiving new dental materials strengthen with carbon nanotubes** Lusine Elbakyan, Volgograd state university, Russia
- 39B. **Silica-coated liposomes loaded with quantum dots for application as boilable** Olga A. Goryacheva¹, N.V. Beloglazova², ¹Saratov State University; ²Ghent University, Belgium

September 26, Friday

ORAL SESSION III

Chair: **Ivan V. Fedosov**, Saratov State University,
Russia

9.30-9.45

Application of laser flash photolysis in investigation of breast cancer Valeriya Maryakhina, Orenburg State University, Russia

9.45-10.00

Laser diffractometry assessment of human and rat erythrocytes deformability in diabetes mellitus and related diseases Andrey E. Lugovtsov,¹ A.V. Priezzhev,^{1,2} O.E. Fadyukova,³ V.B. Koshelev,³ M.D. Lin,³ ¹International Laser Center, ²Department of Physics, ³Faculty of Medicine of Lomonosov Moscow State University, Moscow, Russia

10.00-10.15

Retrieval of erythrocytes deformability distribution by means of laser ektacytometry Vladislav D. Ustinov,¹ Sergey Yu. Nikitin^{2,3}, Andrey E. Lugovtsov³, Alexander V. Priezzhev^{2,3}, Alexander V. Razgulin¹, ¹Department of Calculation Math. & Cyber., ²Department of Physics, ³International Laser Center of Lomonosov Moscow State University, Moscow, Russia

10.15-10.30

Fluorescence lifetime imaging for deep-seated fluorophore in turbid medium Alexander Khilov, Ilya Fiks, Vladimir Plekhanov, Ilya Turchin, Mikhail Kirillin, Institute of Applied Physics RAS, Nizhny Novgorod, Russia

10.30-10.45

Microprocessing of human hard tooth tissues surface by mid-infrared erbium lasers radiation Andrey V. Belikov, Ksenia V. Shatilova, Alexei V. Skrypnik, ITMO University, St. Petersburg, Russia

10.45-11.00

Extrapolation digital holograms to enhancement the quality of the reconstruction holographic images of particles Alexey Olshukov, Tomsk State University, Russia

Workshop on Laser Physics and Photonics XVI

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

Secretary: **Andrey I. Konyukhov**, Saratov State University (Russia)

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

September 25, Thursday

ORAL SESSION I

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

14.00-14.15

Adiabatic description of two-electron quantum systems with confinement potentials

Sergue Vinitsky¹, A. Gusev¹, O. Chuluunbaatar¹, L.L. Hai¹, V. Derbov², A. Klombotskaya³, A. Gozdz⁴,

¹Joint Institute for Nuclear Research, Dubna, Russia, ²Saratov State University; ³Saratov State Technical University, Russia; ⁴Institute of Physics Maria Curie-Sklodowska University Lublin, Poland

14.15-14.30

Short probe pulse electromagnetically induced transparency

Oleg Parshkov, Ekaterina Govorenko, Yuri Gagarin State Technical University of Saratov, Russia

14.30-14.45

Model for spin waves and lasing in monolayer graphene films

D. D. Grachev¹, I. A. Sevastyanov¹, k. P. Lovetskiy¹, A.A. Gusev², S.I. Vinitsky², Vladimir L. Derbov³,

¹Peoples' Friendship University of Russia, Moscow; ²Joint Institute for Nuclear Research, Dubna, Moscow Region; ³Saratov State University, Russia

14.45-15.00

Measurement of photonic nanojet generated by square-profile microstep

Sergey Stafeev¹, Victor Kotlyar², ¹Image Processing Systems Institute; ²Samara State Aerospace University, Russia

15.00-15.15

Numerical analysis of open-ended single-wall carbon nanotubes optical properties

Andrey Bokarev, Inna Plastun, Yuri Gagarin State Technical University of Saratov, Russia

15.30-15.45

Coherent population trapping as a mechanism of quantum entanglement effective control

Alexander Biryukov, Mark Shleenkov, Samara State University, Russia

15.30-15.45

The entanglement between two qubits with degenerate two-photon transitions for entangled and disentangled initial states

Eugene Bashkirov, Michail Mastuygin, Samara State University, Russia

15.45-16.00

Symmetry breaking of fragments ejection in dissociative photoionization of h₂

Vladislav Serov¹, Anatoli Kheifets², ¹Saratov State University, Russia, ²The Australian National University, Canberra, Australia

16.00-16.30

Coffee break

JOINT POSTER/INTERNET SESSION AND INTERNET DISCUSSION

Chair (P): **Alexander S. Plastun**, Saratov State University, Russia

17.30-19.30

1 P. **Four-zone reflective polarization conversion plate** Victor Kotlyar, Image Processing Systems Institute, Russia, Sergey Stafeev, Anton Nalimov, Image Processing Systems Institute, Russia, Samara State Aerospace University, Russia

2 P. **Twist-fiber with controlled surface optical properties** Elena Konkova, Volgograd State University, Russia

3 P. **Family of three-dimensional asymmetric nonparaxial lommel modes** Victor V. Kotlyar, Alexey A.

- Kovalev, Image Processing Systems Institute of the Russian Academy of Sciences, Samara; Samara State Aerospace University, Russia
- 4 P. **Form-invariant half pearcey light beam** Alexey A. Kovalev, Victor V. Kotlyar, Stanislav G. Zaskanov, Image Processing Systems Institute of the Russian Academy of Sciences, Samara; Samara State Aerospace University, Russia
- 5 P. **Entanglement between two atoms in the presence of dipole-dipole interaction and atomic coherence** Eugene Bashkirov, Michail Mastuygin, Darya Litvinova, Samara State University, Russia
- 6 P. **Light squeezing in two-atom jaynes-cummings model with intensity-dependent atom-field coupling** Eugene Bashkirov, Ekaterina Averchenko, Samara State University, Russia
- 7 P. **Libs-study of graphite-containing composite electrochemical coatings** Elena Surmenko, T.N. Sokolova, I.A. Popov, D.A. Bessonov, Saratov State Technical University, T.Yu. Shevchenko, E.A. Vasilenko, Engels Technological Institute SSTU, Russia
- 8 P. **Laser-assisted single and double ionization of helium by electron impact** Andrey Bulychev, Joint Institute for Nuclear Research, Dubna, Russia Konstantin Kouzakov, Moscow State University, Russia Yuri Popov, Moscow State University, Russia Sergey Vinitzky, Joint Institute for Nuclear Research, Dubna, Russia
- 9 P. **Modeling of bidirectional ring fiber laser dynamics with SBS** Sergey Sukhanov, Leonid Melnikov, Saratov State Technical University, Russia
- 10 P. **Methods of correction of the phase shift in digital holographic interferometry of diffusely scattering objects** Sergey A. Savonin, Educational-Research Institute of Nanostructures and Biosystems of SSU; Vladimir P. Ryabukho, Saratov State University; Institute of Precision Mechanics and Control of RAS, Saratov, Russia
- 11 P. **Sampling condition for digital holography** Konstantin Grebenyuk, Saratov State University, Russia
- 12 P. **Study of the time-resolved non-linear optical response of chalcogenide glasses by a pump-probe method** Nina Fedukina, Jeny Denisova, Yulia Kuzyutkina, Elena Romanova, Saratov State University, Russia, Angela Seddon, University of Nottingham, UK, Trevor Benson, University of Nottingham, UK, Stephane Guizard, CNRS-Ecole Polytechnique, Palaiseau, France
- 13 P. **Electrically-controlled scattering of light by nematic liquid crystal layers with random planar alignment: theory and experiment** Dmitry D. Yakovlev, Vladimir M. Ryabtsev, Dmitry A. Yakovlev, Saratov State University, Russia
- 14 P. **Fokker-planck equation for a qubit relaxation with short memory** Alexander V. Gorokhov, Feodor M. Skorobogatyi, Samara State University, Russia
- 15 P. **Generation dynamics of two-colour fiber laser for THz generation** Leonid Kochkurov, Leonid Melnikov, Yulia Mazhirina; Yuri Gagarin State Technical University of Saratov, Russia
- 16 P. **Estimation of stresses of glass-carbon after a series of powerful nano- and picosecond laser pulses** I.A. Popov, T.N. Sokolova, Yu.V. Chebotarevsky, E.L. Surmenko, A.V. Konyushin, D.A. Bessonov, Gagarin Saratov State Technical University, Saratov, Russia
- 17 P. **Dispersion characteristic calculation of photonic crystal fiber guided modes** Alexander Plastun, A. Konuykhov, Saratov State University, Russia
- 18 P. **Highly non-linear optical microresonators for frequency combs generation** Daniil Zhivotkov, Elena Romanova, Saratov State University; Ana Vukovic, University of Nottingham, UK, Sendy Phang, University of Nottingham, UK
- 19 P. **Digital holographic interferometry of bending temperature deformation of electronic boards** Peter Ryabukho, Saratov State University; Sergei Savonin, Educational-Research Institute of Nanostructures and Biosystems of Saratov State University,; Oleg Shaposhnikov, NPTS Almaz-Fazotron Ltd; Vladimir P. Ryabukho, Saratov State University; Institute of Precision Mechanics and Control of RAS, Saratov, Russia
- 20 P. **Spatial correlations and spatial function of probability density of phase difference in developed speckle-field** Natalia Yu. Mysina, Saratov State University,; Ludmila A. Maksimova, Institute of Precision Mechanics and Control Russian Academy of Sciences; Vladimir P. Ryabukho, Saratov State University, Russia
- 21 P. **Nonlinear spatio-temporal dynamics of fiber laser** Vadim Razukov,

Leonid Melnikov, Saratov State Technical University, Russia

- 22 P. **Stability of steady state oscillations in bidirectionally pumped Raman laser** Ekaterina Romanova, Saratov State Technical University, Russia
- 23 P. **On the approximation of excited atomic state elimination in the theory of superradiant scattering of laser light from a Bose-Einstein condensate** Yuri Avetisyan, Institute of Precision Mechanics and Control, RAS, Russia
- 24 P. **Features of reflection spectra metal-j-aggregate structures with surface plasmons (computer simulation)** Pavel Sychev, Vasili Nazvanov, Saratov State University, Russia
- 25 P. **Diode based laser tweezers with direct manual control of trap** Yuri Leshko, Ivan V. Fedosov, Valery V. Tuchin, Saratov State University, Russia

INTERNET REPORTS

1. **Nonlinear conversion of light in photo-integrated micro- and nano-periodic susceptibility lattices** Vitaly Smirnov, Liubov Vostrikova, Rzhanov Institute of Semiconductor Physics SB RAS, Russia
2. **Perspectives of photo-modification of glass materials for creating of frequency micro- and nano-converters** Vitaly Smirnov, Liubov Vostrikova, Rzhanov Institute of Semiconductor Physics SB RAS, Russia
3. **Optical increase of photo-integrated micro- and nano-periodic susceptibility lattices** Vitaly Smirnov, Liubov Vostrikova, Rzhanov Institute of Semiconductor Physics SB RAS, Russia
4. **Entanglement of atoms succesively passing a cavity taking into account the Stark shift** Eugene Bashkirov, Tamara Pyuzymaya, Samara State University, Russia
5. **Dispersion characteristics of hyperbolic graphene-semiconductors multilayered structure** Olga Kozina, Saratov Branch of the Kotel'nikov Institute of Radio-Engineering and Electronics Electronics of RAS, Russia, Leonid Melnikov, Yuri Gagarin State Technical University of Saratov, Saratov, Russia, Igor Nefedov, Aalto University, School of Electrical Engineering, Aalto, Finland
6. **A multicycle laser strengthening and stabilization treatment technology for slender parts** Andrey Korolev, Albert Korolev, The Yuri

