

SESSION PMA

September 26, 13:30-16:00, Big Hall

Opening and Plenary Session I

PMA1 Tribute to Rem Khokhlov, V.A. Makarov (*Lomonosov Moscow State University, Russia*) .

PMA2 Ultrafast nonlinear optics in the mid-infrared: Here be dragons, A.M. Zheltikov (*Lomonosov Moscow State Univ., Russia; Kurchatov Inst., Russia; Russian Quantum Ctr, Russia; Texas A&M Univ., USA, Russia*) .

PMA3 TBA, M. Aspelmeyer (*University of Vienna, Austria*) .

ICONO-2016 Program Topics

1. Quantum and Atom Optics

Quantum optics of atoms, molecules and solids. Generation and properties of nonclassical light, squeezing. Multimode quantum states. Quantum imaging and tomography. Entanglement in quantum systems: Characterization, creation and detection; metrology using entanglement. Quantum correlations, stochasticity and thermodynamical analogies.

Chairs: Dieter Meschede (Univ. of Bonn, Germany); Victor Balykin (Institute of Spectroscopy, Russia); Dmitri Mogilevtsev (Stepanov Inst. of Physics, NASB, Belarus)
Ennio Arimondo (Univ. of Pisa, Italy)
Kohzo Hakuta (Univ. of Electro-Communications, Japan)
Nikolay Kolachevsky (Lebedev Physical Inst., Russia)
Andrey Klimov (Univ. de Guadalajara, Mexico)
Aleksander Lvovsky (Univ. of Calgary, Canada)
Aleksei Taichenachev (Inst. of Laser Physics, Russia)

September 26, 11:00-13:00, Hall 1

Session Chair: **Jacob Sherson**, Aarhus University (Denmark)

IMA2 Quantum frequency conversion of single photons: How to interface single atoms with single telecom photons (*invited*), Christoph Becher (*Universität des Saarlandes / Saarland University FR 7.2 (Experimentalphysik), Germany*) [30 min].

IMA3 Quantum optics with solid state artificial atoms (*invited*), L. De Santis, C. Anton, N. Somaschi, V. Giesz, G. Coppola, G. Hornecker, B. Reznichenko, J. C. Lored, M. P. Almeida, C. Gomez, I. Sagnes, A. Lemaître, A. Auffeves, A. G. White, N. D. Lanzillotti-Kimura, L. Lanco and P. Senellart (*C2N Centre for Nanoscience and Nanotechnology, France*) [30 min].

IMA4 Non-stationary and relaxation phenomena in cavity-assisted quantum memory for light, Natalia G. Veselkova, Anton N. Vetlugin, and Ivan V. Sokolov (*Saint Petersburg State University, Russia*) [15 min].

September 26, 16:30-18:30, Hall 1

Session Chair: **Andrei Klimov**, Universidad de Guadalajara (Mexico)

IMD2 F^orster resonances between ultracold atoms for quantum information (*invited*), I. I. Beterov, M. Saffman, D. B. Tretyakov, V.M. Entin, E. A. Yakshina, S. Bergamini, E.A. Kuznetsova, C. Andreeva, and I. I. Ryabtsev (*Rzhanov Institute of Semiconductor Physics SB RAS Novosibirsk State University, Russia*) [30 min].

IMD3 Single atom and nanohole: Effective photon transport (*invited*), A.E. Afanasiev, P.N. Melentiev, A.A. Kuzin, A.Yu. Kalatskiy, V.I. Balykin (*Institute of Spectroscopy Russian Academy of Sciences, Russia*) [30 min].

IMD4 Trapping and Doppler cooling of Mg^{+} ions in a linear Paul trap, I. V. Zalivako, I. A. Semerikov, A. S. Borisenko, T. V. Shpakovsky, V. N. Sorokin, K. Yu. Khabarova, N. N. Kolachevsky (*P.N. Lebedev Physical Institute of the Russian Academy of Sciences, Russia*) [15 min].

IMD5 Oscillon-like patterns in atomic Bose-Einstein condensates confined in optical lattices, A. P. Alodjants, E. S. Sedov, M. V. Charukhchyan, S. M. Arakelian (*Department of Physics and Applied Mathematics, Vladimir State University named after A. G. and N. G. Stoletovs, Gorky Street 87, RU-600000 Vladimir, Russia, Russia*) [15 min].

September 27, 09:00-11:00, Hall 1

Session Chair: **Ivan Sokolov**, Saint Petersburg State University (Russia)

ITuA2 A magnetic source imaging camera (MSIC) based on atomic magnetometry (*invited*), S. Colombo, V. Dolgovskiy, I. Fescenko, V. Lebedev, A. Weis, J. Zhang (*Physics Department University of Fribourg, Switzerland*) [30 min].

ITuA3 Generation of non-classical light via self-induced transparency in mercury-filled hollow core photonic crystal fibers, Ulrich Vogl, Florian Sedlmeir, Nicolas Y. Joly, Christoph Marquardt, Gerd Leuchs (*Max-Planck-Institute for the Science of Light, Germany*) [15 min].

ITuA4 Estimation error for direct state tomography, A.B. Klimov, I. Sainz (*Universidad de Guadalajara, Mexico*) [15 min].

ITuA5 Multiplicated ghost images reconstruction, D.A. Balakin , A. V. Belinsky, A. S. Chirkin, and V.S. Yakovlev (*M.V. Lomonosov Moscow State University, Russia*) [15 min].

ITuA6 Two-mode Schrödinger cats, D. B. Horoshko, S. De Bièvre, M. I. Kolobov, G. Patera (*B. I. Stepanov Institute of Physics, NASB, Belarus*) [15 min].

SESSION ITuC

September 27, 11:30-13:30, Hall 1

Quantum and Atom Optics IV

Session Chair: **Dmitri Horoshko**, B. I. Stepanov Institute of Physics, NASB (Belarus)

ITuC1 Purcell-enhanced single-photon emission from colour centers in diamond coupled to a tunable microcavity (*invited*), D. Hunger, H. Kaupp, J. Benedikter, T. Hümmer, H. Fedder, H.-C. Chang, R. Albrecht, E. Neu, C. Becher, T. W. Hänsch (*Ludwig-Maximilians University Munich, Germany*) [30 min].

ITuC2 Coherent control of spectral properties and mode structure of bright squeezed vacuum states of light, O. V. Tikhonova, P. R. Sharapova, M. V. Chekhova, A. Perez, S. Lemieux, R. Boyd, G. Leuchs (*M.V.Lomonosov Moscow State University, Russia*) [15 min].

ITuC3 Coherent control of atomic q-bits by non-classical light, Stepan N. Balybin, Olga V. Tikhonova (*Department of Physics, M.V. Lomonosov Moscow State University, Russia*) [15 min].

ITuC4 Synthetic frequency protocol in the Ramsey spectroscopy of clock transitions, V. I. Yudin, A. V. Taichenachev, M. Yu. Basalaev, T. Zanon-Willette (*Novosibirsk State University, Russia*) [15 min].

ITuC5 Spontaneous emission of light by molecular singlet oxygen O₂(¹A_g) in dielectric media, E.S. Jarnikova*, M.V. Parkhats, B.M. Dzhagarov (*B.I. Stepanov Institute of Physics of the NAS of Belarus, Belarus*) [15 min].

ITuC6 Momentum distributions of cold atoms in standing wave: Quantum regimes, R.Y. Ilenkov, O.N. Prudnikov, A.V. Taichenachev, V.I. Yudin (*Institute of Laser Physics SB RAS, Russia*) [15 min].

ITuC7 Weak local cross-Kerr nonlinearity and linear optical “elimination” measurements as a resource for quantum state engineering, Alexander B. Mikhalychev, Ilya L. Karuseichyk, Sergei Ya. Kilin (*B. I. Stepanov Institute of Physics of National Academy of Sciences of Belarus, Belarus*) [15 min].

SESSION ITuK

September 27, 18:30-20:00, Posters Hall

Poster Session: Quantum and Atom Optics

ITuK1 Simulation of laser cooling using cellular automata, Arabey Sergey, Nilov Ivan, Rozhdestvensky Yuri. (*ITMO University, Russia*) [18:30-20:00].

ITuK2 SU(2) orbits and their uncertainty limits, Saroosh Shabbir, Gunnar Björk (*Royal Institute of Technology (KTH), Sweden*) [18:30-20:00].

ITuK3 Laser cooling of atoms in standing wave: Statistical approach, R.Y. Ilenkov, O.N. Prudnikov, A.V. Taichenachev, V.I. Yudin (*Institute of Laser Physics SB RAS, Russia*) [18:30-20:00].

ITuK4 Nonlinear dynamic of ion in arbitry RF-traps, Kosinskiy Ivan, Nikolaeva Alexandra, Rozhdestvensky Yuri, Rudyi Semyon (*ITMO University, Russia*) [18:30-20:00].

ITuK5 Precision spectroscopy of cold magnesium atoms localized in a magneto-optical trap, M. Tropnikov, A. Bonert, D. Brazhnikov, A. Goncharov (*Institute of Laser Physics SB RAS, Russia*) [18:30-20:00].

ITuK6 Spectrum of a single-qubit laser, T.B.Karlovich (*Belarusian State Technological University, Belarus*) [18:30-20:00].

ITuK7 Optical properties of nanosystems in external electric and magnetic fields, E.P. Sinyavskii, N.S. Kostyukevich (*Pridnestrovian State University named T.G. Shevchenko, Moldova*) [18:30-20:00].

ITuK8 Optical frequency transfer over fiber link with phase noise compensation, K.S. Kudayarov, G.A. Vishnyakova, K.Yu. Khabarova, N.N. Kolachevsky (*P.N. Lebedev Physical Institute, Russia*) [18:30-20:00].

ITuK9 Dynamic steady-state of periodically driven quantum systems, M. Yu. Basalaev, V. I. Yudin, A. V. Taichenachev (*Novosibirsk State University, Russia*) [18:30-20:00].

ITuK10 Generation of GHZ states by single-photon cloning, P.P. Gostev, S.A. Magnitskiy (*Department of Physics and International Laser Center, M.V. Lomonosov Moscow State University, Russia*) [18:30-20:00].

ITuK11 Nonclassical states generation in a system with non-ideal nonlinear coherent loss and pulse coherent pump, Anton A. Sakovich, Alexander B. Mikhalychev (*B. I. Stepanov Institute of Physics, NAS of Belarus, Nezavisimosti ave., 68, Minsk, Belarus, Belarus*) [18:30-20:00].

ITuK12 Translational optical cooling of charged nanocrystals doped by Yb³⁺ ions, A. Ivanov, A. Kovalev, V. Polyakov, Yu. Rozhdestvensky, S. Rudyi (*ITMO University, Russia*) [18:30-20:00].

ITuK13 Analysis of applicability of different basis sets in data pattern tomography for single- and double-mode optical quantum states, Vadim S. Reut, Alexander B. Mikhalychev, Dmitri S. Mogilevtsev (*B.I. Stepanov Institute of Physics, NAS of Belarus, Nezavisimosti ave., 68, Minsk, Belarus; Belarusian State University, Nezavisimosty Ave. 4, 220030, Minsk, Belarus, Belarus*) [18:30-20:00].

ITuK14 Magic wavelength for 1.14 μm magnetic dipole transition in Tm, A. Golovizin, E. Kalganova, G. Vishnyakova, D. Sukachev, K. Khabarova, V. Sorokin, N. Kolachevsky (*P.N. Lebedev Physical Institute of the Russian Academy of Sciences, Russia*) [18:30-20:00].

ITuK15 Method of long- and medium-distance entanglement generation by using optical "elimination" measurements, Ilya L. Karuseichyk, Alexander B. Mikhalychev, Sergei Ya. Kilin (*B.I. Stepanov Institute of Physics, Belarus*) [18:30-20:00].

2. Quantum Information Science, Engineering, and Technologies

Quantum information theory; quantification and witnessing of bipartite and multipartite entanglement; distillation of entanglement; quantum teleportation; quantum discord; quantum non-locality; measures of non-classicality. • Quantum communication and networking; quantum key distribution; device-independent and measurement-device-independent QKD; fiber-based and free-space QKD systems; quantum secret sharing; quantum voting; light sources for quantum cryptography, including single photon sources. • Quantum memory and quantum repeaters; interfaces between photons and atom-like qubits. • Physical embodies of scalable quantum computers (trapped ions, atoms in molasses, linear optics, cluster states, hybrid systems); quantum algorithms; quantum error correction; quantum simulations; quantum walks; optics for low energy computing. • Single quantum objects (molecules, atoms, solid state impurities, quantum dots, electrons, electron and nuclear spins): detection, control and manipulation; integrated and on-chip quantum devices; single photon detectors; quantum sensors.

Chairs: Sergey Kulik (Lomonosov Moscow State Univ., Russia); Dmitri Horoshko (Stepanov Inst. of Physics, NASB, Belarus)
Alessandra Gatti (*) (Inst. di Fotonica e Nanotecnologie, Italy)
Mikhail Kolobov (Univ. Lille, France)
Christine Silberhorn (*) (Paderborn Univ., Germany)
Nicolas Treps (Univ. Pierre et Marie Curie, France)

SESSION IMC

September 26, 11:00-13:00, Hall 3

Quantum Information Science, Engineering, and Technologies I

Session Chair: **Gerd Leuchs**, Max Planck Institute for the Science of Light, Günther-Scharowsky-Str. 1, (Germany)

IMC1 States and modes in quantum optics (keynote), Claude Fabre (*Laboratory Kastler Brossel Univ. Pierre et Marie Curie Sorbonne University Paris, France*) [45 min].

