



VIII International Conference on Ultrafast Optical
Science
«UltrafastLight-2024»

Conference program

September 30—October 2, 2024
Lebedev Institute, Moscow



VIII International Conference on Ultrafast Optical Science «UltrafastLight-2024», is the broad-scope, annual international symposium dedicated to the most important aspects of ultrafast phenomena in different fields of natural sciences and engineering.

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Chair	Nikolay Kolachevsky	(Lebedev Physical Institute)
Vice-chair	Andrey Ionin	(Lebedev Physical Institute)
Vice-chair	Sergey Kudryashov	(Lebedev Physical Institute)

Monday, September 30

9:00	Registration		
	Plenary session (Column hall)		
09:45	<i>Conference opening</i>		
10:00	S. Kudryashov «Ultrafast laser studies of diamonds in quantum technologies and gemology»		
10:45	O. Kosareva «Terahertz radiation from femtosecond laser filament for remote sensing applications»		
11:30	<i>Coffee break</i>		
12:15	Section 1 «Extreme Light» (Column hall) page 6	Section 4 «Diamond photonics» (Conference hall of QRPD) page 8	Section 6 «Ultrafast optical technologies and nonlinear optical phenomena» (Small hall) page 11
15:00	<i>Lunch</i>		
16:00	Section 1 «Extreme Light» (Column hall) pages 7-8	Section 4 «Diamond photonics» (Conference hall of QRPD) pages 9-10	Section 6 «Ultrafast optical technologies and nonlinear optical phenomena» (Small hall) page 12

Tuesday, October 1

09:30	Registration		
	<i>Plenary session (Column hall)</i>		
10:00	Ya Cheng «Spatiotemporal focusing of ultrashort laser pulses and its applications»		
10:45	L. Ji «Recent progress of the 10/100 PW laser facilities and extreme field physics in SIOM»		
11:30	<i>Coffee break</i>		
12:15	Section 1 «Extreme Light» <i>(Column hall)</i> page 13	Section 2 «Ultrafast phenomena in ionized gases, semiconductors and metals» <i>(Small hall)</i> page 16	Section 3 «Ultrafast laser micro- and nanotechnologies» <i>(Conference hall of QRPD)</i> pages 18-19
15:00	<i>Lunch</i>		
16:00	Section 1 «Extreme Light» <i>(Column hall)</i> pages 14-15	Section 2 «Ultrafast phenomena in ionized gases, semiconductors and metals» <i>(Small hall)</i> page 17	Section 3 «Ultrafast laser micro- and nanotechnologies» <i>(Conference hall of QRPD)</i> pages 20-21

Wednesday, October 2

09:30	Registration		
	<i>Plenary session (Column hall)</i>		
10:00	A. Silaev «Influence of the multielectron dynamics in atoms on the generation of secondary radiation»		
10:45	V. Lazarev «Mid-infrared laser systems for surgical and diagnostic applications»		
11:30	<i>Coffee break</i>		
12:15	Section 1 «Extreme Light» <i>(Column hall)</i> page 22	Section 2 «Ultrafast phenomena in ionized gases, semiconductors and metals» <i>(Small hall)</i> page 23	Section 7 «Ultrafast laser technologies in biomedicine» <i>(Conference hall of QRPD)</i> page 24
15:00	<i>Lunch</i>		
16:00	Section 7 «Ultrafast laser technologies in biomedicine» <i>(Conference hall of QRPD)</i> page 25	Section 6 «Ultrafast optical technologies and nonlinear optical phenomena» <i>(Small hall)</i> page 26	
17:30 — 19:00	Poster session + coffee break (2 nd floor) pages 27—29		

Section 1 «Extreme light»

Monday, September 30 / (Column hall)

Session 12:15—14:55, Chair: Andrey Savel'ev

12:15—12:40

(invited) J. Bin «Recent developments of a laser-driven ion acceleration beamline at SIOM»

12:40—13:05

(invited) A. Andreev «Non-linear scattering of ultra-intense short laser pulses by small over-dense plasma targets»

13:05—13:30

(invited) M. Nazarov «Large and small clusters for electron acceleration and X-ray generation in relativistic laser plasma»

13:30—13:55

(invited) P. Korneev «Interaction of structured laser beams carrying an orbital angular momentum with an ensemble of charged particles»