Gagarin State Technical University of Saratov, Russia

7. **Temperature distribution within and outside the laser heating zone** Andrey Korolev, Albert Korolev, The Yuri Gagarin State Technical University of Saratov, Russia
8. **Perfect absorption, gain and high-directive super-planckian thermal emission in asymmetric hyperbolic metamaterials** Igor Nefedov¹, Leonid Melnikov², ¹Aalto University, Finland; Saratov State Technical University, Russia

September 26, Friday

ORAL SESSION II

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

11.30-11.45

Coherent dynamics of molecular tops in external magnetic fields

Alexander Gorokhov, Samara State University, Russia

11.45-12.00

Coherent dynamics, chaos and entanglement for atoms in cavity

Sergey N. Agapov, Alexander Gorokhov, Samara State University, Russia

12.00-12.15

Non-destructive monitoring of composites of aircraft with THz radiation

Nikolay Balbekin, ITMO University, Russia
Evgenii Novoselov, Chalmers University of Technology, Sweden, Pavel Pavlov, Military Aviation Engineering University, Victor Bepalov, University of Information Technologies, Mechanics and Optics, Nikolay Petrov, University of Information Technologies, Mechanics and Optics, Russia

12.15-12.30

Scalar approach for low-contrast photonic bandgap fiber

Alexander Plastun, Andrey Konuykhov, Saratov State University, Russia

12.30-12.45

Control of optical soliton interactions using dispersion oscillation fiber

Marta Dorokhova, SSTU; Andrey Konyukhov, SSU, Russia

Workshop on Spectroscopy and Molecular Modeling XV

Workshop Chairs **Valentin I. Berezin, Lev M. Babkov, Kirill V. Berezin** Saratov State University (Russia)

Secretaries **Galina N. Ten** Saratov State University (Russia)

International Program Committee **Valentin I. Berezin**, Saratov State University (Russia), **Lev M. Babkov**, Saratov State University (Russia), **Michael D. Elkin**, Saratov State Technical University Saratov (Russia), **Lev A. Gribov**, Institute named by V. I. Vernadskyi RAS (Moscow, 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), **Nikolai V. Burenin**, Institute of Applied Physics RAS (Moscow, Russia), **Victor L. Furer**, Kazan Civil Engineer Academy (Russia), **Alexander V. Gorohov**, Samara State University (Russia)

September 25, Thursday

ORAL SESSION

Chair **Valentin I. Berezin**, Saratov State University, Saratov (Russia)

14.00–14.10

The modeling methods for complex vibrational spectra of polyatomics with intermolecular interactions

O.V. Kozlov¹, K.V. Berezin¹, M.L. Chernavina¹, V.V. Nechaev², E.A. Piskunova², ¹Saratov State University; ²Saratov State Technical University, Russia

14.10 – 14.20

Spectra-structure correlations in metalloporphyrines: Me-chlorophyll (Me: Mg, Zn, Cu, Ni, Fe)

M.L. Chernavina¹, K.V. Berezin¹, O.V. Kozlov¹, V.V. Nechaev², E.A. Piskunova², ¹Saratov State University; ²Saratov State Technical University, Russia

14.20–14.30

Application of wavenumber-linear scaling (wls) methods to spectroscopy hypoxanthine, porphyrine

E.A. Piskunova¹, Nechaev¹, O.V. Kozlov², K.V. Berezin², M.L. Chernavina², ¹Saratov State Technical University; ²Saratov State University, Russia

14.30–14.40

Thermodynamic parameters, structures and IR spectra of Mg-, Zn-porphyrine with water (1:1) and complexes

K.V. Berezin¹, O.V. Kozlov¹, M.L. Chernavina¹, V.V. Nechaev², E.A. Piskunova², ¹Saratov State University; ²Saratov State Technical University, Russia

14.40 – 14.50

The application of laser-induced breakdown spectroscopy for nutrition elements detection in powdered milk

Tatiana Kovalevich¹, David Matthews Chen¹, ¹Changchun University of Science and Technology, China

14.50 – 15.00

Selective rotational excitations of molecular isotopes by an ultrashort laser pulse sequence

Alexander Biryukov¹, Mark Shleenkov¹, ¹Samara State University, Russia

15.00 -15.10

Combined Raman spectroscopy and autofluorescence method for tumors research

Dmitry N. Artemyev¹, Valeriy P. Zakharov¹, Ivan A. Bratchenko¹, Oleg O. Myakinin¹, Sergey V. Kozlov², Aleksandr A. Moryatov², ¹SSMU; ²SSAU, Russia

15.10 – 15.20

Spectral identification of tautomers and conformers of monohydroxyisoflavones

M.D. Elkin¹, E.A. Erman¹, I.T. Shagautdinova², A.M. Lihter², A.P. Gaysina², ¹Saratov State Technical University; ²Astrahan State University, Russia

15.20 – 15.30

The structure definition of complementary pairs Ade-Ura in different phase sreres using IR spectra

G.N. Ten¹, O.E. Glukhova¹, A. M. Semagina¹, M.M. Slepchenkov¹, V.I. Baranov², ¹Saratov State University; ²Institute of Geochemistry and Analytical Chemistry, Russia

15.30 – 15.40

Theoretical analysis of fluorescence spectra diketone and keto-enol forms of cytosine in the gas phase

G.N. Ten¹, O.E. Glukhova¹, A.M. Semagina¹, M.M. Slepchenkov¹, V.I. Baranov², ¹Saratov State University; ²Institute of Geochemistry and Analytical Chemistry, Russia

15.40 – 15.50

Structure-dynamic models of quercetin

P.M.Elkin¹, A.A. Popov¹, V.M.Kartashov², O.N. Grechuhina², ¹Saratov State Technical University; ²Astrahan Department of Water Transport Academic, Russia

15.50 – 16.00

Modeling of structure and vibrational spectra 4,4'-chlorobenzophenone by DFT method

V.A. Boykov¹, L.M. Babkov¹, N.A. Davydova², K.E. Uspenskiy³, P.A. Stolypin⁴, ¹Saratov State University, Russia; ²Institute of Physic NAS, Kiev, Ukraine; ³Russian Academy of National Economy and Public Administration under the President of Russia; ⁴Volga Management Institute, Russia

16.00 – 16.10

Conformation Mobility and H-bonding at Salol

L.M. Babkov¹, N.A. Davydova², I.V. Ivlieva¹, ¹Saratov State University; ²Institute of Physics NAS of Ukraine, Kiev, Ukraine

16.00-16.30

Coffee break

POSTER SESSION

Co-chairs (S): Kirill V. Berezin, Lev M. Babkov
Saratov State University (Russia)

17.30–19.30

1S. Intramolecular photoinduced electron transfer of fluorescent probes based on 1,8-naphthalimide and aniline derivatives

Natalia A. Burmistrova¹, Svetlana P. Mushtakova¹, Rufina A. Zilberg², Ivan V. Vakulin², ¹Saratov State University; ²Bashkir State University, Russia

2S. Luminescent solutions and films of europium complexes

Anastasia V. Kharcheva¹, Nataliya E. Borisova¹, Alexey V. Ivanov¹, Tatiana P. Kaminskaya², Svetlana V. Patsaeva², Vladimir V. Popov², Viktor I. Yuzhakov², ¹Faculty of Chemistry, Lomonosov

Moscow State University; ²Faculty of Physics, Lomonosov Moscow State University, Moscow, Russia

3S. Epoxy resins containing copper ions and reinforced by polymer wires: preparation and investigation

Lilia V. Korchina¹, Elena K. Volkova², Alexey V. Markin², Natalia G. Zubova³, Tatiana P. Ustinova¹, ¹Engels Technological Institute of Saratov State Technical University; ²Saratov State University; ³Balakovo Institute of Engineering, Technology, and Control of Saratov State Technical University, Saratov, Russia

4S. Vibrational spectra of tautomers and conformers of dyhydroxyflavones

Mihail Elkin¹, I.T. Shagautdinova², V.F. Pulin¹, E.A. Djalruhambetova², ¹Saratov State Technical University; ²Astrahan State University, Russia

5S. Structure and vibrational spectra of tautomers and conformers of dyhydroisoxoyflavones

M.D. Elkin¹, I.T. Shagautdinova², V.F. Pulin¹, O.N. Grechuhina¹, ¹Saratov State Technical University; ²Astrahan State University, Russia

6S. Structure-dynamic models of kaempferol

P.M. Elkin¹, V.M. Kartashov², O.N. Grechuhina², A.H. Gaysina³, ¹Saratov State Technical University; ²Astrahan Department of Water Transport Academic; ³Astrahan State University, Russia

7S. Structure-dynamic models for the uraciles bases of DNA

P.M. Elkin¹, D.D.Kochergina², P.A. Dormidontov³, S.A. Gromovoy³, ¹Saratov State Technical University; ²Astrahan State University; ³Astrahan Department of Water Transport Academy, Russia

8S. Structure-dynamic models for the cytosines bases of DNA

P.M. Elkin¹, D.D.Kochergina², P.A. Dormidontov³, S.A. Gromodoy³, ¹Saratov State Technical University; ²Astrahan State University; ³Astrahan Department of Water Transport Academy, Russia

9S. Systematic analysis of fundamental vibrations for the bicyclic fragments of flavones and isoflavones

I.T. Shagautdinova¹, G.P. Stefanova¹, V.V. Smirnov¹, I.A. Krutova¹, J.M. Alukova¹, ¹Astrahan State University, Russia

10S. Indications of spectral identification for tautomers and conformers of naphthazarin and spinazarin

M.A. Erman¹, G.P. Stefanova¹, V.V. Smirnov¹, I.A. Krutova¹, J.M. Alukova¹, ¹Astrahan State University, Russia

- 11S. **Influence of conformation mobility on IR spectra of triphenyl phosphite** L.M. Babkov¹, N.A. Davydova², I.V. Ivlieva¹, ¹Saratov State University, Russia; ²Institute of Physics NAS of Ukraine, Kiev, Ukraine
- 12S. **The calculation of the scaling factors for the quantum mechanical force fields** Anna V. Novoselova, M. L. Chernavina, V. I. Berezin, Saratov State University, Russia
- 13S. **The vibrational problem solution in natural coordinates using *ab initio* methods and the functional density theory (DFT-methods)** Anna V. Novoselova, M. L. Chernavina, V. I. Berezin, Saratov State University, Russia
- 14S. **Quantum mechanical modeling of molecular spectral characteristics** Anna V. Novoselova, M. L. Chernavina, V. I. Berezin, Saratov State University, Russia
- 15S. **Modeling of the structure and normal vibrations frequencies of glyoxal in the ground and excited electronic states** Anna V. Novoselova, M. L. Chernavina, D.A. Zabaluev, V. I. Berezin, Saratov State University, Russia
- 16S. **Determination of type and concentration of DNA nitrogenous bases by Raman spectroscopy** Kirill Laptinskiy, Sergey Burikov, Tatiyana Dolenko, Faculty of Physics, Lomonosov Moscow State University, Russia
- 17S. **Spectral characteristics of isomers pyridinemonocarboxylic acid amides** Maria Kornaukhova, Rimma Zatrudina, Volgograd State University, Russia
- 18S. **New date about logarithmic in the mass ratio contributions to the fine shift of the S energy levels in hydrogen-like atoms** Svetlana Churochkina, Anastasiya Udalova, Saratov State University, Russia
- 19S. **Morphological study of Langmuir-Blodgett films based on polymer brushes containing magnetite nanoparticles** Svetlana Klimova¹, Olga Inozemtseva¹, Sergey German¹, Dmitry Gorin¹, Gennady Khomutov², Dmitry Ilgach³, Tamara Meleshko³, Alexander Yakimansky³, ¹Saratov State University; ²Lomonosov Moscow State University; ³Institute of Macromolecular Compounds RAS, Saint-Petersburg, Russia

