



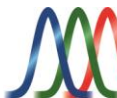
International Conference on Ultrafast Optical Science
“UltrafastLight-2019”

Conference program

September 30 – October 4, 2019
Lebedev Physical Institute, Moscow



AVESTA
LASERS AND OPTICAL SYSTEMS



**АЗИМУТ
ФОТОНИКС**



International Conference on Ultrafast Optical Science “UltrafastLight-2019”, 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 (ITMO, Lebedev Physical Institute)

Monday, September 30

9:00	Registration (Main entrance, 1 st floor)		
9:40	Conference Opening (Conference hall, 3 rd floor)		
<i>Plenary session</i> (Conference hall, 3 rd floor)			
9:50	G. Leuchs "Intense ultrafast quantum light - prospect for large Kerr-squeezing"		
10:25	A. Fedyanin "Ultrafast nonlinear optics in Mie-resonant dielectric nanoantennas"		
11:00	I. Kostyukov "XCELS project: new source of extreme light and unique physics and applications"		
11:35	<i>Coffee break</i>		
12:20	Section 1 "Extreme light" Pillared Hall, 3 rd floor page 8	Section 3 "Ultrafast laser nanofabrication and nanophotonics" Conference hall, 3 rd floor page 10	Section 7 "Femto-second radiation in spectroscopy and optical frequency metrology" Physical Hall 1 st floor page 12
14:45	<i>Lunch</i>		
16:30	Section 1 "Extreme light" Pillared Hall, 3 rd floor page 9	(17:00) Section 3 "Ultrafast laser nanofabrication and nanophotonics" Conference hall, 3 rd floor page 11	Section 7 "Femto-second radiation in spectroscopy and optical frequency metrology" Physical Hall 1 st floor page 13

Tuesday, October 1

Plenary session (Conference hall, 3rd floor)

9:20	<i>G. Steinmeyer</i> "Ultimate quantum noise limit of frequency comb measurements: can we read out optical clocks with 10^{-20} precision?"		
9:55	<i>M. Sentis</i> "Pulsed Laser Plasma hard x-ray source for phase contrast imaging and applications in biology and material science"		
10:30	<i>F. Vallee</i> " Linear and nonlinear ultrafast optical response of a single nano-object"		
11:05	<i>K. Sugioka</i> "Femtosecond 3D processing fabricating functional micro and nanodevices"		
11:40	<i>Coffee break</i>		
12:20	Section 1 "Extreme light" Pillared Hall, 3 rd floor page 14	Section 3 "Ultrafast laser nanofabrication and nanophotonics" Conference hall, 3 rd floor page 16	Section 6 "Physics and technology of ultrafast lasers and ultrashort laser pulses" Physical Hall 1 st floor page 18
14:45	<i>Lunch</i>		
16:30	Section 1 "Extreme light" Pillared Hall, 3 rd floor page 15	(16:00) Section 3 "Ultrafast laser nanofabrication and nanophotonics" Conference hall, 3 rd floor page 17	Section 6 "Physics and technology of ultrafast lasers and ultrashort laser pulses" Physical Hall 1 st floor page 19

Wednesday, October 2

Plenary session (Conference hall, 3rd floor)

9:20	Y. Cheng "Femtosecond laser 3D micromachining: from research prototype to industrial tool"		
9:55	P. Planken "Detection of buried gratings underneath optically opaque layers using ultrafast electron dynamics and ultrafast photo-acoustics"		
10:30	A. Mysyrowicz "Cavity-free lasing from Nitrogen plasma filaments"		
11:05	V. R. Soma "Femtosecond Laser Materials Processing for Defense Applications: Recent Advances"		
11:40	<i>Coffee break</i>		
12:20	Section 2 "Ultrafast phenomena in condensed matter and ionized gases" Pillared Hall, 3 rd floor page 20	Section 3 "Ultrafast laser nanofabrication and nanophotonics" Conference hall, 3 rd floor page 22	Section 4 "Femtosecond non-linear optics. Filamentation. High field THz generation" Physical Hall 1 st floor page 24
14:45	<i>Lunch</i>		
16:30	Section 2 "Ultrafast phenomena in condensed matter and ionized gases" Pillared Hall, 3 rd floor page 21	(16:00) Section 3 "Ultrafast laser nanofabrication and nanophotonics" Conference hall, 3 rd floor page 23	Section 4 "Femtosecond non-linear optics. Filamentation. High field THz generation" Physical Hall 1 st floor page 25

Thursday, October 3

Plenary session (Conference hall, 3rd floor)

9:20	A. Yartsev "Understanding of charge carrier dynamics in semiconductors: importance of concerted time-resolved techniques"		
9:55	S. Ter-Avetisyan "PW laser driven particle acceleration: novel regime of acceleration"		
10:30	A. Zheltikov "Ultrafast nonlinear optics in the mid-infrared: Expanding the realm of optical physics"		
11:05	E. Glebov "Primary photophysical and photochemical processes for platinum metal complexes prospective in photochemotherapy of tumors"		
11:40	<i>Coffee break</i>		
12:20	Section 1 "Extreme light" <div style="text-align: right;">Pillared Hall, 3rd floor page 26</div>	Section 5 "Femto-second laser photobiology and photochemistry" <div style="text-align: right;">Conference hall, 3rd floor page 29</div>	Section 4 "Femto-second nonlinear optics. Filamentation. High field THz generation" <div style="text-align: right;">Physical Hall 1st floor page 31</div>
14:45	<i>Lunch</i>		
16:30	Section 1 "Extreme light" <div style="text-align: right;">Pillared Hall, 3rd floor page 27</div>	Section 5 "Femto-second laser photobiology and photochemistry" <div style="text-align: right;">Conference hall, 3rd floor page 30</div>	Section 4 "Femto-second nonlinear optics. Filamentation. High field THz generation" <div style="text-align: right;">Physical Hall 1st floor page 32</div>
18:45-20:00	Poster session + coffee break <div style="text-align: right;">page 33</div>		

