VIII

Russian-Chinese Symposium on Laser Physics and Photonics

PROGRAM & ABSTRACTS

October 11–16, 2018
Kazan, Russia

Scope

This Russian-Chinese Symposium on Laser Physics and Photonics is the eighth symposium in this series, which was conceived as a driving force for furthering collaborative efforts between the countries. One of the major targets of these symposia is bringing together scientists working in various fields of laser physics, photonics and quantum technologies in China and Russia from universities, research institutes and the industry to discuss latest updates in the field and to find possible collaborations. Traditionally, many young scientists, postdoctoral researchers and students, are invited to and participate in these symposia.

The symposium program will host a few plenary talks, sessions of oral presentations (invited and contributed talks) and poster sessions. The number of attendees will include 15 invited participants from each side. Selection of national participants is responsibility of the Russian and Chinese co-chairs, correspondingly. The working language of the Symposium is English.

Symposium Topics

- Flexible electronics
- Nano- and femto-photonics
- Optoelectronic materials
- Physics and applications of terahertz radiation
- Modern tendency and advantages in solid-state lasers and laser systems
- Quantum optics and quantum information
- Atom optics and atomic clocks
- Other related topics

Organizers

Kazan Scientific Center of Russian Academy of Sciences
Kazan National Research Technical University named after A. N. Tupolev – KAI
Institute of Laser Physics, SB of Russian Academy of Sciences
Institute of Spectroscopy, Russian Academy of Sciences

Supported by

The Government of the Republic of Tatarstan

Symposium co-chairs

Sergei Bagayev, RAS, Institute of Laser Physics, Novosibirsk, Russia
Huang Wei, CAS, Nanjing Tech University, Nanjing, China

Scientific Program Committee

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Location

The symposium will take place at the hotel "Hayal"
at the following address: 16 Universitetskaya str., Kazan, Russia

PROGRAM

12 October 2018 (Friday)

Time	Event / Title of the talk	Page
09:00-09:30	**Opening remarks**	
	Session I Chair: Sergey Bagayev, Novosibirsk, Russia	
09:30-10:15	"Control of the Luminescence Properties of Lanthanide Eu^{3+} Ions with Plasmonic Core-Shell Nanostructures," [PLENARY] **Feng Song**, School of Physics, Nankai University, Tianjin, China	10
	Session II Chair: Victor Zadkov, Moscow, Russia	
10:15-11:00	"Facile preparation of Ag–Ag2S hetero-dendrites with high visible light photocatalytic activity," [PLENARY] **Shougen Yin**, Wenjing Qin, Key Laboratory of Display Materials and Photoelectric Devices, Ministry of Education, Tianjin University of Technology, Tianjin, China	11
11:00-11:30	**Coffee**	
	Session III Chair: Feng Song, Tianjin, China	
11:30-12:00	"Ultraprecise optical clocks: state-of-art and perspectives," [INVITED] Sergey Bagayev, **Alexey Taichenachev**, Institute of Laser Physics SB RAS, Novosibirsk, Russia	12
12:00-12:30	"Laser cooling on narrow-line optical transitions in monochromatic field," [INVITED] **Oleg Prudnikov** (1, 2), R. Ya. Ilenkov (1, 2), A. V. Taichenachev (1, 2), V. I. Yudin (1, 2, 3); (1) Institute of Laser Physics SB RAS, Novosibirsk, Russia; (2) Novosibirsk State University, Novosibirsk, Russia; (3) Novosibirsk State Technical University, Novosibirsk, Russia	13
12:30-12:50	"Towards an optical frequency standard based on ultra-cold magnesium atoms," [ORAL] **Maxim Tropnikov** (1), A. E. Bonert (1), A. N. Goncharov (1, 2, 3), S. N. Kuznetsov (1), V. I. Baraulya (1), D. V. Brazhnikov (1, 2), O. N. Prudnikov (1); (1) Institute of Laser Physics SB RAS, Novosibirsk, Russia; (2) Novosibirsk State University, Novosibirsk, Russia; (3) Novosibirsk State Technical University, Novosibirsk, Russia	14
13:00-14:30	**Lunch**	