IMC2 Free-space quantum signatures using heterodyne measurements (invited), N. Korolkova, C. Croal, Ch. Peuntinger, I. Khan, M. Thornton, P. Wallden, E. Andersson, Ch. Marquardt, G. Leuchs (*School of Physics and Astronomy, University of St. Andrews, UK*) [30 min].

IMC3 Overcoming vacuum noise: The unforeseen benefits of quantum heterodyne detection, Christian R. Müller, Christian Peuntinger, Thomas Dirmeier, Imran Khan, Ulrich Vogl, Christoph Marquardt, Gerd Leuchs, Luis L. Sánchez-Soto, Yong S. Teo, Zdenek Hradil, and Jaroslav Řeháček (*1 Max Planck Institute for the Science of Light 2 Institute of Optics, Information and Photonics, University of Erlangen-Nuremberg (FAU), Germany*) [15 min].

IMC4 Experimental adaptive tomography of quantum states and processes, G.I.Struchalin, I.A.Pogorelov, S.S.Straupe, K.S.Kravtsov, I.V.Radchenko, S.P.Kulik (*M.V.Lomonosov Moscow State University, Faculty of Physics, Russia*) [15 min].

IMC5 Measuring incompatible observables on a single photon, F. Piacentini, M. P. Levi, A. Avella, E. Cohen, R. Lussana, F. Villa, A. Tosi, F. Zappa, M. Gramegna, G. Brida, I. P. Degiovanni, and M. Genovese (*INRIM, Italy*) [15 min].

SESSION IMF

September 26, 16:30-18:30, Hall 3

Quantum Information Science, Engineering, and Technologies II

Session Chair: **Claude Fabre**, Laboratory Kastler Brossel Univ. Pierre et Marie Curie Sorbonne University Paris (France)

IMF1 Photonic wheels and transverse spin of light (invited), Gerd Leuchs, Peter Banzer (*Max Planck Institute for the Science of Light, Günther-Scharowsky-Str. 1., Germany*) [30 min].

IMF2 Entanglement decay of twisted photons in a turbulent atmosphere (invited), Vyacheslav N. Shatokhin (*Albert-Ludwigs University of Freiburg, Germany*) [30 min].

IMF3 Raman echo quantum memory schemes in optical cavity (invited), Sergey A. Moiseev and Eugene S. Moiseev (*Kazan National Research Technical University, Russia*) [30 min].

IMF4 Quasi-one-dimensional channel for light-atoms quantum interface, A.S. Sheremet, L.V. Gerasimov, V.A. Pivovarov, D.V. Kupriyanov (*St.-Petersburg State Polytechnic University, Russia*) [15 min].

IMF5 A loophole-free test of Bell's inequality with atoms entangled over a distance of 400 m, Wenjamin Rosenfeld, Daniel Burchardt, Kai Redeker, Robert Garthoff, Norbert Ortegel, Markus Rau, Harald Weinfurter (*Faculty of Physics, LMU, Germany*) [15 min].

SESSION ITuL

September 27, 18:30-20:00, Posters Hall

Poster Session: Quantum Information Science, Engineering, and Technologies

ITuL1 Non-locality of quantum correlations and illusion of superluminal interaction, T.F. Kamalov, Yu.P. Rybakov, M.G. Falchenko (*Moscow Institute of Physics and Technology Russian University for Cooperation, Russia*) [18:30-20:00].

ITuL2 Impact of polarization deviation on the states of photons produced by a double-crystal scheme, D. Frolovstev, S. Magnitskiy (*Department of Physics and International Laser Center, M.V. Lomonosov Moscow State University, Russia*) [18:30-20:00].

3. Nanophotonics and Plasmonics

Optics with subwavelength resolution; linear and nonlinear spectroscopy of nanostructures, single atoms and molecules in solid hosts; near-field optics; nanocavities and nanoapertures; light in confined structures; nanolithography; coupled nanosystems (photonic dots, quantum dots, etc); non-Hermitian nanophotonics, plasmon and polariton nanooptics; all-dielectric nanophotonics, ultrafast plasmonics, nanostructures for sensing; plasmic nano lasers; quantum nanophotonics, metasurfaces, active nanophotonic devices, soft nanophotonics.

Chairs: Yuri Kivshar (The Australian National Univ., Australia); Andrey Fedyanin (Lomonosov Moscow State Univ., Russia)
Harald Giessen (Univ. Stuttgart, Germany)
Zubin Jacob (Univ. of Alberta, Canada)
Romain Quidant (ICFO, Spain)
Din Ping Tsai (Research Ctr for Applied Science, Taiwan)

SESSION IWG

September 28, 17:00-18:30, Hall 2

Nanophotonics and Plasmonics I

Session Chair: **Pavel Melentiev**, Institute for Spectroscopy (Russia)

IWG1 Functional plasmonic nanostructures for photon manipulation (*invited*), Jer-Shing Huang, Kel-Meng See, Fan-Cheng Lin, Tzu-Yu Chen (*National Tsing Hua University, Taiwan*) [30 min].

IWG2 Optical trapping of dielectric nanoparticles enhanced by Mie resonances in Si dimers, Daniil A. Shilkin, Alexander S. Shorokhov, Evgeny V. Lyubin, Maxim R. Shcherbakov, Mikhail Lapine, Duk-Yong Choi, Yuri S. Kivshar, Andrey A. Fedyanin (*Lomonosov Moscow State University, Russia*) [15 min].

IWG3 Morphology and optical properties of self-assembled nanostructures of a novel Indotricarbocyanine dye, Belko N.V., Samtsov M.P., Gusakov G.A., Voropay E.S. (*A.N. Sevchenko Institute of Applied Scientific Problems of Belarusian State University, Belarus*) [15 min].

IWG4 Electrically controlled LC devices for spatial-polarization optical operation, I.I. Rushnova, E.A. Melnikova, O.S. Kabanova, A.L. Tolstik (*Belarusian State University, Belarus*) [15 min].

IWG5 Collective processes of formation plasmon pulses in the waveguide spaser based on the metal/dielectric interface pumped by semiconductor quantum dots, A.S. Shesterikov, M.Yu. Gubin, M. G. Gladush, A. V. Prokhorov (*Stoletovs Vladimir State University, Russia*) [15 min].

SESSION IThB

September 29, 09:00-11:00, Hall 2

Nanophotonics and Plasmonics II

Session Chair: **Jer-Shing Huang**, National Tsing Hua University (Taiwan)

IThB1 Nanoantenna-assisted picosecond nonlinear all-optical switching (*invited*), Otto L. Muskens, Yudong Wang, Luca Bergamini, Nerea Zabala, Javier Aizpurua, Jeffrey Gaskell, David W. Sheel, Kees C. H. de Groot (*University of Southampton, UK*) [30 min].

IThB2 Efficient optical-harmonics generation and nonlinear Purcell effect in metal/pphotonic crystal structures, B.I. Afinogenov, A.A. Popkova, V.O. Bessonov, A.A. Fedyanin (*Lomonosov Moscow State University, Russia*) [15 min].

IThB3 Second and third harmonic generation in silicon metasurfaces with spectrally overlapped electric and magnetic dipolar resonances, Elizaveta V. Melik-Gaykazyan, Alexander S. Shorokhov, Varvara V. Zubyuk, Maria K. Kroychuk, Duk-Yong Choi, Tatyana V. Dolgova, Maxim R. Shcherbakov, Dragomir N. Neshev, Andrey A. Fedyanin, Yuri S. Kivshar (*Lomonosov Moscow State University, Faculty of Physics, Russia*) [15 min].

IThB4 Nonlinear semiconductor metasurfaces (*invited*), Maxim R. Shcherbakov (*Faculty of Physics, Lomonosov Moscow State University, Russia*) [30 min].

IThB5 Third-harmonic generation from silicon nanodisk clusters with magnetic Fano resonances, Alexander S. Shorokhov, Elizaveta V. Melik-Gaykazyan, Daria A. Smirnova, Ben Hopkins, Katie E. Chong, Duk-Yong Choi, Maxim R. Shcherbakov, Andrey E. Miroshnichenko, Dragomir N. Neshev, Andrey A. Fedyanin, Yuri S. Kivshar (*Lomonosov Moscow State University, Faculty of Physics, Russia*) [15 min].

IThB6 Electrical Tuning of All Dielectric Metasurfaces by Liquid Crystals, Andrei Komar, Zheng Fang, Isabelle Staude, Manuel Decker, Andrey Miroshnichenko, Justus Bohn, Jürgen Sautter, Igal Brener, Yuri S. Kivshar, Dragomir N. Neshev (*The Australian National University, Australia*) [15 min].

SESSION IThE

September 29, 11:30-13:00, Hall 2

Nanophotonics and Plasmonics III

Session Chair: **Otto Muskens**, University of Southampton (UK)

IThE1 Mie-resonant dielectric metasurfaces and nanoantennas (*invited*), Isabelle Staude (*Institute of Applied Physics, Abbe Center of Photonics, Friedrich-Schiller-University Jena, Germany*) [30 min].

IThE2 Diffraction-Induced Femtosecond Pulse Splitting Effect Enhanced by Slow Light in 2D Photonic Crystals, S.E. Svyakhovskiy, B.I. Mantsyzov (*Lomonosov Moscow State University, Russia*) [15 min].

IThE3 Ultrafast all-optical modulation of femtosecond laser pulses in GaAs nanodisks with Mie-type resonances, Varvara V. Zubyuk, Polina P. Vabishchevich, Maxim R. Shcherbakov, Tatyana V. Dolgova, Sheng

Liu, Gordon A. Keeler, Isabelle Staude, Igal Brener, Andrey A. Fedyanin (*Lomonosov Moscow State University, Russia*) [15 min].

IThE4 Enhanced transverse magneto-optical Kerr effect in multilayered one-dimensional magnetoplasmonic crystals with narrow slits, A.Yu.Frolov, M.R.Shcherbakov, A.A.Fedyanin (*Lomonosov Moscow State University, Faculty of Physics, Department of Quantum Electronics, Russia*) [15 min].

IThE5 Transverse spin angular momentum of plasmon-polariton on the boundary of metamaterial with hyperbolic dispersion, S. Kurilkina, V. Belyi, N. Kazak (*B.I. Stepanov Institute of Physics of National Academy of Sciences of Belarus, Belarus*) [15 min].

SESSION IThH

September 29, 14:30-16:30, Hall 2

Nanophotonics and Plasmonics IV

Session Chair: **Isabelle Staude**, Institute of Applied Physics, Abbe Center of Photonics, Friedrich-Schiller-University Jena (Germany)

IThH1 Metasurfaces on alternative material platforms (*invited*), Andrei V. Lavrinenko, Radu Malureanu, Evgeniy Shkondin, Flemming Jensen, Osamu Takayama, Pernille Voss Larsen, Mikkel Dysseholm Mar (*Technical University of Denmark, Denmark*) [30 min].

IThH2 The bimetallic colloidal photonic crystals for plasmonic application, S. Kutrovskaya, A. Kucherik, S. Arakelian, A. Osipov, T. Vartanyan, T. Itina (*Stoletov Vladimir State University, Russia*) [15 min].

IThH3 Experimental observation of the Borrmann effect in one-dimensional photonic crystals in the Laue geometry, V.B. Novikov, A.I. Maydykovskiy, B.I. Mantsyzov, T.V. Murzina (*Department of Physics, M. V. Lomonosov Moscow State University, Russia*) [15 min].

IThH4 Millimeter-scale optical Goos-Hänchen shift in one-dimensional photonic crystals with adiabatically modulated band gap, S.E. Svyakhovskiy, E.A. Kekkonen, A.A. Konovko, A.V. Andreev, T.V. Murzina (*Lomonosov Moscow State University, Faculty of Physics, Russia*) [15 min].

IThH5 Bloch surface waves induced Fano resonance in magneto-optical response of magnetophotonic crystals, I.V. Soboleva, M.N. Romodina, A.I. Musorin, A.A. Fedyanin (*Lomonosov Moscow State University, Russia*) [15 min].

IThH6 Femtosecond intrapulse evolution of Faraday rotation in magnetophotonic crystals, Alexandr I. Musorin, Margarita I. Sharipova, Tatyana V. Dolgova, M. Inoue, Andrey A. Fedyanin (*Lomonosov Moscow State University, Russia*) [15 min].

IThH7 Femtosecond dynamics of Tamm plasmon-polaritons relaxation, V.O. Bessonov, B.I. Afinogenov, A.A. Popkova, A.A. Fedyanin (*Lomonosov Moscow State University, Russia*) [15 min].

SESSION IThK

September 29, 17:00-18:30, Hall 2

Nanophotonics and Plasmonics V

Session Chair: **Andrei Lavrinenko**, Technical University of Denmark (Denmark)

IThK1 Split-hole resonator: Effective element of nonlinear nanoplasmonics (*invited*), P.N. Melentiev, A.E. Afanasiev, A.A. Kuzin, V.I. Balykin (*Institute for Spectroscopy, Russia*) [30 min].

IThK2 Interaction of surface plasmon polaritons and acoustic waves in hybrid metal-semiconductor structures, Khokhlov N.E., Knyazev G.A., Glavin B.A., Y.K. Shtykov, Romanov O.G., Belotelov V.I. (*Faculty of Physics, Lomonosov Moscow State University, Leniskie gori, Moscow 119991, Russia 2) Russian Quantum Center, Skolkovo, Moscow Region 143025, Russia, Russia*) [15 min].

IThK3 Femtosecond laser surface nanostructuring of refractory metals, D.V. Abramov, K.S. Khorkov, D.A. Kochuev, A.A. Lachina, S.M. Arakelian, V.G. Prokoshev (*Stoletovs Vladimir State University, Russia*) [15 min].

