



ASIA-PACIFIC CONFERENCE ON FUNDAMENTAL PROBLEMS OF OPTO- AND MICROELECTRONICS

APCOM-2011 WORKSHOP
Moscow-Samara, July 4 - July 8, 2011

PROGRAM

ФИАН



FOREWORD

Asia-Pacific Conferences on “Fundamental Problems of Opto- and Microelectronics (APCOM)” are held yearly starting from 2000. The event took place in Vladivostok, Khabarovsk (Russia), Harbin (P.R. of China), Tokyo (Japan), and Yongin (Republic of Korea). APCOM’2011 workshop will be held in **Moscow (July 4-5) and Samara (July 6-8), Russia.**

APCOM serves a perfect opportunity for the researchers, scientists, and engineers from Asia-Pacific countries as well as from Europe to meet together, present and discuss their latest results and achievements in all aspects of optics and microelectronics.

APCOM’2011 Workshop will continue a previously opened discussions on recent achievements in the development of optical information processing techniques, fiber optical communication and measuring systems, nonlinear optoelectronics systems, new materials and structures for photonics, optoelectronic methods for medicine. During the Workshop the major lines and range of problems to be covered at the APCOM’2012 will be outlined.

MOSCOW & SAMARA

Moscow is the capital of Russia; it is the major political, economic, scientific, educational, cultural, religious, financial, and transportation centre of Russia and one of the well-known business centers and beautiful cities in the world. With the population of 10.5 million people Moscow is the most populous city of Europe. The extensive transit network of the city includes 4 international airports, 9 railroad terminals, and the Moscow Metro (182 stations), recognized as one of the city's landmarks due to its rich architecture.

Samara is situated in the central European part of Russia. With its population of about 1.2 million people it is one of the largest cities in Russia. It stands on the left bank of the Volga “Mother” River. Samara has a continental climate characterized by hot summers and cold winters. Today Samara is a large and important social, political, economic, industrial and cultural center of the European Russia.

LOCATION AND REGISTRATION

Moscow: *July 4-5, 9:00-10:00*

P.N. Lebedev Physical Institute of RAS. Moscow, Leninskij prospekt, 53.

Samara: *July 6-8, 10:00-11:00*

Samara Scientific Center of the RAS. Samara, Studencheskij pereulok, 3a.

ORGANIZED BY

- P.N. Lebedev Physical Institute of RAS, Moscow, Russia
- Samara Branch of the P.N. Lebedev Physical Institute of RAS, Samara, Russia
- Samara State Aerospace University, Samara, Russia
- Samara Scientific Center of the RAS, Samara, Russia

SPONSORED BY

- Russian Foundation for Basic Research, Moscow, Russia
- Samara Region Administration
- “Inject”, JSC, Saratov, Russia
- Samara Medical Institute "REAVIZ", Samara, Russia
- Editing Publishing Center "Tekhnospere", JSC, Moscow, Russia

WORKSHOP CONFERENCE CHAIRS

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Head of Samara Scientific Center of RAS,
Samara, Russia

Prof. Oleg N. Krokhin Co-chair, Academician of Russian Academy of Sciences,
Moscow, Russia

Prof. Jongho Choi Co-chair, Kangnam University,
Seoul, Republic of Korea

Prof. Yuri N. Kulchin Co-chair, Corresponding Member of RAS,
Vice-President of Far Eastern Branch of RAS (FEB RAS),
Vladivostok, Russia

Prof. Toshihiro Shimizu Co-chair, Kokushikan University,
Tokyo, Japan

Prof. Jingping Ou Co-chair, Academician, President of Dalian Institute of
Technology, Dalian, China

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Mariya S. Zolotykh	P.N. Lebedev Physical Institute of RAS, Moscow, Russia

