The 1st STEPS Symposium on Photon Science

March 21 - 22, 2015
Auditorium, Chemistry Main Bldg. 5th Floor
Hongo Campus, The University of Tokyo

Organized by: School of Science, The University of Tokyo and Department of Civil Engineering, School of Engineering, The University of Tokyo
Program

March 20 (Fri.)
14:00 - 17:00 Laboratory tour
18:00 - Welcome dinner (Room 002, Sanjo Conference Hall)

March 21 (Sat.)
9:00 - 9:10 Opening Remarks: Kaoru Yamanouchi (The University of Tokyo),
Alex Andreev (St. Petersburg State University)

Session I: Laser-plasma interaction
9:10 - 9:30 Alex Andreev (St. Petersburg State University)
Relativistic nano-plasma photonics
9:30 - 9:50 Andrey Savelyev-Trofimov (Moscow State University)
Superintense laser-plasma interaction in real world applications
9:50 - 10:10 Masahiro Hoshino (The University of Tokyo)
Frontier in astrophysical plasma by using laser experiments
10:10 - 10:30 Olga Kosareva (Moscow State University)
Terahertz and mid-infrared radiation from femtosecond filaments in gases
10:30 - 11:00 Coffee break

Session II: Electron scattering
11:00 - 11:20 Reika Kanya (The University of Tokyo)
Laser-assisted electron scattering and diffraction for ultrafast imaging of atoms and molecules
11:20 - 11:50 Konstantin Kouzakov (Moscow State University)
Laser-assisted electron momentum spectroscopy: theory, potential and perspectives
12:00 - 13:30 Lunch

Session III: Exotic properties of light
13:30 - 13:50 Vladimir Makarov (Moscow State University)
Evolution of polarization singularities of two monochromatic beams in its collinear interaction in isotropic medium with spatial dispersion of cubic nonlinearity
13:50 - 14:10 Mikhail Fedorov (Moscow State University/Russian Academy of Science)
Biphoton and three-photon states, entanglement and Schmidt decompositions

14:10 - 14:30   Coffee break

Session IV: Imaging
14:30 - 14:50   Takeaki Ozawa (The University of Tokyo)
Luminescent sensors for single cell analysis
14:50 - 15:10   Sergey Tunik (St. Petersburg State University)
Photophysical properties of triplet emitters based on transition metal complexes, prospective of application in sensing, bioimaging and OLEDs
15:10 - 15:30   Keisuke Goda (The University of Tokyo)
Extreme imaging and beyond
15:30-15:50   Coffee break

Session V: Molecules and clusters in intense laser fields
15:50-16:10   Erik Lötstedt (The University of Tokyo)
Classical trajectory methods for laser-molecule and laser-atom interaction
16:10-16:30   Alexander Pastor (St. Petersburg State University)
Study of relaxation of multi-photon excited neutral rare gas molecules and clusters in a supersonic jet
16:30-16:50   Alexander Shkurinov (Moscow State University)
Broadband electromagnetic wave emission from atomic cluster plasma produced by femtosecond laser pulses: from x-ray to terahertz wavelengths

Free time

18:00 - 20:00   Banquet

March 22 (Sun.)

Session VI: New methods in spectroscopy
9:00 - 9:20   Sergey Pulkin (St. Petersburg University)
High-resolution femtosecond comb-spectroscopy
9:20 - 9:40   Andrey Stolyarov (Moscow State University)
Laser synthesis of ultracold molecules: from design to production
9:40 - 10:00   Shin Inouye (The University of Tokyo)
Ultracold molecules: production and application
10:00 - 10:20   Maria G. Khrenova (Moscow State University)
Spectroscopy of the flavin-containing proteins: theoretical insights

10:20 - 10:50  
Coffee break

Session VII: Photochemistry of novel materials

10:50 - 11:10  
Alexey Povolotskiy (St. Petersburg State University)
*Photo-excited state chemistry of 4-diazo-2,2-dimethyl-5,5-diphenylthiophene-3-one*

11:00 - 11:20  
Alexander Konev (St. Petersburg State University)
*Novel porphyrin-fullerene covalent dyads capable of forming charge-separated states on a microsecond lifetime scale*