13:55—14:10

Y. Gagarin «Laser acceleration of electrons in strong optically-driven magnetic fields»

14:10—14:25

T. Semenov «Terawatt femtosecond laser electron acceleration to 10 MeV level with nitrogen clusters produced in new regime»

14:25—14:40

M. Veysman «On optimization of targets for generating gamma radiation under the action of relativistic electrons»

14:40—14:55

I. Mordvintsev «Acceleration and ionization of ions at high contrast laser-plasma interaction of femtosecond pulses with molecular carbon dioxide and ethane clusters»

Session 16:00—18:25, Chair: Valery Bychenkov

16:00—16:25

(invited) A. Soloviev «Exploring laser-driven plasmas with the PEARL petawatt laser»

16:25—16:50

(invited) N. Andreev «Efficient sources of X-rays and high energy particles based on DLA of electrons from NCD plasma targets»

16:50—17:15

(invited) K. Ivanov «Charged particles acceleration at highly intense femtosecond irradiation of micron-scale and less target »

17:15—17:40

(invited) K. Lotov «Clustering of macroparticles in long-term simulations of plasma wakefield acceleration»

17:40—17:55

I. Tsymbalov «Optimization of self-modulated laser wakefield electron acceleration by modifying a gas target to blast waves»

17:55—18:10

E. Starodubtseva «Analytical investigation of quasi-monoenergetic electron beam obtaining with LWFA»

18:10—18:25

S. Shulyapov «Liquid targets for electron acceleration in laser-plasma interactions»

Section 4 «Diamond photonics»

Monday, September 30 / (Conference hall of QRPD)

Session 12:15—15:00, Chair: Sergey Kudryashov

12:15—12:40

(invited) A. Pavlushin «The potential and prospects of using the properties of photoluminescence in diamond mining processes, sorting of raw materials and mineralogical studies»

12:40—13:05

(invited) R. Khmel'nitsky «Identification of diamonds and other gems by luminescence»

13:05—13:30

(invited) A. Shramko «Fluorescence and phosphorescence of diamonds in field gemology: using the knowledge of diamond's ability to glow under the UV light for the effective initial separation between natural and synthetic origin (and not just that)»

13:30—13:55

(invited) E. Vasilev «Nitrogen-vacancy optical centres in natural diamond»

13:55—14:20

(invited) A. Akimov «Towards radiofrequency free control of nuclear spin»

14:20—14:45

(invited) V. Vins «New data on radiation defects in HPHT lab-grown type Ib diamonds»

14:45—15:00

A. Zelenina «Atomistic simulation of nitrogen defects in diamond with machine learning potential»

Session 16:00—19:40, Chair: Sergey Kudryashov

16:00—16:25

(invited) *V. Ralchenko* «Engineering of silicon-vacancy color centers in CVD diamond for quantum photonics»

16:25—16:50

(invited) *A. Shiryaev* «Effect of surface hydrogenation on Fano-effect in IR spectra of nanodiamonds»

16:50—17:15

(invited) *V. Lebedev* «Two types spectra of stimulated emission in HPHT diamond with NV^- centers»

17:15—17:40

(invited) *D. Genin* « NV^- diamond laser with hundreds of μJ pulse energy»

17:40—18:05

(invited) *S. Buga* «Electroluminescence of diamond NV centers at temperatures 450-680°C»

18:05—18:20

I. Klepikov «Growth sectors luminescence in HPHT diamonds with NV centers»

18:20—18:35

A. Inyushkin «Thermal conductivity of high-purity type-IIa diamond and nitrogen-doped type-Ib diamond under electron irradiation»

18:35—18:50

P. Danilov «Method to determine the concentration of color centers in diamond»

18:50—19:05

A. Gorevoy «Local Transformations of Nitrogen Optical Centers by Ultrashort Laser Pulses in Treated Natural Diamond»

19:05—19:20

J. Chen «Intensity Distribution and Carrier Generation Density in High-Nitrogen Content Diamond under Gaussian Focused Laser Propagation: A Numerical Simulation»

19:20—19:35

K. Irzhevsky «Oval inclusions formed by pulsed laser radiation in HPHT diamond»

19:35—19:40 Flash talk

P. Pakholchuk «Modification of diamond impurity structure by femtosecond pulses of the mid-IR range»

Section 6 «Ultrafast optical technologies and nonlinear optical phenomena»

