



VII International Conference on Ultrafast Optical Science

UltrafastLight-2023

P. N. Lebedev Physical Institute, Moscow, Russia
02 - 06 October, 2023

Conference website: www.ultrafastlight.ru
Conference e-mail: ultrafastlight@yandex.ru
ultrafastlight@lebedev.ru



Conference scope:

- Ultra-intense electromagnetic fields, strong-field phenomena and nuclear photonics
- Ultrafast processes in ionized gases
- Ultrafast dynamics in condensed matter
- Ultrafast laser technologies in microoptics, nanophotonics and structured light
- Ultrafast diamond photonics
- Femtosecond radiation in spectroscopy and optical frequency metrology
- Ultrafast optical technologies and nonlinear optical phenomena
- Ultrafast laser technologies in biomedicine

The participation in conference is free.



Each day of the conference starts with the plenary session. Following sessions consist of invited talks (25 min), contributed oral talks (15 min) and flash talks (3 slides/5 min) as a poster presentation announcements. There is also an option to register as a listener without submitting a talk.

Chair
Nikolay
Kolachevsky
(LPI)



Vice Chair
Andrey Ionin
(LPI)



Vice Chair
Sergey Kudryashov
(LPI)



VII International Conference on Ultrafast Optical Science «UltrafastLight-2023» is a broad-scope, annual international symposium dedicated to the most important aspects of ultrafast phenomena in different fields of natural sciences and engineering.

Information about this year plenary speakers can be found on our website:

<https://ultrafastlight.ru/plenary-speakers2.html>

The information about [conference sections](#) is presented below:

Section 1. Extreme light

Chair: Andrei Brantov (Lebedev Physical Institute, Russia),

e-mail: brantovav@lebedev.ru

- Laser particle acceleration
- Secondary electromagnetic processes
- Nuclear photonics
- Extreme field physics
- Ultra-high intensity facilities

Section 2. Ultrafast phenomena in ionized gases, semiconductors and metals

Chair: Sergey Uryupin (Lebedev Physical Institute, Russia),

e-mail: uryupin@lebedev.ru

- Strong-field and ionization-induced phenomena
- Instabilities and high-frequency phenomena in ionized gases
- Non-linear phenomena in low-temperature plasmas and semiconductors
- Kinetic processes in plasmas and metals
- Hot electrons in nanoplasmonics
- Ultrafast spectroscopy and imaging of optical, electronic and hot-carrier dynamics
- Ultrafast spectroscopy and imaging of structural dynamics, including electron-phonon relaxation, coherent phonons and phase transitions

Section 3. Ultrafast laser technologies and structured light in micro-optics and nanophotonics

Co-Chairs: Mikhail Kovalev (Lebedev Physical Institute, Russia),

e-mail: kovalevms@lebedev.ru

Sergey Babin (Institute of Automation and Electrometry of SB RAS, Russia),

e-mail: babin@iae.nsk.su

Sergey Fedotov (Mendeleev University of Chemical Technology, Russia),

e-mail: monteske@mail.ru

- Ultrafast nanophotonics in dielectric nano/microstructures
- Ultrafast structured light
- Femtosecond/picosecond laser writing in dielectrics
- Novel optical materials for ultrafast photonics

Section 4. Diamond Photonics

Chair: Sergey Kudryashov (Lebedev Physical Institute, Russia),

e-mail: kudryashovsi@lebedev.ru

Co-chair: Victor Vins (Lebedev Physical Institute, Russia),

e-mail: vgvins@gmail.com

- CW and short-pulse photonics of optical centers: mid-IR, optical and UV ranges, EPR
- Femtosecond laser-induced non-linear photophysics in diamonds
- Ultrafast structural modifications: graphitization, plastic deformation and annealing
- Femtosecond laser inscription in diamonds and its applications

Section 5. Frequency combs in spectroscopy and optical clocks

Chair: Dmitry Tregubov (Lebedev Physical Institute, Russia), e-mail:

tregubovdo@lebedev.ru

- Absolute optical frequency measurements
- Femtosecond frequency combs for direct spectroscopy of ions and atoms
- UV and HUV frequency combs
- Frequency combs in astrophysics
- Time and frequency transfer
- Optical frequency combs applications

Section 6. Ultrafast optical technologies and nonlinear optical phenomena

Co-Chairs: Igor Kinyaevskiy (Lebedev Physical Institute, Russia),

e-mail: kinyaevskiyio@lebedev.ru

Fedor Potemkin (Lomonosov Moscow State University, Russia),

e-mail: potemkin@physics.msu.ru

- Femtosecond and picosecond laser: solid-state, semiconductor, parametric, fiber, and hybrid laser systems
- Optical devices: dispersion management, stretchers/compressors, phase control and stabilization, optoelectronic systems and switchers
- Measurement and characterization of ultrashort pulses: autocorrelators and streak cameras, frequency-resolved optical gating (FROG), spectral phase interferometry
- Nonlinear optical phenomena: stimulated scattering processes, harmonics, sum and difference frequency generation, supercontinuum and self-phase modulation, self-focusing and filamentation, multi-photon processes and nonlinear absorption
- Nonlinear optical devices from the UV to THz range and IR: novel nonlinear materials, optical parametric amplifiers and generators, Raman converters

Section 7. Ultrafast laser technologies in biomedicine

Co-Chairs: Sergey Gonchukov (Moscow Engineering Physics Institute, Russia),

e-mail: sagonchukov@mephi.ru,

Eteri Tolordava (The Gamaleya National Center for Epidemiology and Microbiology, Russia),

e-mail: tolordava.eteri@yandex.ru

Valery Tuchin (Saratov State University, Russia)

e-mail: tuchinvv@mail.ru

- Ultrafast laser fabrication of bionanomaterials
- Femtosecond laser biosensing
- Ultrafast active biotherapy
- Propagation of ultrashort laser pulses in highly scattering biological tissues
- Multiphoton microscopy and tomography