

5th International Symposium on Lasers in Medicine and Biophotonics. Section P. Plenary

TuSMP-01

Tuesday, June 05, 2018; 09:00-09:30; Plenary

High power Tm fiber laser – new laser platform for endoscopic surgery and lithotripsy

G. Altshuler 1, A. Mashkin 2, D. Myasnikov 3, V. Syrin 3, S. Larin 3, V. Vinichenko 3, V. Minaev 3, N. Evtichiev 3, V. Gapontsev 4; 1- IPG Medical Corp., USA; 2- IPG Laser GmbH, Germany; 3- NTO IRE-Polus, Russia; 4- IPG Photonics, USA

TuSMP-02

Tuesday, June 05, 2018; 09:30-10:00; Plenary

Present and futures of laser in oncology

A.D. Kaprin, E.V. Filonenko; National Medical Research Radiological Center, Russia

TuSMP-03

Tuesday, June 05, 2018; 10:00-10:30; Plenary

Highly sensitive optical methods for life-science applications

P.I. Nikitin; Prokhorov General Physics Inst. RAS, Russia

TuSMP-04

Tuesday, June 05, 2018; 10:30-11:00; Plenary

Usage of lasers for remote diagnosis of diseases

Z. Zalevsky; Bar-Ilan Univ., Israel

TuSMP-05

Tuesday, June 05, 2018; 11:00-11:30; Plenary

Biophotonics in neurosurgery

A.A. Potapov 1, S.A. Goryajnov 1, D. M. Chelushkin 1, K.A. Chernishov 1, T.A. Savelieva 3,4, V.B. Loschenov 3,4, V.A. Okhlopov 1, A.N. Konovalov 1, P.V. Zelenkov 1, Sh..Sh. Eliava 1, O.D. Shehtman 1, D.Yu. Usachev 1, V.A. Lukshin 1; 1- Burdenko National Medical Research Center of Neurosurgery; 2 -First Moscow State Medical Univ., 3- Prokhorov General Physics Inst. RAS, 4- National Research Nuclear Univ. MEPhI, Russia

5th International A.M. Prokhorov Symposium on Lasers in Medicine and Biophotonics. Section A. Advanced laser medical systems and technologies

TuSMA-01

Tuesday, June 05, 2018; 12:00-12:20; Invited

Optoacoustic Diagnostic Platform: Principles, Instrumentation, and Applications

R. Esenaliev; Univ. of Texas Medical Branch, USA

TuSMA-02

Tuesday, June 05, 2018; 12:20-12:40; Invited

Femtosecond laser cellular and embryo microsurgery accompanied with femtosecond microscopy and spectroscopy

A.A. Osychenko, M.S. Syrchina, A.V. Aybush, A.A. Astafev, A.M. Shakhov, A.D. Zaleskiy, A.S. Krivokharchenko; Semenov Inst. of Chemical Physics RAS, Russia

TuSMA-03

Tuesday, June 05, 2018; 12:40-13:00; Invited

Bismuth-doped fiber lasers – promising new wavelength and tunable lasers

E.M. Dianov; Fiber Optics Research Center, Russia

TuSMA-04

Tuesday, June 05, 2018; 13:00-13:15;

Precise laser contact surgery enhanced with thermal feedback: ex vivo evaluation

K.V. Shatilova 1, G.A. Aloian 2, I.V. Yaroslavsky 3, G.B. Altshuler 3; 1 NTO IRE-Polus, 2- Moscow Inst. of Physics and Technology, Russia; 3 IPG Medical Corp., USA

TuSMA-05

Tuesday, June 05, 2018; 13:15-13:30;

Laser-induced boiling of biological liquids and its application in medical technologies

V.M. Chudnovskii 2, V.I. Yusupov 2, V.N. Bagratashvili 2; 1- Il'ichev Pacific Oceanological Inst., Far Eastern Branch, RAS, 2 - Federal Scientific Research Centre 'Crystallography and Photonics', RAS, Russia

TuSMA-06

Tuesday, June 05, 2018; 15:00-15:20; Invited

Aerosols in medicine - harmful and beneficial effects

A. Czitróvszky 1; 1 - Wigner Research Centre for Physics, Hungarian Academy of Sciences, Hungary

TuSMA-07

Tuesday, June 05, 2018; 15:20-15:40; Invited

Safety of laser and terahertz femtosecond pulses effect on living bioobjects

D.S. Sitnikov 1, I.V. Ilina 1, A.A. Pronkin 1, I.M. Zurina 2,3, A.A. Gorkun 2,3, Yu. V. Khramova 4, N.V. Kosheleva 2,4; 1 - Joint Inst. for High Temperatures RAS, 2 - FSBSI Institute of General Pathology and Pathophysiology, 3 - Inst. for Regenerative Medicine, Sechenov Univ., 4 - Lomonosov Moscow State Univ., Russia

TuSMA-08

Tuesday, June 05, 2018; 15:40-16:00; Invited

Ultrasound and thermometry guidance of laser interstitial thermotherapy. Application to Baker's cyst

A.V. Lappa 1, A.V. Zhilyakov 2, A.N. Kulikovskiy 3, I.A. Abushkin 4, V.A. Privalov 5; 1-Chelyabinsk State Univ., 2- New Technologies in Outpatient Medicine, 3- Industrial Group "Metran", Russia; 4- Center for Medical Laser Technologies, 5- South Ural State Medical Univ., Russia

TuSMA-09

Tuesday, June 05, 2018; 16:00-16:15;

Laser microsurgery of cell spheroids: an effective tool for regeneration studying and novel test system in aesthetic medicine

N.V. Kosheleva 1,2, I.V. Ilina 3, I.M. Zurina 1,4, A.A. Gorkun 1,4, D.S. Sitnikov 3, I.N. Saburina 1; 1 - FSBSI Inst. of General Pathology and Pathophysiology, 2 - Lomonosov Moscow State Univ., 3 - Joint Inst. for High Temperatures RAS, 4 - Inst. for Regenerative Medicine, Sechenov Univ., Russia

TuSMA-10

Tuesday, June 05, 2018; 16:15-16:30;

Thulium fiber laser enucleation of the prostate in management of giant BPH (>200 cc)

L.M. Rapoport, D.V. Enikeev, M.S. Taratkin; Sechenov First Moscow State Medical Univ., Russia

TuSMA-11

Tuesday, June 05, 2018; 16:30-16:45;

Reducing Retropulsion Effect in Tm Fiber Laser Lithotripsy through Pulse-Train Modulation

V.A. Vinnichenko 1, A.A. Kovalenko 1, I.V. Yaroslavsky 2, G.B. Altshuler 2; 1- NTO IRE-Polus, Russia; 2- IPG Medical Corp., USA

TuSMA-12

Tuesday, June 05, 2018; 16:45-17:00;

Numerical Modeling of Thermal Homeostasis of the Vessel Heating Exposed to Laser Exposure in Various Modes

A.E. Pushkareva 1, I.V. Ponomarev 2, A.A. Isaev 2, S.V. Klyuchareva 3; 1- ITMO Univ., 2- Lebedev Physics Inst. RAS, 3- Mechnikov North-West State Medical Univ., Russia

TuSMA-13

Tuesday, June 05, 2018; 17:00-17:15;

New laser radiation hydrodynamic effect in endoscopic urological surgery.

V.P. Minaev 1, A.Z. Vinarov 2, A.M. Dymov 2, N.I. Sorokin 2, V.YU. Lekarev 2; 1- NTO "IRE-Polus", 2- Sechenov Univ., Russia

WeSMA-14

Wednesday, June 06, 2018; 09:00-09:20; Invited

Advanced laser technologies for regenerative medicine

P.S. Timashev 1,2, N.V. Minaev 1, V.N. Bagratashvili 1; 1- Inst. of Photon Technologies FSRC "Crystallography and Photonics" RAS, 2- Inst. for Regenerative Medicine, Sechenov Univ., Russia

WeSMA-15

Wednesday, June 06, 2018; 09:20-09:40; Invited

Laser engineering of microbial systems

N.V. Minaev 1, V.I. Yusupov 1, V.S. Zhigarkov 1, E.S. Churbanova 1, M.V. Gorlenko 2, V.N. Bagratashvili 1; 1 - Federal Research Centre "Crystallography and Photonics" RAS, 2 - Lomonosov Moscow State Univ., Russia

WeSMA-16

Wednesday, June 06, 2018; 09:40-10:00; Invited

Optical techniques for advancement of photodynamic therapy: from model experiments to clinical studies

M.Yu. Kirillin 1, M.A. Shakhova 1,2, A.V. Khilov 1, D.A. Loginova 1, E.A. Sergeeva 1, A.E. Meller 1,2, D.A. Sapunov 1,2, V.V. Perekatova 1, I.V. Turchin 1, N.Yu. Orlinskaya 1,2, and A.V. Shakhov 1,2; 1 - Inst. of Applied Physics RAS, 2- Nizhny Novgorod State Medical Academy, Russia

WeSMA-17

Wednesday, June 06, 2018; 10:00-10:15;

In vivo diffuse reflectance for bone boundary detection in orthopedic surgery

K. Komolibus 1, C. Fisher 2, K. Grygoryev 1, R. Burke 1, B. C. Wilson 2, S. Andersson-Engels 1; 1 - Tyndall National Inst., Ireland; 2 - Univ. of Toronto, Canada

WeSMA-18

Wednesday, June 06, 2018; 10:15-10:30;

Non-ablative fractional laser treatment for soft oral tissue regeneration

K.V. Shatilova 1, G.A. Aloian 2, M.M. Karabut 3, V.M. Ryabova 3, S.V. Tarasenko 4, I.V. Lyspak 4, I.V. Yaroslavsky 5, G.B. Altshuler 5; 1- NTO IRE-Polus, 2- Moscow Inst. of Physics and Technology, 3- Nizhny Novgorod State Medical Academy, 4- Sechenov First Moscow State Medical Univ., Russia; 5- IPG Medical Corp., USA

WeSMA-19

Wednesday, June 06, 2018; 10:30-10:45;

The Prospects of Interventional Coronary Angiography with Thomson Laser-Electron X-ray Source

I.A. Artyukov 1, E.G. Bessonov 1, N.V. Dyachkov 1,2, R.M. Feshchenko 1, M.V. Gorbunkov 1, B.S. Ishkhanov 3, Y.Y. Maslova 1, A.V. Polunina 4, N.L. Popov 1, V.I. Shvedunov 1,3, A.V. Vinogradov 1; 1- Lebedev Physical Inst., 2- Moscow Inst. of Physics and Technology, 3- Lomonosov Moscow State Univ., Skobeltsyn Inst. of Nuclear Physics, 4- City Clinical Hospital #17, Moscow, Russia.

WeSMA-20

Wednesday, June 06, 2018; 10:45-11:00;

Comparison of a Blue Diode Laser with Ho: YAG, Tm fiber and KTP Lasers for Soft Tissue Ablation

V. A. Vinnichenko 1, A. A. Kovalenko 1, V. A. Arkhipova 1, I. V. Yaroslavsky 2, G. B. Altshuler 2; 1 - IRE Polus, Russia ; 2 - IPG Medical, USA

WeSMA-21

Wednesday, June 06, 2018; 11:30-11:50; Invited

The method of excision the superficial microcystic form of lymphatic or lymphovenous malformation of the tongue in children

D.Yu. Komelyagin 1,2, A.V. Petukhov 1, S.V. Iamatina 1, V.P. Minaev 3, S.A. Dubin 1, F.I. Vladimirov 1, A.V. Dergachenko 1, E.N. Staroverova 1, E.V. Striga 1, T.N. Gromova 1; 1- SBIH "Children's Municipal Clinical Hospital of St. Vladimir", 2- SRI of Children's Surgery of Pirogov Russian National Research Medical Univ., 3- NTO "IRE-Polus", Russia

WeSMA-22

Wednesday, June 06, 2018; 11:50-12:10; Invited

Laser Thermoablation of Vascular Tumors in Children under Ultrasound Control

I.A. Abushkin 1, A.G. Denis 2, I.S. Vasiliev 3, A.V. Lappa 4, V.A. Privalov 3, O.A. Gavrilova 2, V.O. Lapin 1, O.A. Romanova 1, M.Y. Galiulin 1; 1- Center for Medical Laser Technologies, 2- Tver State Medical Univ., 3- South Ural State Medical Univ., 4- Chelyabinsk State Univ., Russia

WeSMA-23

Wednesday, June 06, 2018; 12:10-12:25;

Laser mass spectrometry for biological tissue analysis and pathology identification