IThK4 Gold nanoparticles in toluene for SERS applications, E.V. Shabunya-Klyachkovskaya, E.V. Korza, L.L. Trotsiuk, A.S. Matsukovich, O.S. Kulakovich (*B.I. Stepanov Institute of Physics, National Academy of Sciences of Belarus, Belarus*) [15 min].

IThK5 Enhanced magneto-optics with Mie-resonant dielectric nanostructures, Maria G. Barsukova, Alexander I. Musorin, Alexander S. Shorokhov, Maxim R. Shcherbakov, Andrey A. Fedyanin (*Faculty of Physics, Lomonosov Moscow State University, Russia*) [15 min].

SESSION IFB

September 30, 09:00-11:00, Hall 2

Nanophotonics and Plasmonics VI

Session Chair: **Tao Li**, Nanjing University (P.R. China)

IFB1 Laser-induced nanocluster and fractal structures with topological quantum effects (*invited*), S.M. Arakelian, S.V. Kutrovskaya, A.V. Osipov, A.O. Kucherik, T.A. Vartanyan, S.P. Zimin (*Stoletov Vladimir State University, Russia*) [30 min].

IFB2 Laser synthesis of single-crystal carbon microstructures, K.S. Khorkov, D.V. Abramov, D.A. Kochuev, R.V. Chkalov, S.M. Arakelian, V.G. Prokoshev (*Stoletovs Vladimir State University, Russia*) [15 min].

IFB3 Laser synthesys of a metal-carbyne clusters for SERS, A. Kucherik, A. Antipov, S. Arakelian, S. Kutrovskaya, A. Osipov, T. Vartanyan, A. Povolotckaia, A. Povolotskiy, A. Manshina (*Stoletov Vladimir State University, Russia*) [15 min].

IFB4 Materials with magnetic hyperbolic dispersion (*invited*), Sergey Kruk, Zi Jing Wong, Ekaterina Pshenay-Severin, Kevin O'Brien, Dragomir Neshev, Yuri Kivshar, Xiang Zhang (*Australian National University, Australia*) [30 min].

IFB5 Super-Planck thermal emission in a cavity with hyperbolic medium, L.A. Melnikov, O.N. Kozina, I.S. Nefedov (*Kotel'nikov Institute of Radio-Engineering and Electronics of Russian Academy of Science, Saratov Branch, Russia*) [15 min].

IFB6 Influence of spherical particles and their dimers on the linewidth of forbidden E2 transitions, Dmitry V. Guzatov (*Yanka Kupala State University of Grodno, Belarus*) [15 min].

SESSION IFC

September 30, 11:30-13:00, Hall 2

Nanophotonics and Plasmonics VII

Session Chair: **Sergei Arakelian**, Stoletov Vladimir State University (Russia)

IFC1 Plasmonic interference for classical and quantum logical gates (*invited*), Tao Li*, S. M. Wang, Y. L. Wang, S. N. Zhu (*Nanjing University, P.R. China*) [30 min].

IFC2 Fluorescent visualization of arbitrarily oriented single quantum emitters in planar microcavities, S.V. Boichenko (*Irkutsk Branch of Institute of Laser Physics of Siberian Branch of Russian Academy of Sciences, Russia*) [15 min].

IFC3 Physical picture of near-field interaction: CdSe/ZnS nanoparticles on the surface of plasmonic film, V. F. Askirka, I.G. Motevich, I.F. Sveklo, S.A. Maskevich, and N.D. Strekal (*Yanka Kupala Grodno State University, Belarus*) [15 min].

IFC4 Near-field polarization distribution of subwavelength Si nanoparticles near quartz and graphite substrates, Yu.V. Vladimirova, S.A. Reshetov, V.N. Zadkov (*International Laser Center & Faculty of Physics, Lomonosov Moscow State University, Russia*) [15 min].

IFC5 Interferometry of the subwavelength metamaterial layers, A. Agashkov (*The Institute of Physics of NAS Belarus, Belarus*) [18:30-20:00].

SESSION IThL

September 29, 18:30-20:00, Posters Hall

Nanophotonics and Plasmonics

IThL1 Enhanced Magneto-Optical Kerr effect in One-Dimensional Iron Magnetoplasmonic Crystals, M.I. Sharipova, M.R. Shcherbakov, A.A. Fedyanin (*Lomonosov Moscow State University, Russia*) [18:30-20:00].

IThL2 Plasmonic enhancement of acousto-optic effect, I.M. Sopko, G.A. Knyazev (*Lomonosov Moscow State University, Faculty of Physics, Russia*) [18:30-20:00].

IThL3 Dispersion law and damping rate of potential surface waves in photoionized plasma, K.Yu. Vagin, Yu.M. Aliev, S.A. Uryupin, A.A. Frolov (*P.N. Lebedev Physical Institute of RAS, Russia*) [18:30-20:00].

IThL4 Light scattering by spherical dielectric nanoparticles with high refractive index near a dielectric substrate, Yu. V. Vladimirova, M. I. Tribelsky, V. N. Zadkov (*International Laser Center & Faculty of Physics, Lomonosov Moscow State University, Russia*) [18:30-20:00].

IThL5 Controlled synthesis and optical properties of plasmonic nanoparticles, A.A. Lotin, O.A. Novodvorsky, L.S. Parshina, O.D. Khramova, V.A. Mikhalevsky, E.A. Cherebilo (*ILIT Branch of the Federal Scientific Center "Crystallography and Photonics" RAS, Russia*) [18:30-20:00].

IThL6 Dispersion laws of the two-dimensional cavity magnetoexciton-polaritons, S.A. Moskalenko, I.V. Podlesny, E.V. Dumanov, M.A. Liberman, B.V. Novikov (*Institute of Applied Physics, Academy of Sciences of Moldova, Russia*) [18:30-20:00].

IThL7 Laser-induced interaction of multilevel quantum dots, A. A. Glushkov, A.S. Tsipotan, A.S. Aleksandrovsky, V.V. Slabko (*Siberian Federal University, Russia*) [18:30-20:00].

IThL8 Multilayered gold nanoshells with ideal absorption for plasmonic photothermal therapy, V.I. Zakomirnyi, I.L. Rasskazov, V.S. Gerasimov, A.E. Ershov, S.V. Karpov, S.P. Polyutov (*Siberian Federal University, Russia*) [18:30-20:00].

IThL9 Microlens arrays based on epsilon-near-zero metamaterial, S. Kozik, V. Belyi (*B.I.Stepanov Institute of Physics National Academy of Sciences of Belarus, Belarus*) [18:30-20:00].

IThL10 Tuning of the Fano resonance in hybrid oligomers via fs-laser reshaping at nanoscale, Sergey I. Lepeshov, Dmitry A. Zuev, Sergey V. Makarov, Andrey E. Miroshnichenko, Alexander E. Krasnok, Pavel A. Belov (*The Metamaterials Laboratory. ITMO University, Russia*) [18:30-20:00].

IThL11 Interaction of the two-dimensional magnetoexcitons under the influence of the Rashba spin-orbit coupling and Zeeman splitting effects, S.A. Moskalenko, E.V. Dumanov, I.V. Podlesny, M.A. Liberman (*Institute of Applied Physics, Academy of Sciences of Moldova, Moldova*) [18:30-20:00].

IThL12 Flat lens with subwavelength resolution, N. Khilo, A. Agashkov, N. Kazak, S. Kozik (*The Institute of Physics of NAS Belarus, Belarus*) [18:30-20:00].

IThL13 Surface plasmon resonance of Au nanoparticles in the vicinity of the melting temperature, A. E. Ershov, V. S. Gerasimov, I. L. Rasskazov, V. I. Zakomirnyi, A. P. Gavriluk, S. V. Karpov, S. P. Polyutov (*Siberian Federal University, Russia*) [18:30-20:00].

IThL14 Thermal effects in optical plasmonic waveguides, A. E. Ershov, V. S. Gerasimov, I. L. Rasskazov, V. I. Zakomirnyi, A. P. Gavriluk, S. V. Karpov, S. P. Polyutov (*Kirensky Institute of Physics, Siberian Branch of the Russian Academy of Sciences, Russia*) [18:30-20:00].

IThL15 Optical properties of silicon particles obtained in liquid by CW-laser ablation, Arakelian S.M., Evlukhin A.B., Kutrovskaya S.V., Kucherik A.O., Osipov A.V. (*Stoletov Vladimir State University, Russia*) [18:30-20:00].

IThL16 Effect of focusing the laser beam on the radiation gaussian forces acting on the transparent nanoparticle, A.A. Afanas'ev, L.S. Gaida, A.Ch. Svistun (*Kupala State University of Grodno, Belarus*) [18:30-20:00].

IThL17 Application of scanning near-field optical microscopy for the characterization of optical elements, D. S. Filimonenko, V. M. Yasinskii (*Stepanov Institute of Physics, National Academy of Sciences, Belarus*) [18:30-20:00].

IThL18 Surface Enhanced CARS from Gold Nanoparticle-Immobilized Molecules at Cerium Dioxide/Aluminium Film, A.D. Brozhek, V.I. Fabelinsky, D.N. Kozlov, S.N. Orlov, Y.N. Polivanov, I.A. Shcherbakov, V.V. Smirnov, K.A. Vereschagin, G.M. Arzumanyan, K.Z. Mamatkulov, A.N. Lagarkov, I.A. Ryzhikov, A.K. Sarychev, I.A. Budashov, I.N. Kurochkin (*A.M. Prokhorov General Physics Institute, Russian Academy of Sciences, Russia*) [18:30-20:00].

IThL19 Research of the spectra of colloidal solutions of silver nanoparticles produced by laser ablation method under different parameters of the laser radiation and the liquid, Baranov M.S., Khramov V.N., Khaydukov E.V. (*Volgograd State University, Institute of Physics and Technology, Department of Laser Physics, Russia*) [18:30-20:00].

IThL20 Nanoparticle motion under the action of light pressure in the field of a Gaussian laser beam, A. A. Afanas'ev, L. S. Gaida, D. V. Novitsky, E. V. Matuk (*Kupala State University of Grodno, Belarus*) [18:30-20:00].

IThL21 Plasmon-assisted enhancement of spontaneous and stimulated emission of the dye thin films, N. A. Toropov, A. N. Kamaliev, and T. A. Vartanyan (*ITMO University, Russia*) [18:30-20:00].

IThL22 Observation of the second-harmonic generation from silicon nanodisks with electric and magnetic resonances, Maria K. Kroychuk, Elizaveta V. Melik-Gaykazyan, Alexander S. Shorokhov, Varvara V. Zubyuk, Duk-Yong Choi, Tatyana V. Dolgova, Maxim R. Shcherbakov, Dragomir N. Neshev, Andrey A. Fedyanin, Yuri S. Kivshar (*Lomonosov Moscow State University, Russia*) [18:30-20:00].

IThL23 Effect of silver nanoparticles on excitons in InAs epitaxial quantum dots, N. A. Toropov, P. V. Gladskikh, I. A. Gladskikh, V. V. Preobrazhenskiy, M. A. Putyato, B. R. Semyagin, A. Kosarev, A. A. Kondikov, V. V. Chaldyshev, T. A. Vartanyan (*ITMO University, Russia*) [18:30-20:00].

IThL24 Metal planar structures deposited on the silicon surface by atomic-force nanolithography, I. Skryabin, S. Kutrovskaya, A. Kucherik, A. Shagurina, S. Arakelian (*Stoletov Vladimir State University, Russia*) [18:30-20:00].

IThL25 Tunable transverse magneto-optical Kerr effect in 2D gold-garnet nanogratings, Grigoriy A. Shein, Alexandr I. Musorin, Artem V. Chetvertukhin, Tatyana V. Dolgova, Hironaga Uchida, Mitsuteru Inoue, Andrey A. Fedyanin (*Lomonosov Moscow State University, Russia*) [18:30-20:00].

IThL26 Hydrophilic quantum dots in cancer diagnostics, I.G. Motevich, N.D. Strekal, A.V. Shulha, S.A. Maskevich (*Yanka Kupala Grodno State University, Belarus*) [18:30-20:00].

IThL27 Self-action effects in GaAs metasurfaces with magnetic Mie-type resonances, Anna N. Fedotova, Polina P. Vabishchevich, Maxim R. Shcherbakov, Sheng Liu, Isabelle Staude, Igal Brener, Andrey A. Fedyanin (*Faculty of Physics, Lomonosov Moscow State University, Russia*) [18:30-20:00].

IThL28 Magneto-optical effects in plasmonic quasicrystals, N.E. Khokhlov, Achanta Venu Gopal, N.E. Gusev, A.N. Kalish, V.I. Belotelov (*Russian Quantum Center, Russia*) [18:30-20:00].

IThL29 Evolution of surface plasmon polariton wave in a thin metal film: the modulation instability effect, Sergey Moiseev, Dmitry Korobko, Igor Zolotovskii, Andrei Fotiadi (*Ulyanovsk State University, Russia*) [18:30-20:00].

IThL30 Spectral manifestations of photochromic transformations of composite nanostructures, G. Vasilyuk, S. Maskevich, N. Strekal, A. Lavysh, V. Minkin, B. Lukyanov, A. Starikov (*Yanka Kupala Grodno State University, Belarus*) [18:30-20:00].

4. Nonlinear Optics and Novel Phenomena

Fundamental aspects of nonlinear optics; novel nonlinear-optical effects and scenarios; new nonlinear-optical systems and materials; supercontinuum generation and multioctave, microwave-to-X-ray optical waveforms; extreme UV and X-ray generation; nonlinear optics in the mid-IR; systems with enhanced optical nonlinearities; high-resolution nonlinear-optical microscopy; nonlinear-optical standoff detection; local-field effects; frequency-comb spectroscopy; near-field and subwavelength nonlinear optics; nonlinear optics in chemistry, biology, and geosciences.

