PROGRAM
of ALT`23
The 30th International Conference on Advanced Laser Technologies

September 18-21, 2023
SAMARA, RUSSIA

PROGRAM BOOK

ALT`23

The 30th International Conference on Advanced Laser Technologies

September 18-21, 2023 / Samara, Russia

Organizers and Sponsors

A.M. Prokhorov General Physics Institute of the Russian Academy of Sciences (GPI RAS)

Samara National Research University

Department of Physical Sciences of the Russian Academy of Sciences

Institute of Spectroscopy of the Russian Academy of Sciences (ISAN)

Center of Laser Technology and Material Science

Lomonosov Moscow State University

National Research Nuclear University MEPhI (Moscow Engineering Physics Institute)

FRC "Crystallography and Photonics" of the Russian Academic of Science

Physics of Wave Phenomena journal

LLC "Polarus"

Quanttelecom LLC

Volga document LLC

- **Conference Chairman :** Ivan SHCHERBAKOV (Russia)
- **Program Committee Chair** : Vitaly KONOV (Russia)

  Victor SOIFER (Russia)
- **Organizing Committee Chair** : Vladimir PUSTOVOY (Russia)

  Vladimir PAVELYEV (Russia)

- **International Program Committee** :

Mukhsin ASHUROV (Republic of Uzbekistan)
Ekaterina BARMINA (Russia)
Elena BIBIKOVA (Russia)
Aladar CZITROVSKY (Hungary)
Boris DENKER (Russia)
Sergey GARNOV (Russia)
Mikhail GLYAVIN (Russia)
Leonid GOLOVAN (Russia)
Pavel KASHKAROV (Russia)
Nikolay KAZANSKIY (Russia)
Sergey KLIMENTOV (Russia)
Victor KOTLYAR (Russia)
Yuri KULCHIN (Russia)
Mahesh KUMAR (India)
Sandeep KUMAR (India)
Vladimir MAKAROV (Russia)
Tofig MAMMADOV (Republic of Azerbaijan)
Ashok Kumar MISHRA (India)
Beat NEUENSCHWANDER (Switzerland)
Kyung Hyun PARK (Korea)
Alexander PRIEZZHEV (Russia)
Alexander SHKURINOV (Russia)
Nishant TRIPATHI (Russia)
Valery TUCHIN (Russia)
Vadim VEIKO (Russia)
Igor VLASOV (Russia)
Victor ZADKOV (Russia)
Irina ZAVESTOVSKAYA (Russia)
Dan ZHU (China)

- **Organizing Committee**

Natalia KHAKAMOVA (Russia)
Anton SIZIKOV (Russia)
Daria SHISHKINA (Russia)
Irina KOZLOVA (Russia)

Plenary Speakers

Prof. Vladimir Pavelyev

Samara University, Samara, Russia

Title: Control of characteristics of high-power terahertz laser beams by methods of diffractive optics

Abstract

Technologies for silicon and diamond transmissive diffractive microoptics have been developed [1-6]. Silicon and diamond diffractive optical elements (DOE) for focusing terahertz laser beam [1-3] as well for formation of terahertz laser beam with predetermined mode composition [4] and polarization state [5] have been manufactured and experimentally investigated. Developed technologies are based on lithographic etching [1,4,5] and laser ablation [2,3]. The experiments were carried out at a wavelength of 130-150 μm using the Novosibirsk Free Electron Laser [6].

The generation of power terahertz beams with pre-given characteristics paves the way for the development of new applications. In [7] it was shown that the diffraction of a generated Bessel beam [4] by a periodic two-dimensional grating in the Talbot planes results in the formation of periodic gratings of annular microbeams. Another application was demonstrated in [8], where beams with orbital angular momentum generated by the DOEs described in [4] were used to excite vortex surface plasmon polaritons propagating along a cylindrical conductor for a distance of up to 150 mm.

In this talk, the fabrication of photonic elements for far terahertz and millimeter ranges is considered. Perspectives of 3D printing application [9] for the fabrication of photonic crystals in terahertz and millimeter ranges are considered. Besides, technologies for reflective terahertz free-form optics fabrication are considered [10].

The experiments were carried out at the Novosibirsk Free Electron Laser Facility, which is part of "the Siberian Synchrotron and Terahertz Radiation Center"..

Prof. Igor Nabiev

University of Reims Champagne-Ardenne, Reims, France

National Research Nuclear University MEPHI, Moscow, Russia

Title: Nanophotonic detection of tumor markers and micrometastases with conjugates of single-domaine antibodies and quantum dots

Abstract

To improve cancer prognosis, early detection of the disease is one of the main purposes in diagnostic approaches. In this regard, the rapidly progressing field of nanotechnology is considered a powerful tool in cancer diagnostic and therapeutic applications. The use of nanophotonic materials brings an improvement of signal-to-noise ratios in detection and greater penetration depths for the treatment of deep-seated tumours [1-3]. Quantum dots (QDs) with broad absorption spectra and narrow emission bands are the excellent nanophotonic labels for FRET applications. They have a quantum yield close to 100%; high single- and two-photon molar extinction coefficients, and photoresistance. To ensure cell specificity, QDs are normally bound to recognition molecules, such as antibodies, aptamers or peptides. Single-domain antibodies (sd-Abs) are the smallest antibody fragments capable of binding their antigens, they diffuse much better into tissues than full-size Abs. Because of these advantages, we have conjugated QDs to sd-Abs in a highly oriented fashion, with all antigen binding sites facing outwards, which considerably increases the nanoprobe sensitivity and possible therapeutic use in oncology and demonstrated their advantages in cancer cell imaging and the micrometastases detection [3].

The possibility of increasing the Forster resonance energy transfer (FRET) efficiency is emerging in sensing and diagnostics. Light–matter coupling in microcavities leads to the formation of two new "hybrid" light–matter (polaritonic) states, instead of the two original molecular and electromagnetic field energy states. A strong coupling between light and matter can be controlled by fine tuning the electromagnetic modes of the microresonator; it has been also demonstrated that strong coupling can modulate both distance and efficiency of FRET [4].

We have developed an adjustable unstable λ/2 Fabry-Perot microresonator with a convex metal mirror [5] satisfying the flat-parallelism conditions at least at one point of the convex mirror and minimises the adjustable mode volume of the confined electromagnetic field with the nm-accuracy.

The strong light-matter coupling between the optical modes of a tuneable microcavity and the excitonic transitions of two closely located donor and acceptor molecules have shown that the energy states and relaxation pathways of the systems with strong dipole–dipole interaction can be altered by strong coupling of their exciton transitions to the cavity photon [6]:

(1) We have demonstrated a significant increase in the efficiency of energy transfer from the donor to the acceptor exciton reservoir, which tends to be unity inside the microcavity.

(2) We have shown the polariton-assisted energy state inversion and energy flow alteration thus demonstrating the so-called "carnival effect", where the donor and acceptor reverse their roles.

We speculate that these findings will pave the way to new applications of strong coupling in optically controlled FRET-based sensing and diagnostics with the ultra-small conjugates of sdAbs and QDs.

Prof. Igor Vlasov
Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

Title: Diamond nanothermometer

Abstract

Future progress in studying intracellular thermodynamics needs an instrumentation revolution allowing local control of thermogenesis at micro/nanoscale, control of heat dissipation and heat energy conversion to other electrochemical energy types [1]. Nanodiamonds hosting temperature-sensing centers constitute a closed thermodynamic system. Such a system prevents direct contact of the temperature sensors with the environment making it an ideal environmental insensitive nanosized thermometer. A new design of a diamond nanothermometer, based on a luminescent nanodiamond embedded into the inner channel of a glass submicron pipette is reported [2]. All-optical detection of temperature, based on spectral changes of the emission of "silicon-vacancy" (SiV) centers with temperature, is used.

Further, combining a heater and a thermometer in one unit allows one to implement ultra-local hot spot control inside living cells. For this purpose, we use a single polycrystalline diamond particle containing SiV centers. Due to the presence of amorphous carbon at its intergranular boundaries such a particle is an efficient light absorber and, when illuminated by a laser, becomes a local heat source. Thus, the designed device is capable of operating in two modes. At higher laser power, it operates as the local heater and thermometer simultaneously. At low laser excitation this device does not produce heating and operates solely as a thermometer.

The first examples of successful application of a diamond nanothermometer/nanoheater are presented. In particular:

(1) the possibility of measuring high temperature gradients (up to 20 oC/μm) with submicron spatial resolution is demonstrated [2];

(2) the significant heat release of isolated mouse brain mitochondria (up to 22 oC) during total uncoupling of transmembrane potential is revealed [3];

(3) the local heating of 11-12 °C next to individual HeLa cells and neurons, isolated from the mouse hippocampus, is shown to change the intracellular distribution of the calcium ion concentration [4].

This work was supported by Russian Science Foundation, grant No 23-14-00129 .