Monday, September 30 / (Small hall)

Session 12:15 – 14:40, Chair: Igor Kinyaevskiy

12:15—12:40

(invited) *E. Anashkina* «Microresonator Raman optical frequency combs: new regimes of solitons and Turing patterns»

12:40—12:55

R. Arkhipov «Generation and ultra-fast control of optical microcavities by the collision of half-cycle light pulses in a resonant medium»

12:55—13:10

A. Pakhomov «Area theorem for coherent pulse propagation in a ring-cavity laser»

13:10—13:25

A. Pakhomov «Nonlinear propagation of few-cycle pulses in media with multiple resonances»

13:25—13:40

N. Obydenov «Time-resolved X-ray diffraction analysis of laser-induced crystal lattice dynamics with polarization sensitivity»

13:40—13:55

K. Lvov «Non-perturbative approach to the analytical description of nonlinear susceptibilities of atomic gases»

13:55—14:10

E. Lobushkin «Selection of electron quantum paths in high order harmonic generation by spectral phase control»

14:10—14:25

Y. Klimachev «Multiwavelength coherent lasing in carbon dioxide from filaments generated by intense infrared femtosecond laser pulses»

14:25—14:40

I. Grudtsin «Filamentation of 100 fs titanium sapphire laser pulses in different gases for difference frequency generation to the mid-IR range»

Session 16:00 – 18:10 Chair: Fedor Potemkin

16:00—16:25

(invited) *A. Koribut* «Effects responsible for efficient stimulated Raman scattering of femtosecond pulses in BaWO₄ crystal»

16:25—16:40

V. Kovalev «Stimulated Raman scattering of broadband chirped laser pulse in CaCO₃ with Stokes seeded by narrowband nanosecond laser pulse»

16:40—16:55

A. Pushkin «Ultrafast mid-IR Fe-doped chalcogenide laser sources»

16:55—17:10

M. Ionin «Difference frequency generation into the mid-IR range (5.5-11.5 μm) using femtosecond Ti:sapphire laser and nonlinear BaGa₂GeSe₆, LiGaS₂, AgGaS₂ crystals»

17:10—17:25

I. Kinyaevskiy «Application of thin ZnGeP₂ plate for frequency conversion of 0.95-μm femtosecond laser pulse to the mid-IR range»

17:25—17:40

D. Suleimanova «Prospects of BaGa₂GeSe₆ crystal performance in highly-efficient mid-infrared optical parametric amplifier»

17:40—17:55

Minh Hong Pham «Research and development all solid ultraviolet laser to determine SO₂ gas concentration by differential absorption spectroscopy»

17:55—18:10

D. Tarvanen «Features of application of lasers with ultrashort pulse durations for micromachining of materials»

Section 1 «Extreme Light»

Tuesday, October 1 / (Column Hall)

Session 12:15—14:55, Chair: Nikolay Andreev

12:15—12:40

(invited) V. Derkach «Russian megajoule installation. First results»

12:40—13:05

(invited) A. Shaykin Project XCELS — the most powerful laser in the world: ideas, problems, solutions»

13:05—13:30

(invited) I. Kostyukov «Continuous-radiative-loss approach for electron dynamics in the radiation-dominated regime»

13:30—13:45

V. Krainov «Simulation of astrophysical jets in magnetic fields of laser relativistic plasmas»

13:45—14:00

K. Burdonov «Four-beam coherent beam combining set-up prototype for XCELS project»

14:00—14:15

M. Chaschin «Generation of terahertz radiation in gas-cluster targets under irradiation with relativistic laser pulses»

14:15—14:30

V. Kulagin «Parameters of incoherent X-ray pulses generated in the pump-probe scheme including two super intense laser pulses and a plasma layer»

14:30—14:55

(invited) K. Safronov «Experiments on laser acceleration of charged particles at Laser Physics Research Center in RFNC-VNIITF»

Session 16:00—18:35, Chair: Igor Kostyukov

16:00—16:25

(invited) *A. Brantov* «Efficient generation of charged particles and secondary radiation from preplasma targets»

16:25—16:40

M. Mozhaeva «Optimization of x-ray source size and x-ray flux when creating a high repetition rate fiber laser-driven plasma microfocus source using different gaseous media»