Chairs: Alexey Zheltikov (Lomonosov Moscow State Univ., Russia); Alexander Grabchikov (Stepanov Inst. of Physics, NASB, Belarus); Yuri Kulchin (Inst. of Automation and Control Processes, Russia) Pavel Apanasevich (B.I.Stepanov Inst. of Physics, Belarus) Victor Bespalov (ITMO University, Russia) Tom Brown (Univ. of St. Andrews, Scotland, UK) Joseph Haus (Univ. of Dayton, USA) Svetlana Kurilkina (B.I.Stepanov Inst. of Physics, Belarus) Yanfeng Li (Tianjin Univ., China) Aleksej Rodin (Cntr for Physical Sciences and Technology, Lithuania) Kazuaki Sakoda (Univ. of Tsukuba, Japan) Michael Schmitt (Friedrich–Schiller Univ. Jena, Germany) Concita Sibilio (La Sapienza Univ. of Rome, Italy) Aleksei Tolstik (Belorussian State Univ., Belarus)

SESSION ITuG

September 27, 14:30-16:30, Hall 3

Nonlinear Optics and Novel Phenomena I

Session Chair: **Alexander Grabtchikov**, Stepanov Institute of Physics (Belarus)

ITuG1 Femtosecond nonlinear optics in metallic and dielectric metasurfaces (*invited*), Andrey A. Fedyanin (*Faculty of Physics, Lomonosov Moscow State University, Russia*) [30 min].

ITuG2 Quadrature mode of non-linear photogalvanic autocorrelation of ultra-short laser pulses, Yuriy N. Kulchin, Roman V. Romashko, Alexander I. Grachev, and Alexei A. Kamshilin (*Institute of Automation and Control Processes, FEB RAS, Russia*) [15 min].

ITuG3 Interaction between weak and nonlinear optical waves in fibers in the vicinity of zero-dispersion point, I. Oreshnikov, R. Driben, A.V. Yulin (*University of Paderborn, Germany*) [15 min].

ITuG4 Polarization interaction of singular and Gaussian light beams, Gorbach D.V., Nazarov S.A., Tolstik A.L. (*Belarusian State University, Belarus*) [15 min].

ITuG5 Vibrational spectra of carbon dioxide adsorbed in nanoporous glass: from partial coverage of the pore wall to condensation in the pore volume, V.G. Arakcheev, V.B. Morozov (*International Laser Centre & Faculty of Physics, MV Lomonosov Moscow State University, Russia*) [15 min].

ITuG6 Narrow-band terahertz generation by femtosecond optical pulses in a LiNbO₃ crystal, E. A. Mashkovich, M. I. Bakunov (*University of Nizhny Novgorod, Russia*) [15 min].

ITuG7 Propagation and nonlinear interaction of singular light beams, O.G. Romanov, A.L. Tolstik (*Belarusian State University Faculty of Physics Department of Computer Modeling, Belarus*) [15 min].

SESSION ITuJ

September 27, 17:00-18:30, Hall 3

Nonlinear Optics and Novel Phenomena II

Session Chair: **Yuriy Kulchin**, Institute of Automation and Control Processes, FEB RAS (Russia)

ITuJ1 Photon-avalanche-like nonlinear excitation and optical ultrafast switching in intrinsic and extrinsic crystals and nanostructures (*invited*), E.Yu. Perlin, A.V. Ivanov (*ITMO University, Russia*) [30 min].

ITuJ2 Nonlinear absorption in KGW and YVO₄ crystals at excitation by continuous-wave laser radiation, I. A. Khodasevich, A. S. Grabtchikov (*Stepanov Institute of Physics, Belarus*) [15 min].

ITuJ3 Strong-field theory of spontaneous down-conversion for surface plasmon polaritons, V. Hizhnyakov*, A. Loot (*Institute of Physics, University of Tartu, Estonia*) [15 min].

ITuJ4 Solid-state spectroscopy with extreme ultraviolet high harmonic generation, S. Yu. Kruchinin, T. T. Luu, M. Garg, E. Goulielmakis (*Max Planck Institute of Quantum Optics, Germany*) [15 min].

ITuJ5 Dynamics of stimulated atom-molecular conversion in mixture of two Bose-gases assisted by Gauss pulses, Khadzhi P.I., Zingan A.P. (*Dniester State University, Moldova*) [15 min].

SESSION IWC

September 28, 09:00-10:45, Hall 3

Nonlinear Optics and Novel Phenomena III

Session Chair: **Christian Spielmann**, Institute of Optics and Quantum Electronics, Abbe Center of Photonics, Friedrich-Schiller-University Jena Helmholtz-Institute Jena (Germany)

IWC1 Exploring the attosecond frontier of condensed phase physics (*keynote*), Eleftherios Goulielmakis (*Max Planck Institute of Quantum Optics,)* [45 min].

IWC2 Linear and circularly polarized XUV- supercontinuum, D. Brambilla, A. Husakov, M. Ivanov and N. Zhavoronkov (*Max-Born-Institute, Germany*) [15 min].

IWC3 Filamentation dynamics and pulse compression of high-peak-power mid-infrared laser pulses, A.V. Mitrofanov, A.A. Voronin, S.I. Mitryukovsky, M.V. Rozhko, E.E. Serebryannikov, D.A. Sidorov-Biryukov, A.B. Fedotov, A. Pugzlys, V.Ya. Panchenko, A. Baltuska, A.M. Zheltikov (*Russian Quantum Center Crystallography and Photonics Federal Research Center, Russia*) [15 min].

IWC4 Wideband ultrasonic study of femtosecond filaments, Dmitry Pushkarev¹, Anton Bychkov, Darya Uryupina, Nikolai Panov, Ekaterina Mitina, Elena Cherepenina, Alexander Karabutov, Olga Kosareva, Andrei Savel'ev (*Lomonosov Moscow State University, Russia*) [15 min].

IWC5 Polarization of THz radiation from plasma filament induced by two-color arbitrary polarized laser pulse, N.A. Panov, M.N. Esaulkov, V.A. Andreeva, P.M. Solyankin, D.E. Shipilo, V.V. Bukin, V.A. Makarov, A.P. Shkurinov, O.G. Kosareva, S.L.Chin (*Lomonosov Moscow State University, Russia*) [15 min].

SESSION IWF

September 28, 11:30-13:00, Hall 3

Nonlinear Optics and Novel Phenomena IV

Session Chair: **Eleftherios Goulielmakis**, Max Planck Institute of Quantum Optics (Germany)

IWF1 Supercontinuum generation in gas-filled anti-resonant hollow-core fibers (*invited*), R. Sollapur, D. Kartashov, M. Zürch, A. Hoffmann, A. Hartung, M. Schmidt, C. Spielmann (*Institute of Optics and Quantum Electronics, Abbe Center of Photonics, Friedrich-Schiller-University Jena Helmholtz-Institute Jena, Germany*) [30 min].

IWF2 Quasi-phase-matched Raman-Nath nonlinear diffraction in 2D nonlinear photonic crystals, A. M. Vyunishev, V. G. Arkhipkin, I. S. Baturin, A. R. Akhmatkhanov, V. YA. Shur, and A. S. Chirkin (*L.V. Kirensky Institute of Physics SB RAS, Russia*) [15 min].

IWF3 Giant magnetic-field-induced enhancement of third harmonic generation in GaAs, V. V. Pavlov, W. Warkentin, D. Brunne, D. R. Yakovlev, A. V. Rodina, R. V. Pisarev, M. Bayer (*Ioffe Institute, the Russian Academy of Sciences, Russia*) [15 min].

IWF4 Dynamics of dipolaritonic optical parametric oscillator, P. I. Khadzhi, O. F. Vasilieva, I.V. Belousov (*Taras Shevchenko Transnistria State University, Moldova*) [15 min].

IWF5 Modelling highly-dispersive transparency in planar nonlinear metamaterials by high-order finite element method, N.N. Potravkin, K.S. Grigoriev, V.A. Makarov, I.A. Perezhogin (*International Laser Center, Lomonosov Moscow State University, Russia*) [15 min].

SESSION IWH

September 28, 17:00-18:30, Hall 3

Nonlinear Optics and Novel Phenomena V

Session Chair: **Andrei Fedotov**, Lomonosov Moscow State University (Russia)

IWH1 Towards Raman quantum memory in isotopically pure rare-earth-ion-doped solids (*invited*), R.A. Akhmedzhanov, L.A. Gushchin, A.A. Kalachev, S.L. Korableva, D.A. Sobgayda, I.V. Zelensky (*Zavoisky Physical-Technical Institute of Russian Academy of Sciences, Russia*) [30 min].

IWH2 Electromagnetic field amplification and nonlinear optical processes threshold lowering near the surface of mesoporous photonic crystals, V.S. Gorelik, A.D. Kudryavtseva, V.A. Orlovich, P.P. Sverbil, A.I. Vodchits, Y.P. Voinov, N.V. Tcherniega, L.I. Zlobina (*Lebedev Physical Institute of the Russian Academy of Sciences, Russia*) [15 min].

IWH3 Compositional dependence of the nonlinear optical properties of glasses in the GexS100-xI10 system, A.V. Romashkin, A.A. Murzanev, A.S. Lobanov, L.A. Mochalov, A.I. Korytin, A.N. Stepanov (*Institute of Applied Physics RAS, Russia*) [15 min].

IWH4 Amplified spontaneous emission in two-photon excited Rb vapour, Alexander M. Akulshin, Dmitry Budker, and Russell J. McLean (*Swinburne University of Technology, Australia*) [15 min].

IWH5 3 mm thick PPLN structures for intracavity pumping of cascade optical parametric oscillator, D.Kolker, A.Boyko , N.Kostyukova, A.Pronyushkina, I.Sherstov, S.Trashkeev, B.Nuyshkov and V.Shur (*Research laboratory of quantum optics technology, Novosibirsk state university, Russia*) [15 min].

SESSION IThC

September 29, 09:00-11:00, Hall 3

Nonlinear Optics and Novel Phenomena VI

Session Chair: **Alexey Kalachev**, Zavoisky Physical-Technical Institute of Russian Academy of Sciences (Russia)

IThC1 Observation of coherent optical phonons in thin antimony films by time-resolved electron diffraction method (*invited*), B. N. Mironov, V. O. Kompanets, S. A. Aseev, A. A. Ishchenko, O. V. Misochko, S. V. Chekalin, and E. A. Ryabov (*Institute of Spectroscopy, Russian Academy of Sciences, Russia*) [30 min].

IThC2 Self-assembled plasmonic nonlinear metamaterials (*invited*), A. Belardini, G. Leahu, M. Centini, E. Petronijevic, C. Sibilia (*Sapienza Università di Roma, Italy*) [30 min].

IThC3 High harmonics ellipticity study in near-atomic field strength, A.V. Andreev, S.Yu. Stremoukhov, O.A. Shoutova (*Lomonosov Moscow State University, Russia*) [15 min].

IThC4 Parametric refraction at the acousto-optical interaction of pulsed beams in anisotropic media, D.M. Zverev, G.A. Knyazev (*Faculty of Physics, Lomonosov Moscow State University, Russia*) [15 min].

IThC5 Figures of merit for excited-state absorption of phthalocyanine dyes, M.F. Koldunov, L.M. Koldunov (*A.M. Prokhorov General Physics Institute, Russian Academy of Sciences, Russia*) [15 min].

IThC6 Multiple filamentation suppression in Xenon, A.V. Shutov, A.A. Ionin, D.V. Mokrousova, L.V. Seleznev, I.V. Smetanin, E.S. Sunchugasheva, N.N. Ustinovskii, V.D. Zvorykin (*P.N. Lebedev Physics Institute of RAS, Russia*) [15 min].

SESSION IThF

September 29, 11:30-13:00, Hall 3

Nonlinear Optics and Novel Phenomena VII

Session Chair: **Alessandro Belardini**, Sapienza Università di Roma (Italy)

IThF1 Nonlinear optics of tunable midinfrared pulses in solids for broadband spectroscopy and subcycle pulse generation (*invited*), A.B.Fedotov, A.A.Lanin, E.A.Stepanov, A.A.Voronin, A.M.Zheltikov (*Lomonosov Moscow State University, Russia*) [30 min].

IThF2 Extreme nonlinear optics with top-hat beams: Toward spatially uniform pulse compression at the subpetawatt level of peak powers, M.M. Nazarov, A.V. Mitrofanov, A.A. Voronin, D.A. Sidorov-Biryukov, V.Ya. Panchenko, and A.M. Zheltikov (*Kurchatov Institute, Russia*) [15 min].

IThF3 Transverse linear momentum accompanying the reflection and refraction of a light beam carrying the intrinsic orbital angular momentum, V. G. Fedoseyev (*Institute of Physics, University of Tartu, Estonia*) [15 min].

IThF4 Chirped CARS for microspectroscopy and visualization of oocytes and embryonic stem cells: Merits and demerits, K.A.Vereshchagin, A.V. Aybush, F.E. Gostev, V.A. Nadtochenko (*A.M. Prokhorov General Physics Institute of RAS, Russia*) [15 min].

IThF5 Intense light channels formation in post-filament area of focused ultrashort laser pulse, Yu.E. Geints, A.A. Ionin, D.V. Mokrousova, L.V. Seleznev, D.V. Sinitsyn, E.S. Sunchugasheva, A.A. Zemlyanov (*Lebedev Physical Institute of RAS, Russia*) [15 min].