Friday, October 4

Plenary session (Conference hall, 3rd floor)

9:55	<i>E. Khazanov</i> "Toward the next generation of high-peak-power lasers"		
10:30	<i>D. Skryabin</i> "Frequency comb generation in microring resonators with quadratic nonlinearity"		
11:05	<i>P. Kazansky</i> "Advancing the science and art of ultrafast laser writing"		
11:40	<i>Coffee break</i>		
12:20	Section 2 "Ultrafast phenomena in condensed matter and ionized gases" Pillared Hall, 3 rd floor page 36	Section 3 "Ultrafast laser nanofabrication and nanophotonics" Conference hall, 3 rd floor page 38	Section 4 "Femto-second non-linear optics. Filamentation. High field THz generation" Physical Hall 1 st floor page 40
14:45	<i>Lunch</i>		
16:30	Section 2 "Ultrafast phenomena in condensed matter and ionized gases" Pillared Hall, 3 rd floor page 37	(16:00) Section 3 "Ultrafast laser nanofabrication and nanophotonics" Conference hall, 3 rd floor page 39	Section 4 "Femto-second non-linear optics. Filamentation. High field THz generation" Physical Hall 1 st floor page 41

Section 1 "Extreme light"

Session 12:20 – 14:10, Chair: Dr. Andrey Brantov

12:20-12:45

(invited) A. Pukhov "Structured laser pulse interaction with matter: QED effects and beyond"

12:45-13:10

(invited) N. Andreev "Laser-plasma accelerators of high energy electrons"

13:10-13:25

A. Korzhimanov "Highly efficient generation of mid-IR radiation in back-reflection of ultra-intense laser pulse from near-critical density plasmas"

13:25-13:40

O. Kostenko "Hard X-rays generation by hot electrons in metal targets"

13:40-13:55

I. Tsymbalov "Direct electron acceleration with injection through the breaking of plasma waves of parametric instabilities"

13:55-14:10

D. Gorlova "Investigation of near threshold photonuclear reactions by electron bunch from relativistic laser-solid interaction"

Section 1 "Extreme light"

Session 16:30 – 18:10, Chair: Prof. Nikolay Andreev

16:30-16:55

(invited) A. Brantov "Advanced schemes of laser based particle acceleration for radiation-radioactive sources"

16:55-17:10

V. Kulagin "Terahertz and infrared pulses generated by a laser wakefield"

17:10-17:25

A. Kuratov "Intense laser plasma interaction as a source of strong terahertz electromagnetic wave"

17:25-17:40

S. Shulyapov "The effect of laser pulse contrast and duration on the gamma-ray yield in laser-plasma interactions"

17:40-17:55

M. Veysman "On electron acceleration in guiding structures with account for parametric resonances and synchrotron radiation"

17:55-18:10

V. Popov "Nonlinear processes in the injection and acceleration of electrons in plasma wake field in the interaction of a subterawatt laser pulse with a gas jet"

Monday, September 30/ Pillared hall

Section 3 "Ultrafast laser nanofabrication and nanophotonics"

Session 12:20 – 14:30, Chair: Prof. Aleksandr Kuchmizhak

12:20-12:45

(invited) A. Alekhin "Ultrafast dynamics at fs-laser-excited magnetic meta-surfaces"

12:45-13:10

(invited) I. Staude "Interaction of semiconductor metasurfaces with short laser pulses: from nonlinear effects towards spatiotemporal shaping"

13:10-13:35

(invited) D. Zhigunov "Light manipulation by dielectric nanoparticles produced by femtosecond laser printing"

13:35-14:00

(invited) A. Shorokhov "All-optical tuning of GaAs nanoantennas and metasurfaces"

14:00-14:15

R. Zvagelsky "3D photonic wirebonds as modern basis for integrated optics"

14:15-14:30

N. Busleev "Numerical simulation of metal-semiconductor and metal-oxide nanoparticles for sensors"

Section 3 "Ultrafast laser nanofabrication and nanophotonics"

Session 17:00 – 18:40, Chair: Prof. Sergey Kudryashov

17:00-17:25

(invited) V. Balykin "Classical and quantum light sources on nanometer spatial and femtosecond temporal scales"

17:25-17:50

(invited) O. Vitrik "Refractive index mapping with plasmonic nanoantenna"

17:50-18:15

(invited) V. Klimov "Long-range focusing of femtosecond plasmonic pulses"

18:15-18:40

(invited) P. Melentiev "Femtosecond classical and quantum light sources on nanometer spatial scale"

Monday, September 30/ Conference hall

Section 7 "Femtosecond radiation in spectroscopy and optical frequency metrology"

Session 12:20 – 14:35, Chair: Mrs. Elena Fedorova

12:20-12:45

(invited) A Matveev "Sub-natural Linewidth in Two-photon Frequency Comb Spectroscopy"