INTERNET REPORT

Influence of conformation mobility on IR spectra of triphenyl phosphate L.M. Babkov¹, N.A. Davydova², I.V. Ivlieva¹, ¹Saratov State University; ²Institute of Physics NAS of Ukraine, Kiev, Ukraine

Workshop on Nanobiophotonics X

Workshop Chair: **Nikolai G. Khlebtsov**, Institute of Biochemistry and Physiology of Plants and Microorganisms of RAS, Saratov State University (Russia),

Secretary: **Boris N. Khlebtsov**, Institute of Biochemistry and Physiology of Plants and Microorganisms of RAS, Russia

International Program Committee: **Dmitry Gorin**, Saratov State University; **Valery Tuchin**, Saratov State University (Russia); **Lev Dykman**, Institute of Biochemistry and Physiology of Plants and Microorganisms of RAS; **Vladimir Bogatyrev**, Institute of Biochemistry and Physiology of Plants and Microorganisms of RAS

September 25, Thursday

LECTURE SESSION I

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

14.00 – 14.20

Composite alginate hydrogel patterned with micropores: porosity control and loading capability Alena Sergeeva, Fraunhofer Institute for Cell Therapy and Immunology, Potsdam, Germany; Saratov State University, Russia

14.20-14.40

Mechanisms of biomacromolecules adsorption on the surface of nanodiamonds, Kirill Laptinski, Physical Department of Moscow State University, Russia

14.40 – 15.00

Composite materials based on electrospun nanofibers of polycaprolactone, incorporating vaterite microcontainers with photodynamic dye Marya Savelyeva, Saratov State University, Russia

15.00 – 15.20

Recrystallization of magnetic $\text{CaCO}_3\text{-Fe}_3\text{O}_4$ vaterite microparticles Roman Sergeev, Saratov, Russia

15.20 – 15.40

Luminescent semiconductor quantum dots for detection and diagnostic Irina Goryacheva, Saratov State University, Saratov, Russia

15.40 – 16.00

Data processing in subdiffraction localization microscopy Alexander Moiseev, IAP RAS, Nizhny Novgorod, Russia

16.00-16.30

Coffee break

JOINT POSTER/INTERNET SESSION AND INTERNET DISCUSSION

Chair (N): **Boris N. Khlebtsov**, IBPPM RAS, Russia

17.30 – 19.30

- 1N. **Synthesis of cadmium-free quantum dots based on CuInS_2 nanocrystals** Anastasia Novikova, Saratov State University, Russia
- 2N. **The reversibility of morphological changes in the internal organs of rats after prolonged oral administration of gold nanoparticles** Alla Bucharskaya, Saratov State Medical University, Russia
- 3N. **New SERS-platforms based on alumina and silica gels containing Ag nanoparticles** Alexei Markin, Saratov State University, Russia
- 4N. **Ag on carbon nanowalls as SERS substrates** Mikhail Tsvetkov, ILIT RAS, Moscow, Troitsk, Russia
- 5N. **One-step optimization of polymerase chain reaction using gold nanoparticles** Ekaterina Vanzha, IBPPM RAS, Saratov, Russia
- 6N. **Dynamic light scattering and luminescence spectroscopy study of quantum dots stabilization by poly(maleic anhydride-alt-1-octadecene) - Jeffamine M1000** Irina Zharkova, Saratov State University, Russia

INTERNET REPORT

The study of indicators of bone marrow and peripheral blood of rats with diabetes and transplanted liver tumor after intravenous injection of gold nanorods Natalya Dikht, Saratov State Medical University, Russia

September 26, Friday

LECTURE/ORAL SESSION

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

9.30 – 9.50

Silica-coated CdSe based quantum dots with high buffer stability Valentina Gofman, Saratov State University, Russia; University of Gent, Belgium

9.50 – 10.10

Enhanced methods of hydrophilized CdSe quantum dots obtaining Dmitry Potapkin, Saratov State University, Russia

10.10 – 10.30

Size controlled hydroxyapatite and calcium carbonate particles: Synthesis and possible application for intracellular delivery and as template for SERS platform Bogdan Parakhonskiy, Institute of Crystallography RAS, Moscow, Russia; Saratov State University, Russia

10.30 – 10.45

Robust SERS detection of thiram fungicide by using gold nanoisland film Boris Khlebtsov, IBPPM RAS, Saratov, Russia

10.45 – 11.00

Alginate platform for odor encapsulation Volodymyr Korolovych¹, Taras Shevchenko²,
¹Saratov State University, Russia; ²National University of Kyiv, Ukraine

11.00-11.30

Coffee break

11.30 – 11.50

Gold and silver-coated gold nanorods for SERS: Random and crystal-mediated assemblies Vitaly Khanadeev, IBPPM RAS, Saratov, Russia

11.50 – 12.05

Size-dependent SERS properties of gold nanostars Elizaveta Panfilova, IBPPM RAS, Saratov, Russia

12.05-12.25

SERS-platform based on nonwoven chitosan fiber with embedded silver nanoparticles Ekaterina Prikhozhdenko, Saratov State University, Russia

12.25 – 12.40

Plasmon-resonant nanostructures with different morphologies as contrast agents for optical imaging Olga Bibikova, University of Oulu, Finland; Saratov State University, Russia

12.40 – 12:55

Application of Au-20 fluorescent dye for cell diagnostics Artur Prilepskii, IBPPM RAS, Saratov, Russia

Workshop on Microscopy and Low-Coherence Methods in Biomedical and Non-Biomedical Applications VII

Co-chairs: Kirill V. Larin, University of Houston, USA

Secretary: Georgy G. Akchurin, Saratov State University (Russia), Institute of Precise Mechanics and Control RAS

International Program Committee: Shoude Chang, National Research Council (Canada); Mary Dickinson, Baylor College of Medicine (USA); Christoph K. Hitzengerger, University of Vienna (Austria); Igor V. Meglinski, University of Otago (New Zealand), Saratov State University (Russia); Valery V. Tuchin, Saratov State University (Russia).

September 25, Thursday

JOINT POSTER/INTERNET SESSION AND INTERNET DISCUSSION

Chair (M): Georgy G. Akchurin, Institute of Precise Mechanics and Control RAS; Saratov State University (Russia)

17.30-19.30

- 1M. **Effect of numerical aperture on signal in diffraction phase microscopy** Natalya Talaykova, Alexander Kalyanov, Saratov State University, Russia
- 2M. **Spatial light interference microscopy without liquid crystal phase modulator** Olga Izotova, Alexander Kalyanov, Vladislav Lychagov, Saratov State University, Russia
- 3M. **Application of digital holographic microscopy for the study of biological microobjects** Sergey A. Savonin¹, Alexander Y. Abramov¹, Vladimir P. Ryabukho², ¹Educational-Research Institute of Nanostructures and Biosystems of SSU; ²Saratov State University, Russia
- 4M. **K-means based spectral clustering module for Gwyddion** Evgeniy Ryabov, Daniil Bratashov Saratov State University, Russia
- 5M. **Accuracy of Velocity Profile Reconstruction in Doppler Optical Coherence Tomography** Anton Sdobnov, Lychagov Vladislav, Saratov State University, Russia
- 6M. **Red blood cells measurements using analysis of white light interference pattern** Anton Dyachenko, Alexander Kalyanov, Saratov State University, Russia
- 7M. **SEM analysis of plasma-spraying hydroxyapatite coatings obtained with induction preheating of titanium substrate** Aleksandr Fomin, Saratov State Technical University, Russia
- 8M. **Application of five-step phase-shift algorithm to image processing in full-field optical coherence tomography (FF-OCT)** Elena Bogolyubova, Alexander Kalyanov, Saratov State University, Russia
- 9M. **Image formation in diffraction phase microscopy** Natalya Talaykova, Alexander Kalyanov, Saratov State University, Russia
- 10M. **Advanced digital image processing for in vivo capillaries network flux analysis** Maxim Kurochkin, Polina Timoshina, Ivan Fedosov, Valery Tuchin, Saratov State University, Russia
- 11M. **Lens-free dark-field digital holographic microscopy for 3D-tracking micro- and nanoparticles** Oleg Grishin, Ivan Fedosov, Valery Tuchin, Saratov State University, Russia
- 12M. **Monitoring of muscle optical clearing using OCT image enhancement** Marina D. Kozintseva¹, Vyacheslav I. Kochubey¹, Alexey N. Bashkatov¹, Valery V. Tuchin^{1,2}, ¹Saratov State University, Russia; ²University of Oulu, Finland
- 13M. **Induction heat treatment and technique of bioceramic coatings production on medical titanium alloys** Aleksandr Fomin¹, Igor Rodionov¹, Marina Fomina¹, Elena Poshivalova¹, Aleksandr Krasnikov², Natalia Petrova³, Andrey Zakharevich³, Aleksandr Skaptsov³, Andrey Gribov³, Vsevolod Atkin³, ¹SSTU; ²SSAU; ³SSU, Russia
- 14M. **Wavetrain finite-length coherence propagation effects in white light interference microscopy** Ilya Smirnov¹, Peter Ryabukho¹, Dmitry Lyakin², Vladimir Ryabukho¹, ¹Saratov State University; ²Institute of Precision Mechanics and Control, RAS, Saratov Russia
- 15M. **Cell trapping in a capillary model using a laser tweezer** Sergey Klykov, Ivan Fedosov, Saratov State University, Russia

16M. **Effect of hydrolysis and thermal shock loadings on stability of "dentin - composite polymer material" adhesive interfaces: Microscopical studies** Nadezda Bessudnova, Olga Shliapnikova, Andrey Gribov, Sergey Venig, Saratov State University, Russia

17M. **Non contact lens-free holographic microscopy for surface profiling** Marina E. Shvachkina, Oleg V. Grishin, Ivan V. Fedosov, Valery V. Tuchin, Saratov State University, Russia

INTERNET REPORTS

1. **Assessing age-related changes of biomechanical properties of crystalline lens in rabbit eyes using a co-focused ultrasound and optical coherence elastography system** Chen Wu, University of Houston, United States

2. **Comparison on numerical models for quantitative evaluation of the biomechanical features of tissue-mimicking phantoms via optical coherence elastography** Zhaolong Han, University of Houston, Houston, USA

3. **Evaluation of the biomechanical characteristics of normal and cross-linked porcine corneas under different intraocular pressures using phase-stabilized swept source elastography** Jiasong Li, University of Houston, USA

4. **Two dimensional elasticity mapping of partially cross-linked rabbit corneas using optical coherence elastography** Jiasong Li, University of Houston, USA

5. **Three Dimensional Elasticity Assessment of Porcine Cornea Before and After UV-Induced Collagen Crosslinking Using Phase-Stabilized Swept Source Optical Coherence Elastography** Manmohan Singh, University of Houston, USA

6. **Tissue analysis of lupus nephritis using OCT combined with OCE** Chih-Hao Liu, University of Houston, USA

7. **Functional Optical coherence tomography of for in vivo imaging of vascular physiology** Zhongwei Zhi, Ruikang Wang, University of Washington, USA