SESSION IThI

September 29, 14:30-16:30, Hall 3

Nonlinear Optics and Novel Phenomena VIII

Session Chair: **Dmitri Sidorov-Biryukov**, Lomonosov Moscow State University (Russia)

IThI1 "Dark" modes backscattering as possible rationale for anomalous retroreflection from porous strongly absorbing nanostructures (*invited*), V. V. Sergentu, V. Ursaki, Ed. Monaico, I. M. Tiginyanu, S. Ya. Prislopski, S. V. Gaponenko (*B.I.Stepanov Institute of Physics of NASB, Belarus*) [30 min].

IThI2 Generation of terahertz surface waves by a localized drag current, S. A. Uryupin, A. A. Frolov (*P.N. Lebedev Physical Institute of the Russian Academy of Science, Russia*) [15 min].

IThI3 Transformation of the LiF supercontinuum spectrum due to accumulation of color centers, S.V. Chekalin, V.O. Kompanets, A.E. Dormidonov, V.P. Kandidov (*Institute of Spectroscopy RAS 108840, Moscow, Troitsk, Russia, Russia*) [15 min].

IThI4 Ionization-induced multiwave mixing and terahertz generation with two-color laser pulses of various frequency ratios, V. A. Kostin, I. D. Laryushin, A. A. Silaev, N. V. Vvedenskii (*Institute of Applied Physics, Russian Academy of Sciences, Russia*) [15 min].

IThI5 Terahertz generation in composite media with large permanent dipole moment, O. Khasanov, O. Fedotova, G. Rusetsky, V. Gayvoronsky, I. Pritula, and E. Gaizauskas (*Scientific-Practical Material Research Centre, National Academy of Sciences of Belarus, Minsk*) [15 min].

IThI6 Structural quality assessment of Cu(In,Ga)Se₂ thin films for solar cells using their stimulated emission parameters, I. E. Svitsiankou, V. N. Pavlovskii, E. V. Lutsenko, G. P. Yablonskii, A. V. Mudryi, V. D. Zhivulko, O. M. Borodavchenko, M. V. Yakushev, R. W. Martin (*Institute of Physics of the National Academy of Sciences of Belarus, Belarus*) [15 min].

IThI7 Ultrafast dynamics of photoprocesses induced by femtosecond IR laser radiation in iron pentacarbonyl molecules and clusters, D.G. Poydashev, V.O. Kompanets, V.N. Lokhman, S.V. Chekalin and E.A. Ryabov (*Institute of Spectroscopy of the Russian Academy of Sciences (ISAN), Russia*) [15 min].

SESSION IThM

September 29, 18:30-20:00, Posters Hall

Poster Session: Nonlinear Optics and Novel Phenomena

IThM1 Coherent excitation of nanoparticles ensembles vibrations in gigahertz and terahertz range, A.D. Kudryavtseva, M.A. Stokov, N.V. Tcherniega, K.I. Zemskov (*P.N.Lebedev Physical Institute of the RAS, Russia*) [18:30-20:00].

IThM2 Slowdown and trapping of microparticles by light fields amplifying over time, A. Ch. Izmailov (*Institute of Physics of Azerbaijan National Academy of Sciences, Azerbaijan*) [18:30-20:00].

IThM3 Single-cycle THz generation from nonlinear interaction of femtosecond laser pulses and directed metallic micro-particle arrays, D. A. Fadeev, I. V. Oladyshkin, V. A. Mironov (*Institute of Applied Physics RAS <http://ipfran.ru>, Russia*) [18:30-20:00].

IThM4 Femtosecond filamentation of double-charged optical vortex in fused silica, Vasilyev E.V., Shlenov S.A. (*Faculty of Physics and International Laser Center of Lomonosov Moscow State University, Russia*) [18:30-20:00].

IThM5 Second optical harmonic generation in ferroelectrics under femtosecond optical pumping, M. K. Tarabrin, V. A. Lazarev, S. O. Leonov, V. S. Bobkova, V. S. Gorelik (*Bauman Moscow State Technical University, Russia*) [18:30-20:00].

IThM6 Two-photon absorption in graphene oxide/silver nanoparticles composite material, A. Gartman, S. Svyakhovskiy, S. Evlashin, N. Mitetelo, A. Bykov, A. Maydykovskiy, T. Murzina (*Lomonosov Moscow State University, Russia*) [18:30-20:00].

IThM7 Spin-to-orbital angular momentum conversion for Bessel light beams propagating in electrically controlled liquid crystal cell, D. Gorbach, S. Nazarov, S. Kurilkina, A. Tolstik (*Belarusian State University, Belarus*) [18:30-20:00].

IThM8 Polarization-Resolved Second Harmonic Generation Microscopy in Studies of Chirality of Planar G-Shaped Nanostructures, E.A. Mamonov, I.A. Kolmychek, S.A. Magnitskiy, T.V. Murzina (*Lomonosov Moscow State University, Russia*) [18:30-20:00].

IThM9 Numerical simulation of the optical wave phase front controller based on MEMS structures, A.V. Popov, G.D. Demin, V.V. Svetikov, N.A. Djuzhev (*National Research University of Electronic Technology (MIET), Russia*) [18:30-20:00].

IThM10 Resonant reflection by active thin layer, V.A. Yurevich, Yu.V. Yurevich, E.V. Timoschenko (*Mogilev State University of Food Technologies, Belarus*) [18:30-20:00].

IThM11 High-quality enhanced absorption resonances in a buffer-gas-filled cell for quantum magnetometry, D.V. Brazhnikov, A.V. Taichenachev, V.I. Yudin, Ch. Andreeva, V.M. Entin, I.I. Ryabtsev (*Institute of Laser Physics SB RAS, Russia*) [18:30-20:00].

IThM12 Thermo-optics in nonlinear-optical parametric conversion: exact solutions, approximate solutions, estimates, Evgeny V. Moiseenko, Andrey V. Shepelev (*I.M.Gubkin Russian State University of Oil and Gas, Russia*) [18:30-20:00].

- IThM13 Small-scale disturbances of the phase at interference of broadband laser fields**, Vokhnik O.M., Odintsov V.I. (*Faculty of Physics M.V.Lomonosov Moscow State University, Russia*) [18:30-20:00].
- IThM14 Fiber sources of subcycle pulses in the mid-infrared: numerical modeling**, D.V. Meshchankin, A.A. Voronin, and A.M. Zheltikov (*Lomonosov Moscow State University, Russia*) [18:30-20:00].
- IThM15 Spectroscopic study of rare-earth gallium borates with huntite-type structure**, E.A. Dobretsova, N.N. Kuz'min, K.N. Boldyrev (*Institute for spectroscopy RAS, Russia*) [18:30-20:00].
- IThM16 The hyper-Raman scattering of light in CdS under two-photon excitation near resonance with the $A_{n=2}$ and $B_{n=1}$ exciton levels**, L.E. Semenova (*A.M. Prokhorov General Physics Institute of Russian Academy of Sciences, Russia*) [18:30-20:00].
- IThM17 Backward-wave spontaneous parametric down-conversion in a periodically poled KTP waveguide**, I. Z. Latypov, A. A. Shukhin, D. O. Akatiev, A. V. Shkalikov and A. A. Kalachev (*Zavoisky Physical-Technical Institute, Russia*) [18:30-20:00].
- IThM18 Raman frequency conversion of diode-pumped Nd:YAG laser radiation into the yellow-orange spectral region**, R. Chulkov, V. Markevich, V. Orlovich, M. El-Desouki (*B.I. Stepanov Institute of Physics, National Academy of Science of Belarus, Russia*) [18:30-20:00].
- IThM19 Structure of few-cycle pulse reflection spectrum from a thin layer of dense resonance medium**, G.A. Rusetsky, V. M. Kolesenko (*SSPA "Scientific-Practical Material Research Centre of NAS of Belarus", Belarus*) [18:30-20:00].
- IThM20 Ultrafast nonlinear properties of bulk semiconductors and quantum dots**, A.G. Shmelev, A.V. Leontiev, D.K. Zharkov, V.G. Nikiforov, V.S. Lobkov (*Zavoisky Physical-Technical Institute of the Kazan Scientific Center of the Russian Academy of Sciences, Russia*) [18:30-20:00].
- IThM21 Z-scan studies of promising crystals and glasses**, A. I. Vodchits, V. A. Orlovich, A. S. Grabtchikov, V. I. Dashkevich, N. V. Nikonov, and P. S. Shirshnev (*The B. I. Stepanov Institute of Physics of the National Academy of Sciences of Belarus, Belarus*) [18:30-20:00].
- IThM22 Functional possibilities of nonlinear crystals for frequency conversion**, S. G. Grechin, P. P. Nikolaev, Yu. D. Arapov, I. V. Kasyanov (*130937, Russia*) [18:30-20:00].
- IThM23 Asymmetrical temperature dependence for SHG efficiency of focused laser radiation caused by joint col-linear and non-collinear interactions**, A.L. Bondarenko, S.G. Grechin, D.G. Kochiev, A.N. Sharikov. (*МГТУ им.Н.Э. Баумана, Russia*) [18:30-20:00].
- IThM24 The growth of carbonic and silicon dioxide films on the surface of ionic crystals upon decomposition of adsorbed molecules by IR femtosecond laser radiation**, S.V. Chekalin, I.A. Dorofeev, V.O. Kompanets, V.B. Laptev, S.V. Pigul'sky and E.A. Ryabov (*Institute of spectroscopy of RAS, Russia*) [18:30-20:00].
- IThM25 Nonlinear oscillations of linear spring pendulum**, N.S. Shtatskaya, P.I. Khadzhi (*Dniester State University, Moldova*) [18:30-20:00].
- IThM26 Photoinduced dynamics in LiYxLu(1-x)F_4 through transient lens spectroscopy**, A.V. Leontyev, L.A. Nurtdinova, S.L. Korableva (*Kazan E. K. Zavoisky Physical -Technical Institute (KPhTI), Russia*) [18:30-20:00].
- IThM27 Superradiation in thin inverse planar layer**, V.A. Yurevich, Yu.V. Yurevich (*Mogilev State University of Food Technologies, Belarus*) [18:30-20:00].
- IThM28 The optical nutation in exciton range of spectrum under the action of strong pump pulse at M-band of luminescence**, L.Yu. Nadkin, D.A. Markov, P.I. Khadzhi (*Dniester State University, Moldova*) [18:30-20:00].
- IThM29 On the mechanisms of THz radiation generation on metal surfaces**, S.G. Bezhanov, S.A. Uryupin (*P.N. Lebedev Physical Institute of the Russian Academy of Sciences, Russia*) [18:30-20:00].
- IThM30 Surface enhanced CARS from gold nanoparticle-immobilized molecules at cerium dioxide/aluminium film**, A.D. Brozhek, V.I. Fabelinsky, D.N. Kozlov, S.N. Orlov, Y.N. Polivanov, I.A. Shcherbakov, V.V. Smirnov, K.A. Vereschagin, G.M. Arzumanyan, K.Z. Mamatkulov, A.N. Lagarkov, I.A. Ryzhikov, A.K. Sarychev, I.A. Budashov, I.N. Kurochkin (*A.M. Prokhorov General Physics Institute, Russian Academy of Sciences, Russia*) [18:30-20:00].
- IThM31 Picosecond SRS in Dielectric Media**, A. I. Vodchits, V. A. Orlovich, P. A. Apanasevich, V. S. Gorelik (*B. I. Stepanov Institute of Physics of the National Academy of Sciences of Belarus, Belarus*) [18:30-20:00].
- IThM32 Selective spectroscopy of librational response in acetonitrile through optical Kerr effect**, D K Zharkov, A G Shmelev, A V Leontyev, V G Nikiforov, V S Lobkov (*Kazan E. K. Zavoisky Physical -Technical Institute (KPhTI), Russia*) [18:30-20:00].

IThM33 Two-photon absorption in As₃₅S₆₅ glass, D.S. Chunaev, G.E. Snopatin, V.G. Plotnichenko, A.Ya. Karasik (*A.M. Prokhorov General Physics Institute, Russian Academy of Sciences, Moscow, Russia, Russia*) [18:30-20:00].

IThM34 Spin-orbital Interaction under Acousto-optic Diffraction of Vortex Bessel Beams, V.N. Belyi, P. A. Khilo, N. S. Kazak, N. A. Khilo (*Gomel State Technical University, Belarus*) [18:30-20:00].

IThM35 Radiation linewidth of a multicolor optical parametric oscillator, M.Yu. Saygin, A.S. Chirkin (*Lomonosov Moscow State University, Russia*) [18:30-20:00].

IThM36 Fingerprints of the electron band structure from intraband high-harmonic generation in solids, A.A. Lanin, E.A. Stepanov, A.B. Fedotov, and A.M. Zheltikov (*Lomonosov Moscow State University, Russia*) [18:30-20:00].

IThM37 Photovoltaic response of doped lithium niobate at incoherent background illumination, A. Pustozarov, V. Ryabchenok, and V. Shandarov (*Tomsk State University of Control Systems and Radioelectronics, Russia*) [18:30-20:00].

IThM38 Dissociation dynamics of iron pentacarbonyl clusters induced by excitation of electronic states by femtosecond UV radiation, D.G. Poydashev, V.O. Kompanets, V.N. Lokhman, S.V. Chekalin and E.A. Ryabov (*Institute of Spectroscopy of the Russian Academy of Sciences (ISAN), Russia*) [18:30-20:00].

IThM39 Nonlinear nonsymmetric quasisurface waves in symmetric three-Layer structure with left-handed film, O.V. Korovai, A.V. Corovai, P.I. Khadzhi (*T.G. Shevchenko Pridnestrovian State University, Moldova*) [18:30-20:00].