Moscow, July 4, Monday

10:00-16:00 EXCURSION OVER MOSCOW AND KREMLIN

Moscow, July 5, Tuesday

MOSO

MOSCOW SESSION

Chair: **O. Krokhin**

10:00-10:30 OPENING SPEECH

Oleg N. Krokhin (Co-chair of APCOM 2011, Moscow, Russia)

10:30-10:50 **Yuri M. Popov** (P.N. Lebedev Physical Institute, Moscow, Russia)

MOSO1 *High-power semiconductor lasers*

10:50-11:10 **Satoshi Uchida** (RINRI Institute, Tokyo, Japan)

MOSO2 *Analysis of the probabilistic boolean automaton model for morality*

11:10-11:30 **Alexander V. Uskov^{1,2,3}, Ch. Meuer², H. Smeckeber², D. Bimberg², Y. Chen³, J. Mørk³** (¹P.N. Lebedev Physical Institute, Moscow, Russia, ²Institut für Festkörperphysik, Technische Universität Berlin, Germany, ³DTU Fotonik, Department of Photonics Engineering, Technical University of Denmark, Denmark)

MOSO3 *Effects of auger capture induced carrier heating on ultrafast gain dynamics in quantum dots amplifiers*

11:30-11:50 **Alexey Yu. Bykovsky¹, A. Egorov², B. Rager²** (¹P.N. Lebedev Physical Institute RAS, ²Moscow Physics Engineering Institute (State University), Moscow, Russia)

MOSO3 *Multiple-valued logic protected coding for optoelectronic systems distant control via the global network*

11:50-12:10 **Andrey N. Putilin** (P.N. Lebedev Physical Institute of RAS, Moscow, Russia)

MOSO4 *3D display design*

12:10-12:30 **Vladimir A. Sautenkov**^{1,2}, **M. Scully**², **B. Zelener**¹ (¹Joint Institute for High Temperatures of RAS, Moscow, Russia, ²Department of Physics and IQS, Texas A&M University, USA)

MOSO5 *Absorption spectra of cesium and rubidium molecules as frequency references*

12:30-13:00 EXCURSION over the P.N. Lebedev Institute

13:00-14:00 LUNCH

14:00 DEPARTURE to DOMODEDOVO AIRPORT

19:00 DEPARTURE to SAMARA

MOSP

POSTER SESSION

Moscow, July 5, Tuesday, 9:00-14:00

Chair: **I. Zavestovskaya**

MOSP1 **I. Artukov**¹, **N. Borisenko**¹, **M. Chernodub**¹, **A. Fronya**¹, **Yu. Merkuliev**¹, **M. Osipov**¹, **V. Puzyrev**¹, **A. Starodub**¹, **A. Vinogradov**¹, **K. Zaramenskikh**², **E. Zharikov**², **O. Yakushev**¹ (¹P.N. Lebedev Physical Institute, ²D. Mendeleev University of Chem. Techn. of Russia, Moscow, Russia)

X-ray radiation of plasma produced under laser interaction with nanostructured materials

MOSP2 **V. Golovanov**, **G. Polyakova**, **I. Lisitskiy**, **M. Kouznetsov**, **K. Zaramenskikh** (GIREDMET, Russia, Moscow)

Light resistant silver halide crystals for volume elements and fibers

MOSP3 **E. Grichuk**¹, **E. Manykin**^{1,2} (¹National Research Nuclear University "MEPhI", ²National Research Centre "Kurchatov Institute", Moscow, Russia)

Adiabatic quantum spin pumping in graphene nanostructures

MOSP4 **E. Isaev**^{1,2}, **B. Pugachev**², **V. Samodurov**^{1,2} (¹Higher School of Economics, ²Pushchino Radio Astronomy Observatory of LPI, Moscow, Russia)

The developing of Radio Astronomy Data Center at PRAO ASC LPI

MOSP5 **M. Kouznetsov**, **I. Lisitskiy**, **V. Golovanov**, **G. Polyakova**, **K. Zaramenskikh** (GIREDMET, Moscow, Russia)