Time	Event / Title of the talk	Page
	Session IV Chair: Sergey Kharintsev, Kazan, Russia	
14:30-15:00	"Nonlinear and quantum optics with single plasmonic nanostructure," [INVITED] **Victor Zadkov** (1, 2), V. I. Balykin (1), P. N. Melentiev (1), Yu. V. Vladimirova (2), Feng Song (3); (1)Institute of Spectroscopy, Russian Academy of Sciences, Troitsk, Moscow, Russia; (2) Faculty of Physics, Lomonosov Moscow State University, Moscow, Russia; (3) Photonics Center, Nankai University, Tianjin, China	15
15:00-15:30	"Near-field polarization of a high refractive index dielectric nanosphere on a dielectric substrate," [INVITED] **Yulia Vladimirova** (1, 2), V. N. Zadkov (1, 3, 4), F. Song (5); (1) Department of Physics, Lomonosov Moscow State University, Moscow, Russia; (2) Quantum Technology Center, Moscow State University, Moscow, Russia; (3) Faculty of Physics, Higher School of Economics, Moscow, Russia; (4) Institute of Spectroscopy, Russian Academy of Sciences, Troitsk, Moscow, Russia; (5) College of Physical Sciences, Nankai University, Tianjin, China	16
15:30-16:00	"Self-organizing of a titanium dioxide rolls sculptured with golden nanoparticles," [INVITED] **Alexey Kucherik** (1), S. Kutrovskaya (1, 2), A. Osipov (1), V. Samyshkin (1), A. Antipov (1), A. Istratov (1), I. Scryabin (1), I. Chestnov (1, 2), A. Kavokin (2, 3), S. Arakelian (1); (1) Department of Physics and Applied Mathematics, Stoletov Vladimir State University, Vladimir, Russia; (2) Institute of Natural Sciences, Westlake University, Hangzhou, China; (3) CNR-SPIN, Rome, Italy	17
16:00-16:20	"Laser synthesis of an elongated carbon chains for THz applications," [ORAL] **Anton Osipov** (1), S. V. Kutrovskaya (1, 2), V. A. Saroka (3), V. D. Samyshkin (1), A. O. Kucherik (1); (1) Department of Physics and Applied Mathematics, Stoletov Vladimir State University, Vladimir, Russia; (2) Institute of Natural Sciences, Westlake University, Hangzhou, China; (3) Institute for Nuclear Problems, Belarusian State University, Minsk, Belarus	18
16:30-17:00	**Coffee**	
	Session V Chair: Yulia Vladimirova, Moscow, Russia	
17:00-17:30	"Superresolution Stimulated Raman Microscopy," [INVITED] **Sergey Kharintsev** (1, 2), A. V. Kharitonov (1), A. M. Alekseev (3, 4), M. Kh. Salakhov (1, 2), S. G. Kazarian (5); (1) Institute of Physics, Kazan Federal University, Kazan, Russia; (2) Institute of Perspective Technologies, Tatarstan Academy of Sciences, Kazan, Russia; (3) National Laboratory Astana, Nazarbayev University, Astana, Kazakhstan; (4) STC NMST, Moscow Institute for Electronic Technology, Moscow, Russia; (5) Department of Chemical Engineering, Imperial College London, United Kingdom	19
17:30-17:50	"Synthesis and Characterization of Three-dimensional Shell-like Chiral Nanostructures," [ORAL] **Jianhua Zhu**, Yidong Hou, Zengsen Lin; College of Physical Science and Technology, Sichuan University, Chengdu, China	20
19:00-21:00	**Welcome reception**	