IThM40 Diffraction of laser beams on periodically poled domain structures in lithium niobate crystals, Shandarov S.M., Mandel A.E., Andrianova A.V., Borodin M.V., Bolshanin G.I., Kim A.Yu., Smirnov S.V, Akhmatkhanov A.R., Shur V.Ya. (*Tomsk State University of Control Systems and Radioelectronics, Russia*) [18:30-20:00].

IThM41 Waveguide and diffraction properties of optically induced elements in photorefractive surface layers of lithium niobate, A. D. Bezpaly, A. O. Verkhoturov, V. M. Shandarov (*Tomsk State University of Control Systems and Radioelectronics, Russia*) [18:30-20:00].

IThM42 Formation of photonic structures in a bulk of lithium niobate by Bessel-like optical beams, A. Inyushov, P. Safronova, I. Trushnikov, V. Shandarov (*Tomsk State University of Control Systems and Radioelectronics, Russia*) [18:30-20:00].

IThM43 Light bullet conical emission in fluorides, A.E. Dormidonov, V.P. Kandidov, V.O. Kompanets, S.V. Chekalin (*Lomonosov Moscow State University, Russia*) [18:30-20:00].

IThM44 Complex structure of a saturated absorption resonance and the probe beam method, T. V. Radina (*Saint Petersburg State University, Russia*) [18:30-20:00].

IThM45 Phase control of Kerr nonlinearity in an n-doped three-level semiconductor quantum well (SQW), M. Sahrai, A. Hamrah Gharamaleki (*Research Institute of Applied Physics and Astronomy, University of Tabriz, Tabriz, Iran, Azarbayjan*) .

5. Nonlinear Space-Time Dynamics, Instabilities, and Patterns

Evolution of temporal, spatial and spatio-temporal excitations in nonlinear conservative and dissipative optical systems; spatial and temporal self-trapping, soliton formation; self-similar propagation, shock and rogue waves; filamentation, optical turbulence, and collapse; instabilities in conservative and dissipative systems; nonlinear interactions in optical cavities and microresonators; exciton-polaritons in semiconductor microcavities and waveguides; dynamics and mode locking in novel systems, such as quantum dot lasers, micro-lasers, semiconductor, fiber and other types of lasers; OPOs and OPAs; nonlinearity and beam shaping in nanophotonics, metamaterials, plasmonics, and novel materials; nonlinear effects in disordered media; chaos and synchronization; X-waves, non-diffracting and accelerating beams; surface waves and topological states; nonlinear effects in photonic crystals and interactions in periodic structures; parity-time symmetric structures.

Chairs: Yaroslav Kartashov (Inst. of Spectroscopy, Russia); Lluís Torner (ISFO, Spain); Vyacheslav Chizhevsky (Stepanov Inst. of Physics, NASB, Belarus)

Claudio Conti (Univ. Sapienza, Italy)

Andrey Maimisov (Moscow Engineering Physics Inst., Russia)

Boris Mantsyzov (Lomonosov Moscow State Univ.)

Boris Malomed (Tel Aviv Univ., Israel)

Wiesław Krolikowski (The Australian Natl Univ., Australia)

Kestutis Stalinas (Univ. Politecnica de Catalunya, Spain)

Stefano Trillo (Univ. of Ferrara, Italy)

SESSION ITuE

September 27, 14:30-16:30, Hall 1

Nonlinear Space-Time Dynamics, Instabilities, and Patterns I

Session Chair: **Nikolay Rosanov**, Vavilov State Optical Institute (Russia)

ITuE1 Front dynamics and phase solitons in laser with coherent forcing (*invited*), Stephane Barland (*Institut Non-Lineaire de Nice, France, France*) [30 min].

ITuE2 Properties of optical chaos from a laser diode with phase-conjugate feedback (*invited*), Emeric Mercier, Delphine Wolfersberger, Damien Rontani, Marc Sciamanna (*LMOPS, CentraleSupélec, Université de Paris-Saclay & Université de Lorraine, France, France*) [30 min].

ITuE3 Coherent dynamics of nanowire lasers (*invited*), Benjamin Lingnau, Benedikt Mayer, Armin Regler, Sabrina Sterzl, Thomas Stettner, Gregor Koblmüller, Michael Kaniber, Kathy Lüdge, Jonathan J. Finley (*Institute of Theoretical Physics, Technische Universität Berlin, Germany*) [30 min].

ITuE4 Nonlinear beats in a bistable VCSEL with near-resonant biharmonic excitation, V. N. Chizhevsky (*B.I. Stepanov Institute of Physics, National Academy of Sciences of Belarus, Belarus*) [15 min].

ITuE5 Control of spatio-temporal instabilities in class-B broad-area lasers with external optical injection, A.V. Pakhomov (*1. Department of Physics, Samara University, Moskovskoye Shosse 34, Samara 443086, Russia 2. Department of Theoretical Physics, Lebedev Physical Institute, Novo-Sadovaya Str. 221, Samara 443011, Russia, Russia*) [15 min].

SESSION ITuH

September 27, 17:00-18:30, Hall 1

Nonlinear Space-Time Dynamics, Instabilities, and Patterns II

Session Chair: **Vyacheslav Chizhevsky**, B.I. Stepanov Institute of Physics, National Academy of Sciences of Belarus (Belarus)

ITuH1 2D and 3D-dissipative optical solitons: Internal structure, symmetry, and motion (*invited*), N. N. Rosanov (*Vavilov State Optical Institute, Russia*) [30 min].

ITuH2 Soliton and topological physics with microcavity polaritons (*invited*), D. Skryabin (*Department of Physics University of Bath, UK*) [30 min].

ITuH3 Nonlinear dynamics and current state formation of exciton-polaritons in 1D periodic potential, I.Yu.Chestnov, M.V. Charukhchyan, A.V. Yulin, A.P. Alodjants, O.A. Egorov (*Vladimir State University, Russia*) [15 min].

ITuH4 Numerical modeling of space-temporal dynamics in fiber lasers, Yu.A.Mazhirina, L.A. Melnikov, V.A. Razukov, S.V. Sukhanov (*Yuri Gagarin State Technical University of Saratov, Russia*) [15 min].

SESSION IWA

September 28, 09:00-11:00, Hall 1

Nonlinear Space-Time Dynamics, Instabilities, and Patterns III

Session Chair: **Leonid Melnikov**, Yuri Gagarin State Technical University of Saratov (Russia)

IWA1 Laws of supercontinuum spectrum formation at filamentation in transparent dielectrics (*invited*), S V Chekalin, V O Kompanets, A E Dormidonov, V P Kandidov (*Institute of Spectroscopy RAS, Russia*) [30 min].

IWA2 Electromagnetic wave emission and efficient energy deposition into air during femtosecond filamentation (*invited*), O.G. Kosareva, N.A. Panov, D.E. Shipilo, V.A. Andreeva, D.V. Pushkarev, D.S. Uryupina, A.B. Savel'ev, P.M. Solyankin, M.N. Esaulkov, A.P. Shkurinov, V.A. Makarov (*M.V.Lomonosov Moscow State University, Faculty of Physics, International Laser Center of M.V.Lomonosov Moscow State University, Russia*) [30 min].

IWA3 Clustering elliptic Gaussian beam at the end of the atmospheric paths, Eugeniy Aleksandrovich Babanin, Arkadiy Viktorovich Blank, Olga Mikhailovna Vokhnik, Vitaliy Vladimirovich Kapranov, Ivan Sergeevich Matsak, Natalia Aleksandrovna Suhareva, Vyacheslav Yurievich Tuganeko (*Faculty of Physics, M.V.Lomonosov Moscow State University, S.P Korolev Rocket and Space Corporation "Energia", Russia*) [15 min].

IWA4 Compressor of single-cycle optical pulses based on self-induced transparency soliton attraction, M.V. Arkhipov, I. Babushkin, N.N. Rosanov (*ITMO University, St. Petersburg, Russia; Faculty of Physics, St. Petersburg State University, St. Petersburg, Russia, Russia*) [15 min].

IWA5 Generation of rectangular unipolar videopulses in Raman-active medium excited by few-cycle light pulses, A. V. Pakhomov, R. M. Arkhipov, M. V. Arkhipov, Yu. A. Tolmachev, I. Babushkin, and N. N. Rosanov (*Department of Physics, Samara University, Moskovskoye Shosse 34, Samara 443086, Russia 2. Department of Theoretical Physics, Lebedev Physical Institute, Novo-Sadovaya Str. 221, Samara 443011, Russia, Russia*) [15 min].

IWA6 Control and optimization of $\text{DCI}^{\text{A}+}$ ion photodissociation dynamics by femtosecond laser pulses, Mikhail V. Korolkov, Karl-Michael Weitzel (*B.I. Stepanov Institute of Physics, National Academy of Science, Minsk, Belarus*) [15 min].

SESSION IWD

September 28, 11:30-12:45, Hall 1

Nonlinear Space-Time Dynamics, Instabilities, and Patterns IV

Session Chair: **Sergey Chekalin**, Institute of Spectroscopy RAS (Russia)

IWD1 Vector model of ultra short pulse Er-doped ring cavity bi-directional fiber laser with inhomogeneous broadening, Leonid A. Melnikov, Maria V. Ryabinina (*Yuri Gagarin State Technical University of Saratov, Russia*) [15 min].

IWD2 Coherent photonics devices -- a novel type of nonlinear photonics devices based on coherent light-matter interactions, R.M. Arkhipov, M.V. Arkhipov, I. Babushkin, N.N. Rosanov (*ITMO University, St. Petersburg, Russia, Faculty of Physics, St. Petersburg State University, St. Petersburg, Russia, Russia*) [15 min].

IWD3 Topological charge conservation of optical vortices with topological charge $l = 1/2$ in second harmonic generation process, Paulius Stanislovaitis, Aidas Matijošius, Valerijus Smilgevičius, Maksym Ivanov (*Laser research center, Vilnius University, Lithuania*) [15 min].

IWD4 Parametric amplification with backward waves: Pulse shapes, Vitaly V. Slabko, Victor A. Tkachenko, Alexander K. Popov, and Sergey A. Myslivets (*Birck Nanotechnology Center, Purdue University, USA*) [15 min].

IWD5 Optical scheme for generation of two-scaled surface plasmons, V. Belyi, N. Kazak, N. Khilo (*Institute of Physics of NAS Belaruss, Belarus*) [15 min].

SESSION ITuM

September 27, 18:30-20:00, Posters Hall

Poster Session: Nonlinear Space-Time Dynamics, Instabilities, and Patterns

ITuM1 Symmetry of living nature in dynamics of vector-field lasers, Larissa Petrovna Svirina (*Belarussian National Technical University, Belarus*) [18:30-20:00].

ITuM2 Vortex pulsed beam trapping into light bullet in Kerr media, O. Fedotova, T. Smirnova, O. Khasanov, G. Rusetsky, N. Aleksić, E. Gaižauskas (*Scientific-Practical Material Research Centre, National Academy of Sciences of Belarus, Belarus*) [18:30-20:00].

ITuM3 Dynamics of adaptive tilt correction of collimated beam at the end of atmospheric path, Arkadiy Viktorovich Blank, Vitaliy Vladimirovich Kapranov, Ivan Sergeevich Matsak, Natalia Aleksandrovna Suhareva, Vjatcheslav Yurievich Tuganeko (*Faculty of Physics, M.V.Lomonosov Moscow State University, S.P Korolev Rocket and Space Corporation "Energia", Russia*) [18:30-20:00].

ITuM4 Resonance fluorescence from an ensemble of optical centres with cooperativities produced by a dielectric host, N.A. Lozing, M.G. Gladush (*Moscow Institute of Physics and Technology, Russia*) [18:30-20:00].

ITuM5 Transmission and reflection of two pulses of laser radiation by thin semiconductor films, A.V. Corovai, A.G. Mangir, P.I. Khadzhi (*Dniester State University, Tiraspol, MD 3300, Moldova; Institute of Applied Physics, Academy of Sciences of Moldova, Kishinev, 2028, Moldova, Moldova*) [18:30-20:00].

ITuM6 Generation of tunable two-dimensional Airy light beams, A. Ropot, N. Khilo, P. Ropot (*Institute of Physics of NAS Belarus, Russia*) [18:30-20:00].

ITuM7 Bessel-like light beams with azimuthally discrete spatial spectrum, N. A. Khilo, A. P. Ropot, P. I. Ropot (*Institute of Physics of NAS Belarus, Russia*) [18:30-20:00].

ITuM8 Investigation of light bullets dynamics in LiF by mid-IR laser coloration, S V Chekalin, V O Kompanets, A V Kuznetsov, A E Dormidonov, V P Kandidov (*Institute of Spectroscopy RAS, 108840, Moscow, Troitsk, Russia, Russia*) [18:30-20:00].

ITuM9 Beam shaping by hyperbolic metamaterials with extremal optical characteristics, S. Kurilkina, V. Belyi, N. Kazak (*B.I. Stepanov Institute of Physics of National Academy of Sciences of Belarus, Belarus*) [18:30-20:00].

6. Symposium “Diamond and Silicon Carbide Based Quantum Technologies”

Symposium will focus on new applications of optically active defects in solids (diamond and silicon carbide) for quantum information processing and quantum metrology. Topics covered by symposium with span material sciences aspects of nanoengineering of quantum materials, properties of single defects, creation of quantum registers based on colour centres, light-matter interfaces and novel protocols for quantum sensing and metrology.

