

Program

of the 4th International Symposium "Lasers in Medicine and Biophotonics", June 28 - July 01, 2016, St.Petersburg, Russia ISLM&B'16

Registration:

June 27, 2016 09.00 – 19.00

June 28, 2016 08.00 – 09.00

June 28, 2016 г.

Hall # A

08.50-09.00 Symposium opening ceremony

09.00-11.00 Plenary session, Chair: Prof. I. Shcherbakov

09.00-09.30 PL.1 “The physics of perfect skin- enhancing the integument through laser”
Edward Victor Ross, Scrips Clinic, UCSD Medical Center, San Diego, USA

09.30-10.00 PL.2 ”Laser technologies in ophthalmic surgery”
A.V. Doga¹, S. K. Vartapetov², I. A. Shcherbakov², 1 – S. Fyodorov Eye
Microsurgery Federal State Institution, 2 – A.M. Prokhorov GPI RAS, Russia.

10.00-10.30 PL.3 ”Enhanced optical imaging and laser treatment in medicine: from UV to
Terahertz”
V.V. Tuchin, Saratov National Research State Univ., Tomsk National Research
State Univ., IPCM RAS, Saratov, Russia

10.30-11.00 PL.4. "New" photons for existing and new medical applications"
G. B. Altshuler¹, V. P. Gapontsev², 1 – IPG Medical Corporation, Marlboro,
Massachusetts, USA, 2 – IPG Photonics Corporation, Oxford, Massachusetts,
USA

11.00-11.30 Coffee break

Section A “Advanced Laser Systems for Medical Laser Applications”

11.30-13.30 Session 1, Chair – David Kochiev

11.30-11.50 (*a paper transferred from Section D*) **invited** D 20 “Spaser as smallest laser and
best cellular probe to break the diffraction, spectral and detection limits”
E.I. Galanzha¹, D.A. Nedosekin¹, A.I. Plekhanov², M.I. Stockman³, V.P. Zharov¹, 1 – Arkansas
Nanomedicine Center, University of Arkansas for Medical Sciences, Little Rock, AR, USA, 2 –
Institute of Automation and Electrometry of the Siberian Branch of the Russian Academy of
Science, Novosibirsk, Russia; 3 – Center for Nano-Optics and Department of Physics and
Astronomy, Georgia State University, Atlanta, GA, USA

11:50-12:10 invited A1 “Pulsed transverse discharge CO₂ laser for medical applications”,
S. Nikiforov¹, Ya. Simanovsky¹, A. Pento¹, K. Moshkunov², N. Gorbatova³, S. Zolotov³, S.
Alimpiev¹, 1 – A.M. Prokhorov General Physics Institute, Russian Academy of Science,
Moscow, Russia, 2 – “Energomashtekhnika” LLC, Moscow, Russia, 3 – Institute of Emergency
Children's Surgery and Traumatology, Moscow, Russia

12:10-12:30 invited A2 “1.56 μm laser thermotherapy in treatment of venous and arteriovenous
malformations”

I.A. Abushkin¹, A.G Denis², V.O. Lapin¹, V.A. Privalov¹, A.V. Lappa³, O.A. Romanova⁴, 1 –
South Ural State Medical University, Chelyabinsk, Russia, 2 – Tver Regional Children's
Hospital, Russia, 3 – Chelyabinsk State University, Russia, 4 – Chelyabinsk Regional Children's
Hospital, Russia

12:30-12:50 invited A3 “Possible fiber lasers applications in urology”,

A. Z. Vinarov, First Moscow state medical university named by I. M. Sechenov, Moscow,
Russia

12:50-13:10 invited A4 “Complex measurement of aerosol drug deposition using laser
methods”

Attila Nagy, Miklos Veres, Attila Kerekes, Istvan Rigo, Aladar Czitrovsky, Institute for Solid
State Physics and Optics, Budapest, Hungary

13:10-13:30 invited A5 "Prospects of fiber lasers use in the ENT surgery"

V. M. Svistushkin, E. V. Sinkov, First Moscow state medical university named by I. M.
Sechenov, Moscow, Russia

13:30-15:00 Lunch

15:00-17:00 Session 2, Chair - G. Altshuler

15:00-15:20 invited A6 “Recent advances in fiber and hybrid lasers extremely widen
possibilities for medical applications”

S. V. Larin, D. V. Myasnikov, NTO “IRE-Polus”, Fryazino, Russia

15:20-15:35 oral A7 “Minimally-invasive percutaneous laser nephrolithotomy in the
management of staghorn stones”

O. V. Teodorovich^{1,2}, S. A. Naryshkin^{1,2}, G. G. Borisenko², D. G. Kochiev³, 1 – Central Clinical
Hospital №1 JSC RZHD “Russian Railways”, Moscow, Russia, 2 – Endoscopic Urology
Department, Russian Medical Academy of Postgraduate Education, Moscow, Russia, 3 – A.M.
Prokhorov General Physics Institute, Russian Academy of Science, Moscow, Russia

15:35-15:50 oral A8 “The laser for the precision selective photodestruction of the vascular
structures of the skin and subcutaneous tissue”

N.E. Gorbatova^{2,3}, A.G. Dorofeev^{2,3}, G.P. Kuzmin^{1,3}, A.A. Sirotkin^{1,3}, O.V. Tichonevich^{1,3}, S.A.
Zolotov^{2,3}. 1 – Prokhorov General Physics Inst. RAS, 2 – Inst. of Emergency Children's Surgery
and Traumatology, 3 – Advanced Energy Technologies LTD, Russia

15:50-16:05 oral A9 “Super Pulse Diode and Diode-Pumped Fiber Lasers for Fast and Precise
Tissue Surgery and Regeneration”

I.V. Yaroslavsky¹, K.S. Magid², D.M. Boutoussov³, A.G. Vybornov¹, S.V. Larin⁴,
M.V. Inochkin⁵, P.A. Gnatyuk⁵, I.A. Perchuk¹, G.B. Altshuler¹; 1 – IPG Medical, USA; 2 -
Advanced Dentistry of Westchester, USA; 3 – Biolase Inc, USA; 4 – NPO IRE Polus, Russia;
5 – ITMO University, Russia

