Saratov Fall Meeting - SFM'13

SCIENTIFIC PROGRAM

1st International Symposium on Optics and Biophotonics

September 25 – 28, 2013
Saratov, Russia

CONFERENCES:

Optical Technologies in Biophysics & Medicine XV

Laser Physics and Photonics XV

Spectroscopy and Molecular Modeling XIV

Nanobiophotonics IX

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

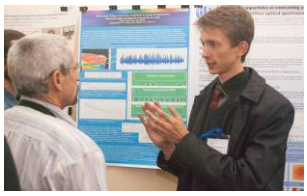
Internet Biophotonics VI

Nonlinear Dynamics and Computational Biophysics IV

Low-Dimensional Structures III

17th International School for Junior Scientists and Students on Optics, Laser Physics & Biophotonics

September 24 – 27, 2013
Saratov, Russia



WORKSHOPS:

Modern Optics XII

English as a Communicative Tool in the Scientific Community XII

Management of High Technologies Commercialization and Regional Innovation Systems X

History, Methodology and Philosophy of the Optical Education VI

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

Publishing Your Manuscript – Useful Tips

SHORT COURSES OSA / SPIE

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1st International Symposium on Optics and Biophotonics
17th International School for Junior Scientists and Students on Optics, Laser Physics & Biophotonics

Organized by

N.G. Chernyshevsky Saratov State University

Institute of Precision Mechanics and Control, Russian Academy of Sciences

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

Institute of Biochemistry and Physiology of Plants and Microorganisms, Russian Academy of Sciences

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

Volga Region Center of New Information Technologies at Saratov State University

Biomedical Photonics Committee of Chinese Optical Society

University of Oulu, Finland

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

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

Co-sponsored by

RFBR – Russian Foundation for Basic Research

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 Nanostructed Glass Technology, Saratov

Photonics4Life Consortium of EC FP7: Network of Excellence for Biophotonics

Russian Technology Platform “The Medicine of the Future”

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Valery V. Tuchin, Saratov State University

Conference Secretary

Elina A. Genina, Saratov State University

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Juergen Popp, Institute of Photonic Technology, Jena, Germany
Alexander B. Pravdin, Saratov State University
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Julia S. Skibina, SPE "Nanostructed Glass Technology" Ltd., Russia
Dmitry E. Suetenkov, Saratov State Medical University n.a. V.I. Razumovsky, Russia
Valery V. Tuchin, Saratov State University, Institute of Precision Mechanics and Control RAS, Russia; University of Oulu, Finland
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Ivan V. Fedosov, Saratov State University

Members

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Maxim A. Kurochkin, Saratov State University

Schedule of SFM-13
1st International Symposium on Optics and Biophotonics
17th International School for Junior Scientists and Students on Optics, Laser Physics & Biophotonics

September 24, Tuesday		
9.00-14.00	**Registration**	*Building 3, Foyer*
9.30-9.40	**Opening of 17th International School on Optics, Laser Physics & Biophotonics** **Valery V. Tuchin,** Chair, Saratov State University, Russia	*Building 10, Hall 503*
9.40-13.00	**SPIE SHORT COURSE** **Laser Tissue Bonding: Principles and Applications** **Roberto Pini,** National Reserch Council of Italy and University of Florence, Italy	*Building 10, Hall 503*
13.00-14.00	**Lunch**	
14.00-15.45	**PLENARY SESSION I** Chair: **Valery V. Tuchin,** Saratov State University, Russia **Imaging Deep Tissue in Three Dimensions by Near Infrared Imaging, Martin Wolf,** University Hospital Zurich, Switzerland **Assessing Corneal and Soft Tissue Biomechanical Properties using Optical Coherence Elastography, Kirill V. Larin**, University of Houston, USA **Optical Biopsy with Complex Structured Light, Igor Meglinski**, University of Otago, New Zealand	*Building 3, Big Physical Hall*
15.45-16.15	**Coffee break**	
16.15-18.00	**PLENARY SESSION II** Chair: **Martin Wolf,** University Hospital Zurich, Switzerland **Silicon Nanoparticles for Sensitive Fluorescence Analysis in Living Cells and Drug Delivery Carried out by Multi Departmental and Institutional Collaborations**, **Munir H. Nayfeh,** Department of Physics, University of Illinois at Urbana-Champaign, USA **Analytical and Theranostic Applications of Plasmonic Nanoparticles and Multifunctional Nanocomposites**, **Nikolai G. Khlebtsov**, Institute of Biochemistry and Physiology of Plants and Microorganisms, Russian Academy of Sciences, Saratov State University, Russia **Terahertz Fingerprints in Biology and Technology**, **Alexander Shkurinov**, M.V. Lomonosov Moscow State University, Russia	*Building 3, Big Physical Hall*
18.00-18.30	**SPECIAL EVENT** **Publishing Your Manuscript – Useful Tips** **Peter E. Andersen**, Technical University of Denmark, Roskilde, Denmark	*Building 3, Big Physical Hall*
19.00-21.00	**Welcome Party**	*University campus*

<table>
<tr><th colspan="8">September 25, Wednesday</th></tr>
<tr><td>9.00-9.10</td><td colspan="6">Opening of 1st International Symposium on Optics and Biophotonics
Valery V. Tuchin, Chair, Saratov State University, Russia</td><td>Building 10 Main Conference Hall</td></tr>
<tr><td>9.10-10.55</td><td colspan="6">PLENARY SESSION III
Chair: Kirill V. Larin, University of Houston, USA
From Organic Chromophores to Plasmonic Nanoparticles for Photothermal Therapies and Laser-activated Drug Release, Roberto Pini, National Reserch Council of Italy and University of Florence, Italy
Green, Compact Diode Laser-based Systems for Biophotonics Application, Peter E. Andersen, Technical University of Denmark, Denmark
Collapsing Field Domains in Electron-Hole Plasma of GaAs, and Examples of the Phenomenon Application from Superfast Voltage Switch to sub-THz Imaging, Sergey N. Vainshtein, University of Oulu, Finland</td><td>Building 10 Main Conference Hall</td></tr>
<tr><td>10.55-11.25</td><td colspan="7">Coffee break</td></tr>
<tr><td>11.25-12.05</td><td>INVITED LECTURE SESSION BIOPHYSICS I
Chair: Alexander V. Priezzhev, M.V. Lomonosov Moscow State University, Russia</td><td rowspan="2">Building 10 Main Conference Hall</td><td rowspan="2">11.25-13.00</td><td>MICROSCOPY AND LOW-COHERENCE METHODS
Chair: Kirill V. Larin, University of Houston, USA</td><td rowspan="2">Building 10, Hall 503</td><td rowspan="2">ORAL SESSION ENGLISH
Co-chairs: Alexander B. Pravdin, Svetlana V. Eremina, Saratov State University, Russia</td><td rowspan="2">Scientific Library Conference Hall</td></tr>
<tr><td>12.05-13.00</td><td>ORAL SESSION BIOPHYSICS II
Chair: Sergey N. Vainshtein, University of Oulu, Finland</td><td>NONLINEAR DYNAMICS AND COMPUTATIONAL BIOPHYSICS
Chair: Vadim S. Anishchenko, Saratov State University, Russia</td></tr>
<tr><td>13.00-14.00</td><td colspan="7">Lunch</td></tr>
<tr><td>15.00-17.00</td><td colspan="7">Social program (Volga boat trip)</td></tr>
</table>

September 26, Thursday						
9.30-13.00	**OSA SHORT COURSE** **Optical Coherence Tomography: Tissue Optical Properties Quantification** **Peter E. Andersen**, Technical University of Denmark, Roskilde, Denmark					*Building 10, Hall 503*
9.00-10.30	**ORAL SESSION** **PHOTONICS I** Chair: **Vladimir L. Derbov**, Saratov State University, Russia	*Building 10 Main Conference Hall*	**ORAL SESSION** **EDUCATION I** Co-chairs: **Boris A. Medvedev** and **Vladimir P. Ryabukho,** Saratov State University, Russia			*Scientific Library Conference Hall*
10.30-11.00	**Coffee break**					
11.00-13.00	**ORAL SESSION** **PHOTONICS II** Chair: **Vladimir L. Derbov**, Saratov State University, Russia	*Building 10 Main Conference Hall*	**ROUND-TABLE DISCUSSION** **EDUCATION II** Co-chairs: **Boris A. Medvedev** and **Vladimir P. Ryabukho,** Saratov State University, Russia			*Scientific Library Conference Hall*
13.00-14.00	**Lunch**					
14.00-16.00	**ORAL SESSION** **BIOPHYSICS III** Chair: **Igor Meglinski**, University of Otago, New Zealand	*Building 10 Main Conference Hall*	**ORAL SESSION** **LOW-DIMENSIONAL STRUCTURES** Chair: **Olga Glukhova,** Saratov State University, Russia	*Building 10, Hall 503*	**LECTURE SESSION** **MODERN OPTICS** Chair: **Vladimir P. Ryabukho,** Saratov State University, Russia	*Building 3, Big Physical Hall*
					ORAL SESSION **SPECTROSCOPY** Co-chairs: **Valentin I. Berezin**, and **Lev M. Babkov,** Saratov State University, Russia	*Building 3, Room 34*
16.00-16.30	**Coffee break**					
16.30-17.30	**PLENARY SESSION INTERNET BIOPHOTONICS** Chair: **Valery V. Tuchin**, Saratov State University, Russia **Shaped Light for Biophotonics**, **Kishan Dholakia**, University of St. Andrews, UK **Origin of Optical Pulse and Non-Invasive Measurement of Hemoglobin**, **Ilya Fine**, Elfi Tech Ltd., Science Park, Israel					*Building 3, Big Physical Hall*
17.30-19.30	**JOINT POSTER/INTERNET SESSION AND INTERNET DISCUSSION** Moderators: **Dmitry Agafonov**, **Ivan V. Fedosov,** Saratov State University, Russia					*Building 3, 3d floor Hall*

September 27, Friday						
9.30-11.15	**ORAL SESSION NANOBIOPHOTONICS** Chair: **Nikolai G. Khlebtsov**, IBPPM RAS, Saratov State University, Russia		*Building 10 Main Conference Hall*	**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** and **Julia S. Skibina**, Saratov State University, SPE "Nanostructed Glass Technology" Ltd., Russia		*Building 10, Hall 503*
11.15-11.45	**Coffee break**					
11.45-13.00	**ORAL SESSION BIOPHYSICS IV** Chair: **Ivan Fedosov**, Saratov State Unviersity, Russia	*Building 10 Main Conference Hall*	**ORAL SESSION TELEMEDICINE** Co-chairs: **Elena V. Karchenova**, ISfTeH and Saratov Alfa-Health-centre, and **Valery V. Bakutkin**, Saratov Research Institute of Hygiene, Russia	*Saratov Alfa-Health centre*	**ORAL SESSION MANAGEMENT II** **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 "Nanostructed Glass Technology" Ltd., Russia	*Building 10, Hall 503*
14.00-17.00	**Round-table discussions and closing of the School**					

September 28, Saturday		
10.00-13.00	**WORKSHOP** **ADVANTAGES AND PITFALLS OF FLUORESCENCE TECHNIQUE AT MEDICAL APPLICATIONS** Co-chairs: **N.N. Bulgakova**, General Physics Institute, RAS, Moscow, **A.B. Pravdin, Yu.P. Sinichkin,** Saratov State University, **D.E. Suetenkov,** and **S.R. Utz,** Saratov State Medical University, Saratov, Russia	*Saratov State Medical University*