A.Bukharina 1, A.Pento 1, S.Nikiforov 1, S.Alimpiev 1, Ya.Simanovsky 1, A.Grechnikov 2; 1 - Prokhorov General Physics Inst. RAS, 2 - Vernadsky Inst. of Geochemistry and Analytical Chemistry RAS, Russia

WeSMA-24

Wednesday, June 06, 2018; 12:25-12:40;

Effects of continuous wave, conventional pulse and super-pulse Tm fiber laser on tissue: a comparison study

V.A. Vinnichenko 1, A.A. Kovalenko 1, I.V. Yaroslavsky 2, G.B. Altshuler 2; 1 - NTO IRE-Polus, Russia; 2 - IPG Medical Corp., USA

WeSMA-25

Wednesday, June 06, 2018; 12:40-12:55;

Soft Tissue Ablation by a Novel Mid-IR Laser

V. A. Arkhipova 1, A. A. Kovalenko 1, V. A. Vinnichenko 1, V. A. Tyrtshyniy 1, I. V. Yaroslavsky 2; 1 - IRE Polus, Russia; 2 - IPG Medical, USA

WeSMA-26

Wednesday, June 06, 2018; 12:55-13:10;

Clinical testing of HILT for pain therapy

N.M. Chudesnikov 1, V.A. Arhipova 1, I.V. Yaroslavsky 2, G.B. Altshuler 2; 1- NTO IRE-Polus, Russia; 2- IPG Medical Corp., USA

TuSMA-p01

Tuesday, June 05, 2018; 15:00-19:00; Poster

Use of Laser Radiation for Spinal Degenerative Diseases Treatment

A.N. Zabrodskiy 1, V.N. Karp 1, S.V. Vovnenko 1, V.P. Minaev 2, D.A. Ushakov 1; 1- 1st Branch of the 3rd Central Military Clinical Hospital, 2- NTO "IRE-Polus", Russia

TuSMA-p02

Tuesday, June 05, 2018; 15:00-19:00; Poster

Two-wavelength Laser Minimally-Invasive Percutaneous Nephrolithotomy in the Management of Staghorn Stones

S.A. Naryshkin 1,2, O.V. Teodorovich 1,2, G. G. Borisenko 2, D.G. Kochiev 3; 1- Scientific Clinical Center JSC RZhD "Russian Railways", 2- Russian Medical Academy of Postgraduate Education, 3- Prokhorov General Physics Inst, RAS, Russia

TuSMA-p03

Tuesday, June 05, 2018; 15:00-19:00; Poster

Thermal field analysis in the process of surface-selective laser sintering of bioresorbable polymer matrixes

S.A. Minaeva, E.N. Antonov, A.N. Konovalov, N.V. Minaev, V.K. Popov; Federal Research Centre "Crystallography and Photonics" RAS, Russia

TuSMA-p04

Tuesday, June 05, 2018; 15:00-19:00; Poster

Surface-selective laser sintering as a method for mechanically inductive scaffolds with a multilayer bio-interface

V.D. Grinchenko 1, E.A. Grebenik 1, S.N. Churbanov 1,2, N.V. Minaev 2, P.A. Melnikov 4, A.I. Schpichka 1, D.V. Butnaru 1, V.N. Bagratashvili 2, Yu.A. Rochev 1,3, and P.S. Timashev 1,2; 1- Inst. for Regenerative Medicine, Sechenov First Moscow State Medical Univ., 2- Research Center "Crystallography and Photonics" RAS, Russia; 3- National Univ. of Ireland, Ireland; 4- Serbsky National Medical Research Center for Psychiatry and Narcology, Russia.

TuSMA-p05

Tuesday, June 05, 2018; 15:00-19:00; Poster

Development of LEMS technology

E.S. Churbanova 1, V.I. Yusupov 1, V.S. Zhigarkov 1, V.S. Cheptsov 2, M.V. Gorlenko 2, N.V. Minaev 1, E.A. Chutko 1, V.N. Bagratashvili 1; 1- Federal Research Center "Crystallography and Photonics" RAS, 2- Lomonosov Moscow State Univ., Russia

TuSMA-p06

Tuesday, June 05, 2018; 15:00-19:00; Poster

Laser perforation as a method for controlling bioresorption of tissue engineering scaffolds

S.N. Churbanov 1,2, A.A. Antoshin 1, N.V. Minaev 2, T.I. Gromoviyh 1, P.S. Timashev 1,2, D.V. Butnaru 1; 1- Inst. for Regenerative Medicine, Sechenov Univ., 2- Federal State Research Center "Crystallography and Photonics" RAS, Russia.

TuSMA-p07

Tuesday, June 05, 2018; 15:00-19:00; Poster

Applying LIFT-technology for vasculature formation in tissue and organ engineering

A.A. Antoshin 1, M.D. Fedyakov 1, S.N. Churbanov 1,2, N.V. Minaev 2, A.I. Shpichka 1, P.S. Timashev 1,2; 1 - Inst. for Regenerative Medicine, Sechenov Univ., 2 - Inst. of Photon Technologies of FSRC "Crystallography and Photonics" RAS, Russia

TuSMA-p08

Tuesday, June 05, 2018; 15:00-19:00; Poster

Application of 2-micron laser radiation for endovenous laser coagulation of varicose veins: in-vitro and in-vivo experiments

S.A. Khrushchalina, S.A. Artemov, A.N. Belyaev, S.V. Kostin, O.A. Kuznetsova, A.A. Lyapin, P.A. Ryabochkina; Ogarev Mordovia State Univ., Russia

TuSMA-p09

Tuesday, June 05, 2018; 15:00-19:00; Poster

Pulsed Transverse Discharge CO₂ Laser Removal of Traumatic Scars

N. Gorbatova 2,3, S. Nikiforov 1, A. Pento 1, Ya. Simanovsky 1, S. Zolotov 2, A. Brynsev 2; 1 - Prokhorov General Physics Inst. RAS, 2 - Clinical and Research Inst. of Emergency Pediatric Surgery and Trauma, 3 - Federal State Autonomous Inst. "National Medical Research Center of Children's Health", Russia

TuSMA-p10

Tuesday, June 05, 2018; 15:00-19:00; Poster

Pulsed Transverse Discharge CO₂ Laser Mucosa Ablation for the Treatment of ENT Diseases

N. Gorbatova 2,3, S. Nikiforov 1, Ya. Simanovsky 1, A. Pento 1, A. Brynsev 2, K. Baranov 2, N. Starshova 2, S. Zolotov 2; 1 - Prokhorov General Physics Inst. RAS, 2 - Clinical and Research Inst. of Emergency Pediatric Surgery and Trauma, 3 - Federal State Autonomous Inst. "National Medical Research Center of Children's Health", Russia

TuSMA-p11

Tuesday, June 05, 2018; 15:00-19:00; Poster

Evaluation of Tm fiber laser as a prospective energy source for fractional treatment in gynecological applications

K.V. Shatilova 1, V.A. Vinnichenko 1, A.A. Petrov 2, V.P. Veiko 2, I.V. Yaroslavsky 3; 1 NTO IRE-Polus, 2- ITMO Univ., Russia; 3- IPG Medical Corp., USA

TuSMA-p12

Tuesday, June 05, 2018; 15:00-19:00; Poster

Repetitively-Pulsed Mid-IR Laser for Precise Microsurgery

Victor A. Serebryakov, Anton S. Narivonchik, Nataliya A. Kalintseva, Denis V. Skvortsov, Sergey V. Doroganov

TuSMA-p13

Tuesday, June 05, 2018; 15:00-19:00; Poster

Pulsed fiber based yellow laser for ophthalmology

A.A. Surin 1,2, K.Y. Prusakov 1,2, T.E. Borisenko 1, A.A. Molkov 1,2; 1 - NTO "IRE-Polus", 2 - Moscow Inst. of Physics and Technology (State Univ.), Russia

TuSMA-p14

Tuesday, June 05, 2018; 15:00-19:00; Poster

The first experience of the use of the multiwave laser device «Livadia» in the treatment of relapse of inflammatory diseases of the epithelial pilonidal cyst in children.

A.A. Sirotkin 1, G.P. Kuzmin 1, N.E. Gorbatova 2,3, A.V. Brynsev 2, M.A. Dvornikova 3, S.A. Zolotov 2, O.V. Tikhonovich 1; 1- Prokhorov General Physics Inst. RAS, 2 - Clinical and Research Inst. of Emergency Pediatric Surgery and Trauma, 3 - Federal State Autonomous Inst. "National Medical Research Center of Children's Health", Russia

TuSMA-p15

Tuesday, June 05, 2018; 15:00-19:00; Poster

Thermal imaging by means of IR-fiber bundle for medical applications

E.A. Korsakova, L. V. Zhukova, A. S. Korsakov, A.S. Shmygalev, M.S. Korsakov; Ural Federal Univ., Russia

TuSMA-p16

Tuesday, June 05, 2018; 15:00-19:00; Poster

Fiber pyrometer for the control of Baker's cyst laser obliteration

A.S. Shmygalev 1, D.S. Suchkova 1, A.V. Zhilyakov 2, A.S. Korsakov 1, B.P. Zhilkin 1; 1 - Ural Federal Univ., 2 - Ural State Medical Univ., Russia

TuSMA-p17

Tuesday, June 05, 2018; 15:00-19:00; Poster

Sapphire shaped crystals for laser-assisted cryodestruction of biological tissues

I.A. Shikunova 1, E.N. Dubyanskaya 1, A.A. Kuznetsov 2, G.M. Katyba 1, I.N. Dolganova 2, E.E. Mukhina 2, M.A. Shchedrina 3, I.V. Reshetov 3, N.V. Chernomyrdin 2,3,4, K.I. Zaytsev 2,3,4, V.V. Tuchin 5,6,7, and V.N. Kurlov 1; 1 - Inst. of Solid State Physics RAS, 2 - Bauman Moscow State Technical Univ., 3 - Sechenov First Moscow State Medical Univ., 4 - Prokhorov General Physics Inst. RAS, 5 - Saratov State Univ., 6 - Inst. of Precision Mechanics and Control RAS, 7 - Tomsk State Univ., Russia;

TuSMA-p18

Tuesday, June 05, 2018; 15:00-19:00; Poster

Fabrication of photopatterns upon collagen films with enhanced mechanical properties

K.N. Bardakova 1,2, S.N. Churbanov 1,2, L.P. Istranov 2, E.V. Istranova 2, N.V. Minaev 1, P.S. Timashev 1,2; 1 - Inst. of Photonic Technologies, FSRC "Crystallography and Photonics" RAS, 2 - Inst. for Regenerative Medicine, Sechenov First Moscow State Medical Univ., Russia

5th International A.M. Prokhorov Symposium on Lasers in Medicine and Biophotonics. Section B. Laser interaction with cells and tissues: clinical imaging and spectroscopy

TuSMB-01

Tuesday, June 05, 2018; 12:00-12:20; Invited

Optical amplification of in vivo photoacoustic flow cytometry

V.V. Tuchin 1, E.I. Galanzha 1,2, V.P. Zharov 1,2; 1- Saratov State Univ., Russia; 2- Univ. of Arkansas for Medical Sciences, USA

TuSMB-02

Tuesday, June 05, 2018; 12:20-12:40; Invited

Wideband optoacoustic detectors for multi-scale characterization of the vasculature

P. Subochev, V. Perekatova, M. Kirillin, A. Orlova, E. Smolina, D. Loginova, I. Turchin; Inst. of Applied Physics RAS, Russia

TuSMB-03

Tuesday, June 05, 2018; 12:40-13:00; Invited

Development of optical monitoring of lung function in preterm infants

S. Andersson-Engels 1,2, A.L. Pacheco 1,2, E. Dempsey 3; 1 - Tyndall National Institute, 2 - University College Cork, 3 - INFANT Center, Cork Univ. Maternity Hospital, Ireland.