September 26, Friday

INVITED LECTURE/ORAL SESSION

Chair: **Kirill V. Larin**, University of Houston, USA

11.30-11.50

Invited

Two-photon AF/SHG/CARS tomography for in vivo imaging of skin diseases

Maxim E. Darvin¹, M. Klemp¹, J. Lademann¹, M. Weinigel², M. Kellner-Höfer², R. Bückle, H.G. Breunig², K. König², ¹Center of Experimental and Applied Cutaneous Physiology, Department of Dermatology, Venerology and Allergology, Charité – Universitätsmedizin Berlin, Berlin; JenLab GmbH, Jena, Germany

11.50-12.05

Combined full-field optical coherent and spectral microscopy for the analysis of biomedical tissues based on acousto-optic filtration of interference images

Alexander Machikhin, Alexander Viskovatykh, Vitold Pozhar, Ludmila Burmak, Scientific and Technological Center of Unique Instrumentation of Russian Academy of Sciences, Moscow, Russia

12.05-12.20

Dependence of a signal of confocal interference microscope on the numerical aperture of the object beam at optical thickness measurement

Dmitry Lyakin, Vladimir Ryabukho Institute of Precision Mechanics and Control, RAS, Saratov State University, Russia

12.20-12.35

Structured illumination for numerically focused optical coherence microscopy

Anton Grebenyuk, Vladimir Ryabukho, Saratov State University; Institute of Precision Mechanics and Control, Russian Academy of Sciences, Russia

12.35-12.50

Chromatic dispersion effects in ultra-low coherence interferometry

Anton Sdobnov, Vladislav Lychagov, Vladimir Ryabukho, Saratov State University, Russia

Workshop on Internet Biophotonics VII

Workshop Chairs **Alexey N. Bashkatov**, Saratov State University, **Ivan V. Fedosov**, Saratov State University, **Valery V. Tuchin**, Saratov State University, Institute of Precise Mechanics and Control RAS (Russia), University of Oulu (Finland)

Secretary **Daria K. Tuchina**, Saratov State University (Russia)

International Program Committee **Gert von Bally**, University of Münster (Germany); **Wei Chen**, University of Central Oklahoma (USA); **Cornelia Denz**, University of Münster (Germany); **Kishan Dholakia**, University of St. Andrews (UK); **Paul M.W. French**, Imperial College of Science, Technology and Medicine (UK); **Kirill V. Larin**, University of Houston (USA), Saratov State University (Russia); **Martin Leahy**, National University of Ireland, Galway; **Qingming Luo**, Huazhong University of Science and Technology (China); **Igor V. Meglinski**, University of Otago (New Zealand), Saratov State University (Russia); **Roberto Pini**, Inst. di Fisica Applicata, Sesto Fiorentino (Italy); **Juergen Popp**, Inst. of Photonic Technology, Jena (Germany); **Alexander V. Priezzhev**, Moscow State University (Russia); **Katarina Svanberg**, Lund University Medical Laser Centre (Sweden); **Hugo Thienpont**, Vrije University Brussel (Belgium); **Lihong Wang**, Washington University in St. Louis (USA); **Ruikang K. Wang**, University of Washington (USA)

September 25, Thursday

PLENARY SESSION INTERNET BIOPHOTONICS

Chair: **Valery V. Tuchin**, Saratov State University, Russia

Moderators: **Dmitry Agafonov**, **Ivan V. Fedosov**, Saratov State University, Russia

16.30-17.00

Chromophore based analyses of steady-state diffuse reflectance spectroscopy: current status and perspectives for clinical adoption

Henricus J. C. M. Sterenberg, Department of Biomedical Engineering and Physics, Academic Medical Center – Amsterdam, The Netherlands

17.00-17.30

Multiphoton tomography of human skin

Karsten König, JenLab GmbH, Jena, Department of Biophotonics and Laser Technology, Saarland University, Saarbrücken, Germany

JOINT POSTER/INTERNET SESSION AND INTERNET DISCUSSION

Moderators: **Dmitry Agafonov**, **Ivan V. Fedosov**, Saratov State University, Russia

17.30-19.30

INVITED INTERNET LECTURES

1. **Diffuse light tomography to detect blood vessels using Tikhonov regularization** Steven L. Jacques¹, Ozgur Kazanci², ¹Oregon Health & Science University, USA; ²Akdeniz University, Antalya, Turkey
2. **Depth resolved visualization of submicron structure with nano-sensitive optical coherence tomography (nsOCT)** Sergey Alexandrov, James McGrath, Hrebesh Subhash, Martin Leahy, National University of Ireland in Galway, Ireland
3. **Development of plasmonic contrast agents for photoacoustic imaging** Fulvio Ratto¹,

Sonia Centi², Lucia Cavigli¹, Marella de Angelis¹, Paolo Matteini¹, Francesca Rossi¹, Franco Fusi² and Roberto Pini¹, ¹Istituto di Fisica Applicata Nello Carrara, Consiglio Nazionale delle Ricerche, via Madonna del Piano 10, Sesto Fiorentino, 50019, Italy, ²Dipartimento di Scienze Biomediche, Sperimentali e Cliniche Mario Serio, Università degli Studi di Firenze, Viale G. Pieraccini 6, Firenze, Italy

4. **Quantitative Modelling of Sleep-Wake cycles and its applications to shiftwork** Svetlana Postnova, The University of Sydney, Australia
5. **Functional Optical coherence tomography for in vivo imaging of vascular physiology** Zhongwei Zhi, Ruikang Wang, University of Washington, United States
6. **System supporting behavioral therapy of children with autism** Małgorzata Jędrzejewska Szczerska, Katarzyna Karpienko, Maciej S. Wróbel, Department of Metrology and Optoelectronics, Gdańsk University of Technology, Gdańsk
7. **Glycerol-enhanced upconversion deep-tissue imaging** Alexey Popov¹, Eugeny Khaydukov², A.V. Bykov¹, Vladimir Semchishen², Valery Tuchin^{3,4}, ¹University of Oulu, Finland; ²Institute on Laser and Information Technologies, Russian Academy of Sciences; ³Saratov State University; ⁴Precise Mechanics and Control Institute, Russian Academy of Sciences, Russia
8. **Diagnostics of vascular reactions triggered by weak allergens using the laser speckle imaging with the long exposure time** Yuri L. Kuznetsov¹, Veacheslav L. Kalchenko¹, Igor Meglinski², ¹Weizmann Institute of Science, Department of Veterinary Resources, Israel; ²University of Otago, The Jack Dodd Centre for Quantum Technology, Department of Physics, New Zealand

9. **Tissue optical clearing window for blood flow monitoring using laser speckle contrast imaging** Dan Zhu, Britton Chance Center for Biomedical Photonics, Huazhong University of Science and Technology, P.R.China
10. **Chemometric procedures for tissue diagnostics based on raman spectroscopy** T. Bocklitz^{1,2}, N. Voglera², C. Schmidt³, F. Salah, R. Bräuer, C. Bieleckic, M. Schmitt^{1,2}, C. Krafft^{1,2}, C. Marquardt³, A. Gharbi⁴, T. Knösel⁵, F. Greten⁶, A. Stallmach³, I. Petersen⁵, J. Popp^{1,2}, ¹Institute of Physical Chemistry and Abbe Center of Photonics, Friedrich Schiller University Jena; ²Leibniz Institute of Photonic Technology; ³Department of Internal Medicine II, Division of Gastroenterology, Hepatology, and Infectious Diseases, University Hospital Jena; ⁴Clinic for General, Visceral and Vascular Surgery, University Hospital Jena; ⁵Institute of Pathology, University Hospital Jena; ⁶Georg-Speyer-Haus, Institut für Tumorbologie und experimentelle Therapie, Frankfurt am Main, Germany
11. **Evaluating adaptation options microcirculatory-tissue systems based on correlation nutritive blood flow and redox ratio** Simian Zhu¹, A. I. Krupatkin², V. V. Sidorov³, G. Nabi⁴, K. Litvinova¹, V. Dremine⁵, A. V. Dunaev⁵, A. P. Baklanova³, R. M. Bakshaliyev³, S. A. Ravcheev³, ¹University of Dundee, UK; ²Ministry of Health and Social Development, Pirogov Central Institute of Traumatology and Orthopedics, Moscow, Russia; ³SPE LAZMA, Russia; ⁴Division of Imaging & Technology, Ninewells Hospital, UK; ⁵State University – Education-Science-Production Complex, Oryol, Russia
12. **The assessment of the effects of low-intensity laser radiation on cells of tumor strain of kidney cancer PA-1** Viktoria V. Skvortsova, Grigory E. Brill, Galina A. Afanasyeva, Alla B. Bucharskaya, Saratov State Medical University, Russia
13. **Fluorescence properties of amyloid-like fibrils formed by self-association of phenylalanine and aggregation of serum albumins** Nadezda Zhdanova¹, T. Tikhonova², N. Rovnyagina¹, V. Drutsa³, O. Koroleva³, E. Shirshin¹, V. Fadeev¹, ¹Moscow State University, Faculty of Physics, Quantum Electronics Division, Russian Federation; ²Moscow State University, International Laser Center, Russian Federation; ³Moscow State University, A.N. Belozersky Institute Of Physico-Chemical Biology
14. **Monitoring of interaction of low frequency electric field with biological tissues upon optical clearing with Optical Coherence Tomography** Adrian F. Pena^{1,2}, Alexander Doronin¹, Valery V. Tuchin^{3,4,5}, Igor Meglinski¹, ¹University of Otago, The Jack Dodd Centre for Quantum Technology, Department of Physics, New Zealand; ²Universidad Autónoma de Tamaulipas, Centro Universitario Tampico Madero, México; ³Saratov State University, Research-Educational Institute of Optics and Biophotonics, Russia; ⁴Institute of Precise Mechanics and Control, Russian Academy of Science, Laboratory of Laser Diagnostics of Technical and Living Systems, Saratov, Russia; ⁵University of Oulu, Optoelectronics and Measurement Techniques Laboratory, Oulu, Finland

INTERNET REPORTS

1. **The molecular markers in blood serum and transplanted liver tumor of rats as indicators of effectiveness of plasmonic resonance photothermal therapy** Alla B. Bucharskaya¹, Galina N. Maslyakova¹, Nikita A. Navolokin¹, Natalya B. Zakharova¹, Georgy S. Terentyuk^{1,2}, Alexey N. Bashkatov², Elina A. Genina², Valery V. Tuchin², Boris N. Khlebtsov³, Nikolai G. Khlebtsov^{2,3}, ¹Saratov State Medical University, Russia; ²Saratov State University, Russia; ³Institute of Biochemistry and Physiology of Plants and Microorganisms RAS, Russia
2. **Optical rotatory dispersion and circular dichroism films based on chitosan in the form of polysalt and polybases** Olga Malinkina, Anna B. Shipovskaya, Olga Ph. Kazmicheva, Saratov State University, Russia
3. **Self-oscillating endoplasmic motility study in a strand of plasmodium P. Polycephalum** T.I. Avsievich, S.G. Proskurin, Tambov State Technical University, Russia
4. **Absorbing and scattering inhomogeneity detection using TPSF conformal mapping** A.Yu. Potlov, S.G. Proskurin, S.V. Frolov, Tambov State Technical University, Russia
5. **Advanced programming in science - possible applications of GPGPU and OOP technologies in biophysics** Dmitry D. Postnov, Saratov State University, Russia; Copenhagen University, Denmark
6. **Effect of glucose solutions on the optical and structural properties of skin tissue** Daria K. Tuchina^{1,2}, Rui Shi¹, Alexey N. Bashkatov², Elina A. Genina², Dan Zhu¹, Qingming Luo¹, Valery V. Tuchin¹⁻⁴, ¹Britton Chance Center for Biomedical Photonics, Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, China;