16:05-16:20 oral A10 "In vitro comparison of Tm fiber laser vs Ho:YAG laser for lithotripsy" V. A. Zamyatina¹, A. A. Kovalenko¹, A. M. Dymov², D. V. Enikeev², V. P. Minaev¹, N. N. Sorokin², A. Z. Vinarov², I. V. Yaroslavsky³, G. B. Altshuler³, V.P. Gapontsev^{1,4}, 1 – IPG Medical, USA, 2 – First Moscow state medical university named by I. M. Sechenov, Moscow, Russia, 3 – NTO "IRE-Polus", Fryazino, Russia, 4 – IPG Photonics, USA

16:20-16:35 oral A11 "1,56 and 1,68 μm fiber lasers – possible instrument for LITT in urology. Preliminary results"

A. M. Dymov², A. A. Kovalenko¹, V. P. Minaev¹, A. Z. Vinarov², V. A. Zamyatina¹, A. B. Shehter², A. V. Kurkov², 1 – First Moscow state medical university named by I. M. Sechenov, Moscow, Russia, 2 – NTO "IRE-Polus", Fryazino, Russia

16:35-16:50 oral A12 "Tm fiber laser application for soft tissue surgery"

A.R. Sadykov³, A.M. Dymov², N.N. Enikeev², A.A. Kovalenko³, V.P. Minaev³, N.N. Sorokin², A.Z. Vinarov², V.A. Zamaytina³, G.B. Altshuler¹, 1 – IPG Medical, USA, 2 – First Moscow state medical university named by I. M. Sechenov, Moscow, Russia, 3 – NTO "IRE-Polus", Fryazino, Russia

16:50-17:05 oral A13 "Terahertz Reflectometry for the Corneal Tissue Hydration Sensing"

A.A. Angeluts¹, A.V. Balakin¹, M.D. Mishchenko¹, I.A. Ozheredov¹, T.N. Saphonova², A.P. Shkurinov¹, 1 – Faculty of Physics and International Laser Center, Lomonosov Moscow State University, Russia, 2 – FGBNU NIIGB, Moscow, Russia

17:05-17:20 oral A14 "Architecture of a new fiber laser for applications in soft tissue surgery and lithotripsy" A.V. Vinnichenko¹, S.V. Larin¹, A.A. Mashkin², 1 – NTO «IRE-Polus», Russia, 2 – IPG Laser GmbH, Burbach, Germany

Posters

P1. "Laser Percutaneous Nephrolithotomy for Bilateral Staghorn Stones" O.V. Teodorovich^{1,2}, S.A. Naryshkin^{1,2}, G.G. Borisenko², M.N. Shatohin^{1,2}, S.Y. Dalgatov^{1,2}, S.A. Davlatbiev^{1,2}; 1 – Central Clinical Hospital No1 JSC RZhD "Russian Railways", Moscow, Russia, 2 – Endoscopic Urology Department, Russian Medical Academy of Postgraduate Education, Moscow, Russia

P2. "The effectiveness of the clinical application of the multiwavelength laser medical installation with antibacterial and therapeutic effect"

K.K. Baranov^{2,3}, N.E. Gorbatova^{2,3}, G.P. Kuzmin^{1,3}, A.A. Sirotkin^{1,3}, O.V. Tichonevich^{1,3}, S.A. Zolotov^{2,3}; 1 – Prokhorov General Physics Institute, Russian Academy of Sciences, Moscow, Russia, 2 – Institute of Emergency Children's Surgery and Traumatology, Moscow, Russia, 3 – Advanced Energy Technologies LTD, Moscow, Russia

P3. "Improved two-channel laser Doppler flowmeter"

D.G. Lapitan, D.A. Rogatkin, Laboratory of Medical and Physics Research, Moscow Regional Research and Clinical Institute named after M.F. Vladimirovsky, MONIKI, Moscow, Russia

P4. "Sapphire Shaped Crystals Allow Combining Tissue Cryodestruction, Laser Coagulation and Diagnosis"

I.A. Shikunova¹, V.N. Kurlov¹, K.I. Zaytsev^{2,3,4}, and I.V. Reshetov^{3,4}, 1 – Institute of Solid State Physics of Russian Academy of Sciences, Chernogolovka, Russia, 2 – Bauman Moscow State Technical University, Moscow, Russia, 3 – Institute of Improvement of Professional Skill of the Federal Medico-Biological Agency of Russia, Moscow, Russia, 4 – I.M. Sechenov First Moscow State Medical University, Moscow, Russia

P.5 "Retina Model for Laser Safety during Corneal Surgery with a Femtosecond Laser"
Hui Suna, Zhongwei Fana, Tianzhuo Academy of OPTO-Electronics, Chinese Academy of Science, BeiJing, China

18.00-20.00 Welcome party

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Hall # B

Section B: "Clinical optical imaging and spectroscopy"

09:00-11:00 Session 3, Chair – Natalia Bulgakova (Russia)

09:00-09:20 invited B1 "Modern fluorescence and other optical methods in early endoscopic diagnostics of aerodigestive tract cancer"

V.V. Sokolov, D.V. Sokolov, S.S. Pirogov, the P.Herzen Moscow Oncology Research Inst., Russia

09:20-09:40 invited B2 "Spectroscopic analysis of the interaction between antioxidants and free radicals in human skin"

Ju. Lademann, Univ. Berlin, Center of Experimental and Applied Cutaneous Physiology, Germany

09:40-10:00 invited B3 "Autofluorescence spectroscopy techniques for skin cancer diagnostics"

E. Borisova¹, Al. Zhelyazkova¹, Ts. Genova¹, P. Troyanova², El. Pavlova², N. Penkov², L. Avramov¹; 1 – Inst. of Electronics, Bulgarian Academy of Sciences, 2 – University Hospital "Queen Giovanna-ISUL", Bulgaria

10:00-10:20 invited B4 "Advances in imaging human skin"

M. Leahy, National Univ. of Ireland, Ireland

10:20-10:35 oral B5 "Hyperspectral imaging for skin neoplasms detection"

L.A. Zherdeva¹, I.A. Bratchenko¹, O.O. Myakinin¹, A.A. Moryatov², S.V. Kozlov², V.P. Zakharov¹; 1 – Samara State Aerospace Univ., Russia, 2 – Samara State Medical Univ., Russia

10:35-10:55 invited B6 "The novel horizons in the prediction of stroke: optical "instruments" and innovative strategies"

O.V.Semyachkina-Glushkovskaya¹, A.S. Abdurashitov¹, E.G. Borisova², V.V.Tuchin^{1,3,4}, 1 – Saratov National Research State University, Saratov, Russia; 2 – Institute of Electronics, Bulgarian Academy of Sciences, Sofia, Bulgaria; 3 – Tomsk National Research State University, Tomsk, Russia; 4 – IPMC RAS, Saratov, Russia

11:00-11:30 Coffee break

11.30-13.30 Session 4, Chair – Ekaterina Borisova (Bulgaria)

11.30-11.50 invited B7 "Combined optical and terahertz Imaging for intraoperative delineation of nonmelanoma skin cancers"

Anna N. Yaroslavsky, University of Massachusetts, Lowell, USA

11:50-12:05 oral B8 "Application of terahertz time-domain spectroscopy for blood glucose monitoring"
O.P. Cherkasova¹, M.M.Nazarov², A.P. Shkurinov^{2,3}; 1 – Inst. of Laser Physics SB RAS, 2 – Inst. on Laser and Information Technologies RAS, 3 – Lomonosov Moscow State Univ., Russia.