TuSMB-04

Tuesday, June 05, 2018; 13:00-13:15;

Monte Carlo simulations of the diffuse correlation spectroscopy signals for bounded biomodels

Vladimir Kuzmin 1, Alexey Valkov 1,2, and Leonid Zubkov3; 1 St.Petersburg Polytechnic Univ., 2 St.Petersburg State Univ., Russia; 3 Drexel Univ., USA

TuSMB-05

Tuesday, June 05, 2018; 13:15-13:30;

Nonlinear Microscopy as a Tool of Express Biopsy in Breast Cancer Diagnostics

E.A. Sergeeva 1, V.V. Dudenkova 2, S.S. Kuznetsov 2, M.Yu. Kirillin 1, M.V. Pavlov 2, A.V. Maslennikova 2, N.M. Shakhova 1; 1 - Inst. of Applied Physics RAS, 2 - Nizhny Novgorod State Medical Academy, Russia

TuSMB-06

Tuesday, June 05, 2018; 15:00-15:20; Invited

Challenges in Structured Illumination Microscopy

H. Schneckenburger, V. Richter, M. Piper, M. Wagner; Aalen Univ., Germany

TuSMB-07

Tuesday, June 05, 2018; 15:20-15:40; Invited

New photoconvertible protein for superresolution microscopy

I.D. Solovyev 1,2, A.V. Gavshina 2, A.P. Savitsky 1,2; 1- Lomonosov Moscow State Univ., 2- Bach Inst. of Biochemistry, Research Center of Biotechnology RAS, Russia

TuSMB-08

Tuesday, June 05, 2018; 15:40-16:00; Invited

Individual Sperm Cell Analysis and Selection for In Vitro Fertilization using Interferometric Phase Microscopy

N.T. Shaked 1, P. Jacob Eravuchira 1, S.K. Mirsky 1, Mattan Levi 2, M. Balberg 1,3, and I. Barnea 1; 1,2- Tel Aviv Univ., 3- Holon Inst. of Technology, Israel

TuSMB-09

Tuesday, June 05, 2018; 16:00-16:20; Invited

In vivo laser imaging of metabolic processes connected with the microcirculatory system

E.A. Shirshin 1, B.P. Yakimov 1, Y.I. Gurfinkel 1, A.V. Priezzhev 1, N.P. Omelyanenko 2, J. Lademann 3, M.E. Darvin3; 1 – Moscow State Univ., 2 – Central Inst. for Traumatology and Orthopedics, Russia; 3 – Charite Univ. Clinics, Germany

TuSMB-10

Tuesday, June 05, 2018; 16:20-16:40; Invited

Study of Nanoparticles Interaction with Biological Tissues Using Comparative Optical-Spectroscopic Methods.

E.V. Perevedentseva 1,4, A.V. Karmenyan 1, Y.C. Lin 1, Ashek-I-Ahmed 1, N. Ali 2, M. Kinnunen 3, O. Bibikova 2,3, I. Skovorodkin 2, S. Vainio 2, C.L. Cheng 1; 1- National Dong Hwa Univ., Taiwan; 2- Univ. of Oulu, 3- Faculty of Information Technology and Electrical Engineering, Univ. of Oulu, Finland; 4 - Lebedev Physics Inst. RAS, Russia

TuSMB-11

Tuesday, June 05, 2018; 16:40-17:00; Invited

Laser-optic studies in hemorrheology

A. Priezzhev 1,2, A. Lugovtsov 1, A. Semenov 1,2, Kisung Lee 2,3, S. Nikitin 1,2, V. Ustinov 4; 1,2- Lomonosov Moscow State Univ., 3- Currently with Center for Soft and Living Matter, Inst. of Basic Science, Ulsan National Inst. of Science and Technology, Republic of Korea; 4- Lomonosov Moscow State Univ., Russia

TuSMB-12

Tuesday, June 05, 2018; 17:00-17:15;

Wavelet-Domain Denoising of OCT images of Human Brain Malignant Tissues

I.N. Dolganova 1,2,3, P.V. Aleksandrova 1, S.-I.T. Beshplav 4, I.V. Reshetov 2, A.A. Potapov 4, K.I. Zaytsev 1,2,5; 1 - Bauman Moscow State Technical Univ.; 2 - Sechenov First Moscow State Medical Univ.; 3 - Inst. of Solid State Physics RAS; 4 - Burdenko Neurosurgery Inst.; 5 - Prokhorov General Physics Inst. RAS, Russia

TuSMB-13

Tuesday, June 05, 2018; 17:15-17:30;

Delivery of the photodynamic agent under the nail plate using Er-laser microperforation and laser-induced hydrodynamic processes

A.V. Belikov, S.N. Smirnov, A.N. Sergeev, A.D. Tavalinskaya; ITMO Univ., Russia

TuSMB-14

Tuesday, June 05, 2018; 17:30-17:45;

Modified non-invasive diffuse reflective calibration-free method to determine optical parameters of biological tissues

A.V.Lappa, A.E.Anchugova, D.Iu.Shakaeva; Chelyabinsk State Univ., Russia

WeSMB-15

Wednesday, June 06, 2018; 09:00-09:20; Invited

Probe pressure impact on optical spectra acquired on ex vivo and in vivo human skin

G. Khairallah 1,2,3, W. Blondel 1,2, A. Delconte 2, F. Marchal 1,2,4, M. Amouroux 1,2; 1- Univ. de Lorraine, CRAN, 2- Centre National pour la Recherche Scientifique, CRAN, 3- Regional Hospital Metz-Thionville, 4- Inst. de Cancérologie de Lorraine, France

WeSMB-16

Wednesday, June 06, 2018; 09:20-09:40; Invited

Synchronous fluorescence spectroscopy of soft tissues – tool for diagnostics of malignant lesions

E. Borisova^{1,2}, Ts. Genova-Hristova¹, N. Penkov³, I. Terziev³, P. Troyanova³, B. Vladimirov³, L. Avramov¹; 1- Inst. of Electronics, Bulgarian Academy of Sciences, Bulgaria; 2- Saratov State Univ., Russia; 3- University Hospital "Tzaritza Yoanna – ISUL", Bulgaria

WeSMB-17

Wednesday, June 06, 2018; 09:40-10:00; Invited

Two-color fluorescence monitoring in PDT treatment

A. Khilov 1, M. Kirillin 1, D. Loginova 1, S. Gamayunov 2, I. Turchin 1; 1 - Inst. of Applied Physics RAS, 2 - Republican Clinical Oncological Dispensary Health Ministry of Chuvashia, Russia

WeSMB-18

Wednesday, June 06, 2018; 10:00-10:15;

Autofluorescence Emission Features of Normal Oral Mucosa and Potentially Malignant

N.N. Bulgakova 1, T.I. Pozdnjakova 2; 1- Prokhorov General Physics Inst. RAS, 2- Moscow State Univ. of Medicine and Dentistry, Russia

WeSMB-19

Wednesday, June 06, 2018; 10:15-10:30;

Time-dependence of synchronous fluorescence signals in gastrointestinal tumours ex vivo

Ts. Genova 1, E. Borisova 1, 2, N. Penkov 3, B. Vladimirov 3, Al. Zhelyazkova 1, L. Avramov 1; 1-Inst. of Electronics, BAS, Bulgaria; 2- Saratov State Univ., Russia; 3-Univ. Hospital "Tsaritsa Yoanna-ISUL", Bulgaria

WeSMB-20

Wednesday, June 06, 2018; 11:30-10:45;

Estimation of beta-carotene using calibrated reflection spectroscopy method: phantom study

S. Masoumi 1, M.A. Ansari 1, E. Mohajerani 1, E.A. Genina 2,3, V.V. Tuchin 2,3,4; 1- Shahid Beheshti Univ., Tehran, Iran; 2- Saratov State Univ., 3- Tomsk State Univ., 4- Inst. of Precision Mechanics and Control RAS, Russia

WeSMB-21

Wednesday, June 06, 2018; 10:45-11:00;

Spectral properties comparative analysis of normal and tumor brain tissues in the visible and near infrared optical ranges

A.S. Sharova 1,2, Yu.S. Maklygina 2, A.V. Ryabova 2, V.B. Loschenov 1,2; 1- National Research Nuclear Univ. MEPhI, 2- Prokhorov General Physics Inst. RAS, Russia

WeSMB-22

Wednesday, June 06, 2018; 11:30-11:50; Invited

Nanodiamond–gold core shell nanoparticles for bio-imaging applications

Yu-Chung Lin 1, E. Perevedentseva 1, Zhe-Rui Lin 1, Ch.E. Nebel 2, G. Aferanza 3, A. Karmenyan 1, Chia-Liang Cheng 1; 1- National Dong Hwa Univ., Taiwan; 2- Fraunhofer Inst. for Applied Solid State Physics, Germany; 3- Plasma Advanced Materials and Surface Engineering CMM–FBK, Italy

WeSMB-23

Wednesday, June 06, 2018; 11:50-12:10; Invited

Functional optical coherence tomography for in vivo imaging of mammalian reproductive processes

I.V. Larina; Baylor College of Medicine, USA,

WeSMB-24

Wednesday, June 06, 2018; 12:10-12:30; Invited

Functional Near-Infrared Spectroscopy as a Screening Tool for Prodromal Alzheimer's Disease

T. NGUYEN 1, M. KIM 1, J.S. LEE 3,4,5, K.H. LEE 3,4,5, K.Y. CHOI 3, J.E. PARK 4, B.C. KIM 4,6, J. GWAK 7, and J.G. KIM 1,2; 1,2 - Gwangju Inst. of Science and Technology, 3 - Chosun Univ., 4 - National Research Center for Dementia, 5 - Chosun Univ., 6 - Chonnam National Univ., 7 - Seoul National Univ., South Korea

WeSMB-25

Wednesday, June 06, 2018; 12:30-12:50; Invited

In vitro terahertz dielectric spectroscopy of human brain tumors

K.I. Zaytsev 1,2,3, N.V. Chernomyrdin 1,2,3, K.M. Malakhov 1, Sh.-I.T. Beshplav 4, S.A. Goryaynov 4, V.N. Kurlov 5, I.V. Reshetov 3, A.A. Potapov 4, and V.V. Tuchin 6,7,8; 1 - Bauman Moscow State Technical Univ., 2 - Prokhorov General Physics Inst. RAS, 3 - Sechenov First Moscow State Medical Univ., 4 - Burdenko Neurosurgery Inst., 5 - Inst. of Solid State Physics RAS, 6 - Saratov State Univ., 7 - Inst. of Precision Mechanics and Control RAS, 8 - Tomsk State Univ., Russia;

WeSMB-26

Wednesday, June 06, 2018; 12:50-13:05;

Clinical Application of Terahertz Reflectometry for Sensing of Corneal Tissue and Tear Film

I.Ozheredov 1, M.Mischenko 1, M.Prokopchuk 1, T.Saphonova 2, E.Sikach 2, A.Balakin 1,3, P.Solyankin 3, A.Shkurinov 1,3; 1 - Lomonosov Moscow State University, Russia 2 - Institute of Eye Diseases RAS, Russia; 3 - Crystallography and Photonics Federal Research Center RAS, Moscow, Russia

WeSMB-27

Wednesday, June 06, 2018; 13:05-13:20;

Terahertz sensing of protein solutions

O.P. Cherkasova 1,2, M.M. Nazarov³, A.P. Shkurinov^{4,5}; 1 - Institute of Laser Physics of SB RAS, Novosibirsk, Russia; 2 - National Research Tomsk State University, Tomsk, Russia; 3 - Kurchatov Institute National Research Center, Moscow, Russia; 4 - Crystallography and Photonics Federal Research Center RAS, Moscow, Russia; 5 - Lomonosov Moscow State University, Moscow, Russia

WeSMB-28

Wednesday, June 06, 2018; 13:20-13:35;

Glycerol dehydration of native and diabetic animal tissues studied by THz-TDS and NMR methods

O.A. Smolyanskaya 1, E.L. Odlyanitskiy 1, I.J. Schelkanova 1, M.S. Kulya 1, A.N. Tsyppkin 1, Ya.V. Grachev 1, I.S. Goryachev 1, Ya.G. Toropova 2, V.V. Tuchin 1,3,4; 1 - ITMO University, Russia 2 - Almazov National Medical Research Centre, IEM, Russia 3 - Saratov State University (National Research), Russia 4 - Institute of Precision Mechanics and Control RAS, Russia

WeSMB-29**Wednesday, June 06, 2018; 15:00-15:20; Invited****Laser technologies of targeted opening of blood-brain barrier for drug brain delivery**

O.V.Semyachkina-Glushkovskaya 1, E.U. Rafailov 2, S.G. Sokolovsky 2, E.G. Borisova 3, V. Mantareva 4, I. Angelov 4, A. Shirokov 5, N. Navolokin 6, N.A. Shushunova 1, A.P. Khorovodov 1, A.V. Terskov 1, A.A. Bodrova 1, M.V. Ulanova 1, E. Shrif 1, V.V. Tuchin 1,7,8, J. Kurths 1,9,10; 1- Saratov State Univ., Russia; 2- Aston Univ., UK; 3- Inst. of Electronics BAS, Bulgaria; 4- Inst. of Organic Chemistry with Center of Phytochemistry BAS, Bulgaria; 5- Inst. of Bioorganic Chemistry RAS, 6- Saratov State Medical Univ., 7- Tomsk State Univ., 8- Inst. of Precision Mechanics and Control RAS, Russia; 9- Humboldt Univ., 10- Potsdam Inst. for Climate Impact Research, Germany