PLENARY LECTURES

September 24, Tuesday

PLENARY SESSION I

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

14.00-14.35
Imaging Deep Tissue in Three Dimensions by Near Infrared Imaging
Martin Wolf, University Hospital Zurich, Switzerland

14.35-15.10
Assessing Corneal and Soft Tissue Biomechanical Properties using Optical Coherence Elastography
Kirill V. Larin, University of Houston, USA

15.10-15.45
Optical Biopsy with Complex Structured Light
Igor Meglinski, University of Otago, New Zealand

15.45-16.15
Coffee break

PLENARY SESSION II

Chair: **Martin Wolf,** University Hospital Zurich, Switzerland

16.15-16.50
Silicon Nanoparticles for Sensitive Fluorescence Analysis in Living Cells and Drug Delivery Carried out by Multi Departmental and Institutional Collaborations
Munir H. Nayfeh, Department of Physics, University of Illinois at Urbana-Champaign, USA

16.50-17.25
Analytical and Theranostic Applications of Plasmonic Nanoparticles and Multifunctional Nanocomposites
Nikolai G. Khlebtsov Institute of Biochemistry and Physiology of Plants and Microorganisms, Russian Academy of Sciences, Saratov State University, Russia

17.25-18.00
Terahertz fingerprints in Biology and technology
Alexander Shkurinov, Moscow State Unviersity, Russia

September 25, Wednesday

PLENARY SESSION III

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

9.10-9.45
From Organic Chromophores to Plasmonic Nanoparticles for Photothermal Therapies and Laser-activated Drug Release
Roberto Pini, National Reserch Council of Italy and University of Florence, Italy

9.45-10.20
Green, Compact Diode Laser-based Systems for Biophotonics Application
Peter E. Andersen, Technical University of Denmark, Denmark

10.20-10.55
Collapsing Field Domains in Electron-Hole Plasma of GaAs, and Examples of the Phenomenon Application from Superfast Voltage Switch to sub-THz Imaging
Sergey N. Vainshtein, University of Oulu, Finland

September 26, Thursday

PLENARY SESSION INTERNET BIOPHOTONICS

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

16.30-17.30

1. Shaped Light for Biophotonics
Kishan Dholakia, University of St. Andrews, UK

2. Origin of Optical Pulse and Non-Invasive Measurement of Hemoglobin
Ilya Fine, Elfi Tech Ltd., Science Park, Israel

1st International Symposium on Optics and Biophotonics

Workshop on Optical Technologies in Biophysics & Medicine XV

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)

Secretary: **Polina A. Timoshina,** Saratov State University (Russia)

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September 25, Wednesday

INVITED LECTURE SESSION I

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

11.25-11.45

Endogenous and Exogenous Fluorescence Spectroscopy of Gastrointestinal Tumors – In Vitro and In Vivo Investigations

Ekaterina G. Borisova[1], L. Angelova[1], Ts. Genova[1], Al. Zhelyazkova[1], L. Avramov[1], M. Keremedchiev[2], and B. Vladimirov[2], [1]Institute of Electronics, Bulgarian Academy of Sciences; [2]University Hospital "Queen Jiovanna-ISUL", Sofia, Bulgaria

11.45-12.05

Biomarkers, Microenvironment and Tropism: Opportunities to Actively Target Plasmonic Particles to Malignant Cells

Fulvio Ratto[1], Francesca Tatini[1], Sonia Centi[2], Ida Landini[3], Stefania Nobili[3], Ewa Witort[2], Franco Fusi[2], Sergio Capaccioli[2], Enrico Mini[3], and Roberto Pini[1], [1]National Research Council of Italy IFAC; [2]Dept. Experimental Biomedical and Clinical Science, Univ. Florence; [3]Dept. Health Science, Univ. Florence, Italia

INVITED LECTURE/ORAL SESSION II

Chair: **Sergey N. Vainshtein**, University of Oulu, Finland

12.05-12.25

Invited

Optical Assessment of Blood Microrheology and Its Implications in Diabetes Mellitus

Alexander V. Priezzhev[1], Andrei E. Lugovtsov[1], Vladimir B. Koshelev[2], Olga E. Fadyukova[2], Maria D. Lin[2], and Gelena M. Naumova[2] [1]Physics Department/International laser Center; [2]Faculty of Medicine, Lomonosov Moscow State University, Moscow, Russia

12.25-12.40

Investigation of Red Blood Cells Aggregation in Presence of γ-Globulin Proteins by Means of Optical Trapping

Kisung Lee, M.D. Khokhlova, E.V. Lyubin, A.V. Priezzhev, A.A. Fedyanin, Department of Physics, Lomonosov Moscow State University, Russia

12.40-12.50

Experimental Study of the In Vivo Laser-Induced Oxyhemoglobin Photodissociation in Cutaneous Blood Vessels

M.M. Asimov[1], A.N. Rubinov[1], R.M. Asimov[2], E. Borisova[3], A.I. Gisbrecht[3], [1]Institute of Physics, NAS of Belarus; [2]"Sensotronica Ltd.", Belarus High Technologies Park, Minsk, Belarus; [3]Institute of Electronics, Bulgarian Academy of Sciences, Bulgaria

12.50-13.00

The Intracranial Hemorrhage in Newborn Rats: Alterations in Cerebral Venous Blood Flow and Brain Tissue Oxygen Saturation

Oxana Semyachkina-Glushkovskaya[1], Vlad Lychagov[1], Olga Bibikova[1], Sergey Sindeev[1], Ekaterina Zinchenko[1], Mohanad Kassim[1,2], Igor Semyachkin-Glushkovskij[1], Maria Ulanova[1], Fatema Al-Fatle[1,3], Leith Al Hassani[1,3], Valery Tuchin[1], [1]Saratov State University; [2]Baghdad University; [3]Al-Mustansiriya University, Iraq

September 26, Thursday

ORAL SESSION III

Chair: **Igor Meglinski**, University of Otago, New Zealand

14.00-14.15

Spatial Resolution Analysis for Time-Domain Diffuse Optical Tomography Based on a Perturbation Model

Alexander Konovalov, Vitaly Vlasov, Russian Federal Nuclear Center - Zababakhin Institute of Apllied Physics, Russia

14.15-14.30

Optical Properties of a Disperse Medium Containing Light Scattering and absorbing inclusions of an Arbitrary Shape

Vladimir V. Barun[1,2], Arkady P. Ivanov[1], [1]Institute of Physics; [2]Belarus State University of Radioelectronics and Informatics, Minsk, Belarus

14.30-14.45

Spectral-Domain Optical Coherence Tomography with Corrected Shape of Signal Envelope

Pavel A. Shilyagin, Grigory V. Gelikonov, Valentin M. Gelikonov, Institute of Applied Physics of RAS, N. Novgorod, Russia

14.45-14.55

Interferometric Synthetic Aperture Microscopy Approach in Optical Coherence Tomography with Automated Parameter Evaluation and Phase Equalization Preprocessing

Alexander Moiseev, Grigory Gelikonov, Dmitry Terpelov, Pavel Shilyagin, Valentine Gelikonov, Institute of Applied Physics of RAS, N. Novgorod, Russia

14.55-15.05

Research and Development of a Differential Laser Polarimeter to Measure the Glucose Concentration in Turbid Media

Galina Cherevatenko, Evgenii Aksenov, St. Petersburg State Polytechnical University, Russia

15.05-15.15

The Versatile Terahertz Reflection and Transmission Spectrometer with the Location of Objects of Researches in the Horizontal Plane

Nikolay Balbekin, NRU IFMO, Russia

15.15-15.30

Advantages and Disadvantages of High Coherent Holographic Microscopy as Applied to Cell Investigation

Yuri Zakharov, State University of Nizhny Novgorod, Russia

15.30-15.45

Functional Principle of Explosive Autonomous Movable Nanorockets Controlled by Focused Laser

Johannes Frueh, Zhiguang Wu, Qiang He, Harbin Institute of Technology, China

15.45-15.55

Porous Calcium Carbonate Micro- and Submicrocontainers Loaded with the Photosensitizer "Photosens": Influence of pH on Crystal Phase Transitions and Drug Release Dynamics

Yulia Svenskaya[1], Bogdan Parakhonskiy[2], Evgeny Lukyanets[3], Albrecht Haase[4], Dmitry Gorin[1], Renzo Antolini[4], [1]Saratov State University, Russia; [2]BIOtech Center, University of Trento, Italy; [3]Organic Intermediates and Dyes Institute, Russia; [4]University of Trento, Italy

15.55-16.05

Fluorescence Intensities Ratio F685/F740 for Maple Leaves During Seasonal Color Changes and with Fungal Infection

Anastasia Kharcheva, M.V. Lomonosov Moscow State University, Russia

POSTER SESSION

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

17.30-19.30

1B. **Differential Backscatter Method for Skin Tumor Assessment** Valery P. Zakharov[1], Sergey V. Kozlov[2], Elena V. Timchenko[1], Pavel E. Timchenko[1], Alexander A. Moryatov[2], Larisa A. Taskina[1], [1]Samara State Aerospace University; [2]Samara State Medical University, Russia

2B. **Optical Study of Cosmetics Influence on Skin** Svetlana V. Pershutkina, Elena V. Timchenko, Pavel E. Timchenko, Larisa A. Taskina, Samara State Aerospace University, Russia

3B. **The Impact of Laser Radiation on the Photodissociation of Carboxyhemoglobin in Blood** S.A. Mamilov[1], S.S. Esman[1], D.V. Veligodski[1], M.M. Asimov[2], Ekaterina Borisova[3], [1]Institute of Applied Problems of Physics and Biophysics NAS of Ukraine, Kiev, Ukraine; [2]Institute of Physics NAS of Belarus, Minsk, Belarus; A.I. Gisbrecht[3], [3]Institute of Electronics, Sofia, Bulgaria

4B. **The Lung Cancer Study Using Raman Spectroscopy** Julia A. Khristoforova[1], Valery P. Zakharov[1], Ivan A. Bratchenko[1], Dmitriy N. Artemev[1], Oleg O. Myakinin[1], Sergey V. Kozlov[2], Alexandr Moryatov[2],

[1]Samara State Aerospace University; [2]Samara State Medical University, Russia

5B. **Microstructured Fibers for Serological Examination of Blood** Anastasiya Zanishevskaya[1,2], Anton Malinin[2], Andrey Shuvalov[2], Skibina Julia[2], Tuchin Valery[1], [1]Saratov State University; [2]SPE LLC "NGT", Saratov, Russia

6B. **Diagnosis of Skin Tumors by Using Raman Spectroscopy** Dmitry N. Artemev[1], V.P. Zakharov[1], I.A. Bratchenko[1], O.O. Myakinin[1], Yu.A. Khristoforova[1], S.V. Kozlov[2], A.A. Moryatov[2], [1]Samara State Aerospace University; [2]Samara State Medical University, Russia

7B. **Assessment of Neuroglial Relationships Under Photodynamic Treatment Using Fluorescent Visualization of Giant Axons in Crayfish Ventral Nerve Cord** Evgeny Duz, Mikhail Kolosov, Southern Federal University, Russia

8B. **Quantitative Microelastography Using a Multi-Channel Optical Coherence Tomography** Eli Elyas[1], J.T. Erler[2], T.R. Cox[2], S.P. Robinson[1], D. Woods[3], P. Clowes[1], J.C. Bamber[1], [1]The Institute of Cancer Research, United Kingdom; [2]Biotech Research and Innovation Centre (BRIC), University of Copenhagen, Denmark; [3]Michelson Diagnostics Ltd., United Kingdom