12:05-12:20 oral B9 "Medical Diagnosis based on Terahertz Pulsed Spectroscopy and Imaging"
K.I. Zaytsev^{1,2,3}, N.V. Chernomyrdin^{1,2}, S.O. Yurchenko^{1,2}, V.N. Kurlov⁴, I.A. Shikunova⁴, G.M. Katuba¹, K.G.Kudrin^{2,3}, V.E. Karasik^{1,2}, and I.V. Reshetov^{2,3}; 1 – Bauman Moscow State Technical Univ., 2 – Inst. of Improvement of Professional Skill of the Federal Medico-Biological Agency of Russia, 3 – I.M. Sechenov First Moscow State Medical Univ., 4 – Inst. of Solid State Physics RAS, Russia.

12:20-12:35 oral B10 "The Study of Terahertz Radiation Biologic Effects as Premise for Creating of Diagnostic and Treatment Methods"
V.I. Fedorov, Institute of Laser Physics SB RAS, Novosibirsk, Russia.

12:35-12:50 invited B11 "Bag-of-Features approaches for classification of combined laser scanning microscopy and spectroscopy data sets"
S. Stanciu, Center for Microscopy-Microanalysis and Information Processing, University Politehnica of Bucharest, Romania.

12:50-13:05 oral B12 "New generation fluorescence and laser spectral analysis colposcope for early detection of cervix cancer"
N. N. Bulgakova¹, E. G. Novikova², V. V. Smirnov^{1,3}, O. I. Trushina², V. I. Fabelinsky^{1,3}, 1 – A.M. Prokhorov General Physics Inst. RAS, 2 – P. Herzen Moscow Oncology Research Inst., 3 – Inlife LLC, Russia

13:05-13:20 oral B13 "Optical alignment of component signals in assay of low proteinuria"
A.I.Kuznetsov¹, A.Frorip¹, M. Ots-Rosenberg², A. Sünter^{1,1}, 1 – A.S. Ldiamon, 1 – Tartu Science Park, Estonia, 2 – Tartu University, Estonia

13:20-13:35 oral B14 "Triple-Modality Imaging of Optoacoustic Pressure, Ultrasonic Scattering, and Optical Diffuse Reflectance with Improved Resolution and Speed",
P.V.Subochev, I.V.Turchin, Institute of Applied Physics, Nizhny Novgorod, Russia

Posters

P1. "Application of a method autofluorescence diagnosis in endoscopy for investigation mucosal structure in gastrointestinal tract"
D.A. Abramov, I.V. Chavkin, National Research Univ. ITMO, Russia

P2. "Influence of structured illumination aperture shape in numerically focused Fourier domain optical coherence microscopy: a comparison"
A.A. Grebenyuk, Department of Optics and Biophotonics, Saratov National Research State University, Russia.

P3. "The plasma protein fractions research by Raman spectroscopy method"
A.A. Lykina¹, D.N. Artemyev¹, Yu.A. Khristoforova¹, I.L. Davydkin², T.P. Kuzmina², V.P. Zakharov¹, 1 – Department of Laser and Biotechnical Systems, Samara State Aerospace University, Russia, 2 – Department of Hospital Therapy and Transfusion, Samara State Medical University, Russia.

P4. "NIR Autofluorescence Skin Tumor Diagnostics"

Y.A. Khristoforova 1, I.A. Bratchenko 1, D.N. Artemyev 1, O.O. Myakinin 1, A.A. Moryatov 2, S.V. Kozlov 2, V.P. Zakharov 1; 1 - Samara State Aerospace Univ., Russia, 2 - Samara State Medical Univ., Russia.

P5 "Study of cerebral blood flow autoregulation in rats assessed by LSCI"

S. Sindeev¹, A. Abdurashitov¹, A. Horovodov¹, A. Shnitenkova¹, A. Gekaluk¹, M. Ulanova¹, A. Sharif¹, V. Tuchin^{1,2,3}, O. Semyachkina-Glushkovskaya¹, 1 – Saratov National Research State Univ., Russia, 2 – Tomsk National Research State University, Russia; 3 – IPMC RAS, Saratov, Russia.

P.6 " Critical changes in the brain leads to the intracranial hemorrhages in newborn rats"

E. Zinchenko^{1*}, E. Borisova², M. Abakutov³, D. Gorin¹, L. Avramov², M. Ulanova¹, I. Agranovich¹, I. Fedosov¹, A. Namykin¹, A. Abdurashitov¹, A. Serov¹, A. Pavlov¹, V. Lychagov¹, N. Navolokin⁴, G. Maslyakova⁴, D. Zhu⁵, Q. Luo⁵, V. Chekhonin³, J. Kurths^{5,6,7}, V. Tuchin^{1,8,9}, O. Semyachkina-Glushkovskaya¹, 1 – Saratov National Research State Univ., Russia; 2 – Institute of Electronics, Bulgarian Academy of Sciences, Sofia, Bulgaria, 3 – Russian National Research Medical Univ., Moscow, Russia, 4 - Saratov State Medical University, Russia, 5 – Huazhong Univ. of Science and Technology, Wuhan, China, 6 – Humboldt Univ., Berlin, Germany; 7 – Potsdam Institute for Climate Impact Research, Germany; 8 – Tomsk National Research State University, Russia, 9 – IPMC RAS, Saratov, Russia.

13:30-15:00 Lunch

17:30-19:30 – a round table: "The 100th anniversary of the birth of A. M. Prokhorov"

June 29, 2016 г.

