

V INTERNATIONAL CONFERENCE

FRONTIERS OF NONLINEAR PHYSICS

PROGRAM

**Nizhny Novgorod – Yelabuga – Nizhny Novgorod, Russia
July 28 – August 2, 2013**

Topical Sections of the Conference

- TS 1:** General Problems of Nonlinear Dynamics and Nonlinear Waves
Mini-Symposium
“Wave Phenomena in Biological Media”
- TS 2:** Physics of Extreme Light and Nonlinear Processes in Plasmas
Mini-Symposium
“Advanced Numerical Modeling for Laser-Plasma Interaction”
- TS 3:** Nonlinear Problems in Geophysics
Mini-Symposium
“Nonlinear Processes in Boundary Layers”
- TS 4:** Nonlinear Quantum Systems and Quantum-Optical Technologies
Mini-Symposium
“Nonlinear Processes in Metamaterials”

Mini-Symposium
“Cooperative and Coherent Effects in Cold Gases
and Condensed Matter Systems”
- TS 5:** Nonlinear Problems in Astrophysics

SUNDAY, July 28
8:00 – 18:10

8:00 – 10:30	REGISTRATION		
9:00	Departure from Nizhny Novgorod		
9:30 – 10:30	BREAKFAST		
10:30 – 11:00	OPENING SESSION		
	PLENARY SESSION 1		
11:00 – 11:30	<i>P. Zoller</i> (Univ. of Innsbruck, Austria). Quantum simulation with atoms, ions and molecules		
11:30 – 12:00	<i>P. McIntyre</i> (Texas A&M Univ., USA). Subcritical fission in molten salt: the physics of green nuclear power		
12:00 – 12:20	COFFEE BREAK		
12:20 – 12:50	<i>V. Fortov</i> (Joint Inst. of High Temperatures RAS, Russia). Nonlinear effects in dusty plasmas		
12:50 – 13:20	<i>C. Keitel</i> (Max Planck Inst. for Nuclear Physics, Germany). Extremely high-intensity laser interactions with fundamental quantum systems		
13:20 – 13:50	<i>V. Shalaev</i> (Purdue Univ., USA). Planar meta-Optics		
14:00 – 15:00	LUNCH		
15:00	Arrival at Makaryev Convent		
15:00 – 16:30	Excursion to Makaryev Convent		
17:00	Departure from Makaryev Convent		
16:30 – 17:50	<p>TS 4: Nonlinear Quantum Systems and Quantum-Optical Technologies</p> <p>4.1 <i>A. Lvovsky</i> (Univ. of Calgary, Canada). Technology of light as a harmonic oscillator (key-note, 30 min.)</p> <p>4.2 <i>A. Kalachev</i> (Kazan Physical Technical Inst. RAS, Russia). Quantum memories via phase-matching condition (invited, 25 min.)</p> <p>4.3 <i>E. Kuznetsova</i> (Inst. of Applied Physics RAS, Russia). Single atom control inside a nanosize photonic crystal cavity (invited, 25 min.)</p>	<p>TS 3: Nonlinear Problems in Geophysics</p> <p>3.1 <i>V. Smorodin</i> (Moscow State Univ., Russia / Clarkson Univ., USA). Abrupt climate change? Problems and solutions in the frame of new geo-meteo-climatologic paradigm (key-note, 30 min.)</p> <p>3.2 <i>T. Soomere</i> (Inst. of Cybernetics at Tallinn Univ. of Technology, Estonia). Using wave and current dynamics to find solutions to the challenges of environmental change (invited, 25 min.)</p> <p>3.3 <i>S. Shagalov</i> (Inst. of Applied Physics RAS, Russia). Coherent nonlinear interaction of unstable Rossby wave-modes in weakly supercritical zonal flows in the presence of Ekman dissipation</p>	<p>TS 5: Nonlinear Problems in Astrophysics</p> <p>5.1 <i>Vi. Kocharovsky</i> (Inst. of Applied Physics RAS, Russia) Fragments of the relativistic jet physics (key-note, 30 min.)</p> <p>5.2 <i>R. McCray</i> (Univ. of Colorado, USA) Supernova 1987A at 26 Years (key-note, 30 min.)</p> <p>5.3 <i>M. Garasyov</i> (Inst. of Applied Physics RAS, Russia). Modeling of cyclotron lines in the spectra of neutron stars and magnetic white dwarfs</p>
17:50 – 18:10	COFFEE BREAK		

