

**PROGRAM**  
The Fifth International Conference  
"SOLITONS, COLLAPSES AND TURBULENCE"  
August 2-7, 2009, Chernogolovka  
Conference-Hall, Chernogolovka House of Scientists

**SUNDAY, AUGUST, 2**

10:00-12:00 **Registration** in the hotel "Chernogolovka"

13:30-14:00 **Registration** in Conference-Hall, Chernogolovka House of Scientists

14:00-14:30 **Welcome**

Chairman: **A.V. Mikhailov**

14:30-14:55 **F. Calogero**  
*Isochronous dynamical systems and the arrow of time*

14:55-15:20 **V.E. Fortov**  
*Extreme States of Matter in Laboratory and in Space*

15:20-15:45 **P. Grinevich & S. Novikov**  
*Singular Finite-Gap Operators and Indefinite Metric*

15:45-16:05 **Coffee break**

Chairman: **S.K. Turitsyn**

16:05-16:30 **L. Bergé**  
*Simulating a complete experiment of pulse compression mediated by filamentation*

16:30-16:55 **B. Konopelchenko**  
*Singular sector of 2D Benney system and degenerate critical points*

16:55-17:20 **A. Shagalov**  
*Excitation and control of multi-phase periodic waves in Sine-Gordon equation*

## MONDAY, AUGUST 3

Chairman: **F. Calogero**

9:00-9:25 **A. Fokas**

*Integrability, Medical Imaging and Boundary Value Problems*

9:25-9:50 **V.E. Zakharov**

*Statistical approach for the integrable models*

9:50-10:15 **V. Lebedev, M. Chertkov & I. Kolokolov**

*Structure of coherent vortices at advanced stages of frictionless 2d turbulence*

10:15-10:40 **A.K. Pogrebkov**

*Building extended resolvent of heat operator via twisting transformations*

10:40-11:00 **Coffee break**

Chairman: **G. Falkovich**

11:00-11:25 **B.I. Sturman**

*High-temperature nonlinear phenomena in LNB crystals*

11:25-11:50 **A.V. Gurevich**

*Runaway breakdown and the Mysteries of Lightning*

11:50-12:15 **A.V. Mikhailov**

*Reductions in continuous and discrete integrable systems*

12:15-12:40 **K. Gorshkov, L. Ostrovsky, I. Soustova, N. Zaitseva & L. Shevts**

*The Interaction of Near-Limit Solitons in Strongly Nonlinear Models of Internal Waves*

12:40-14:00 **Break for lunch**

Chairman: **B. Konopelchenko**

14:00-14:25 **I. Krichever**

*The Whitham theory and geometry of moduli spaces of algebraic curves with punctures*

14:25-14:50 **P. McClintock, V. Efimov, A. Ganshin, G. Kolmakov & L. Mezhov-Deglin**

*Wave Turbulence in Superfluid  $^4\text{He}$ : Energy Cascades, Rogue Waves & Kinetic Phenomena in the Laboratory*

14:50-15:15 **O. Mokhov**

*Zakharov's reductions, integrable reductions of the Lamé equations and integrable classes of compatible metrics*

15:15-15:40 **N. Zubarev & O. Zubareva**

*Exact Solutions for Nonlinear Waves on the Surface of a Dielectric Liquid in a Tangential Electric Field in 3D Geometry*

15:40-16:00 **Coffee break**

Chairman: **G.M. Fraiman**

16:00-16:25 **P. Lushnikov**

*Regularization of collapse from microscopic cellular dynamics*

16:25-16:50 **V. Mezentsev**

*Collapsing Femtosecond Laser Bullets*

16:50-17:15 **G. Guria**

*Coagulation Phenomena in Intensive Blood Flow*

19:00 **Welcome party**

## TUESDAY, AUGUST 4

Chairman: **T. Fokas**

9:00-9:25 **G. Fraiman & V. Geyko**

*Accuracy of the Miller Force Description for Charged Particles Motion*

9:25-9:50 **V. Sokolov**

*Integrable 3D-systems of hydrodynamic type*

9:50-10:15 **I. Kolokolov**

*Dynamo effect in strong shear flow*

10:15-10:40 **G. El**

*Kinetic equation for a soliton gas*

10:40-11:00 **Coffee break**

Chairman: **A. K. Pogrebkov**

11:00-11:25 **P. Santini & S. Manakov**

*Integrable PDEs as commutation of vector fields: Cauchy problem, longtime behaviour, particular solutions and multidimensional wave breaking*