Chairs: Fedor Jelezko (Inst. for Quantum Optics, Ulm Univ., Germany);
Alexander Nizovtsev (Stepanov Inst. of Physics, NASB, Belarus)
Pavel Baranov (Ioffe Physical-Technical Inst., Russia)
Dmitry Budker (Univ. of California at Berkeley, USA; Johannes Gutenberg Univ., Germany)
Philip Hemmer (*) (Texas A&M Univ., USA)
Mikhail Lukin (*) (Harvard Univ., USA)
Dieter Suter (Technical Univ. of Dortmund, Germany)

SESSION IME

September 26, 16:30-18:30, Hall 2

Diamond and Silicon Carbide Based Quantum Information Technologies I

Session Chair: **Christian Degen**, Laboratory for Solid State Physics Department of Physics ETH Zurich (Switzerland)

IME1 To be announced (keynote), Jorg Warchrup (*Universität Stuttgart, Germany*) [45 min].

IME2 Robust quantum gate operations for hybrid spin-qubits (invited), Dieter Suter (*TU Dortmund, Germany*) [30 min].

IME3 Spin on a fiber: quantum sensing on a fiber platform (invited), I.V. Fedotov, S. Blakley, A.A. Lanin, E.E. Serebryannikov, L.V. Doronina-Amitonova, N.A. Safronov, J. Becker, Y.G. Ermakova, D.A. Sidorov-Biryukov, V.V. Belousov, A.B. Fedotov, S.Ya. Kilin, K. Sakoda, P. Hemmer, V.L. Velichansky, M.O. Scully, and A.M. Zheltikov (*Lomonosov Moscow State University, Russia*) [30 min].

IME4 Engineered microwaves to manipulate ^{13}C nuclear spins in hyperfine-coupled NV- ^{13}C complexes in diamond, A.P. Nizovtsev, S.Ya. Kilin (*B.I. Stepanov Institute of Physics, National Academy of Science of Belarus, Belarus*) [15 min].

SESSION ITuB

September 27, 09:00-11:00, Hall 2

Diamond and Silicon Carbide Based Quantum Information Technologies II

Session Chair: **Vladimir Dyakonov**, Julius-Maximilian University of Wuerzburg (Germany)

ITuB1 Quantum sensing with high spectral resolution (invited), Christian Degen (*Laboratory for Solid State Physics Department of Physics ETH Zurich, Switzerland*) [30 min].

ITuB2 Towards light-matter interface for the NV center in diamond (invited), A.V. Akimov, V.V. Vorobyov, V.V. Soshenko, S.V. Bolshedvorskiy, J. Javadzade, N. Lebedev, A.N. Smolyaninov, V.N. Sorokin (*Texas A&M University, USA*) [30 min].

ITuB3 Level-crossing spectroscopy of nitrogen-vacancy centers in diamond (invited), S.V. Anishchik, K.L. Ivanov, V.G. Vins, A.P. Yelisseyev, N.N. Lukzen, N.L. Lavrik, V.A. Bagryansky (*Voevodsky Institute of Chemical Kinetics and Combustion SB RAS, Russia*) [30 min].

ITuB4 Fluorescent nanodiamond as an emitter of single photons (invited), I.I. Vlasov (*General Physics Institute, Russia*) [30 min].

SESSION ITuD

September 27, 11:30-13:30, Hall 2

Diamond and Silicon Carbide Based Quantum Information Technologies III

Session Chair: **Igor Vlasov**, General Physics Institute (Russia)

ITuD1 Quantum optics with silicon-vacancy color centers in diamond (invited), D. D. Sukachev, A. Sipahigil, R. E. Evans, M. J. Burek, J. Borregaard, M. K. Bhaskar, C. T. Nguyen, J. L. Pacheco, H. Atikian, R. M. Camacho, F. Jelezko, E. Bielejec, H. Park, M. Loncar, M. D. Lukin (*Harvard University, Cambridge, MA 02138, USA*), P.N. Lebedev Physical Institute of the RAS, Moscow 119991, Russia, USA) [30 min].

ITuD2 All-optical ultrafast coherent control of single silicon vacancy color centers in diamond, J. N. Becker, J. Görlitz, C. Arend, M. Markham, and C. Becher (*Universität des Saarlandes, Fachrichtung 7.2 (Experimentalphysik), Germany*) [15 min].

ITuD3 The rise of silicon carbide as a promising integrated quantum nanophotonics platform (invited), (, Australia) [30 min].

ITuD4 Intrinsic defects in SiC for spin-based quantum applications (invited), V. Dyakonov, V. A. Soltamov, P. G. Baranov, H. Kraus, A. Sperlich, T. Ohshima, G. V. Astakhov (*Julius-Maximilian University of Wuerzburg, Germany*) [30 min].

ITuD5 All-optical magnetometry with defects in silicon carbide, G. V. Astakhov, D. Simin, V. A. Soltamov, A. V. Poshakinskiy, A. N. Anisimov, R. A. Babunts, D. O. Tolmachev, E. N. Mokhov, M. Trupke, S. A. Tarasenko, A. Sperlich, P. G. Baranov, V. Dyakonov (*Experimental Physics VI, Julius-Maximilian University of Wuerzburg, Germany*) [15 min].

SESSION ITuN

September 27, 18:30-20:00, Posters Hall

Poster Session: Diamond and Silicon Carbide Based Quantum Information Technologies

ITuN1 Precision Measurements of Raman Scattering for Synthetic Diamond Single Crystals, Gusakov G.A., Belko N.V., Samtsov M.P., Voropay E.S. (*A.N. Sevchenko Institute of Applied Physical Problems of Belarusian State University, Belarus*) [18:30-20:00].

ITuN2 Robust ^{13}C nuclear spins in the “NV-axial ^{13}C ” complexes in diamond: Hyperfine and spatial characteristics by DFT Simulation of the $\text{C}_{\{510\}}[\text{NV}]\text{H}_{\{252\}}$ Cluster, A.P. Nizovtsev, S.Ya. Kilin, A.L. Pushkarchuk, S.A. Kuten, V.A. Pushkarchuk (*B.I. Stepanov Institute of Physics, National Academy of Sciences of Belarus, Belarus*) [18:30-20:00].

ITuN3 Optical properties of CVD diamonds – Before and after different post grown treatment, V.G.Vins^{1*}, A.P.Yelesseyev² (*VELMAN, Ltd, Russia*) [18:30-20:00].

7. Symposium “Beyond Non-Linear Optics: High & Extreme Optical Field Physics”

Topics include, but are not limited to, fundamental aspects of extreme field optical science; atoms and molecules in a high optical field: from ionization to attoseconds; new frontiers in electron and ion acceleration in plasmas; novel X-ray and gamma sources with femtosecond lasers; interaction with structured and tailored targets; nuclear phenomena with extreme optical fields; new trends in extreme fields generation & characterization.

Chairs: Mikhail Fedorov (Prokhorov General Physics Inst., Russia); Mikhail Kalashnikov (Max Born Inst. for nonlinear optics and short pulse spectroscopy, Germany); Andrey Savel'ev (Lomonosov Moscow State Univ., Russia)

Dimitris Charalambidis (Univ. of Crete and Foundation for Research and Technology - HELLAS)

Calin Alexandry Ur (*) (Univ. Politechnica of Bucharest, Romania)

Sargis Ter-Avetisyan (Inst. for Basic Science, Republic of Korea)

Valery Bychenkov (Lebedev Physical Inst., Russia)

Efim Khazanov (Inst. of Applied Physics, Russia)

Wilhelm Becker (MPI for the Physics of Complex Systems, Germany)

SESSION ITuF

September 27, 14:30-16:00, Hall 2

Beyond Non-Linear Optics: High & Extreme Optical Field Physics I

Session Chair: **Andrei Savel'ev**, Physics Faculty and International Laser Center of M.V. Lomonosov MSU (Russia)

ITuF1 Beyond relativistic laser matter interactions – Quantum processes in strong classical potentials (*keynote*), B. M. Hegelich, L. Labun (*University of Texas at Austin, USA*) [45 min].

ITuF2 Electron acceleration by laser pulse under its output on optical surface section “vacuum-transparent medium”. Laser synchrotron (*invited*), M.Yu.Romanovsky (*Federal Agency for Scientific Organization, Russia*) [30 min].

ITuF3 High-order optical processes: beyond perturbative nonlinear optics, V. V. Strelkov, M.A. Khokhlova (*Prokhorov General Physics Institute, Russia*) [15 min].

ITuF4 Coherent and resonant quantum electrodynamics processes in strong pulsed laser fields, S.P. Roshchupkin (*Department of Theoretical Physics, Peter the Great St. Petersburg Polytechnic University, Russia*) [15 min].

SESSION ITuI

September 27, 17:00-18:30, Hall 2

Beyond Non-Linear Optics: High & Extreme Optical Field Physics II

Session Chair: **Bjorn Hegelich**, University of Texas at Austin (USA)

ITuI1 Laser absorption in plasmas: from nano-targets to near-QED regime (*invited*), A. Pukhov, L.Yi, D. Zhu, Z.Y. Chen, T.P.Yu, X.L.Zhu, B.Shao, B.F.Shen, Z.M.Sheng, V.Kaymak, V. Shlyaptsev, J.Rocca (*Institute for Theoretical Physics I, University of Dusseldorf, Germany*) [30 min].

ITuI2 Gamma production at relativistic laser interaction with sub-wavelength scale structures: Nanospheres, nanograss and other (*invited*), K. Ivanov, D. Gozhev, V. Timoshenko, I. Saraeva, S. Kudryashov, E. Obraztsova, L. Borisenko, A.Orekhov, R. Volkov, A. Savel'ev (*Physics Faculty and International Laser Center of M.V. Lomonosov MSU, Russia*) [30 min].

ITuI3 Synchronized proton acceleration from hydrogenated low dense carbon nanotube targets, A. V. Brantov, E. A. Govras, P. A. Ksenofontov, V. Yu.Bychenkov (*P.N. Lebedev Physical Institute of the Russian Academy of Sciences, Russia*) [15 min].

ITuI4 Theoretical parametrization of ion spectra from expanding foils in laser-plasma interaction, E. A. Govras, V. Yu. Bychenkov, A. V. Brantov (*All-Russia Research Institute of Automatics, Russia*) [15 min].

SESSION IWB

September 28, 09:00-10:45, Hall 2

Beyond Non-Linear Optics: High & Extreme Optical Field Physics III

Session Chair: **Nikolay Andreev**, Joint Institute for High Temperatures of the Russian Academy of Sciences (Russia)

IWB1 Towards few cycle PW peak and kW average power Ti:sapphire laser systems (*invited*), H.Cao, M.Kalashnikov, R.S. Nagymihaly, N. Khodakovskiy, K. Osvay and V.Chvykov (*ELI-ALPS, Hungary*) [30 min].

IWB2 Picosecond contrast in Ti:sapphire CPA laser systems, M.Kalashnikov, N.Khodakovskiy (*Max-Born-Institute, Germany*) [15 min].

IWB3 Source of ultrafast dual-energy X-rays based on femtosecond laser excitation of mixed clusters and compound solids, Zhvaniya I.A., Dzhidzhoev M.S., Garmatina A.A., Gordienko V.M. (*Faculty of Physics and International Laser Center M.V. Lomonosov Moscow State University, Russia*) [15 min].

IWB4 Multistage coherent beams combining for extreme field generation, V.I. Trunov, S.A. Frolov, E.V. Pestryakov, S.N. Bagayev (*Institute of Laser Physics SB RAS, Russia*) [15 min].

IWB5 Simulations of tight focusing by propagation equations, D. E. Shipilo, N. A. Panov, V. A. Andreeva, V. Jukna, V. V. Bukin, A. Couairon, O. G. Kosareva, F. Nesa (*Faculty of Physics & International Laser Center, Lomonosov Moscow State University, Russia*) [15 min].

IWB6 Guiding femtosecond laser pulses by copper capillaries for laser-driven plasma wakefield acceleration, K.V. Lotov, V.I. Trunov, K.V. Gubin, E.V. Pestryakov, R.I. Spitsyn, P.V. Tuev, S.N. Bagayev, P.V. Logachev (*Budker Institute of Nuclear Physics SB RAS, Russia*) [15 min].

SESSION IWE

September 28, 11:30-13:00, Hall 2

Beyond Non-Linear Optics: High & Extreme Optical Field Physics IV

Session Chair: **Huabao Cao**, ELI-ALPS (Hungary)

IWE1 High energy electrons in the relativistic laser-matter interactions (*invited*), N.E. Andreev (*Joint Institute for High Temperatures of the Russian Academy of Sciences, Russia*) [30 min].

IWE2 Laboratory investigation of magnetized laser plasmas expansion into the vacuum (*invited*), A. Soloviev, K. Burdonov, S. N. Chen, A. Ereemeev, G. Revet, S. Pikuz, E. Filippov, M. Cerchez, T. Gangly, A. Sladkov, A. Korzhimanov, V. Ginzburg, E. Khazanov, A. Kochetkov, A. Kuzmin, I. Shaykin, A. Shaykin, I. Yakovlev, M. Starodubtsev, and J. Fuchs (*Institute of Applied Physics, Russian Academy of Sciences, Russia*) [30 min].

IWE3 Relativistic laser-plasma interactions in the case of the long pre-plasma layer: Experimental study, Shulyapov S.A., Tsymbalov I.N., Krestovskih D.A., Ivanov K.A., Volkov R.V., Savel'ev A.B. (*Faculty of Physics and International Laser Center of Lomonosov Moscow State University, Russia*) [15 min].

IWE4 Mechanisms of hot electrons generation and optical harmonics emission at relativistic laser-plasma interaction, Tsymbalov I.N., Shulyapov S.A., Ivanov K.A., Ksenofontov P.A., Brantov A.V., Bychenkov V.Yu., Savel'ev A.B. (*Faculty of Physics and International Laser Center of Lomonosov Moscow State University, Moscow, Russia, Russia*) [15 min].