<p>18:10 – 19:45</p>	<p>TS 4: Nonlinear Quantum Systems and Quantum-Optical Technologies</p> <p>4.4 A. Akimov (Russian Quantum Center, Russia) Localization of single atom near nanostructure (invited, 25 min.)</p> <p>4.5 S. Moiseev (Kazan Physical Technical Inst. RAS, Russia) Off-resonant Raman echo quantum memory on atoms with natural inhomogeneous broadening in QED cavity (invited, 25 min.)</p> <p>4.6 A. Khitun (Univ. of California Riverside, USA) Magnonic cellular nonlinear network (invited, 25 min.)</p> <p>4.7 I. Zelensky (Inst. of Applied Physics RAS, Russia) Quantum-state qubit tomography using coherent bichromatic radiation</p>	<p>TS 3: Nonlinear Problems in Geophysics</p> <p>Mini-Symposium “Nonlinear Processes in Boundary Layers”</p> <p>3.4 I. Esau (Nansen Environmental and Remote Sensing Centre, Norway). Structuring of turbulence and its impact on basic features of Ekman boundary layers (invited, 25 min.)</p> <p>3.5 Yu. Troitskaya (Inst. of Applied Physics RAS, Russia). Atmospheric boundary layer over steep surface waves (invited, 25 min.)</p> <p>3.6 S. Kravtsov (P.P.Shirshov Inst. of Oceanology RAS, Russia). Kinematics of eddy–mean-flow interaction in an idealized atmospheric model</p> <p>3.7 A. Kandaurov (Inst. of Applied Physics RAS, Russia). Field measurements of the wind-wave interaction in the boundary layer over a reservoir and verification of the model</p>	<p>TS 5: Nonlinear Problems in Astrophysics</p> <p>5.4 S. Komissarov (Univ. of Leeds, UK) Modelling the Crab Nebula (key-note, 30 min.)</p> <p>5.5 I. Zinchenko (Inst. of Applied Physics RAS, Russia). Jets and high velocity bipolar outflows in regions of star formation (key-note, 30 min.)</p> <p>5.6 S. Popel (Inst. for Dynamics of Geospheres RAS, Russia). Dusty plasmas over sunlit lunar surface</p>
<p>20:00 – 22:00</p>	<p>WELCOME PARTY</p>		

8:00 – 9:00	BREAKFAST		
9:00	Arrival in Kazan		
9:00 - 12:00	Excursion in Kazan		
12:00 – 12:20	COFFEE BREAK		
	PLENARY SESSION 2		
12:20 – 12:50	<i>D. Strickland</i> (Univ. of Waterloo, Canada). Studying the role of pump chirp on multi-frequency Raman generated spectra		
12:50 – 13:20	<i>L. Zelenyi</i> (Space Research Inst. RAS, Russia). Thin current sheets as nonlinear structures in collisionless plasmas		
13:20 – 13:50	<i>N. Rohringer</i> , (Max Planck Inst. for the Physics of Complex Systems, Germany). Stimulated electronic X-ray Raman scattering in atomic and molecular systems		
13:50 – 14:20	<i>M. Sanjuan</i> (Univ. Rey Juan Carlos, Spain). Dynamics of partial control of chaotic systems		
14:00	Departure from Kazan		
14:20 – 15:20	LUNCH		
15:20 – 17:20	<p>TS 4: Nonlinear Quantum Systems and Quantum-Optical Technologies</p> <p>4.8 B. Ham (Gwangju Inst. of Science and Technology, South Korea). Quantum coherent control for variable quantum optics applications (key-note, 30 min.)</p> <p>4.9 M. Tokman (Inst. of Applied Physics RAS, Russia). The general properties of the Heisenberg-Langevin equations for quantum nonlinear systems (invited, 25 min.)</p> <p>4.10 R. Shakhmuratov (Kazan Physical Technical Inst. RAS, Russia). Coherent control of single gamma-photons with thick resonant absorbers: slowing down, revival, and shaping (invited, 25 min.)</p> <p>4.11 W.-T. Liao (Max Planck Inst. for Nuclear Physics, Germany). Coherent control of single X-Ray photons & coherent determination of 229th isomeric transition (invited, 25 min.)</p>	<p>TS 3: Nonlinear Problems in Geophysics Mini-Symposium “Nonlinear Processes in Boundary Layers”</p> <p>3.8 R. Bornstein (San Jose State Univ., USA). Observation and simulation of urban boundary layers (invited, 25 min.)</p> <p>3.9 N. Kleeorin (Ben-Gurion Univ. of the Negev, Israel). Semi-organized structures and small-scale fluctuations in atmospheric and laboratory turbulent convection (invited, 25 min.)</p> <p>3.10 A. Kurbatskii (Inst. of Theoretical and Applied Mechanics RAS, Russia). Eddy mixing and the intermittent turbulence in atmospheric flows under stronger stratification (invited, 25 min.)</p> <p>3.11 I. Rogachevskii (Ben-Gurion Univ. of the Negev, Israel) New phenomena in turbulent transport of aerosols and droplets: theory, experiments, simulations and environmental applications (invited, 25 min.)</p> <p>3.12 D. Sergeev (Inst. of Applied Physics RAS, Russia). Laboratory investigations of the air flow velocity field structure above the wavy surface under severe wind conditions by digital visualization technique</p>	<p>TS 5: Nonlinear Problems in Astrophysics</p> <p>5.7 G. Golitsyn (Inst. of Atmospheric Physics RAS, Russia). Elementary analysis of galaxy clusters: similarity criteria, Tully–Fisher, and approximate invariants (key-note, 30 min)</p> <p>5.8 E. Maslov (IZMIRAN, Russia). Cosmology of oscillating scalar fields with singular potentials</p> <p>5.9 I. Bulyzhenkov (Moscow Inst. of Physics and Technology, Russia). Repulsion in extreme gravitational fields</p>
17:20 – 17:40	COFFEE BREAK		