12:45-13:10

(invited) A. Afanasiev "Pulsed femtosecond optical dipole trap for neutral atoms"

13:10-13:35

(invited) A. Nishiyama "Broadband precise spectroscopy using optical frequency combs"

13:35-13:50

D. Tregubov "Stark and Zeeman shifts in thulium optical clock"

13:50-14:05

O. Berdasov "Strontium optical lattice clock for the national time scale"

14:05-14:20

M. Gurov "New design of vacuum chamber for next generation of strontium optical lattice clock"

14:20-14:35

G. Vishnyakova "Optical frequency transfer over 940 km fiber link connecting MPQ and PTB"

Section 7 "Femtosecond radiation in spectroscopy and optical frequency metrology"

Session 16:30 – 18:30, Chair: Dr. Artem Golovizin

16:30-16:55

(invited) *M. Gubin* "Experimental results of a fs laser application for phase calibration of the frequency ranges of a VLBI radio-telescope receiving systems"

16:55-17:20

(invited) *C. Ohae* "Continuous Generation of the Arbitrary Optical Waveform Based on the Optical Frequency Division"

17:20-17:35

I. Balakireva "Noise reduction in a multi-Stokes Brillouin laser"

17:35-17:50

I. Zalivako "Solid-state Yb:KYW optically referenced frequency comb for precision spectroscopy of He⁺"

17:50-18:05

N. Zhadnov "Ultrastable lasers for optical clocks and fundamental research"

Flash talks

A. Mashko "Spectroscopy of neutral atoms trapped in femtosecond optical dipole trap"

D. Mishin "Preparation of internal states of thulium atoms using optical pumping"

D. Provorchenko "Development of a high-power laser system for an optical lattice at a magic wavelength for thulium optical clock"

P. Sidorov "Towards transportable optical frequency standard based on a single Yb⁺ ion"

P. Vishnyakov "Compact frequency comb for transportable Yb⁺ ion clock"

Section 1 "Extreme light"

Session 12:20 – 14:25, Chair: Prof. Alexander Pukhov

12:20-12:45

(invited) *I. Andriyash* "Compact synchrotron radiation sources on laser plasma interactions"

12:45-13:10

(invited) *J. Feng* "Highly efficient electron acceleration in plasma waveguide driven by tightly focused low"

13:10-13:25

A. Fedotov "Ion acceleration assisted by radiation reaction"

13:25-13:40

E. Gelfer "On a threshold of relativistic transparency of a thin foil"

13:40-13:55

E. Efimenko "Plasma collapse in electron-positron pair generation by extreme laser fields"

13:55-14:10

O. Vais "Diagnostics of different laser parameters via direct proton acceleration"

14:10-14:25

Y. Kochetkov "Diagnostics of spontaneous magnetic fields in capacitor-coil targets"

Section 1 "Extreme light"

Session 16:30 – 18:10, Chair: Prof. Sargis Ter-Avetysian

16:30-16:55

(invited) K. Ivanov "Surface and volume sub- λ scale structured targets for efficient generation of ionizing radiation for applications at relativistic ultrashort laser-plasma interaction"

16:55-17:10

K. Safronov "Determination of a 100 TW femtosecond laser pulse contrast from measurements of its specular reflectivity from solid target"

17:10-17:25

D. Serebryakov "Electron acceleration in laser-irradiated solid targets with periodic surface structures"

17:25-17:40

S. Bochkarev "Laser irradiated sub-micro wire and sheet array targets as a source of thermonuclear neutrons"

17:40-17:55

A. Zavorotnyi "GEANT4 modelling of experiments on electron acceleration in dense laser plasma"

17:55-18:10

S. Popruzhenko "Quantum effects on the radiation-driven magnetic field generation in laser plasma"

Tuesday, October 1 / Pillared hall

Section 3 "Ultrafast laser nanofabrication and nanophotonics"

Session 12:20 – 14:55, Chair: Prof. Fabrice Vallee

12:20-12:45

(invited) G. Tsididis "Modelling of the ultrafast dynamics and surface plasmon properties of Silicon upon irradiation with mid-infrared femtosecond laser pulses"

12:45-13:10

(invited) G. Miyaji "Origin of fluence dependence of periodicity in nanostructuring on diamond-like carbon films with femtosecond laser pulses"

13:10-13:35

(invited) D. Ivanov "Modeling of Laser Induced Periodic Surface Structures on Metals due to an Ultrashort Laser Pulse in Different Media"

13:35-14:00

(invited) S. Zobotnov "Femtosecond laser-induced nanomodification and ripple formation at amorphous silicon surfaces"

14:00-14:25

(invited) B. Gakovic "Laser induced periodical surface structures produced by fs pulses on nanolayer thin films"

14:25-14:40

V. Makin "Model for spatial nanogratings formation under ultrashort laser radiation filamentation in transparent media"

14:40-14:55

V. Makin "Abnormal oriented spatial surface nanogratings formation by ultrashort laser radiation"

Section 3 "Ultrafast laser nanofabrication and nanophotonics"

Session 16:00 – 17:55, Chair: Prof. Wolfgang Husinsky

16:00-16:25

(invited) Y. Nakata "Fine Beam Shaping Technique by Spatial Light Modulator and 4f System for Area Processing"