11:20 - 11:40  
Tatsuya Tsukuda (The University of Tokyo)
*Optical properties of ultrasmall gold nanostructures*

13:00 - 13:30  
Lunch

Session VIII: Light propagation and its applications

13:30 - 13:50  
Svyatoslav Shlenov (Moscow State University)
*Femtosecond filaments and their plasma channels in focused laser beam in air*

13:50 - 14:10  
Nikolay Timofeev (St. Petersburg State University)
*Strong coupling between the electromagnetic field and substance development of polariton lasers and new aspects of interference and diffraction of ultra-short pulses of optical radiation*

14:10 - 14:30  
Junji Yumoto (The University of Tokyo)
*Coherent photon technology -Science to innovation-

14:30 - 14:50  
Coffee break

Session IX: Material synthesis

14:50 - 15:10  
Alina Manshina (St. Petersburg State University)
*Laser-inspired chemical transformations*

15:10 - 15:30  
Yury Tver'yanovich (St. Petersburg State University)
*Super-ionic nano-composite solid electrolyte prepared by laser ablation*

15:30 - 15:50  
Shinichi Ohkoshi (The University of Tokyo)
*Magneto-optical functionalities in cyano-bridged bimetal assemblies and metal oxide nanomaterials*

15:50 - 16:10  
Oleg Vyvenko (St. Petersburg State University)
*Helium ion microscope as a tool for gentle material modification on nanoscale*

16:10 - 16:30  
Coffee break
16:30 - 17:30 Round Table Discussion

17:30 - 17:40 Closing Remarks

19:00 - 21:00 Dinner

List of Invited Speakers

[Moscow State University]
Mikhail Fedorov (Moscow State University and A.M. Prokhorov General Physics Institute, Russian Academy of Sciences)
Maria Khrenova (Chair of Physical Chemistry, Chemistry Faculty)
Olga Kosareva (Chair of General Physics and Wave Processes, Faculty of Physics)
Konstantin Kouzakov (Institute of Nuclear Physics)
Vladimir Makarov (Head of Chair of General Physics and Wave Processes, Physics Faculty and Director, International Laser Center)
Andrey Savelyev-Trofimov (Chair of General Physics and Wave Processes, Faculty of Physics)
Alexander Shkurinov (Department of Physics and International Laser Center)
Svyatoslav Shlenov (Chair of General Physics and Wave Processes, Faculty of Physics and Vice-director, International Laser Center)
Andrey Stolyarov (Head of Laser Chemistry Department, Faculty of Chemistry)

[St. Petersburg State University]
Alexander Andreev (St. Petersburg State University, MBI Berlin, and ELI-ALPS)
Alexander Konev (Institute of Chemistry, Department of Organic Chemistry)
Alina Manshina (Chair of Laser Chemistry and Laser Materials Science, Institute of Chemistry)
Alexander Pastor (Optics Department, Physical Faculty)
Alexey Povolotskiy (Chair of Laser Chemistry and Laser Materials Science, Institute of Chemistry)
Sergey Pulkin (Department of General Physics, Physical Faculty)
Nikolay Timofeev (Head of Optics Department, Physical Faculty)
Sergey Tunik (Vice-rector for Research, Saint Petersburg State University, and Institute of Chemistry, SPSU)
Yury Tver'yanovich (Chair of Laser Chemistry and Laser Materials Science, Institute of Chemistry)
Oleg Vyvenko (V.A. Fok Institute of Physics and Interdisciplinary Resource Center)
[The University of Tokyo]

Keisuke Goda (Department of Chemistry, School of Science)
Masahiro Hoshino (Department of Earth and Planetary Science, School of Science)
Shin Inouye (Department of Applied Physics, School of Engineering and Photon Science Center)
Reika Kanya (Department of Chemistry, School of Science)
Erik Lötstedt (Department of Chemistry, School of Science)
Shinichi Ohkoshi (Department of Chemistry, School of Science)
Takeaki Ozawa (Department of Chemistry, School of Science)
Tatsuya Tsukuda (Department of Chemistry, School of Science)
Junji Yumoto (Department of Physics, School of Science and Institute for Photon Science and Technology)

*******