<p>17:40 – 19:55</p>	<p>TS 4: Nonlinear Quantum Systems and Quantum-Optical Technologies</p> <p>Mini-Symposium “Nonlinear Processes in Metamaterials”</p> <p>4.12 B. Luk'yanchuk (Data Storage Inst., Singapore). Directional light scattering by dielectric nanoparticles (key-note, 30 min.)</p> <p>4.13 A. Boltasseva (Purdue Univ., USA). Empowering plasmonics and metamaterials technology with new material platforms (invited, 25 min.)</p> <p>4.14 I. Gabitov (Arizona State Univ., USA). Parametric wave interaction in metamaterials (invited, 25 min.)</p> <p>4.15 N. Litchinitser, (Univ. Buffalo, USA). Structured light meets structured matter (invited, 25 min.)</p> <p>4.16 V. Kovalev (P. N. Lebedev Physical Inst. RAS, Russia). Optical wave equation for light scattering in micro- and nanostructured linear and nonlinear media and its application (invited, 25 min.)</p>	<p>TS 2: Physics of Extreme Light and Nonlinear Processes in Plasmas</p> <p>2.1 V. Bychenkov (P. N. Lebedev Physics Inst. RAS, Russia). New models in laser acceleration of particles (invited, 25 min.)</p> <p>2.2 H.-J. Kull (RWTH Aachen Univ., Germany). Strong-field laser physics in the Wigner representation (invited, 25 min.)</p> <p>2.3 N. Neitz (Max Planck Inst. for Nuclear Physics, Germany). Stochasticity effects in quantum radiation reaction</p> <p>2.4 A. Bashinov (Inst. of Applied Physics RAS, Russia). Efficient generation of narrow beam gamma radiation during the interaction of ultraintense counter-propagating laser pulses with nanofoil</p> <p>2.5 M. Tamburini (Max Planck Inst. for Nuclear Physics, Germany). Plasma-based generation and control of a single few-cycle, high-energy and ultrahigh intensity laser pulse</p>	<p>TS 3: Nonlinear Problems in Geophysics</p> <p>3.13 S. Popel (Inst. for Dynamics of Geospheres RAS, Russia). Nonlinear cavitation mechanism of formation and disintegration of nano- and microsize particles in geophysical processes (invited, 25 min.)</p> <p>3.14 A. Evtushenko (Inst. of Applied Physics RAS, Russia). About connection between lightning activity in the troposphere and halo/sprite influence on the chemical balance of mesosphere</p> <p>3.15 D. Kondrashov (Univ. of California, Los Angeles, USA). Data-driven model reduction by a multilayered stochastic approach with energy-preserving nonlinearities</p> <p>3.16 D. Smirnov (Saratov Branch of V.A. Kotel'nikov Inst. of Radio Engineering and Electronics RAS, Russia). Characterization of interaction between atlantic multidecadal oscillation and El Niño – Southern Oscillation from observed time series</p>
<p>20:00 – 21:00</p>	<p>DINNER</p>		
<p>21:30</p>	<p>EVENING PROGRAM: Music concert</p>		

TUESDAY, July 30
8:00 – 15:20

8:00 – 9:00	BREAKFAST
9:00	Arrival in Yelabuga
9:00 – 12:00	Excursion in Yelabuga
12:00 – 12:20	COFFEE BREAK
12:20 – 12:50	PLENARY SESSION 3 <i>O. Rudenko</i> (Moscow State Univ., Lobachevsky State Univ. of Nizhny Novgorod, Russia). Integro-differential equations in nonlinear wave physics. Part 1. Dynamics
12:50 – 13:20	<i>S. Gurbatov</i> (Lobachevsky State Univ. of Nizhny Novgorod, Russia). Integro-differential equations in nonlinear wave physics. Part 2. Statistics
13:20 – 13:50	<i>P. Hemmer</i> (Texas A&M Univ., USA). Nitrogen-vacancy diamond and beyond
13:50 – 14:20	<i>O. Kocharovskaya</i> (Texas A&M Univ., USA). Control of light with light in a resonant medium
14:00	Departure from Yelabuga
14:20 – 15:20	LUNCH