9B. **Noise and Background Removal Algorithm for Raman Spectroscopy Data Processing in Skin Study** Oleg O. Myakinin[1], V.P. Zakharov[1], I.A. Bratchenko[1], D.N. Artemev[1], Yu.A. Khristoforova[1], S.V. Kozlov[2], A.A. Moryatov[2], [1]Samara State Aerospace University; [2]Samara State Medical University, Russia

10B. **Skin Blood Flow as a First Derivative of the Temperature: Spectral Approach to the Blood Flow Estimation in Hands** Andrey A. Sagaidachnyi, D.A. Usanov, A.V. Skripal, A.V. Fomin, Saratov State University, Russia

11B. **Simulation of Laser Tweezers Operation Inside Biotissue In Vivo** Vladimir V. Barun[1,2], S.K. Dick[1], V.P. Sontea[3], [1]Belarus State University of Radioelectronics and Informatics; [2]Institute of Physics, Minsk, Belarus; [3]Technical University of Moldova, Chisinau, Moldova

12B. **Study of the Stress-Strain State in Glass-Carbon Plates after Ultrafast Laser Processing** Elena L. Surmenko, Ivan A. Popov, T. N. Sokolova Yu.V. Chebotarevsky, A.V. Konyushin, D.A. Bessonov, Saratov State Technical University, Russia

13B. **Effect of Light Curing Time on Adhesive System Hardness** Nadezda Bessudnova, David Bilenko, Sergey Venig, Andrey Gribov, Olga Shlyapnikova, Saratov State University, Russia

14B. **Effect of Silver Nano-Particulate Filler Concentration on the Hardness of Dental Adhesive Resins** Nadezda Bessudnova, David Bilenko, Sergey Venig, Andrey Gribov, Saratov State University, Russia

15B. **Interfacial Degradation of Composite Restorations under Thermal Shock Loadings** Nadezda Bessudnova, David Bilenko, Sergey Venig, Vladimir Kvasko, Andrey Gribov, Saratov State University, Russia

16B. **Quenching of the Luminescence of Nanomarkers Bound to Proteins by Heavy Metals** Andrei Melnikov[1], Aleksandr Kovalenko[2], Ekaterina Naumova[2], [1]Saratov State University; [2]Saratov State Technical University, Russia

17B. **Pathologies of Human Heart Left Ventricle Myocardium** Anastasiya Golyadkina, Irina Kirillova, Leonid Kossovich, Saratov State University, Russia

18B. **Oxygen Inhibition in Dental Adhesive Systems** Nadezda Bessudnova, David Bilenko, Saratov State University, Russia

19B. **Effect of the External Mechanical Compression on the Human Skin Blood Oxygenation Degree In Vivo** Olga A. Zyuryukina, Inara A. Nakhaeva, Mohammod R. Mohammod, Yury P. Sinichkin, Saratov State University, Russia

20B. **Iron Oxides Nanoparticles in Photodynamic Action on Staphylococci** Elena Tuchina, Pavel Petrov, Maria Korchenova, Saratov State University, Russia

21B. **Optical Properties of Rat Pancreas in Norm and at Pancreatitis** Polina A. Timoshina[1], Alexey N. Bashkatov[1], Vyacheslav I. Kochubey[1], Elina A. Genina[1], Valery V. Tuchin[1,2,3], [1]Saratov State University; [2]Institute of Precision Mechanics and Control, RAS, Russia; [3]University of Oulu, Finland

22B. **Effect of Glycation on the Glucose Diffusivity in Skin Tissue: Model Studies with Mouse Skin** Daria K. Tuchina[1,2], Rui Shi[1], Alexey N. Bashkatov[2], Elina A. Genina[2], Dan Zhu[1], Qingming Luo[1], Valery V. Tuchin[1-4], [1]Britton Chance Center for Biomedical Photonics, Wuhan National Laboratory for Optoelectronics, Huazhong University of

Science and Technology, Wuhan, China; [2]Research-Educational Institute of Optics and Biophotonics, Saratov State University; [3]Laboratory of Laser Diagnostics of Technical and Living Systems, Institute of Precision Mechanics and Control RAS, Saratov, Russia; [4]Optoelectronics and Measurement Techniques Laboratory, University of Oulu, Finland

23B. **Experimental Measurement of the Temperature of the Skin by Laser Heating** S.Yu. Makarov, Rimma Sh. Zatrudina, Volgograd State University, Russia

24B. **Simulation of Terahertz Radiation Propagation in Skin Tissue under Local Heating** Mikhail Stolnitz, Saratov State University, Russia

25B. **Comparison of Traditional Nanoparticle-Based Tissue-Mimicking Phantoms with Novel Nanoparticle-Free Phantoms Based on Silicone-Glycerol Mixture** Maciej S. Wróbel[1], A.P. Popov[2], A.V. Bykov[2], M. Kinnunen[2], M. Jędrzejewska-Szczerska[1], V.V. Tuchin[3], [1]Department of Metrology and Optoelectronics, Gdańsk University of Technology Gdańsk, Poland; [2]Optoelectronics and Measurement Techniques Laboratory, Faculty of Technology, University of Oulu, Oulu, Finland; [3]Department of Physics, Saratov State University, Russia

26B. **Characterization of and Correcting for Imperfections of Compound Zero-Order Wave Plates for Spectral Polarization Measurements** Dmitry D. Yakovlev, Dmitry A. Yakovlev, Saratov State University, Russia

27B. **In Vivo Clinical Study of Human Skin Dehydration at Topical Application of Biocompatible Hyperosmotic Agents** Kristina N. Kolesnikova[1], Ekaterina M. Galkina[2], Alexandra V. Karakaeva[2], Sergey R. Utz[2], Ekaterina A. Kolesnikova[1], Valery V. Tuchin[1,3,4], [1]Research-Educational Institute of Optics and Biophotonics, Saratov State University; [2]Department of Dermatology, Saratov State Medical University; [3]Laboratory of Laser Diagnostics of Technical and Living Systems, Institute of Precision Mechanics and Control RAS, Saratov, Russia; [4]Optoelectronics and Measurement Techniques Laboratory, University of Oulu, Finland

28B. **Optical Biopsy of Normal and Diseased Human Skin: The Statistical Properties of Polarization Signatures** Marina Alonova[1], Elena Reshetnikova[2], Sergey Yuvchenko[1], Dmitry Zimnyakov[1], Sergey Utz[2], Natalia Slesarenko[2], [1]Saratov State Technical University; [2]Saratov State Medical University, Russia

29B. **Measurement of Diffusion Coefficient of Propylene Glycol in Skin Tissue** Vadim D. Genin, Alexey N. Bashkatov, Elina A. Genina, Valery V. Tuchin, Saratov State University, Russia

30B. **Simple Numerical Model of OCT Signal Evolution due to the Diffusion of an Optical Clearing Agent** Natalia Trunina, Vladimir Derbov, Valery Tuchin, Saratov State Univerisy, Russia

31B. **Real Time Particle Image Velocimetry for Blood Microcirculation Studies** Maxim A. Kurochkin, I.V. Fedosov, V.V. Tuchin, Saratov State University, Russia

32B. **Application of Clarifying Agents to Improve the Efficiency of Detection of Temperature Fields in the Biological Environment Using ZnCdS Nanoparticles** Elena Volkova, Alexander Skaptsov, Ekaterina Kolesnikova, Julia Konyukhova, Viktor Galushka, Vyacheslav Kochubey, Saratov State University, Russia

33B. **The Study of Coastal Meromictic Water Bodies of the Kandalaksha Gulf of the White Sea by Spectral and Physicochemical Methods** A.V. Kharcheva[1], A.V. Meschankin[1], I.I. Lyalin[1], E.D. Krasnova[2], D.A. Voronov[3], S.V. Patsaeva[1], [1]Faculty of Physics, Moscow State University; [2]Nikolai Pertsov White Sea Biological Station, Biology Department, Moscow State University; [3]Institute for Information Transmission Problems, Russia

34B. **Experimental Study of Hydrogen Influence on Plant Optical Characteristics** Ekaterina A. Selezneva, E.V. Timchenko, N.V. Tregub, L.A. Taskina, P.E. Timchenko, [1]Samara State Aerospace University, Russia

35B. **Estimation of Measurable Velocity Range in Phase-Resolved Doppler OCT** Anton Sdobnov, Vladislav Lychagov, Saratov State University, Russia

36B. **ZnCdS Nanoparticles as Nanobiosensors to Determine Denaturation of Tissue** Alexander Skaptsov[1], Elena Volkova[1], Viktor Galushka[1], Julia Konyukhova[1], Andrey Melnikov[2], Gennadiy Melnikov[2], Vyacheslav Kochubey[1], [1]Sararov State University; [2]Saratov State Technical University, Russia

37B. **Detection of Apoptotic and Necrotic Adipocytes after Photodynamic Treatment at a Constant Temperature In Vitro** Irina Yanina[1,2], Rostislav O.Bilyy[3], Valery V. Tuchin[1,4,5], [1]Saratov State University; [2]Saratov State Medical University, Russia; [3]Institute of Cell Biology National Academy of

Sciences of Ukraine (ICB NASU), Ukraine; [4]Institute of Precision Mechanics and Control, RAS, Russia; [5]University of Oulu, Finland

38B. **Resistance of RBC Membranes at the Photodynamic Action** Natalie V. Tkachenko, Eugene A. Yaroshenko, Alexander B. Pravdin, Saratov State University, Russia

39B. **On the Photobleaching of Glycation Products in Human Dentine** Natalia Kazadaeva, Alexander B. Pravdin, Leonid E. Dolotov, Saratov State University, Russia

40B. **Comparison of Optical Properties of Adipose Tissue Sensitized by Brilliant Green (BG) or Indocyanine Green (ICG) at Its Irradiation on Selective Wavelengths** Valery A. Doubrovski[1], Irina Yanina[1,2], Valery V. Tuchin[1,3,4], [1]Saratov State Medical University; [2]Saratov State University; [3]Institute of Precision Mechanics and Control, RAS, Russia; [4]University of Oulu, Finland

41B. **The Study of Exhaled Air of Patients with Broncho-Pulmonary Diseases by the Method of Laser Opto-Acoustic Spectroscopy in IR-range** Ekaterina B. Bukreeva[1], Anna A. Bulanova[1], Yurii V. Kistenev[1], Dmitry A. Kuzmin[1,2], Sergei A. Tuzikov[3], Evgenii L. Yumov[3], [1]Saratov State Medical University; [2]IAO SB of RAS; [3]Tomsk Cancer Research Institute, Russia

42B. **Study on Influence of Photodynamic Dye Incorporated into Nonwoven Material Structure on Cell Cultures** A.N. Severyukhina[1], Irina V. Vidyasheva[1], N.V. Petrova[1], D.A. Gorin[1], E.Y. Salkovsky[1], E.A. Lukyanets[2], G.S. Terentyk[3], V.A. Bogatyrev[4], [1]Saratov State University; [2]Organic Intermediates and Dyes Institute; [3]Saratov State Medical University; [4]Institute of Biochemistry and Physiology of Plants and Microorganisms, RAS, Saratov, Russia

43B. **Optimization of Conditions for the Direct and Inverse Methods of Registration of Red Blood Cells Agglutination, Enhanced by Standing Ultrasonic Wave** Valery A. Doubrovski, Mariya Medvedeva, Saratov State Medical University, Russia