Hall # A

Section C: "Laser interaction with cells and tissues"

09:00-11:00 Session 5, Chair - A.V. Priezzhev

09:00-09:20 invited C1 "Side views in live cell microscopy"

H. Schneckenburger, Univ. of Aalen, Inst. of Laser Medicine in Ulm (ILM), Aalen, Germany

09:20-09:40 invited C2 "New strategies for photothermal ablation and photoacoustic imaging of cancer based on cellular vehicles loaded with plasmonic nanoparticles"

R. Pini, Institute of Applied Physics "NelloCarrara", National Research Council, Sesto Fiorentino, Italy

09:40-10:00 invited C3 "Acoustic radiation force optical coherence elastography"

Zh. Chen

Beckman Laser Inst., The Henry Samueli School of Engineering, Univ. of California, USA

10:00-10:20 invited C4 "Optoacoustic platform for noninvasive imaging, monitoring, and sensing"

R.O. Esenaliev, Lab. for Optical Sensing and Monitoring, Univ. of Texas, Galveston , USA

10:20-10:40 invited C5 “In vivo imaging of reproductive events and cilia function in mammalian reproductive tract with optical coherence tomography”

I. V. Larina, J. C. Burton, S. Wang, Baylor College of Medicine, Houston, USA

10:40-11:00 invited C6 "In vivo imaging for detection and discrimination of actinic keratosis and squamous cell carcinoma from healthy human skin using two-photon tomography"

M.E. Darwin¹, M. Klemp¹, M. Weinigel², M.C. Meinke¹, K. König², J. Lademann¹, 1 – Charité - Universitätsmedizin Berlin, Department of Dermatology, Venerology and Allergology, Berlin, Germany; 2 – JenLab GmbH, Jena, Germany

11:00-11:30 Coffee break

11:30-13:30 Session 6, Chair – V.V. Tuchin, M.E. Darwin

11:30-11:50 invited C7 "Laser trapping and manipulation in hemorheologic studies"

A.V. Priezzhev^{1,2} and K. Lee¹, 1 – Physics Department and 2 – International Laser Centre of M.V. Lomonosov Moscow State University, Russia

11:50-12:10 invited C8 "Multispectral life-time imaging of tumor in small animal"

A.P.Savitsky, the Bach Inst. of Biochemistry of RAS, Russia

12:10-15:25 oral C9 “Multimodal Embryonic Imaging Using Selective Plane Illumination Microscopy, Optical Projection Tomography and Optical Coherence Tomography”

C.Wu¹, M.Singh¹, D.Mayerich², M.E.Dickinson³, I.V.Larina³, and K.V. Larin^{1,3}

¹Department of Biomedical Engineering, University of Houston, USA²Department of Electrical and Computer Engineering, University of Houston, USA³Molecular Physiology and Biophysics, Baylor College of Medicine, Houston, USA

12:25-12:40 oral C10 “Live dynamic analysis of cardiac defects in mouse embryos with optical coherence tomography”

A. L. Lopez III¹, S. Wang¹, K. V. Larin^{1,2}, P. A. Overbeek¹, I. V. Larina¹; 1 – Baylor College of Medicine, U.S.A., 2 – Univ. of Houston, U.S.A.

12:40-12:55 oral C11“Laser diffraction by wet blood smear and measurement of erythrocyte distribution in size”

S.Yu. Nikitin, Yu.S. Yurchuk¹, V.D. Ustinov¹, G.Ya. Levin², A.V. Priezzhev¹; 1 – M.V. Lomonosov Moscow State Univ., 2 – Federal Medical Research Center, Russia

12:55-13:10 oral C12 “The Influence of Optical Tissue Clearing on Polarization Properties for Different Anisotropic Media”

Dongsheng Chen^{1,2}, Nan Zeng¹, Yunfei Wang^{1,2}, Honghui He¹, Hui Ma^{1,2}; 1 – Shenzhen Key Laboratory for Minimal Invasive Medical Technologies, Institute of Optical Imaging and Sensing, Graduate School at Shenzhen, Tsinghua Univ.; 2 – Department of Physics, Tsinghua Univ., China

13:10-13:25 oral C13 “Monte Carlo simulations of photon diffusion in time and frequency domains”

V.L. Kuzmin¹, A.Yu. Valkov^{1,2}, A.D. Oskirko^{1,2}, L.A. Zubkov³; 1 St. Petersburg Polytechnic Univ., 2 St. Petersburg State Univ., Russia, 3 Drexel Univ., USA

13:30-15:00 Lunch

15:00-17:00 Session 7, Chair - A.V. Priezhev

15:00-15:15 oral C14 “Dynamic characteristics of channel formation in biotissue under CO₂ laser radiation”

V.V. Vasiltsov, M.G. Galushkin, V.A. Ulyanov; Inst. on Laser and Information Technologies RAS, Russia

15:15-15:30 oral C15 “Development of the experimental setup model to quantify meat product polarization characteristics”

A.A. Blokhina, V.A. Ryzhova; National Research Univ. ITMO, Russia

15:30-15:45 oral C16 “Noninvasive measurement of cell nucleus by backscattered light”

K.G. Domnin, E.T. Aksenov; Peter the Great St. Petersburg Polytechnic Univ., Russia

15:45-16:00 oral C17 “Diagnostics of the pulmonary diseases using spectral analysis of exhaled air”

Yu. V. Kistenev, A.V. Borisov, A.V. Shapovalov, D.A. Vrazhnov, V.V. Nikolaev, D.A. Kuzmin, A. A. Bulanova. Tomsk National Research State University, Tomsk, Russia; Siberian State Medical University, Tomsk, Russia; Tomsklabs PTE LTD, Tomsk, Russia

Posters

P1. “New form of the transport equation for the case of 2D orthogonal scattering approximation in biooptics”

A.P.Tarasov^{1,2}, D.A.Rogatkin¹; 1-Moscow Regional Research and Clinical Inst. "MONIKI" named after M.F. Vladimirsky, 2-Moscow Inst. of Physics and Technology (State University), Russia

P2. “Inaccuracy of the classical Monte-Carlo simulation in the general case of 1D turbid biological media”

A.P.Tarasov^{1,2}, I.A. Guseva², D.A.Rogatkin²; 1 - Inst. of Physics and Technology (State University), 2 – Moscow Regional Research and Clinical Inst. "MONIKI" named after M.F. Vladimirsky, Russia

P3 “Monitoring of laser-induced thermal gradients in plant cells by means of digital micro-interferometry”

A.V. Belashov^{1,2}, N.V. Petrov², I.V. Semenova¹, O.S.Vasyutinskii¹; 1 – Ioffe Physical Technical Inst., 2 – National Research Univ. ITMO, Russia

P4 “Multimodal Detection of Phase Transition in Adipose Tissue”