15:20 – 17:35	<p>TS 4: Nonlinear Quantum Systems and Quantum-Optical Technologies</p> <p>4.17 S. Shahriar (North Western Univ., USA). From hypersensitive gyroscopy to gravitational wave detection: superluminal ring laser as a Holy Grail of precision metrology (key-note, 30 min.)</p> <p>4.18 N. Rosanov (S. I. Vavilov State Optical Inst., Russia) Parametric Doppler effect in nonlinear media (key-note, 30 min.)</p> <p>4.19 V. Kocharovsky (Texas A&M Univ., USA). Mode superradiance and collective dynamics of active centers with polarization lifetime exceeding photon lifetime (invited, 25 min.)</p> <p>4.20 Y. Nishidate (Univ. of Aizu, Japan). A ray equation for optically anisotropic inhomogeneous media and its closed-form solutions for estimating ray-trajectories (invited, 25 min.)</p> <p>4.21 M. Erukhimova (Inst. of Applied Physics RAS, Russia). Quantum noise in parametric processes</p>	<p>TS 2: Physics of Extreme Light and Nonlinear Processes in Plasmas.</p> <p>Mini-Symposium “Advanced numerical modeling for laser-plasma interaction”</p> <p>2.6 S. Ryzhkov (Bauman Moscow State Technical Univ., Russia). Influence of external magnetic field on vortex structures in a model of laser-driven implosion (invited, 25 min.)</p> <p>2.7 A. Balakin (Inst. of Applied Physics RAS, Russia). Double plasma layers for backward Raman compression (invited, 25 min.)</p> <p>2.8 E. Nerush (Inst. of Applied Physics RAS, Lobachevsky State Univ. of Nizhny Novgorod, Russia). Incoherent synchrotron emission from foils irradiated by multipetawatt laser pulses</p> <p>2.9 V. Kostin (Inst. of Applied Physics RAS, Lobachevsky State Univ. of Nizhny Novgorod, Russia). Carrier-envelope phase effects on spectrum of terahertz radiation induced by ionizing few-cycle laser pulses</p>	<p>TS 3: Nonlinear Problems in Geophysics</p> <p>3.17 G. Engling (National Tsing Hua Univ., Taiwan). Long-range transport versus local influence of biomass burning emissions in the boundary layer (invited, 25 min.)</p> <p>3.18 O. Popovicheva (Inst. of Nuclear Physics, Moscow State Univ., Russia). Moscow extreme smoke event of August 2010: smoke aerosols during large-scale wildfires weakly supercritical zonal flows in the presence of Ekman dissipation (invited, 25 min.)</p> <p>3.19 H. X. Co (Vietnam National Univ, Vietnam). Temporal variation of ambient PM2.5, PM10 and their chemical characteristics at remote site of Vietnam</p> <p>3.20 S. Janjai (Silpakorn Univ., Thailand). Mapping of aerosol optical depth from meteorological satellite data</p> <p>3.21 S.-C. Lee (Hong Kong Polytechnic Univ., Hong Kong). Measurement of aerosol optical property in Hong Kong rural area</p> <p>3.22 Kim Oanh N.T. (Asian Inst. of Technology, Thailand). Emission reduction for air quality and climate co-benefit with focus on black carbon emission in Asian developing countries</p>
17:35 – 17:55	COFFEE BREAK		

