

**PROGRAM**  
“*SOLITONS, COLLAPSES AND TURBULENCE:*  
*Achievements, Developments and Perspectives*”  
**June 4-8, 2012, Novosibirsk**

**Sunday, June, 3**

- 18:00-21:00  
**Registration:** the hotel “Gold Valley”

**Monday, June, 4**

*Conference Hall of Institute of Cytology and Genetics SB RAS*

- 08:30-09:30  
**Registration:** Institute of Cytology and Genetics
- 09:30-09:40 **Welcome**

Chairman: **J.J. Rasmussen**

- 09:40-10:10  
**G. Falkovich, N. Vladimirova** (*Landau Institute for Theoretical Physics RAS, Chernogolovka, Russia; University of New Mexico, Albuquerque, USA*)  
Phase Transitions in Turbulence
- 10:10-10:40  
**B. Konopeltchenko, G. Ortenzi** (*University of Salento, Lecce, Italy; University of Bicocca, Milan, Italy*)  
Gradient Catastrophe and Flutter in Vortex Filament Dynamics
- 10:40-11:10  
**M.D. Bustamante** (*University College Dublin, Dublin, Ireland*)  
3D Euler Equations and Ideal MHD Mapped to Regular Systems: Probing the Finite-Time Blowup Hypothesis
- 11:10-11:30  
**Coffee break**

Chairman: **G. Falkovich**

- 11:30-12:00  
**D.M. Markovich, S.S. Abdurakipov, V.M. Dulin** (*Institute of Thermophysics SB RAS, Novosibirsk, Russia; Novosibirsk State University, Novosibirsk, Russia*)  
Investigation of Coherent Structures in a Strongly Swirling Jet Undergoing Vortex Breakdown
- 12:00-12:30  
**A.N. Kudryavtsev, E.A. Kuznetsov, E.V. Sereshchenko** (*Institute of Theoretical and Applied Mechanics SB RAS, Novosibirsk, Russia; Novosibirsk State University, Novosibirsk, Russia; Lebedev Physical Institute RAS, Moscow, Russia*)  
Influence of the Vorticity Quasi-Shocks on the Direct Cascade in Two-Dimensional Turbulence
- 12:30-14:00  
**Break for lunch**

Chairman: **A.V. Mikhailov**

- 14:00-14:30  
**S.V. Batalov, A.G. Shagalov** (*Institute of Metal Physics UB RAS, Ekaterinburg, Russia*)  
Resonant Control of Envelope Solitons
- 14:30-15:00  
**A. Maltsev, E. Demler, A. Prokofiev** (*Landau Institute for Theoretical Physics RAS, Chernogolovka, Russia*)  
Nonequilibrium Quantum Dynamics of Strongly Correlated Ultracold Atoms in Optical Lattices

- 15:00-15:30  
**M.N. Kuznetsova, A.V. Zhiber** (*Ufa State Aviation Technical University, Ufa, Russia; Institute of Mathematics with Computer Center of the Ufa Science Center RAS, Ufa, Russia*)  
Klein-Gordon Equation and Differential Substitutions

- 15:30-16:00  
**A. Pushkarev** (*Novosibirsk State University, Novosibirsk, Russia; Lebedev Physical Institute RAS, Moscow, Russia*)  
Non-Stationary Model for Limited Fetch Ocean Wind Waves Growth

- 16:00-16:20  
**Coffee break**

Chairman: **P.M. Lushnikov**

- 16:20-16:40  
**A.A. Gelash, V.E. Zakharov** (*Novosibirsk State University, Novosibirsk, Russia; Lebedev Physical Institute RAS, Moscow, Russia*)  
On Nonlinear Stage of the Modulational Instability

- 16:40-17:00  
**V.V. Guzanov, S.V. Alekseenko, D.M. Markovich, S.M. Kharlamov** (*Institute of Thermophysics SB RAS, Novosibirsk, Russia; Novosibirsk State University, Novosibirsk, Russia*)  
Typical Peculiarities of Transition from Regular Two-Dimensional to Three-Dimensional Wave Motion on Vertically Falling Liquid Films