44B. **Comparison of Turbidimetric and Digital Microscopic Methods for RBC Agglutination Registration In Vitro** V.A. Doubrovski, Mariya Medvedeva, S.O. Torbin, I.V. Zabenkov, Saratov State Medical University, Russia

45B. **Study of Grows of Spontaneous malignant tumors using LASCA-microscopy** Alina Golova[1], Vladislav Laskavy[1], Onega Ulianova[2], Sergey Ulyanov[3], [1]Saratov Scientific and Research Veterinary Institute; [2]Saratov State Agrarian University; [3]Saratov State University, Russia

46B. **LASCA Diagnostics of Structural Changes in Growing Colony of Bacteria E-Coli** Vera Bazarova[1], Onega Ulianova[2], Olga Rebeza[2], Sergey Ulyanov[1], [1]Saratov State University; [2]Saratov State Agrarian University, Russia

47B. **Monitoring of Reaction of Agglutination by Speckle-Microscopy** Svetlana Anastasina[1], Onega Ulianova[2], Olga Rebeza[2], Ksenia Terent'eva[1], Sergey Ulyanov[1], [1]Saratov State University; [2]Saratov State Agrarian University, Russia

48B. **Research Morphology of RBC with Use Off-Axis Digital Holographic Microscope with Quasimonochromatic Partially Spatially Coherent Illumination** Yana Tarakanchikova, Anton Grebenyuk, Vladimir P. Ryabukho, Valery V. Tuchin, Sararov State University, Russia

September 27, Friday

ORAL SESSION IV

Chair: **Ivan Fedosov**, Saratov State Unviersity, Russia

11.45-12.00
Effects of Photoactivated Teeth Bleaching on the Tooth Hard Tissues
Angrey V. Akulovich[1], Dmitry A. Ermilov[2], [1]Saint-Petersburg State Medical University; [2]Dental Clinic Lege Artis, Saint-Petersburg, Russia

12.00-12.15
The Demonstration of Scull Bones Mobility Using Optical Methods: Practical Importance in Medicine
A.V. Zakharov[1], V.R. Okushko[2], S.A. Vturin[3], V.V. Moseychuk[1], A.A. Petrov[4], [1]Noospheric Health Center, Moscow, Russia; [2]Pridnestrovian State University, Tiraspol, Transdniestria; [3]Space Research Institute RAS; [4]Avroraclinic, Moscow, Russia

12.15-12.25
Light and Thermal Fields in Multi-Layered Tooth Tissue Induced at Photodynamic Therapy and Whitening
Sergey Dick[1], Vladimir Barun[1,2], Galina Chistyakova[3], Alexander Terekh[1], Leonid Dolotov[4], Alexander Pravdin[4], Natalia Kazadaeva[4], and Valery Tuchin[4], [1]Belarus State University of Radioelectronics and Informatics; [2]Institute of Physics; [3]Belarus State Medical University, Minsk, Belarus; [4]Saratov State University, Saratov, Russia

12.25-12.35
Modeling of Er-Laser Radiation Interaction with Tooth Enamel
A.V. Belikov, Ksenia V. Shatilova, A.V. Skrypnik, St. Petersburg National Research University of Information Technologies, Mechanics and Optics, Russia

12.35-12.50
Enhancement and Mechanism of Skin Optical Clearing by Photo-Irradiation
Caihua Liu, Dan Zhu, Britton Chance Center for Biomedical Photonics, Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, China

12.50-13.05
Stable Transparent Cranial Window for Cortical Imaging In Vivo Based on Optical Clearing Method
Yang Zhang, Jing Wang, Tonghui Xu, Dan Zhu, Britton Chance Center for Biomedical Photonics, Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, China

Workshop on
Laser Physics and Photonics XV

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

Secretary: **Andrey I. Konukhov,** 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 26, Thursday

ORAL SESSION I

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

09.00-09.15
Interpretation of the time delay in the ionization of coulomb and two-center systems by attosecond laser pulses
Vladislav Serov, Vladimir Derbov, Tatiana Sergeeva, Saratov State University, Russia.

09.15-09.30
The paths integration approach for the description of multiphoton transitions in quantum optics
Mark Shleenkov, Alexander Biryukov, Samara State University, Russia

09.30-09.45
Obtaining a two-mode thermal gaussian graph state
Natalia Teper, Lucien N. Mbenza, Ilya Sinayskiy, Francesco Petruccione, University of KwaZulu-Natal, National Institute for Theoretical Physics, South Africa

09.45-10.00
Transmittance analysis of the photonic crystall fibre using vectorial beam propagation method
Alexander Plastun, Andrey Konyukhov, Saratov State University, Russia

10.00-10.15
The features of laser light scattering from bose-einstein condensates.
Yuri Avetisyan, Institute of Precision Mechanics and Control, RAS, Russia

10.15-10.30
The model of effective normal and hyperbolic media of metal-dielectric 1D and 2D periodic structures
Olga Kozina[1], Leonid Melnikov[2], Igor Nefedov[3], [1]Saratov Branch of the Kotel'nikov Institute of Radio-Engineering and Electronics Electronics of RAS; [2]Saratov State Technical University, Russia; [3]Aalto University, School of Electrical Engineering, Finland

10.30-11.00
Coffee break

ORAL SESSION II

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

11.00-11.15
The hybrid surface flux method for the extraction from the calculated wavefunction of the amplitude of the quantum system ionization by strong laser field
Vladislav Serov, Tatiana Sergeeva, Vladimir Derbov, Saratov State University, Russia Sergue Vinitsky, Joint Institute for Nuclear Research, Russia

11.15-11.30
Entanglement of two flux qubits interacting with thermal fields Eugene Bashkirov, Michail Mastyugin, Samara State University, Russia

11.30-11.45
Coherent dynamics of atoms in traps
Alexander Gorokhov, Samara State University, Russia

11.45-12.00
Polarization properties of two-pulse and three-pulse stimulated photon echo with degenerate atomic levels
Vladimir Reshetov, Evgenij Popov, TLTSU, Tolyatti, Russia

12.00-12.15
Model of quantum tunneling of a diatomic molecule through repulsive barriers
Sergue Vinitsky[1], A.A. Gusev[1], O. Chuluunbaatar[1], V.L. Derbov[2], P.M. Krassovitskiy[3], [1]Joint Institute for Nuclear Research; [2]Saratov State University, Russia; [3]Institute of Nuclear Physics, Almaty, Kazakhstan

12.15-12.30
Models of two-electron composite quantum systems
Sergue Vinitsky[1], A.A. Gusev[1], O. Chuluunbaatar[1], V.L. Derbov[2], A.S. Klombotskaya[3], [1]Joint Institute for Nuclear Research; Saratov State University; [3]Saratov State Technical University, Russia

12.30-12.45
Near-field diffraction of laser light by dielectric corner step
Sergey Stafeev, Victor V. Kotlyar, Image Processing Systems Institute, Russia

12.45-13.00
Electromagnetically induced transparency and electromagnetically induced absorption in quasi-resonance adiabaton evolution
Oleg M. Parshkov, Ekaterina R. Govorenko, Russia, Gagarin State Technical University of Saratov

JOINT POSTER/INTERNET SESSION AND INTERNET DISCUSSION

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

17.30-19.30

1 P. **Propagation of frequency-modulated cw laser beams in a three-level nonlinear absorbing media** Andrey Bokarev, Inna Plastun, Saratov State Technical University, Russia.

2 P. **Development and research of compact USB 2.0-based data acquisition systems for retinal spectral domain optical coherence tomography** Dmitry Terpelov, Grigory Gelikonov, Valentine Gelikonov, Institute of Applied Physics RAS, Nizhny Novgorod, Russia

3 P. **Spatial-temporal structure of dilute bec superradiance** Yuri Avetisyan, Institute of Precision Mechanics and Control, RAS, Russia

4 P. **Nonlinear interference effects in frequency modulated fields** Alexander Orudzhev[1], Inna Plastun[1], [1]Saratov State Technical University; Vladimir Derbov[2], [2]Saratov State University, Russia

5 P. **Optical characteristics of the metal-wire dielectric periodic structure: hyperbolic eigenwaves** Olga Kozina[1], Leonid Melnikov[2], Igor Nefedov[3], A.S. Zotkina[2], [1]Saratov Branch of the Kotel'nikov Institute of Radio-Engineering and Electronics Electronics of RAS; [2]Saratov State Technical University, Russia; [3]Aalto University, School of Electrical Engineering, Finland

6 P. **Method of overlapping blind holes for structuring of a surface** Ivan Popov, T.N. Sokolova, Yu.V. Chebotarevsky, E.L. Surmenko, A.V. Konyushin, D.A. Bessonov, Saratov State Technical University, Russia

7 P. **Method of 3D-reconstruction of micro-object surface by digital fresnel holography** Sergey A. Savonin[1], Alexander Y. Abramov[1], Vladimir P. Ryabukho[2], [1]Educational-Research Institute of Nanostructures and Biosystems, Saratov State University; [2]Saratov State University, Institute of Precision Mechanics and Control of RAS, Saratov, Russia

8 P. **Micro-size optical structures for optical pulse shaping in mid-infrared spectral range** Daniil Zhivotkov, Vladimir Vinogradov, Elena Romanova, Saratov State University, Russia

9 P. **Space-temporal instabilities in brillouin fiber lasers** Sergey Sukhanov, Leonid Melnikov, Russia Yulia Mazhirina, Saratov State Technical University, Russia

10 P. **Dynamics of atomic entanglement induced by thermal field** Eugene Bashkirov, Michail Mastyugin, Samara State University, Russia

11 P. **Dynamics of two-atom one- and two-photon tavis-cummings model with intensity-dependent couplings** Eugene Bashkirov, Svetlana Volkova, Samara State University, Russia

12 P. **Electrically induced circular dichroism of multi-domain layers of a long-pitch cholesteric liquid crystal** Dmitry D. Yakovlev, Maria M. Sherman, Dmitry A. Yakovlev, Saratov State University, Russia

13 P. **Influence of resonance self-action on optical transient nutation in frequency-modulated cw laser beams** Inna Plastun, Artem Misurin, Saratov State Technical University, Russia

14 P. **The propagation of laser pulse in medium with reverse saturable absorption** Vladislav Gribkov, Rimma Zatrudina, VolGU, Russia

15 P. **Low-coherence probes of the transport parameters of random media beyond the diffusion limit** Javan Samadi Sina[1], [1]Saratov State University; Dmitry Zimnyakov[2], [2]Saratov State Technical University, Russia

16 P. **Light depolarization properties of semiconductor quasi-1D and 2D**

nanoparticles in the vicinity of surface mode resonances Sergey Yuvchenko, Elena Isaeva, Dmitry Zimnyakov, Saratov State Technical University, Russia

17 P. **Speckle correlometry of near-critical dispersive systems** Sergey Chekmasov, Olga Ushakova, Dmitry Zimnyakov, Saratov State Technical University, Russia

18 P. **Sub-nyquist sampling in digital holography** Konstantin Grebenyuk, Vladimir Ryabukho, Saratov State University, Russia

19 P. **Spatio-temporal dynamics of fiber laser** Vadim Razukov, Yu.A. Mazhirina, L.A. Melnikov, Saratov State Technical University, Russia

20 P. **Peculiarities of statistical distribution of the phase difference in the speckle-field** Natalia Yu. Mysina[1], Ludmila L. Maksimova[2], Vladimir P. Ryabukho[1], [1]Saratov State University; [2]Institute of Precision Mechanics and Control, RAS, Saratov, Russia