16:40—16:55

D. Gimaletdinova «Numerical calculation of the collimation of fast laser electrons in the presence of an external axial magnetic field»

16:55—17:10

D. Iankhotov «Propagation of a monoenergetic beam of relativistic electrons in vacuum»

17:10—17:25

A. Berezin «Lattice Maxwell method»

17:25—18:35 *Flash talks*

D. Bezverkhnyaya «Spectral and spatiotemporal characteristics of laser plasma emission of sulfur and tantalum targets in the X-ray spectral range»

A. Castillo Ramirez «Optimization study of electron ejection and acceleration in self-trapping regime»

M. Dorozhkina «Laser wakefield acceleration with XCELS driver without pre-formed plasma channel»

M. Filimonchuk «Thin-layer liquid targets for frequency laser-plasma sources of accelerated electrons»

K. Kolupaev «Simple method for creating ultraviolet radiation with orbital angular momentum through laser-plasma interactions»

A. Kotov «A convolutional neural network-based wavefront shape detection approach to improve focusing quality on high-power laser systems»

A. Poletaeva «Kinetic modeling of fast electron transport during an intense laser irradiation of solid-density targets»

- A. Samsonov* «Generation of terahertz radiation during relativistic interaction of laser radiation with a thin-layer liquid target»
- N. Shamaeva* «Comparative analysis of detector characteristics Image Plate and Needle Image Plate when recording images in X-ray radiation from laser plasma»
- P. Shcheglov* «Generation of keV X-ray radiation in relativistic laser plasma»
- O. Sviridova* «Influence of laser pulse polarization on the characteristics of accelerated electrons in the relativistic self-trapping regime»
- A. Timoshenko* «Modeling of a high-energy radiation source on modern computational architectures (CPU and GPU)»
- I. Umarov* «Investigation of the beam-loading effect during laser-wakefield acceleration of an electron beam in the linear regime»
- M. Zakharchuk* «Spatial-angular scattering of laser radiation by plasma during irradiation of different targets»

Section 2 «Ultrafast phenomena in ionized gases, semiconductors and metals»

Tuesday, October 1 / (Small hall)

Session 12:15—15:05, Chair: Vasily Kostin

12:15—12:40

(invited) V. Kostin «Ultrafast three-color ionization and generation of secondary radiation»

12:40—13:05

(invited) V. Antonov «Resonant enhancement of an atomic response at moderate-order harmonics of a short-wavelength laser field»

13:05—13:30

(invited) V. Strelkov «Intense attosecond XUV pulses production: from high-harmonic generation to high-order frequency mixing»

13:30—13:45

R. Arkhipov «Conservation of the electric area upon propagation of ultrashort pulses»

13:45—14:00

Ya. Romanovskii «Above-threshold ionization of argon in mid-infrared laser field»

14:00—14:25

(invited) A. Frolov «Emission of terahertz waves under laser action on plasma slab»

14:25—14:50

(invited) A. Bogatskaya «Peculiarities of plasma self-organization during the laser micromachining in the volume of transparent dielectrics»

14:50—15:05

P. Nikiforova «Graphene-based resonant structure for enhanced bolometric detection of sub-THz signals»

Session 16:00—18:15, Chair: Alexander Popov

16:00—16:25

(invited) *I. Khairulin* «Subfemtosecond and few-femtosecond deep UV pulse generation using resonances with one- and two-photon transitions in alkali-metal atoms»

16:25—16:50

(invited) *I. Smetanin* «Hybrid metal core semiconductor shell nanoparticles for photocatalysis: Role of doping in the storage of hot electrons»

16:50—17:15

(invited) *I. Oladyshkin* «On the possibility of convective heat transport during laser ablation of metals»

16:15—17:30

E. Migal «Ultrafast symmetry switching in semiconductors driven by intense multi-color fields»

17:30—17:45

A. Romanov «Detection of ultraviolet pulses using high-order harmonics generation of infrared radiation in solid slabs»

17:45—18:00

M. Andreeva «Spectral and brightness control of high harmonic generation in bulk semiconductors driven by multicolored intense light fields»

18:00—18:15

M. Rozhko «High-harmonic generation on spatially modulated metal surfaces by ultrashort mid-IR laser pulse»

Section 3 «Ultrafast optical technologies and nonlinear optical phenomena»

Tuesday, October 1 / (Conference hall of QRPD)

Session 12:15—15.00, Chair: Mikhail Kovalev

12:15—12:40

(invited) G. Tsididis «Is the Damage Threshold of transparent materials influenced via the use of coatings upon irradiation with Mid-IR femtosecond laser pulses?»