17:35 – 19:00	<p>POSTER SESSION</p> <p>PS-1. <i>V. Bashmakov</i> (Inst. of Applied Physics RAS, Lobachevsky State Univ. of Nizhny Novgorod, Russia). Carrier envelope phase effect on QED cascading in the field of two counter-propagating few-cycle laser fields</p> <p>PS-2. <i>A. Bolshukhina</i> (Inst. of Applied Physics RAS, Russia). Ultrahigh-order harmonic generation from atoms driven by femtosecond mid-IR laser pulses: ground-state depletion and magnetic-field effects</p> <p>PS-3. <i>I. Demin</i> (Lobachevsky State Univ. of Nizhny Novgorod, Russia). The nonlinear decay of narrowband and broadband noise in soft tissues</p> <p>PS-4. <i>S. Kirillov</i> (Inst. of Applied Physics RAS, Russia). Delay and memory effects in the nonautonomous model of neuron excitability</p> <p>PS-5. <i>V. Klemin</i> (BIOM CJSC, Russia). Influence of radiation force in a standing ultrasonic wave on human erythrocytes</p> <p>PS-6. <i>E. Kocharovskaya</i> (Inst. of Applied Physics RAS, Russia). From class B to class D lasers: Enrichment of the dynamical spectra</p> <p>PS-7. <i>A. Kochetov</i> (Inst. of Applied Physics RAS, Russia). On improving the effectiveness of an electromagnetic wave</p> <p>PS-8. <i>V. Martynov</i> (Inst. of Applied Physics RAS, Russia). Relaxation in the system of two coupled quantum parametric oscillators</p> <p>PS-9. <i>O. Maslennikov</i> (Inst. of Applied Physics RAS, Russia). Synchronization of two interacting complex networks of units with chaotic slow-fast behavior</p> <p>PS-10. <i>A. Matafonov</i> (TSNIIMash, Russia). Frontiers of laboratory astrophysics with the aid of powerful lasers</p> <p>PS-11. <i>O. Shomina</i> (Inst. of Applied Physics RAS, Russia). Damping of surface waves by turbulence</p> <p>PS-12. <i>D. Sobgayda</i> (Inst. of Applied Physics RAS, Russia). Optical memory based on photon echoes in atomic frequency comb structures in Pr³⁺:LaF₃</p> <p>PS-13. <i>I. Soustova</i> (Inst. of Applied Physics RAS, Russia). Evolution of the compound soliton of Gardner's equation in the media with variable parameters</p> <p>PS-14. <i>E. Timanin</i> (Inst. of Applied Physics RAS, Russia). Nonlinear elastic properties of human body surface tissues in experiments on deep indentation of cylindrical indenter with the flat base</p> <p>PS-15. <i>V. Vdovin</i> (Inst. of Applied Physics RAS, Russia). Generation of entangled photons in forward four-wave-mixing process in multi-level systems</p> <p>PS-16. <i>N. Vvedenskii</i> (Inst. of Applied Physics RAS, Lobachevsky State Univ. of Nizhny Novgorod, Russia). Simulations of laser-plasma source of tunable few-cycle mid-infrared pulses</p> <p>PS-17. <i>V. Zaytsev</i> (Inst. of Applied Physics RAS, Russia). Diffusional mechanism of acoustically induced structuring of surface adatoms</p> <p>PS-18. <i>D. Serebryakov</i> (Inst. of Applied Physics RAS, Russia). Quantum effects in electron-ion collisions in strong laser fields</p> <p>PS-19. <i>D. Kachulin</i> (Novosibirsk State Univ., Russia). Analysis of integrability of the free surfaces hydrodynamics equation for deep water waves</p>
19:00 – 19:30	<p>PLENARY SESSION 4</p> <p><i>G. Mourou</i> (IZEST Ecole Polytechnique, France). Extreme light: laser ascent to subatomic physics</p>
9:00 – 19:30	<p><i>P. Grangier</i> (Institut d'Optique, Palaiseau, France). Quantum optics and quantum information with Rydberg blockade</p>
20:00 – 21:00	DINNER
21:30	EVENING PROGRAM: Music concert

8:00 – 9:00	BREAKFAST		
9:00 – 9:30	PLENARY SESSION 5 <i>B. Sanders</i> (Univ. of Calgary, Canada). Quantum interferometry for computation: estimating immanants from photon coincidences		
9:30 – 10:00	<i>C. Fabre</i> (Univ. Pierre et Marie Curie, France). Revealing genuine entanglement in frequency combs with ultrafast pulse shaping		
10:00 – 10:30	<i>S. Turitsyn</i> (Aston Univ., UK). CapacitAkimovy of nonlinear fibre channels		
10:30 – 11:00	<i>S. Zilitinkevich</i> (Lobachevsky State Univ. of Nizhny Novgorod, Russia / Finnish Meteorological Inst., Finland). Some reasoning behind self-similarity of stratified turbulence		
11:00 – 11:30	<i>I. Rogachevskii</i> (Ben-Gurion Univ. of the Negev, Israel). Self-organization mechanisms in geophysical and astrophysical turbulence		
11:30 – 11:50	COFFEE BREAK		
11:50 – 14:00	<p>TS 4: Nonlinear Quantum Systems and Quantum-Optical Technologies</p> <p>4.22 <i>Yu. Lozovik</i> (Inst. of Spectroscopy RAS, Russia). Dirac electrons in graphene and in topological insulators (invited, 25 min.)</p> <p>4.23 <i>M. Gärtner</i> (Max Planck Inst. for Nuclear Physics, Germany). Nonlinear effects and collectivity in Rydberg-EIT media (invited, 25 min.)</p> <p>4.24 <i>M. Fedorov</i> (A.M. Prokhorov Inst. of General Physics RAS, Russia). Schmidt modes and Stokes vectors of biphoton polarization qutrits (invited, 25 min.)</p> <p>4.25 <i>P. Anisimov</i> (Los Alamos National Lab., USA). STIRAP production of Rydberg helium: effects of thermal radiation and level multiplicity (invited, 25 min.)</p>	<p>TS 2: Physics of Extreme Light and Nonlinear Processes in Plasmas</p> <p>2.10 <i>I. Dodin</i> (Princeton Univ., Princeton Plasma Physics Lab., USA). Nonlinear plasma waves with autoresonantly trapped particles: Variational theory and simulations (invited, 25 min.)</p> <p>2.11 <i>G. Fraiman</i> (Inst. of Applied Physics RAS, Russia). Electron-ion collisions in strong laser fields: quantum effects (invited, 25 min.)</p> <p>2.12 <i>A. Popov</i> (Moscow State Univ., Russia). Amplification of electromagnetic radiation in subterahertz frequency band in plasma channel created by high-intensity ultrashort laser pulse (invited, 25 min.)</p> <p>2.13 <i>I. Potapenko</i> (M. V. Keldysh Inst. of Applied Mathematics RAS, Russia). DSMC simulation of grazing collisions for the nonlinear kinetic equation</p>	<p>TS 1: General Problems of Nonlinear Dynamics and Nonlinear Waves</p> <p>1.1 <i>T. Ueta</i> (Univ. of Tokushima, Japan). Restoration control for disappeared periodic solutions (invited, 25 min.)</p> <p>1.2 <i>V. Nekorkin</i> (Inst. of Applied Physics RAS, Russia). Reducing the dynamics of excitatory neural networks to cellular automata (invited, 25 min.)</p> <p>1.3 <i>D. Zakharov</i> (Inst. of Applied Physics RAS, Russia). Mechanism of the response differentiation of a dopaminergic neuron to excitatory stimuli</p> <p>1.4 <i>V. Klinshov</i> (Inst. of Applied Physics RAS, Russia). Time-delayed coupling in networks of pulse oscillators</p> <p>1.5 <i>N. Zubarev</i> (Inst. of Electrophysics, Ural Branch of RAS, Russia). Exact asymmetric solutions for the evolution of a bubble in an ideal liquid in an external electric field</p> <p>1.6 <i>O. Zubareva</i> (Inst. of Electrophysics, Ural Branch of RAS, Russia). Exact solutions for equilibrium configurations of the surface of a conducting liquid in the magnetic field of a current-carrying linear conductor</p>
14:00 – 15:00	LUNCH		
15:00	Arrival in Ulyanovsk		
15:00 – 17:40	Excursion in Ulyanovsk		
17:40 – 18:00	COFFEE BREAK		