21 P. **Investigation of the properties of optical speckle fields with help of correlation analysis** Natalia Yu. Mysina[1], Ludmila L. Maksimova[2], Vladimir P. Ryabukho[1], [1]Saratov State University; [2]Institute of Precision Mechanics and Control, RAS, Saratov, Russia

22 P. **Dynamics of two coupled semiconductor lasers with time-delayed feedback** Leonid Kochkurov, Maxim Balakon, Leonid Melnikov, Vladimir Astakhov, Saratov State Technical University, Russia

23 P. **Focused image digital holography method in the study of microdeformations of scattering objects** Oleg Dikov, Saratov State University, Russia

24 P. **Laser interferometry of surface microdeformations in contact with the solid ball** Peter Ryabukho[1], Vitaly Likhodin[1], Peter Plotnikov[2], Vladimir Ryabukho[1,3], [1]Saratov State University; [2]Saratov State Technical University; [3]Institute of Precision Mechanics and Control, RAS, Russia

25 P. **Z-scan measurements with lock-in amplifier** Ivan S'estnov, Russia Andrey Konyukhov, Saratov State University, Russia

26 P. **Determination of young's modulus by method of digital holographic interferometry** Vitaly Likhodin, Peter Ryabukho, Saratov State University, Russia

27 P. **Basic laser tweezer system for routine microscope** Sergey S. Klykov, Ivan V. Fedosov, Valery V. Tuchin, Saratov State University, Russia

INTERNET REPORTS

1. **Peculiarities of the outside influences on all-optical poling** Vitaly A. Smirnov, Liubov I. Vostrikova, Rzhanov Institute of Semiconductor Physics SB RAS, Novosibirsk, Russia

2. **Photo-refractive Bragg gratings in center-symmetrical materials** Vitaly A. Smirnov, Liubov I. Vostrikova, Rzhanov Institute of Semiconductor Physics SB RAS, Novosibirsk, Russia

3. **Parametrical down-conversion process on all-optical poling** Vitaly A. Smirnov, Liubov I. Vostrikova, Rzhanov Institute of Semiconductor Physics SB RAS, Novosibirsk, Russia.

4. **Spatio-temporal dispersion and waveguide properties of 2D periodic road hyperbolic metamaterials** Michael Davidovich, Saratov State University, Russia Igor Nefedov, Aalto University, Espoo, Finland

Workshop on Spectroscopy and Molecular Modeling XIV

Workshop Chairs **Valentin I. Berezin, Lev M. Babkov, Michael D. Elkin** *Saratov State University (Russia)*

Secretaries **Kirill V. Berezin, 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 University (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 26, Thursday

ORAL SESSION

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

14.00–14.20

Indications of spectral identification formetil substituted uracils in condensed state

Mikhail D. Elkin[1], N.A. Ravcheeva[2], V.V. Smirnov[2], V.I. Berezin[1], [1]Saratov State Technical University; [2]Astrakhan State University, Russia

14.20–14.40

The paths integration approach for the calculations of multiphoton transitions probability in molecules

Alexander Biryukov, M. Shleenkov, Samara State University, Russia

14.40–15.00

Investigation of crystalline aggregation during the cataract formation using Monte Carlo Technique

Vera Prytkova, University of California, Irvine, USA

15.00 – 15.20

Study of the pair association of pyridine by DFT and ab initio methods

Kirill V. Berezin, O.V. Kozlov, M.A. Chernavina, Saratov State University, Russia

15.20 -15.40

Calculation of the structure and vibrational frequencies of glyoxal in ground and exited electronic states

M.K. Berezin, G.N.Ten, K.V. Berezin, V.I. Berezin, D.A. Zabaluev, Saratov State University, Russia

15.40 – 16.00

IR spectra, structures and properties of molecular crystals with H-bonds of some oxygencontaining hydrocarbons

Elena Moiseykina[1], L. Babkov[1], M. Korolevitch[2], I. Gnatyuk[3], G. Puchkovska[3], T. Bezrodna[3], J. Baran[4], [1]Saratov State University, Russia; [2]Institute of Physics NAS of Belarus; [3]Institute of Physics NAS of Ukraine, Kiev, Ukraine; [4]Institute of Low Temperature and Structure Research, Wroclaw, Poland

POSTER SESSION

Co-chairs (S): **Valentin I. Berezin, Lev M. Babkov, Michael D. Elkin** Saratov State University (Russia)

17.30–19.30

1S. **Structural-dynamic models and spectral identification of substited cytosine** P.M. Elkin[1], D.D. Kochergina[2], A.P. Gaysina[2], [1]Saratov State Technical University; Astrakhan State University, Russia

2S. **Modeling of vibrational spectra of dimmers of uracilcytosine** P.M. Elkin[1], N.A. Ravcheeva[2], A.M. Lihter[2], D.D. Kochergina[2], [1]Saratov State Technical University; [2]Astrakhan State University, Russia

3S. **Systematic analysis in modeling calculations of vibrational spectra for heterocyclic compounds** E.A. Erman, G.P. Stefanova, Yu. Krutova, B.I. Kolomin. Astrakhan State University, Russia

4S. **Systematic analysis in modeling calculations of vibrational spectra. Hudroxy tautomers of uracil and cytosine** A.P. Gaysina, E.A. Djalmuhambetova, O. M. Alukova, M.A. Erman, Astrakhan State Technical University, Russia

5S. **Modeling of structure and dynamics for conformers of lutkalin** I.T. Shigautdinova, D.M. Nuralieva, M.D. Elkin, Astrakhan State University, Russia

6S. **Interpretation of vibrational spectra of uracil carbonic acids** P.M. Elkin[1], A.A. Popov[2], V.M. Kartachov[2], O.N.Grechuhina[2]. [1]Saratov State Technical University; Astrakhan Office of Volga Academy of Water Transport, Russia

7S. **Higher in the mass ratio contributions to the fine shift of the levels in**

hydrogenlike atoms S. Churochkina, Saratov State University, Russia

8S. **Studi of the radial distribution of elements in thecomposite alloys by libs** D.A. Bessonov, Elena Surmenko, T.N. Sokolova, Saratov State Technical University, Russia

9S. **The study of vibrational spectra of 4,4'-chlorobenzophenone using B3LYP method** L.M. Babkov[1], Vitaly A. Boikov[1], N.A. Davydova[2], [1]Saratov State University, [2]Institute of Physics of NAS of Ukraine, Kiev, Ukraine

10S. **Interpretation of resonance Raman spectra of octaethylporphine** Kirill V Berezin[1], V.S.Mel'nikova[1], V.V. Nechaev[2], [1]Saratov State University; [2]Saratov State Technical University, Russia

11S. **Anharmonic corrections to Raman intensities for diatomic molecular spectra** V.V. Nechaev[1], E.A. Piskunova[1], [1]Saratov State Technical University; Kirill V. Berezin, Saratov State University, Russia

12S. **Normal mode analysis of chlorophyl (b)** V.V Nechaev[1], Kirill V. Berezin[2], B.K. Barsunidze[2], K.N. Dvoretski[3], [1]Saratov State Technical University; [2]Saratov State University; [3]Saratov State Medical University, Russia

13S. **Variational procedure for anharmonic vibrational problems** V.V. Nechaev[1], O.D. Ziganshina[1], M.A. Chernavina[2], K.V.Berezin[2], [1]Saratov State Technical University; [2]Saratov State University, Russia

14S. **Normal coordinate analyses with symmetry adapted natural set by DFT and ab initio methods** M.K. Berezin, G.N. Ten, Kirill V. Berezin, D.A. Zabaluev, V.I. Berezin, Saratov State University, Russia

15S. **Equvivalance indices, scaling for natural coordinates of different type** M.K. Berezin, G.N. Ten, Kirill V. Berezin, D.A. Zabaluev, V.I. Berezin, Saratov State University, Russia

16S. **Quantum chemical calculation of the bond order for organic molecules** M.K. Berezin, G.N. Ten, Kirill V. Berezin, D.A. Zabaluev, V.I. Berezin, Saratov State University, Russia

17S. **Some problems in modeling of spectral parameters for organic molecules** M.K. Berezin, G.N. Ten, Kirill V. Berezin, D.A. Zabaluev, V.I. Berezin, Saratov State University, Russia

18S. **Modeling of IR spectra of cyclohexanol in the anharmonic approximanion** Elena A. Moiseykina[1], L.M. Babkov[1], N.A. Davydova[2], [1]Saratov State University; [2]Institute of Physics NAS of Ukraine, Kiev, Ukraine

19S. **The quantum-mechanical calculation of the geometric parameters and vibrational spectra of NAD and NADH** C. Ivina, Rimma Zatrudina, VolSU, Russia

20S**. Interpretation of IR spectrum of salol using modeling by DFT method**
Lev M. Babkov[1], I.V. Ivlieva[1], A.S. Mikchailov[1], N.A. Davydova[2], [1]Saratov State University; [2]Institute of Physics of NAS of Ukraine, Kiev, Ukraine

Workshop on Nanobiophotonics IX

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 26, Thursday

JOINT POSTER/INTERNET SESSION AND INTERNET DISCUSSION

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

18.30 – 21.00

1N. **Gold nanostars with silica shells for optical imaging at the cellular and tissue levels** Olga Bibikova, Saratov State University, Russia

2N. **Enhanced capabilities of analytical and numerical two-scale algorithm for simulation of thermal effects in tissue doped with plasmonic nanoparticles under laser irradiation** Alexander Yakunin, Institute of Precision Mechanics and Control, RAS, Saratov, Russia

3N. **Mechanical properties of adhesive system with a silver nanoparticulate filler: an experimental study** Nadezda Bessudnova Saratov State University, Russia

INTERNET REPORTS

1. **Optically stimulated growth of the photo-integrated micro- and nano-periodic susceptibility lattices** Lyubov Vostrikova, Rzhanov Institute of Semiconductor Physics SB RAS, Novosibirsk, Russia

2. **Photo-modification of glass materials for manufacturing of laser frequency micro- and nano-converters** Lyubov Vostrikova, Rzhanov Institute of Semiconductor Physics SB RAS, Novosibirsk, Russia

3. **Theoretical aspects of the nonlinear conversion of light in photo-integrated micro- and nano-periodic susceptibility lattices** Lyubov Vostrikova, Rzhanov Institute of Semiconductor Physics SB RAS, Novosibirsk, Russia

4. **On the thermal effects during pulsed laser irradiation of a medium with plasmonic nanoparticles - from micro- to femtoseconds** Alexander Yakunin, Institute of Precision Mechanics and Control of the Russian Academy of Science, Saratov, Russia

September 27, Friday

LECTURE/ORAL SESSION

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

9.30 – 9.45
Synthesis of SiO_2-coated CdSe/CdS/ZnS quantum dots nanohybrids
Valentina Goftman Saratov State University, Russia; Univ. Gent, Belgium

9.45-10.00
Surface-enhanced Raman scattering platforms with compositemetal containing nanostructured surface
Ekaterina Prikhozhdenko, Saratov State University, Russia

10.00 – 10.15
A novel method for high quality gold nanorod synthesis
Boris Khlebtsov, IBPPM RAS, Saratov, Russia

10.15 – 10.30
Formation of high quality 2-D colloidal crystals using dip-drawing technique and improved silica nanospheres
Vitaly Khanadeev, IBPPM RAS, Saratov, Russia

