

Programme

September 22, Tuesday		
9.00-14.00	Registration	Building 3, Foyer
14.00-14.10	Opening of International Symposium "Optics and Biophotonics-III" and PALS-15 <i>Valery V. Tuchin</i> , Saratov State University <i>Timo Jääskeläinen</i> , University of Eastern Finland	Building 10 Main Conf. Hall
JOINT SFM/PALS PLENARY SESSION I (14.10-15.30) Chair: <i>Valery V. Tuchin</i> , Saratov State University, Russia		Building 10 Main Conf. Hall
14.10-14.50	Delivery Systems: How to Delivery and to Activate at Time and Site Specific Manner <i>Gleb B. Sukhorukov</i> , The Queen Mary University of London, UK; Saratov State University, Russia	
14.50-15.30	Biophotonics on its Way into the Clinic, <i>Juergen Popp</i> , Leibniz Institute of Photonic Technology, Jena, Germany	
15.30-16.00	Coffee break	
JOINT SFM/PALS PLENARY SESSION II (16.00-18.00) Chair: <i>Juergen Popp</i> , Leibniz Institute of Photonic Technology, Jena, Germany		Building 10 Main Conf. Hall
16.00-16.40	Nonlinear Metasurfaces, <i>Idar Gabitov</i> , Skolkovo Institute of Science and Technology, Moscow, Russia; University of Arizona, USA	
16.40-17.20	Plasmonics Engineering for SERS Detection <i>Nicolás Pazos-Pérez</i> , Centre Tecnologic de la Quimica de Catalunya, Spain	
17.20-18.00	Fiber spectroscopy to detect tumor margins <i>Viacheslav Artyushenko</i> , art photonics GmbH, Berlin, Germany; Prokhorov General Physics Institute, Russian Academy of Sciences, Russia	
18.00-18.30	International Year of Light: Lighting the future: video from The National University of Ireland, Galway and Laser/Light Show "Fire Dance," Saratov	
18.30-21.00	Welcome party	Univ. camp.

September 23, Wednesday

JOINT SFM/PALS PLENARY SESSION III (9.00-10.00) Chair: <i>Alexander V. Priezzhev</i> , Lomonosov Moscow State University, Russia		<i>Building 10 Main Conf. Hall</i>
9.00-9.40	Hybrid Plasmonic Nanoparticles and Atomic Clusters for Analytical and Theranostic Applications <i>Nikolay G. Khlebtsov</i> , Institute of Biochemistry and Physiology of Plants and Microorganisms, Russian Academy of Sciences, Saratov State University, Russia	
9.40-10.20	Wavefront Imaging and Shaping Techniques for Biomedicine & Nanotechnology <i>YongKeun (Paul) Park</i> , Department of Physics, KAIST, South Korea	
10.20-10.50	Coffee break	
INVITED LECTURE/ORAL PALS I SESSION (10.50-12.00) Co-chairs: <i>Timo Jääskeläinen</i> , University of Eastern Finland <i>Valery V. Tuchin</i> , Saratov State University, Russia		<i>Building 10, Hall 503</i>
10.50-11.10 Invited	Interaction of visible light with blood vessels in human skin <i>Alexey Kamshilin</i> , ITMO University, Russia	
11.10-11.30 Invited	FiDiPro Project on Biophotonics: Finland-Russian Collaboration <i>Valery V. Tuchin</i> , Saratov State University; Institute of Precision Mechanics and Control RAS, Saratov; Interdisciplinary Laboratory of Biophotonics, Tomsk State University, Tomsk, Russia	
11.30-11.45	Implantable bio-markers for in vivo physiological assessment <i>Anton Sadovoy</i> , Institute of Materials Research and Engineering, A*STAR, Singapore	
11.45-12.00	Investigation of bovine serum albumin glycation by THz spectroscopy <i>Olga P. Cherkasova</i> , Institute of Laser Physics of SB RAS, Novosibirsk	