11:25-11:50 **S. Manakov**

*Implicit solutions of dispersionless integrable PDEs*

11:50-12:15 **S. Nechaev**

*On scale-free and poly-scale behaviors of random hierarchical networks*

12:15-12:40 **A. Maltsev & B. Dubrovin**

*Deformations of the Whitham systems and the Hamiltonian structures in the KdV case*

12:40-14:00 **Break for lunch**

Chairman: **P. Lushnikov**

14:00-14:25 **V. Efimov**, D. Garg, P. McClintock, L. Skrbek & W. Vinen

*Experimental study of quantum turbulence*

14:25-14:50 **E. Maslov, S. Batalov, L. Kalyakin & A. Shagalov**

*Autophasing of Solitons*

14:50-15:15 **K. Komarov, A. Komarov & F. Sanchez**

*Quantization of binding energy of structural solitons and lasing regimes of passive mode-locked fiber lasers*

15:15-15:40 **V. Dryuma**

*Ricci-Flat Spaces Associated with The KP Equation*

15:40-16:00 **Coffee break**

Chairman: **V. Gerdjikov**

16:00-16:25 **J. Chang**

*Hodograph solutions for the Manakov-Santini equation*

16:25-16:50 **A. Korotkevich, V. Zakharov & A. Prokofiev**

*To the dissipation of the surface gravity waves due to whitecapping*

16:50-17:15 **F. Rybakov & A. Borisov**

*Dynamical Toroidal Solitons with Nonzero Hopf Invariant in a Uniaxial Ferromagnet*

17:15-17:40 **D. Fadeev**

*Ultrashort relativistically strong solitons in plasma*

## WEDNESDAY, AUGUST 5

Chairman: **V. Shrira**

9:00-9:25 **J.J. Rasmussen & V. Naulin**

*Turbulence spreading and nonlocal transport in magnetized plasmas*

9:25-9:50 **G.S. Golitsyn**

*Energy cycle of the sea surface waves*

9:50-10:15 **A. C. Newell**

*Plant patterns and phyllotaxis*

10:15-10:40 **K. Zybin, V. Sirota, A. Ilyin & A. Gurevich**

*Lagrangian statistical theory of fully-developed hydrodynamic turbulence*

10:40-11:00 **Coffee break**

Chairman: **A.C. Newell**

11:00-11:25 **S. Turitsyn**

*Ultra-long fibre lasers: from weak wave turbulence to solitons*

11:25-11:50 **G. Falkovich**

*Go with the flow*

11:50-12:15 **V. Novokshonov**

*Padé approximations for Painlevé I and II transcendents*

12:15-12:40 **F. Dias, F. Chardard & T. Bridges**

*On the Maslov index of homoclinic orbits*

12:40-14:00 **Break for lunch**

Chairman: **E. Kuznetsov**

14:00-14:25 **S. Lukaschuk & S. Nazarenko**

*Gravity Wave Turbulence in Wave Tanks*

14:25-14:50 **A. Orlov**

*Soliton theory and random processes*

14:50-15:15 **I. Gabitov**

*Light propagation through the interface of optical materials with changing sign of refraction index*

15:15-15:40 **L. Smirnov**

*Dynamics of the Quantum Vortices in Super-Fluid Systems*

15:40-16:00 **Coffee break**

Chairman: **A. Dyachenko**

16:00-16:25 **M. Brazhnikov, L. Abdurakhimov & A. Levchenko**

*Experimental studies of capillary wave turbulence in damping region*

16:25-16:50 **V. Ruban**

*Two different kinds of rogue waves in weakly-crossing sea states*

16:50-17:15 **S. Boscolo, B. Bale & S. Turitsyn**

*Localized waves in optical systems with periodic dispersion and nonlinearity management*