18:00 – 20:00	<p>TS 4: Nonlinear Quantum Systems and Quantum-Optical Technologies</p> <p>Mini-Symposium “Cooperative and Coherent Effects in Cold Gases and Condensed Matter Systems”</p> <p>4.26 D. Comparat (CNRS, France). Ultra-cold beams: atoms, molecules, ions and electrons (invited, 25 min.)</p> <p>4.27 S. Tarasov (Inst. of Applied Physics RAS, Russia). Universality of the λ-point structure for the Bose-Einstein condensation of an ideal gas in different traps</p> <p>4.28 L. Smirnov (Inst. of Applied Physics RAS, Russia). Two-dimensional dark quasisolitons in the inhomogeneous flow of the Bose-Einstein condensate</p> <p>4.29 K. Martiyanov (Inst. of Applied Physics RAS, Russia). Spatial order in near-field interference of many independent Bose-Einstein condensates</p>	<p>TS 2: Physics of Extreme Light and Nonlinear Processes in Plasmas</p> <p>2.14 A. Shaykin (Inst. of Applied Physics RAS, Russia). Pulse shaping in the high energy efficiency laser amplifiers (invited, 25 min.)</p> <p>2.15 S. K. Lee (Gwangju Inst. of Science and Technology, South Korea). Pre-pedestal generation by the refractive index nonlinearity in a high power CPA laser (invited, 25 min.)</p> <p>2.16 V. Antonov (Inst. of Applied Physics RAS, Russia). Attosecond pulse formation via resonant interaction of VUV/XUV radiation with laser-dressed-atoms (invited, 25 min.)</p> <p>2.17 E. Anashkina (Inst. of Applied Physics RAS, Russia). Wavelength-tunable ultrashort optical pulse in the range of 1.6-2.4 μm from an all-fiber laser system</p> <p>2.18 I. Mukhin (Inst. of Applied Physics RAS, Russia). Cryogenically cooled disk laser as a pump source for OPCPA</p>	<p>TS 1: General Problems of Nonlinear Dynamics and Nonlinear Waves</p> <p>1.7 E. Kuznetsov (P.N. Lebedev Physical Inst. RAS, Russia). Breaking phenomena in incompressible fluids as a route to the Kolmogorov and Kraichnan spectra (invited, 25 min.)</p> <p>1.8 P. Lushnikov (Univ. of New Mexico, USA). Logarithmic scaling in the catastrophic self-focusing (collapse) of laser beam in Kerr media (invited, 25 min.)</p> <p>1.9 H. Benner (Technical Univ. Darmstadt, Germany). Control and synchronization of chaotic oscillators with time-delayed couplings (invited, 25 min.)</p> <p>1.10 S. Kuznetsov (Saratov Branch of Kotelnikov's Inst. of Radio Engineering and Electronics, Russia). Hyperbolic chaos in extended systems associated with expanding phase maps for spatial patterns (invited, 25 min.)</p> <p>1.11 M. Bustamante (Univ. College Dublin, Ireland). Dynamics of vorticity near the position of its maximum modulus</p>
20:00	Departure from Ulyanovsk		
20:00 – 21:00	DINNER		
21:30	EVENING PROGRAM: Music concert		