INVITED LECTURE/ORAL PALS II SESSION (12.00-13.30)		<i>Building 10, Hall 503</i>
Chair: <i>Alexander V. Priezhev, Lomonosov Moscow State University, Russia</i>		
12.00-12.20 Invited	Parametric interaction of polarization singularities in isotropic chiral medium <i>Igor A. Perezhogin, International Laser Center of M.V. Lomonosov Moscow State University, Russia</i>	
12.20-12.40 Invited	Pulsed picosecond lasers with the dynamical operation control <i>Nikita G. Mikheev, International Laser Center and Physics Department of M.V. Lomonosov Moscow State University, Moscow, Russia</i>	
12.40-13.00 Invited	Monte Carlo simulations of optical brain imaging: Approaches, verifications, applications <i>Mikhail Kirillin, Institute of Applied Physics of RAS, Nizhny Novgorod, Russia; N. I. Lobachevsky State University of Nizhny Novgorod, Nizhny Novgorod, Russia</i>	
13.00-13.15 Invited	Quantified monitoring of skin OCT-image evolution under external action <i>Pavel D. Agrba, Lobachevsky State University of Nizhny Novgorod, Institute of Applied Physics of Russian Academy of Sciences, Russia</i>	
13.30-14.30	Lunch	
15.00-17.00	Social program (Volga boat trip)	

September 24, Thursday

SFM PLENARY SESSION V (9.20-10.00) Chair: <i>Dmitry A. Gorin, Saratov State University, Russia</i>		<i>Building 10 Main Conf. Hall</i>
9.20-10.00	Silicon-iron Hybrid Nanoparticles with Optical, Luminescent and Magnetic Functionality <i>Munir Nayfeh, Department of Physics, University of Illinois at Urbana-Champaign, USA</i>	
JOINT INVITED/ORAL SESSION NANOBIPHOTONICS I/ PALS III (10.00-11.00) Chair: <i>Nikolai G. Khlebtsov, IBPPM RAS, Saratov State University, Russia</i>		<i>Building 10 Main Conf. Hall</i>
10.00-10.20 Invited (PALS)	Laser-induced semiconductor nano- microstructures with controlled topology: functional properties and verification of macroscopic quantum effects in thin-film and cluster <i>Sergey Arakelian, Vladimir State University named after A.G. and N.G. Stoletovs, Vladimir, Russia</i>	
10.20-10.40 Invited	Super-resolution optical imaging and spectroscopy by scanning optical nano-antennas <i>Pavel Dorozhkin, NT-MDT Co., Russia</i>	
10.40-10.55	Investigation of cell proliferative activity on the surface of the nanocomposite material produced by laser radiation <i>Alexander. Gerasimenko, National Research University «MIET», Russia</i>	
11.00-11.30	Coffee break	
JOINT INVITED/ORAL SESSION NANOBIPHOTONICS II/ PALS IV (11.30-13.00) Chair: <i>Nikolai G. Khlebtsov, IBPPM RAS, Saratov State University, Russia</i>		<i>Building 10 Main Conf. Hall</i>
11.30-11.50 Invited (PALS)	Application of atomic layer deposition in polymer based nanophotonic devices <i>Seppo Honkanen, Institute of Photonics, University of Eastern Finland, Joensuu, Finland</i>	
11.50-12.10 Invited (PALS)	Generation of electromagnetic radiation in nano-structural matter <i>Alexander Shkurinov, Moscow State University, Moscow, Russia</i>	
12.10-12.25	Efficient up-conversion phosphors on the basis of fluorides for photonics <i>Sergey V. Kuznetsov, Prokhorov General Physics Institute of Russian Academy of Sciences, Russia</i>	

12.25-12.40	Up-conversion nanoparticles surface modification with photosensitizer molecules or gold nanoparticles for biomedical applications <i>Daria Pominova, General Physics Institute of the Russian Academy of Sciences, Russia</i>
12.40-12.55	Mechanisms of adsorption of nitrogenous bases on the surface of nanodiamonds <i>Ekaterina Khusainova, Moscow State University, Moscow, Russia</i>
12.55-13.10	The laser-ablative synthesis and the spectral-optical diagnostic of the ruby nanoparticles <i>M.S. Baranov, Volgograd State University, Volgograd, Russia</i>
13.10-14.00	Lunch
INVITED/ORAL SESSION NANOBIPHOTONICS III (14.00-16.00) Chair: <i>Nikolai G. Khlebtsov, IBPPM RAS, Saratov State University, Russia</i>	<i>Building 10 Main Conf. Hall</i>
14.00-14.15	Comparative study on effectiveness of anticancer drugs conjugated with colloidal gold and phosphate dextran <i>Artur Yu. Prilepskii, IBPPM RAS, Saratov, Russia;</i>
14.15-14.30	A new synthetic approach to fine-tuning the wavelength of the gold nanorods' plasmon resonance, <i>Sergey Semyonov, Institute of Physical Chemistry and Electrochemistry, Russian Academy of Sciences, Russia</i>
14.30-14.45	Gold nanoparticles as PCR enhancers: Putative mechanisms study and biomedical applications <i>Timofey Pylaev, IBPPM RAS, Saratov, Russia;</i>
14.45-15.00	Formation of functional calcium carbonate coatings on polymeric fibers for biomedical applications <i>Marya Savelyeva, Saratov State University, Russia</i>
15.00-15.15	Optical properties of monodisperse gold nanoshells <i>Vitaly Khanadeev, IBPPM RAS, Saratov, Russia; Saratov State University, Saratov, Russia;</i>
15.15-15.30	Microcapsules based on carbon nanotubes and gold nanoparticles as multimodal photoacoustic and SERS platform <i>Alexey Yashchenok, Remote Controlled Theranostic Systems Lab, Institute of Nanostructures and Biosystem, Saratov State University, Russia;</i>