10.30 – 10.45
Enhanced specificity and efficiency of polymerase chain reaction using gold nanoparticles towards the clinical applications
Timofey Pylaev, IBPPM RAS, Saratov, Russia

10.45 -11.00
Nanostructured satellite with remote control properties for biomedical applications
Dmitry Gorin, Saratov State University, Russia

11.00 -11.15
Polymer microcapsules functionalized with luminescent Si nanoparticles for optical tracking and controlled drug delivery
Yulia Maximenko University of Illinois at Urbana-Champaign, USA

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

Co-chairs: **Kirill V. Larin**, University of Houston, USA and **Anton Grebenyuk**, Saratov State University, Russia

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

International Program Committee: **Shoude Chang**, National Research Council (Canada); **Mary Dickinson**, Baylor College of Medicine (USA); **Christoph K. Hitzenberger**, 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, Wednesday

ORAL SESSION

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

11.25-11.40

Nanostructure of biocompatible titania/hydroxyapatite coatings

Aleksandr Fomin, Igor Rodionov, Aleksey Steihauer, Marina Fomina, Natalia Petrova, Andrey Zakharevich, Aleksandr Skaptsov, Andrey Gribov, Atkin Vsevolod Saratov State Technical University, Saratov State University, Russia

11.40-11.50

RBC's membrane fluctuation measurements by DPM

Natalya Talaykova, Alexander L. Kalyanov, Vladislav V. Lyachagov Saratov State University, Russia

11.50-12.05

Multimodal OCT system for cancer diagnosis

Ivan Bratchenko, Valery Zakharov, Oleg Myakinin, Dmitry Artemev, Dmitry Kornilin, Yulia Khristoforova, Sergey Kozlov, Samara State Aerospace University, Samara State Medical University Russia

12.05-12.15

Numerical focusing in digital holographic microscopy with partially spatially coherent illumination in transmission

Anton Grebenyuk, Vladimir Ryabukho, Saratov State University, Russia, Institute of Precision Mechanics and Control RAS, Russia

12.15-12.25

Visualisation of Blood Vessels by OCT Correlation Mapping Method

Olga Izotova, Alexander Kalyanov, Vladislav Lychagov, Saratov State University, Saratov, Russia

September 26, Thursday

JOINT POSTER/INTERNET SESSION AND INTERNET DISCUSSION

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

17.30-19.30

1M. **Adaptive increasing of scanning area in surfaces' investigation by low-coherence interferometry techniquee** Peter Ermolaev, Saint Petersburg National Research University of Information Technologies, Mechanics and Optics, Russia

2M. **SEM evaluation of silver nanoparticle penetration into dentine collagen matrix** Nadezhda Bessudnova, Saratov State University, Russia

3M. **Polarization mapping of lyotropic liquid crystals** Vladimir M. Ryabtsev, Maria M. Sherman, Natalya B. Shestopalova, Rimma K. Chernov, Dmitry A. Yakovlev, Saratov State University, Russia

4M. **Field of view of numerically focused images in digital holographic microscopy** Anton Grebenyuk, Vladimir Ryabukho, Saratov State University, Russia, Institute of Precision Mechanics and Control, RAS, Saratov, Russia

5M. **Material dispersion demonstration in the broadband source optical interferometry** Smirnov Ilya, Lychagov Vladislav, Kalyanov Alexander, Vladimir Ryabukho, Saratov State University, Russia

6M. **Phase step algorithm in full-field OCT for tissue structure visualization** Elena V Bogolyubova, Alexander L Kalyanov, Saratov State University, Russia

INTERNET REPORT

1. **One specific velocity color mapping of flows with complex geometry** Sergey G. Proskurin, Anton Yu. Potlov, Kamal E.S. Ghaleb, TSTU, Russia

Workshop on Internet Biophotonics VI

Workshop Chairs **Alexey N. Bashkatov**, Saratov State University, **Ivan V. Fedosov**, Saratov State University, **Valery V. Tuchin,** Saratov State University, Institute of Precision 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 27, Thursday

PLENARY INTERNET SESSION

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

16.30-17.30

1. **Shaped light for biophotonics** Kishan Dholakia, University of St. Andrews, UK
2. **Origin of optical pulse and non-invasive measurement of hemoglobin** Ilya Fine, Elfi Tech Ltd., Science Park, Rehovot, Israel

INTERNET SESSION AND INTERNET DISCUSSION

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

17.30-19.30

INVITED INTERNET LECTURES

1. **To the problem of stiffness-contrast determining in the correlation-stability approach** Lev A. Matveev, Vladimir Yu. Zaitsev, Alexandr L. Matveyev, Grigory V. Gelikonov, Valentin M. Gelikonov Institute of Applied Physics RAS, Russia Nizhny Novgorod Medical Academy, Russia
2. **Development and application of an automated FLIM multiwell plate reader for high content analysis** Douglas Kelly[1], Anca Margineanu[2], Sean Warren[1], Mesayamas Kongsema[3], Jia Chan[4], Eric W.-F. Lam[3], Matilda Katan[4], Chris Dunsby[2], Paul M. W. French[2], [1]Institute of Chemical Biology, Imperial College London, UK; [2]Photonics Group, Imperial College London, UK; [3]Department of Surgery and Cancer, Imperial College London, UK; [4]Department of Structural and Molecular Biology, University College London, UK
3. **Improving the object depth-localization in fluorescence diffuse optical tomography in an axial outward imaging geometry using a geometric-sensitivity-difference method** Krishna T. Tokala[1], Daqing Piao[1], Guan Xu[2], [1]School of Electrical and Computer Engineering, Oklahoma State University, Stillwater, OK; [2]Department of Radiology, Medical School, University of Michigan, Ann Arbor, USA
4. **Single-fiber reflectance spectroscopy: is it more accurate than radiography and computed tomography in identifying degenerated canine intervertebral discs?** Nigar Sultana[1], Kelci McKeirnan[2], Melanie A. Breshears[3], Anqi Zhang[4], Daqing Piao[1], Kenneth E. Bartels[2], [1]School of Electrical and Computer Engineering; [2]Department of Veterinary Clinical Science; [3]Department of Veterinary Pathobiology, Oklahoma State University, Stillwater, OK; [4]Department of Biomedical Engineering, Johns Hopkins University, Baltimore, MD, USA
5. **Optical detection of ultrasound: acousto-optic imaging using quantum memory based techniques** Luke R. Taylor, Jevon J. Longdell, University of Otago, New Zealand
6. **Optical tweezers-assisted measurements of elastic light scattering** Matti Kinnunen[1], Juho Tuorila[1], Tomi Haapalainen[1], Artashes Karmenyan[2], Valery Tuchin[1,3], Risto Myllylä[1], [1]University of Oulu, Finland; [2]National Yang-Ming University, Taiwan; [3]Saratov State University, Russia
7. **Endogenous carbon nanoparticles as a source of blue autofluorescence in biological fluids: use in clinical praxis** Artur Kuznetsov[1], Aleksander Frorip[1], Mai Ots-Rosenberg[2], Alar Sunter[2], [1]AS Ldiamon; [2]Tartu University, Estonia
8. **Overview of noninvasive methods for determination of carotenoid concentrations in mammalian skin** Maxim Darvin, Juergen Lademann, Charite-Universitaetsmedizin Berlin, Germany

9. **The optical origin of the PPG signal** Ilya Fine, Elfi-Tech Ltd., Israel

10. **Developing fluorescence lifetime imaging endoscopes for biomedical applications** Hugh Sparks, Ian Munro, Gordon Kennedy, Eishu Hirata, Esra Nigar, Sean Warren, Eric Sahai, Taran Tatla, C. Dunsby and P. M. W. French, Imperial College London; Cancer Research; London Research Institute Northwest London Hospitals NHS Trust, UK

INTERNET REPORTS

1. **Possibility of using of hair at the optical biomedical diagnostics** Valeriya Maryakhina, Orenburg State University, Russia

2. **The optical properties of rat abdominal wall muscle** Luis Oliveira[1], Maria Carvalho[2], Elisabete Nogueira[1], Valery Tuchin[3], [1]Instituto Superior de Engenharia do Porto, Portugal; [2]INESC-TEC and FEUP, Porto, Portugal; [3]Saratov State University, Saratov, Russia

3. **Optical clearing of human skin for the enhancement of optical imaging of proximal interphalangeal joints** Ekaterina Kolesnikova[1], Aleksandr Kolesnikov[1], Urszula Zabarylo[2], Olaf Minet[2], Elina Genina[1], Alexey Bashkatov[1], Valery Tuchin[1,3,4], [1]Saratov State University, Russia; [2]Medizinische Physik und Optische Diagnostik, Charité – Universitätsmedizin Berlin; [3]Institute of Precision Mechanics and Control RAS, Saratov, Russia; [4]Optoelectronics and Measurement Techniques Laboratory, University of Oulu, Finland

4. **Dynamic thermography derived perfusion indicates a few seconds of time delay of perfusion change with respect to low-level-laser-irradiation on cutaneous tissue of reptile** Vasumathi Chalasani[1], Daqing Piao[1], Lara Sypniewski[2], Jill K Murray[2], Kenneth E. Bartels[2], [1]School of Electrical and Computer Engineering; [2]Department of Veterinary Clinical Sciences, Oklahoma State University, Stillwater, OK, USA

5. **Trans-rectal near-infrared optical tomography reconstruction of a regressing experimental tumor in a canine prostate by using the prostate shape profile synthesized from sparse 2-dimensional trans-rectal ultrasound images** Dhanashree Palande, Daqing Piao, School of Electrical and Computer Engineering, Oklahoma State University, Stillwater, OK, USA

6. **Osteoblast metabolic activity in dependence on different supplements** Kathrin Smuda, Charité Berlin, Germany

7. **Air and water based normalization of single-fiber reflectance spectroscopy measurements: how is it comparing to normalization based on diffuse reflectance standards?** Nigar Sultana[1], Kenneth E. Bartels[2], G. Reed Holyoak[2], Daqing Piao[1] and Jerry W. Ritchey[3] [1]School of Electrical and Computer Engineering; [2]Department of Veterinary Clinical Science; [3]Department of Veterinary Pathobiology, Oklahoma State University, Stillwater, OK, USA

8. **Optical properties of parietal peritoneum in the spectral range 350-2500 nm** Marina Kozintseva[1], Alexey N. Bashkatov[1], Elina A. Genina[1], Vyacheslav I. Kochubey[1], Sergey Yu. Gorodkov[2], Dmitry A. Morozov[3], Valery V. Tuchin[1], [1]Saratov State University; [2]Saratov State Medical University; [3]Moscow State Scientific-Research Institute of Pediatrics and Children Surgery, Russia

9. **Effect of external mechanical compression on optical properties of the human skin in vivo** Inara A. Nakhaeva, Mohammod R. Mohammod, Olga A. Zyuryukina, Yury P. Sinichkin, Saratov State University, Russia

10. **Evaluation of photothermal effects induced by laser heating of gold nanorods in suspensions and inoculated tumors** Georgy S. Terentyuk[1], Daniil S. Chumakov[1], Irina L. Maksimova[1], Marina V. Basko[2], Andrey V. Ivanov[3], Boris N. Khlebtsov[4], Nikolay G. Khlebtsov[4], [1]Saratov State University; [2]Saratov State Medical University; [3]N.N. Blokhin Russian Cancer Research Centre; [4]IBPPM RAS, Saratov, Russia