16:25-16:50

(invited) A. Kuchmizhak "Direct laser printing of functional surfaces and microdevices with structured beams"

16:50-17:15

(invited) F. Courvoisier "High intensity ultrafast Bessel beam shaping"

17:15-17:40

(invited) A. Porfiriev " Focused cylindrical laser beams: time behavior and spatial features"

17:40-17:55

A. Tokmacheva-Kolobova "Features of modification of structural-phase state of titanium alloys under irradiation with short and ultrashort laser pulses"

Tuesday, October 1 / Conference hall

Section 6 "Physics and technology of ultrafast lasers and ultrashort laser pulses"

Session 12:20 – 14:30, Chair: Dr. Pavel Polynkin

12:20-12:45

(invited) V. Chvykov "Towards kW average power of ultra-high peak power Ti:Sapphire laser systems"

12:45-13:10

(invited) P. Minh "Development of a short pulse broadband and narrowlinewidth ultraviolet laser using Ce:LiCAF crystal, orienting to lidar applications"

13:10-13:35

(invited) V. Losev "Progress on the THL-100 hybrid laser system in visible"

13:35-13:50

F. Mollica "Pseudo-Active Mirror Disk Amplifiers in Nd:YAG delivering 50J 10Hz for high-rep rate PW-class laser pumping"

13:50-14:05

A. Andrianov "Coherent combining of ultrashort pulses amplified in Yb-doped multi-core fiber amplifier"

14:05-14:20

Y. Gladush "Fiber laser switchable pulse generation with carbon nanotube saturable absorber with controlled nonlinear properties"

Flash talks

O. Burdukova "Mode locking of diode-pumped dye laser"

S. Leonov "Observation of the bound-state generation in a SESAM mode-locked Cr:ZnSe laser"

Section 6 "Physics and technology of ultrafast lasers and ultrashort laser pulses"

Session 16:30 – 18:50, Chair: Dr. Vladimir Chvykov

16:30-16:55

(invited) K. Yushkov "Information theory approach to acousto-optic high-definition laser pulse shaping"

16:55-17:20

(invited) P. Polynkin "Inline spectral interferometry in short-wave and mid-wave infrared laser filaments in gases for carrier-envelope-phase characterization"

17:20-17:35

E. Anashkina "Reconstruction of ultrashort optical pulse intensity and phase based on SPM spectra measurements in tellurite and germanate fibers"

17:35-17:50

M. Grishin "Paradoxical (up to 13) stimulated Raman scattering threshold reduction near the liquids nitrogen interface: new type of Raman lasing"

17:50-18:05

S. Pershin "Picosecond Raman laser near air-water interface: paradoxical (8-fold) threshold reduction"

18:05-18:20

S. Pershin "Stimulated Raman scattering spectrum narrowing under picosecond pulse train pumping"

18:20-18:35

M. Trigub "Active optical systems for high speed imaging"

18:35-18:50

S. Nikitin "Ti:sapphire femtosecond laser with integrated multidiode pumping"

Tuesday, October 1 / Physical hall

Section 2 "Ultrafast phenomena in condensed matter and ionized gases"

Session 12:20 – 14:05, Chair: Prof. Martin Garcia

12:20-12:45

(invited) K. Oguri "Attosecond electron dynamics in solids – toward petahertz-scale solid state technology"

12:45-13:10

(invited) M. Izquierdo "Monitoring ultrafast metallization in LaCoO₃ with femtosecond soft x-ray spectroscopy"

13:10-13:35

(invited) V. Nefedova "Towards measurements of attosecond electron dynamics in high-order harmonic generation from solids"

13:35-13:50

M. Zhukova "Intraband absorption of femtosecond light pulses in crystals induced by acoustic and longitudinal optical phonon-assisted processes"

13:50-14:05

A. Zubko "Using photoacoustic effect from train of ps-pulses for monitoring of laser ablation processes"

Section 2 "Ultrafast phenomena in condensed matter and ionized gases"

Session 16:30 – 18:15, Chair: Prof. Nadezhda Bulgakova

16:30-16:55

(invited) N. Bulgakova "Critical assessment of ultrafast laser-induced processes in transparent dielectrics: New results and challenges"

16:55-17:20

(invited) M. Garcia "Ab-initio description of the influence of incoherent electron-phonon scattering on laser-induced structural relaxation processes"

17:20-17:45

(invited) I. Oladyshkin "Graphene in strong optical and THz fields"

17:45-18:00

V. Kostin "Plasmonic and carrier-envelope-phase effects in laser-plasma terahertz generation"

Flash talks

J.Hrabovsky "Structuring of Kapton surface with ultrashort laser pulses"

S. Bezhanov "Effects of metal heating on the spectral composition and generation efficiency of terahertz radiation"

V. Grishkov "THz radiation generation via interaction of ultrashort laser pulse on a metal-dielectric system"

Wednesday, October 2 / Pillared hall

Section 3 "Ultrafast laser nanofabrication and nanophotonics"

Session 12:20 – 14:40, Chair: Prof. Francois Courvoisier

12:20-12:45

(invited) N. Inogamov "Femtosecond and nanosecond laser - matter interaction and ablation technologies"

12:45-13:10

(invited) J. Colombier "Imaging and modeling the multipulse dynamics of ultrafast laser-induced self-organization"

13:10-13:35

(invited) T. Apostolova "Dielectric response of photo-excited bulk silicon and germanium"

