

The Third STEPS Symposium on Photon Science

March 11 - 12, 2018

Shostakovich Hall, Korston Hotel Moscow, Russia

Program

March 11 (Sun)

9:00 - 9:10

Opening Remarks

Vladimir Makarov (Moscow State University),

Sergey Tunik (Saint-Petersburg State University)

Kaoru Yamanouchi (The University of Tokyo)

Session I: Biological applications (Chair: Kaoru Yamanouchi)

9:10 - 9:30

Sergey Tunik (Saint-Petersburg State University)

Phosphorescent Lifetime Imaging (PLIM): History, state of the art, and perspectives

9:30 - 9:50

Takeaki Ozawa (The University of Tokyo)

Opto-bioanalysis: Imaging and controlling protein activities in living cells

9:50 - 10:10

Alexey Povolotzkiy (Saint-Petersburg State University)

Molecular-plasmon nanostructures for biomedical application

10:30 - 10:50

Coffee Break

Session II: Atoms and molecules in laser fields (Chair: Vladimir Makarov)

10:50 - 11:10

Alexei Grum-Ghrzimailo (Moscow State University)

New trends in 'complete' experiment on atomic photoionization

11:10 - 11:30

Elena Gryzlova (Moscow State University)

Effects of hyperfine interactions in atomic photoionization

11:30 - 11:50

Erik Lötstedt (The University of Tokyo)

Coupled electro-nuclear dynamics in laser-driven H_2^+ by a time-dependent multiconfiguration method

11:50 - 12:10

Yuri V. Popov (Moscow State University)

Ionization of H_2O by a strong ultrashort XUV pulse: a model within the single active electron approximation

12:10 - 13:30

Lunch

Session III: Laser-plasma interaction and filamentation (Chair: Alexander Konev)

- 13:30 - 13:50 Andrei Savel'ev (Moscow State University)
Controlled femtosecond superfilaments
- 13:50 - 14:10 Olga Kosareva (Moscow State University)
Polarization control of terahertz radiation from two-color femtosecond gas breakdown plasma
- 14:10 - 14:30 Aleksandr Ushakov (Moscow State University)
The study of laser-plasma source of terahertz radiation
- 14:30 - 14:50 Takanobu Amano (The University of Tokyo)
Astrophysical coherent radiation and acceleration of cosmic rays
- 15:10 - 15:30 **Coffee Break**

Session IV: Spectroscopy and interferometry (Chair: Takeaki Ozawa)

- 15:30 - 15:50 Kaoru Yamanouchi (The University of Tokyo)
Intense field molecular dynamics and spectroscopy
- 15:50 - 16:10 Sergey Pulkin (Saint-Petersburg State University)
Interference femtosecond linear and nonlinear comb-spectroscopy in octave expanded spectral range
- 16:10 - 16:30 Andrey Stoliarov (Moscow State University)
The molecular spectra sensitivity to possible a variation of the fundamental physical constants in cosmological timescale
- 16:30 - 16:50 Norikatsu Mio (The University of Tokyo)
Gravitational-wave astronomy by precision laser interferometry
- 16:50 - 17:00 **Coffee Break**

Session V: Electron scattering in laser fields (Chair: Yuri V. Popov)

- 17:00 - 17:20 Reika Kanya (The University of Tokyo)
Laser-assisted electron scattering and diffraction
- 17:20 - 17:40 Konstantin Kouzakov (Moscow State University)
A quasi-Sturmian approach for laser-dressed electron states in a coulomb field
- 17:40 - 18:00 Takashi Hiroi (The University of Tokyo)
Laser-assisted electron impact ionization
- 18:00 - 20:00 **Dinner**

March 12 (Mon)**Session VI: Light emission and absorption in novel materials** (Chair: Sergey Tunik)

- 9:00 - 9:20 Yuri Tver'yanovich (Saint-Petersburg State University)
Decomposition of cobalt (III) nitrotetrazolato amminates under laser illumination
- 9:20 - 9:40 Elena Grachova (Saint-Petersburg State University)
Molecular emitters based on heavy metal complexes equipped by bipyridine arm: some features of design and photophysical properties
- 9:40 - 10:00 Yulia Shakirova (Saint-Petersburg State University)
Thermoluminescent materials based on organometallic compounds
- 10:00 - 10:20 Alexander Konev (Saint-Petersburg State University)
Light-induced processes in porphyrin-fullerene systems
- 10:20 - 10:40 Mikhail Ryazantsev (Saint-Petersburg State University)
Photochromic compounds for optogenetics: From computational design to biology

10:40 - 11:00 **Coffee Break**

Session VII: Solid-state spectroscopy (Chair: Norikatsu Mio)

- 11:20 - 11:40 Jun Okabayashi (The University of Tokyo)
Tailoring spins and orbitals in spin-orbitronic film interfaces probed by X-ray spectroscopy
- 11:40 - 12:00 Kirill Grigoriev (Moscow State University)
Conversions of optical angular momentum in nonlinear coherent processes in the bulk and on the surface of isotropic nonlocal medium
- 12:00 - 12:20 Andrey Fedotov (Moscow State University)
Nonlinear spectroscopy with few-cycle pulses in mid-Infrared: Mapping the electron band structure by intraband high-harmonic generation in dielectrics

12:20 - 13:40 **Lunch**

Session VIII: Nanostructures and clusters (Chair: Andrey Fedotov)

- 13:40 - 14:00 Ivan Ignatiev (Saint-Petersburg State University)
Exciton dynamics in semiconductor nanostructures
- 14:00 - 14:20 Tatsuya Tsukuda (The University of Tokyo)
Chiroptical properties of ligand-protected gold clusters

- 14:20 - 14:40 Oleg Vyvenko (Saint-Petersburg State University)
Crystal lattice defects as natural light emitting nanostructures in semiconductors
- 14:40 - 15:00 Alina Manshina (Saint-Petersburg State University)
Hybrid metal/carbon flakes in the laser light
- 15:00 - 15:20 Koji Nakabayashi (The University of Tokyo)
Construction of magnetic metal assemblies with various dimensions

15:20 - 15:40 **Coffee Break**

Session IX: Light propagation in media (Chair: Alina Manshina)

- 15:40 - 16:00 Alexei Balakin (Moscow State University)
Broadband terahertz generation from liquid like media
- 16:00 - 16:20 Vyacheslav Morozov (Moscow State University)
Picosecond pulsed diode pumped lasers of high peak and average power
- 16:20 - 16:40 Kuniaki Konishi (The University of Tokyo)
Investigation of laser-ablation mechanism of dielectric materials and application
- 16:40 - 17:00 Vladimir Makarov (Moscow State University)
Polarization singularities nucleation in the self-focusing of an elliptically polarized laser beam
- 17:00 - 17:20 Svyatoslav Shlenov (Moscow State University)
Spatio-temporal and spectral transformation of femtosecond pulsed beams with phase dislocation propagating under conditions of self-action in transparent solid-state dielectrics

17:20 - 17:30 **Closing Remarks**

Vladimir Makarov (Moscow State University),
Sergey Tunik (Saint-Petersburg State University)
Kaoru Yamanouchi (The University of Tokyo)

17:30 - 18:00 **Group Photo**

18:00 - 20:00 **Banquet**