WeSMB-30**Wednesday, June 06, 2018; 15:20-15:40; Invited****New data processing algorithms for laser ektacytometry of red blood cells**

S.Yu.Nikitin; Lomonosov Moscow State Univ., Russia

WeSMB-31**Wednesday, June 06, 2018; 15:40-16:00; Invited****Biomedical applications of sapphire shaped crystals**

V. N. Kurlov 1,2, I.A. Shikunova 1, G.M. Katyba 1,3, K.I. Zaytsev 2,3,4, N.V. Chernomyrdin 2,3,4, I.N. Dolganova 1,2,3, V.V. Tuchin 5,6,7, I.V. Reshetov 2; 1 - Inst. of Solid State Physics RAS, 2 - Sechenov First Moscow State Medical Univ., 3 - Bauman Moscow State Technical Univ., 4 - Prokhorov General Physics Inst. RAS, 5 - Saratov State Univ., 6 - Inst. of Precision Mechanics and Control RAS, 7 - Tomsk State Univ., Russia

WeSMB-32**Wednesday, June 06, 2018; 16:00-16:20; Invited****Printing brain in vitro at 3D scaffolds: materials and patterns**

S.G. Sokolovski 1, J.A. Crowe 2, D. Nagel 2, E.J. Hill 2, A. El-Tamer 3, A.V. Koroleva 3, R. Parri 2, B.N. Chichkov 3, E.U. Rafailov 1; 1- Aston Inst. of Photonic Technologies, Aston Univ., 2- School of Life and Health Sciences, Aston Univ., UK; 3- Laser Zentrum Hannover e.V., Germany

WeSMB-33**Wednesday, June 06, 2018; 16:20-16:35;****The Changes of Cerebral Hemodynamics during Ketamine Induced Anesthesia in a Rat Model**

J. Bae 1, T.J. Shin 2, S. Kim 1, D.-H. Choi 1, D. Cho 1, J. Ham 1, S. Jeong 3, and J.G. Kim 1; 1- Inst. of Integrated Technology, 2- Gwangju Inst. of Science and Technology (GIST), 3- Seoul National Univ., 4- Chonnam National Univ. Medical School, South Korea

WeSMB-34**Wednesday, June 06, 2018; 16:35-16:50;****Quantitative tissue assessment using microstructural cross-polarization optical coherence tomography in glioma surgery**

K.S. Yashin 1, E.B. Kiseleva 1, A.A. Moiseev 1,2, S.S. Kuznetsov 1, I.A. Medyanik 1, L.Ya. Kravets 1, N.D. Gladkova 1; 1- Nizhny Novgorod State Medical Academy, 2- Inst. of Applied Physics RAS, Russia

WeSMB-35**Wednesday, June 06, 2018; 16:50-17:05;****Effect of laser-induced porogenesis in cartilage on speckle image**

O.I. Baum, A.V. Yuzhakov, E.N. Sobol; Federal Scientific Research Centre "Crystallography and Photonics" RAS, Russia

WeSMB-36**Wednesday, June 06, 2018; 17:30-17:50; Invited****Skin optical properties modifications using optical clearing agents: experimental and modelling results**

W. Blondel 1,2, P. Rakotomanga 1,2, G. Khairallah 1,2,3, C. Soussen 1,2,4, W. Feng 5,6, D. Zhu 5,6, H. Chen 1,2, C. Daul 1,2, A. Delconte 2, F. Marchal 1,2, M. Amouroux 1,2; 1- Univ. de Lorraine, 2- CNRS (Centre National pour la Recherche Scientifique), 3- Metz-Thionville Regional Hospital, 4- Univ. Paris-Sud et Ecole CentraleSupélec, France; 5- Univ. of Science and Technology, Wuhan, 6- Britton Chance Center and MOE Key Laboratory for Biomedical Photonics, China

WeSMB-37**Wednesday, June 06, 2018; 17:50-18:10; Invited****Tissue optical clearing as a diagnostic tool for tissue pathology differentiation**

L. Oliveira 1,2, I. Carneiro 3, S. Carvalho 3, R. Henrique 3,4, D. K. Tuchina 5,6, P. A. Timoshina 5,6, A. N. Bashkatov 5,6, E. A. Genina 5,6, V. V. Tuchin 5,6,7; 1 - Polytechnic of Porto, 2 - Centre of Innovation in Engineering and Industrial Technology, 3 - Portuguese Oncology Inst. of Porto, 4 - Inst. of Biomedical Sciences Abel Salazar – Univ. of Porto, Portugal; 5 - Saratov State Univ., 6 - Tomsk State Univ., 7 - Inst. of Precision Mechanics and Control RAS, Russia;

WeSMB-38**Wednesday, June 06, 2018; 18:10-18:30; Invited****Dynamic Optical Coherence Elastography of Soft Tissue**

K.V. Larin; Univ. of Houston, USA,

WeSMB-39**Wednesday, June 06, 2018; 18:30-18:45;****Monitoring of slow deformations in laser tissue reshaping with optical coherence elastography**

V.Y.Zaitsev 1, L.A.Matveev 1, A.L. Matveev 1, A.A. Sovetsky 1, D.V. Shabanov 1, G.V. Gelikonov 1, O.I. Baum 2, A. Yuzhakov 1,2, E.N. Sobol 1,2; 1- Inst. of Applied Physics RAS, 2 Inst. of Photonic Thechnologies RAS, Russia

WeSMB-40**Wednesday, June 06, 2018; 18:45-19:00;****NIR hyperspectral holography applied for quantative phase retrieval of the demodex mite**

G.S. Kalenkov 1, S.G. Kalenkov 2, M.A. Karpilova 3, A.E. Shtanko 4; 1- Microholo Ltd., 2- Moscow Polytechnic Univ., 3- Research Inst. of Eye Diseases, 4- Moscow State Univ. of Technology "STANKIN", Russia

WeSMB-41**Wednesday, June 06, 2018; 19:00-19:15;****Erythrocyte size distribution retrieval via laser diffractometry and hyperspectral holography of blood smears**

A. Lugovtsov 1, S. Nikitin 1,2, V. Ustinov 3, A. Semenov 1,2, N. Zaalishvili 4, G. Kalenkov 5, A. Shtanko 6, S. Kalenkov 4, A. Priezzhev 1,2; 1-3 - Lomonosov Moscow State Univ., 4 - Moscow Polytechnic Univ., 5 - Microholo Ltd, 6 - Moscow State Univ. of Technology "Stankin", Russia

WeSMB-42**Wednesday, June 06, 2018; 19:15-19:30;****OCT-based label-free 3D mapping of lymphatic vessels and transparent interstitial-fluid-filled dislocations**

L.A. Matveev 1, V.V. Demidov 2, A.A. Sovetsky 1, A.A. Moiseev 1, A.L. Matveyev 1, G.V. Gelikonov 1, V.Y. Zaitsev 1, A. Vitkin 2,3,4; 1 - Inst. of Applied

WeSMB-p01

Wednesday, June 06, 2018; 15:00-19:00; Poster

Optical spectroscopy for skin fibrosis

Y.V. Chursinova, D.A. Kulikov, D.A. Rogatkin, I.A. Raznitsyna, D.V. Mosalskaya; Moscow Regional Research and Clinical Inst. "MONIKI", Russia

WeSMB-p02

Wednesday, June 06, 2018; 15:00-19:00; Poster

Features of the dc component of the laser Doppler signal during arterial occlusion

D.G. Lapitan, D.A. Rogatkin; Moscow Regional Research and Clinical Inst. named after M.F. Vladimirovsky (MONIKI), Russia

WeSMB-p03

Wednesday, June 06, 2018; 15:00-19:00; Poster

Conformity of Monte Carlo and analytical solutions for one 2D scattering problem in biomedical optics

A.P. Tarasov 1,2, I.A. Raznitsyna 2, D.A. Rogatkin 2; 1 - Moscow Inst. of Physics and Technology (State Univ.), 2 - Moscow Regional Research and Clinical Inst. MONIKI, Russia

WeSMB-p04

Wednesday, June 06, 2018; 15:00-19:00; Poster

Low-cost laminar optical tomography: phantom study

M.A. Ansari, G.Y. Simakani; Shahid Beheshti Univ., Iran.

WeSMB-p05

Wednesday, June 06, 2018; 15:00-19:00; Poster

Non-invasive measurement of hemodynamic change during transcranial ultrasound brain stimulation using near-infrared spectroscopy

E. Kim 1, E. Anguluan 2, J.G. Kim 1,2; 1 - Gwangju Inst. of Science and Technology, 2 - Gwangju Inst. of Science and Technology, Korea

WeSMB-p06

Wednesday, June 06, 2018; 15:00-19:00; Poster

Refractive properties of human adipose tissue at hyperthermic temperatures

I.Yu. Yanina 1,2, E.N. Lazareva 1,2, A.N. Bashkatov 1,2, E.A. Genina 1,2, V.V. Tuchin 1,2,3; 1- Saratov State Univ., 2- Tomsk State Univ., 3- Precise Mechanics and Control Inst. RAS, Russia

WeSMB-p07

Wednesday, June 06, 2018; 15:00-19:00; Poster

A Subject-specific Layered Head Model for Monte Carlo Fitting in Time-domain Near-infrared Spectroscopy

Sadreddin Mahmoodkalayeh, Mohammed Ali Ansari; Shahid Beheshti Univ., Iran

WeSMB-p09

Wednesday, June 06, 2018; 15:00-19:00; Poster

Sub-wavelength-resolution imaging of biological tissues using THz solid immersion microscopy

N.V. Chernomyrdin 1,2,3, A.S. Kucheryavenko 1, G.S. Kolontaeva 1, A.O. Schadko 1, S.-I.T. Beshplav 4, K.M. Malakhov 1, G.A. Komandin 2, V.E. Karasik 1, I.E. Spector 2, V.V. Tuchin 5,6,7, and K.I. Zaytsev 1,2,3; 1 - Bauman Moscow State Technical Univ., 2 - Prokhorov General Physics Inst. RAS, 3 - Sechenov First Moscow State Medical Univ., 4 - Burdenko Neurosurgery Inst., 5 - Saratov State Univ., Russia; 6 - Inst. of Precision Mechanics and Control RAS, 7 - Tomsk State Univ., Russia.

WeSMB-p10

Wednesday, June 06, 2018; 15:00-19:00; Poster

In vitro terahertz spectroscopy of malignant brain gliomas embedded in gelatin slab

N.V. Chernomyrdin 1,2,3, K.M. Malakhov 1, S.T. Beshplav 4, A.A. Gavdush 1, G.A. Komandin 2, I.E. Spector 2, V.E. Karasik 1, S.O. Yurchenko 1, I.N. Dolganova 1,3, S.A. Goryaynov 4, I.V. Reshetov 3, A.A. Potapov 4, V.V. Tuchin 5,6,7, K.I. Zaytsev 1,2,3; 1 - Bauman Moscow State Technical Univ., 2 - Prokhorov General Physics Inst. RAS, 3 - Sechenov First Moscow State Medical Univ., 4 - Burdenko Neurosurgery Inst., 5 - Saratov State Univ., 6 - Inst. of Precision Mechanics and Control RAS, 7 - Tomsk State Univ., Russia

WeSMB-p12

Wednesday, June 06, 2018; 15:00-19:00; Poster

Investigation of Ophthalmic Drug Diffusion in Soft Contact Lenses by Means of Laser Interferometry Technique

E.V. Dorofeeva 2, P.Yu. Lobanov 1; I.S. Manuylovich 1; O.E. Sidoryuk 1; 1 - R&D Inst. "Polyus", 2 - Inst. of Bioorganic Chemistry RAS, Russia

WeSMB-p13

Wednesday, June 06, 2018; 15:00-19:00; Poster

Results of the investigation of increasing the optical depth of detection of CaCO₃ particles in the skin with OCT by optical clearing

S.M. Zaytsev 1, Yu.I. Svenskaya 1, E.V. Lengert 1, A.N. Bashkatov 1,2, V.V. Tuchin 1,2, E.A. Genina 1,2; 1 - Saratov State Univ., 2 - Tomsk State Univ., Russia

WeSMB-p14

Wednesday, June 06, 2018; 15:00-19:00; Poster

Confocal scanning laser ophthalmoscopy and the screening of optic nerve pathology

Zh. Yu. Alyabyeva 1, O.V. Agaptseva 1; -RNRMU, Russia

WeSMB-p15

Wednesday, June 06, 2018; 15:00-19:00; Poster

Spectrally Selective Soft X-ray Microscopy in Studies of Biological Objects

I.A. Artyukov, N.L. Popov, A.V. Vinogradov; P.N. Lebedev Physical Institute of the Russian Academy of Sciences, Moscow, Russia