13:35-14:00

(invited) S. Kudryashov "Ultrafast dynamics in strongly electronically excited noble metals: search for super-plasmonic states"

14:00-14:25

(invited) N. Sanner "10-fs laser pulse ablation of dielectrics"

14:25-14:40

A. Frolov "Ultrafast dynamics of magneto-optical Kerr effect in all nickel magnetoplasmonic crystals"

Section 3 "Ultrafast laser nanofabrication and nanophotonics"

Session 16:00 – 18:20, Chair: Prof. Venugopal Rao Soma

16:00-16:25

(invited) F. Ilday "Nonlinear feedback driven laser-material interactions"

16:25-16:50

(invited) Y. Zhou "Femtosecond laser processing and assembly of nanostructures and nanodevices"

16:50-17:15

(invited) I. Mirza "Chemical functionalization of graphene on laser patterned surfaces"

17:15-17:40

(invited) S. Ilday "Ultrafast laser-driven dynamic adaptive colloidal crystals"

Flash talks

P. Danilov "Femtosecond laser fabrication of plasmon resonance micro- and nanostructures for surface-enhanced spectroscopy"

N. Smirnov "Single-shot femtosecond laser microablation of gold"

A. Nastulyavichus "Laser ablation of Au/Pd films"

A. Kolchin "Femtosecond laser modification of amorphous germanium thin films and multi-layered germanium/silicon structures"

F. Kashaev "Formation of silicon nanoparticles via laser ablation of silicon nanowires in liquids"

A. Ivanova "Plasmonic effects in laser-structured thin Au-Pd films as potential hydrogen sensors"

A. Fronya "Effect of gas composition during pulsed laser deposition of silicon nanocrystals on their structure and photoluminescent properties"

I. Krylach "Laser fabrication of microfluidic gradient textures on PMMA surface"

Section 4 "Femtosecond non-linear optics. Filamentation. High field THz generation."

Session 12:20 – 14:45, Chair: Dr. Leonid Seleznev

12:20-12:45

(invited) *O. Kosareva* "Universal spectral structures in atmospheric density and pressurized molecular gases"

12:45-13:10

(invited) *E. Oliva* "Modelling of the amplification of UV radiation in Nitrogen plasma filaments"

13:10-13:35

(invited) *L. Arantchouk* "Experimental study of leader propagation in air into a nanosecond laser filament channel of 1-m scale under the tesla created HV pulse"

13:35-14:00

(invited) *L. Arissian* "Ultrafast spectroscopy of air lasing"

14:00-14:15

Y. Geints "Cascade filamentation regime of high-power ultrashort laser pulse in air and bulk dielectric"

14:15-14:30

I. Zyatikov "Superradiance pulse generation by molecular nitrogen ions in atmospheric filament"

14:30-14:45

A. Murzanev "Quantitative analysis of laser plasma images obtained by the nonlinear phase contrast method, estimation of plasma density"

Section 4 "Femtosecond non-linear optics. Filamentation.
High field THz generation."

Session 16:30 – 18:45, Chair: Prof. Olga Kosareva

16:30-16:55

(invited) A. Couairon "Secondary emission from the plasma generated by organized superfilaments"

16:55-17:20

(invited) A. Houard "Remote acoustic wave generation in water using ultrashort lasers"

17:20-17:45

(invited) A. Shkurinov "Terahertz diagnostics of matter at various phase states"

17:45-18:00

N. Panov "Regularized filamentation on 140m path in air"

18:00-18:15

D. Pushkarev "Transverse structure and energy deposition evolution of loosely focused femtosecond filament bundle in air"

18:15-18:30

E. Mareev "Saturation of deposited energy density during the transition from mono-to superfilament triggered by photoacoustics in condensed matter"

18:30-18:45

B. Rumiantsev "Photoacoustic diagnostics of the deposited energy density under femtosecond filamentation in condensed matter"

Wednesday, October 2 / Physical hall

Section 1 "Extreme light"

Session 12:20 – 14:30, Chair: Prof. Andrei Savel'ev

12:20-12:45

(invited) *S. Pikuz* "Plasma radiation under interaction of femtosecond laser pulses at ultrahigh laser intensities"

12:45-13:00

I. Mordvincev "Ion acceleration at relativistic laser-plasma interaction of femtosecond pulses with nanoscale structured targets and with contrast control"

13:00-13:15

S. Makarov "Characterization of high spatial resolution and ultimate dynamic range of lithium fluoride X-ray detectors"

13:15-13:30

M. Alkhimova "X-ray spectroscopy for investigation of high -Z plasma created by ultra-relativistic femtosecond laser pulses"

13:30-13:45

D. Gozhev "Stochastic electron heating in laser irradiated micro-wire target and its optimization for the highest temperature"

13:45-14:00

I. Metelskii "Resonance absorption and electromagnetic static fields generation in an inhomogeneous relativistic plasma"

14:00-14:15

N. Borisenko "Noisy targets for laser experiments"

14:15-14:30

A. Andreev "Efficient generation of atto-pulses and fast particles at the interaction of ultra-intense laser radiation with the shaped targets"

Section 1 "Extreme light"

Session 16:30 – 18:30, Chair: Dr. Sergey Bochkarev

16:30-16:55

(invited) E. Suraud "Towards the analysis of attosecond dynamics in complex systems"

16:55-17:10

M. Lobok "Betatron radiation of high brightness from electron acceleration in the regime of laser bullet"

Flash talks (17:10-18:05)