Date and Time	September 18 (Monday) / 9:10-9:55
Place	Room 1
Session Title	[P-1] Plenary session 1
Session Chair	Vitaly Konov *(Russia)*

P-1 9:10-9:55

[Plenary] Nanophotonic detection of tumor markers and micrometastases with conjugates of single-domaine antibodies and quantum dots

Igor Nabiev

University of Reims Champagne-Ardenne, Reims, France

Date and Time	September 18 (Monday) / 10:00-11:00
Place	Room 1
Session Title	[LM-1.1] Laser-Matter Interaction 1.1
Session Chairs	Andrei Savel'ev and Irina Zavestovskaya *(Russia)*

LM-I-1 10:00-10:20

[Invited] Laser-induced micro-plasma ablation: recent progress and future prospects

V.P. Veiko

ITMO University, Saint-Petersburg, Russia

LM-I-2 10:20-10:40

[Invited] UVA Laser Diodes Radiation Coronaviruses Inactivation

I. Zavestovskaya

Lebedev Physical Institute of RAS, Moscow, Russia

LM-I-3 10:40-11:00

[Invited] Laser plasma source of powerful unipolar THz pulses

D. Gorlova

Lomonosov Moscow State University, Physics Department, Moscow, Russia

Date and Time	September 18 (Monday) / 11:30-13:00
Place	Room 1
Session Title	[LM-1.2] Laser-Matter Interaction 1.2
Session Chairs	Ekaterina Barmina and Anton Popov *(Russia)*

LM-I-4 11:30-11:50

[Invited] Final surface and subsurface structures formed as a result of laser action

N.A. Inogamov

Landau Institute for Theoretical Physics RAS, Moscow, Russia

LM-I-5 11:50-12:10

[Invited] Photothermal applications of laser-synthesized nanomaterials

A. Popov

National research nuclear University (MEPhI), Moscow, Russia

LM-I-6 12:10-12:30

[Invited] Laser ablation synthesis and assembly of multicomponent nanostructures in liquids

N. Tarasenko

National Academy of Sciences of Belarus, Belarus

LM-O-1 12:30-12:45

Modeling of laser fragmentation of nanoparticles as wave process

E. V. Barmina

A.M. Prokhorov Institute of General Physics of the Russian Academy of Sciences, Moscow, Russia

LM-O-2 12:45-13:00

Laser ablation and fragmentation of nanoparticles in liquid, electrostatic and magnetic fields

K. Khorkov

Vladimir State University, Vladimir, Russia

Date and Time	September 18 (Monday) / 14:30-16:00
Place	Room 1
Session Title	[LM-1.3] Laser-Matter Interaction 1.3
Session Chairs	Fedor Potemkin and Sergey Klimentov (*Russia)*

LM-I-7 14:30-14:50

[Invited] Laser-induced extreme state of matter in silicon: the way to create and to diagnose

F. Potemkin

Lomonosov Moscow State University, Physics Department, Moscow, Russia

LM-I-8 14:50-15:10

[Invited] Light-Matter Coupling in Optical Microcavities

N.A. Toropov

University of Exeter, UK

LM-I-9 15:10-15:30

[Invited] Ultrafast conductivity control in incommensurate crystals

D. Boschetto

I'ENSTA, Paris, France

LM-O-3 15:30-15:45

Advanced optical manipulation with structured laser beams

A. Porfirev

Image Processing Systems Institute of RAS—Branch of the FSRC "Crystallography and Photonics" RAS, Samara, Russia

Date and Time	September 18 (Monday) / 16:30-18:00
Place	Room 1
Session Title	[LM-1.4] Laser-Matter Interaction 1.4
Session Chair	Vadim Veiko (*Russia)*

LM-O-4 16:30-16:45

Structured laser beams for polarization-sensitive laser material processing

S. Khonina

Image Processing Systems Institute of RAS—Branch of the FSRC "Crystallography and Photonics" RAS, Samara, Russia

LM-O-5 16:45-17:00

Femtosecond pulses inscription of fiber Bragg gratings with phase shift by motion velocity modulation

A. Shikin

Kotelnikov Institute of Radioengineering and Electronics of Russian Academy of Sciences, Moscow, Russia

LM-O-6 17:00-17:15

Optical nanosensing enabled by advanced laser technologies

A. Kuchmizhak

Institute of Automation and Control Processes FEB RAS, Vladivostok, Russia

LM-O-7 17:15-17:30

Laser-Induced Processes in Lithium Battery Materials, Studied by Micro-Raman Spectroscopy

D. Pelegov

Ural federal university, Ekaterinburg, Russia

LM-O-8 17:30-17:45

Laser-assisted synthesis of electrode materials

E. Khairullina

St Petersburg University, St Petersburg, Russia

Date and Time	September 18 (Monday) / 10:00-11:00
Place	Room 2
Session Title	[B-1.1] Biomedical Photonics 1.1
Session Chair	Alexander Priezzhev (*Russia*)

B-I-1 10:00-10:20

[Invited] One-shot laser-pulse modification of Au and Au@SiO_2 nanoparticles of various shapes and morphology

N. Khlebtsov

Institute of Biochemistry and Physiology of Plants and Microorganisms and Saratov State Unuiversity, Saratov, Russia

B-I-2 10:20-10:40

[Invited] Bioimaging and photohyperthermia with silicon and silicon-silver nanoparticles produced via laser ablation

S. Zabotnov
Lomonosov Moscow State University, Physics Department, Moscow, Russia

B-I-3 10:40-11:00

[Invited] Visualization of complexes of upconversional nanoparticles with a photosensitizer in biological objects

I.Yu. Yanina
Institute of Physics, Saratov State University, Saratov, Russia

Date and Time	September 18 (Monday) / 11:30-13:00
Place	Room 2
Session Title	[B-1.2] Biomedical Photonics 1.2
Session Chair	Andrei Belikov (*Russia*)

B-I-4 11:30-11:50

[Invited] Artificial Intelligence Multimodal Skin Cancer Diagnostics

V. Zakharov
Samara University, Samara, Russia

B-I-5 11:50-12:10

[Invited] VIS-NIR diffuse reflectance spectroscopy system with self-calibrating fiber-optic probe

I. Turchin
Laboratory of Biophotonics, Institute of Applied Physics RAS, Nizhny Novgorod, Russia

B-I-6 12:10-12:30

[Invited] Time-resolved measurements of singlet oxygen phosphorescence in the solvents lacking hydrogen atoms. Application to studies of compounds of biological importance

A. Krasnovsky Jr., A. Benditkis
FRC of biotechnology RAS, Moscow, Russia

B-I-7 12:30-12:50

[Invited] Optical evaluation of the discriminated diffusion of agents in human normal and pathological kidney tissues

L.M. Oliveira
Polytechnic Institute of Porto – School of Engineering & INESC TEC, Porto, Portugal

B-I-8 12:50-13:10

[Invited] Factors determining the increased sensitivity of cancer cells to the action of laser radiation in the blue region of the spectrum

V. Plavskii
B.I.Stepanov Institute of Physics of the National Academy of Sciences of Belarus, Minsk, Belarus

B-O-1 13:10-13:25

Study of the changes in the scattering properties of white matter under the influence of ionizing radiation

K. Achkasova
Privolzhsky Research Medical University, Nizhny Novgorod, Russia

Date and Time	September 18 (Monday) / 14:30-16:00
Place	Room 2
Session Title	[B-1.3] Biomedical Photonics 1.3
Session Chairs	Stanislav Zabotnov (Russia)

B-I-9 14:30-14:50

[Invited] Physical features of laser multiwave action on biological tissues

A. Belikov, Yu.V. Fedorova, V.Yu. Chuchin
ITMO University, Saint Petersburg, Russia

B-I-10 14:50-15:10

[Invited] Experimental substantiation of the prospects for the use of "blue" laser radiation with λ= 450 nm for the effective removal of congenital giant pigmented nevi

S. Podurar
Moscow, Russia

B-I-11 15:10-15:30

[Invited] Application of optical spectroscopy in minimally invasive surgery

E. Potapova, A. Dunaev
Research & Development Center of Biomedical Photonics, Orel State University, Orel, Russia

B-O-2 15:30-15:45

Feature analysis of OCT images for the diagnosis of brain glioma

P. Aleksandrova
Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

B-O-3 15:45-16:00

Assessment of Endometrial Tissue Morphology by Elastic Properties using Compression Optical Coherence Elastography

A. Plekhanov
Privolzhsky Research Medical University, Nizhny Novgorod, Russia

Date and Time	September 18 (Monday) / 16:30-18:00
Place	Room 2
Session Title	[B-1.4] Biomedical Photonics 1.4
Session Chairs	Nikolai Khlebtsov (Russia)

B-O-4 16:30-16:45

Gold Nanostars with Tunable Optical Properties for Biomedical Applications

V. Khanadeev
IBPPM RAS, Saratov, Russia

B-O-5 16:45-17:00

Treatment of neoplasm using of dielectric nanoparticles doped with Yb3+ ions and non-contact exposure to 970-nm radiation

S. Khrushchalina
National Research Mordovia State University, Saransk, Russia

B-O-6 17:00-17:15

Raman study of biodegradable poly(L-lactide-co-ε-caprolactone) materials

V. Novikov
Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

B-O-7 17:15-17:30

Iron oxide nanoparticles coated with a photosensitizer for phototherapy: experimental study of local intracellular heating

A. Ryabova
Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

B-O-8 17:30-17:45

Formation of composite nanostructures by multiphoton lithography for biomedical applications

D. Murashko
Institute of Biomedical System, National Research University of Electronic Technology MIET, Zelenograd, Russia

B-O-9 17:45-18:00

Hybrids of carbon quantum dots and photoswitchabl phosphonates - peculiarities of optical and biological properties

G. Bikbaeva
Saint-Petersburg State University, St Petersburg, Russia

Date and Time	September 18 (Monday) / 10:00-11:00
Place	Room 3
Session Title	[LS-1.1] Laser Systems and Materials 1.1
Session Chair	Boris Denker *(Russia)*

LS-I-1 10:00-10:20

[Invited] High-power mid-infrared quantum-cascade lasers and detectors

G. Sokolovsky

Ioffe Institute, St Petersburg, Russia

LS-I-2 10:20-10:40

[Invited] Current progress in the investigation of rare earth doped chalcogenide glass lasers

S. Sverchkov, B.I. Denker, B.I. Galagan, V.V. Koltashev, V.G. Plotnichenko, G.E. Snopatin, M.V. Sukhanov, A.P. Velmuzhov

Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

LS-I-3 10:40-11:00

[Invited] Towards the gas-discharge fiber lasers

I. Bufetov, A.V. Gladysev, A.P. Mineev, S.M. Nefedov, V.V. Velmiskin

Dianov Fiber Optics Research Center, Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

Date and Time	September 18 (Monday) / 11:30-13:00
Place	Room 3
Session Title	[LS-1.2] Laser Systems and Materials 1.2
Session Chair	Grigory Sokolovsky (*Russia*)

LS-O-1 11:30-11:45

Xe laser based on hollow-core fiber excited by microwave-discharge

I. Bufetov

Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

LS-I-4 11:45-12:05

[Invited] Laser and sensor systems based on FBG arrays fs-inscribed in passive and active multicore fibers

S.A. Babin, A.A. Wolf, A.E. Kuznetsov, A.V. Dostovalov

Institute of Automation and Electrometry, the Siberian Branch of the RAS, Novosibirsk

LS-I-5 12:05-12:25

[Invited] Mid-infrared supercontinuum generation in hollow-core silica fibers

A. Gladyshev, D.S. Dubrovskii, Yu.P. Yatsenko, I.A. Bufetov

Prokhorov General Physics Institute of the Russian Academy of Sciences, Dianov Fiber Optics Research Center, Moscow, Russia