²Research-Educational Institute of Optics and Biophotonics, Saratov State University, Russia; ³Laboratory of Laser Diagnostics of Technical and Living Systems, Institute of Precise Mechanics and Control RAS, Saratov, Russia; ⁴Optoelectronics and Measurement Techniques Laboratory, University of Oulu, Oulu, Finland

7. **Blood microcirculation in mouse brain with alloxan diabetes studied by Temporal Laser Speckle Contrast Imaging** Polina A. Timoshina^{1,2}, Rui Shi², Yang Zhang², Dun Zhu², Tuchin Valery^{1,2,3}, Qingming Luo², ¹Research-Educational Institute of Optics and Biophotonics, Saratov State University, Russia; ²Britton Chance Center for Biomedical Photonics, Huazhong University of Science and Technology, Wuhan, China; ³Institute of Precision Mechanics and Control, Russian Academy of Sciences, Saratov, Russia
8. **Monitoring of microparticle delivery into skin *in vivo*** Elina A. Genina¹, Alexey N. Bashkatov¹, Irina Yu. Yanina¹, Georgy S. Terentyuk¹, Yulia I. Svenskaya¹, Nikita A. Navolokin², Leonid E. Dolotov¹, Polina A. Timoshina¹, Ekaterina A. Kolesnikova¹, Vadim D. Genin¹, Vasily Zaytzev¹, Alla B. Bucharskaya², Dmitry A. Gorin¹, Valery V. Tuchin¹, Gleb B. Sukhorukov³, ¹Saratov State University, Russia; ²Saratov State Medical University, Russia; ³Queen Mary University of London, UK
9. **Model studies of blood flow in basilar artery with 3D Laser Doppler Anemometer** Sergey Frolov¹, Sergey Sindeev¹, Dieter Liepsch², Andrea Balasso³, Sergey Proskurin¹, Anton Potlov¹, ¹Tambov State Technical University, Russia; ²Munich University of Applied Sciences, Germany; ³Technical University of Munich, Germany
10. **The main aspects of mathematical modelling of retinal vessel network** Anastasia Neganova, Saratov State University, Russia; Copenhagen University, Denmark
11. **Comparative survival study of glial and blood vessels wall cells in crustacean ventral nerve cord after photodynamic treatment** Mikhail Kolosov, Elena Shubina, Southern Federal University, Russia
12. **The register of pores in membranes of fat cells sensitized by ICG and irradiated by NIR laser** Irina Yu. Yanina^{1,2}, Valery A. Doubrovsky², Valery V. Tuchin^{1,3,4}, ¹Saratov State University, Russia; ²Saratov State Medical University, Russia; ³Institute of Precise Mechanics and Control RAS, Russia; ⁴University of Oulu, Finland
13. **Kinetics of optical properties of *in vitro* adipose tissue sensitized by ICG and irradiated by NIR laser** Irina Yu. Yanina^{1,2}, Valery A. Doubrovsky², Valery V. Tuchin^{1,3,4}, ¹Saratov State University; ²Saratov State Medical University; ³Institute of Precise Mechanics and Control RAS, Russia; ⁴University of Oulu, Finland
14. **Measurement of refractive index of tissues using a multi-wavelength refractometer** Yana V. Taranchikova¹, L.E. Dolotov¹, A.P. Popov², A.V. Bykov², V.V. Tuchin¹, ¹Saratov State University, Russia; ²Optoelectronics and Measurement Techniques Laboratory, University of Oulu, Finland
15. **Application of the Photo-Acoustic Tomography for the study of molecular diffusion in soft biological tissues *in vitro*** Fan Hong, Alexander Doronin, Luke R. Taylor, Jevon J. Longdell, Igor Meglinski, University of Otago, The Jack Dodd Centre for Quantum Technology, Department of Physics, New Zealand
16. **Assessment of meat freshness with optical coherence tomography and fluorescent-based biosensor** Adrian F. Pena^{1,2}, Maxim V. Kiryukhin³, Hooi Hong Lau³, Anton V. Sadovoy³, Mita Lad⁴, Harjinder Singh³, Igor Meglinski¹, ¹University of Otago, The Jack Dodd Centre for Quantum Technology, Department of Physics, New Zealand; ²Universidad Autónoma de Tamaulipas, Centro Universitario Tampico Madero, México; ³Institute of Materials Research and Engineering, Agency for Science, Technology and Research (A-STAR); ⁴Faculty of Engineering, National University of Singapore, Singapore; ⁵Riddet Institute, Massey University, New Zealand
17. **Antimicrobial effect of copper nanoparticles and low-intensity laser radiation and their combined application in experiment** Alipov Vladimir, Saratov State Medical University, Russia
18. **Investigation of photothermolysis therapy of human skin diseases using optical phantoms** Małgorzata Jędrzejewska-Szczerska¹, Maciej S. Wróbel¹, Stanisław Galla¹, Alexey P. Popov², Valery V. Tuchin^{2,4}, Adam Cenian⁵, Department of Metrology and Optoelectronics, Gdańsk University of Technology, Poland; ²Optoelectronics and Measurement Techniques Laboratory, Faculty of Information Technology and Electrical Engineering, University of Oulu, Finland; ³Research-Educational Institute of Optics and Biophotonics, Saratov State University; ⁴Institute of Precise Mechanics and Control, RAS, Saratov, Russia; ⁵The Szewalski Institute of Fluid-flow Machinery, PAS, Physical Aspects of Ecoenergy Department, Gdańsk, Poland

Workshop on Nonlinear Dynamics V

Co-chairs: **Vadim S. Anishchenko**, Saratov State University, Russia

Secretaries: **Galina I. Strelkova**, Saratov State University (Russia)

International Program Committee: **Lutz Schimansky-Geier**, Humboldt University, Berlin (Germany); **Alexander Neiman**, Ohio University (USA); **Igor Khovanov**, Warwick University (UK); **Olga Sosnovtseva**, University of Copenhagen (Denmark); **Alexander P. Chetverikov**, **Alexey N. Pavlov**, **Tatjana E. Vadivasova**, **Alexey V. Shabunin**, **Dmitry E. Postnov**, Saratov State University (Russia)

Wednesday September 25

ORAL SESSION

Chair: **Vadim S. Anishchenko**, Saratov State University, Russia

12.10-12.20

Poincare recurrences in a nonautonomous oscillator

Vadim Anishchenko, Saratov Nadezhda Semenova, Saratov State University, Russia

12.20-12.30

Extracting dynamics from return times

Olga Pavlova¹, Alexey Pavlov^{1,2}, ¹Saratov State University; ²Saratov State Technical University, Russia

12.30-12.40

Control of noise-induced oscillations in non-excitable systems

Alexey Feoktistov¹, Vladimir Semenov¹, Tatyana Vadivasova¹, Anna Zakharova², Eckehard Schöll², ¹Saratov State University, Russia; ²Technical University of Berlin, Germany

12.40-12.50

Determination of the oscillatory regime type in the active medium with periodic boundary conditions

Andrey Slepnev, Tatyana Vadivasova, Saratov State University, Russia

12.50-13.00

Afraimovich-Pesin dimension near the critical point of Feigenbaum attractor birth

Yaroslav Boev, Vadim Anishchenko, Saratov State University, Russia

13.00-13.10

Poincare recurrences in a circle map. Fibonacci stairs

Nadezhda Semenova, Tatyana Vadivasova, Vadim Anishchenko, Saratov State University, Russia

13.10-13.20

Behavior of ensemble of active Brownian particles under influence of active and passive noise

Konstantin Sergeev, Alexander Chetverikov, Tatyana Vadivasova, Saratov State University, Russia

13.20-13.30

Cascade of bifurcations of traveling wave in bistable active medium with periodic boundary conditions

Igor Shepelev, Tatyana Vadivasova, Dmitry Postnov, Saratov State University, Russia

13.30-13.40

Solitons and breathers in 1D nonlinear chain of Morse oscillators bound via potential Morse forces

Alexander Chetverikov, Saratov State University, Russia

13.40-13.50

Mutual synchronization of two van der Pol oscillators via asymmetrical repulsive coupling

Sergey Astakhov¹, Artem Gulay¹, Naoya Fujiwara², Jürgen Kurths³, ¹Saratov State University, Russia; ²Center for Spatial Information Science, The University of Tokyo, Japan; ³Potsdam Institute for Climate Impact Research, Potsdam, Germany

13.50-14.00

Bistability formation in the classical two-mode oscillator

Sergey Astakhov¹, Oleg Astakhov¹, Vladimir Astakhov², Jürgen Kurths³, ¹Saratov State University; ²Saratov State Technical University, Russia; ³Potsdam Institute for Climate Impact Research, Potsdam, Germany

Workshop on Low-Dimensional Structures IV

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

Secretaries: **Vladislav V. Shunaev**, Saratov State University (Russia), **Anna S. Kolesnikova**, Saratov State University (Russia), **Michael M. Slepchenkov**, Saratov State University (Russia)

International Program Committee: **Ming-Fa Lin**, National Cheng Kung University, Tainan (Taiwan), **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), **Nikolay I. Sinitsyn**, Institute of Radioengineering and Electronics (IRE) of RAS, Saratov (Russia), **Gennadiy V. Torgashov**, Institute of Radioengineering and Electronics (IRE) of RAS, Saratov (Russia)

September 24, Wednesday

ORAL SESSION

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

12.10-12.20

Fluorescent detection of singlet oxygen in hybrid associative colloidal quantum dots CDS and methylene blue

Tamara. Shatskikh¹, O.V. Ovchinnikov¹, M.S. Smirnov¹, A.S. Perepelitsa¹, E.V. Shabunya-Klyachkovskaya² ¹Voronezh State University; Voronezh, Russia, ²Institute of Physics, National Academy of Sciences of Belarus, Belarus

12.20-12.30

Effect of thermal annealing on the optical characteristics of films containing quantum dots

Iliia Gorbachev, E. G. Glukhovskoy Saratov State University, Saratov, Russia

12.30-12.40

A method of controlling the movement of phospholipid molecules

O. E. Glukhova, Anna S. Kolesnikova, M. M. Slepchenkov, Saratov State University, Saratov, Russia

12.40-12.50

Numerical investigation of the stability loss of the cooled graphene sheet

Dmitriy.V. Ivanov, O.E. Glukhova, Saratov State University, Russia

12.50-13.00

Theoretical investigation of the seamless carbon nanotori

Georgy Sanostyanov, O. E. Glukhova, M. M. Slepchenkov, Saratov State University, Russia