WeSMB-p16

Wednesday, June 06, 2018; 15:00-19:00; Poster

Non-contact laser speckle anemometry of microcirculatory bloodstream

O.A. Golovan, E.N. Velichko, M.A. Baranov, E.T. Aksenov; Peter the Great St. Petersburg Polytechnic Univ., Russia

WeSMB-p17

Wednesday, June 06, 2018; 15:00-19:00; Poster

Terahertz time-domain spectroscopy for non-invasive assessment of water content in biological samples

M.A. Borovkova 1,2, M.K. Khodzitsky 1, O.P. Cherkasova 1,3, A.P. Popov 2, I.V. Meglinski 1,2; 1 - ITMO University, Russia; 2 - University of Oulu,

WeSMB-p18

Wednesday, June 06, 2018; 15:00-19:00; Poster

Peculiarities of red blood cells aggregation and deformability in patients with arterial hypertension: assesment with optical techniques

A.E. Lugovtsov 1, A.N. Semenov 1,2, P.B. Ermolinskiy 2, A.I. Maslyanitsina 2, N.M. Povalyaev 3, L.I. Dyachuk 3, E.P. Pavlikova 3, Yu.I. Gurfinkel 3, A.V. Priezzhev 1,2; 1- International Laser Center, Lomonosov Moscow State Univ., 2 - Department of Physics, Lomonosov Moscow State Univ., 3 - Medical Research and Education Center, Lomonosov Moscow State Univ., Russia

WeSMB-p21

Wednesday, June 06, 2018; 15:00-19:00; Poster

Fabrication and characterization of agar and silica gel based biotissue-mimicking phantoms in THz frequency range

E.L. Odlyanitskiy 1, O.A. Smolyanskaya 1, O.V. Kravtsenyuk 1; 1 - ITMO Univ., Russia

WeSMB-p22

Wednesday, June 06, 2018; 15:00-19:00; Poster

Method of intraoperative spectroscopic detection of tumor tissues in neurosurgery

T.A. Savelieva 1,2; K.G. Linkov 1; A.V. Borodkin 1; V.V. Volkov 1; S.A. Goryajnov 3; A.A. Potapov 3; V.B. Loschenov 1,2; 1- GPI RAS, Russia; 2 - NRNU MEPhI, Russia; 3 - N.N. Burdenko National Scientific and Practical Center for Neurosurgery, Russia

WeSMB-p23

Wednesday, June 06, 2018; 15:00-19:00; Poster

Temporal changes of polarization-optical properties of collagen fibers during immersion clearing process

M.E. Shvachkina, D.D. Yakovlev, A.B. Pravdin, D.A. Yakovlev; Saratov State Univ., Russia

WeSMB-p24

Wednesday, June 06, 2018; 15:00-19:00; Poster

Optical Coherence Tomography of Tissues Using the Recovery of Depth Distributions of the Backscattering Efficiency

E.V. Ushakova 1, S.A. Yuvchenko 1,2, E.M. Artemina 3, A.A. Isaeva 1, E.A. Isaeva 1, D.A. Zimnyakov 1, 2; 1- Saratov State Technical Univ., 2- Inst. of Precision Mechanics and Control RAS, 3- Saratov State Medical Univ., Russia

WeSMB-p25

Wednesday, June 06, 2018; 15:00-19:00; Poster

Optical clearing of brain in vitro by glycerol solution

D.K. Tuchina 1,2, A.N. Bashkatov 1,2, N.A. Navolokin 3, V.V. Tuchin 1,2,4; 1- Saratov State Univ., 2- Tomsk State Univ., 3- Saratov State Medical Univ., 4- Inst. of Precision Mechanics and Control RAS, Russia

WeSMB-p26

Wednesday, June 06, 2018; 15:00-19:00; Poster

Nonlinear optical effects during the formation of implantation material for bone-cartilaginous joints

P.N. Vasilevsky 1, M.S. Savelyev 1, A.Yu. Gerasimenko 1, U.E. Kurilova 1, V.M. Podgaetsky 1; 1 - National Research University of Electronic Technology, Russia

5th International A.M. Prokhorov Symposium on Lasers in Medicine and Biophotonics. Section C. Photonics and nanobiotechnology

WeSMC-01

Wednesday, June 06, 2018; 15:00-15:25; Invited

Optical biosensors based on surface plasmons and their applications in medical diagnostics

Jiri Homola; *Inst. of Photonics and Electronics, Czech Republic*

WeSMC-02

Wednesday, June 06, 2018; 15:25-15:50; Invited

Ultrasensitive plasmonic biosensing

F. Wu 1, J. P. Singh 1, P. A. Thomas 1, O. Ivashenko 2, S. De Feyter 2, V. G. Kravets 1, P. J. R. Day 1, A. N. Grigorenko 1; 1- Univ. of Manchester, UK; 2- Univ. of Leuven, Belgium

WeSMC-03

Wednesday, June 06, 2018; 15:50-16:10; Invited

Nanoscale luminescent labels of organic and inorganic nature for bioassay

I. Yu. Goryacheva, A.M. Vostrikova, A.A. Kokorina, A.S. Novikova, A.M. Sobolev, D.D. Drozd, A.A. Bakal, A.N. Nikolaeva, D.V. Shpuntova, O.A. Goryacheva; *Saratov State Univ., Russia*

WeSMC-04

Wednesday, June 06, 2018; 16:10-16:30; Invited

Immunoassays using nanoparticle as labels: advantages and current state

S.A. Eremin; *Lomonosov Moscow State Univ., Russia*

WeSMC-05

Wednesday, June 06, 2018; 16:30-16:45;

Direct immobilized nanostructured myoglobin for CO detection by surface plasmon resonance

G. Dyankov 1, V. Serbezov 2, E. Borisova 2, H. Kisov 1, E. Belina 1; 1- *Inst. of Optical Materials and Technology BAS*, 2- *Inst. of Electronics BAS*, Bulgaria

WeSMC-06

Wednesday, June 06, 2018; 16:45-17:00;

Label-Free Method for Multiplex Investigation of Dynamics of Protein-Protein Interactions

A.V. Orlov 1,2, V.A. Bragina 1, B.G. Gorshkov 1; 1 - *Prokhorov General Physics Inst. RAS*, 2 - *Moscow Inst. of Physics and Technology (State Univ.)*, Russia

WeSMC-07

Wednesday, June 06, 2018; 17:30-17:50; Invited

SERS-based Platforms for Immunoassay

B. N. Khlebtsov; *Inst. of Biochemistry and Physiology of Plants and Microorganisms RAS*, Russia,

WeSMC-08

Wednesday, June 06, 2018; 17:50-18:10; Invited

Multifunctional Nanoagents for Logic-Gated Chemosensing, Diagnostics and Drug Delivery

M.P. Nikitin 1,2,3; 1 - *Moscow Institute of Physics and Technology (State University)*, 2- *Prokhorov General Physics Inst. RAS*, 3 - *Shemyakin-Ovchinnikov Inst. of Bioorganic Chemistry RAS*, Russia

WeSMC-09

Wednesday, June 06, 2018; 18:10-18:30; Invited

Light induced time and site specific drug delivery

Meiyu Gai 1, M. Kurochkin 2, O. Sindeeva 2, J. Frueh 3, D. Luo 1, J. Gould 1, G.B. Sukhorukov 1,2; 1- *Queen Mary Univ. of London*, UK; 2- *Saratov State Univ., Russia*; 3- *Harbin Inst. of Technologies*, China

WeSMC-10

Wednesday, June 06, 2018; 18:30-18:50; Invited

Nanophotonic Functional Imaging and Related Nanotoxicity Issues

A. Sukhanova 1,2, P. Chames 3, D. Baty 3, F. Ramos-Gomes 4, F. Alves 4, and I. Nabiev 1,2; 1 - *Univ. de Reims Champagne-Ardenne*, France; 2 - *National Research Nuclear Univ. MEPhI*, Russia; 3 - *Aix Marseille Univ., CNRS*, France; 4 - *Max Planck Inst. for Experimental Medicine & Univ. Medical Center*, Germany.

WeSMC-11

Wednesday, June 06, 2018; 18:50-19:05;

Quantum Dots in basic research and practical applications: the role of size and quasi-multivalency

A.V. Salova 1, T.N. Belyaeva 1, V.V. Kosheverova 1, E.A. Leontieva 1, M.V. Kharchenko 1, E. S. Kornilova 1,2,3; 1 - *Inst. of Cytology RAS*, 2 - *St. Petersburg Polytechnic Univ.*, 3 - *St. Petersburg State Univ.*, Russia

WeSMC-12

Wednesday, June 06, 2018; 19:05-19:20;

TAM identification by fluorescence lifetime on different models

Yu.S. Maklygina 1, G.M. Yusubalieva 2, I.D. Romanishkin 1, A.V. Ryabova 1, V.P. Chekhonin 2, V.B. Loschenov 1; 1- *Prokhorov General Physics Inst. RAS*, 2- *Serbiskij State Research Center of Forensic and Social Psychiatry*, Russia

WeSMC-13

Wednesday, June 06, 2018; 19:20-19:35;

Combined method for laser selection, positioning and analysis of micron and submicron cells and particles

E.A. Savchenko 1, E.N. Velichko 1, E.T. Aksenov 1, E.K. Nepomnyashchaya 1; 1 - *Higher school of applied physics and space technologies, Institute of Physics, Nanotechnology and Telecommunications, Peter the Great Saint-Petersburg Polytechnic University*, Saint-Petersburg, Russia

ThSMC-14

Thursday, June 07, 2018; 09:00-09:20; Invited

Nanomaterials for biosensing and phototherapy applications

A. Rakovich; *King's College London*, United Kingdom

ThSMC-15

Thursday, June 07, 2018; 09:20-09:40; Invited

Targeting of tumor tissues with magnetic nanoparticles

M. Goncalves 1, R. Schwartz-Albiez 1, P.I. Nikitin 2, M.P. Nikitin 3, F. Momburg 1; 1 - Antigen Presentation and T/NK Cell Activation Group, Clinical Cooperation Unit Applied Tumor Immunity, German Cancer Research Center, Heidelberg, Germany; 2 - Prokhorov General Physics Institute, Russian Academy of Sciences, GPI RAS, Moscow, Russia; 3 - Moscow Institute of Physics and Technology (State University), Dolgoprudny, Russia

ThSMC-16

Thursday, June 07, 2018; 09:40-10:00; Invited

Magnetic Cell Therapy for Vascular Disease

B. Polyak; Drexel University College of Medicine, USA

ThSMC-17

Thursday, June 07, 2018; 10:00-10:15;

Towards magnetoencephalography based on ultra-sensitive laser pumped non-zero field magnetic sensor

A.E. Ossadtschi 1, N.K. Kulachenkov 2, D.S. Chuchelov 3, S.P. Dmitriev 4, A.S. Pazgalev 4, M.V. Petrenko 4, A.K. Vershovskii 4; 1- National Research Univ. "Higher School of Economics", 2- JSR Electropribor, 3- Lebedev Physical Inst., 4- Ioffe Inst., Russia

ThSMC-18

Thursday, June 07, 2018; 10:15-10:30;

Microscopy of Tunable Assembly of Cells in External Alternating Electric Fields

E.V. Yakovlev 1, S.A. Korsakova 1, K.I. Zaytsev 1,2, I.N. Aliev 1, S.O. Yurchenko 1; 1 - Bauman Moscow State Technical Univ., 2 - Prokhorov General Physics Inst. RAS, Russia

ThSMC-19

Thursday, June 07, 2018; 10:30-10:45;

Fluorescent Superparamagnetic and Paramagnetic Agents for Bioimaging, Sensing and Cell Targeting

I.L. Sokolov 1,2, A.V. Vasilyeva 1, A.V. Lunin 1, A.V. Yaremenko 1, V.R. Cherkasov 1; 1 - Moscow Inst. of Physics and Technology (State Univ.), 2 - Prokhorov General Physics Inst. RAS, Russia

ThSMC-20

Thursday, June 07, 2018; 10:45-11:00;

High-Sensitive Analytical Systems for Rapid On-site Detection of Haptens

N.V. Guteneva 1,2, A.V. Orlov 1,2, V.A. Bragina 1, B.G. Gorshkov 1, S.L. Znoyko 1; 1 - Prokhorov General Physics Inst. RAS, Russia, 2 - Moscow Inst. of Physics and Technology (State University), Russia

ThSMC-21

Thursday, June 07, 2018; 11:30-11:50; Invited

Eco-photonics: Micro-encapsulated probe as implantable sensor for monitoring the physiological state of water organisms