13 October 2018 (Saturday)

Time	Event / Title of the talk	Page
	Session VI Chair: Alexey Kucherik, Vladimir, Russia	
09:00-09:45	"Plasmon optics: fundamentals and applications," [PLENARY] **Pavel Melentiev** (1, 2), V. I. Balykin (1, 2); (1) Institute of Spectroscopy RAS, Moscow, Troitsk, Russia; (2) National Research University, Higher School of Economics, Moscow, Russia	21
	Session VII Chair: Rustem Shakhmuratov, Kazan, Russia	
09:45-10:30	"Electron spins in quantum computing and quantum informatics," [PLENARY] **Kev Salikhov**, Zavoisky Physical-Technical Institute, Federal Research Center "Kazan Scientific Center of RAS", Kazan, Russia	22
10:30-11:00	**Coffee**	
11:00-13:00	Bus transfer and lab tour to the Zavoisky Physical-Technical Institute	
13:00-14:30	**Lunch**	
	Session VIII Chair: Alexey Taichenachev, Novosibirsk, Russia	
14:30-15:00	"Development of compact biosensor analytical systems for highly sensitive detection of biologically active and toxic compounds in liquids," [INVITED] Yu. Yevdokimov (1), **Oleg Kompanets** (2); (1) V. A. Engelhardt' Institute of Molecular Biology, RAS, Moscow, Russia, (2) Institute of Spectroscopy RAS, Troitsk, Moscow, Russia	23
15:00-15:20	"The mechanisms of the interaction of terahertz radiation with neurons," [ORAL] A. S. Ratushniak (1), T. A. Zapara (1), A. L. Proskura (1), A. S. Kozlov (2), D. S. Serdyukov (3, 4, 5), **Olga Cherkasova** (3, 6); (1) Institute of Computational Technologies of SB RAS, Novosibirsk, Russia; (2) Institute of Chemical Kinetics and Combustion of SB RAS, Novosibirsk, Russia; (3) Institute of Laser Physics of SB RAS, Novosibirsk, Russia; (4) Novosibirsk National Research State University, Novosibirsk, Russia; (5) Federal Research Center "Institute of Cytology and Genetics of the Siberian Branch of the RAS", Novosibirsk, Russia; (6) Novosibirsk State Technical University, Novosibirsk, Russia	24
15:20-15:40	"Microrefractometry with single molecules," [ORAL] **Maxim Gladush** (1, 2), A. A. Gorshelev (1), A. V. Naumov (1, 2); (1) Institute of Spectroscopy RAS, Troitsk, Moscow, Russia; (2) Moscow State Pedagogical University, Moscow, Russia	25
15:40-16:10	"Research on the properties and key technologies of optical fibre sensor with hybrid structure," [INVITED] **Li Pei**, Jianshuai Wang, Jingjing Zheng, Jing Li, Tigang Ning; Key Laboratory of All Optical Network and Advanced Telecommunication Network, Institute of Lightwave Technology, Beijing Jiaotong University, Beijing, China	26
16:30-17:00	**Coffee**	
17:00-19:00	**Poster Session**	