September 25, Thursday

JOINT POSTER/INTERNET SESSION AND INTERNET DISCUSSION

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

17.30-19.30

- 1L. Biodistribution and morphological changes in the internal organs and tumors in laboratory rats with transplanted liver cancer pc-1 at intravenous injection of citrate stabilized iron nanoparticles** Nikita A. Navolokin¹, S. V. German², A. B. Bucharskaya¹, V. V. Zuev¹, G. N. Maslyakova¹, G. S. Terentyuk¹, D. A. Gorin², ¹Saratov Medical State University, Russia, ²Saratov State University, Russia
- 2L. Application of laser radiation in the formation of the microspike terahertz radiation absorber structures** Dmitriy Bessonov, T. Sokolova, SSTU, Russia
- 3L. Manipulation of fullerenes on graphene by modification of the atomic structure** O. E. Glukhova, Vadim Mitrofanov, Saratov State University, Russia
- 4L. Stability and emission properties of graphene-CNTs composites** O.E. Glukhova, A.S. Kolesnikova, D.S. Shmygin, Saratov State University, Russia
- 5L. Langmuir monolayers and nanocomposite microcapsules in external electric fields** A.V. Ermakov¹, A.S. Chumakov¹, I.A.Gorbachev¹, I.V. Vidyasheva¹, D.A. Gorin¹, E.G. Glukhovskoy¹, Russia V.P. Kim², G.B. Khomutov² ¹Saratov State University; ²Moscow State University, Russia
- 6L. The mechanical properties of composites "CNT-graphene."** Anna Kolesnikova, O. E. Glukhova Saratov State University, Russia
- 7L. Study of the biomolecules behavior on corrugated graphene with the substrate** O.E. Glukhova, M. M. Slepchenkov, Vladislav

V. Shunaev, A. A. Fadeev, Saratov State University, Russia

INTERNET REPORTS

8L. **Nanoemitter based on carbon nanotubes.**
O.E. Glukhova, A.S. Kolesnikova, M.M. Slepchenkov, Aleksandr Fadeev, Saratov State University, Russia

1. **Manipulation of fullerenes on graphene by modification of the atomic structure**
Olga O.E.Glukhova, Vadim Mitrofanov, Saratov State University, Russia
2. **Atomistic modeling of the structural components of the blood-brain barrier**
O. E. Glukhova, Michail M. Slepchenkov, O. A. Grishina, Saratov State University, Russia

Workshop on Biomedical Spectroscopy

Workshop Chairs: **Vyacheslav I. Kochubey, Alexander B. Pravdin**, Saratov State University (Russia)

Secretary: **Elena K. Volkova**, Saratov State University (Russia)

International Program Committee: **Ekaterina G. Borisova**, Institute of Electronics, BAS (Bulgaria), **Dmitry A. Gorin**, Saratov State University (Russia), **Gennady V. Melnikov**, Yuri Gagarin State Technical University of Saratov (Russia), **Alexander M. Saletsky**, Lomonosov Moscow State University (Russia), **Dzmitry Shcharbin**, Institute of Biophysics and Cell Engineering of NASB (Belarus), **Andre Skirtach**, Ghent University (Belgium)

September 24, Wednesday

INVITED LECTURE/ORAL SESSION

Chair: **Vyacheslav I. Kochubey**, Saratov State University, Russia

12.10-12.20

Invited

Spectral methods of water detection and quantification in biological tissues

Alexey N. Bashkatov, Elina A. Genina, Saratov State University, Russia

12.20-12.30

Confocal Raman microscopy for studying the penetration into the skin in vivo

Maxim E. Darvin¹, C.-S. Choea^{1,2}, Jürgen M. Lademann¹, ¹Center of Experimental and Applied Cutaneous Physiology, Department of Dermatology, Venerology and Allergology, Charité-Universitätsmedizin Berlin, Germany; ²Kim Il Sung University, Ryongnam-Dong, Taesong District, Pyongyang, DPR Korea

12.30-12.40

Excitation – emission matrices (EEMs) and synchronous fluorescence spectroscopy (SFS) investigations of gastrointestinal tissues

Ekaterina Borisova, Tsanislava Genova, Aleksandra Zhelyazkova, Latchezar Avramov, Institute of Electronics, Bulgarian Academy of Sciences, Sofia, Bulgaria, Momchil Keremedchiev, Nikolay Penkov, Borislav Vladimirov, Queen Jovanna-ISUL University Hospital, Sofia, Bulgaria

12.40-12.50

Luminescence of tryptophan and xanthen series probes in determining the structural changes in proteins

Alexander B. Pravdin¹, Vyacheslav I. Kochubey¹, Andrey G. Melnikov², Gennady V. Melnikov², ¹Saratov State University, Russia; ²Yuri Gagarin State Technical University of Saratov, Russia

12.50-13.00

Fluorimetric determination of some multisubstituted heterocyclic molecular species, based on sensitized fluorescence measurement

Elena A. Zhelobitskaya, Tatyana D. Smirnova, Saratov State University, Russia

13.00-13.10

Silica-coated CdSe based quantum dots with high buffer stability

Valentina Gofman^{1,2}, Anna Tretiakova¹, Sarah de Saeger^{1,2}, Irina Yu. Goryacheva¹, ¹Saratov State University, Russia; ²University of Gent, Belgium

13.10-13.20

Ecotoxicants determination in albumin by absorption and luminescence spectroscopy methods

Olga A. Dyachuk, Andrey G. Melnikov, Artem A. Tuchin, Gennady V. Melnikov, Yuri Gagarin State Technical University of Saratov, Russia

September 25, Thursday

POSTER SESSION

Chair (BS): **Alexander B. Pravdin**, Saratov State University, Russia

17.30-19.30

- 1BS. **Sorption-fluorimetric determination of levofloxacin in a medicinal preparation**
Tatyana Danilina, Tatyana D. Smirnova, Saratov State University, Russia
- 2BS. **Visualization of the structure of biological tissue by upconverting nanoparticles** Alexey Popov^{1,2}, Elena Volkova¹, Alexander Bykov², Julia Konyukhova¹, Marina Kozintseva¹, Matti Kinnunen², Vyacheslav Kochubey¹, Valery Tuchin^{1,2,3}, ¹Saratov State University, Russia; ²University of Oulu, Finland, ³Institute of Precise Mechanics and Control of RAS, Russia
- 3BS. **Fluorescent ZnCdS nanoparticles for nanothermometry of biological tissues** Alexey Popov^{1,2}, Elena Volkova¹, Alexander Bykov², Julia Konyukhova¹, Marina Kozintseva¹, Matti Kinnunen², Vyacheslav Kochubey¹, Valery Tuchin^{1,2}, ¹Saratov State University, Russia; ²University of Oulu, Finland
- 4BS. **Monitoring of nanoparticle diffusion into biological tissue by optical methods**
Elena Volkova¹, Alexey Bashkatov¹, Alla

Bucharskaya¹, Leonid Dolotov¹, Elina Genina¹, Vadim Genin¹, Vyacheslav Kochubey¹, Ekaterina Kolesnikova¹, Yulia Svenskaya¹, Julia Konyukhova¹, Marina Kozintseva¹, Nikita Navolokin³, Georgy Terentyuk¹, Polina Timoshina¹, Irina Yanina¹, Dmitry Gorin¹, Valery Tuchin^{1,2}, Gleb Sukhorukov⁴, ¹Saratov State University, Russia; ²University of Oulu, Finland; ³Saratov State Medical University, Russia; ⁴Queen Mary University of London, UK

- 5BS. **Singlet-singlet energy transfer in the system of human serum albumin – fluorescent probes of xanthene series**
Alexander B. Pravdin¹, Vyacheslav I. Kochubey¹, Irina V. Alonova¹, Andrey G. Melnikov², Gennady V. Melnikov², ¹Saratov State University, Russia; ²Yuri Gagarin State Technical University of Saratov, Russia
- 6BS. **Dynamics of spectral-luminescent characteristics of probes bound to proteins in the presence of heavy metal ions** Olga A. Dyachuk, Andrey G. Melnikov, Kristina A. Kostina, Gennady V. Melnikov; Yuri Gagarin State Technical University of Saratov, Russia
- 7BS. **Spectrophotometric study of Erythrosin B – human serum albumin binding** Irina N. Konstantinova, Alexander B. Pravdin, Saratov State University, Russia

Workshop on Advanced Polarization Technologies in Biomedicine and Material Science

Workshop Co-chairs: Igor V. Meglinski, University of Otago, New Zealand, Saratov State University, Russia; **Dmitry A. Zimnyakov**, Yuri Gagarin Saratov State Technical University, Russia, Institute of Precise Mechanics and Control RAS, Russia

Secretaries: Elena A. Isaeva, Yuri Gagarin Saratov State Technical University, Russia

International Program Committee: Robert R. Alfano, CCNY, USA; Stefan Andersson-Engels, Lund University, Sweden; Oleg V. Angelsky, Chernivtsi National University, Ukraine; Vadim Backman, Northwestern University, USA; Victor N. Bagratashvili, Inst. of Laser and Information Technologies RAS, Russia; Claude Boccara, ESPCI, France; Stephen A. Boppart, University of Illinois, USA; Alexander V. Bykov, University of Oulu, Finland; Stavros Demos, LLNL, USA; Alexander V. Doronin, University of Otago, New Zealand; Ma Hui, Tsinghua University, China; Steven L. Jacques, Oregon Health Sciences Univ., USA; Alwin Kienle, ILM Ulm, Germany; Vladimir Kuzmin, St. Petersburg State University, Russia; Igor Meglinski, University of Otago, New Zealand; Lev Perelman, Harvard University, USA; Alexey P. Popov, University of Oulu, Finland; Alexander P. Sviridov, Inst. of Laser and Information Technologies RAS, Russia; Valery V. Tuchin, Saratov State University, Institute of Precise Mechanics and Control RAS, Russia, University of Oulu, Finland; Olga V. Ushakova, Yuri Gagarin Saratov, State Technical University of Saratov, Russia; Alexander G. Ushenko, Chernivtsi National University, Ukraine; Alex Vitkin, University of Toronto, Canada; Lihong Wang, Washington University in St. Louis, USA; Adam Wax, Duke University, USA; Dmitry A. Zimnyakov, Yuri Gagarin Saratov State Technical, Russia

September 25, Thursday

JOINT POSTER/INTERNET SESSION AND INTERNET DISCUSSION

Chairs (PT): **Dmitry A. Zimnyakov**, Yuri Gagarin Saratov State Technical, Russia

17.30-19.30

- 1PT. **Polarization and speckle study to characterize stratified media** Aleksej Pantyukov, Vladislav Hvoschenko, Alexander Kazakovtsev, Elena A. Isaeva, Anna A. Isaeva, Marina V. Alonova, Yuri Gagarin State Technical University of Saratov, Russia
- 2PT. **The sol-gel polymerization: Speckle statistics and polarization effects** Michael Machejev, Ilya Leonov, Elena A. Isaeva, Anna A. Isaeva, Yuri Gagarin State Technical University of Saratov, Russia
- 3PT. **The technique of simultaneous study of Rayleigh scattering and nonlinear optical properties of semiconductor nanoparticles** Ivan Skurlov, Denis Artukhov, Azamat Tapalov, Sergey A. Yuvchenko, Yuri Gagarin State Technical University of Saratov, Russia
- 4PT. **Effect of the “inversion” of a scattering medium in layers of close-packed titanium dioxide nanoparticles** Sergey A. Yuvchenko, Yuri Gagarin State Technical University of Saratov, Russia

5PT. **Obtaining speckle patterns at probing dispersive supercritical systems** Sergey P. Chekmasov, Anastasia A. Tverdova, Yuri Gagarin State Technical University of Saratov, Russia

6PT. **Depolarization of light scattered by carbon nanoparticle suspensions** Alexander Serov, Alexander Pravdin, Bulat Marchenko, Saratov State University, Russia

INTERNET REPORT

The helicity reversal in the state of polarization of scattered circularly polarized light Callum Macdonald¹, Alexander Doronin¹, Steven Jacques², and Igor Meglinski¹, ¹The Jack Dodd Centre for Quantum Technology, Department of Physics, University of Otago, Dunedin, New Zealand, ²Departments of Biomedical Engineering and Dermatology, Oregon Health & Science University, Portland, OR, USA