LS-I-6 12:25-12:45

[Invited] Advances in Bismuth-doped fiber lasers and amplifiers

M. Melkoumov

Dianov Fiber Optics Research Center, Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

LS-O-2 12:45-13:00

Direct laser writing of high retardance structures in nanoporous glass

S. Stopkin

Mendeleev University, Moscow, Russia

LS-O-3 13:00-13:15

Simulation of oblique ray trajectories in an optical fiber with a stepped refractive index profile

D. Ryakhovskii

Kotelnikov Institute of Radio Engineering and Electronics (Fryazino Branch), Russian Academy of Sciences, Fryazino, Russia

Date and Time	September 18 (Monday) / 14:30-16:00
Place	Room 3
Session Title	[LS-1.3] Laser Systems and Materials 1.3
Session Chair	S. Babin *(Russia)*

LS-I-7 14:30-14:50

[Invited] High peak power fiber lasers and its applications

M.E. Likhachev

Dianov Fiber Optics Research Center, Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

LS-I-8 14:50-15:10

[Invited] Dynamics of Generation of Polarization and Longitudinal Modes in Short Cavity Fiber Lasers Based on Composite Ytterbium Fibers

V.A. Kamynin, V.V. Velmiskin, B.I. Denker, S.E. Sverchkov, A.A. Rybaltovsky, A.I. Trikshev, V.B. Tsvetkov

Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

LS-O-4 15:10-15:25

The features of sine operation regime in moderately erbium doped fiber lasers

A.M. Smirnov

Kotelnikov Institute of Radioengineering and Electronics of RAS, Moscow, Russia

LS-O-5 15:25-15:40

Harmonic mode-locking and multi pulse generation of Holmium-doped fiber laser with the ring cavity

S.A. Filatova

Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

LS-O-6 15:40-15:55

Optimization of the length of the cavity of an erbium fiber laser with a sub-GHz repetition rate of ultrashort pulses

A. Zverev

Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

Date and Time	September 18 (Monday) / 16:30-18:15
Place	Room 3
Session Title	[LS-1.4] Laser Systems and Materials 1.4
Session Chair	I. Bufetov (*Russia*)

LS-O-7 16:30-16:45

Resonant loss reduction of high-order modes in all solid band gap fibers

G. Alagashev

Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

LS-I-9 16:45-17:05

[Invited] Characterisation of mid-IR light sources made of RE doped chalcogenide fibers on the base of modal approach

E. Romanova

Saratov State University, Saratov, Russia

LS-O-8 17:05-17:20

High-Purity AVBVI Chalcogenide Glasses as a Material for Mid-IR Fiber Optics

I. Skripachev

Institute of Chemistry of High Purity Substances of the Russian Academy of Sciences, Nizhny Novgorod, Russia

LS-I-10 17:20-17:40

[Invited] Study of local structure and thermal propertiesin Ge-As-Se-Schalcogenide glass fiberoptic materials

R.I. Alekberov, S.I. Mekhtieva, S.M. Mammadov

Institute of Physics , Baku, Republic of Azerbaijan

LS-O-9 17:40-18:00

Nonlinear absorption and refraction study of quaternary barium chalcogenide BaGa2GeSe6 crystal at 1053 nm in nanosecond regime

E. Erushin

Novosibirsk State University, Novosibirsk, Russia

LS-O-10 18:00-18:15

Gyrotrons: impossible is nothing

D. Sobolev

Institute of Applied Physics RAS, Nizhny Novgorod, Russia

Date and Time	September 18 (Monday) / 10:00-11:00
Place	Room 4
Session Title	[LD-1.1] Laser Diagnostics and Spectroscopy 1.1
Session Chair	A.K. Chernyshov (*Russia*)

LD-I-1 10:00-10:20

[Invited] Assessment of Endometrial Tissue Morphology by Elastic Properties using Compression Optical Coherence Elastography

M.S. Khan
JAMIA MILLIA ISLAMIA (CENTRAL UNIVERSITY), New Delhi, India

LD-I-2 10:20-10:40

[Invited] Carrier-envelope phase control of sub-cycle dynamics of ultrashort pulses in anti-resonance hollow core fiber

A. Fedotov
Lomonosov Moscow State University, Physics Department, Moscow, Russia

LD-I-3 10:40-11:00

[Invited] Nonlinear light generation and emission control in nanophotonic structures combined with 2D materials

A. Shorokhov
Lomonosov Moscow State University, Physics Department, Moscow, Russia

Date and Time	September 18 (Monday) / 11:30-13:00
Place	Room 4
Session Title	[LD-1.2] Laser Diagnostics and Spectroscopy 1.2
Session Chairs	M.S. Khan, A.B. Fedotov (*Russia*)

LD-I-4 11:30-11:50

[Invited] Thermal imaging system for methane detection with illumination by a quantum-cascade laser

A. Agafonov, I.Ye. Davydov, V.I. Anisimov, V.S. Pavelyev

Samara University, Samara, Russia

LD-I-5 11:50-12:10

[Invited] Diode-laser spectroscopy of metastable atoms of heavy inert gases in high-frequency discharge plasma

A. Chernyshov, P.A. *Mikheyev*, E.V. Fomin

Samara branch of the Lebedev Physical Institute, Samara, Russia

LD-I-6 12:10-12:30

[Invited] Fast sensitive laser absorption spectroscopy

V. Ochkin, V.V. Lagunov, A.I. Volkova

Lebedev Physical Institute of the Russian Academy of Sciences, Moscow, Russia

LD-O-1 12:30-12:45

Determination of the concentration of metastable atoms of argon in the active medium of an optically pumped rare gas laser using one-dimensional model

A. Yuriev

FSUE "Russian Federal Nuclear Center - VNIIEF", Sarov, Russia

LD-O-2 12:45-13:00

Flexible Infrared Detector

A. Rymzhina

Samara University, Samara, Russia

LD-O-3 13:00-13:15

Laser spectroscopy of carbon nanoparticles in creation of multimodal nanosensors

T. Dolenko

Lomonosov Moscow State University, Physics Department, Moscow, Russia

Date and Time	September 18 (Monday) / 14:30-16:00
Place	Room 4
Session Title	[LD-1.3] Laser Diagnostics and Spectroscopy 1.3
Session Chairs	A. Agafonov, T. Vartanyan (*Russia*)

LD-I-7 14:30-14:50

[Invited] Optical nanosensing enabled by advanced laser technologies

A. Kuchmizhak

Institute of Automation and Control Processes FEB RAS, Vladivostok, Russia

LD-I-8 14:50-15:10

[Invited] Optical anisotropy induced in the thin amorphous films of chalcogenides and silicon by femtosecond laser action

D. Shuleiko

Lomonosov Moscow State University, Physics Department, Moscow, Russia

LD-I-9 15:10-15:30

[Invited] Tunable optical properties of transition metal dichalcogenide nanospheres synthesized by femtosecond laser ablation and fragmentation

G. Tselikov

Moscow Institute of Physics and Technology, Center for Photonics and 2D Materials, Dolgoprudny, Russia

LD-I-10 15:30-15:50

[Invited] Laser heating of silicon and germanium nanostructures in Raman studies

A. Pavlikov

Moscow State University, Moscow, Russia

LD-O-4 15:50-16:05

Features of the band structure in the luminescence response of 2D photonic crystals with Ge(Si) nanoislands

A. Peretokin

The Institute for Physics of Microstructures of the Russian Academy of Sciences, Nizhny Novgorod, Russia

Date and Time	September 18 (Monday) / 16:30-18:25
Place	Room 4
Session Title	[LD-1.4] Laser Diagnostics and Spectroscopy 1.4
Session Chairs	A. Pavlikov, V. Ochkin (*Russia*)

LD-I-11 16:30-16:50

[Invited] Metal nanostructures optimized for plasmonic enhancement of chemiluminescence yield of standard biocompatible chemiluminophores

T. Vartanyan

ITMO University, Sankt Petersburg, Russia

LD-I-12 16:50-17:10

[Invited] Laser synthesis for SERS

A. Manshina

Saint Petersburg State University, Institute of Chemistry, Saint Petersburg, Russia

LD-O-5 17:10-17:25

SERS-active arrays of gold- and silver-coated porous silicon nanowires for bacterial identification and antibiotic susceptibility testing

D. Nazarovskaya

Lomonosov Moscow State University, Moscow, Russia

LD-O-6 17:25-17:40

Stimulated Raman scattering in the ultrasound wave field – high conversion efficiency

A. Kudrayvtseva

P.N. Lebedev Physical Institute of the Russian Academy of Sciences, Moscow, Russia

LD-O-7 17:40-17:55

Symmetric C-C stretching mode as a universal characteristic of length of polymethylene chains: Experimental and DFT study

E. Sagitova

Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

LD-O-8 17:55-18:10

Raman spectroscopy as an effective tool for evaluating the iodine values and carotenoid content in vegetable oils

S. M. Kuznetsov

Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

LD-O-9 18:10-18:25

Measurement of the absorption of waveguide layers using prismatic input radiation

V.S. Solovyev

1- JSC Research Institute "Ekran" 2-National Research University "MIET", Samara, Russia

Date and Time	September 19 (Tuesday) / 9:00-10:05
Place	Room 1
Session Title	[P-2] Plenary session 2
Session Chair	Sergey Klimentov (Russia)

P-2 9:00-9:45

[Plenary] Diamond nanothermometer

Igor Vlasov

Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

9:45 – 10:05

[Plenary] Quantum communications – implementation experience

Igor Nalivayko

LLC "SMARTS-Quanttelecom", St. Petersburg, Russia

Date and Time	September 19 (Tuesday) / 10:10-11:20
Place	Room 1
Session Title	[LM-2.1] Laser-Matter Interaction 2.1
Session Chairs	M. Komlenok, K. Ashikkalieva (Russia)

LM-I-10 10:10-10:30

[Invited] Properties of a terahertz holographic axicon fabricated by laser ablation of a black diamond

M. Komlenok

Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

LM-I-11 10:30-10:50

[Invited] Femtosecond laser synthesis of gold and carbon chains in liquid media

K. Ashikkalieva, V.V. Kononenko, N.R. Arutyunyan, E.V. Akhlyustina, E.V. Zavedeev, A.L. Vasiliev, V.I. Konov

Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

LM-O-9 10:50-11:05

Laser deposition of electrically conductive structures from a deep eutectic solvent on dielectric substrates