E. Dmitriev "Action of an orbital angular momentum laser beam on dilute plasma"

O. Vais "Nonlinear Thomson scattering of an ultratightly focused laser pulse on ensembles of electrons"

V. Prokudin "Parametric instabilities and electron acceleration in relativistic laser-plasma interaction"

V. Milant'ev "On the motion of electron in an intense laser pulse"

N. Mikheytshev "Ion mass effect on relativistic self-induced transparency in ultra-intense laser interaction with thin plasma slab"

A. Senjkevich "Electron acceleration in the interaction of relativistic laser radiation with sharp plasma interface"

K. Matveevskii "Discharge wave propagation along an extended target irradiated by a short laser pulse"

E. Filippov "X-ray diagnostics of hydrodynamic phenomena in laser-induced astrophysically-relevant plasmas"

S. Gorokhov "Experimental research of the generation of relativistic electron beams in gas jets under the action of high-intensity laser pulses"

T. Semenov "Generation of ultra-hard broadband X-rays under interaction of subrelativistic femtosecond laser pulses with atomic and molecular clusters"

S. Ryazantsev "Investigating the yield of X-rays emitted by a Si foil irradiated by a petawatt laser pulse."

Section 1 "Extreme light"

Flash talks (18:05-18:35)

I. Zhvania "Generation of sub-MeV electrons in krypton cluster nanoplasma by relativistic femtosecond laser pulses"

S. Kuznetsov "Physical mechanism of electron bunch generation by an ultrarelativistic–intensity laser pulse passing through a sharp plasma boundary"

A. Golovanov "Field ionization in extremely intense pulses"

G. Gospodinov "Studying the dynamics of laser-plasma interaction on solid targets by femtosecond interferometry"

D. Pugacheva "Dynamics of electron beam emittance in laser-plasma accelerators"

O. Shiryayev "Asymptotic theory of the ponderomotive dynamics of an electron in a relativistically intense focused electromagnetic envelope"

Section 5 "Femtosecond laser photobiology and photochemistry"

Session 12:20 – 14:05

12:20-12:45

(invited) A. Ivanov "Non-equilibrium effects in ultrafast photoinduced charge transfer"

12:45-13:10

(invited) I. Pozdnyakov "Ultrafast processes in photochemistry of natural photosensitizers"

13:10-13:35

(invited) E. Shirshin "Ultrafast processes in photochemistry of natural photosensitizers"

13:35-13:50

O.Ablyasova "Ultrafast Dissociation Dynamics of $(\text{Fe}[\text{CO}]_5)_n\text{Ar}_m$ Mixed Molecular Clusters Induced by Femtosecond IR Radiation"

13:50-14:05

D. Cherepanov "Ultrafast processes of charge transfer in photosynthetic systems"

Thursday, October 3 / Conference hall

Section 5 "Femtosecond laser photobiology and photochemistry"

Session 16:30 – 18:15

16:30-16:45

A. Mereshchenko "The solvent effect on ultrafast photochemistry of copper(II) halide complexes"

16:45-17:00

T. Mikhailova "Dynamic solvent effect in photoinduced intramolecular proton-coupled electron transfer reactions"

17:00-17:15

V. Mikhailova "Modeling kinetics of ultrafast photoinduced intramolecular proton-coupled electron transfer"

17:15-17:30

I. Yermolenko "The temperature dependence of ultrafast Stokes shift dynamics"

17:30-17:45

V. Korshunov "Influence of fluorinated chain length on energy transfer processes of Eu^{3+} β -diketonate complexes"

17:45-18:00

A. Razjivin "Excitations transfer and trapping in phototsystem 1 complexes of *Arthrospira platensis* at room temperature"

18:00-18:15

N. Rovnyagina "Free and bound Thioflavin T molecules with ultrafast relaxation: implications for assessment of protein binding and aggregation"

Section 4 "Femtosecond non-linear optics. Filamentation.
High field THz generation."

Session 12:20 – 14:40, Prof. Arnaud Couairon

12:20-12:45

(invited) I. Babushkin "THz radiation in circularly-polarized multicolor strong fields"

12:45-13:10

(invited) A. Tsypkin "High Kerr nonlinearity of water in THz spectral range"

13:10-13:25

A. Ushakov "Study of backward terahertz emission from two-color laser induced microplasma"

13:25-13:40

E. Mitina "Energy deposition and terahertz radiation generation under the loose focusing of two-color radiation in air"

13:40-13:55

P. Chizhov "Terahertz generation in long two-color air filaments"

13:55-14:10

I. Nikolaeva "Terahertz generation from two-color laser induced breakdown in pressurized gases"

14:10-14:25

I. Ozheredov "Biomedical applications of THz radiation"

14:25-14:40

E. Zaloznaya "Scenario of light bullet formation and supercontinuum generation under axicon focusing"

Thursday, October 3 / Physical hall

Section 4 "Femtosecond non-linear optics. Filamentation. High field THz generation."