Thallium halide crystals: properties and applications

- MOSP6** **A. Kanavin, S. Makhlysheva, I. Zavestovskaya** (P.N. Lebedev Physical Institute of RAS, Moscow, Russia)
Electron emission and fragmentation of metal nanoparticles in water under ultrashort laser irradiation
- MOSP7** **V. Dmitriev², M. Osipov¹, V. Puzyrev¹, A. Sahakyan¹, A. Starodub¹, B. Vasin¹** (¹P.N. Lebedev Physical Institute of the RAS, ²FSUE POLYUS Research & Development Institute, Moscow, Russia)
Nonlinear conversion of low coherent laser radiation in KDP crystal
- MOSP8** **N. Evtikhiev, V. Krasnov, S. Starikov** (National Research Nuclear University “MEPhI”, Moscow, Russia)
Modified random target method for measurement of the two-dimensional modulation transfer function of an optical system
- MOSP9** **I. Gerasimov, V. Rodin, S. Starikov** (National Research Nuclear University “MEPhI”, Moscow, Russia)
Dispersive correlators for real time recognition of radiating objects
- MOSP10** **S. Borin, A. Kanavin, I. Zavestovskaya**, (P.N. Lebedev Physical Institute of RAS, Moscow, Russia)
Theoretical modeling of laser-direct writing
- MOSP11** **A. Kanavin, I. Zavestovskaya, M. Zolotykh** (P.N. Lebedev Physical Institute of RAS, Moscow, Russia)
Theoretical research of laser surface modification of porous metal films
- MOSP12** **P. Cheryomkhin, N. Evtikhiev, S. Starikov** (National Research Nuclear University “MEPhI”, Moscow, Russia)
Development of technique for measurements of noises and radiometric function of photo and video camera
- MOSP13** **A. Novitsky¹, A. Uskov^{1,2,3}, C. Gritti¹, I. Protsenko^{2,3}, B. Kardynal¹, A. Lavrinenko¹** (¹DTU Fotonik, Technical University of Denmark, Denmark, ²P.N. Lebedev Physical Institute, ³Plasmonics LTD, Moscow, Russia)
Increased electron photoemission from plasmonic nanoparticles and photoemission enhanced solar cells.
- MOSP14** **L. Mikheev, A. Rastvortceva** (P.N. Lebedev Physical Institute of RAS, Moscow, Russia)
Numerical modeling of the active environment of the XeF(C-A) excimer amplifier

Samara, July 6, Wednesday

10:00-11:00 REGISTRATION

PLENARY SESSION

Chairs: **S. Kotova, Yu. Kulchin**

11:00-11:45 WELCOME REMARKS

Vladimir P. Shorin (Co-chair of APCOM 2011, Samara, Russia)

Oleg N. Krokhin (Co-chair of APCOM 2011, Moscow, Russia)

Dmitry E. Ovchinnikov (Minister of the Samara region Education and Science)

Yuri N. Kulchin (Co-chair of APCOM 2011, Vladivostok, Russia)

Toshihiro Shimizu (Co-chair of APCOM 2011, Tokyo, Japan)

Young-Do Joo (Kangnam University, Republic of Korea)

Zhi Zhou (Dalian University of Technology, China)

Alexei L. Petrov (P.N. Lebedev Physical Institute of Russian Academy of Sciences, Samara Branch, Russia)

Eugeny V. Shakhmatov (Samara State Aerospace University, Russia)

Viktor A. Soifer (Image Processing Systems Institute of RAS, Samara, Russia)

11:45-12:30 **Oleg N. Krokhin** (P.N. Lebedev Physical Institute of RAS, Moscow, Russia)

Photon: what is it?

