

VIII-th International Conference "SOLITONS,
COLLAPSES AND TURBULENCE: Achievements,
Developments and Perspectives" (SCT-17) in honor of
Evgenii Kuznetsov's 70th birthday
May 21 - May 25, 2017

Program

CHAIRMAN OF THE CONFERENCE:

- Vladimir E. ZAKHAROV, Lebedev Institute, Moscow; Landau Institute, Chernogolovka; Novosibirsk State University, Russia & Arizona University, Tucson, USA;

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- Alexandre V. MIKHAILOV, Leeds University, Leeds, UK;
- Jens J. RASMUSSEN, Riso National Laboratory, DTU, Denmark;
- Kirill P. ZYBIN, Lebedev Physical Institute, Moscow Russia.

Saturday, 20 May

17:00-19:00 Registration at the hotel Chernogolovka

Sunday, 21 May

8:30-9:15 Registration at the Landau Institute

09:15-09:30 Welcome

Chairman - V.E. Zakharov

09:30-10:00 R. Bury, A.V. Mikhailov, J.P. Wang

Wave fronts and cascades of soliton interactions in the periodic two dimensional Volterra system

10:00-10:30 S.K. Turitsyn

Solitons in optical communications and fibre lasers: New dawn

10:30-11:00 VI.V. Kocharovsky, E.R. Kocharovskaya, A.S. Gavrilov, E.M. Loskutov, D.M. Mukhin, A.M. Feigin

Dynamical field patterns of superradiant lasing and empirical modes with a variable spatial-temporal structure

11:00-11:20 Coffee break

Chairman - A.V. Mikhailov

11:20-11:50 P.G. Grinevich, P.M. Santini

Direct problem for the defocusing NLS equation

11:50-12:20 G.A. Alekseev

Collision of gravitational and electromagnetic solitons with strong electromagnetic waves of arbitrary amplitudes and profiles in the expanding background space-time

12:20-12:50 A.A. Gelash, D.S. Agafontsev

Statistic of strongly interacting soliton gas and formation of rogue waves

12:50-14:10 Lunch

Chairman - P.G. Grinevich

14:10-14:40 A.C. Newell

Elastic sheets, phase surfaces and pattern universes

14:40-15:10 V.P. Drachev, Hari Bhatta, Ali Aliev

Spin-polarized plasmons in magnetic nanoparticles

15:10-15:40 A. Balakin, A.G. Litvak, V.A. Mironov, S. Skobelev

Collapse of the wave field in a system of weakly coupled light guides

15:40-16:10 I.A. Remizov, A.A. Levchenko, L.P. Mezhov-Deglin

Evolution of the energy flux in a system of nonlinear surface waves in He-II

Sunday, 21 May

Sunday, 21 May

16:10-16:30 Coffee break

Chairman - P.M. Lushnikov

16:30-17:00 **A.I. Dyachenko**

Nonlinear Nonlocal Equation for Envelope of Water Waves

17:00-17:30 **A.I. Dyachenko, D.I. Kachulin, V.E. Zakharov**

Dissipation of water waves due to wave breaking

17:30-18:00 **A.A. Levchenko, L.P. Mezhov-Deglin, A.A. Pelmenev**

Visualization of the surface patterns in superfluid He-II

18:00-20:00 **Welcome Reception**

Sunday, 21 May

Monday, 22 May

Chairman - A.C. Newell

09:00-09:30 **Vladimir Zakharov, Sergey Dyachenko**

Variational approach to the problem of integrability of deep water wave equations

09:30-10:00 **L. Piterbarg**

Finite size Lyapunov exponent for stochastic flows modeling 2D turbulence

10:00-10:30 **E. Pelinovsky**

Nonlinear waves and modulational instability in high-order Korteweg-de Vries equations

10:30-10:50 Coffee break

Chairman - E. Pelinovsky

10:50-11:20 **P.M. Lushnikov**

Dynamics of singularities in 2D hydrodynamics with free surface through time dependent conformal maps