I. Yu. Yanina^{1,2}, E. K. Volkova^{1,2}, A. P. Popov^{1,3}, A. V. Bykov^{1,3}, I. V. Meglinski^{1,4}, V. V. Tuchin^{1,2,5} ¹Univ. of Oulu, Finland; ²Saratov National Research State Univ., ³Tomsk National Research State Univ., ⁴Irkutsk State Univ., ⁵IPMC RAS, Russia

P5 “Combined laser and spectral holographic microscopy for investigation of phase objects”

A.S. Machikhin, O.V. Polschikova, A.G. Ramazanov; Scientific and Technological Center of Unique Instrumentation RAS, Russia

P6. "Terahertz Waves Interaction with Medium Ordered by Cytoskeleton"
S.S.Popova^{1,2}, ¹Institute of Laser Physics SB RAS, Novosibirsk, Russia, ²Novosibirsk State University, Novosibirsk, Russia

17.00-17.30 Coffee break

17:30-19:30 – a round table: "The 100th anniversary of the birth of A.M. Prokhorov"

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Hall # A

Section D: "Photonics and nanobiotechnology"

09:00-11:00 Session 8, Chairs - P. Nikitin, Russia, V. Drachev, USA

09:00-09:30 Keynote presentation D1 "Mid-Infrared biophotonics: potential and challenges"
B. Mizakoff, Univ. of Ulm, Germany

09:30-10:00 Keynote presentation D2 "Interaction of colloidal nanoparticles with cells"
W.J. Parak, Philipps Univ. Marburg, Germany

10:00-10:20 invited D3 "Nanomechanical and Optomechanical Systems for Cancer Research"
J. Tamayo, Bionanomechanics lab, Institute of Microelectronics of Madrid, Spain

10:20-10:40 invited D4 "Nanorobots for Biomedical Applications"
M.P. Nikitin^{1,2,3}; ¹ – Moscow Inst. of Physics and Technology (State University), ² – Prokhorov General Physics Inst. RAS, ³ – Shemyakin-Ovchinnikov Inst. of Bioorganic Chemistry RAS, Russia

10:40-11:00 invited D5 "New laser-based technology for circulating biomarker discovery: applications for early diagnosis and prevention of cancer"
E.I. Galanzha,¹ V.V. Tuchin,^{2,3,4} V.P. Zharov,¹ ¹ – Arkansas Nanomedicine Center, Univ. of Arkansas for Medical Sciences, Little Rock, AR, USA; ² – Saratov National Research State Univ., ³ – Tomsk National Research State Univ., ⁴ – IPMC RAS, Russia

11:00-11:30 Coffee break

11.30-13.30 Session 9, Chairs – B. Mizakoff, Germany, J. Tamayo, Spain

11.30-11.50 invited D6 "Embedding molecules inside plasmonic nanostructures: a new approach for highly uniform and reproducible surface-enhanced Raman scattering"
B.N.Khlebtsov¹, N.G. Khlebtsov^{1,2}, ¹ – Institute of Biochemistry and Physiology of Plants and Microorganisms, RAS, Saratov; ² – Saratov National Research State Univ., Russia

11.50-12.10 invited D7 "Magnetic platform for UV surface-enhanced resonance Raman"
Hari Bhatta¹, Ali Aliev², Ildar R. Gabitov³, Vladimir P. Drachev^{1,3}, ¹ – Department of Physics and Advanced Materials and Mechanical Processing Institute, University of North Texas, Denton, TX, USA; ² – A. G. MacDiarmid NanoTech Institute, University of Texas at Dallas,

Richardson, TX, USA; 3 – Skolkovo Institute of Science and Technology, Skolkovo, Moscow region, Russia

12.10-12.30 invited D8 "GoldMag Nanoparticles and Its Applications in Point-of-Care Testing"

Qin Gao¹, Mingli Peng¹, Qinlu Zhang², Wenli Hui³, Sinong Zhang³, Yali Cui³, 1 - Northwest University, Xi'an, 2 – The First Affiliated Hospital of Xian Jiaotong University, Xi'an, 3 – College of Life Sciences, Northwest University, Xi'an, China

12.30-12.50 invited D9 "Lipid multilayer grating based biosensors"
S. Lenhart, Florida State University, USA

12.50-13.10 invited D10 "Living Cells Response to Laser Light and Low-Temperature Plasma"

V. Zablotskii¹, O. Lunov¹, N. Terebova², A. Kulikov², S. Kubinova^{1,3}, E. Sykova³, A. Dejneka¹
1 – Institute of Physics AS CR, Prague, Czech Republic; 2 – Saint Petersburg National Research University of Information Technologies, Mechanics and Optics (ITMO University), Russia; 3 – Institute of Experimental Medicine, Prague, Czech Republic.

13.10-13.30 invited D11 "Digital image capture and analysis for simultaneous static and dynamic light scattering for biological systems"

Germano S.Iannacchione¹, Saad Algarni², 1 – Worcester Polytechnic Institute, MA, USA, 2 – King Saud University, Saudi Arabia.

13:30-15:00 Lunch

15:00-17:00 Session 10, Chairs – G. Iannacchione, USA, V. Zablotskii, Czech Republic.

15:00-15:15 invited D12 “Hybrid Gold-Based Nanoparticles and Atomic Clusters for Analytic and Theranostic Applications”

N. G. Khlebtsov^{1,2}, B. N. Khlebtsov^{1,2}, L. A. Dykman^{1,3}, V. A. Khanadeev^{1,2}

1 – Lab. of Nanobiotechnology, Institute of Biochemistry and Physiology of Plants and Microorganisms, Russian Academy of Sciences, IBPPM RAS, Saratov, Russia, 2 – Saratov National Research State University, Saratov, Russia, 3 – Saratov Science Research Veterinary Institute, Russian Academy of Agricultural Sciences, Russia

15:15-15:30 oral D13 “ Superresolution optical imaging multimodal system

G.A. Stanciu¹, C.Stoichita¹, A. Nigro², M. Manfredi², S.G. Stanciu¹, D.E. Tranca¹, R. Hristu. 1 – Center for Microscopy-Microanalysis and Information Processing, University Politehnica of Bucharest, Bucharest, Romania, 2 – GNR srl-Analytical Instruments Group, Agrate Conturbia, Italy

15:30-15:45 oral D14 “Trends in biosensor development: multifunctional platforms and enhanced labels”

I.Yu. Goryacheva^{1,2}, Yu.S. Skibina³, S.A. Pidenko¹, N.A. Burmistrova¹, A.A. Shuvalov³, A.A. Chibrova³; 1 – Saratov National Research State Univ., Saratov, Russia, 2 – St. Petersburg State Univ., 3 – SPC Nanostructured Glass Technology Ltd, Russia

15:45-16:00 oral D15 “Luminescent quantum dots as labels for multiparametric immunoassay”

N.V.Beloglazova^{1,2}, A.V. Gordienko¹, A. Foubert², O.A. Goryacheva¹, S. De Saeger²,
1 – Institute of Chemistry, Saratov National Research State University, Saratov, Russia, 2 –

Faculty of Pharmaceutical Sciences, Department of Bioanalysis, Ghent University, Ghent, Belgium.