SESSION ITuO

September 27, 18:30-20:00, Posters Hall

Poster Session: Beyond Non-Linear Optics: High & Extreme Optical Field Physics

ITuO1 Electron dynamics in the tightly focused relativistically strong femtosecond laser pulse, K. Ivanov, O. Vais, S. Bochkarev, I. Tsymbalov, V. Bychenkov, R. Volkov, A. Savel'ev (*Physics Faculty and International Laser Center of M.V. Lomonosov MSU, Russia*) [18:30-20:00].

ITuO2 New method of high-intensity laser pulse diagnostics by using ultrathin foils, O.E. Vais, S.G.Bochkarev, S. Ter-Avetisyan, V.Yu. Bychenkov (*Center for Fundamental and Applied Research, Dukhov Research Institute of Automatics (VNIIA), Alternative affiliation: P.N. Lebedev Physical Institute of the Russian Academy of Sciences, Russia*) [18:30-20:00].

ITuO3 Gamma-ray emission in Weibel instability, E. N. Nerush, D. A. Serebryakov, I. Yu. Kostyukov (*Institute of Applied Physics of the Russian Academy of Sciences, Russia*) [18:30-20:00].

8. Symposium “Topological States and Hall Physics with Light”

Berry’s gauge fields and topological effects in optics; Linked and knotted light beams; Topological effects in bianisotropic metamaterials; Topologically protected edge states; Photonic spin Hall effect; Photonic topological insulators; Optical properties of electronic topological insulators, photocurrents.

Chairs: Sergey Tarasenko (Ioffe Physical-Technical Inst., Russia); Evgenii Tolkachev (Stepanov Inst. of Physics, NASB, Belarus)
Guillaume Malpuech (Inst. Pascal, France)
Sergey Ganichev (Univ. of Regensburg, Germany)
Alexander Furs (Belarusian State Univ., Belartus)
Alexander Khanikaev (City Univ. of New York, USA)

SESSION IMB

September 26, 11:00-13:15, Hall 2

Topological States and Hall Physics with Light I

Session Chair: TBA, ()

IMB1 Topological effects based on spin-orbit coupling of cavity polaritons (*invited*), D.D. Solnyshkov, O. Bleu, A.V. Nalitov, G. Malpuech (*University Blaise Pascal, France*) [30 min].

IMB2 Magnetospectroscopy of novel 2D topological insulators (*invited*), V.I. Gavrilenko (*Institute for Physics of Microstructures, Russia*) [30 min].

IMB3 Terahertz radiation induced photocurrents in topological insulators (*invited*), Vasily Bel'kov (*Ioffe Institute, Russia*) [30 min].

IMB4 Experimental studies of subwavelength topological states in zigzag arrays of plasmonic and dielectric nanoparticles (*invited*), A. P. Slobozhanyuk, I. S. Sinev, A. K. Samusev, I. S. Mukhin, Y. F. Yu, A. I. Kuznetsov, A. E. Miroshnichenko, P. A. Belov, A. N. Poddubny and Yu. S. Kivshar (*Nonlinear Physics Center, Australian National University, Canberra ACT 2601, Australia, Australia*) [30 min].

IMB5 Addition, subtraction and cancellation of optical topological charges in two-photon excited Rb vapour, Alexander M. Akulshin, Irina Novikova, Eugeniy E. Mikhailov, Sergey A. Suslov, and Russell J. McLean (*Swinburne University of Technology, Australia*) [15 min].

9. Symposium “Spectroscopy and Nanoscopy down to Single Molecules and Atomic Resolution”

The aim of this symposium is to provide an interdisciplinary platform for researchers from Physics, Chemistry, and Biology to share their experience, exchange information, and report their recent findings and developments in the field of ultrasensitive optical detection down to the single molecule level and below the classical diffraction limit. The topics include but not limited to basic research in the field of spectroscopy and imaging of single molecules, quantum dots and nanoparticles; as well as various “true” and optical reconstruction super-resolution techniques (AFM, STM, PALM, STORM, SNOM, FLIM) and their applications.

Chair: Andrey Naumov (Inst. of Spectroscopy, Russia)
Andriy Chmyrov (Helmholtz Zentrum Munchen, Germany)
Igor Dushkin (NanoScanTechnology, Russia)
Boleslaw Kozankiewicz (Inst. of Physics, Poland)
Taras Plakhotnik (Univ of Queensland, Australia)
Ivan Scheblykh (Lund Univ., Sweden)
Aleksander Starukhin (Stepanov Inst. of Physics, Belarus)
Thobias Utikal (MPI for the Science of Light, Germany)

SESSION IThG

September 29, 14:30-16:30, Hall 1

Spectroscopy and Nanoscopy down to Single Molecules and Atomic Resolution I

Session Chair: **Taras Plakhotnik**, The University of Queensland (Australia)

IThG1 $\lambda/2$ Fabry Pérot micro-resonators in single molecule spectroscopy (*keynote*), Alfred J. Meixner, Alexander Konrad, Michael Metzger, Marc Brecht (*Institute of Physical and Theoretical Chemistry, Eberhard Karls University, Germany*) [45 min].

IThG2 Influence of excitation intensity on duration of bright and dark intervals in blinking fluorescence of single CdSe/ZnS core/shell quantum dots, Ivan Yu. Eremchev, Igor S. Osad'ko, Andrey V. Naumov (*Institute for spectroscopy RAS, Russia*) [15 min].

IThG3 Single molecules explore in real time stress relaxation in drawn polymer films (*invited*), Stefan Krause, Martin Neumann, Melanie Fröbe, Robert Magerle, and Christian von Borczyskowski (*Institute of Physics and NanoMA, Technische Universität Chemnitz, 09107 Chemnitz, Germany, Germany*) [30 min].

IThG4 A quantum-kinetic theory in understanding the properties of single light emitters in locally inhomogeneous media, M.G. Gladush, A.V. Naumov (*Institute of spectroscopy RAS, Russia*) [15 min].

IThG5 Electronic damage under exposure of strong ultrashort X-ray laser pulse, A. A. Mityureva, V. V. Smirnov (*Saint Petersburg State University, Russia*) [15 min].

SESSION IThJ

September 29, 17:00-18:30, Hall 1

Spectroscopy and Nanoscopy down to Single Molecules and Atomic Resolution II

Session Chair: **Alfred Meixner**, Institute of Physical and Theoretical Chemistry, Eberhard Karls University (Germany)

IThJ1 Photochemistry on single chromophore complexes: towards to single molecule optical memory (*invited*), Martti Pärs, Johannes Maier, Andrea Schuller, Tina Weller, Mukundan Thelakkat, Jürgen Köhler (*University of Tartu, Institute of Physics, Estonia*) [30 min].

IThJ2 Multiparameter nanodiagnostics of complex solids by phononless fluorescence spectromicroscopy of myriad single dye-molecules (*invited*), Alexei A. Gorshlev, I.Yu. Eremchev, Andrei V. Naumov, Lothar Kador, Jürgen Köhler (*Institute for Spectroscopy of Russian Academy of Sciences, Russia*) [30 min].

IThJ3 Energy migration in upconversion nanoparticles: Assessment through kinetics analysis, Sergey Alyatkin, Ilya Asharchuk, Kirill Khaydukov, Andrey Nechaev, Yuri Vainer, Vladimir Semchishen, Evgeny Khaydukov (*Institute for Spectroscopy Russian Academy of Sciences Moscow Institute of Physics and Technology Federal Scientific Research Centre "Crystallography and Photonics" of Russian Academy of Sciences, Russia*) [15 min].

IThJ4 Influence of pump and probe polarization on recoil-induced resonances, David Lazebny, Alexey Taichenachev, Valery Yudin, (*Institut of Laser Physics SB RAS, Russia*) [15 min].

SESSION IFA

September 30, 09:00-11:00, Hall 1

Spectroscopy and Nanoscopy down to Single Molecules and Atomic Resolution III

Session Chair: **Christian von Borczyskowski**, Institute of Physics and NanoMA, Technische Universität Chemnitz, 09107 Chemnitz, Germany (Germany)

IFA1 Luminescence blinking - from single molecules to micrometer-sized perovskite crystals (*invited*), Aboma Merdasa, Yuxi Tian, Alexander Dobrovolsky, Ivan G. Scheblykin (*Chemical Physics, Lund University, Sweden*) [30 min].

IFA2 Optical near-field dichroism controlled with a plasmonic nanoantenna (*invited*), Sergey S. Kharintsev, Alexander I. Fishman, Semion K. Saikin and Sergei G. Kazarian (*Kazan Federal University/Institute of Physics, Russia*) [30 min].

IFA3 Diamonds for quantum nanosensing: A critical review of recent developments (*invited*), Taras Plakhotnik (*The University of Queensland, Australia*) [30 min].

IFA4 Laser fine structural spectroscopy of tetrapyrrole molecules and their dimers: From site-selection to single molecule detection, A. Starukhin, E. Zenkevich (*B.I. Stepanov Institute of physics NAS Belarus, Belarus*) [15 min].

IFA5 Raman confocal microscopy with the highest spatial resolution, Valery Kopachevsky, Sergej Shashkov, Alexander Gvozdev, Alexander Grigorenko, Alexander Andriyash (*SOL instruments Ltd., Belarus*) [15 min].

SESSION IThN

September 29, 18:30-20:00, Posters Hall

Poster Session: Spectroscopy and Nanoscopy down to Single Molecules and Atomic Resolution

IThN1 Statistical processing of single-molecule sensing of local fields in dye-doped solid films, A.V. Golovanova, T.A. Anikushina, M.G. Gladush, A.A. Gorshchev, I.Y. Eremchev, A.V. Naumov, L. Kador, J. Köhler (*Moscow State Pedagogical University, Russia*) [18:30-20:00].

IThN2 Aberration analysis of optical systems containing acousto-optical elements, Batshev V.I., Machikhin A.S., Pozhar V.E., Burmak L.I. (*«Scientific and Technological Center of Unique Instrumentation» of the Russian Academy of Sciences (STC UI RAS), Russia*) [18:30-20:00].

IThN3 The generation of rotating two-lobe light fields for nanoscopy, D.V. Prokopova, S.P. Kotova, N.N. Losevsky, E.V. Razueva (*Lebedev Physical Institute, Samara National Research University, Russia*) [18:30-20:00].

IThN4 Hollow-tip photoelectron scanning microscopy, B. N. Mironov, S. A. Aseyev, A.P. Cherkun, S. V. Chekalin (*Institute of Spectroscopy, Russian Academy of Sciences, Russia*) [18:30-20:00].

10. Symposium “Quantum Optomechanics”

Modern developments in quantum optomechanics from experimental and theoretical standpoints, including optomechanical cooling and entanglement; quantum limits on measurement precision and how to overcome them via back-action evading measurements; feedback control; single photon and nonlinear optomechanics; optomechanical synchronization; coupling of optomechanical systems to microwave circuits and two-level systems, such as atoms and superconducting qubits; and optomechanical tests of gravitational decoherence.

Chairs: Stefan Danilishin (Glasgow Univ., UK); Sergey Vyatchanin (Lomonosov Moscow State Univ., Russia)

SESSION IThA

September 29, 09:00-11:00, Hall 1

Quantum Optomechanics I

Session Chair: **Stefan Danilishin**, University of Glasgow (UK)

IThA1 To be announced (*keynote*), Yanbei Chen (*California Institute of Technology, USA*) [45 min].

IThA2 Light-matter interfaces for quantum simulations and information processing (*invited*), Klemens Hammerer (*University of Hannover, Germany*) [30 min].

IThA3 Optomechanical quantum correlations in a multimode nanomechanical membrane resonator (*invited*), Y. Tsaturyan, W. H. P. Nielsen, C. Møller, A. Barg, E. Polzik, A. Schliesser (*Niels Bohr Institute Copenhagen University, Denmark*) [30 min].

IThA4 Preparing a mechanical oscillator of an optomechanical cavity in a nonclassical state, Andrey A. Rakhubovsky, Radim Filip (*Department of Optics, Palacký University, Czech Republic*) [15 min].

SESSION IThB

September 29, 11:30-13:30, Hall 1

Quantum Optomechanics II

Session Chair: **Klemens Hammerer**, University of Hannover (Germany)

IThB1 Towards a quantum optical-to-microwave transducer (*invited*), Xu Chen, Clément Chardin, Kevin Makles, Rémy Braive, Isabelle Robert-Philip, Tristan Briant, Pierre-François Cohadon, Antoine Heidmann, Thibaut Jacqmin, Samuel Deléglise (*Laboratoire Kastler Brossel, France*) [30 min].

IThB2 Optomechanics and quantum noise with AlGaAs microstructures (*invited*), Thomas Corbitt, Robinjeet Singh, Jonathan Cripe, and Garrett Cole (*Louisiana State University, USA*) [30 min].

IThB3 Towards Sagnac speed meter interferometers for gravitational wave detection (*invited*), Christian Graef, Bryan W. Barr, Angus S. Bell, Stefan L. Danilishin, Jan-Simon Hennig, E. Alasdair Houston, Sabina H. Huttner, Sean S. Leavey, Daniela Pascucci, Borja Sorazu, Andrew Spencer, Sebastian Steinlechner, Kenneth A. Strain, Jennifer Wright, Teng Zhang, and Stefan Hild (*University of Glasgow, UK*) [30 min].

IThB4 Internal squeezing for enhancing the sensitivity-bandwidth product of interferometric force detectors, M. Korobko, L. Kleybolte, S. Ast, H. Miao, Y. Chen, R. Schnabel (*Institut für Laserphysik, Universität Hamburg, Germany*) [15 min].

IThB5 Quantum speed meter based on dissipative coupling, Sergey Vyatchanin and Andrey Matsko (*Faculty of Physics, M.V. Lomonosov Moscow State University, Russia*) [15 min].