11. **Physical and chemical methods of skin drug delivery enhancement: comparative study of healthy skin and skin with dermatitis** Ekaterina A. Kolesnikova[1], Elina A. Genina[1], Georgy S. Terentyuk[1-3], Natalya A. Tsyganova[3], Alexey N. Bashkatov[1], Daniil S. Chumakov[1], Marina V. Basko[2], Valery V. Tuchin[1,4,5], [1]Saratov State University; [2]Saratov State Medical University; [3]Ulianovsk State University; [4]IPMC RAS, Saratov, Russia; [5]University of Oulu, Finland

12. **Characterization of two binding modes of ANS-bacterial luciferase complex by fluorescent spectroscopy in viscous medium** Elena Nemtseva[1], Tatyana Avsievich[2], Marina Gerasimova[1], [1]Siberian Federal University, Russia; [2]Tambov State Technical University, Russia

13. **Inhomogeneity detection in diffuse optical tomography using conform mapping** Anton Yu. Potlov, Sergey G. Proskurin, Sergey V. Frolov, Tambov State Technical University, Russia

14. **The use of nanocomposite photosensitizers for cancer therapy** Georgy S. Terentyuk[1,2], Daniil S. Chumakov[2], Alla B. Bucharskaya[2], Galina N. Maslyakova[2], Elina A. Genina[1], Alexey N. Bashkatov[1], Nikolai G. Klebtsov[3], Boris N. Khlebtsov[3], [1]Saratov State University, [2]Saratov State Medical University, Russia, [3]IBPPM, Russia

Workshop on Nonlinear Dynamics and Computational Biophysics IV

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

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

International Program Committee: **Lutz Schimansky-Geier**, **Jüergen Kurths**, 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

12.25-12.40
Multiresolution analysis of cerebrovascular dynamics in newborns
Alexey N. Pavlov, Saratov State University, Russia

12.40-12.55
Nonlinear dynamics of the vascular wall: spatial synchronization and regenerative pulse
Dmitry E. Postnov, Saratov State University, Russia

12.55-13.05
Application of adaptive granger causalty for disclosing thalamo-cortical precursors of absence epilepsy in EEG in wag/rij rats
Ilya Sysoev, Saratov State University, Russia

POSTER SESSION

Chairs (D): **Alexander P. Chetverikov**, Saratov State University (Russia)

17.30-19.30

1D. **Application of the method aortic rheography for the quantification of the cardiac electro-mechanical coupling** Elena Styukhina, Saratov State University, Russia

2D. **Functional model of vasomotion: from excitability to oscillations** Anastasia Neganova, Saratov State University, Russia

Workshop on Low-Dimensional Structures III

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 26, Thursday

ORAL SESSION

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

14.00-14.50
Grain boundaries in graphene and graphene nanoribbons
V. A.Osipov, Bogoliubov Laboratory of Theoretical Physics, Joint Institute for Nuclear Research, Dubna, Russia

14.50-15.00
Structure Me-organic film-Me, based of hydroxiquinoline al in polymer matrix
N. Penkevich, A. Neveshkin, D. Zayarsky, Saratov State Technical University, Saratov, Russia

15.00-15.10
Langmuir monolayers in the electric field
A. Chumakov, A. Ermakov, I. Gorbachev, E. Glukhovskoy, Saratov State University, Saratov, Russia, V. Kim, Moscow State University, Moscow Russia

15.10-15.20
Study of the electron tunneling in the system graphene-DNA-graphene
V. L. Katkov, O.G. Isaeva, V. A.Osipov, Bogoliubov Laboratory of Theoretical Physics, Joint Institute for Nuclear Research, Dubna, Russia

15.20-15.30
A new coarse-grained model of chitosan-carbon nanostructures composites
Olga E. Glukhova, E.E. Kossovich, Anna S. Kolesnikova, Michail M. Slepchenkov, Vladislav V. Shunaev, Aleksandr A. Fadeev Saratov State University, Saratov, Russia

15.30-40.
Development of cluster-oriented molecular dynamic simulation software kvazar
R. Safonov, G. Sanostyanov, O. Glukhova Saratov State University, Saratov, Russia

15.40-15.50
Control of the nanocomposite microcapsules integrity through an electric field
A. Ermakov, A. Chumakov, I. Gorbachev, A. Savonin, I. Vidyasheva, D. Gorin, E.y Glukhovskoy, Saratov State University, Saratov, Russia, V. Kim, G. Khomutov, Moscow State University, Moscow Russia

JOINT POSTER/INTERNET SESSION AND INTERNET DISCUSSION

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

18.30-21.00

1L. **2 dimensional molecular motors for controlled cell motion produced by microcontact printing** M. Gai, J. Frueh, Q. He, Harbin Institute of Technology, China

2L. **Ar coatings for protective glass displays based on low-dimensional silicon structures** S.V. Eskin[1], N.M. Ushakov[1], I.D. Kosobudsky[2], [1]Institute for RadioEngineering & Electronics, RAS, Saratov Branch; [2]Saratov State Technical University, Russia

3L. **Nanoemitter giga- and terahertz frequency ranges based on the carbon peapod** O.E. Glukhova, A.S. Kolesnikova, Sararov State University, Russia

4L. **Thermal conductivity in cathodes** D.V. Ivanov[1], O.E. Glukhova[1], V.I. Shesterkin[2], [1]Sararov State University; [2]Almaz, Saratov, Russia

5L. **A comparative evaluation of mechanical properties of nanofibrous materials** L. German, B. Nadezda, Saratov State University, Russia

6L. **Behavior of phospholipid on graphene surface in electric field**

O.E. Glukhova, A.S. Kolesnikova, Russia D.S. Shmygin, Saratov State University, Russia

7L. **One-dimentional mathematical model of haemodynamics with taking into account work of arterial walls** Aleksandr Dol', Saratov State University, Russia

8L. **The peculiarities of aqua 2 - hydroxypropyl -β-cyclodextrin solutions** P.V. Karpov[1], S.N. Shtikov[2], V.N. Karchev[2], [1]Saratov State University; [2]Saratov State Medical University, Russia

9L. **Application of the electron propagator theory to the calculation of electron conductance of dna nucleotide pairs** A.A. Kletsov, A. V. Markin, D.A. Melnikov, D.N. Bratashov, O.E. Glukhova, Saratov State University, Russia

10L. **The theoretical ivestigation of bilayer fullerene $C_{60}@C_{540}$** V.V. Shunaev, M.M. Slepchenkov, O.E. Glukhova, Saratov State University, Russia

11L. **A study of fullerenes motion on a graphene sheet** A.S. Fadeev, Saratov State University, Russia

INTERNET REPORTS

1. **The changes of morphological indicators of bone marrow and peripheral blood at intravenous administration of gold nanorods** A.B. Bucharskaya[1], G.N. Maslyakova[1], G.S. Terentyuk[1], O.V. Matveeva[1], N.A. Navolokin[1], N.G. Khlebtsov[2], B.N. Khlebtsov[2], V.A. Bogatyrev[2], [1]Saratov State Medical University; [2]Institute of Biochemistry and Physiology of Plants and Microorganisms, RAS, Saratov, Russia

2. **Evaluation of lipid peroxidation activity at intravenous administration of gold nanorods in rats with simulated diabetes and transplanted liver cancer** N.I. Diht[1], G.A. Afanasyeva[1], A.B. Bucharskaya[1], G.S. Terentyuk[1], M.V.Basko[1], G.N. Maslyakova[1], N.G. Khlebtsov[2], B.N. Khlebtsov[2], [1]Saratov State Medical University; [2]Institute of Biochemistry and Physiology of Plants and Microorganisms, RAS, Saratov, Russia

3. **Morphological changes in the tissues and organs of laboratory rats with transplantable liver cancer pc-1 by intra-peritoneal injection citrate stabilized iron nanoparticles** N. Navolokin[1], X. Kong[1], A. Bucharskaya[1], V. Zuev[1], G. Maslyakova[1], S. German[2], D. Gorin[2], G. Terentyuk[2], O. Vorobyova[3], [1]Saratov State Medical University; [2]Saratov State University; [3]Chuvash State University, Russia

4. **Reversibility of morphological changes in the mesenteric lymph nodes after peroral administration of gold nanoparticles** O.V. Zlobina[1], S.S. Pakhomy[1], A. Bucharskaya[1], I.O. Bugaeva[1], G.N. Maslyakova[1], N.G. Khlebtsov[2], B.N. Khlebtsov[2], V.A. Bogatyrev[2], [1]Saratov State Medical University; [2]Institute of Biochemistry and Physiology of Plants and Microorganisms, RAS, Saratov, Russia

17th International School for Junior Scientists and Students on Optics, Laser Physics & Biophotonics

Workshop on Modern Optics XII
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. Priezzhev,** 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 26

ORAL SESSION

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

14.00-15.40

Modern Microscopy

Ivan V. Fedosov, Saratov State University, Russia

Workshop English as a Communicative Tool in the Scientific Community XII

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: **Nadezhda O. Bessudnova,** 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, Wednesday

ORAL SESSION

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

10.55-11.15
ESP: Terminology processing: Conceptual approach
Svetlana V. Eremina, Saratov State University, Saratov, Russia, Alexander B. Pravdin, Saratov State University, Saratov, Russia

11.15-11.35
Puns: An amazing wordplay in English
Nadezhda O. Bessudnova, Saratov State University, Saratov, Russia

11.35-11.55
Internet-based scientific and educational resources of Saratov State University in English
Mikhail M. Stolnitz, Saratov State University, Saratov, Russia

11.55-12.15
Terms in dictionaries
Arina O. Shelyugina, Saratov State University, Saratov, Russia

12.15-12.25
Investigation of harmonic waves in the viscoelastic layer
Nadezhda V. Sergeeva, Saratov State University, Saratov, Russia

12.35-12.45
On the solution to one problem of the one problem of uncoupled thermoelasticity for the plate under influence of quick change for coordinate of thermal and force factors on the boundary
Ol'ga A. Myl'tzina, Saratov State University, Saratov, Russia

12.45-12.55
On the use of absorption spectroscopy in the study of HSA - Eosin Y binding
Irina V. Alonova, Saratov State University, Saratov, Russia

12.55-13.05
Spectrofluorimetric study of glycosylated dentine
Natalia I. Kazadaeva, Saratov State University, Saratov, Russia

POSTER SESSION
10.55-13.20

How to learn Chinese without leaving physics Konstantin A. Grebenyuk, Saratov State University, Saratov, Russia

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

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

Secretary: **Anton V. Malinin**, Saratov State University (Russia), SPE "Nanostructed 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 27, Friday

ORAL SESSION I

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

9.30-9.45
Experience of the introduction of modern laser technologies in the modernization of the industrial equipment
T.N. Sokolova, E.L. Surmenko, Saratov State Technical University, Russia

9.45-10.00
Can Russia export manufactures?
P. Owen, Volga Trader, UK

10.00-10.15
Current issues in the formation of corporate value chains in the high-tech sector industry (case study sector photonics)
S. Sokolov, INJECT Enterprise, Russia

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 "Nanostructed Glass Technology" Ltd. (Russia)

10.15-10.25
The development of self-inclusive multiutility system for comprehensive purification of drinking-water
V. Zhurvikov[1], D. Zayarskii[1], E. Skidanov[2], A. Koshilev[2], O. Nechayeva[3], N. Vedeneeva[4], [1]Saratov State University; [2]NPO "Liskon"; [3]Saratov State Medical University; [4]Saratov State Technical University, Russia