16:00-16:15 oral D16 “Quantum Dots in basic research and practical applications: the role of size and quasi-multivalency”

A.V. Salova, T.N. Belyaeva, V.V. Kosheverova, E.A. Leontieva, M.V. Kharchenko, E. S. Kornilova. Institute of Cytology RAS, St.Petersburg, Russia

16:15-16:30 oral D17 “Lectin-based Nanoagents for Specific Cell Labelling and Optical Visualization”

V.O. Shipunova¹, M.P. Nikitin^{1,2,3}, P.I. Nikitin³, S.M. Deyev¹,
1 – Shemyakin-Ovchinnikov Inst. of Bioorganic Chemistry RAS, 2 – Moscow Inst. of Physics and Technology (State University), 3 – Prokhorov General Physics Inst. RAS, Russia

16:30-16:45 oral D18 “Laser-Induce co-deposition of copper with cobalt as signal amplification method for biochemical microbiosensors

A.V. Smikhovskaia, E.M. Khairullina, I.I. Tumkin, S.S. Ermakov, D.V. Navolotskaya; St.Petersburg State Univ., Russia

16:45-17:00 oral D19 “Application of surface-enhanced infrared spectroscopy for steroids analysis”

O. P. Cherkasova^{1, 2}, A. G. Milekhin^{3, 2}, I. A. Milekhin², S.A.Kuznetsov², E.E. Rodyakina^{3, 2}, A.V.Latyshev^{3, 2}, 1 – Inst. of Laser Physics SB RAS, 2 – Novosibirsk State Univ., 3 – A.V. Rzhanov Inst. of Semiconductor Physics, Russia

Posters

P1. “Determination of nanorods aspect ratio using depolarized light scattering”

S.A. Dolgushin¹, I.S. Burnaevskiy¹, V.A. Deshabo², P.V. Shalaev¹, I.K. Yudin², B.N. Khlebtsov³, S.A. Tereshchenko¹, 1- National Research Univ. of Electronic Technology, 2 – Oil and Gas Research Inst. RAS, 3 – Inst. of Biochemistry and Physiology of Plants and Microorganisms RAS, Russia

P2. “Biosensors based on magnetic nanolabels: optimization with spectral interferometry and highly-sensitive electronic registration”.

A.V.Orlov¹, V.A. Bragina¹, S.L. Znoyko¹, K.G. Shevchenko², 1 – Prokhorov General Physics Institute, Russian Academy of Sciences, GPI RAS, Moscow, Russia, 2 – Nanobiotechnology Laboratory, Moscow Institute of Physics and Technology (State University), MIPT, Dolgoprudny, Russia

P3. “Real-Time Sensitive Detection of Low Molecular Weight Compounds by Optical Immunosensors”.

A.V. Orlov¹, A.G. Burenin², N.V. Guteneva², B.G. Goshkov¹, 1 – Prokhorov General Physics Institute, Russian Academy of Sciences, GPI RAS, Moscow, Russia, 2 – Nanobiotechnology Laboratory, Moscow Institute of Physics and Technology (State University), MIPT, Dolgoprudny, Russia

P4. “Luminescence method to study the growth of CuInS₂ quantum dots in real time”.

A.A Skaptsov., A.S. Novikova, A.H.M. Mohammed, V.V. Galushka, I.Yu. Goryacheva, V.I. Kochubey. Saratov National Research State University, Saratov, Russia

P5. “Spectral method of real-time monitoring of gold nanorods growth”.

A.A Skaptsov., O.A. Savenko, V.I. Kochubey, Saratov National Research State University, Saratov, Russia

P6. “Silanized liposomes loaded with luminescent quantum dots as label for mycotoxin detection”.

O.A. Goryacheva¹, N.V. Beloglazova², S. De Saeger², I.Y. Goryacheva¹, 1 – Institute of Chemistry, Saratov National Research State University, Saratov, Russia, 2 – Institute of Chemistry, Saint-Petersburg State University, Saint-Petersburg, Russia.

P7. “Non-enzymatic glucose and hydrogen peroxide sensors based on metal structures produced by laser-induced deposition from solution”.

E.M. Khairullina¹, A.V. Smikhovskaia¹, S.V. Safonov¹, M.S. Panov¹, L.S. Logunov¹, S.S. Ermakov¹, V.A. Kochemirovsky¹, 1 – Saint Petersburg State University, St. Petersburg, Russia

P8. “Near Infrared Luminescent-Magnetic Nanoparticles for Bimodal Imaging in vivo”.

I.V. Zelepukin^{1,2,3}, M.P. Nikitin^{1,2,4}, A.V. Nechaev⁵, A.V. Zvyagin^{3,6}, P.I. Nikitin⁴, S.M. Deyev¹, 1 – Molecular Immunology Lab., Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry RAS, IBCH RAS, Moscow, Russia, 2 – Nanobiotechnology Laboratory, Moscow Institute of Physics and Technology (State University), MIPT, Dolgoprudny, Russia, 3 – N.I. Lobachevsky Nizhny Novgorod State University, UNN, Nizhny Novgorod, Russia. 4 – Biophotonics Laboratory, Prokhorov General Physics Institute RAS, GPI RAS, Moscow, Russia 5 – Moscow State University of Fine Chemical Technologies, MITHT, Moscow, Russia, 6 – ARC Centre of Excellence for Nanoscale BioPhotonics, Macquarie University, North Ryde, Australia

P.9. “Stimuli-responsive Nano- and Microstructures Based on Gold Nanoparticles”

K.G. Shevchenko¹, V.R. Cherkasov^{1,2}, I.L. Sokolov¹, M.P. Nikitin^{1,2}, 1 – Nanobiotechnology Laboratory, Moscow Institute of Physics and Technology (State University), MIPT, Dolgoprudny, Russia. 2 – Biophotonics Laboratory, Prokhorov General Physics Institute RAS, GPI RAS, Moscow, Russia