A. Popov 1, A. Bykov 1, A. Gurkov 2, E. Borvinskaya 2, A. Sadovoy 3, M. Timofeev 2; I. Meglinski 1,2,3,6; 1 - Univ. of Oulu, Finland; 2 - Irkutsk State Univ., Russia, 3 - A*STAR, Singapore

ThSMC-22

Thursday, June 07, 2018; 11:50-12:10; Invited

In vivo study of cell division with stimulated Raman scattering

M. Veres, L. Himics, I. Rigó, A. Nagy, S. Tóth, Sz. Kugler, P. Baranyai, A. Czitrovsky, T. Vácz; Wigner Research Centre for Physics HAS, Hungary

ThSMC-23

Thursday, June 07, 2018; 12:10-12:30; Invited

Giant electromagnetic field in periodic metal-silicone metasurface and SERS sensors

A.K. Sarychev 1, K.N. Afanasev 1, I.V. Bykov 1, I.A. Boginskaya 1, E.G. Evtushenko 2, A.V. Ivanov 1, I.N. Kurochkin 2,3, A.N. Lagarkov 1, A.M. Merzlikin 1, V.V. Mikhnev 4, D.V. Negrov 4, I.A. Ryzhikov 1, M.V. Sedova 1; 1- Inst. for Theoretical and Applied Electrodynamics RAS, 2- Lomonosov Moscow State Univ., 3- Emanuel Inst. of Biochemical Physics RAS, 4- Moscow Inst. of Physics and Technology, Russia

ThSMC-24

Thursday, June 07, 2018; 12:30-12:50; Invited

Plasmonic fractal shells for drug delivery: broadband response, synthesis, and laser release

V. P. Drachev 1,2, V. C. de Silva 1, P. Nyga 3; 1- Univ. of North Texas, USA; 2- Skolkovo Inst. of Science and Technology, Russia; 3- Military Univ. of Technology and Inst. of Optoelectronics, Poland

ThSMC-25

Thursday, June 07, 2018; 12:50-13:05;

Development of SPR Based Tool For Monitoring of Self-Assembly of Heterogenous Nanoparticle Complexes

K.G. Shevchenko 1, A.V. Babenyshev 1, A.A. Tregubov 1, I.L. Nikitina 2, V.R. Cherkasov 1; 1- Moscow Inst. of Physics and Technology (State Univ.), 2 - Prokhorov General Physics Inst. RAS, Russia

ThSMC-26

Thursday, June 07, 2018; 13:05-13:20;

Surface-enhanced infrared spectroscopy for cortisol analysis

I.A. Milekhin 1, O.P. Cherkasova 2, A.G. Milekhin 3, S.A. Kuznetsov 2, E.E. Rodyakina 3,2, V.A. Minaeva 4, A.V. Latyshev 3,2; 1-Novosibirsk State Univ., 2- Inst. of Laser Physics SB RAS, 3- Rzhanov Inst. of Semiconductor Physics, Russia; 4- Bohdan Khmelnytsky National Univ., Ukraine

ThSMC-27

Thursday, June 07, 2018; 13:20-13:35;

Highly Sensitive Precision Scanner for Fluorescent and Colorimetric Microarrays with Excitation by using Single Mode Pigtailed Semiconductor Lasers

V.A. Elokhin 1, V.A. Gotlib 1, S.A. Klotchenko 2, D. A. Makarov 1, A.V. Vasin 2; 1 - Scientific Instruments JSC, 2 - FGBU Influenza Research of Health Ministry of Russian Federation, Russia

ThSMC-28

Thursday, June 07, 2018; 15:00-15:20; Invited

Mueller polarimetry as a tool for optical biopsy of tissue

T. Novikova 1, J. Rehinder 1, J. Vizet 1, A. Pierangelo 1, R. Ossikovski 1, A. Nazac 2, A. Benali 3, P. Validire 3; 1 - LPICM, CNRS, Ecole Polytechnique, 2 - Univ. Hospital of Bicêtre, 3 - Hospital IMM, France

ThSMC-29

Thursday, June 07, 2018; 15:20-15:40; Invited

Composite Plasmonic SERS Tags with Embedded Raman Reporters

N. G. Khlebtsov^{1,2}, B. N. Khlebtsov^{1,2}, D. N. Bratashov²; 1 -Inst. of Biochemistry and Physiology of Plants and Microorganisms RAS, 2 - Saratov National Research State Univ., Russia

ThSMC-30

Thursday, June 07, 2018; 15:40-16:00; Invited

Novel nanocomposite photoacoustic contrast agents

M.V. Novoselova ^{1,2}, D.N. Bratashov ², M. Sarimollaoglu ³, D.A. Nedosekin ³, B. N. Khlebtsov ^{2,4}, E.I. Galanzha ³, V.P. Zharov ³, D.A. Gorin ^{1,2}; 1- Skolkovo Inst. of Science and Technology, 2- Saratov State Univ., Russia; 3- Univ. of Arkansas for Medical Sciences, USA; 4- Inst. of Biochemistry and Physiology of Plants and Microorganisms, Russia

ThSMC-31

Thursday, June 07, 2018; 16:00-16:15;

Holographic monitoring of cell death pathways induced by reactive oxygen species

A.V. Belashov ¹, A.A. Zhikhoreva ^{1,2}, D.A. Rogova ³, T.N. Belyaeva ⁴, E.S. Kornilova ^{3,4}, A.V. Salova ⁴, I.V. Semenova ¹, O. S. Vasyutinskii ¹; 1 - Ioffe Inst., Russia; 2 - ITMO Univ., 3 - St. Petersburg Polytechnic Univ., 4 - Inst. of Cytology RAS, Russia

ThSMC-32

Thursday, June 07, 2018; 16:15-16:30;

Optimization of upconversion nanoparticles excitation regimes for selective heating and effective thermometry in biological tissues

D.V. Pominova, A.V. Ryabova, P.V. Grachev, I.D. Romanishkin, V.Yu. Proydakova, S.V. Kuznetsov, V.V. Voronov, P.P. Fedorov, V.B. Loschenov; 1- Prokhorov General Physics Inst. RAS, Russia

ThSMC-33

Thursday, June 07, 2018; 16:30-16:45;

A Crystal Host Selection for Aqueous Colloidal Luminescent Nanocrystals Doped by Nd³⁺ Used for Bioimaging in First Biological Window

Yu.V.Orlovskii ^{1,2}, A.V.Popov ¹, E.O.Orlovskaya ¹, A.S.Vanetsev ^{1,2}, I.Sildos ², P.V.Grachev ¹, A.V.Ryabova ¹; 1- Prokhorov General Physics Inst. RAS, Russia; 2- Univ. of Tartu, Estonia

ThSMC-34

Thursday, June 07, 2018; 16:45-17:00;

Anomalous optical response of silicon tip-shaped metasurface

A.K. Sarychev ¹, K.N. Afanasev ¹, I.V. Bykov ¹, I.A. Boginskaya ¹, A.V. Ivanov ¹, I.N. Kurochkin ^{2,3}, A.N. Lagarkov ¹, I.A. Ryzhikov ¹, M.V. Sedova ¹; 1- Inst. for Theoretical and Applied Electrodynamics RAS, 2- Lomonosov Moscow State Univ., 3- Emanuel Inst. of Biochemical Physics RAS, Russia

ThSMC-35

Thursday, June 07, 2018; 17:30-17:50; Invited

Connecting biochemistry and electronics with artificial allosteric protein biosensors

Zhong Guo, Jason Whitfield, Selvakumar Edwardraja, and Kirill Alexandrov; Univ. of Queensland, Australia

ThSMC-36

Thursday, June 07, 2018; 17:50-18:10; Invited

Prerequisites of human stress states diagnostics with the use of THz radiation

E.E. Berlovskaya ¹, A.S. Sinko ¹, I.A. Ozheredov ¹, T.V. Adamovich ¹, E.S. Isaychev ¹, S.A. Isaychev ¹, O.P. Cherkasova ², A.M. Makurenkov ¹, A.M. Chernorizov ¹, A.P. Shkurinov ^{1,3}; 1 - Lomonosov Moscow State Univ., 2 - Inst. of Laser Physics SB RAS, 3- Crystallography and Photonics Federal Research Center RAS, Russia

ThSMC-37

Thursday, June 07, 2018; 18:10-18:25;

Laser Correlation Spectroscopy for Immune Testing

E.K. Nepomnyashchaya ¹, E.N. Velichko ¹, E.T. Aksenov ¹, T.A. Bogomaz ¹; 1 - Higher school of applied physics and space technologies, Institute of Physics, Nanotechnology and Telecommunications, Peter the Great Saint-Petersburg Polytechnic University, Saint-Petersburg, Russia

ThSMC-38

Thursday, June 07, 2018; 18:25-18:40;

New technology based on femtosecond optical lithography for fabrication of nanowire devices.

M.A.Tarkhov ^{1,2}, N.V. Minaev ¹, B.S.Shavkuta ¹, A.M. Mumlyakov ², A.V. Terentyev ², Y.V. Anufriev ², E.V. Zenova ², and V. N. Bagratashvili ¹; 1- Inst. of Photonic Technologies, FSRC, 'Crystallography and Photonics' RAS, 2- Inst. of Nanotechnology and Microelectronics RAS, Russia

ThSMC-39

Thursday, June 07, 2018; 18:40-18:55;

Designing a Capacitive Immunosensor for Detection of Hepatitis B Surface Antigen

E. Alipour ¹, H. Ghourchian ^{1,2}, S.L. Znoyko ³, P.I. Nikitin ^{3,4}; 1 - Univ. of Tehran, 2 - NBIC Research Center, Univ. of Tehran, Iran; 3 - Prokhorov General Physics Inst. RAS, 4 - National Research Nuclear Univ. MEPhI, Russia

ThSMC-40

Thursday, June 07, 2018; 18:55-19:10;

Smart Biolayers on Solid Phase: Rational Design and Investigation by Spectral-Phase Interferometry

A.V. Pushkarev ^{1,2}, E.N. Mochalova ^{1,2}, S.L. Znoyko ², M.P. Nikitin ¹, A.V. Orlov ^{1,2}; 1 - Moscow Inst. of Physics and Technology (State University), 2 - Prokhorov General Physics Inst. RAS, Russia

ThSMC-41

Thursday, June 07, 2018; 19:10-19:25;

Novel wearable VCSEL-based blood perfusion sensor

E. Zherebtsov ¹, S. Sokolovsky ¹, V. Sidorov ², I. Rafailov ⁴, A. Dunaev ³, E.U. Rafailov ¹; 1 - Aston Univ., UK; 2 - SPE "LAZMA" Ltd., Russia; 3- Orel State Univ., Russia; 4 - Aston Medical Technology Ltd., UK

ThSMC-p01

Thursday, June 07, 2018; 15:00-19:00; Poster

The tissue optical properties impact on measurement of luminescent particles temperature

E.A. Sagaydachnaya ¹, V.I. Kochubey ^{1,2}; 1- Saratov National Research State Univ., 2- National Research Tomsk State Univ., Russia

ThSMC-p02

Thursday, June 07, 2018; 15:00-19:00; Poster

Time-Resolved Multiple-Probe Infrared Spectroscopy Studies of Carbon Monoxide Migration through Internal Cavities in Hemoglobin

S.V. Lepeshkevich 1, I.V. Sazanovich 2, M.V. Parkhats 1, S.N. Gilevich 3, B.M. Dzhagarov 1; 1- Stepanov Inst. of Physics NASB, Belarus; 2 - STFC Rutherford Appleton Lab., UK; 3 - Inst. of Bioorganic Chemistry NASB, Belarus

ThSMC-p03

Thursday, June 07, 2018; 15:00-19:00; Poster

Cd-free quantum dots for application as biolabels

A.S. Novikova, I.Yu. Goryacheva; Saratov State Univ., Russia

ThSMC-p04

Thursday, June 07, 2018; 15:00-19:00; Poster

Detection of Autoimmune Disease Markers by Optical Label-Free Immunosensors

V.A. Bragina 1, N.V. Guteneva 1,2, S.L. Znoyko 1, B.G. Gorshkov 1, A.V. Orlov 1,2; 1 - Prokhorov General Physics Inst. RAS, 2 - Moscow Inst. of Physics and Technology (State University), Russia

ThSMC-p05

Thursday, June 07, 2018; 15:00-19:00; Poster

Intelligent Nanoparticle-Based Agents for Biomedical Applications: Rapid Design Using a Lateral Flow Assay

E.N. Mochalova 1,2, A.V. Pushkarev 1,2, P.I. Nikitin 2,3, M.P. Nikitin 1; 1 - Moscow Inst. of Physics and Technology (State University), 2 - Prokhorov General Physics Inst. RAS, 3 - National Research Nuclear Univ. "MEPhI", Russia