10.25-10.35
Multiprocessor software and information system for the purposes of biophysics, medicine, nanoelectronics
G.V. Savostianov, Educational and Research Institute of Nanostructures and Biosystems of SSU, Russia

10.35-10.45
Microfluidic system based on the matrix of microcapsules with an opportunity to target release of encapsulated substance by electric field
E. Lengert, A. Sergeeva, D. Gorin, Saratov State University, Russia

10.45-10.55
Managed nanocomposite microsystems and multilayer and organized coatings of microparticles for purification of water from nitrate of lead, cadmium sulfide
R. Sergeev, Saratov State University, Russia

10.55-11.05
The study of hyperfine splitting of muonic hydrogenium and positronium using quasipotential method
O. Boykova, V. Boykov, N. Boykova, Saratov State University, Russia

11.05-11.15
The development of new way of protection of documents and securities-based PCF
A. Shuvalov, D. Gorin, Saratov State University, Russia

10.15-11.25
The development of optical gas sensor with extra noise resistance
A. Plastun, Saratov State University, Russia

11.25-11.35
New platforms for surface-enhanced Raman scattering on the basis of sol-gel materials with silver nanoparticles N.S. Yurova, A.V. Markin, T.Yu. Rusanova Saratov State University, Russia

11.35-11.45
The substrates for the determination of trace amounts of substances by surface-enhanced Raman scattering
E. Panfilova[1], B. Khlebtsov[1], N. Khlebtsov[1,2], [1]Institute of Biochemistry and Physiology of Plants and Microorganisms, RAS; [2]Saratov State University, Russia

11.45-12.15
Coffee break

ORAL SESSION II

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

12.15-12.25
Nanocomposite microcapsules sensitive to electric field
A. Ermakov, Saratov State University, Russia

12.25-12.35
Thin film of amorphic silicon as a basis of resilient thermoresistor
D. Mitin, Saratov State University, Russia

12.35-12.45
Obtaining of enchanced marks on the basis of silanized quantum dots
D.V. Potapkin, Saratov State University, Russia

12.45-12.55
Functional photoconverter based on the high-resistance N-GAAS
I. Kozhevnikov, Saratov State University, Russia

12.55-13.05
Investigation of a microcirculatory bloodstream structure using speckle correlation OCT
O. Izotova, Saratov State University, Russia

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

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 26, Thursday

LECTURE/ORAL SESSION

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

09.00-09.10
Limitation of concept of a negative refraction index in metamaterials
V.I. Tsoy, Saratov State University, Saratov, Russia

09.10-09.30
Secondary-ion photoeffect and optical plasmon resonance: Comparative analyse
A.G. Rokakh, Saratov State University, Saratov, Russia

09.30-09.40
Optical plasmon resonance in polycrystalline films of CdS-PbS: Is it possible?
M.I. Shishkin, A.A. Skaptsov, D.I. Bilenko, M.D. Matasov, A.G. Rokakh, Saratov State University, Saratov, Russia

09.40-09.50
To the first measurement of the speed of light
M.A. Starshov, Saratov State University, Saratov, Russia

09.50-10.00
What and where the mirror shows
K. Letushova, M.A. Starshov, State University, Saratov, Russia

10.00-10.10
History of wave physics as detective series. I. The case of the poisson spot
M.M. Stolnitz, Saratov State University, Saratov, Russia

10.10-10.20
History of wave physics as detective series. II. The case of the imaginary unit
M.M. Stolnitz, Saratov State University, Saratov, Russia

10.20-10.30
Calculation of parameters optimization of complexes of nanoparticles and organic molecules for biomedical supplement
T.V. Bochkaryeva, B.A. Medvedev, Saratov State University, Saratov, Russia

10.30-11.00
Coffee break

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

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

Panel members:
Valery V. Tuchin[1], Vladimir P. Ryabukho[1], Vladimir L. Derbov[1], Victor V. Rozen[1], Oleg V. Shimelfenig[1], Alexander G. Rokakh[1], Lev M. Babkov[1], Vyacheslav I. Kochubey[1], Svetlana P. Pozdneva[1], Alexander V. Gorokhov[2], Dmitry A. Zimnyakov[3], Leonid A. Melnikov[3], Dmitry V. Mikhel[3], Julia M. Duplinskay[3], Evgeniya V. Listvina[1], Oleg M. Parshkov[3], Alexander V. Priezzhev[4], Yu.M. Romanovski[4]

[1]Saratov State University, Saratov, Russia
[2]Samara State University, Samara, Russia
[3]Saratov State Technical University, Saratov, Russia
[4]M.V. Lomonosov Moscow State University, Moscow, Russia

11.00-11.10
Opening work of the round table: Towards the first international symposium on optics history in st. Petersburg (on october 28 - 30, 2013)
Associate Prof. Boris Medvedev, Saratov State University, Saratov, Russia

11.10-11.20
Around the photon
Prof. O. Parshkov, Saratov State Technical University, Saratov, Russia

11.20-11.30
Coherence in classical and quantum physics

Prof. A.V. Gorokhov, Sararov State University, Saratov, Russia

11.30-11.40
On the solution of contradictions in philosophy and physics
Prof. A.G. Rokakh, Sararov State University, Saratov, Russia

11.40-11.50
Mathematical abstractions and physical reality
Prof. V.V. Rozen, Sararov State University, Saratov, Russia

11.50-12.00
The 1st report on the new of the world of science (Russian translation of the 1st issue of "Philosophical Transaction of the Royal Society of London", 1665 and comments)
Prof. D. Mikhel, Saratov State Technical University, Saratov, Russia

12.00-12.10
Logic of a discovery in the optical metaphors
Prof. Yu. Duplinskaya, Saratov State Technical University, Saratov, Russia

12.10-12.20
Symbolics of the color in different cultures
Prof. S.P. Pozdneva, Prof. R.V. Maslov, Sararov State University, Saratov, Russia

12.20-12.30
Son of Lumiere – integration of optics, music and color
Dr. L. Solodovnichenko, Foundation for Scientific and Cultural Initiatives Interfaith Cooperation, Saratov, Russia, Associate Prof. O. Shimelfenig, Saratov State University, Saratov, Saratov, Russia.

12.30-12.40
Metaphysics of light in modern science project
Associate Prof. N. Dovgalenko, Saratov State Technical University, Saratov, Russia

12.40-12.50
Light and consciousness architectonics II.
Associate Prof. Boris A. Medvedev, Sararov State University, Saratov, Russia

POSTER SESSION

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

17.30-19.30

1H. **Training in machine vision: optical tracking of moving objects** O.V. Grishin, I.V. Fedosov, V.V. Tuchin, Saratov State University, Saratov, Russia

2H. **Training in the use of fast Fourier transform: real-time processing of laser Doppler anemometer signal**
M.A. Borozdova, I.V. Fedosov, V.V. Tuchin, Saratov State University, Saratov, Russia

Seminar Telemedicine VIII

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); **MalinaJordanova**, 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

10.00-10.15
Aspects of development of information system of remote monitoring od body temperature of bioobjects
M. Karimov, E. Martynov, Valery.V. Bakutkin, Ilya V. Bakutkin, A. Bolshakov, V. Lobanov, L. Melnikov, Saratov Research Institute of Rural Hygiene, Russia, Saratov State Technical University, Russia

10.15-10.30
An introduction into the graphical programming language labview
Johannes Frueh, Harbin Instiute of Technology, China

10.30-10.45
A numerical investigation patient specific surgical planning of the human coronary arteries
Olga Grishina, Irina V. Kirillova, Saratov State University, Russia

10.45-11.00
Patient-specific modeling of surgical treatment pf pathologically tortuos carotid artery
Olga Pavlova[1], Leonid V. Kossovich[1], K.M. Morozov[2], [1]Saratov State University, [2]I.M. Sechenov First Moscow State University, Russia

11.00-11.15
Analysis of the color characteristics of human skin and its use in telemedicine
T. Bogdanova, E. Martynov, Valery.V. Bakutkin, I.V. Bakutkin, A. Bolshakov, V. Lobanov, L. Melnikov,Saratov Research Institute of Rural Hygiene, Russia, Saratov State Technical University, Russia

11.15-11.30
Analysis of the color characteristics of human skin and its use in telemedicine
T. Bogdanova, Valery.V.Bakutkin, IlyaV. Bakutkin, M. Kuznezova, Lobanov, L. Melnikov, Saratov Research Institute of Rural Hygiene, Russia, Saratov State Technical University, Russia

11.30-11.45
Chromopuppilometry 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

11.45-12.00
Development of algorithms for progressing of video images pupillary reaction to light pulse to determine the psychological state of a person
Ilya V. Bakutkin, Valery.V. Bakutkin, Vladimir Spirin, Saratov Research Institute of Rural Hygiene, Russia

12.00-12.15
ALFA HEART (The new program of the Alfa Health Centre, Saratov)
Tatyana V. Nikiforova, Tatyana N. Neumolotova, Elena V. Karchenova, Alfa Health Centre, Saratov, Russia

INTERNET REPORTS

1. **The significance and value of ISfTeH for the global telemedicine world** Malina Jordanova, Space and Solar-Terrestrial Research Institute, Bulgarian Academy of Sciences, Bulgaria Coordinator Educational Program Med-e-Tel, Bulgaria; Frank Lievens, Board Member and Secretary, International Society for Telemedicine &eHealth, Switzerland Director Med-e-Tel, Belgium

2. **The Project is a network of the Virtual Medical Unversity based network of clinics** Elena V. Karchenova, Internanional Society for Telemedicine&eHealth, Alfa Health Centre, Saratov, Russia

Workshop Advantages and Pitfalls of Fluorescence Technique at Medical Applications

Co-chairs: **Nataliya N. Bulgakova,** Prokhorov General Physics Institute of RAS, Moscow (Russia)
Alexander B. Pravdin, Saratov State University (Russia)
Yu.P. Sinichkin, Saratov State University (Russia)
Dmitry E. Suetenkov, Saratov State Medical University (Russia)
Sergey R. Utz, Saratov State Medical University (Russia)

Secretary: **Nina V. Venatovskaya,** Saratov State Medical University (Russia)

September 28, Saturday

LECTURE SESSION

(Lectures will be delivered in Russian)
Chair: **Dmitry E. Suetenkov,** Saratov State Medical University, Russia

10.00-10.20
Luminescent probes in medical diagnosis
Vyacheslav I. Kochubey, Saratov State University, Saratov, Russia

10.20-11.20
Optics of teeth and straight restorations
Vladimir N. Grisimov, First Pavlov State Medical University of St. Peterburg, Russia

11.20-11.40
Fluorescence in diagnosis and treatment of dental caries
Dmitry E. Suetenkov, Saratov State Medical University, Russia

11.40-12.00
Fluorescence spectroscopy in dermatology
Ekaterina M. Galkina, Saratov State Medical University, Russia

12.00-12.30
Autofluorescence of bioobjects in medical diagnosis
Alexander B. Pravdin, Saratov State University, Saratov, Russia

12.30-12.50
Autofluorescence diagnosis of laryngopharyngeal neoplasia
Ol'ga I. Afonina, Saratov State Medical University, Russia

Post-Deadline Program

POSTERS

1. **Measurement of optical thickness of thin films using white light interference pattern** Anton Dyachenko, Saratov State University, Russia

2. **Longitudinal spatial coherence effects of optical fields in high resolution interference microscopy** Smirnov Ilya, Lychagov Vladislav, Alexander, Vladimir Ryabukho,Lyakin Dmitry, Saratov State University, Institute of Precision Mechanics and Control, RAS, Russia