P10. “Optical Method for Studying Self-Assembly of Various Nanoparticles in Liquids”

V. R. Cherkasov^{1,2}, K. G. Shevchenko¹, P. I. Nikitin², 1 – Nanobiotechnology Laboratory, Moscow Institute of Physics and Technology (State University), MIPT, Dolgoprudny, Russia 2 – Biophotonics Laboratory, Prokhorov General Physics Institute RAS, GPI RAS, Moscow, Russia

P11. “Colloidal gold nanoparticles change energy transfer standard scheme of a photosensitizer”

M.N. Kholodtsova^{1,2,3}, V.I. Makarov¹, I.D. Romanishkin¹, W.C.P.M. Blonde^{1,2,3}, V.B. Loschenov^{1,4}, 1 – A.M. Prokhorov General Physics Institute, GPI, Moscow, Russia, 2 – Universite de Lorraine, CRAN, UMR 7039, 2 avenue de la Foret de Haye, 54516 Vandoeuvre-les-Nancy, Cedex, France; 3 – CNRS, CRAN, UMR 7039, 54516 Vandoeuvre-les-Nancy, France, 4 – National Research Nuclear University ‘MEPhI’, Moscow, Russia

P12. “The plasmonic photothermal therapy of transplanted tumors in rats using gold nanorods”

A.B. Bucharskaya¹, G.N. Maslyakova¹, N.I. Dikht¹, N.A. Navolokin¹, G.S. Terentyuk^{1,2}, A.N. Bashkatov^{2,3}, E.A. Genina^{2,3}, B.N. Khlebtsov^{2,4}, N.G. Khlebtsov^{2,4}, V.V. Tuchin^{2,3,5}, 1 – Saratov State Medical University n.a. V.I. Razumovsky, Saratov, Russia, 2 – Saratov National Research State University, Saratov, Russia, 3 – Tomsk National Research State University, Tomsk, Russia, 4 – Institute of Biochemistry and Physiology of Plants and Microorganisms, RAS, Saratov, Russia, 5 – IPCM RAS, Saratov, Russia

P13. “Spectroscopic Assessment of Biological Tissue Temperature Using Upconversion Particles “

E.K. Volkova^{1,2}, I.Yu. Yanina^{1,2}, A.P. Popov^{1,3}, A.A. Skaptsov², Ju.G. Konyukhova², V.I. Kochubey^{2,3}, V.V. Tuchin^{2,3,4}, I.V. Meglinski¹, 1 – Optoelectronics and Measurement Techniques Laboratory, University of Oulu, Oulu, Finland, 2 – Research-Educational Institute of

Optics and Biophotonics, Saratov National Research State University, Saratov, Russia, 3 – Tomsk National Research State University, Tomsk, Russia, 4 – IPMC RAS, Saratov, Russia

P14. “The modeling of local distribution of the temperature photo-induced by ensemble of nanoparticles”

Yu. A. Avetisyan¹, A. N. Yakunin¹, A.A. Bykov² and V. V. Tuchin^{1,2,3}, 1 – IPMC RAS, Saratov, Russia, 2 – Saratov National Research State University, Saratov, Russia, 3 – Tomsk National Research State University, Tomsk, Russia

P15. “Laser nanosolder characteristics effect on tensile strength and structure of biotissue seam weld”

A.Yu.Gerasimenko¹, L.P. Ickitidze¹, D. I. Ryabkin¹, S.V. Selishchev¹, E.S. Pyankov¹, M.V. Mezentseva², I.A. Suetina², I.B. Rimshan¹, V.M. Podgaetsky¹, 1 – National Research University of Electronic Technology, Moscow, Russia, 2 – N.F. Gamalei Federal Research Centre for Epidemiology and Microbiology, Moscow, Russia

P16. "Investigation of nucleobases optical properties by molecular modeling",

I.L. Plastun, A.N. Bokarev, Yuri Gagarin State Technical University of Saratov, Russia

17:00–17:10 Symposium closing remarks

17:00-17:30 Coffee break

17:30-19:30 Panel discussion

June 30, 2016 г.

Hall # B

Section E “Photodynamic processes in biology and medicine”

09:00-11:00 Session 11, Chair – I. Belousova, Russia

09:00-09:20 invited E1 “Photoinduced processes in fullerenes and other carbon nanostructures”

E.A. Katz, Ben-Gurion Univ. of the Negev, Israel

09:20-09:40 invited E2 “Organic nanoparticles for tissue diagnostics and PDT”

R. Steiner, Inst. for Laser Technology in Medicine and Measurement Technique, Ulm, Germany

09:40-10:00 invited E3 “3D direct laser excitation of oxygen molecules: application to studies of oxygen photonics in systems of biomedical importance”

A.A. Krasnovsky Jr., RAS, Federal Center for Biotechnology, Moscow, Russia

10:00-10:20 invited E4 “Ru(II) complex mediated PDT for Bladder cancer, biology and dosimetry” L. Lilge, Princess Margaret Cancer Centre, Univ. of Toronto, Canada

10:20-10:40 invited E5 “Nanophotosensitizers for theranostics”

V.B. Loschenov, Prokhorov General Physics Institute, RAS, Moscow, Russia

10:40-11:00 invited E6 “Progress in cancer chemotherapy using 3nm diamond particles as the drug carrier”

E. Osawa¹, D. Ho², T. Minagawa³, 1 – NanoCarbon Research Inst., Nagano, Japan; 2. Univ. California, USA; 3. Shinshu Univ. Hospital, Nagano, Japan

11:00-11:30 Coffee break

11.30-13.30 Session 12, Chair – L. Lilge, Canada

11.30-11.50 invited E7 “Photothermal effects of nanoparticles in liquid media”

B. Eberle, Fraunhofer Inst. für Optronik, Systemtechnik und Bildauswertung, Germany

11.50-12.10 invited E8 “mTHPC-based photoactive nanoparticles: basic and pre-clinical research”

L. Bezdetnaya- Bolotine, Inst. de Cancérologie de Lorraine, France

12.10-12.30 invited E9 “Ultrafast photothermal action in nano dimensions”

G. Ferrini, Univ. Cattolica del Sacro Cuore, Milano, Italy

12.30-12.50 invited E10 “**Photodynamic inactivation of viruses in biological fluids**”