15.30-15.45	Porous calcium carbonate submicron particles for the photosensitizer encapsulation <i>Yulia Svenskaya, Saratov State University, Saratov, Russia;</i>	
15.45-16.00	Analyzing Raman spectra from the first principles <i>Daniil Bratashov, Saratov State University, Russia;</i>	
JOINT SFM/PALS POSTER/INTERNET SESSION AND INTERNET DISCUSSION (17.30-19.30) Moderators: <i>Dmitry Agafonov, Ivan V. Fedosov, Saratov State University, Russia</i>		<i>Building 3, 3d floor Hall</i>
September 25, Friday		
JOINT INVITED LECTURE/ORAL SESSION MICROSCOPY AND LOW-COHERENCE METHODS/ PALS V (9.00-11.00) Chair: <i>Kirill V. Larin, University of Houston, USA</i>		<i>Building 10 Main Conf. Hall</i>
9.00-9.20 Invited (PALS)	Addressed thermogenetic activation of cells by infrared and microwave radiation <i>Andrei B. Fedotov, Physics Department, International Laser Center, M.V. Lomonosov Moscow State University, Moscow, Russia; Russian Quantum Center, Moscow Region</i>	
9.20-9.35 (PALS)	Effects of cisplatin on the level of hydrogen peroxide and cell death in HeLa Kyoto cells <i>Anastasya S. Belova, Institute of Applied Physics of the Russian Academy of Sciences, Nizhny Novgorod, Russia; Lobachevsky State University of Nizhni Novgorod, Nizhni Novgorod, Russia</i>	
9.35-9.50	Vessel-contrast enhancement in label-free optical coherence angiography based on phase and amplitude speckle variability <i>Lev A. Matveyev, Institute of Applied Physics RAS, Russia</i>	
9.50-10.05	Stochastic optical reconstruction microscopy (STORM) image restoration from subsets of localizations insufficient for Nyquist criterion <i>Alexander Moiseev, IAP RAS, Russia</i>	
10.05-10.20	Digital holography methods for optical aberrations measurement and compensation <i>Vasiliy Matkivskiy, IAP RAS, Russia</i>	

10.20-10.35	Analysis of dynamics of a caspase-3 activity in cancer cells during apoptosis using FLIM/FRET technique <i>Tatiana F. Sergeeva, Nizhny Novgorod State Medical Academy, Russia</i>	
INVITED LECTURE/ORAL PALS VI SESSION (9.00-11.00) Chair: <i>Sergey M. Arakelian, Vladimir State University, Russia</i>		<i>Building 10, Hall 503</i>
9.00-9.20 Invited	Superfilamentation in water with tight focusing laser beams: from femtoseconds to microseconds <i>Fedor V. Potemkin, Faculty of Physics and International Laser Center M. V. Lomonosov Moscow State University, Moscow, Russia</i>	
9.20-9.40 Invited	Photo-induced phenomena in chalcogenide glasses irradiated by high-intensity laser pulses <i>Elena Romanova, Saratov State University, Saratov, Russia</i>	
9.40-9.55	Calibration of miniature prism-based stereoscopic imagers for precise spatial measurements <i>Alexey Gorevoy, Scientific and Technological Center of Unique Instrumentation of Russian Academy of Sciences, Moscow, Russia</i>	
9.55-10.10	Acousto-optical method for full-field high temperature measurement <i>Alexander S. Machikhin, Scientific and Technological Center of Unique Instrumentation of Russian Academy of Sciences, Moscow, Russia</i>	
10.10-10.25	Raman scattering and fluorescence of graphitic phases from B-C-N triangle <i>Pavel V. Zinin, Russian Academy of Sciences, Moscow, Russia</i>	
11.00-11.30	Coffee break	
JOINT INVITED LECTURE/ORAL SESSION BIOPHYSICS III/ PALS VII (11.30-13.00) Chair: <i>Ivan V. Fedosov, Saratov State University, Russia</i>		<i>Building 10 Main Conf. Hall</i>
11.30-11.50 Invited	The regularizing functional minimization based reconstruction of tissue scattering inhomogeneities from time-resolved optical projections <i>Alexander B. Konovalov, Russian Federal Nuclear Center - Zababakhin Institute of Applied Physics, Russia</i>	