12:40—13:05

(invited) S. V. Rao «Femtosecond Nonlinear Optical Properties of Novel Perovskites and Nanomaterials»

13:05—13:30

(invited) M. Smayev «Application of structured laser beams for efficient crystallization of $\text{Ge}_2\text{Sb}_2\text{Te}_5$ thin films»

13:30—13:45

A. Bushunov «Surface microstructuring by ringless Bessel beams. Laser induced damage threshold of antireflective microstructures on LiGaSe and GaSe nonlinear crystals»

13:45—14:00

A. Patolyatov «Refractive x-ray lenses made by the two-photon laser writing»

14:00—14:15

Y. Voronkovich «Surface microstructuring by ringless Bessel beams»

14:15—14:30

D. Derimedved «Micropatterning of Polyvinylidene Fluoride Piezoelectric Films by Femtosecond Laser Pulses»

14:30—14:45

N. Stsepuro «Hyperdoping Engineering: A Crucial Step Towards Enhancing Silicon Photodiode Performance Across the Entire Near-Infrared Wavelength Range»

14:45—15:00

I. Podlesnykh «Enhanced broadband IR absorption and electrical characteristics of silicon variably hyperdoped by sulfur ($10^{18} - 10^{21} \text{ cm}^{-3}$) by ion implantation/pulsed laser annealing»

Session 16:00—18:55, Chair: Mikhail Kovalev

16:00—16:25

(invited) *E. Perevezentsev* «Prospects of new generation volume Bragg gratings fused silica dispersive elements for high power lasers»

16:25—16:50

(invited) *O. Butov* «Fiber Bragg gratings inscribed with femtosecond laser radiation»

16:50—17:15

(invited) *S. Zobotnov* «Fabrication of optically anisotropic structures in amorphous silicon films using femtosecond laser pulses»

17:15—17:30

P. Yakushenkov «Ultrafast laser magnetization switching and ultrafast fully optical modulator»

17:30—17:45

N. Asharchuk «Time-resolved diagnostics of gold nanoparticles formation during laser ablation in supercritical carbon dioxide»

17:45—18:00

V. Nesterov «Use of thin Co films as targets for liquid-phase laser synthesis of magnetic nanoparticles»

18:00—18:15

N. Vrublevskaya «Kerr coefficient of water: experiment and quantum mechanical simulations»

18:15—18:30

O. Sokolovskaya «Nonmonotonic Raman signal enhancement under light elastic scattering»

18:30—18:45

B. Gakovic «Selective ablation/spallation of nanolayer Nb/Ti thin film with single femtosecond laser pulses»

18:45—19:20 *Flash talks*

A. Rupasov «Optical elements based on birefringent microtracks»

N. Smirnov «Femtosecond laser processing of silicon in the near-infrared range»

N. Busleev «Multi-photon absorption in silicon at infrared wavelengths and its dependence on crystal rotation angle»

M. Mikhalevich «Laser methods of metal protection from biological and mineral deposits»

I. Matyaev «Rewritable photoluminescence microbits in the volume of sapphire for optical memory»

I. Filatov «Enhancing the corrosion resistance of AISI 304 stainless steel temperature sensor protective shell by nanosecond laser irradiation»

V. Filatov «Numerical simulation of the ultrafast dynamics of the electromagnetic field in a one-dimensional ferroelectric photonic crystal»

Section 1 «Extreme light»

Wednesday, October 2 / (Column hall)

Session 12:15 – 14:35, Chair: Andrei Brantov

12:15—12:40

(invited) A. Korzhimanov «Synchronized generation of few-cycle mid-infrared and attosecond pulses by Doppler shifting of ultraintense laser pulses reflected from near-critical-density targets»

12:40—13:05

(invited) A. Fedotov «Coherent radiation of relativistic electrons in intense laser pulse»