- 17:00-17:20  
**V.I. Erofeev, D.V. Meshcheriakov** (*Institute of Automation and Electrometry SB RAS, Novosibirsk, Russia; Novosibirsk State University, Novosibirsk, Russia*)  
A Decay of Electromagnetic Wave Quanta in a Turbulent Plasma During Their Interaction with Langmuir Waves

- 17:20-17:50  
**N. Vladimirova P.M. Lushnikov** (*University of New Mexico, Albuquerque, USA*)  
Collapses in Optical Turbulence

- 17:50-18:10  
**S.S. Abdurakipov, V.M. Dulin, D.M. Markovich** (*Institute of Thermophysics SB RAS, Novosibirsk, Russia; Novosibirsk State University, Novosibirsk, Russia*)  
DMD Analysis of Coherent Structures in a Turbulent Forced Jet

- 18:10-18:30  
**A.D. Bulygin, A.A. Zemlyanov** (*Zuev Institute of Atmospheric Optics SB RAS, Tomsk, Russia*)  
Dynamics of the Diffraction Ray Generated During Sharp-Focusing and Self-Focusing of the Femtosecond Laser Pulse in Air

19:00 **Welcome party:** House of Scientists — “Dom Uchenyh”

## Tuesday, June 5

Conference Hall of Institute of Cytology and Genetics SB RAS

Chairman: **B. Konopeltchenko**

- 09:00-09:30  
**A.V. Mikhailov** (*University of Leeds, Leeds, UK*)  
Reduction Groups, Automorphic Lie Algebras and Integrable Systems
- 09:30-10:00  
**V.E. Zakharov** (*Lebedev Physical Institute RAS, Moscow, Russia; Novosibirsk State University, Novosibirsk, Russia*)  
What we know about integrability of Euler equations for deep fluid with free surface?
- 10:00-10:30  
**T. Passot, P.L. Sulem** (*Universite de Nice Sophia-Antipolis, Nice, France*)  
Fluid Modeling of Anisotropic Heating and Micro-Instabilities in Space Plasmas
- 10:30-10:50  
**Coffee break**

Chairman: **F. Dias**

- 10:50-11:20  
**A. Komarov, F. Amrani, A. Dmitriev, K. Komarov, D. Meshcheriakov, F. Sanchez** (*Universite d'Angers, Angers, France; Novosibirsk State Technical University, Novosibirsk, Russia; Institute of Automation and Electrometry SB RAS, Novosibirsk, Russia*)  
Mechanism of Dispersive-Wave Soliton Interaction in Fiber Lasers
- 11:20-11:50  
**E. Pelinovsky, A. Slunyaev, I. Didenkulova, A. Sergeeva, T. Talipova, I. Nikolkinina, A. Rodin, E. Shurgalina** (*Institute of Applied Physics RAS, Nizhny Novgorod, Russia; University of Keele, Keele, UK; Institute of Cybernetics, Tallinn, Estonia; State Technical University, Nizhny Novgorod, Russia*)  
Shallow Rogue Waves: Observations, Laboratory Experiments, Theories and Modelling
- 11:50-12:20  
**S. Nemirovskii** (*Institute of Thermophysics SB RAS, Novosibirsk, Russia*)  
Kinetics of a Network of Vortex Loops in He II and a Theory of Superfluid Turbulence
- 12:20-12:50  
**L.A. Smirnov, V.A. Mironov** (*Institute of Applied Physics RAS, Nizhny Novgorod, Russia*)  
Dynamics of Two-Dimensional Dark Solitons in a Smoothly Inhomogeneous Bose-Einstein Condensate
- 12:50-14:00  
**Break for lunch**