ThSMC-p06

Thursday, June 07, 2018; 15:00-19:00; Poster

Optical properties of tableted samples containing iron oxides in THz region of spectrum

A.O. Georgieva 1, M.V. Afonin 2, N.S. Balbekin 1, G.Z. Gareev 3, K.G. Gareev 4, A.N. Gorshkov 5, D.V. Korolev 6, V.V. Luchinin 4, O.A. Smolyanskaya 1; 1- ITMO Univ., 2- St. Petersburg State Inst. of Technology, 3- Scientific and Research Center for Security of Technical Systems, 4-St. Petersburg Electrotechnical Univ. "LETI", 5- Research Inst. of Influenza, 6- Almazov National Medical Research Centre, Russia

ThSMC-p07

Thursday, June 07, 2018; 15:00-19:00; Poster

Nanocomplexes For in situ Detection of Small Molecules With Switchable Optical Properties

A.V. Babenyshev 1, K.G. Shevchenko 1, A.A. Tregubov 1, I.L. Nikitina 2, V.R. Cherkasov 1; 1- Moscow Inst. of Physics and Technology (State Univ.), 2- Prokhorov General Physics Inst. RAS, Russia

ThSMC-p08

Thursday, June 07, 2018; 15:00-19:00; Poster

Raman sensor with isotopic resolution for medical applications

Y. Chubchenko 1,2, L. Konopelko 1,2, V. Elizarov 1, A. Grishkanich 1,3,4,5, A. Zhevlakov 1, V Tishkov 4, E. Kolmakov 5; 1 - ITMO Univ., 2- Mendeleyev Inst. for Metrology (VNIIM), 3 - St. Petersburg State Electrotechnical Univ., 4 - Khlopin Radium Inst., 5 - LLC Lasertrack, Russia

ThSMC-p09

Thursday, June 07, 2018; 15:00-19:00; Poster

Experimental investigation of the properties of pharmaceutical aerosols with laser-based optical measurement techniques

Sz. Kugler, A. Kerekes, A. Nagy, A. Czitrovsky; Wigner Research Centre for Physics of the H.A.S., Budapest, Hungary

ThSMC-p10

Thursday, June 07, 2018; 15:00-19:00; Poster

QDs-cysteine luminescence kinetics: comparative analysis on live and fixed cells

I.K. Litvinov 1,2, T.N. Belyaeva 1, A.S. Bazhenova 2, E.A. Leontieva 1, A.O. Orlova 2, E.S. Kornilova 1,2,3; 1 - Inst. of Cytology RAS, 2 - ITMO Univ., 3 - Peter the Great St. Petersburg Polytechnic Univ., Russia

ThSMC-p11

Thursday, June 07, 2018; 15:00-19:00; Poster

Modified Liposomes as Optical Probes, Magnetic Labels, and Drug Carriers

A.V. Lunin 1, A.V. Vasilyeva 1, B.G. Gorshkov 2, I.L. Sokolov 1,2, V.R. Cherkasov 1; 1 - Moscow Inst. of Physics and Technology (State Univ.), 2 - Prokhorov General Physics Inst. RAS, Russia

ThSMC-p12

Thursday, June 07, 2018; 15:00-19:00; Poster

Particularity Of Poly lactide Modification By Ethylene Glycol Monomethyl Ether In Medium Of Superfluid Carbon Dioxide

O.O. Vasilieva 1,2, N.N. Glagolev 2, N.V. Minaev 3, V.T. Shashkova 2, I. A. Matveeva 2, P.S. Timashov 3, A.B Solovieva 2; 1- Moscow Inst. of Physics and Technology, 2- Semenov Inst. of Chemical Physics RAS, 3- Inst. of Laser and Information Technologies, Russia

ThSMC-p13

Thursday, June 07, 2018; 15:00-19:00; Poster

Synthesis of Luminescent Magnetic Nanoparticles with Controllable Surface Properties

I.V. Zelepukin 1,2,3, V.O. Shipunova 1,2,3, A.B. Mirkasymov 1,2, P.I. Nikitin 3,4, M.P. Nikitin 1,2,4, S.M. Deyev 1,3; 1 - Shemyakin-Ovchinnikov Inst. of Bioorganic Chemistry RAS, 2 - Moscow Inst. of Physics and Technology (State Univ.), 3- National Research Nuclear Univ. MEPhI, 4 - Prokhorov General Physics Inst. RAS, Russia

ThSMC-p14

Thursday, June 07, 2018; 15:00-19:00; Poster

Detection of morphological changes in cisplatin-treated ovarian cancer cells by digital holographic microscopy

A.A. Zhikhoreva 1,2, A.V. Belashov 1, V.G. Bepalov 2,3, V.A. Romanov 2,3, A.L. Semenov 3, N.T. Zhilinskaya 3,4, I.V. Semenova 1, O.S. Vasyutinskii 1; 1- Ioffe Inst., 2- ITMO Univ., 3- Petrov National Medical Research Center of Oncology, 4- Peter the Great St. Petersburg Polytechnic Univ., Russia

ThSMC-p15

Thursday, June 07, 2018; 15:00-19:00; Poster

Real-Time Optical Methods for Development of Nanoparticle-Based Biosensors for Detection of Hepatitis B Surface Antigen

S.L. Znoyko 1, V.A. Bragina 1, E. Alipour 2, H. Ghourchian 2, P.I. Nikitin 1,3; 1 - Prokhorov General Physics Inst. RAS, Russia; 2 - Univ. of Tehran, Iran; 3 - National Research Nuclear Univ. MEPhI, Russia.

ThSMC-p16

Thursday, June 07, 2018; 15:00-19:00; Poster

Investigation by the DLS method of sizes of components aggregates in laser-solders during heated

D.I. Ryabkin1, B.A. Kvasnov1, A.Yu.Gerasimenko1, A.V. Kuksin1, V.M. Podgaetsky1; 1 - Affiliation, Russia

ThSMC-p17

Thursday, June 07, 2018; 15:00-19:00; Poster

Flavin-mononucleotide-doped jelly-like gelatin as a fully biological optical material for holography and biophotonics applications

V.M.Katarkevich, T.Sh.Efendiev; Stepanov Inst. of Physics, NAS, Belarus

5th International A.M. Prokhorov Symposium on Lasers in Medicine and Biophotonics. Section D. Photodynamic processes in biology and medicine

ThSMD-01

Thursday, June 07, 2018; 09:00-09:20; Invited

Photochemical activity and luminescence of dissolved oxygen molecules upon direct laser excitation under ambient conditions. A review of currently available results

A.A. Krasnovsky; Bach Inst. of Biochemistry RAS, Russia

ThSMD-02

Thursday, June 07, 2018; 09:20-09:40; Invited

Targeted photodynamic therapy as potential treatment modality for cancer and cancer stem cells

H. Abrahamse, N. Hodgkinson, and C. Kruger; Univ. of Johannesburg, South Africa

ThSMD-03

Thursday, June 07, 2018; 09:40-10:00; Invited

Therapeutic efficacy gains for rigorous treatment planning in Photodynamic Therapy

L. Lilge; University Health Network, Canada

ThSMD-04

Thursday, June 07, 2018; 10:00-10:20; Invited

Experimental and clinical application of near-infrared fluorescence diagnostics and photodynamic therapy

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

ThSMD-05

Thursday, June 07, 2018; 10:20-10:40; Invited

Photodynamic therapy (PDT) in combined treatment of malignant tumours

M.L. Gelfond, E.V. Levchenko, A.S. Barchuk, G.I. Gafton, V.V. Anisimov, I.A. Baldueva, O.YU. Mamontov, Yu.V. Semiletova, T.L. Nekhaeva, M.Yu. Myasnyankin; National Medical Research Center of Oncology, Russia

ThSMD-06

Thursday, June 07, 2018; 10:40-11:00; Invited

Cellular Reactions of Organic Nanoparticles During PDT

R.W. Steiner 1,4, C. Scaffi-Happ 1, Z. Zhu 1, A. Wiehe 2, A. Ryabova 3,4, V. Loschenov 3,4, R. Wittig 1; 1- Univ. Ulm, 2- Biolitec Research GmbH, Germany; 3- Natural Science Center of Prokhorov General Physics Inst. RAS, 4- National Research Nuclear Univ. MEPhI, Russia

ThSMD-07

Thursday, June 07, 2018; 11:30-11:50; Invited

A unique DDS for cancer chemotherapy with nanodiamond as drug carrier

E. Osawa 1, D. Ho 2, E. Chou 3, A. Zarrinpar 4, H. Huang 5; 1- NanoCarbon Res. Inst., Japan; 2- Dept. Bioeng. UCLA, USA; 3- National Singapore Univ., Singapore; 4- Dept. Surgery, UCLA, USA; 5- Shanghai Inst. Eng., China

ThSMD-08

Thursday, June 07, 2018; 11:50-12:10; Invited

Nanoparticle-based mTHPC delivery in the photodynamic therapy of cancer

L. Bezdetnaya; Lorraine Univ., Inst. de Cancérologie de Lorraine, France

ThSMD-09

Thursday, June 07, 2018; 12:10-12:30; Invited

Biomedical Image Processing with thin films of Bacteriorhodopsin for Breast

D.V.G.L.N. Rao; Univ. of Massachusetts Boston, USA

ThSMD-10

Thursday, June 07, 2018; 12:30-12:45;

Effects of photodynamic treatment on mesenteric microvessels

T. G. Grishacheva 1,2, I. A. Mikhailova 1, A.I. Krivchenko 3, N. N. Petrishchev 1,2; 1 - Pavlov First St-Petersburg State Medical Univ.; 2 - North-West Federal Medical Research Centre; 3 - Sechenov Inst. of Evolutionary Physiology and Biochemistry RAS, Russia

ThSMD-11

Thursday, June 07, 2018; 12:45-13:00;

Luminescence properties of novel Phosphorus(V) porphyrin photosensitizers in solutions

I.V.Semenova 1, V.P.Belik 1, D.M.Beltukova 1, I.N. Meshkov 2, Yu.G. Gorbunova 2,3, O.S.Vasyutinskii 1; 1- Ioffe Inst. 2- Frumkin Inst. of Physical Chemistry and Electrochemistry RAS; 3- Kurnakov Inst. of General and Inorganic Chemistry RAS, Russia

ThSMD-12

Thursday, June 07, 2018; 13:00-13:15;

Studies of photophysical characteristics and in vitro photocytotoxicity of photosensitizer Dimegin

A.V. Dadeko 1, L. Lilge 2, P.Kaspler 2, I.M. Belousova 1, T.D. Murav'eva 1, A.M. Starodubtcev 1, G.V. Ponomarev 3; 1- Vavilov State Optical Inst., Russia; 2- Princess Margaret Cancer Centre, University Health Network and Department of Medical Biophysics University of Toronto, Canada; 3- Inst. of Biomedical Chemistry, Russia

ThSMD-13

Thursday, June 07, 2018; 13:15-13:30;

Photosensitized properties of tetraphenylporphyrins immobilized on calcium alginate aerogels in the photooxidation process

A.B.Solovieva 1, N.A.Aksenova 1, M.A.Savko 1, N.V.Menshutina 2, S.F.Timashev 1; 1- Semenov Inst. of Chemical Physics, 2- Mendeleev Univ. of Chemical Technology, Russia

ThSMD-14

Thursday, June 07, 2018; 15:00-15:20; Invited

Time-resolved spectroscopy and data mining techniques

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

ThSMD-15

Thursday, June 07, 2018; 15:20-15:40; Invited

Multiphoton femtosecond laser spectroscopy of anisotropic molecular probes

O.S. Vasyutinskii; Ioffe Inst., Russia

ThSMD-16

Thursday, June 07, 2018; 15:40-16:00; Invited

Structural peculiarities of shungite nanocarbon hybrids in dispersions and films

N.N. Rozhkova1, A.S. Goryunov2, A.G. Borisova2, A.O. Kucherik3, S.S. Rozhkov; 1- Inst. of Geology Karelian Research Center RAS, 2 - Inst. of Biology Karelian Research Center RAS, 2 -Vladimir State Univ., Russia

ThSMD-17

Thursday, June 07, 2018; 16:00-16:15;

Comparitive accumulation study of chlorin group photosensitizers on monolayer and multicellular tumor spheroids of cell culture.