Friday September 26

ORAL SESSION

Chair: **Dmitry A. Zimnyakov**, Yuri Gagarin
Saratov State Technical University, Russia

9.30-9.45

Polarized light in optical biopsy: enabling technologies towards tissue characterization and imaging

Igor V. Meglinski, University of Otago, New Zealand

9.45-10.00

Scattering, absorption, and depolarization resonances in random ensembles of nanoparticles with non-monotonic behavior of dielectric function

Dmitry A. Zimnyakov, Yuri Gagarin Saratov State Technical University, Russia

10.00-10.10

Application of circularly polarized light for non-invasive diagnosis of biological tissues and biological tissues and biological tissues and biological tissues and turbid tissue-like scattering media

Britt Kunnen, Callum Macdonald, Alexander Doronin, Steven Jacques, Michael Eccles, Igor Meglinski, University of Otago, New Zealand

10.10-10.20

Recovery of the dielectric function of nanoparticles from spectral-polarization measurements

Olga V. Ushakova, Roman A. Zdrajevsky, Yuri Gagarin Saratov State Technical University, Russia;

10.20-10.30

Non-linear optical properties of hybrid silica nanoparticles

Sergey A. Yuvchenko, Dmitry A. Zimnyakov, Yuri Gagarin Saratov State Technical University, Russia

10.30-10.40

Laser and acoustical probes of mesoporous systems with supercritical fluidic components

Sergey P. Chekmasov, Dmitry Tyagnibedin, Alexander Kunitsky, Yuri Gagarin State Technical University of Saratov, Russia

10.40-10.50

Polarization-sensitive frequency-modulated speckle spectroscopy for tissue probing

Marina V. Alonova, Elena A. Isaeva, Anna A. Isaeva, Yuri Gagarin Saratov State Technical University, Russia

Workshop on Computational Biophysics and Analysis of Biomedical Data

Workshop Chair: **Dmitry E. Postnov**, Saratov State University (Russia)

Secretary: **Elena S. Styukhina**, Saratov State University (Russia)

International Program Committee: **Alexander B. Neiman**, Ohio University, USA, **Oxana V. Semyachkina-Glushkovskaya**, Saratov State University, Russia, **Anatoly V. Skripal**, Saratov State University, Russia, **Boris P. Bezruchko**, Saratov State University, Russia

September 25, Thursday

JOINT POSTER/INTERNET SESSION AND INTERNET DISCUSSION

Chair (CB): **Dmitry E. Postnov**, Saratov State
University, Russia

17.30-19.30

- 1CB. **Interferometric signals processing by sequential Monte Carlo method and its modification based on multcloud prediction** Petr A. Ermolaev, Maxim A Volynsky, P.S. Skakov, I.P. Gurov, ITMO University, Russia
- 2CB. **Tissue perfusability assessment from capillary velocimetry data via the multicompartement windkessel model** Elena S. Styukhina¹, M.A. Kurochkin¹, V.A. Klochkov², I.V. Fedosov¹, D.E. Postnov¹, ¹Saratov State University; ²Saratov Scientific Research Institute of Cardiology, Russia
- 3CB. **Akima splines for breathing interference elimination in aortic rheography data** Maria O. Tsoy¹, E.S. Styukhina¹, V.A. Klochkov², D.E. Postnov¹, ¹Saratov State University; ²Saratov Scientific Research Institute of Cardiology, Russia
- 4CB. **Endothelial mechanisms underlying sex differences in complexity of blood pressure signals at rest and during hypertension formation** Ekaterina Zinchenko, A.N. Pavlov, O.V. Semyachkina-Glushkovskaya, O.N. Pavlova, A. Gekaluk, I. Agranovich, V. Razubaeva, Saratov State University, Russia
- 5CB. **Traveling waves, breathers and multistability in bistable active medium with periodic boundary conditions** Igor A. Shepelev, T.E. Vadivasova, D.E. Postnov, Saratov State University, Russia
- 6CB. **Application of reconstruction method for data protection in telemedicine systems** Sergey I. Suyatinov, T.I. Buldakova, BMSTU, Russia
- 7CB. **Study of relation between neural ensembles involved in different types of oscillatory brain activities** V.V. Makarov^{1,2}, V.A. Maksimenko^{1,2}, A.N. Pavlov^{1,2}, A.A. Koronovskii¹, M.V. Khramova¹, A.E. Hramov^{1,2}, ¹Saratov State University; ²Saratov State Technical University, Russia
- 8CB. **Time-frequency dynamics during sleep spindles on the EEG in rats with a genetic predisposition to absence epilepsy (Wag/Rij)** Vadim V. Grubov^{1,2}, E.Yu. Sitnikova^{1,3}, A.E. Hramov^{1,2}, A.N. Pavlov^{1,2}, M.V. Khramova^{1,2}, A.A. Koronovskii¹, ¹Saratov State University; ²Saratov State Technical University; ³Institute of the Higher Nervous Activity and Neurophysiology of RAS, Moscow, Russia
- 9CB. **Deflection of multilayer grapheme using finite element method** Aleksandr V. Dol', O.E. Glukhova, V.V. Shunaev, Saratov State University, Russia
- 10CB. **DNA alignment on GPU** Anton Grigoriev, Saratov State Technical University, Russia
- 11CB. **Determination of type and concentration of DNA nitrogenous bases by Raman spectroscopy** Kirill A. Laptinsky, S.A. Burikov, T.A. Dolenko, Lomonosov Moscow State University, Russia
- 12CB. **Method for diagnostics of synchronization of 0.1 Hz rhythms of cardiovascular system autonomous regulation in real time** Ekaterina Borovkova¹, Anatoly Karavaev², Oleg Astakhov¹, ¹Saratov State University; ²Saratov Branch of V.A. Kotelnikov Institute of Radio Engineering and Electronics, RAS, Russia

September 26, Friday

ORAL SESSION

Chair: **Dmitry E. Postnov**, Saratov State University, Russia

11.30-11.35

Opening remarks

Dmitry E. Postnov, Saratov State University, Russia

11.35-11.45

Characterization of chaotic dynamics from interspike intervals

Alexey N. Pavlov^{1,2}, O.N. Pavlova¹, M.Y.K. Mohammad^{1,3}, G.M. Shihalov¹, ¹Saratov State University; ²Saratov State Technical University, Russia; ³Tikrit University, Iraq

11.45-11.55

A new method for automatic marking epileptic spike-wave discharges in local field potential signals

Ilya V. Sysoev¹, S.A. Startseva¹, A. Lütjohan^{2,3}, ¹Saratov State University, Russia; ²University of Münster, Germany Gilles van Luijelaar; ³Nijmegen University, Netherlands

11.55-12.05

Time-frequency analysis of epileptic EEG patterns by means of empirical modes and wavelets

Vadim V. Grubov^{1,2}, E.Yu. Sitnikova^{1,3}, A.E. Hramov^{1,2}, A.N. Pavlov^{1,2}, M.V. Khramova^{1,2}, A.A. Koronovskii¹, ¹Saratov State University; ²Saratov State Technical University; ³Institute of the Higher Nervous Activity and Neurophysiology of RAS, Moscow, Russia

12.05-12.15

Patient-specific system for prognosis of surgical treatment outcomes of human cardiovascular system

Anastasiya A. Golyadkina, A.A. Kalinin, I.V. Kirillova, E.L. Kossovich, L.Yu. Kossovich, L.R. Menishova, A.V. Polienko, Saratov State University, Russia

12.15-12.25

Three question on the first equation of sir epidemic model

Konstantin A. Grebenyuk, Saratov State University, Russia

12.25-12.35

DNA sequencing by synthesis based on delay detection

Anton Grigoryev, A.O. Manturov, Yuri Gagarin Saratov State Technical University, Russia

12.35-12.45

Detrended fluctuation analysis of cerebral venous dynamics in newborn mice with intracranial hemorrhage

Alexey N. Pavlov^{1,2}, O.V. Semyachkina-Glushkovskaya¹, O.A. Bibikova¹, O.N. Pavlova¹, M.Y.K. Mohammad^{1,3}, Q. Huang⁴, D. Zhu⁴, P. Li⁴, Q. Luo⁴, V.V. Tuchin^{1,5}, ¹Saratov State University; ²Saratov State Technical University, Russia; ³Tikrit University of Baghdad, Iraq; ⁴Huazhong University of Science and Technology, Wuhan, China; ⁵University of Oulu, Finland

12.45-12.55

Stress, hypertension and gastric ulcer: role of nitric oxide

Olga A. Bibikova¹, O.V. Semyachkina-Glushkovskaya, I.A. Semaychkin-Glushkovskij¹, S.S. Sindeev¹, I.M. Agranivich¹, A.S. Gekalyuk¹, F. Al-Fatle², L. Al Hassani², ¹Saratov State University, Russia; ²Baghdad University

12.55-13.00

Closing remarks

18th International School for Junior Scientists and Students on Optics, Laser Physics & Biophotonics

Workshop on Modern Optics XIII Lectures on Optics for University Students, Postgraduate Students and High School Students

Workshop Chair: **Vladimir P. Ryabukho**, Saratov State University and Institute of Precision Mechanics and Control RAS (Russia)

Secretary: **Ol'ga A. Perepelitsina, Vladislav V. Lychagov, Alexander Kal'yanov, Il'ya Smirnov** Saratov State University (Russia)

International Program Committee: **Valery V. Tuchin**, Saratov State University (Russia), **Vladimir P. Ryabukho**, Saratov State University (Russia), **Vladimir L. Derbov**, Saratov State University (Russia), **Leonid A. Melnikov**, Saratov State Technical University (Russia), **Alexander B. Pravdin**, Saratov State University (Russia) **Boris A. Medvedev**, Saratov State University (Russia), **Lyudmila V. Pravdina**, Saratov Physics and Technical Lyceum, **Alexander V. Priezhev**, Moscow State University (Russia), **Vladimir N. Shevtsov**, Saratov State University (Russia), **Mikhail A. Starshov**, Saratov State University (Russia), **Boris B. Gorbatenko**, Saratov State Technical University (Russia)

Thursday September 25

ORAL SESSION

Chair: **Vladimir P. Ryabukho**, Saratov State University,
Institute of Precision Mechanics and Control RAS, Russia

14.00-15.40

Polarized light propagation in turbid media

Igor V. Meglinski, University of Otago, New Zealand

Workshop English as a Communicative Tool in the Scientific Community XIII

Co-chairs: **Svetlana V. Eremina**, Saratov State University (Russia)
Alexander B. Pravdin, Saratov State University (Russia)

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

Secretary: **Natalia I. Kazadaeva**, Saratov State University (Russia)

Program Committee: **Vladimir L. Derbov**, Saratov State University (Russia), **Igor V. Meglinski**, University of Otago (New Zealand), **Valery V. Tuchin**, Saratov State University (Russia), **Dmitry A. Zimnyakov**, Saratov State Technical University (Russia)

September 25, Thursday

POSTER SESSION

Chair (E): **Natalia I. Kazadaeva**, Saratov State University, Russia

17.30-19.30

1E. **Learning Chinese at physics department: The first experience** Konstantin A. Grebenyuk, Saratov State University, Saratov, Russia

September 26, Friday

ORAL SESSION

Chair: **Alexander B. Pravdin**, Saratov State University, Russia

9.30-9.45

Borrowings in the language of biophotonics: Variety of sources

Svetlana V. Eremina, Alexander B. Pravdin, Saratov State University, Russia

9.45-9.55

Metaphors in scientific publications

Dina Alexeeva, Saratov State University, Russia

9.55-10.05

Math terminology: Data field analysis

Ol'ga A. Myl'tzina, Saratov State University, Russia

10.05-10.15

Photodynamic haemolysis inhibited by a plant anioxidant

Natalie V. Tkachenko, Saratov State University, Russia

10.15-10.25

Terminological discrepancy in the area of propagation of harmonic waves in viscoelastic bodies

Nadezhda V. Sergeeva, Saratov State University, Russia

10.25-10.35

Monitoring of collagen glycation products in human dentine

Natalia I. Kazadaeva, Saratov State University, Russia

10.35-10.45

How to become a polyglot: Language learning tips

Nadezda Bessudnova, Saratov State University, Russia

10.45-10.55

Misuse of language in academic writing

Arina Ahelyugina, Saratov State University, Russia

10.55-11.05

Scientific and technical translation from english into russian: common mistakes

Darya Tselovalnikova, Saratov State University

Workshop on Management of High Technologies Commercialization and Regional Innovation Systems XI

Workshop Co-Chairs: **Julia S. Skibina**, Saratov State University (Russia), SPE “Nanostructured Glass Technology” Ltd. and **Valery V. Tuchin** Saratov State University (Russia)

Secretary: **Andrey A. Shuvalov**, Saratov State University (Russia), SPE “Nanostructured Glass Technology” Ltd.