Chairman: **P.-L. Sulem**

- 14:00-14:30  
**J.J. Rasmussen, O.E. Garcia, J. Madsen, V. Naulin, A.H. Nielsen** (*Technical University of Denmark, Roskilde, Denmark; University of Tromso, Tromso, Norway*)  
Turbulence and Transport in Magnetically Confined Plasma
- 14:30-15:00  
**S.B. Medvedev** (*Institute of Computational Technologies SB RAS, Novosibirsk, Russia; Novosibirsk State University, Novosibirsk, Russia*)  
The Geometrical Approximation for the Rotating Shallow Water Equations
- 15:00-15:30  
**L.V. Bogdanov** (*Landau Institute for Theoretical Physics RAS, Chernogolovka, Russia*)  
Multidimensional Dispersionless Integrable Hierarchies and their Reductions

- 15:30-16:00  
**V. Mezentsev, M. Dubov, A. Dostovalov, A. Wolf** (*Aston University, Birmingham, UK; Institute Automation and Electrometry SB RAS, Novosibirsk, Russia; Novosibirsk State University, Novosibirsk, Russia*)  
Energy Deposition in Femtosecond Laser Inscription

- 16:00-16:20  
**Coffee break**

Chairman: **Lj. Hadzievski**

- 16:20-16:40  
**V.S. Dryuma** (*Institute of Mathematics and Informatics Academy of Sciences of Moldova, Kishinev, Moldova*)  
Applications of Riemann Geometry in Theory of the Navier-Stokes Equations
- 16:40-17:00  
**V.A. Kochnev** (*Institute of Computational Modelling SB RAS, Krasnoyarsk, Russia*)  
Empirical Kinematic-Gravitational Model of Generation of Magnetic Fields of Planets
- 17:00-17:20  
**D.G. Arkhipov, G.A. Khabakhpashev** (*Novosibirsk State University, Novosibirsk, Russia; Institute of Thermophysics SB RAS, Novosibirsk, Russia*)  
New Equations for Simulation of the Nonlinear Waves Interaction on a Free Surface of the Shallow Water
- 17:20-17:40  
**V.E. Zamyslov** (*The Ural State University of Railway Transport, Ekaterinburg, Russia*)  
Standing Waves in the Solutions Complete System of Equations of Navier-Stokes
- 17:40-18:00  
**D.A. Fadeev, V.A. Mironov** (*Institute of Applied Physics RAS, Nizhny Novgorod, Russia*)  
Nonlinear Regimes of THz Generation from Metallic Surface Irradiated by Femtosecond Laser Pulses
- 18:00-18:20  
**D.S. Butyugin, V.P. Il'in** (*Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, Russia; Novosibirsk State University, Novosibirsk, Russia*)  
Finite Element Modeling of the Surface Water Waves

**Wednesday, June 6**

Hotel "Borviha"

- 09:00-09:15  
Buses from hotel "Gold Valley"

Chairman: **N.N. Rosanov**

- 10:00-10:30  
**P.M. Lushnikov, S.A. Dyachenko, N. Vladimirova** (*University of New Mexico, Albuquerque, USA; Novosibirsk State University, Novosibirsk, Russia; Landau Institute for Theoretical Physics RAS, Chernogolovka, Russia*)  
Logarithmic Scaling of Critical Collapse
- 10:30-11:00  
**F. Dias, J. Dudley** (*University College Dublin, Dublin, Ireland*)  
On the Formation of Rogue Waves
- 11:00-11:30  
**B.B. Ilyushin, M.Yu. Hrebtov** (*Institute of Thermophysics SB RAS, Novosibirsk, Russia; Novosibirsk State University, Novosibirsk, Russia*)  
Formation of Inverse Energy Cascade in Free Turbulent Jet
- 11:30-11:50  
**Coffee break**