D.S. Farrakhova 1,2, I.V. Yakavets 3,4,5, V.B. Loschenov 1,2, L.N. Bolotina 4,5, V.P. Zorin 3,6; 1-National Research Nuclear Univ. «MEPhI», 2- Prokhorov General Physics Inst. RAS, Russia; 3- Belarusian State Univ., Belarus; 4- Univ. de Lorraine, France; 5- Inst. de Cancérologie de Lorraine, France; 6-Belarusian State Univ., Belarus

ThSMD-18

Thursday, June 07, 2018; 16:15-16:30;

Thin photocatalytic and bactericidal coatings based on carbon or metal oxide nanoparticles

S.K. Evstropiev 1, A.V. Karavaeva 2, K.V. Dukelskii 1,3, K.S. Evstropiev 1, E.V. Kolobkova 1, I.M. Belousova 4, V.M. Kiselev 4, N.V. Nikonorov 1; 1- ITMO Univ., 2- St. Petersburg State Chemical-Pharmacy Academy, 3- Bonch-Bruевич State Univ. of Telecommunications, 4- Vavilov State Optical Inst., Russia

ThSMD-19

Thursday, June 07, 2018; 16:30-16:45;

The sulphoadducts of the carbon clusters (Ugleron) with the virulicid ability against AIDS, & lasers & microwaves irradiation ability to be a means for the hyper heat therapeutics

A.N. Ponomarev; St. Petersburg Polytechnical Univ., Russia

ThSMD-20

Thursday, June 07, 2018; 16:45-17:00;

Laser structuring protein biostructures with carbon nano frame for bone & cartilage cells proloferation

A. Yu. Gerasimenko 1, O.E. Glukhova 2, M.M. Slipchenkov 2, V.M. Podgaetsky 1; 1 - National Research Univ. of Electronic Technology, 2 - Saratov State Univ., Russia

ThSMD-21

Thursday, June 07, 2018; 17:30-17:45;

Investigations of Layers of Composite Nanomaterials Upon Exposure Laser Radiation

L.P. Ickitidze 1, A. Yu. Gerasimenko 1, V.M. Podgaetsky 1, S.V. Selishchev 1, A.A. Dudin 2, A.A. Pavlov 2; 1- National Research Univ. of Electronic Technology, 2- Inst. of Nanotechnology of Microelectronics RAS, Russia

ThSMD-22

Thursday, June 07, 2018; 17:45-18:00;

Study of new infrared photosensitizers for photodynamic inactivation of pathogenic bacteria based on synthetic bacteriochlorin derivatives

E.V. Akhlyustina 2, G.A. Meerovich 1,2, I.G. Tiganova 3, E.A. Makarova4, N.V. Alekseeva 3, N.I. Philipova 3, E.A. Lukyanets 4, Yu.M. Romanova 3, V.B. Loschenov 1,2; 1- Prokhorov General Physics Inst. RAS, 2- National Research Nuclear Univ. "MEPhI", 3- Gamaleya Research Inst. of Epidemiology and Microbiology, 4- Organic Intermediates and Dyes Institute, Russia

ThSMD-23

Thursday, June 07, 2018; 18:00-18:15;

Controlled Chemical Modification of Biomolecules by Femtosecond Laser in Polar Liquids

V. Gruzdev 1, D. Korkin 2, B.P. Mooney 3,4,7, J.F. Havelund 5,6, I.M. Møller 5, J.J. Thelen 4, 7; 1- Univ. of Missouri; 2- Worcester Polytechnic Inst.; 3,4- Univ. of Missouri, USA; 5- Aarhus Univ., 6- Univ. of Southern Denmark, Denmark; 7- Univ. of Missouri, USA

ThSMD-24

Thursday, June 07, 2018; 18:15-18:30;

Laser fiber optic equipment for embedding video photodynamic diagnostic and therapy control features into standard surgical instruments

M.V. Loshchenov1, T.A. Savelieva1, D.A. Golbin2, K.G. Linkov1, V.B. Loschenov1; 1 - Prokhorov General Physics Institute, Russian Academy of Sciences, Moscow, Russia; 2 - Federal State Autonomous Institution «N .N. Burdenko National Scientific and Practical Center for Neurosurgery» of the Ministry of Healthcare of the Russian Federation, Moscow, Russia

ThSMD-25

Thursday, June 07, 2018; 18:30-18:45;

All optical detection for Photo-acoustic imaging

Wan-Ing Lin, M. Pollard, and M. Lassen; Danish Fundamental Metrology, Denmark

ThSMD-26

Thursday, June 07, 2018; 18:45-19:00;

Laser-assisted pore formation in tissues

O.I. Baum; Institute Photonic Technologies of Federal Scientific Research Centre "Crystallography and Photonics" of RAS, Russia

ThSMD-27

Thursday, June 07, 2018; 19:00-19:15;

Method of laser-induced fluorescent diagnostics of enamel microcracks using aluminum phthalocyanine nanoparticles

J.O. Zolotareva (Kuznetsova) 1, V.B. Loschenov 1,2; 1- National Research Nuclear Univ. MEPhI, 2- Prokhorov General Physics Inst. RAS, Russia

ThSMD-p01

Thursday, June 07, 2018; 15:00-19:00; Poster

Albumin-containing solutions equalize quantum yields of porphyrinic photosensitizers

I.M. Belousova 1, T.D. Muraviova 1, T.K. Krisko 1, E.V. Kriukova 2; 1 Vavilov State Optical Inst.; 2 ITMO Univ., Russia

ThSMD-p02

Thursday, June 07, 2018; 15:00-19:00; Poster

Absorption of dark red laser light by oxygen molecules in organic media. Results of photochemical and luminescence

measurements

A.S. Benditkis, A.S. Kozlov, S.E. Goncharov, A.A. Krasnovsky Jr; Federal Center for Biotechnology, Bach Inst. of Biochemistry RAS, Russia

ThSMD-p03

Thursday, June 07, 2018; 15:00-19:00; Poster

Generation of singlet oxygen by chlorophyll and related pigments in aqueous systems: results of photochemical and luminescence studies

A.S. Kozlov, A.A. Krasnovsky Jr; Research Center of Biotechnology RAS, Russia

ThSMD-p04

Thursday, June 07, 2018; 15:00-19:00; Poster

Vibrational spectroscopy of tissue-engineered structures based on chitosan and carbon nanotubes

Yu.O. Fedorova, A.A. Polokhin, D.T. Murashko, M.S. Savelyev, A.Yu. Gerasimenko; National Research Univ. of Electronic Technology, Russia

ThSMD-p05

Thursday, June 07, 2018; 15:00-19:00; Poster

Laser radiation influence to conductivity of the nanocomposite based on carbon nanotubes in the organic matrix

A.A. Polokhin, A.Yu. Gerasimenko, P.Yu. Privalova, L.P. Ichkitidze, A.P. Orlov, A.A. Pavlov; National Research Univ. of Electronic Technology, Russia

ThSMD-p06

Thursday, June 07, 2018; 15:00-19:00; Poster

Photosensitized Singlet Oxygen Production and Photophysical Properties of Cationic Porphyrin - Transferrin Complexes

M.V. Parkhats 1, S.V. Lepeshkevich 1, A.G. Gyulkhandanyan 2, A.A. Zakoyan 2, G.V. Gyulkhandanyan 2, B.M. Dzhagarov 1; 1 - Inst. of Physics, NASB, Belarus; 2 - Inst. of Biochemistry, NAS, Armenia

ThSMD-p07

Saturday, July 07, 2018; 15:00-19:00; Poster

Optimization of selective photodestruction by laser radiation of the yellow-green range of capillary angiodysplasia of the skin

A.A. Sirotkin 1, G.P. Kuzmin 1, N.E. Gorbatova 2,3, T.E. Yushina 2, A.G. Dorofeev 2, A.V. Brynsev 2, S.A. Zolotov 2, O.V. Tikhonovich 1, D.S. Drozdov 4; 1- Prokhorov General Physics Inst. RAS, 2-Clinical and Research Inst. of Emergency Pediatric Surgery and Trauma, 3- Federal State Autonomous Institution "National Medical Research Center of Children's Health", 4- Moscow Inst. of Physics and Technology (State Univ.), Russia

ThSMD-p08

Thursday, June 07, 2018; 15:00-19:00; Poster

Enhancement of the thermal effect from the NIR laser radiation on bio-tissue using nanosized dielectric particles doped with Yb³⁺

S.A. Khrushchalina, A.N. Belyaev, O.S. Bushukina, M.A. Dvoryanchikova, O.A. Kuznetsova, P.A. Ryabochkina, I.A. Yurlov; Ogarev Mordovia State Univ., Russia

ThSMD-p09

Thursday, June 07, 2018; 15:00-19:00; Poster

Photothermal effect of nanoparticles in biological tissues under laser irradiation

E. M. Kasianenko 1, A. I. Omelchenko 1, P. Y. Gulyaev 2; 1- Federal Scientific Research Centre "Crystallography and Photonics" RAS, 2 - Ugra State Univ., Russia

ThSMD-p10

Thursday, June 07, 2018; 15:00-19:00; Poster

Photosensitizing Effect of Curcumin on Bacterial Cells and Animal Cells in Culture

A.V. Mikulich 1, L.G. Plavskaya 1, A.I. Tretyakova 1, I.A. Leusenka 1, T.S. Ananich 1, V.Yu. Plavskii 1, O.A. Kazyuchits 2, I.I. Dobysh 2, E.S. Nikolaevich 2; 1 - Stepanov Inst. of Physics NASB, 2- RMUE «Academpharm», Belarus

ThSMD-p11

Thursday, June 07, 2018; 15:00-19:00; Poster

Characterisation of biological smoke generated by short pulse lasers

Attila Nagy, Miklós Veres, Aladár Czitrovszky; Wigner Research Centre for Physics of the H.A.S., Hungary

ThSMD-p12

Thursday, June 07, 2018; 15:00-19:00; Poster

Laser spectroscopy investigations of dark and photoinduced oxidation transformations of tetrahydrobiopterin cofermments, a potential factors of melanogenesis disorder

A.S. Nizamutdinov 1, I.I. Farukhsin 1, T. A. Telegina 1,2, Yu.L. Vechtomova 1,2, E.E. Orlova 1, E.V. Lukinova 1, E.I. Madirov 1, V.V. Semashko 1; 1 - Kazan Federal Univ., 2- Bach Inst. of Biochemistry, Russia

ThSMD-p13

Thursday, June 07, 2018; 15:00-19:00; Poster

Photodamage of Cells Sensitized With Bilirubin upon Exposure to Laser and LED Sources

T.S. Ananich1, V.M. Katarkevich1, V.V. Keropyan2, V.N. Knyukshto1, I.A. Leusenka1, P.A. Mazmanyany2, G.G. Margaryan3, A.V. Mikulich1, L.G. Plavskaya1, V.Yu. Plavskii1, A.N. Sobchuk1, A.I. Tretyakova1; 1 - B.I. Stepanov Institute of Physics, National Academy of Sciences of Belarus, Minsk, Belarus; 2 - 2Scientific Research Center of Maternal and Child Health Protection, Yerevan, Armenia; 3 - Muratsan Hospital Complex, Yerevan, Armenia

ThSMD-p14

Thursday, June 07, 2018; 15:00-19:00; Poster

Iron oxide nanoparticles conjugated with Zn phthalocyanine for photoinduced anticancer immune response

A.V. Ryabova 1, E.A. Luk'yanets 2, A.I. Klimov 3, D.V. Pominova 1, V.I. Makarov 1, I.D. Romanishkin 1, I. Herrmann 4, R. Steiner 5,6, V.B. Loschenov 1,6; 1- Prokhorov General Physics Inst. RAS, 2- State Scientific Center "Institute of Organic Intermediates and Dyes", 3- Lomonosov Moscow State Univ., Russia; 4- Swiss Federal Laboratories for Materials Science and Technology (Empa), Switzerland; 5- Inst. für Lasertechnologien in der Medizin und Meßtechnik, Germany; 6- National Research Nuclear Univ. MEPhI, Russia

ThSMD-p15

Thursday, June 07, 2018; 15:00-19:00; Poster

Study of the toxicity of the highly specific substrate of luciferase NanoLuc for the development of deep tissue photodynamic therapy methods

V.O. Shipunova 1,2,3, P.A. Kotelnikova 2,3, O.N. Shilova 2, E.I. Shramova 2, P.I. Nikitin 1,4, M.P. Nikitin 2,3,4, S.M. Deyev 1,2, G.M. Proshkina 2; 1 - National Research Nuclear University MEPhI, Moscow, Russia; 2 - Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry RAS, IBCH RAS, Moscow, Russia; 3 - Moscow Institute of Physics and Technology (State University), MIPT, Dolgoprudny, Russia; 4 - Prokhorov General Physics Institute RAS, GPI RAS, Moscow, Russia.