12:30-13:15 **Vladimir G. Volostnikov** (P.N. Lebedev Physical Institute of Russian Academy of Sciences, Samara Branch, Russia)

Spiral light beams and their applications

13:15-14:50 LUNCH

PRP

**OPTICAL PROPERTIES
OF NANOMATERIALS AND NANOSTRUCTURES,
NANO- AND MICROSTRUCTURED OPTICAL WAVEGUIDES**

Chairs: **N. Kazansky, Yu. Popov**

14:50-15:10 **Mingshan Zhao, Xiuyou Han, Jie Teng, Linghua Wang** (Dalian University of Technology, China)

PRP1 *Polymer-based optical waveguide components and their applications*

15:10-15:30 **Irina N. Zavestovskaya** (P.N. Lebedev Physical Institute of RAS, Moscow, Russia)

PRP2 *Laser treatment of polymers*

15:30-15:50 **V. Kazakevich, Pavel V. Kazakevich, P. Yaresko, I. Nesterov** (P.N. Lebedev Physical Institute of Russian Academy of Sciences, Samara Branch, Russia)

PRP3 *Influence of physico-chemical properties of the liquid environment on the nanoparticles formation by laser ablation*

15:50-16:10 **Pavel N. Dyachenko, S. Karpeev, V. Pavelyev** (Samara State Aerospace University, Image Processing Systems Institute of the RAS, Samara, Russia)

PRP4 *Fabrication and characterization of three-dimensional metallodielectric photonic crystals for infrared spectral region*

16:10-16:30 COFFEE BREAK

MNO **MICRO AND NANOTECHNOLOGIES
FOR OPTOELECTRONICS.
DIFFRACTIVE NANOPHOTONICS**

Chairs: **V. Paveliev, I. Zavestovskaya**

- 16:30-16:50 **Gevork Mikaelyan** (Inject, JSC, Saratov, Russia)
MNO1 *High power diode lasers for pumping of solid state and gas lasers*
- 16:50-17:10 **Dmitry A. Bykov, L. Doskolovich, V. Soifer** (Samara State Aerospace
University, Image Processing Systems Institute of the RAS, Samara,
Russia)
MNO2 *Temporal differentiation using resonance gratings*
- 17:10-17:30 **Sergey S. Stafeev, V. Kotlyar** (Image Processing Systems Institute of the
RAS, Samara, Russia)
MNO3 *Subwavelength focusing of laser light by a microoptics*
- 17:30-17:50 **Vladimir V. Podlipnov, V. Kolpakov** (Image Processing Systems Insti-
tute of the RAS, Samara State Aerospace University, Russia)
MNO4 *Periodic structure of porous silicon formed in outside the electrodes
discharge plasma*
- 17:50-18:10 **V. Kolpakov, Nikolay A. Ivliev** (Image Processing Systems Institute of
the RAS, Samara State Aerospace University, Russia)
MNO5 *Mechanism of microtribometric interaction of semiconductor wafers in
assessment of surface cleanliness*
- 18:20 WELCOME PARTY

**OHO COHERENT AND NON-LINEAR OPTICS, HOLOGRAPHY,
OPTOELECTRONIC METHODS FOR MEDICINE**

Chairs: **T. Shimizu, O. Vitrik**

9:30-9:50 **Zhi Zhou, J. OU** (Dalian University of Technology, China)

OHO1 *Some advance of damage sensors for SHM in civil infrastructures*

9:50-10:10 **Seung Ho Cho¹, Ravi Sankar², Inho Ra³** (¹Kangnam University, Republic of Korea, ²University of South Florida, USA, ³Kunsan National University, Republic of Korea)

OHO2 *An individual-based approach to classify human behavioral patterns related to sleeping*

10:10-10:30 **Aleksandra M. Mayorova¹, A. Korobtsov¹, S. Kotova¹, N. Losevsky¹, N. Lysov², V. Patlan¹, E. Timchenko¹, N. Toropova^{2,3}, E. Zarubina²** (¹P.N. Lebedev Physical Institute of Russian Academy of Sciences, Samara Branch, ²Samara Medical Institute "REAVIZ", ³Samara Regional Clinical Oncologic Dispensary, Russia)