D. Shestakov

Department of Physical Electronics and Technology, St. Petersburg Electrotechnical University, St. Petersburg, Russia

LM-O-10 11:05-11:20

Laser-integration of metal-organic framework on thermoplastic polyurethane for robust flexible electronics

T.T. Hoang

Tomsk Polytechnic University, Tomsk, Russia

Date and Time	September 19 (Tuesday) / 11:50-13:20
Place	Room 1
Session Title	[LM-2.2] Laser-Matter Interaction 2.2
Session Chair	G. Odintsova (Russia)

LM-I-12 11:50-12:10

[Invited] Structural features of duplex steel fabricated using combined laser metal deposition with laser remelting

A. Dubrov

Institute on Laser and Information Technologies of RAS, Branch of the FSRC "Crystallography and Photonics" RAS, Shatura, Russia

LM-I-13 12:10-12:30

[Invited] Influence of high-energy laser irradiation on structural and phase transformations in aluminum-lithium alloys during laser welding

A. Malikov

Khristianovich Institute of Theoretical and Applied Mechanics SB RAS, Novosibirsk, Russia

LM-I-14 12:30-12:50

[Invited] Phase Composition and Tribological Characteristics of Surface Layers of Multicomponent Iron-Based Alloys after Laser Modification in Air

S. Yaresko, A.T. Kozakov, A.V. Sidashov

Samara branch of the Lebedev Physical Institute, Samara, Russia

LM-O-11 12:50-13:05

Usage of the metal silicide formation reactions for direct thermochemical laser writing

R. Kuts

Institute of Automation and Electrometry of the Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia

LM-O-12 13:05-13:20

Laser synthesis of memristive niobium oxide thin films

A. Polyakov

ILITRAS-Branch of the Federal Scientific Research Center «Crystallography and Photonics» of Russian Academy of Sciences, Shatura, Russia

Date and Time	September 19 (Tuesday) / 14:30-16:00
Place	Room 1
Session Title	[LM-2.3] Laser-Matter Interaction 2.3
Session Chairs	A. Kucherick, A. Popov (Russia)

LM-I-15 14:30-14:50

[Invited] Optical anisotropy of 2D and 3D metal nanoparticle ensembles induced by optical and mechanical treatments

I. Gladskikh

ITMO University, Sankt Petersburg, Russia

LM-I-16 14:50-15:10

[Invited] Laser synthesis of linear carbon structures for develop of new optics devices

A.O. Kucherik

Vladimir State University, Vladimir, Russia

LM-I-17 15:10-15:30

[Invited] Intracellular trafficking using plasmon resonance in silver and gold nanoparticles with arbitrary shape

D. Dadadzhanov

ITMO University, Sankt Petersburg, Russia

LM-O-13 15:30-15:45

Laser synthesis of ruby nanoparticles for photo-conversion of solar spectrum

A. Kuder

Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

LM-O-14 15:45-16:00

Investigation of the influence of oxygen during laser synthesis of a highly efficient nanophosphor based on monoclinic Y2O3:Eu3+

A. Nashivochnikov

Novosibirsk State University, Novosibirsk, Russia

Date and Time	September 19 (Tuesday) / 16:30-17:00
Place	Room 1
Session Title	[LM-2.4] Laser-Matter Interaction 2.4
Session Chair	S. Klimentov (Russia)

LM-O-15 16:30-16:45

On the local and integral forms of conservation laws in scattering theory

V. Krasovskii

Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

LM-O-16 16:45-17:00

The influence of the plume energy spectrum in He ambient gas on the electrical properties of MnxSi1-x (x ≈ 0.5) films

D. Gusev

Institute on Laser and Information Technologies of Russian Academy of Sciences, Shatura, Russia

Date and Time	September 19 (Tuesday) / 10:10-11:30
Place	Room 2
Session Title	[B-2.1] Biomedical Photonics 2.1
Session Chairs	V. Tuchin (Russia), D. Zhu(China)

B-I-12 10:10-10:30

[Invited] Tissue optical clearing imaging: from in vitro to in vivo

D. ZHU

Britton Chance Center for Biomedical Photonics, Huazhong University of Science and Technology, Wuhan National Laboratory for Optoelectronics, Wuhan, China

B-I-13 10:30-10:50

[Invited] Optical technologies for monitoring vital complications in diabetes mellitus

V. Tuchin, P. Dyachenko, A. Bucharskaya, D. Tuchina

Science Medical Center and Institute of Physics, Saratov State University, Saratov, Russia

B-I-14 10:50-11:10

[Invited] Motion correction of laser speckle imaging of blood flow

P. Li

Huazhong University of Science and Technology, China

B-I-15 11:10-11:30

[Invited] Laser-optic methods for determining the relationship of microrheologic properties of blood, microcirculation parameters and endothelium function of patients suffering socially important diseases

A. Priezzhev, A. Lugovtsov, P. Ermolinskiy, Y. Gurfinkel, A. Pigurenko, P. Diachenko, P. Li

Lomonosov Moscow State University, Physics Department, Moscow, Russia

Date and Time	September 19 (Tuesday) / 11:50-13:30
Place	Room 2
Session Title	[B-2.2] Biomedical Photonics 2.2
Session Chair	A. Priezzhev(Russia)

B-I-16 11:50-12:10

[Invited] Multimodal approach to the diagnosis of human skin cancer in vivo

E. Genina, I. Serebryakova, Y. Surkov, Y. Kuzinova, O. Konopatskova, V. Tuchin

Science Medical Center and Institute of Physics, Saratov State University, Saratov Medical University, Saratov, Russia

B-I-17 12:10-12:30

[Invited] Balanced detection spectral-domain optical coherence tomography with a single line-scan camera

J. Zhang

Guilin University of Electronic Technology, China

B-I-18 12:30-12:50

[Invited] Laser spectroscopy biomedical data analysis and interpretation using machine learning

Y. Kistenev

Tomsk State University, Tomsk, Russia

B-I-19 12:50-13:10

[Invited] AI-enhanced light-field microscopy reveals 4D biological dynamics at high spatial-temporal resolution

P. Fei

Multimodal imaging and its application, China

B-I-20 13:10-13:30

[Invited] Optical and liquid biopsy in combination with machine learning for non-communicable diseases identification

I. Bratchenko

Samara University, Samara, Russia

Date and Time	September 19 (Tuesday) / 14:30-16:00
Place	Room 2
Session Title	[B-2.3] Biomedical Photonics 2.3
Session Chair	Y. Kistinev(Russia)

B-I-21 14:30-14:50

[Invited] Autofluorescence in flow cytometry: multifarious capabilities for cells analysis
E. Shirshin
Lomonosov Moscow State University, Physics Department, Moscow, Russia

B-I-22 14:50-15:10

[Invited] Registration of low-intensity fluorescence in subcutaneous xenografts: from problems to their solutions
V. Zherdeva
RC of Biotechnology RAS, Moscow, Russia

B-I-23 15:10-15:30

[Invited] Non-invasive assessment of hemoglobin using special frequency domain imaging and machine learning approaches
B. Yakimov
Lomonosov Moscow State University, Physics Department, Moscow, Russia

B-O-10 15:30-15:45

Biomedical metabolic imaging revealed new criteria for reducing the regenerative potential of the liver
S. Rodimova
Privolzhsky research medical university, Nizhny Novgorod, Russia

B-O-11 15:45-16:00

Time-resolved fluorescence imaging of lipofuscin, ncorporated in vitro into retinal pigment epithelial cells: effects of photooxidation and protein-mediated antioxidant delivery
A. Semenov
Lomonosov Moscow State University, Moscow, Russia

Date and Time	September 19 (Tuesday) / 16:30-17:00
Place	Room 2
Session Title	[B-2.4] Biomedical Photonics 2.4
Session Chair	Y. Alexandrovskaya(Russia)

B-I-24 16:30-16:50

[Invited] Enhancement of Near Field and Local Absorption in Plasmonic Nanoparticle–Protein Fluorescent Complexes
A. Yakunin, S. Zarkov, Y. Avetisyan, G. Akchurin, I. Meerovich, A. Savitsky, V. Tuchin
Institute of Precision Mechanics and Control, FRC "Saratov Scientific Centre RAS", Saratov, A.N. Bach Institute of Biochemistry, Research Center of Biotechnology RAS, Moscow, Russia

B-O-12 16:50-17:05

Studies on the structure and biocompatibility of multilayer laser formed material based on nanotubes and biopolymers for myocardial regeneration

U. Kurilova

Sechenov First Moscow State Medical University, Moscow, Russia

Date and Time	September 19 (Tuesday) / 10:10-11:25
Place	Room 3
Session Title	[LS-2.1] Laser Systems and Materials 2.1
Session Chair	O. Antipov *(Russia)*

LS-I-12 10:10-10:30

[Invited] New transparent spinel-based nanostructured glass-ceramics with broadband absorption of ferrous ions in the spectral range of 1.8-2.4 μm

O. Dymshits

Vavilov State Optical Institute, St. Petersburg, Russia

LS-I-13 10:30-10:50

[Invited] Fabrication of broad-band photodetectors based on two-dimensional materials

N. Tripathi

Samara University, Samara, Russia

LS-O-10 10:50-11:05

[Invited] Synthesis of nanocrystalline silicon based thin-film transistors by using laser deposition technologies

P. Sharma

School of Electronics Engineering (SENSE), Vellore Institute of Technology (VIT), Vellore, India

Date and Time	September 19 (Tuesday) / 11:50-13:20
Place	Room 3
Session Title	[LS-2.2] Laser Systems and Materials 2.2
Session Chair	N. Tripathi *(Russia)*

LS-I-15 11:50-12:10

[Invited] Transverse instabilities in wide-aperture semiconductor lasers with a vertical cavity and methods for their suppression

A. A. Krents, N.E. Molevich, E.A. Yarunova

Samara branch of the Lebedev Physical Institute, Samara, Russia

LS-I-16 12:10-12:30

[Invited] Highly transient stimulated Raman scattering with combined frequency shifts in crystals

S.N. Smetanin, D.P. Tereshchenko, Yu.A. Kochukov, A.G. Papashvili, V.V. Bukin, V.E. Shukshin, E.E. Dunaeva, I.S. Voronina, L.I. Ivleva

Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

LS-I-17 12:30-12:50

[Invited] Laser-induced damage of mid-IR high-purity nonlinear and laser crystals and glasses under 2-μm laser irradiation
O.L. Antipov