Chairman: **Y.S. Kivshar**

- 11:50-12:20  
**S.K. Turitsyn** (*Aston University, Birmingham, UK*)  
Capacity of Nonlinear Fibre Channels
- 12:20-12:50  
**F. Sanchez, M. Salhi, A. Komarov, F. Amrani, A. Niang** (*Universite d'Angers, Angers, France; Institute of Automation and Electrometry SB RAS, Novosibirsk, Russia*)  
Soliton Patterns Formation in Fiber Lasers
- 12:50-13:20  
**V.G. Dubrovsky, A.V. Topovsky** (*Novosibirsk State Technical University, Novosibirsk, Russia*)  
About Linear Superpositions of Special Exact Solutions of Veselov-Novikov Equation
- 13:20-13:50  
**G. Genty, B. Kibler, J. Fatome, C. Finot, G. Millot, M. Erkintalo, B. Wetzel, N. Akhmediev, F. Dias, J.M. Dudley** (*Tampere University of Technology, Tampere, Finland; Universite de Bourgogne, Dijon, France; University of Auckland, Auckland, New Zealand; Universite de Franche-Comte, Besancon, France; The Australian National University, Canberra, Australia; University College Dublin, Dublin, Ireland*)  
Nonlinear Dynamics of Modulated Signals in Optical Fibers
- 13:50-15:00  
**Break for lunch**

Chairman: **P. Grinevich**

- 15:00-15:30  
**Lj. Hadzievski, A. Maluckov, G. Gligoric, B. Malomed, T. Phau** (*University of Belgrade, Belgrade, Serbia; Tel Aviv University, Tel Aviv, Israel; Universitat Stuttgart, Stuttgart, Germany*)  
Periodic Density Patterns in Dipolar Bose-Einstein Condensates Trapped in Deep Optical Lattice
- 15:30-16:00  
**R.N. Garifullin, R. Yamilov** (*Institute of Mathematics with Computer Center of the Ufa Science Center RAS, Ufa, Russia*)  
Generalized Symmetry Classification of Discrete Equations in a Class Depending on 12 Parameters

- 16:00-16:30  
**A.A. Rascovalov, V.V. Kiselev** (*Institute of Metal Physics UB RAS, Ekaterinburg, Russia*)  
Solitons and Spin Waves in Spiral Structures
- 16:30-17:00  
**A. Zabolotskii** (*Institute of Automation and Electrometry SB RAS, Novosibirsk, Russia*)  
Self-Induced Transparency in Dispersive Medium
- 17:00-17:20  
**Coffee break**

17:30-20:00 **Cultural program**

**Thursday, June 7**

*Conference Hall of Institute of Cytology and Genetics SB RAS*

Chairman: **V. Pukhnachev**

- 09:00-09:30  
**N.N. Rosanov, A.N. Shatsev, N.V. Vyssotina, A.S. Desyatnikov, R.E. Noskov, I.V. Shadrivov, Yu.S. Kivshar** (*Vavilov State Optical Institute, St.-Petersburg, Russia; National Research University of Information Technologies, Mechanics and Optics, St.-Petersburg, Russia; The Australian National University, Canberra, Australia*)  
Discrete Switching Waves and Dissipative Solitons in Nano- and Metamaterials
- 09:30-10:00  
**V.B. Efimov, P.V.E. McClintock** (*Institute of Solid State Physics RAS, Chernogolovka, Russia; Lancaster University, Lancaster, UK*)  
Direct Energy Transformation in a System of Nonlinear Second Sound Waves
- 10:00-10:30  
**P.L. Sulem, T. Passot, D. Laveder, G. Sanchez-Arriaga** (*Universite de Nice-Sophia Antipolis, Nice, France; Universidad Politecnica de Madrid, Madrid, Spain*)  
Rogue Waves and Intermediate Shock Instability in Alfvénic Turbulence
- 10:30-10:50  
**Coffee break**