Session 16:30 – 18:30, Chair: Prof. Ihar Babushkin

16:30-16:55

(invited) T. Floery "Application of intense pulse bursts for the generation of tunable THz pulses and filamentation in molecular gases"

16:55-17:20

(invited) G. Kitaeva "New approaches for THz wave generation and detection in nonlinear crystals and photoconductive materials"

17:20-17:35

M. Nazarov "Intense THz radiation obtained by TW laser pulses filamentation in a low-pressure nitrogen"

17:35-17:50

O. Khasanov "Concept of complex nonlinear eikonal in tasks of femtosecond filamentation"

17:50-18:05

D. Mokrousova "THz radiation emitted from single-color filaments of different wavelengths"

Flash talks

G. Rizaev "Interaction of filaments in different spectral ranges"

A. Ustinov "Third-Harmonic Generation in Silicon Nanowire Ensembles"

A. Grabtchikov "Frequency up-conversion of IR femtosecond pulses from Yb:KYW laser in KGW crystal"

V. Pankratov "Nonparaxial input for propagation equations: tight-focusing case"

N. Zhidovtsev "The influence of focusing conditions on frequency-angular structure of superfilament radiation"

Poster session

Section 1

E. Dmitriev "Action of an orbital angular momentum laser beam on dilute plasma"

O. Vais "Nonlinear Thomson scattering of an ultratightly focused laser pulse on ensembles of electrons"

V. Prokudin "Parametric instabilities and electron acceleration in relativistic laser-plasma interaction"

V. Milantsev "On the motion of electron in an intense laser pulse"

N. Mikheysev "Ion mass effect on relativistic self-induced transparency in ultra-intense laser interaction with thin plasma slab"

A. Senjkevich "Electron acceleration in the interaction of relativistic laser radiation with sharp plasma interface"

K. Matveevskii "Discharge wave propagation along an extended target irradiated by a short laser pulse"

E. Filippov "X-ray diagnostics of hydrodynamic phenomena in laser-induced astrophysically-relevant plasmas"

S. Gorokhov "Experimental research of the generation of relativistic electron beams in gas jets under the action of high-intensity laser pulses"

T. Semenov "Generation of ultra-hard broadband X-rays under interaction of subrelativistic femtosecond laser pulses with atomic and molecular clusters"

S. Ryazantsev "Investigating the yield of X-rays emitted by a Si foil irradiated by a petawatt laser pulse."

I. Zhvania "Generation of sub-MeV electrons in krypton cluster nanoplasma by relativistic femtosecond laser pulses"

S. Kuznetsov "Physical mechanism of electron bunch generation by an ultrarelativistic-intensity laser pulse passing through a sharp plasma boundary"

A. Golovanov "Field ionization in extremely intense pulses"

G. Gospodinov "Studying the dynamics of laser-plasma interaction on solid targets by femtosecond interferometry"

D. Pugacheva "Dynamics of electron beam emittance in laser-plasma accelerators"

Thursday, October 3 / 2nd floor

Poster session

Section 2

J. Hrabovsky "Structuring of Kapton surface with ultrashort laser pulses"

S. Bezhanov "Effects of metal heating on the spectral composition and generation efficiency of terahertz radiation"

V. Grishkov "THz radiation generation via interaction of ultrashort laser pulse on a metal-dielectric system"

Section 3

P. Danilov "Femtosecond laser fabrication of plasmon resonance micro- and nanostructures for surface-enhanced spectroscopy"

N. Smirnov "Single-shot femtosecond laser microablation of gold"

A. Nastulyavichus "Laser ablation of Au/Pd films"

A. Kolchin "Femtosecond laser modification of amorphous germanium thin films and multi-layered germanium/silicon structures"

F. Kashaev "Formation of silicon nanoparticles via laser ablation of silicon nanowires in liquids"

A. Ivanova "Plasmonic effects in laser-structured thin Au-Pd films as potential hydrogen sensors"

A. Fronya "Effect of gas composition during pulsed laser deposition of silicon nanocrystals on their structure and photoluminescent properties"

I. Krylach "Laser fabrication of microfluidic gradient textures on PMMA surface"

A. Klokov "The acoustic properties of single strained $\text{Si}_{1-x}\text{Ge}_x/\text{Si}$ layer in subterahertz frequency range"

A. Klokov "Visualization of coherent and incoherent twinning systems in crystalline CdZnTe by surface acoustic waves"

Section 4

G. Rizaev "Interaction of filaments in different spectral ranges"

A. Ustinov "Third-Harmonic Generation in Silicon Nanowire Ensembles"

A. Grabtchikov "Frequency up-conversion of IR femtosecond pulses from Yb:KYW laser in KGW crystal"

V. Pankratov "Nonparaxial input for propagation equations: tight-focusing case"

N. Zhidovtsev "The influence of focusing conditions on frequency-angular structure of superfilament radiation"

Poster session

Section 6

O. Burdukova "Mode locking of diode-pumped dye laser"

S. Leonov "Observation of the bound-state generation in a SESAM mode-locked Cr:ZnSe laser"

Section 7

A. Mashko "Spectroscopy of neutral atoms trapped in femtosecond optical dipole trap"

D. Mishin "Preparation of internal states of thulium atoms using optical pumping"

D. Provorchenko "Development of a high-power laser system for an optical lattice at a magic wavelength for thulium optical clock"

P. Sidorov "Towards transportable optical frequency standard based on a single Yb⁺ ion"

P. Vishnyakov "Compact frequency comb for transportable Yb⁺ ion clock"

Thursday, October 3 / 2nd floor

Section 2 "Ultrafast phenomena in condensed matter and ionized gases"

Session 12:20 – 13:40,

12:20-12:45

(invited) A. Horn "Ultrafast excitation dynamics of metals and dielectrics by ultrafast laser radiation in the UV to mid-IR spectral range"