Institute of Applied Physics of the Russian Academy of Sciences, Nizhny Novgorod, Russia

LS-O-11 12:50-13:05

On the Origin of Radial and Tangential Cracks in Optical Fiber Preforms
G. Bufetova

Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

LS-O-12 13:05-13:20

Influence of doping with lanthanides (Eu–Yb) on optical properties of samarium-scandium borate crystals
A.Y. Jamous

Tomsk State University, Tomsk, Russia

Date and Time	September 19 (Tuesday) / 14:30-16:00
Place	Room 3
Session Title	[LS-2.3] Laser Systems and Materials 2.3
Session Chair	P. Sharma *(Russia)*

LS-O-13 14:30-14:45

Spectroscopic properties of Cr2+ ions in Zn1-xMnxSe solid solutions
K. Pierpoint

Prokhorov General Physics Institute, Russian Academy of Sciences, Moscow, Russia

LS-O-14 14:45-15:00

The lifetime value of the terminal Nd:YAG laser level measured from direct gain saturation observations
V.B. Morozov

Lomonosov Moscow State University, Moscow, Russia

LS-O-15 15:00-15:15

High-power, high-efficiency Nd:YAG laser CW mode-locked with CVD-graphene
S.A. Solokhin

Kovrov State Technological Academy named after V.A. Degtyarev, Kovrov, Russia

LS-I-18 15:15-15:35

[Invited] Promising laser and optoelectronic components and their applications
S.N. Sokolov

Inject Ltd, Saratov, Russia

LS-O-16 15:35-15:50

Lasing on optically pumped metastable krypton atoms at 893 nm
V.A. Shaidulina

FSUE "RFNC-VNIIEF", Sarov, Russia

Date and Time	September 19 (Tuesday) / 16:30-17:10
Place	Room 3
Session Title	[LS-2.4] Laser Systems and Materials 2.4
Session Chair	A. Agafonov *(Russia)*

LS-I-19 16:30-16:50

[Invited] The role of rate constants measurement for the development of gas lasers

A. Torbin

Samara branch of the Lebedev Physical Institute, Samara, Russia

LS-I-20 16:50-17:10

[Invited] Laser on metastable atoms of inert gases with optical pumping

P. Mikheyev

Samara branch of the Lebedev Physical Institute, Samara, Russia

Date and Time	September 19 (Tuesday) / 10:10-11:20
Place	Room 4
Session Title	[LD-2.1] Laser Diagnostics and Spectroscopy 2.1
Session Chairs	A. Milekhin, L. Golovan (*Russia*)

LD-I-13 10:10-10:30

[Invited] Biodegradable luminescent porous silicon nanoparticles in cancer diagnosis and therapy

L. Osminkina

Lomonosov Moscow State University, Physics Department, Moscow, Russia

LD-I-14 10:30-10:50

[Invited] Laser spectroscopy of carbon nanoparticles in creation of multimodal nanosensors

T. Dolenko

Lomonosov Moscow State University, Physics Department, Moscow, Russia

LD-O-10 10:50-11:05

Laser ablation and fragmentation of nanoparticles in liquid, electrostatic and magnetic fields

K. S. Khorkov

Vladimir State University, Vladimir, Russia

LD-O-11 11:05-11:20

Ultrafast spectroscopy of tungsten disulfide nanotubes

M. Paukov

Centre of Photonics and 2D Materials, Moscow Institute of Physics and Technology, Dolgoprudny, Russia

Date and Time	September 19 (Tuesday) / 11:50-13:40
Place	Room 4
Session Title	[LD-2.2] Laser Diagnostics and Spectroscopy 2.2
Session Chairs	L. Osminkina,T. Dolenko (*Russia*)

LD-I-15 11:50-12:10

[Invited] Near-field plasmon-enhanced spectroscopies of semiconductor nanostructures

A. Milekhin

Rzanov Institute of Semiconductor Physics, Siberian Branch of Russian Academy of Sciences, Novosibirsk, Russia

LD-I-16 12:10-12:30

[Invited] Exciton chirality of atomically thin AIIBVI nanoplatelets with X-type stereoisomeric ligands

R. Vasiliev

Lomonosov Moscow State University, Department of Chemistry and Department of Materials Science, Moscow, Russia

LD-O-12 12:30-12:45

Up-Conversion in CdSe/ZnS Quantum Dots in Liquid-Crystal Matrices

L. Golovan

Moscow State University, Moscow, Russia

LD-O-13 12:45-13:05

[Invited] Fluorescence amplification in laser-pumped random and homogeneous fluorescent media: the fundamental limitations

D. Zimnyakov

Yury Gagarin State Technical University of Saratov, Saratov, Russia

LD-I-18 13:05-13:25

[Invited] Study of colloid nanoparticles in aqueous solutions by ultramicroscopy and dynamic light scattering

Y. G. Vainer

Institute of spectroscopy RAS, Troitsk, Russia

LD-O-14 13:25-13:40

Enhancement of Raman scattering efficiency in suspensions of submicron particles

O. I. Sokolovskaya

Lomonosov Moscow State University, Moscow, Russia

Date and Time	September 19 (Tuesday) / 14:30-16:00
Place	Room 5
Session Title	[N-2.1] Nonlinear and Teragertz Photonics 2.1
Session Chair	S. Stremoukhov (*Russia*)

N-I-1 14:30-14:50

[Invited] Nano- and Micro- Size Targets for Generation of Terahertz Waves

A. Balakin

Lomonosov Moscow State University, Physics Department, Moscow, Russia

N-I-2 14:50-15:10

[Invited] Nonlinear THz optics

M. Melnik, A. Nabilkova, I. Artser, M. Guselnikov, M. Zhukova, A. Ismagilov, Tcypkin, S. Kozlov

ITMO University, Saint Petersburg, Russia

N-I-3 15:10-15:30

[Invited] On the opportunity of THz radiation detection using fluoride nanoparticles

V. Semashko

Zavoisky Physical-Technical Institute, Kazan, Russia

N-O-2 15:30-15:45

Terahertz generation from a single-color filament: ponderomotive force versus light pressure

I. Nikolaeva

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

N-O-3 15:45-16:00

Periodical Generation of Sub-THz Dissipative Solitons based on Passive Mode-Locking in Helical-Waveguide Gyro-TWTs

I. Zotova

Institute of Applied Physics RAS, Nizhny Novgorod, Russia

Date and Time	September 19 (Tuesday) / 16:30-17:25
Place	Room 5
Session Title	[N-2.2] Nonlinear and Teragertz Photonics 2.2
Session Chair	A. Shkurinov (*Russia*)

N-I-4 16:30-16:50

[Invited] Coherent radiation generation by atomic systems in intense arbitrarily polarized laser fields

S. Stremoukhov

Lomonosov Moscow State University, Physics Department, Moscow, Russia

N-O-4 16:50-17:05

Optical-pump terahertz-probe diagnostics of the ultrafast carrier dynamics in photoconductive materials

V. Bulgakova

Prokhorov General Physics Institute of the Russian Academy of Sciences (GPI RAS), Moscow, Russia

N-I-5 17:05-17:25

[Invited] Terahertz generation from femtosecond plasma channels in dual-color, DC-biased and transition regimes

O. Kosareva

Lomonosov Moscow State University, Physics Department, Moscow, Russia

Date and Time	September 20 (Wednesday) / 9:00-9:45
Place	Room 1
Session Title	[P-3] Plenary session 3
Session Chair	V. Zadkov (Russia)

P-3 9:00-9:45

[Plenary] Control of characteristics of high-power terahertz laser beams by methods of diffractive optics

Vladimir Pavelyev

Samara University, Samara, Russia

Date and Time	September 20 (Wednesday) / 9:50-10:30
Place	Room 1
Session Title	[LM-3.1] Laser-Matter Interaction 3.1
Session Chair	S. Klimentov (Russia)

LM-I-18 9:50-10:10

[Invited] Structured Optothermal Traps

A. Mayorova, S.P. Kotova, N.N. Losevsky, S.A. Samagin

Samara branch of the Lebedev Physical Institute, Samara, Russia

LM-I-19 10:10-10:30

[Invited] Multiparametric investigation of laser ablation in liquid for the synthesis of nanoparticles

V. Amendola

University of Padova, Italy

Date and Time	September 20 (Wednesday) / 11:00-12:30
Place	Room 1
Session Title	[LM-3.2] Laser-Matter Interaction 3.2
Session Chairs	I. Bufetov, V. Konov *(Russia)*

LM-I-20 11:00-11:20

[Invited] Precision Laser Technologies for Optical Instrumentation

A. Dostovalov

Institute of Automation and Electrometry of the Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia

LM-I-21 11:20-11:40

[Invited] High-Speed Integrated Optics on the Base of Fluorinated and Composite Polymer Materials

V. Sokolov

Federal Research Center «Crystallography and Photonics», Russian Academy of Sciences, Moscow, Russia

LM-O-16 11:40-12:00

Fundamental and applied aspects of radiation degradation in solid state electronics materials in the light of modern radiation physics concepts

B. L. Oksengendler

Materials Science Institute of SPA "Physics-Sun" Academy of Sciences of the Republic Uzbekistan, Tashkent, Uzbekistan

LM-O-17 12:00-12:15

Application of Scaling Laws to Describe Laser Cladding of Metal-Ceramic Coatings

A. A. Golyshev

Khristianovich Institute of Theoretical and Applied Mechanics SB RAS, Novosibirsk, Russia

LM-I-22 12:15-12:35

[Invited] THz quantum cascade lasers with resonant two-photon design (online)

R. Khabibullin

Mokerov Institute of Ultra-High Frequency Semiconductor Electronics of the Russian Academy of Sciences (IUHFSE RAS), Moscow, Russia

Date and Time	September 20 (Wednesday) / 13:30-15:00
Place	Room 1
Session Title	[LM-3.3] Laser-Matter Interaction 3.3
Session Chairs	G. Odintsova, S. Shandarov *(Russia)*

LM-I-23 13:30-13:50

[Invited] Holographic security signs based on LIPSS: physics and technology

G. Odintsova

ITMO University, Sankt Petersburg, Russia

LM-I-24 13:50-14:10

[Invited] Focused ion beam as a tool for prototyping new designs of semiconductor lasers
V. Evtikhiev, M.I. Mitrofanov, G.V. Voznyuk
Ioffe Institute, Saint Petersburg, Russia