THURSDAY, August 1
8:00 – 17:10

8:00 – 9:00	BREAKFAST	
9:00	Arrival in Bolgar	
9:00 – 11:30	Excursion in Bolgar	
11:30 – 11:50	COFFEE BREAK	
11:50 – 12:20	PLENARY SESSION 6 <i>J. Fuchs</i> (Laboratoire LULI, France). Modeling in the laboratory magnetized astrophysical jets: simulations and experiments	
12:20 – 12:50	<i>L. Woeste</i> (Univ. of Berlin, Germany). Fundamentals and applications of fs plasma filaments	
12:50 – 13:20	<i>A. Baklanov</i> (Danish Meteorological Inst., Denmark) Integrated modelling of weather, climate and air quality	
13:20 – 13:50	<i>M. Liberman</i> (Nordita, KTH Royal Inst. of Technology and Stockholm Univ., Sweden). Tangling-clustering instability and formation of raindrops in temperature-stratified turbulent atmosphere	
13:50 – 14:50	LUNCH	
14:00	Departure from Bolgar	
14:50 – 16:50	<p>TS 2: Physics of Extreme Light and Nonlinear Processes in Plasmas</p> <p>2.19 <i>E. Khazanov</i> (Inst. of Applied Physics RAS, Russia). 200 J Nd:glass Laser with Pulse Repetition Rate of 0.02 Hz (key-note, 30 min.)</p> <p>2.20 <i>S. Chen</i> (Ecolé Polytechnique, France). Experimental studies of ion charge equilibrium in the warm dense matter regime using laser-based plasma accelerators (invited, 25 min.)</p> <p>2.21 <i>A. Zair</i> (Imperial College London, UK). Controlling electron trajectories to access attosecond molecular dynamics (invited, 25 min.)</p> <p>2.22 <i>S. Shulyapov</i> (Moscow State Univ., Russia). Contrast impact onto hard X-ray emission from relativistic laser-plasma interaction</p>	<p>TS 1: General Problems of Nonlinear Dynamics and Nonlinear Waves</p> <p>Mini-Symposium “Wave Phenomena in Biological Media”</p> <p>1.12 <i>V. Andreev</i> (Moscow State Univ., Russia). Acoustic radiation force on a cluster of rigid particles in soft tissues</p> <p>1.13 <i>V. Vaks</i> (Inst. for Physics of Microstructures RAS, Russia). Exhaled breath analysis for diagnostics of oncological diseases</p> <p>1.14 <i>A. Shanin</i> (Moscow State Univ., Russia). Generation and detection of shear elastic waves in soft tissues by means of multielement acoustical transducer</p> <p>1.15 <i>V. Zaytsev</i> (Inst. of Applied Physics RAS, Russia). Introducing elastographic regime in OCT: prospects of using the correlation-stability approach</p> <p>1.16 <i>V. Kazakov</i> (Lobachevsky State Univ. of Nizhny Novgorod, Russia). Research of features of practical realization of the elastomer, using radiation pressure of ultrasonic wave preparation</p> <p>1.17 <i>I. Didenkulov</i> (Inst. of Applied Physics RAS, Russia). Acoustic cavitation in a stream and its use in diagnostics</p>
16:50 – 17:10	COFFEE BREAK	