12:45-13:10

(invited) T. Zier "Ab initio analysis of the laser-induced ultrafast structural response in silicon"

13:10-13:25

E. Migal "Control of absorbed energy density and electron concentration via two color femtosecond excitation of solids"

13:25-13:40

S. Aseyev "Development and applications of ultrafast electron diffraction"

Section 2 "Ultrafast phenomena in condensed matter and ionized gases"

Session 16:30 – 18:05, Chair: Prof. Igor Smetanin

16:30-16:55

(invited) A. Popov "Response of nonequilibrium nonstationary plasma created by an intense femtosecond UV laser pulse in rare gases to the emission of the THz frequency band"

16:55-17:20

(invited) A. Erokhin "Stimulated thermal scattering of 100-ps laser pulses"

17:20-17:35

T. Mamontova "Penetration of a monochromatic electromagnetic wave in the plasma formed by multiphoton ionization of gas atoms"

17:35-17:50

K. Vagin "Electronic sound waves in plasma formed by above-threshold ionization of gas atoms"

17:50-18:05

A. Frolov "Terahertz radiation at the interaction of two counterpropagating laser pulses in rarefied plasma"

Friday, October 4 / Pillared hall

Section 3 "Ultrafast laser nanofabrication and nanophotonics"

Session 12:20 – 14:55, Chair: Prof. Fatih Omer Ilday

12:20-12:45

(invited) F. Vallee "Femtosecond optical investigation of the acoustic response of metal nanoparticles: from macro- to nano-size mechanical resonators"

12:45-13:10

(invited) V. Amendola "Formation mechanisms and applications of magnetic-plasmonic alloy nanoparticles obtained by laser ablation in liquid"

13:10-13:35

(invited) N. Tarasenko "Synthesis of silicon carbide nanoparticles by laser assisted techniques in liquids"

13:35-14:00

(invited) D. Amans "Laser-induced plasmas in liquids"

14:00-14:25

(invited) L. Golovan "Photoluminescence and nonlinear-optical effects in CdSe quantum dots in liquid-crystal polymer matrix"

14:25-14:40

A. Tsiptan "On the possibility of overcoming the diffraction limit with self-assembly of nanostructures controlled by quasi-resonant laser radiation"

14:40-14:55

I. Saraeva "Single-shot femtosecond laser ablation of thin gold films: the study of the primary nanoparticles formation"

Section 3 "Ultrafast laser nanofabrication and nanophotonics"

Session 16:00 – 17:50, Chair: Prof. George Tsibidis

16:00-16:25

(invited) E. Skorb "Photoinitiated processes on titania for bionic devices and infochemistry"

16:25-16:50

(invited) O. Fedotova "Methods of femtosecond spectroscopy of nanocomposites"

16:50-17:05

A. Garmatina "IR femtosecond-laser ablation and processing of solid target by self-induced feedback guided second harmonic generation"

17:05-17:20

K. Emelyanenko "Combination of nanosecond laser texturing and functional nanoengineering for the design of polyfunctional superhydrophobic coatings"

17:20-17:35

S. Romashevskiy "Ultrafast laser-induced modifications in materials"

17:35-17:50

D. Zayarnyi "Sub-kilometer-per-second laser scanning by polygon systems for high-throughput laser microprocessing"

Friday, October 4 / Conference hall

Section 4 "Femtosecond non-linear optics. Filamentation.
High field THz generation."

Session 12:20 – 14:30, Chair: Dr. Nikolay Panov

12:20-12:45

(invited) *F. Potemkin* "New horizons of extreme nonlinear optics driven by mid-IR femtosecond multi-gigawatt-class Fe:ZnSe laser operating at 4.4 μm "

12:45-13:00

D. Urgapov "Simulations of terahertz emission from gas optical breakdown: a scheme with crossed domains for optical and terahertz fields"

13:00-13:15

Ya. Grudtsyn "Femtosecond pulse self-shortening in Kerr media due to small-scale self-focusing"

13:15-13:30

D. Sitnikov "The source of high-intensity THz pulses to study the effect on living cells"

13:30-13:45

S. Pershin "The spectral characteristics of picosecond SRS in the water at the boundary of "water-air""

13:45-14:00

M. Loginova "Fundamental role of gradient optics phenomena at laser beam interaction with contrast structures induced by optical pulse"

14:00-14:15

A. Shutov "Nonlinear optics of UV laser pulses in air: when humidity matters"

14:15-14:30

S. Stepanenko "Generalized nonlinear Schrödinger equations describing SHG of pulses containing a few cycles"

Section 4 "Femtosecond non-linear optics. Filamentation.
High field THz generation."

Session 16:30 – 17:40, Chair: Dr. Fedor Potemkin

16:30-16:55

(invited) A. Fedotov "Hollow-core antiresonance-guiding photonic crystal fiber for multioctave supercontinua generation in mid-infrared"

16:55-17:10

A. Koribut "Dispersion influence on femtosecond pulse self-shortening efficiency in fused silica"

17:10-17:25

I. Geints "Formation of light bullet's spectrum cut-off in fused silica and fluorides"

17:25-17:40

T. Lysak "Nonlinear chirped soliton formation at laser pulse propagation in a nonlinear medium with (or without) nonlinear absorption"

Friday, October 4 / Physical hall



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