V.V. Zarubaev¹, I.M. Belousova², T.D. Murav'eva², 1 – Research Inst. of Influenza, Russia, 2 – Vavilov State Optical Inst., Moscow, Russia

12.50-13.10 invited E11 “Design and optimization of molecular photoacoustic contrast agents (MPACs) for in vivo imaging of breast cancer tumors”

C.S. Yelleswarapu, Univ. of Massachusetts Boston, US

13.10-13.25 Oral E12 “Photodynamic theranostics”

A. Akopov, G. Papayan, N. Petrishchev; Pavlov First State Medical Univ., Russia

13:30-15:00 Lunch

15:00-17:00 Session 13, Chair – A.Krasnovsky, Russia

15.00-15.15 Oral E13 “Photophysical Properties of Porphyrin Photosensitizers”

A.V. Dadeko^{1,2}, T.D. Murav'eva¹, I.M.Belousova^{1,2}; 1 – Vavilov State Optical Inst., 2 – National Research Univ. ITMO,Russia

15.15-15.30 Oral E14 “Multimode Lasers as Analogues of Complex Biological Systems”

O.B.Danilov¹, N.N.Rosanov^{1,2}, N.A.Solovyov³, L.N.Soms^{1,2}; 1 – Vavilov State Optical Inst., 2 – National Research Univ. ITMO, 3 – NPO "Prombezopzsnost' - Sever - Zapad", Russia

15.30-15.45 Oral E15 “Use of Hypothermia During PDT Treatment of Malignant Gliomas”

C.J. Fisher¹, C. Niu², Y. Chen², S. Ng², L. Lilge^{1,2}, 1 – Department of Medical Biophysics, 2 – Universit Health Network, Canada

15.45-16.00 Oral E16 “The method of laser forming of nanocarbon biocompatible coatings for artificial ligaments”

A.Yu. Gerasimenko¹, E.M. Eganova², L.P. Ickitidze¹, U.E. Kurilova¹, V.M. Podgaetsky¹, V.V. Zar³, N.N. Zhurbina¹, S.V. Selishchev¹; 1 – National Research Univ. of Electronic Technology,

2 – Inst. of Nanotechnology of Microelectronics RAS, 3 – Moscow Regional Research Clinical Inst., Russia

16.00-16.15 Oral E17 “Increasing the Conductivity of the Carbon Nanotube-Based Layers by Laser Radiation”

A.Yu.Gerasimenko¹, L.P. Ickitidze¹, V.M. Podgaetsky¹, S.V. Selishchev¹, E.V. Blagov², A.A. Pavlov², Y.P. Shaman², D. N. Klypin³; 1 – National Research Univ. of Electronic Technology, 2 – Inst. of Nanotechnology of Microelectronics RAS, 3 – Omsk State Technical Univ., Russia

16.15-16.30 Oral E18 “Self-organizing structures in aqueous dispersions of shungite carbon nanoparticles affected by laser impulses of different durations”

N.N. Rozhkova¹, A.O. Kucherik², A.S. Goryunov³, S.S. Rozhkov¹; 1 – Inst. of Geology Karelian Research Center RAS, 2 – Vladimir State Univ., 3 – Inst. of Biology Karelian Research Center RAS, Russia

16.30-16.45 Oral E19 “Investigation of interactions between albumin and fullerene and their transport properties by Laser Correlation Spectroscopy”

E.A. Savchenko, E.K. Nepomnyashchaya, E.T. Aksenov, T.A. Bogomaz; Peter the Great St, Petersburg Polytechnic Univ., Russia

16.45-17.00 Oral E20 “Rare-Earth Doped Nanocrystals as an Active Medium for Terahertz Stimulated Emission”

Yu.V. Orlovskii^{1,2}, V.V. Hizhnyakov², V.B. Loschenov^{1,3}; 1 – A.M. Prokhorov General Physics Inst., Russia; 2 – Univ. of Tartu, Estonia; 3 – National Research Nuclear Univ. MEPhI, Russia

Posters

P1. "Determination of the luminescence spectrum of Radachlorin photosensitizer"

M.A. Petrov^{1,2}, V.P. Belik¹, M.V. Petrenko¹, I.V. Semenova¹, O.S. Vasyutinskii¹, 1 – Ioffe Physical Technical Inst. RAS, 2 – Peter the Great St. Petersburg Polytechnic Univ., Russia

P2. "Photodynamic and photocatalytic activity of Fe₂O₃ nanoparticles"

E.K. Volkova^{1,2}, Ju.G. Konyukhova¹, V.I. Kochubey¹, E.S. Tuchina¹, V.V. Tuchin^{1,2,3}, 1 – Saratov National Research State Univ., Russia, 2 – Univ. of Oulu, Finland, 3 – IPMC RAS, Russia

P3. "Kinetics of laser induced bleaching of Radachlorin photosensitizer."

D.M. Beltukova^{1,2}, I.V. Semenova¹, A.G. Smolin¹, O.S. Vasyutinskii¹; 1- Ioffe Physical Technical Inst., 2- Peter the Great St. Petersburg Polytechnic Univ., Russia

P4. "The development of fiber-optic scaffold for the glioblastoma diagnosis and prevention".

Yu.S. Maklygina¹, A.V. Borodkin¹, G.M. Yusubalieva², V.B. Loschenov^{1,3}; 1 – A.M. Prokhorov Institute of General Physics of RAS, Russia, 2 – V. P. Serbskij State Research Center of Forensic and Social Psychiatry, Russia, 3 – National Research Nuclear University MEPhI, Russia

P5. “Dy³⁺ doped YPO₄ nanocrystals for laser induced hyperthermia “

I.D. Romanishkin¹, A.S. Vanetsev², A.V. Ryabova^{1,3}, Yu.V. Orlovskii^{1,2}, 1 – A.M. Prokhorov General Physics Institute, GPI, Moscow, Russia, 2 – Institute of Physics, University of Tartu, Tartu, Estonia, 3 – National Research Nuclear University ‘MEPhI’, Moscow, Russia

P6. "Laser pulse mode irradiation to improved photodynamic therapy efficiency"

V.V. Klimenko¹, N.A. Knyazev^{1,2}, A.A. Bogdanov^{1,3}, M.V. Dubina^{1,3}, 1 – St. Petersburg Academic University, St Petersburg, Russia, 2 – Institute of Cytology, St Petersburg, Russia, 3 – St. Petersburg State Polytechnical University, St Petersburg, Russia,

17/00 – 17.10 Symposium closing remarks (hall A)

17.00-17.30 Coffee break

17:30-19:30 Panel discussion