14 October 2018 (Sunday)

Time	Event / Title of the talk	Page
	Session IX Chair: Oleg Prudnikov, Novosibirsk, Russia	
09:00-09:30	"Actively manipulation of output characteristics of passively pulsed fiber lasers by using 2D-material-based saturable absorber on," [INVITED] **Ming Feng**, Zhibo Liu, Feng Song; School of Physics, Nankai University, Tianjin, China	36
09:30-09:50	"The analysis of the energy threshold value in laser derusting by the chemical reaction," [ORAL] **Lisa Lui**; School of Physics, Nankai University, Tianjin, China	37
09:50-10:10	"Frequency conversion of multi-line CO laser into the THz range," [ORAL] A. A. Ionin, **Igor Kinyaevskiy**, Yu. M. Klimachev, A. A. Kotkov, A. M. Sagitova; P. N. Lebedev Physical Institute of the Russian Academy of Sciences, Moscow, Russia	38
10:10-10:30	"The evolution of all-solid state laser system with high average and high peak power radiation," [ORAL] **Gleb Kuptsov** (1, 2), V. V. Petrov (1, 2, 3), A. I. Nozdrina (1, 3), V. A. Petrov (1, 3), A. V. Laptev (1), A. V. Kirpichnikov (1), E. V. Pestryakov (1); (1) Institute of Laser Physics SB RAS, Novosibirsk, Russia; (2) Novosibirsk State National Research University, Novosibirsk, Russia; (3) Novosibirsk State Technical University, Novosibirsk, Russia	39
10:30-11:00	**Coffee**	
11:00-13:00	Bus transfer and lab tour to the Kazan Quantum Center and Laser Technology Lab	
13:00-14:30	**Lunch**	
	Session X Chair: Alexey Kalachev, Kazan, Russia	
14:30-15:00	"Resonator schemes of photon/spin echo for optical and microwave quantum memory," [INVITED] **Sergey Moiseev** (1, 2), K. I. Gerasimov (1, 2), R. R. Latypov, M. M. Minnegaliev, E. S. Moiseev (1, 3), K. V. Petrovnin (1, 3), N. S. Perminov (1, 2), O. N. Sherstyukov (3), R. V. Urmancheev (1); (1) Kazan Quantum Center, Kazan National Research Technical University n.a. A. N. Tupolev, Kazan, Russia; (2) Zavoisky Physical-Technical Institute, Federal Research Center "Kazan Scientific Center of RAS"; (3) Kazan Federal University, Kazan, Russia	40
15:00-15:30	"Tomography of time-bin qubits with atomic frequency combs," [INVITED] **Rustem Shakhmuratov**; Zavoisky Physical-Technical Institute, Federal Research Center "Kazan Scientific Center of RAS", Kazan, Russia; Kazan Federal University, Kazan, Russia	41
15:30-15:50	"Continuous variable subcarrier wave quantum key distribution with heterodyne detection," [ORAL] K. S. Melnik (1), N. M. Arslanov (1), O. I. Bannik (1), **Lenar Gilyazov** (1), V. I. Egorov (2), A. V. Gleim (1, 2), S. A. Moiseev (1); (1) Kazan Quantum Center, Kazan National Research Technical University n.a. A. N. Tupolev, Kazan, Russia; (2) Federal state Autonomous educational institution of higher education St. Petersburg national research University of information technologies, mechanics and optics	42
16:00-16:30	**Coffee**	

Time	Event / Title of the talk	Page
	Session XI Chair: Sergey Moiseev, Kazan, Russia	
16:30-17:00	"Towards Raman quantum memory in isotopically purified rare-earth-ion doped crystals," [INVITED] **Alexey Kalachev**; Zavoisky Physical-Technical Institute, Federal Research Center "Kazan Scientific Center of RAS", Kazan, Russia	43
17:00-17:20	"Correlated photon pair generation via spontaneous four-wave mixing in optical nanofibers," [ORAL] **Anatoly Shukhin** (1), J. Keloth (2), K. Hakuta (2), A. A. Kalachev (1); (1) Zavoisky Physical-Technical Institute, Federal Research Center Kazan "Kazan Scientific Center of RAS", Kazan, Russia; (2) Center for Photonic Innovations, University of Electro-Communications, Tokyo, Japan	44
17:20-17:40	"Generation of pure single-photon states in a system of coupled micro-resonators," [ORAL] **Ilya Chuprina** (1, 2), N. S. Perminov (1, 3), D. Yu. Tarankova (4), A.A. Kalachev (1, 2); (1) Zavoisky Physical-Technical Institute, Federal Research Center "Kazan Scientific Center of RAS", Kazan, Russia; (2) Kazan Federal University, Kazan, Russia; (3) Kazan Quantum Center, Kazan National Research Technical University n.a. A. N. Tupolev, Kazan, Russia; (4) Institute of Radio-Electronics and Telecommunications, Kazan National Research Technical University n.a. A. N. Tupolev, Kazan, Russia	45
19:00-21:00	**Conference dinner**	