LM-I-25 14:10-14:30

[Invited] Photovoltaic tweezers on the base of diffusion structures LiNbO3:Cu
S. M. Shandarov
Tomsk State University of Control Systems and Radioelectronics, Russian Academy of Sciences, Tomck, Russia

LM-I-26 14:30-14:50

[Invited] Promising phase-changing materials for neuromorphic devices and memory elements
A. Lotin
Institute on Laser and Information Technologies of RAS, Branch of the FSRC "Crystallography and Photonics" RAS, Shatura, Russia

Date and Time	September 20 (Wednesday) / 9:50-10:30
Place	Room 2
Session Title	[B-3.1] Biomedical Photonics 3.1
Session Chair	M. Kirillin

B-I-25 9:50-10:10

[Invited] Multimodal imaging and its application
L. Liu
Shenzhen University, China

B-I-26 10:10-10:30

[Invited] Multi-parametric, high-resolution imaging of biological tissues relying on endogenous contrast
Z. Liu
Zhejiang University, China

Date and Time	September 20 (Wednesday) / 11:00-12:30
Place	Room 2
Session Title	[B-3.2] Biomedical Photonics 3.2
Session Chair	A. Lugovtsov

B-I-27 11:00-11:20

[Invited] Dual-wavelength fluorescence monitoring for advancement of PDT protocols
M. Kirillin
Laboratory of Biophotonics, Institute of Applied Physics RAS, Nizhny Novgorod, Russia

B-I-28 11:20-11:40

[Invited] Pathological feature extraction by Mueller microscopy and machine learning (online)
H. Ma
Tsinghua University, China

B-I-29 11:40-12:00

[Invited] Raman Spectroscopy of body fluids for glioma diagnosis
O. P. Cherkasova
Institute of Automation and Electrometry of the Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia

B-I-30 12:00-12:20

[Invited] Microviscosity of a cell membrane and is implication for cancer treatment
M. Shirmanova
Volga Research Medical University, Nizhniy Novgorod, Russia

Date and Time	September 20 (Wednesday) / 13:30-15:00
Place	Room 2
Session Title	[B-3.3] Biomedical Photonics 3.3
Session Chair	I. Bratchenko

B-I-31 13:30-13:50

[Invited] Multimodal collaborative tumor precision therapy based on phototherapy (online)
S. Li
China pharmaceutical university

B-I-32 13:50-14:10

[Invited] Diffuse reflection based sapphire instruments for tissue characterization during ablation and resection
I. Dolganova, A. Zotov, I. Shikunova, K. Zaytsev, V. Kurlov
Osipyan Institute of Solid State Physics RAS, Moscow, Russia

B-I-33 14:10-14:30

[Invited] Laser methods for measuring the microrheological and microcirculation parameters of blood after therapeutic plasmapheresis
A. Lugovtsov, P. Ermolinskiy, Y. Gurfinkel, N. Kalinin, I. Tauson, M. Rudnitskaya, A. Priezzhev
Lomonosov Moscow State University, Physics Department, Moscow, Russia

B-I-34 14:30-14:45

[Invited] Multiphoton microscopy of intrinsic fluorophores in biological tissue
W. Zheng
Shenzhen Institute of Advanced Technology, China

B-I-35 14:45-15:00

[Invited] Metal clusters for biomedical application
W. Fu
Shanghai Jiao Tong University, China

Date and Time	September 20 (Wednesday) / 9:50-10:30
Place	Room 3
Session Title	[P-3.1] Photonics in quantum technologies 3.1
Session Chair	A. Fedyanin

P-I-1 9:50-10:10

[Invited] Cold atoms meet quantum technologies

V. Balykin
Institute of Spectroscopy, RAS, Moscow, Russia

P-I-2 10:10-10:30

[Invited] Photon Sources for Quantum Computing and Communication Systems

A. Toropov
Ioffe Institute, Sankt Petersburg, Russia

Date and Time	September 20 (Wednesday) / 11:00-12:30
Place	Room 3
Session Title	[P-3.2] Photonics in quantum technologies 3.2
Session Chair	A. Balykin

P-I-3 11:00-11:20

[Invited] Bloch surface waves as a new platform for integrated nanophotonics

A. A. Fedyanin
Lomonosov Moscow State University, Physics Department, Moscow, Russia

P-I-4 11:20-11:40

[Invited] Femtosecond 3D Nanolithography and Quantum Technologies

A. Vitukhnovsky
Lebedev Physical Institute of the Russian Academy of Since, the Moscow Institute of Physics and Technology (MIPT), Moscow, Russia

P-I-5 11:40-12:00

[Invited] Modification of the Luminescence Response of Si-Ge Materials in Low-Dimensional Photonic Structures

M. Stepikhova, S. Dyakov, M. Petrov, V. Verbus, Zh. Smagina, V. Zinoviev, A. Peretokin, D. Yurasov, M. Shaleev, A. Novikov
Institute for Physics of Microstructures of the Russian Academy of Sciences, Nizhny Novgorod, Russia

P-O-1 12:20-12:35

Dielectric microcavities as a platform for effective single photon emission of a color centers in nanodiamonds

A. M. Romshin
Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

Date and Time	September 20 (Wednesday) / 13:30-15:00
Place	Room 3
Session Title	[P-3.3] Photonics in quantum technologies 3.3
Session Chair	A. Vitukhnovsky

P-I-7 13:30-13:50

[Invited] Efficient ultracold atoms source for quantum sensing
A. Afanasiev
Institute of Spectroscopy, RAS, Moscow, Russia

P-I-8 13:50-14:10

[Invited] Quantum nano-plasmonics for biosensing and bioimaging on the level of single molecules and virions
P.N. Melentev
Institute of Spectroscopy, RAS, Moscow, Russia

P-I-9 14:10-14:30

[Invited] Nanoscale sensors based on NV centers for biological applications
E. Moreva
Istituto Nazionale di Ricerca Metrologica, Torino, Italy

P-I-10 14:30-14:50

[Invited] Liquid Crystals in Quantum Optics: Current Experiments, Applications and Future Prospects
S. Lukishova
Rochester, NY, USA

P-O-2 14:50-15:05

Low temperature single-photon SiV-luminescence in "bottom-up" grown nanodiamonds
D. Pasternak
Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

Date and Time	September 20 (Wednesday) / 9:50-10:30
Place	Room 4
Session Title	[N-3.1] Nonlinear and Teragertz Photonics 3.1
Session Chair	V. Vaks (*Russia*)

N-I-5 9:50-10:10

[Invited] Controlling the Polarization of THz Radiation in Spintron Emitters
E. Mishina
MIREA - Russian Technological University, Moscow, Russia

N-I-6 10:10-10:30

[Invited] Terahertz stimulated emission from the molecular crystals
A. Shkurinov
Lomonosov Moscow State University, Physics Department, Moscow, Russia

Date and Time	September 20 (Wednesday) / 11:00-12:30
Place	Room 4
Session Title	[N-3.2] Nonlinear and Teragertz Photonics 3.2
Session Chair	R. Khabibullin (*Russia*)

N-I-7 11:00-11:20

[Invited] Terahertz imaging and spectroscopy for heritage science

O. Smolyanskaya

ITMO University, Sankt Petersburg, Russia

N-I-8 11:20-11:40

[Invited] Conical emission from DC-biased filament at 10 THz

N. Panov

Lomonosov Moscow State University, Physics Department, Moscow, Russia

N-I-9 11:40-12:00

[Invited] Long-wavelength emitters based on HgTe/CdHgTe quantum wells: luminescence, stimulated emission, lasers

S. Morozov

Institute for Physics of Microstrucctures of the Russian Academy of Sciences (IPM RAS), Nizhny Novgorod, Russia

N-I-10 12:00-12:20

[Invited] Effect of Magnetic Field and Injection Current on Spectral Characteristics of Multiple Quantum Well Laser

Hafiz Aurangzeb Khurram

Centre for Nanoscience and Nanotechnology, Jamia Millia Islamia, New Delhi, India

N-I-11 12:20-12:40

[Invited] Study of biofilms typical for ENT pathologies by THz high resolution spectroscopy

V. Vaks

Institute for Physics of Microstrucctures of the Russian Academy of Sciences (IPM RAS), Nizhny Novgorod, Russia

Date and Time	September 20 (Wednesday) / 13:30-15:00
Place	Room 4
Session Title	[N-3.3] Nonlinear and Teragertz Photonics 3.3
Session Chair	S. Tarasenko (*Russia*)

N-I-12 13:30-13:50

[Invited] THz-wave delivery and super-resolution imaging using the sapphire shaped crystals

G. Katyba, A. Kucheryavenko, V. Ulitko, K. Zaytsev, V. Kurlov

Osipyan Institute of Solid State Physics RAS, Moscow, Russia

N-I-13 13:50-14:10

[Invited] Nonequilibrium transport in Hg1-xCdxTe-based heterostructures induced by terahertz laser radiation

A. Kazakov

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

N-I-14 14:10-14:30

[Invited] Plasmonic-enhanced THz emission in high-aspect-ratio metal grating photoconductive antennas

D. Ponomarev

Mokerov Institute of Ultra-High Frequency Semiconductor Electronics of the Russian Academy of Sciences (IUHFSE RAS), Moscow, Russia

N-O-4 14:30-14:45

[Invited] Laser driven high power microwave compressor

D. Sobolev

Institute of Applied Physics RAS (IAP RAS), Nizhny Novgorod, Russia

N-O-5 14:45-15:00

Broadband conversion of multiline Q-switched CO laser emission under its double-pass through AR-coated ZnGeP2 crystal

M. Ionin

P.N. Lebedev Physical Institute of Russian Academy of Sciences, Moscow*, Russia*

Date and Time	September 21 (Thursday) / 9:00-11:00
Place	Room 1
Session Title	[LM-4.1] Laser-Matter Interaction 4.1
Session Chair	E. Barmina *(Russia)*

LM-I-26 9:00-9:20

[Invited] Controlled fabrication of metal halide perovskite arrays for large-scale optoelectronics integration

H. Xun

ZJU-Hangzhou Global Scientific and Technological Innovation Center, Hangzhou, China,

LM-O-18 9:20-9:35

Resonances of coherent population trapping in cells with pairs of alkali atoms, detected by the Ramsey method

G. V. Voloshin

Peter the Great St.Petersburg Polytechnic University, St.Petersburg, Russia

LM-O-19 9:35-9:50

High efficient laser method of powder production

Yu. Chivel

MerPhotonics, Saint Etienne,France

LM-O-20 9:50-10:05

Investigation of the short pulse laser ablation of porous silicon targets with molecular dynamics simulation

M. S. Grigoryeva
P. N. Lebedev Physical Institute of the Russian Academy of Sciences, Moscow, Russia

LM-O-21 10:05-10:20

Laser cavitation in liquid hydrocarbons at a high pulse repetition rate

E. Zavedeev
Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

LM-O-22 10:20-10:35

Fabrication of Innovative Grating structures using laser technology for Solar cell applications.