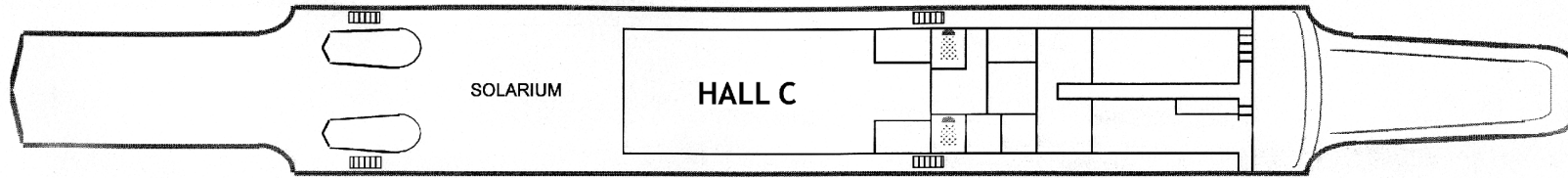
THURSDAY, August 1
17:10 – 22:00

	PLENARY SESSION 7
17:10 – 17:40	<i>A. Sergeev</i> (Inst. of Applied Physics RAS, Russia). New horizons for extreme light physics with mega-science project XCELS
17:40 – 18:10	<i>C. Nam</i> (Gwangju Inst. Science and Technology). Exploration of relativistic laser science with fs, PW Lasers
18:10 – 18:40	<i>A. Pukhov</i> (Univ. of Duesseldorf , Germany / Lobachevsky State Univ. of Nizhny Novgorod, Russia). Ion acceleration by ultra-intense laser pulses including QED effects
18:40 – 19:10	<i>V. Zaytsev</i> (Inst. of Applied Physics RAS, Russia). Slow relaxation and aging phenomena at the nanoscale in granular materials: observations and mechanisms
19:10 – 19:40	<i>N. Davidson</i> (Weizmann Inst., Israel) Phase locking large arrays of lasers
20:00 – 22:00	DINNER PARTY

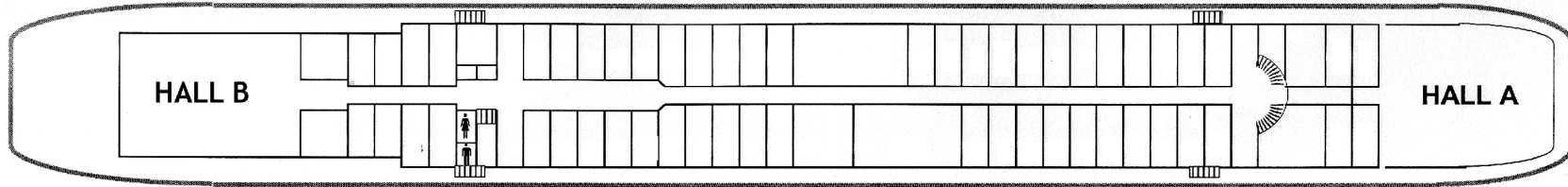
FRIDAY, August 2

8:00 – 9:00	BREAKFAST
9:00 – 9:30	PLENARY SESSION 8 <i>A. Turlapov</i> (Inst. of Applied Physics RAS, Russia). Low-dimensional physics with ultracold gases of atoms and molecules
9:30 – 10:00	<i>G. Shlyapnikov</i> (CNRS, LPTMS, France). Novel macroscopic quantum states in dipolar gases
10:00 – 10:30	<i>K. Ueda</i> (Univ. of Electro-Communications, Japan). Ceramic lasers and new scheme of scaling law of high power lasers
10:30 – 11:00	<i>M. Gilfanov</i> (Space Research Inst. RAS, Russia) X-ray binaries, star formation and progenitors of type Ia supernovae
11:00 – 11:20	COFFEE BREAK
11:20– 11:50	<i>A. Zheltikov</i> (Texas A&M Univ., USA and Moscow State Univ., Russia). Self-transforming solitons
11:50– 12:20	<i>O. Willi</i> (Heinrich Heine Univ., Germany). Investigations of ion acceleration and electron dynamics in high intensity one and two laser pulse experiments
12:20– 12:50	<i>A. Vodopyanov</i> (Inst. of Applied Physics RAS, Russia). A point source of extreme ultraviolet radiation based on non-equilibrium discharge, sustained by powerful radiation of terahertz gyrotron
13:00– 14:00	LUNCH
14:00 – 14:30	<i>V. Zakharov</i> (Univ. of Arizona, USA / P. N. Lebedev Physical Inst. RAS, Russia). On the nonlinear stage of modulation instability
14:30 – 15:00	<i>R. Sunyaev</i> (Space Research Inst. RAS, Russia). Hot intergalactic gas in clusters of galaxies, cosmic microwave background and cosmology
15:00 – 15:30	CLOSING SESSION
17:00	Arrival in Nizhny Novgorod
17:00 – 19:00	Excursion in Nizhny Novgorod
19:00 – 20:00	DINNER

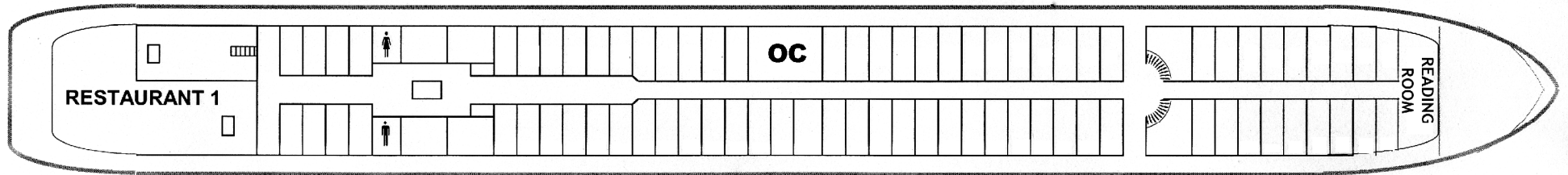
SUN DECK (4)



BOAT DECK (3)



PROMENADE DECK (2)



MAIN DECK (1)