OHO3 *Some biomedical applications of laser tweezers*

10:30-10:50 **Hidetoshi Konno¹, Akio Suzuki^{1,2}, Reo Harada¹** (¹University of Tsukuba, ²National Institute of Advanced Industrial Science and Technology (AIST), Japan)

OHO4 *Nonlinear interaction schemes of phase singularities in 2d heart models for ventricular fibrillation*

10:50-11:10 **Mikhail Yu. Loktev, G. Vdovin, O. Soloviev, S. Savenko** (Flexible Optical BV, Netherlands)

OHO5 *Optimal correction of low-order aberrations with piezoelectric and membrane deformable mirrors*

11:10-11:30 **Stanislav M. Shandarov¹, V. Bykov¹, N. Burimov¹, S. Shmakov¹, A. Kotin¹, Yu. Kargin², V. Prokofiev³** (¹State University of Control

Systems and Radioelectronics, Tomsk, ²Baikov Institute of Metallurgy and Material Sciences of the RAS, Moscow Russia; ³University of Joensuu, Joensuu, Finland)

OHO6 *Amplitude characteristic for adaptive interferometer utilizing dynamics reflection holograms in sillenite crystals*

11:30-11:50 COFFEE BREAK

Chairs: **S. Shandarov, A. Starodub**

11:50-12:10 **Aleksandr K. Chernyshov** (P.N. Lebedev Physical Institute of Russian Academy of Sciences, Samara Branch, Russia)

OHO7 *External cavity conversion of diode laser emission into the various order Hermite-, Laguerre-Gaussian modes*

12:10-12:30 **Yu. Kulchin, Oleg B. Vitrik, S. Gurbatov** (Institute of Automation and Control Processes, FEB RAS, Vladivostok, Russia)

OHO8 *The spectrum of a bent fiber Fabry-Perot interferometer under small variations of the refractive index of the environment*

12:30-12:50 **Yu. Kulchin, O. Vitrik, Natalia P. Kraeva** (Institute of Automation and Control Processes, FEB RAS, Vladivostok, Russia)

OHO9 *Remote optical method for monitoring the parameters of hydroacoustic vibrations*

12:50-13:10 **Evgeni A. Bezus, L. Doskolovich, N. Kazanskiy** (Samara State Aerospace University, Image Processing Systems Institute of the RAS, Samara, Russia)

OHO10 *Two-layer isotropic dielectric structure for scattering suppression in plasmonic optics*

13:10-14:40 LUNCH

IMS OPTICAL AND FIBER OPTICAL INFORMATION AND MEASURING SYSTEMS AND THEIR APPLICATIONS

Chairs: **Young-Do Joo, Zhi Zhou**

14:40-15:00 **Toshihiro Shimizu** (Kokushikan University, Tokyo, Japan)

IMS1 *Self-organization in connected neural networks*

15:00-15:20 **Xuefeng Zhao, Le Li, Peng Gong, Qin Ba, Jinping Ou** (School of Civil Engineering, Dalian University of Technology, China)

IMS2 *One kind of active temperature control monitoring method using FBG sensor array to detect interfaces between air and water*

15:20-15:40 **Young-Hwa An** (Kangnam University, Republic of Korea)

IMS3 *Cryptanalysis on improved remote user authentication scheme preserving user anonymity*

15:40-16:00 **Jung-Ho Ahn** (Kangnam University, Republic of Korea)

IMS4 *Hand pose estimation using histogram peak analysis*

16:00-16:20 COFFEE BREAK

Chairs: **Seung Ho Cho, Hidetoshi Konno**

16:20-16:40 **Yong-Do Joo** (Kangnam University, Republic of Korea)

IMS5 *Smart TV implementation technologies and future service*

16:40-17:00 **Yong Huyn Park** (Kangnam University, Republic of Korea)