Chairman: **E. Kuznetsov**

- 10:50-11:20  
**V.V. Pukhnachev, O.V. Admaev, O.A. Frolovskaya** (*Institute of Railway Engineering, Krasnoyarsk, Russia; Institute of Hydrodynamics SB RAS, Novosibirsk, Russia; Novosibirsk State University, Novosibirsk, Russia*)  
Solitons, Collapses and Self-Similar Solutions in Cahn-Hilliard Kind Equation
- 11:20-11:50  
**Y.S. Kivshar** (*Australian National University, Canberra, Australia*)  
Energy Localization and Solitons in Nonlinear Discrete Systems
- 11:50-12:20  
**S. Lukaschuk, R. Bedard, S. Nazarenko** (*The University of Hull, Hull, UK; The University of Warwick, Coventry, UK*)  
Experiments with Non-Stationary Gravity Surface Wave Turbulence
- 12:20-12:40  
**Y.A. Kharkov, E.A. Kuznetsov** (*Novosibirsk State University, Novosibirsk, Russia; Lebedev Physical Institute RAS, Moscow, Russia; Landau Institute for Theoretical Physics RAS, Chernogolovka, Russia*)  
Collapse of the Attractive Bose-Einstein Condensates
- 12:40-14:00  
**Break for lunch**

Chairman: **V. Mezentsev**

- 14:00-14:30  
**A.I. Dyachenko, V.E. Zakharov, D.I. Kachulin** (*Landau Institute for Theoretical Physics RAS, Chernogolovka, Russia*)  
On Canonical Transformation for Water Waves
- 14:30-15:00  
**N.S. Erokhin, V.E. Zakharov, L.A. Mikhailovskaya** (*Space Research Institute RAS, Moscow, Russia; Lebedev Physical Institute RAS, Moscow, Russia*)  
Generation of Solitonlike Structures of Electromagnetic Wave Field During Transillumination of Inhomogeneous Plasmas
- 15:00-15:30  
**V.N. Grebenev, M. Oberlack, M. Frewer** (*Institute of Computational Technologies SB RAS, Novosibirsk, Russia*)  
Symmetries of the Beltrami Fields in the Frame of the Dual Stream Function Representation

- 15:30-16:00  
**O.Yu. Tsvelodub, D.G. Arkhipov** (*Novosibirsk State University, Novosibirsk, Russia; Institute of Thermophysics SB RAS, Novosibirsk, Russia*)  
Conservative System of Equations for Spatial Nonlinear Perturbations Modeling on the Surface of Liquid Film Flowing Down the Vertical Wall

- 16:00-16:20  
**Coffee break**

Chairman: **E. Pelinovsky**

- 16:20-16:40  
**D.Ph. Sikovsky** (*Institute of Thermophysics SB RAS, Novosibirsk, Russia; Novosibirsk State University, Novosibirsk, Russia*)  
Turbulent Scaling in the Viscous Sublayer
- 16:40-17:00  
**A.V. Cherdantsev, S.V. Alekseenko, S.V. Isaenkov, S.M. Kharlamov, D.M. Markovich** (*Institute of Thermophysics SB RAS, Novosibirsk, Russia; Novosibirsk State University, Novosibirsk, Russia*)  
Dynamics of Solitary Waves on a Liquid Film under Strong Gas Shear
- 17:00-17:20  
**D.I. Kachulin, A.I. Dyachenko, V.E. Zakharov** (*Landau Institute of Theoretical Physics RAS, Chernogolovka, Russia; Novosibirsk State University, Novosibirsk, Russia; Lebedev Physical Institute RAS, Moscow, Russia*)  
Collision of Breathers at Surface of Deep Water
- 17:20-17:40  
**S.P. Bautin, V.E. Zamyslov, N.A. Pervushyna, D.V. Perminova** (*Ural State University of Railway Transport, Ekaterinburg, Russia*)  
Representation of the Approximate Solutions of the Complete System of Navier-Stokes Equations in One-Dimensional Case
- 17:40-18:00  
**A. Issakhov** (*Al-Farabi Kazakh National University, Almaty, Kazakhstan*)  
Mathematical Modeling of Synthetic Turbulence Generation for Boundary Layer by Using Zonal RANS/LES Method

19:00 **Conference dinner:** House of Scientists — “Dom Uchenyh”