International Program Committee: **Gregory B. Altshuler**, Palomar Medical Technologies Inc. (USA), **Robert Breault**, Breault Research Organization, Arizona Optics Industry Association (USA), **Boris Reznik**, BioRASI, Inc. (USA), **Natalya V. Romanova**, Saratov State University (Russia), **Sergey N. Sokolov**, INJECT Enterprise (Russia), **Stoyan Tanev**, University of Southern Denmark, (Denmark), **Andreas Thoss**, THOSS Media GmbH, Berlin, Germany)

September 26, Friday

U.M.N.I.K.:

Special session on student reports on Optics, Laser Physics and Biophotonics

Co-Chairs: **Julia S. Skibina** and **Valery V. Tuchin**,
Saratov State University, SPE “Nanostructured Glass
Technology” Ltd., Russia

09.30-09.45

Highly non-linear optical microresonators for frequency combs generation

D. Zhivotkov¹, E. Romanova¹, A. Vukovic², S. Phang²,
¹Saratov State University, Russia; ²University of
Nottingham, UK

09.45-10.00

Development and implementation of sorbents based on nanostructured carbon materials to improve the performance of gas battery

A.V. Markin, S.N. Ustinov, N.V. Markina, Saratov State
University, Russia

10.00-10.15

Three-component monitoring for diagnostics and self-correction of hypertensive states of the cardiovascular system

E. Styukhina¹, M. Tsoy¹, V.A. Klochkov², D.E.
Postnov¹, ¹Saratov State University; ²Saratov
Scientific Research Institute of Cardiology, Russia

10.15-10.30

Designing of technology for noninvasive optical monitoring of vital organ tissue pathology associated with diabetes development

Daria K. Tuchina, Saratov State University,
Russia

10.30-10.45

Development of the Speckle Contrast Image technology for monitoring of blood microcirculation status of human pancreas during surgery

Polina A. Timoshina¹, Denis A. Alexandrov,²
Valery V. Tuchin^{1,3}, ¹Saratov State University;
²Saratov State Medical University; ³Institute of
Precise Mechanics and Control of RAS, Russia

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

Workshop Chairs: **Boris A. Medvedev, Vladimir P. Ryabukho**, Saratov State University (Russia)

Secretary: **Alexander A. Skaptsov**, Saratov State University

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); **Alex Vitkin**, University of Toronto (Canada)

September 25, Thursday

LECTURE/ORAL SESSION I

Co-chairs: **Boris A. Medvedev, Vladimir P. Ryabukho**, Saratov State University, Russia

9.30-9.45

Features of the university optical education on the operating laser technological equipment

T. Sokolova, Saratov State Technical University, Russia

9.45-10.00

Scientific criteria of dissertation

V.M. Anikin, Saratov State University, I.V. Izmailov, B.N. Poizner, Tomsk State University, Russia

10.00-10.15

Culture of modeling in mathematics and in physics

G.V. Simonenko, Saratov State University, Russia, O. Simonenko, Autonomous Municipal Educational Institution "Gimnaziya № 4", Saratov, Russia

10.15-10.30

Optical and photoelectrical properties of films on the base of CdS obtained by different methods

A.G. Rokakh, Saratov State University, Russia

10.30-10.45

Luminescence and photoconductivity of sublimated CdS-PbS films

M.I. Shishkin, A.G. Rokakh, Saratov State University, Russia

10.45-11.00

Hidden electromagnetic momentum in dielectrics and metamaterials

V.I. Tsoy, Saratov State University, Russia

11.00-11.30

Coffee break

LECTURE/ORAL SESSION II

Co-chairs: **Boris A. Medvedev, Vladimir P. Ryabukho**, Saratov State University, Russia

11.30-11.45

Photosense in photodynamic therapy and sensory systems

A. M. Chernyak, R.K. Chernova, B.A. Medvedev, O.V. Varygina, Saratov State University, Russia

11.45-12.00

The design of the direct reflective polarizer

K. Letushova, State University, Saratov, Russia

12.00-12.15

The history of the refraction law of light and modernity

A. Andreeva, Saint-Petersburg State University, Russia, M.A. Starshov, Saratov State University, Russia

12.15-12.30

Some questions to galileo galilei

M. Stolnitz, Saratov State University, Russia

12.30-13.00

On the nature of the light in the context of reflection Robert Grosseteste and Leonardo Da Vinci

B.A. Medvedev, Saratov State University, Russia

13.00-14.00

Lunch

ROUND TABLE

Man and Light in Natural and Art Treatment of the Universe VII

Moderator: **Boris A. Medvedev**, Saratov State University, Russia

Panel members:

Valery V. Tuchin¹, Vladimir P. Ryabukho¹, Vladimir L. Derbov¹, Victor V. Rozen¹, Oleg V. Shimelfenig¹, Alexander G. Rokakh¹, Lev M. Babkov¹, Vyacheslav I. Kochubey¹, Svetlana P. Pozdneva¹, Alexander V. Gorokhov², Dmitry A. Zimnyakov³, Leonid A. Melnikov³, Dmitry V. Mikhel³, Julia M. Duplinskaya³, Evgeniya V. Listvina¹, Oleg M. Parshkov³, Alexander V. Priezzhev⁴, Yu.M. Romanovski⁴

¹Saratov State University, Saratov, Russia

²Samara State University, Samara, Russia

³Saratov State Technical University, Saratov, Russia

⁴M.V. Lomonosov Moscow State University, Moscow, Russia

14.00-14.10

Opening work of the Round Table: Presentation of the Round Table "Man and Light in Natural and Art Treatment of the Universe" in Saratov for 2008-2012 at the first international symposium on the history of optics in St. Petersburg (October, 2013)

Associate Prof. Boris Medvedev, Saratov State University, Saratov, Russia

14.10-14.20

The 21st century: The idea of the university and the problem of enlightenment

Associate Prof. Boris Medvedev, Saratov State University, Russia

14.20-14.30

The worldview aspect and scientific frontiers in optics from different eras (on the 800th anniversary of Roger Bacon in 2014)

Dr. O.V. Chebakova, D.S. Rozhdestvensky Optical Society, St. Petersburg, Russia

14.30-14.40

Ontological characteristics of light

Associate Prof. N. Dovgalenko, Saratov State Technical University, Russia

14.40-14.55

Coherence in classical and quantum physics II

Prof. A. Gorokhov, Samara State University, Russia

14.55-15.05

Christian Huygens' treatise on the light. The philosophical aspect

Prof. S.P. Pozdneva, Saratov State University, Russia

15.05-15.15

Variational principles in the natural sciences: from the ancient Greeks to the modernity

Prof. V.V. Rozen, Saratov State University, Russia

15.15-15.25

Light, nano-optics and philosophy of science

Prof. O. Parshkov, Saratov State Technical University, Russia

15.25-15.35

"Look refocusing": Whether it is possible to see reality differently?

Prof. Yu. Duplinskaya, Saratov State Technical University, Russia

15.35-15.50

On reliability of optical knowledge: A spectrum depending on prehistory of measurements

Prof. A.G. Rokakh, Saratov State University, Russia

15.50-16.00

Rembrandt's "nachtwacht": Adventures of light and shadow in the context of history

Prof. Dmitry V. Mikhel, Associate Prof Irina V. Mikhel Saratov State Technical University, Russia

INTERNET REPORTS

1. **Study of the real space topology by light rays** Yu. Zayko, Stolypin Volga Region Institute of Administration Russian Presidential Academy of National Economy and Public Administration, Russia
2. **Physics and philosophy** Yu. Zayko, Stolypin Volga Region Institute of Administration Russian Presidential Academy of National Economy and Public Administration, Russia
3. **Interference of wave pulses** Yu. Zayko, Stolypin Volga Region Institute of Administration Russian Presidential Academy of National Economy and Public Administration, Russia

POSTER SESSION

Chair (H): **Alexander Skaptsov**, Saratov State University, Russia

17.30-19.30

- 1H. **Analysis of the law of light absorption** Ju. Usoltseva, M.A. Starshov, Saratov State University, Russia
- 2H. **Impossible task in optics** N. Savchenko, M.A. Starshov, Saratov State University, Russia
- 3H. **Basic principles of optics in different expositions** M. linkin, M.A. Starshov, Saratov State University, Russia

Seminar Telemedicine IX

Co-Chairs: **Elena V. Karchenova**, International Society for Telemedicine and eHealth, Saratov DNA center; **Valery Bakutkin**, Saratov Research Institute of Rural Hygiene (Russia)

Secretary: **Tatyana L. Travina**, Saratov State University (Russia)

International Program Committee: **Frank Lievens**, ISfTeH (Belgium); **Malina Jordanova**, MD, PhD. Solar-Terrestrial Influences Laboratory. Bulgarian Academy of Sciences. (Bulgaria); **Anton V. Vladzimirsky**, Prezident of AfUTEHD (Ukrania), **Elena V. Karchenova**, Saratov DNA center (Russia), **Valery V. Tuchin** (Russian Federation)

Friday 27 September

LECTURE/ORAL SESSION

Co-Chairs: **Elena V. Karchenova**, International Society for Telemedicine and eHealth, Saratov DNA center; **Valery Bakutkin**, Saratov Research Institute of Rural Hygiene, Russia

11.00-11.40

SFTEH: Introduction, mission and potential areas of collaboration

Frank Lievens¹, Malina Jordanova², ¹Board member and Secretary/Treasurer, International Society for Telemedicine and eHealth, Switzerland; ²Space Research & Technology Institute, Bulgarian Science Academy, Sofia

11.40-12.00

Chromopupillometry the mehod of quantative estimation of the functional state of the organ of vision

Ilya V. Bakutkin, Valery.V. Bakutkin, Vladimir Spirin, Saratov Research Institute of Rural Hygiene, Saratov

12.00-12.15

The Telemedicine conception in Dr-Paramonov's clinic, Saratov, Russia

Victor A. Paramonov, Michael A. Terentev, Elena V. Karchenova, Saratov Dr. Paramonov's Clinic, Russia

12.15-12.30

Errors in the administration of standards "electronic language of medicine" (Telemedicine) in clinics

Elena V. Karchenova, ISFTEH, Saratov Dr. Paramonov's Clinic, Russia