13:05—13:20

R. Feshchenko «High harmonics generation in vacuum by interaction of a dipole electromagnetic pulse with a constant magnetic field»

13:20—13:35

Y. Selivanov «Final number of leptons in deterministic model of QED cascade»

13:35—13:50

N. Bukharskii «Formation of discharge current pulses on extended surfaces irradiated by intense ultrashort laser pulses at a grazing angle»

13:50—14:05

M. Malakhov «Nonlinear Compton scattering at a high intense laser pulse»

14:05—14:20

E. Dmitriev «Generation of intense terahertz radiation with special polarization properties»

14:20—14:35

N. Iakushkin «PIC modeling of high harmonic generation in transient regime from CWE to ROM»

Section 2 «Ultrafast phenomena in ionized gases, semiconductors and metals»

Wednesday, October 2 / (Small hall)

Session 12:15 — 14:40, Chair: Igor Smetanin

12:15—12:30

S. Kuznetsov «Electronic and ion currents of ion-acoustic soliton»

12:30—12:45

A. Melnikov «Nonlinear lattice dynamics in PbTe and PbSe crystals driven by intense resonant terahertz pulses»

12:45—13:00

M. Paukov «Optical pump - terahertz probe of novel low-dimensional materials (carbon and TMD nanotubes, MXenes)»

13:00—13:15

S. Romashevskiy «Ultrafast laser-induced phenomena in a bulk Au revealed by transient reflectivity measurements with phase-sensitive signal detection»

13:15—13:30

D. Marasanov «Influence of chlorine concentration on the photocatalytic properties of Ag-AgCl nanostructures on the surface of sodium-silicate glass»

13:30—13:45

D. Shcherbinin «AC Stark effect in semiconductor nanoplatlets»

13:45—14:00

A. Sviridov «Streaking camera in the high intensity regime»

14:00—14:25

(invited) *I. Savitsky* «Carrier-envelope phase-sensitive sub-cycle pulse generation and plasma nonlinearity»

14:25—14:40

E. Stepanov «Multidimensional correlation spectroscopy of organic complexes in the mid-infrared range with nonlinear-optical transition of signal to the visible range»

Section 7 «Ultrafast laser technologies in biomedicine»

Wednesday, October 2 / (Conference hall of QRPD)

Session 12:15—15:05 Chair: Sergey Gonchukov

12:15—12:40

(invited) *D. Sitnikov* «Microsurgery of zona pellucida of mammalian embryos using femtosecond laser pulses»

12:40—12:55

Y. Gulina «Experimental study of modifications induced by ultrashort laser pulses in bulk of biocompatible polymers»

12:55—13:10

S. Shelygina «Multispectral optical early non-invasive pre-screening of skin neoplasms»

13:10—13:25

V. Zhigarkov «Laser-induced forward transfer of eukaryotic cells: assay of shock»

13:25—13:40

A. Nastulyavichus «Laser-induced forward transfer method for the treatment of wound infections with bactericidal nanoparticles»

13:40—13:55

A. Korshunov «Creation of a compact installation for laser engineering of microbial systems»

13:55—14:10

A. Ryabova «Using FLIM to optimize photodynamic therapy protocols»

14:10—14:25

I. Dzhun «Laser-assisted fabrication of nanomaterials for magnetic biosensors»

14:25—14:40

T. Semenov «In-situ optical diagnostics of bioactive nanoparticles formation during the RESS process»

14:40—14:55

E. Rimskaya «Raman microspectroscopy in diagnostics of male reproductive system»

14:55—15:05 *Flash talks*

E. Rimskaya «Raman in vivo differentiation of malignant skin neoplasms»

I. Saraeva «Laser-ablative formation of nanoparticles-based antibacterial gels for wound infections treatment: in vitro studies»

Session 16:00 – 17:30, Chair: Eteri Tolordava

16:00—16:15

B. Yakimov «FLIM and machine learning methods in the analysis of cell proliferation during the development of cartilage tissue»

16:15—16:30

P. Morozov «Direct measurement of singlet oxygen phosphorescence lifetimes by superconducting single-photon detector»

16:30—16:45

V. Shcheslavskiy «Fluorescence lifetime macroimaging as a method to perform optical express biopsy»

16:45—17:00

E. Ulturgasheva «Comparison of methods for synthesizing silver nanoparticles: laser-induced direct transfer and laser ablation in liquid»