**Friday, June 8**

*Conference Hall of Institute of Cytology and Genetics SB RAS*

Chairman: **S.K. Turitsyn**

- 09:00-09:30  
**A.B. Aceves** (*Southern Methodist University, Carrollton, USA*)  
Optical Pulse Dynamics in Nonlinear Photonic Systems
- 09:30-10:00  
**P.G. Grinevich** (*Landau Institute for Theoretical Physics RAS, Chernogolovka, Russia*)  
Holomorphic Eigenfunctions of the Vector Field Associated with the Dispersionless Kadomtsev-Petviashvili Equation
- 10:00-10:30  
**I.R. Gabitov, Z.A. Kudyshev, A.I. Maimistov** (*University of Arizona, Tucson, USA; Al-Farabi Kazakh National University, Almaty, Kazakhstan; Federal National Research Nuclear University MPhI, Moscow, Russia*)  
Backward Waves in Negative Index Materials
- 10:30-10:50  
**Coffee break**

Chairman: **A.B. Aceves**

- 10:50-11:20  
**G.I. Dudnikova, T.V. Liseykina** (*Institute of Computational Technologies SB RAS, Novosibirsk, Russia*)  
Shock Wave Particle Acceleration in Laser-Plasma Interaction
- 11:20-11:50  
**N.M. Zubarev, E.A. Kochurin** (*Institute of Electrophysics UB RAS, Ekaterinburg, Russia*)  
Formation of Singularities on the Interface of Dielectric Liquids in a Strong Vertical Electric Field
- 11:50-12:20  
**D.A. Silantyev, H.A. Rose, P.M. Lushnikov** (*University of New Mexico, Albuquerque, USA; New Mexico Consortium, Los Alamos, USA*)  
Reduced Vlasov-Poisson Model and its Instabilities
- 12:20-12:50  
**V.V. Nosov, V.M. Grigoriev, P.G. Kovadlo, V.P. Lukin, E.V. Nosov, A.V. Torgaev** (*Zuev Institute of Atmospheric Optics SB RAS, Tomsk, Russia; Institute of Solar-Terrestrial Physics SB RAS, Irkutsk, Russia*)  
The Solitonic Hydrodynamical Turbulence
- 12:50-14:00  
**Break for lunch**

Chairman: **I. Gabitov**

- 14:00-14:30  
**A. Chernykh, V.V. Lebedev** (*Institute of Automation and Electrometry SB RAS, Novosibirsk, Russia; Landau Institute for Theoretical Physics RAS, Chernogolovka, Russia*)  
Passive Scalar Transport in Peripheral Regions of Random Flows
- 14:30-15:00  
**J.P. Wang** (*University of Kent, Canterbury, UK*)  
Recursion Operator for Narita-Itoh-Bogoyavlensky Lattice
- 15:00-15:30  
**D.S. Agafontsev, V.E. Zakharov** (*Lebedev Physical Institute RAS, Moscow, Russia; Shirshov Institute of Oceanology RAS, Moscow, Russia; Novosibirsk State University, Novosibirsk, Russia*)  
Rogue Waves Statistics in the Framework of One-Dimensional Generalized Nonlinear Schrodinger Equation

- 15:30-16:00  
**T.V. Liseykina, D. Bauer, G.I. Dudnikova** (*Institute of Computational Technologies SB RAS, Novosibirsk, Russia; Rostock Universitat, Rostock, Germany*)  
Plasma Formation and Ionization Dynamics in Laser-Irradiated Droplets

- 16:00-16:20 **Coffee break**

Chairman: **V.E. Zakharov**

- 16:20-16:50  
**V.P. Golubyatnikov, A.A. Akinshin** (*Sobolev institute of mathematics SB RAS, Novosibirsk, Russia*)  
On Nonuniqueness of Cycles in Dissipative Dynamical Systems of Chemical Kinetics

- 16:50-17:20  
**E.A. Kuznetsov** (*Lebedev Physical Institute RAS, Moscow, Russia; Novosibirsk State University, Novosibirsk, Russia*)  
Collapse in Hydrodynamics and the Kolmogorov Spectrum

**General discussion**