17:15-17:30 **V. Muchnick**

*Vladimir Zakharov the poet*

19:00 **Conference dinner**

## THURSDAY, August 6

Chairman: **G.S. Golitsyn**

9:00-9:25 **E. Pelinovsky**

*Nonlinear-dispersive theory of tsunami waves*

9:25-9:50 **L. Piterbarg**

*Lagrangian Motion in Stochastic Flows*

9:50-10:15 **S. Badulin & G. Caulliez**

*Wind-wave growth in the laboratory studies*

10:15-10:40 **A. Kamchatnov**

*Dispersive shock waves in Bose-Einstein condensates*

10:40-11:00 **Coffee break**

Chairman: **E. Pelinovsky**

11:00-11:25 **N. Erokhin & V. Zakharov**

*Solitonlike splashes of the field of electromagnetic wave under its nonreflection propagation through the inhomogeneous plasma layer*

11:25-11:50 **R. Nigmatullin**

*Multiparameter and multiscale problems with "sharpening" in cavitation*

11:50-12:15 **A. Balakin, A. Litvak, V. Mironov & S. Skobelev**

*Self-action of a few cycle pulses in dispersive medium*

12:15-12:40 **V. Shrira & S. Annenkov**

*"Fast" evolution in wave turbulence*

12:40-14:00 **Break for lunch**

Chairman: **A. Kamchatnov**

14:00-14:25 **V.M. Kontorovich**

*Quantized electromagnetic tornado in pulsar vacuum gap*

14:25-14:50 **A. Pushkarev**

*Quasi-Breathers in MMT model*

14:50-15:15 **S. Vlasov**

*Influence of peripheral field on structure of nonlinear focus arising at propagation of a wave beam in cubic nonlinear media*

15:15-15:40 **A. Slunyaev**

*Deep-water limiting-envelope solitons*

15:40-16:00 **Coffee break**

Chairman: **G. Alekseev**

16:00-16:25 **I. Didenkulova**

*Non-dispersive traveling waves in strongly inhomogeneous water channels*

16:25-16:50 **O. Tsupko and G. Bisnovatyi-Kogan**

*Dynamic stabilization of collapsing bodies against unlimited contraction*

16:50-17:50 **POSTER SESSION**

## FRIDAY, AUGUST 7

Chairman: **V. Novokshonov**

9:00-9:25 **M. Pavlov, Chang Jen Hsu & Chen Yu Tung**  
*Integrable vector hydrodynamic chains*

9:25-9:50 **G. Alekseev**  
*Thirty years of solitons in General Relativity. Integrability and soliton generating transformations in the low energy string gravity theories*

9:50-10:15 **V. Gerdjikov**  
*Generalized Zakharov-Shabat systems and nonlinear evolution equations with deep reductions*

10:15-10:40 **A. Fordy**  
*Cluster Mutation-Periodic Quivers and Associated Laurent Sequence*

10:40-11:00 **Coffee break**

Chairman: **P. Santini**

11:00-11:25 **L. Bogdanov**  
*Vector fields and multidimensional integrable hierarchies*

11:25-11:50 **E. Ferapontov, A. Moro & V. Novikov**  
*Soliton equations in 2+1 dimensions: deformations of dispersionless limits*

11:50-12:15 **R. Shamin**  
*Freak Waves and Conclusive Simulations*

12:15-12:40 **D. Laveder**  
*Quasi-singular solitons and Alfvénic turbulence in the forced dissipative DNLS equation*

12:40-14:00 **Break for lunch**

Chairman: **J.J. Rasmussen**

14:00-14:25 **A. Dyachenko**  
*About Shape of Freakon*

14:25-14:50 **N. Ostrovskaya**  
*General travelling-wave solution of the Landau-Lifshits equation for uniaxial ferromagnet*

14:50-15:15 **A. Zenchuk**  
*On the relationship between nonlinear equations integrable by the method of characteristics and equations associated with commuting vector fields*

15:15-15:40 **D. Agafontsev**  
*Stability and collapse of solitons near transition from supercritical to subcritical bifurcation in hydrodynamical systems*

15:40-16:00 **Coffee break**

Chairman: **V.E. Zakharov**

16:00-16:25 **E.A. Kuznetsov**  
*Mirror structures in magnetized plasma with pressure anisotropy*

16:25-16:50 **General discussion**