Juneja Sucheta
CSIR-National Physical Laboratory New Delhi, India

Date and Time	September 21 (Thursday) / 11:30-13:00
Place	Room 1
Session Title	[LM-4.2] Laser-Matter Interaction 4.2
Session Chair	A. Kucherick *(Russia)*

LM-O-23 11:30-11:45

Laser-induced Fragmentation of Solid and Porous Si Nanoparticles in Colloidal Solutions Using Molecular Dynamics

S. Lukashenko
P. N. Lebedev Physical Institute of Russian Acad. Sci, Moscow, Russia

LM-O-24 11:45-12:00

Pressure recoil behavior in picosecond laser metal interaction: MD simulation

A. A. Samokhin
Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

LM-O-25 12:10-12:30

Possibilities of Nordlase equipment in laser processing - solutions and prospects

Kirill Zhilin
JSC "LLS", St. Petersburg, Russia

Date and Time	September 21 (Thursday) / 9:00-11:00
Place	Room 2
Session Title	[B-4.1] Biomedical Photonics 4.1
Session Chair	B. Yakimov

B-I-36 9:00-9:20

[Invited] Diagnostics of porous materials and biological tissues via diffusion-associated strain measurement with OCE

Yu. M. Alexandrovskaya, O.I. Baum, E.M. Kasianenko, A.A. Sovetsvky, A.L. Matveyev, L.A. Matveev, V.Y. Zaitsev

Institute of Applied Physics RAS, Nizhny Novgorod, Russia

B-I-37 9:20-9:40

[Invited] The peculiarities of photoacoustic signals from CTCs, tumors and blood vessels of immunocompetent mice

D. Bratashov, O. Sindeeva, O. Grishin, E. Prikhozhdenko, O. Guslyakova, O. Inozemtseva

Saratov State University, Saratov, Russia

B-I-38 9:40-10:00

[Invited] Microstructural waveguides in the paradigm of biosensor technologies

J. Skibina, A.A. Zanishevskaya, S.S. Konnova, P.A. Lepilin, A.Yu. Gryaznov

SPE LLC "Nanostructural Glass Technology", Saratov State University, Saratov, Russia

B-I-39 10:00-10:20

[Invited] Effect of local heating on cutaneous hemodynamics regulation of upper and lower extremities in type 2 diabetes mellitus

A. Tankanag

Institute of Cell Biophysics, Moscow, Russia

B-O-13 10:20-10:35

Quantum chemical modeling of structure and Raman spectra of L-lactide and ε-caprolactone oligomers

S. Liubimovskii

Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

B-O-14 10:35-10:50

Diagnosing diseases in dentistry using Raman spectroscopy

O. O. Frolov

Samara University, Samara, Russia

B-O-15 10:50-11:05

Raman identification of carotenoid cis-isomers: DFT study

S. M. Kuznetsov

Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

Date and Time	September 21 (Thursday) / 11:30-13:00
Place	Room 2
Session Title	[B-4.2] Biomedical Photonics 4.2
Session Chair	D. Bratashov

B-O-16 11:30-11:45

Efficacy of photodynamic therapy against uropathogenic bacteria
V. V. Elagin
Privolzhsky research medical university, Nizhny Novgorod, Russia

B-O-17 11:45-12:00

Study of methylene blue interaction with cell membranes: influence on the mechanism of the photodynamic activity
D. Pominova
Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

B-O-18 12:00-12:15

Fluorescent analysis of photosynthetic organisms stress resistance in different conditions
A. I. Popov
Samara University, Samara, Russia

B-I-40 12:15-12:35

[Invited] Optical visualization of biotissue microstructure and microvasculature in norm, pathology and after treatment
M. A. Sirotkina
Research Institute of Experimental Oncology and Biomedical Technologies, Privolzhsky Research Medical University, Nizhny Novgorod, Russia

Date and Time	September 21 (Thursday) / 9:00-11:00
Place	Room 3
Session Title	[P-4.1] Photonics in quantum technologies 4.1
Session Chair	P.N. Melentiev

P-I-11 9:00-9:20

[Invited] Quantum computing with single trapped atoms in optical tweezers
S.S. Straupe
Russian Quantum Center, Moscow, Russia

P-I-12 9:20-9:40

[Invited] Photonic computer. Optical logic elements
S.A. Stepanenko
FSUE RFNC - VNIIEF, Sarov, Nizhny Novgorod region, Russia

P-I-13 9:40-10:00

[Invited] Thulium BEC as a diagnostic tool for a laser light with wavelength of 1064 nm
V.V. Tsyganok
Russian Quantum Center, Moscow, Russia

P-I-14 10:00-10:20

[Invited] Optical coprocessor *and* diffractive neural networks

N. Kazanskiy, L.L. Doskolovich, *N.A. Ivliev,* A.V. Nikonorov, V.V. *Podlipnov*, V.I. Protsenko, R.V. Skidanov, V.A. Soifer, D.V. Soshnikov

Image Processing Systems Institute, RAS, *Samara, Russia*

P-O-3 10:20-10:35

The polariton blockade in a microcavity dimer

T. Khudaiberganov

Vladimir State University named after A. G. and N. G. Stoletovs, Vladimir, Russia

P-O-4 10:35-10:50

Stochastic approach to describing non-Markovian dynamics of low-dimensional quantum systems

A. Pavelev

Samara University, *Samara, Russia*

P-O-5 10:50-11:05

Cascading of logic gates based on Y shaped photonic crystal waveguide

P. V. Mokshin

Samara University, *Samara, Russia*

Date and Time	September 21 (Thursday) / 11:30-13:00
Place	Room 3
Session Title	[P-4.2] Photonics in quantum technologies 4.2
Session Chair	P.N. Melentiev

P-O-6 11:30-11:45

Genetic optimization of the Y-shaped photonic crystal logic element NOT

Y. Krivosheeva

Samara University, *Samara, Russia*

P-O-7 11:45-12:00

Super resolution virtual image models in a dielectric sphere

A. R. Bekirov

Lomonosov Moscow State University, Moscow, Russia

P-I-15 12:00-12:20

[Invited] Transmittance measurement scheme in 400-800 nm optical range for fiber optical components used in quantum key distribution systems

B. A. Nasedkin

ITMO University, *St. Petersburg, Russia*

P-I-16 12:20-12:40

[Invited] Investigation of the effect of a thermostat on the lifetime of entangled states of interacting qubits by path integration

M. Shleenkov, A. Biryukov

Samara University, Samara State Transport University, Samara, Russia

P-O-8 12:40-12:55

Investigation of the lifetime of entangled states of interacting qubits in an electromagnetic field by the path integration method

A. Biryukov

Samara State University of Railway Transport. Samara, Russia

Date and Time	September 21 (Thursday) / 9:00-11:00
Place	Room 4
Session Title	[N-4.1] Nonlinear and Teragertz Photonics 4.1
Session Chair	V. Gerasimov (*Russia*)

N-I-15 9:00-9:20

[Invited] Drift-Current-Induced Amplification and Lasing of TE Electromagnetic Modes in Graphene

V. Popov

Kotelnikov Institute of Radio Engineering and Electronics, Saratov, Russia

N-I-16 9:20-9:40

[Invited] Super-resolution THz imaging of biological tissues: Recent achievements and challenges

K. Zaytsev

Prokhorov General Physics Institute of the Russian Academy of Sciences (GPI RAS), Moscow, Russia

N-I-17 9:40-10:00

[Invited] Edge currents induced by terahertz radiation in two-dimensional systems

S. Tarasenko

Ioffe Institute, Sankt Petersburg, Russia

N-I-18 10:00-10:20

[Invited] Prism-lens couplers for efficient sideways Cherenkov terahertz wave generation in nonlinear crystals

G. Kitaeva

Lomonosov Moscow State University, Physics Department, Moscow, Russia

N-I-19 10:20-10:40

[Invited] Terahertz HEB-based On-chip Spectrometers for Material and Biomedical Studies

A. Shurakov

Moscow State Pedagogical University (MSPU), Moscow, Russia

N-I-20 10:40-11:00

[Invited] Electrical-field tunable diffraction optical elements based on lithium niobate single crystals

A. Akhmatkhanov, A. Esin, V. Shur, V. Pavelyev

Ural Federal University, Ekaterinburg, Russia

N-I-21 10:40-11:00

[Invited] THz–IR dielectric spectroscopy of astrophysical ices: Recent achievements and challenges

A. Gavdush

Prokhorov General Physics Institute of the Russian Academy of Sciences (GPI RAS), Moscow, Russia

Date and Time	September 21 (Thursday) / 11:30-13:00
Place	Room 4
Session Title	[N-4.2] Nonlinear and Teragertz Photonics 4.2
Session Chair	G. Kitaeva (*Russia*)

N-I-22 11:30-11:50

[Invited] Terahertz surface plasmon refractometry of conducting surfaces and thin dielectric layers on the Novosibirsk free-electron laser

V. Gerasimov

Budker Institute of Nuclear Physics of the SB RAS (BINP SB RAS), Novosibirsk, Russia

N-I-23 11:50-12:10

[Invited] Hierarchical multi-scale coupled periodical photonic and plasmonic nanopatterns inscribed by femtosecond laser pulses in lithium niobate

M. Kosobokov, S. Kudryashov, A. Rupasov, A. Akhmatkhanov, G. Krasin, P. Danilov, B. Lisjikh, A. Abramov, E. Greshnyakov, E. Kuzmin, M. Kovalev, V. Shur