11.50-12.10 Invited	SA robust method of strain mapping in compressional optical coherence elastography using combined sub-wavelength phase-resolved measurements and pixel-scale displacement tracking <i>Vladimir Y. Zaitsev</i> , Institute of Applied Physics RAS, Russia
12.10-12.30 Invited (PALS)	Mechanisms of tissue optical immersion clearing <i>Genina Elina</i> , Saratov State University, Russia
12.30-12.45	Neoplasms treatment by diode laser with and without real time temperature control on operation zone <i>Andrei V. Belikov</i> , ITMO University, Saint Petersburg, Russia
12.45-13.00	Study of human skin neoplasms with autofluorescence method in NIR region <i>Julia A. Khristorova</i> , Samara State Aerospace University, Russia
14.00-17.00	Round-table discussions and closing of the School and The Symposium

September 24, Thursday

POSTER SESSION (17.30-19.30)

Chair:

Olga Bibikova, University of Oulu, Finland; Saratov State University, Russia

1RF. Iridium nanopillar arrays for highly reproducible surface-enhanced Raman spectroscopy (SERS)

Antti Matikainen, Institute of Photonics, University of Eastern Finland

2RF. From silver chloride intermediate to sers applications *Tarmo*

Nuutinen, Institute of Photonics, University of Eastern Finland, Joensuu, Finland; Department of Biology, University of Eastern Finland, Joensuu, Finland

3RF. The effect of viscosity on the thermal stability of coupled multi-enzyme system lactate dehydrogenase + NAD(P)H:FMN-oxidoreductase+bacterial Luciferase

Maria S. Nemchinova, Department of Biophysics, Institute of Fundamental Biology and Biotechnology, Siberian Federal University, Krasnoyarsk, Russia

4RF. UV laser-induced fluorescence spectroscopy and laser-Doppler flowmetry in the diagnostics of alopecia

Diana P. Skomorokha, Krasnoyarsk State Medical University named after Prof. V.F. Voino-Yasenetsky, Krasnoyarsk, Russia

5RF. Surface-enhanced Raman spectroscopy for enzymatic activity detection

Natalia L. Nechaeva, Chemical enzymology department, Faculty of Chemistry, Lomonosov Moscow State University, Russia

6RF. Plasmon-resonant nanoparticles with variable morphology for optical imaging

Olga Bibikova, University of Oulu, Oulu, Finland, Saratov State University, Saratov, Russia

7RF. The morphological changes in transplanted tumors of rats at plasmonic photothermal therapy

Alla B. Bucharskaya, Saratov State Medical University, Russia; Research-Educational Institute of Optics and Biophotonics, Saratov

8RF. Monitoring properties of biological tissues using [Y2O3:Yb, Er] upconversion particles

Elena Volkova, Saratov State University, Research-Educational Institute of Optics and Biophotonics, Russia; University of Oulu, Finland

9RF. Multimodal coherent nonlinear raman microspectroscopy by chirped ultrashort laser pulses

Alexander Lanin, Faculty of Physics, International Laser Center, Moscow State University Moscow, Russia; Russian Quantum Center, Moscow State University, Moscow, Russia

INTERNET SESSION (17.30-19.30)

Invited

1. Improvement of upconversion deep-tissue imaging with optical clearing

Alexey P. Popov, Optoelectronics and Measurement Techniques Laboratory, University of Oulu, Oulu, Finland

Invited

2. Optical properties of tissues in the visible- NIR spectral range

Alexey N. Bashkatov, Research-Educational Institute of Optics and Biophotonics, Saratov State University, Saratov, Russia; Interdisciplinary Laboratory of Biophotonics, Tomsk State University, Tomsk, Russia

Invited

3. Experience in collaborative construction and biomedical applications of laser tweezers

Alexander Priezzhev, Laser Biomedical Photonics Laboratory, Physics Department; International Laser Centre, Lomonosov Moscow State University, Moscow, Russia