17:00—17:15

A. Komarova «Fluorescence lifetime imaging of metabolic heterogeneity in colorectal cancer»

17:15—17:30

V. Andreev «Superconducting Single Photon Detector with multimode fiber coupling for PLIM\FLIM applications»

Section 6 «Ultrafast optical technologies and nonlinear optical phenomena»

Wednesday, October 2 / (Small hall)

Session 16:00—17:30, Chair: Fedor Potemkin

16:00—16:15

V. Zhukov «Impacts of doughnut-shaped and Gaussian pulses on energy absorption inside fused silica at different pulse energies»

16:15—16:30

D. Uryupina «Peculiarities of THz emission from the long DC-biased femtosecond laser filament»

16:30—16:45

R. Arkhipov «Generation of unipolar pulses of varying waveform in resonant media»

16:45—17:00

S. Nikitin «Interferometric retrieval of the complex amplitude of femtosecond pulses using autocorrelator with unbalanced group delay dispersion»

17:00—17:15

V. Bogomolov «Multi-regime switchable high-frequency all-fiber erbium femtosecond laser pulse generator for medical laser systems»

17:15—17:30

B. Rumiantsev «Strong-field THz-assisted harmonics generation in an isotropic gas medium»

Poster session

Wednesday, October 2 / (2nd floor)

Section 1

P01 *D. Bezverkhnyaya* «Spectral and spatiotemporal characteristics of laser plasma emission of sulfur and tantalum targets in the X-ray spectral range»

P02 *A. Castillo Ramirez* «Optimization study of electron ejection and acceleration in self-trapping regime»

P03 *M. Dorozhkina* «Laser wakefield acceleration with XCELS driver without pre-formed plasma channel»

P04 *M. Filimonchuk* «Thin-layer liquid targets for frequency laser-plasma sources of accelerated electrons»

P05 *K. Kolupaev* «Simple method for creating ultraviolet radiation with orbital angular momentum through laser-plasma interactions»

P06 *A. Kotov* «A convolutional neural network-based wavefront shape detection approach to improve focusing quality on high-power laser systems»

P07 *A. Poletaeva* «Kinetic modeling of fast electron transport during an intense laser irradiation of solid-density targets»

P08 *A. Samsonov* «Generation of terahertz radiation during relativistic interaction of laser radiation with a thin-layer liquid target»

P09 *N. Shamaeva* «Comparative analysis of detector characteristics Image Plate and Needle Image Plate when recording images in X-ray radiation from laser plasma»

P10 *P. Shcheglov* «Generation of keV X-ray radiation in relativistic laser plasma»

P11 *O. Sviridova* «Influence of laser pulse polarization on the characteristics of accelerated electrons in the relativistic self-trapping regime»

P12 *A. Timoshenko* «Modeling of a High-Energy Radiation Source on Modern Computational Architectures (CPU and GPU)»

P13 *I. Umarov* «Investigation of the beam-loading effect during laser-wakefield acceleration of an electron beam in the linear regime»

P14 *M. Zakharchuk* «Spatial-angular scattering of laser radiation by plasma during irradiation of different targets»

Section 3

P15 *N. Busleev* «Multi-photon absorption in silicon at infrared wavelengths and its dependence on crystal rotation angle»

P16 *D. Gavrilovets* «Numerical simulation of the ultrafast dynamics of the electromagnetic field in a one-dimensional ferroelectric photonic crystal»

P17 *I. Filatov* «Enhancing the corrosion resistance of AISI 304 stainless steel temperature sensor protective shell by nanosecond laser irradiation»

P18 *I. Matyaev* «Rewritable photoluminescence microbits in the volume of sapphire for optical memory»

P19 *M. Mikhalevich* «Laser methods of metal protection from biological and mineral deposits»

P20 *V. Prokopiev* «Enhancement the corrosion resistance of carbon steel via nanosecond laser irradiation»

P21 *A. Rupasov* «Optical elements based on birefringent microtracks»

P22 *N. Smirnov* «Femtosecond laser processing of silicon in the near-infrared range»

Section 4

P23 *P. Pakholchuk* «Modification of diamond impurity structure by femtosecond pulses of the mid-IR range»

Section 6

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