Ural Federal University, Ekaterinburg, Russia

N-I-24 12:10-12:30

[Invited] Light frequency conversion by periodically poled ferroelectrics

V. Shur, A. Akhmatkhanov, A. Esin, M. Chuvakova, B. Slautin, D. Kolker, A. Boyko

Ural Federal University, Ekaterinburg, Russia

N-O-6 12:30-12:45

Optoelectronic THz devices based on one-dimensional materials

M. Burdanova, A. Akhmatkhanov, A. Esin, M. Chuvakova, B. Slautin, D. Kolker, A. Boyko

Moscow Institute of Physics and Technology (MIPT), Moscow, Russia

N-O-7 12:45-13:00

Velocity overshoot and terahertz generation in AlxGa1-xAs/GaAs heterostructured p-i-n diodes

F. Xiangyi

ITMO university, St. Petersburg, Russia

Date and Time September 19 (Tuesday) / 17:00-19:00
Place Room
Session Title **Poster session**
Session Chair

Section LASER-MATTER INTERACTION

LM-P-1
Modelling of the temperature field during continuous source laser treatment
I. Antoshin
Samara region, Russia

LM-P-2
Controlling, optimizing, and scaling the microstructure features by laser treatment under an auxiliary graphite layer
X. Egorova
ITMO University, St. Petersburg, Russia

LM-P-3
Instabilities and ablation under laser melting of powder layers
Y. Chivel
MerPhotonics, Saint Etienne,France

LM-P-4
Femtosecond laser modification of ZnO:Ag thin films
V. Gresko
ITMO University, St. Petersburg, Russia

LM-P-5
UV Spectral Characteristics of Colloidal Gold Nanoparticles Obtained by Nd:YAG Pulsed Laser Ablation in Tetrahydrofuran
P. Kazakevich
Samara Branch of P.N. Lebedev Physical Institute of the Russian Academy of Sciences (SB LPI)

LM-P-6
Laser ablation and fragmentation of nanoparticles in liquid, electrostatic and magnetic fields
K. Khorkov
Vladimir State University

LM-P-7
The way of the second wave in photonic crystal with PT-symmetry periodic longitudinal and linear transverse modulation
T. Khudaiberganov
Vladimir State University named after A. G. and N. G. Stoletovs, Vladimir, Russia

LM-P-8
Fast and efficient technique for fabricating highly reactive electrode material using laser deposition from DES
A. Levshakova
Institute of Chemistry, Saint Petersburg University, Saint Petersburg, Russia

LM-P-9

Bulk Domains Growth Created by Femtosecond Laser in Magnesium Doped Lithium Niobate

B. Lisjikh

Institute of Natural Sciences and Mathematics, Ural Federal University

LM-P-10

Laser method of relief formation on the surface of steel to protect against biofouling in the aquatic environment

M. Mikhalevich

ITMO University, St. Petersburg, Russia

LM-P-11

Double depolarizer for controllable laser writing surface relief gratings in chalcogenide glasses

A. Porfirev

Image Processing Systems Institute of RAS—Branch of the FSRC "Crystallography and Photonics" RAS, Samara, Russia

LM-P-12

Pressure pulses generated in metals during picosecond laser ablation

A. Samokhin

Prokhorov General Physics Institute of the Russian Academy of Sciences, Russia

LM-P-13

Laser-ablative synthesis of alternative plasmonic nanomaterials for biomedical applications

M. Savinov

National Research Nuclear University MEPhI, Moscow, Russia

LM-P-14

Phase optical elements for vortex beams creation fabricated by compressed laser-induced microplasma

V. Shkuratova

ITMO University, St. Petersburg, Russia

LM-P-15

Study of Migration of Elements on the Metal Surfaces after Laser Shock Peening

E. Surmenko

Saratov State Technical University, Russia

LM-P-16

Development of technologies for laser thin-layer surface modification of products made of stainless chromium-nickel steels

P. Ustinov

SSTU Gagarin U.A., Russia

Section LASER SYSTEMS AND MATERIALS

LS-P-1

Laser modification of optical properties of PbSe films by continuous radiation at a wavelength of 405 nm

M. Dubkova

National Research University ITMO, ILT (ITMO University, St. Petersburg, Russia

LS-P-2

Analysis of the radiation wavelength shift in various types of structures of high-power laser diode arrays

D. Ivanov

AO "NII "POLUS" im. M.F. Stelmakha", Russia

LS-P-3

Changes in the structure and functional parameters of the CVO optical medium doped with chromium

L. Ivleva

Prokhorov General Physics Institute of the Russian Academy of Sciences, Russia

LS-P-4

Changing the spectrum of the arsenic sulfide fiber by X-ray radiation

A. Kachemtsev

Institute of Chemistry of High-Purity Substances after G.G. Deviatych of the Russian Academy of Sciences, Russia

LS-P-5

Multichannel Diffractive Optical Element Calculation for Composite Diffraction-Free Beam Formation

P. Khorin

Samara University, Russia

LS-P-6

Creation of powerful coherent fiber laser channels

Y. Kryukov

Sarov, Nizhny Novgorod region, Russia

LS-P-7

Theoretical and experimental study of electronic properties of ZnIn2Se4 compound

T. Mammadov

Institute of Physics, Ministry of science and education

LS-P-8

Electronic properties of TlFeS2 and TlFeSe2 semiconductors. Theory and experiment

T. Mammadov

Institute of Physics, Ministry of science and education

LS-P-9

Peculiarities of titanium surface morphology after oxidation with the "Laser paintbrush" hand tool

A. Morozova

ITMO University, St. Petersburg, Russia

LS-P-10

Characterisation of mid-IR light sources made of RE doped chalcogenide fibers on the base of modal approach

E. Romanova

Saratov State University

LS-P-11

Control of characteristics of non-uniform elliptical polarization when focusing of hybrid cylindrical vector laser beams

A. Ustinov

Image Processing Systems Institute of RAS—Branch of the FSRC "Crystallography and Photonics" RAS

LS-P-12

Optimization of energy costs for the generation of metastable argon atoms in a repetitively pulsed discharge in an Ar-He mixture

M. Zagidullin

lebedev Physical Institute, Samara Branch

LS-P-13

Comparison compression methods of a strongly chirped signal from a pulsed Yb-doped fiber laser by diffraction gratings and CFBG compressors

I. Zhluktova

Prokhorov General Physics Institute of the Russian Academy of Sciences, Russia

LS-P-14

Simulation of the operation of a phased radio antenna array using the Fourier transform in the visible wavelength range

V.S. Solovyev

1- JSC Research Institute "Ekran" 2-National Research University "MIET", Samara, Russia

Section **BIOMEDICAL PHOTONICS**

B-P-1

Efficacy of photodynamic therapy against uropathogenic bacteria

V. Elagin

Privolzhsky research medical university

B-P-2

FLIM reveals criteria for toxic liver damage in tissue slices

M. Karabut

Privolzhsky research medical university

B-P-3

On the local and integral forms of conservation laws in scattering theory

V. Krasovskii

Prokhorov General Physics Institute of the Russian Academy of Sciences

B-P-4

Study of In vivo Optical Clearing of the Human Oral Cavity Mucosa by Raman Spectroscopy

E. Lazareva

Institute of Physics and Science Medical Center, Saratov State University, Saratov, Russia

B-P-5

Laser tweezers technique in studies of impact of endothelium derived nitrogen oxide (NO) on red blood cell (RBC) aggregatio

M. Maksimov

Lomonosov MSU, Faculty of Physics, Department of Radiophysics, Department of General Physics and Wave Processes

B-P-6

Multivariate analysis of Raman spectra and dematoscopic images for the diagnosis of skin cancer

I. Matveeva

Samara University, Russia

B-P-7

Characterization of self-organized clusters of protein-coated Au nanoparticles in water

H. Molkova

Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

B-P-8

Factors determining the increased sensitivity of cancer cells to the action of laser radiation in the blue region of the spectrum

V. Plavskii

B.I.Stepanov Institute of Physics of the National Academy of Sciences of Belarus

B-P-9

Fluorescence bioimaging for nanoparticles safety and biodistribution testing

S. Rodimova

Privolzhsky research medical university

B-P-10

Sensitivity of clinical strain of Staphylococcus aureus to photodynamic action using pyridylporphyrins

T. Sharabarina

Saratov State University

B-P-11

The effect of the gasotransmitter NO on the parameters of platelet aggregation: measurement by laser-optical methods

D. Umerenkov

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

Section LASER DIAGNOSTICS AND SPECTROSCOPY

LD-P-1

Influence of the waveguide tapers of an array waveguide grating multiplexer on its spectrum

I. Babichek

Moscow Institute of Physics and Technology (National Research University)

LD-P-2

Simulation of oblique ray trajectories in an optical fiber with a stepped refractive index profile

D. Ryakhovskiy

Kotelnikov Institute of Radio Engineering and Electronics (Fryazino Branch), Russian Academy of Sciences

LD-P-3

Raman monitoring of structural evolution of glycols aqueous solutions on various substrates

E. Sagitova

Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

LD-P-4

Photoluminescent porous silicon nanowires as bioimaging contrast agents

M. Shatskaya

Lomonosov Moscow State University, Moscow, Russia

LD-P-5

Polarization-Sensitive Infrared Spectroscopy of Thin Amorphous Silicon Films with LIPSS

S. Zabotnov

Lomonosov Moscow State University, Moscow, Russia

LD-P-6

Laser Beam in Dispersion Media, Photons, Axions

V. Ogluzdin

Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia

Section PHOTONICS IN QUANTUM TECHNOLOGIES

P-P-1

Design features of optical splitters and their effect on output parameters

A. Krylov

Moscow Institute of Physics and Technology, Dolgoprudny, Russia

P-P-2

Investigation of mode propagation in waveguide structures with chalcogenide glasses

A. Mitrofanova

Moscow Institute of Physics and Technology (National Research University)

P-P-3

Investigation of volt-ampere characteristics of photosensitive structures based on porous silicon with WS2 and MoS2 quantum dots

D. Shishkina

Samara University

Section NONLINEAR AND TERAGERTZ PHOTONICS

N-P-1

Optical Parametric Oscillation in Periodically Poled Single Crystals of Titanyl-Phosphate Family

M. Chuvakova

Ural Federal University named after the first President of Russia B.N. Yeltsin, Ekaterinburg, Russia

N-P-2

Analysis and research of nonlinear optical phenomena in silicon slot waveguide structures

S. Murzagalina

Moscow Institute of Physics and Technology (National Research University), Dolgoprudny, Russia