IMS6 *Winning business in product development: the critical considerations factors*

17:00-17:20 **In-ho Ra¹, M. Agawal², R. Sankar²** (¹Department of Telecommunication Engineering, Kunsan National University, Republic of Korea, ²University of South Florida, USA)

IMS7 *Communication technologies in smart grid*

17:20-17:40 **Dongsheng Li, T. Ruan** (Dalian University of Technology, China)

IMS8 *Non-destructive detection of interface delamination between concrete and rebar using ultrasonic guided waves*

Chairs: **K. Afanasiev, A. Gorokhov**

- SAMP1 **R. Kasumova, G. Safarova** (Baku State University, Azerbaijan)
Quasi-phase-matched interaction of the optical waves at intracavity harmonics generation
- SAMP2 **V. Alekseev¹, D. Golovashkin²** (¹Samara State Aerospace University, ²Image Processing Systems Institute of the RAS, Samara, Russia)
Investigation of the applicability FD-BPM for solving the problem of electromagnetic radiation propagation through inhomogeneities in the silica fibers obtained by laser pulses of femtosecond
- SAMP3 **V. Zakharov¹, V. Belokonev², I. Bratchenko¹, P. Timchenko¹, H. Yi², Y. Ponomareva²**, (¹Samara State Aerospace University, ²Samara State Medical University, Russia)
Application of confocal laser microscopy for mesh explants control
- SAMP4 **D. Savelyev¹, S. Khonina^{1,2}** (Samara State Aerospace University, Image Processing Systems Institute of the RAS, Samara, Russia)
Overcoming the diffraction limit of a controlled increase in sidelobe
- SAMP5 **S. Degtyarev, S. Khonina** (Samara State Aerospace University, Russia)
Subwavelength focusing of electromagnetic waves with phase's singularity in the optical taper
- SAMP6 **E. Bashkirov, A. Evdokimova** (Samara State University, Russia)
The influence of dipole-dipole interaction on the sudden death of entanglement in two-atom model with degenerate two-photon transitions
- SAMP7 **A. Gorokhov¹, V. Semin^{1,2}, A. Tuchin¹** (¹Samara State University, ²Samara State Aerospace University, Russia)
Non-Markovian effects in relaxation of two-level atoms in external laser fields and radiation spectra
- SAMP8 **A. Gorokhov, D. Umov** (Samara State University, Russia)
Quantum theory of spontaneous parametric light scattering and coherent states of $SU(1,1)$ group
- SAMP9 **A. Gorokhov, E. Mochelevskaya** (Samara State University, Russia)
Coherent states in theory of rovibrational molecular dynamics in external fields

- SAMP10 **A. Volkov, V. Kitaeva, N. Latukhina, G. Pisarenko, A. Rogozhin** (Samara State University, Samara State Aerospace University, Russia)
Photosensitive structures on the basis of porous silicon
- SAMP11 **E. Bashkirov, M. Mastyugin** (Samara State University, Russia)
Light squeezing in two-photon Tavis-Cummings model in the presence of the Stark shift
- SAMP12 **M. Moiseev, L. Doskolovich** (Samara State Aerospace University, Image Processing Systems Institute of the RAS, Samara, Russia)
Design of refractive optical element for illumination of elongated rectangular region
- SAMP13 **V. Pavelyev, D. Kachalov, V. Osipov, B. Chichkov** (Samara State Aerospace University, Samara, Russia)
Laser 2PP-based technique for fabrication of radial DOEs with 2- and 4-level microrelief
- SAMP14 **A. Morozov** (Image Processing Systems Institute of the RAS, Samara, Russia)
Rotation of microturbines by multiring optical vortex
- SAMP15 **A. Porfirev** (Image Processing Systems Institute of the RAS, Samara, Russia)
The generation of the hollow optical beams array by the superpositions of Bessel beams
- SAMP16 **K. Sivakova, V. Tchepurnov** (Samara State University, Russia)
Distribution of different point defects in β -SiC-Si heterostructure
- SAMP17 **V. Zakharov¹, P. Timchenko¹, L. Volova², V. Boltovskaya², E. Timchenko¹** (¹Samara State Aerospace University, ²University experimental medicine and biotechnologies of the Samara medicine university, Russia)
Laser fluorescence microscopy of Implant osteointegration process
- SAMP18 **S. Murzin, V. Tregub, Ye. Osetrov, N. Tregub** (Samara State Aerospace University, Russia)
Forming of nanoporous structures in metallic materials for photonics
- SAMP19 **E. Bashkirov, E. Sochkova, D. Zhalnina** (Samara State University, Russia)
Atom-field entanglement for two nonidentical atoms with degenerate two-photon Raman transitions
- SAMP20 **O. Zoteeva¹, S. Khonina^{1,2}** (¹Samara State Aerospace University, ²Image Processing Systems Institute of the RAS, Samara, Russia)
Nonparaxial modeling of astigmatic transformation using binary does and cylindrical lens

- SAMP21 **A. Akrestina¹**, **M. Kisteneva¹**, **S. Shandarov¹**, **V. Popugaeva¹**, **Yu. Kargin²** (¹Tomsk State University of Control Systems and Radioelectronics, ²A.A. Baikov Institute of Metallurgy and Materials Science of RAS, Moscow; Russia)
Spectral dependences of light-induced absorption in $Bi_{12}TiO_{20}:Ca,Ga$ crystal
- SAMP22 **M. Borodin¹**, **V. Shcherbina¹**, **D. Anisimov¹**, **S. Shandarov¹**, **L. Serebrennikov¹**, **S. Kuznetsova²**, **V. Kozik²** (¹Tomsk State University of Control Systems and Radioelectronics, ²Tomsk State University, Russia)
Characterization of $Zn:LiNbO_3$ optical waveguides fabricated by diffusion from ZnO films
- SAMP23 **V. Scherbina¹**, **S. Shandarov¹**, **M. Borodin¹**, **L. Serebrennikov¹**, **D. Anisimov¹**, **L. Kokhanchik²**, **S. Kuznetsova³**, **V. Kozik³** (¹Tomsk State University of Control Systems and Radioelectronics, ²Institute of Microelectronics Technology and High Purity Materials RAS, Moscow, ³Tomsk State University, Russia)
 $Zn:LiNbO_3$ waveguides with periodically poled domain structures
- SAMP24 **R. Romashko**, **T. Efimov**, **Yu. Kulchin** (Institute of Automation and Control Processes, FEB RAS, Vladivostok, Russia)
Micromechanical mass sensor with holographic interferometer
- SAMP25 **G. Kulikova**, **O. Pikoul**, **V. Stroganov** (Far East State Transport University, Khabarovsk, Russia)
Ways of management of degree of polarity of a light wave
- SAMP26 **O. Pikoul**, **V. Stroganov** (Far East State Transport University, Khabarovsk, Russia)
Control the azimuth of polarization ellipse
- SAMP27 **Yu. Kulchin**, **O. Vitrik**, **A. Kuchmizhak** (Institute of Automation and Control Processes, FEB RAS, Vladivostok, Russia)
Fabry-Perot interferometric probe with a tapered output mirror for near-field optical microscopy
- SAMP28 **O. Kuznetsova**, **I. Tsirova** (Samara State University, Russia)
Conductance properties of quantum wires in the method of associative algebras
- SAMP29 **A. Agafonov** (Samara State Aerospace University, Russia)
Resolution improvement of local thermochemical oxidation of chrome thin films stimulated by laser radiation

- SAMP30** E. Vorontsov^{1,2}, **S. Kotova**¹, **V. Volostnikov**¹ (¹P.N. Lebedev Physical Institute of Russian Academy of Sciences, Samara Branch, ²Samara State University, Russia)
Interferometric scheme for forming of the light fields of complex polarization structure based on the astigmatic mode converter
- SAMP31** **B. Volodkin**, **V. Solovjev**, **A. Volkov** (Samara State Aerospace University (National Research University), Image Processing Systems Institute of the RAS, Samara; N. Nesmeyanov Institute of Organoelement Compounds of the RAS, Moscow, Russia)
Experimental verification of the theory of mass transfer in liquid photopolymerizable compositions using IR Fourier microscopy
- SAMP32** **R. Romashko**, **Yu. Kulchin**, **M. Bezruk** (Institute of Automation and Control Processes, FEB RAS, Vladivostok, Russia)
Adaptive distributed interferometric system for tomographic reconstruction of surface vibration
- SAMP33** **Yu. Kulchin**, **B. Notkin**, **A. Kim** (Institute of Automation and Control Processes, FEB RAS, Vladivostok, Russia)
Research and development of approaches of dynamical pattern recognition according to data of fiber-optics system of perimeter defense
- SAMP34** **E.V. Karlova**¹, **S.P. Kotova**², **V.V. Patlan**², **K.N. Russkov**¹, **S.A. Samagin**², **T.N. Sapsina**², **A.V. Zolotarev**¹ (¹Samara State Medical University, ²P.N. Lebedev Physical Institute of Russian Academy of Sciences, Samara Branch, Samara, Russia)
Study on the possibility of development of an intraocular lens with extended depth of field
- SAMP35** **Yu.N. Kulchin**, **O.B. Vitrik**, **A.V. Dyshlyuk** (Institute of Automation and Control Processes, FEB RAS, Vladivostok, Russia)
Spectrally-based refractometry using fiber

Samara, July, 8 Friday

**LFS LIGHT FIELDS OF COMPLEX STRUCTURE. SHAPING,
CHARACTERIZATION, APPLICATIONS**

Chairs: **S. Shandarov, V. Volostnikov**

9:30-9:50 **Eugeny G. Abramochkin** (P.N. Lebedev Physical Institute of Russian Academy of Sciences, Samara Branch, Russia)

LFS1 *Ince-Gaussian beams and Hermite-Laguerre-Gaussian beams: a comparison*

9:50-10:10 **Alexei P. Kiselev¹, A. Plachenov², P. Chamorro-Posada³** (¹Steklov Mathematical Institute St.Petersburg Department, ²Moscow Institute of Radio Engineering Electronics and Automation, Russia; ³Valladolid University, Spain)

LFS2 *Non-paraxial wave beams and packets with a general astigmatism*

10:10-10:30 **S. Khonina, Sergei V. Karpeev** (Image Processing Systems Institute of the RAS, Samara State Aerospace University, Russia)

LFS3 *Generation and conversion of mode beams and their polarization states on the basis of DOEs application*

10:30-10:50 **Denis Kachalov¹, V. Pavelyev^{1,2}** (¹Samara State Aerospace University, ²Image Processing Systems Institute of the RAS, Samara, Russia)

LFS4 *Optimization of the binary DOE's for formation of "elongated dark focus" and "optical bottle"*

10:50-11:10 **Evgeniya V. Razueva, E. Abramochkin** (P.N. Lebedev Physical Institute of Russian Academy of Sciences, Samara Branch, Russia)

LFS5 *Radial Airy function and related light beams*

11:10-11:30 COFFEE BREAK

PLENARY SESSION

Chair: **O. Krokhin**

11:30-12:15 **Yuri N. Kulchin, R. Romashko** (Institute of Automation and Control Processes, FEB RAS, Vladivostok, Russia)
Physical principles of supersensitive adaptive measuring systems based on dynamical holograms

12:15-13:00 CONCLUDING REMARKS

14:00-18:00 VOLGA-RIVER VOYAGE FOR THE SAMARA GUESTS