11:20-11:50 **A. Slunyaev, M. Klein, G. Clauss**

Laboratory and numerical study of intense envelope solitons of water waves

11:50-12:20 **S. Nazarenko, B. Gallet, B. Dubrelle**

Wave Turbulence in Cosmology and Particle Physics

12:20-12:50 **V. Mezentsev, O. Zolotov, V. Grigoryan**

Genuine low latency pipeline parallel algorithm for numerical modelling of 1D evolution equations

12:50-14:10 Lunch

Chairman - S. Nazarenko

14:10-14:40 **F. Calogero, O. Bihun, M. Bruschi**

Zeros of polynomials and solvable nonlinear evolution equations

14:40-15:10 **N.M. Zubarev, E.A. Kochurin**

Nonlinear waves at the interface between two ideal fluids in a horizontal electric field in the presence of tangential discontinuity of the velocity

15:10-15:40 **L.V. Bogdanov**

SDYM equations on the self-dual background

15:40-16:00 Coffee break

Chairman - I.R. Gabitov

16:00-16:30 **F. Abdullaev, M. Salerno**

Compactons in BEC with periodically modulated interactions in deep optical lattices

Monday, 22 May

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- 16:30-17:00 A.P. Protogenov, R. Turkevich, E. Chulkov
Landau damping in Dirac semimetals and novel collective excitations
- 17:00-17:30 E.M. Maslov, V. Koutvitsky
Instability of an oscillating scalar field in expanding Universe
- 17:30-18:00 V.V. Geogjaev
*Numerically solving the kinetic equation for deep water gravity waves:
the new approach*

Monday, 22 May

Tuesday, 23 May

Chairman - N.N. Rosanov

09:00-09:30 I.M. Sigal

Blowup Dynamics in the Keller-Segel Model of Chemotaxis

09:30-10:00 L. Hadzievski

Nonlinear localized flat-band modes in pseudo-spinor diamond chain

10:00-10:30 E.V. Ermanyuk T. Dauxois, C. Brouzet, I. Sibgatullin, J. Sylvain

Triadic instability in internal wave attractors: scale effect

10:30-10:50 Coffee break

Chairman - S.K. Turitsyn

10:50-11:20 V.V. Lebedev

Coherent structures in 2d turbulence

11:20-11:50 A. Chabchoub

Observation of hydrodynamic solitons and breathers

11:50-12:20 S. Dobrokhotov, V. Nazaikinskii

Fock quantization of singular trajectories, Carrier-Greenspan transformation, and the run-up problem in the framework of shallow water models

12:20-12:50 S.I. Badulin, V.E. Zakharov

On universality of spectral distributions of sea swell: estimates and numerical simulations

12:50-14:10 Lunch

Chairman - V.K. Mezentsev

14:10-14:40 S. Fedorov, N.N. Rosanov, N. Veretenov

Topological Bright and Dark 2D and 3D-Dissipative Optical Solitons: Internal Structure, Symmetry, and Motion

14:40-15:10 V. Naulin, F. Hariri, J. J. Rasmussen

Nonlocal effects in transport: The role of turbulence energy

15:10-15:40 D.S. Agafontsev, E.A. Kuznetsov, A.A. Mailybaev

Development of high-vorticity structures in incompressible 3D Euler equations: comparison with exact solution

15:40-16:00 Coffee break

Tuesday, 23 May

Tuesday, 23 May

Chairman - V.V. Kocharovsky

16:00-16:30 **N.S. Erokhin, N.N. Zolnikova, L.A. Mikhailovskaya**

Resonance tunneling of electromagnetic waves through inhomogeneous plasma with small scales structures

16:30-17:00 **V.P. Ruban**

The dynamics of quantum vortices in a quasi-two-dimensional Bose-Einstein condensate with two "holes"

17:00-17:30 **E.A. Kochurin, N.M. Zubarev**

Nonlinear waves on the boundary of finite depth dielectric liquid in a strong tangential electric field

17:30-18:00 **G. Alfimov**

An algorithm for demonstrative computation of solitons in NLS-type models

Tuesday, 23 May

Wednesday, 24 May

Chairman - A.M. Kamchatnov

- 09:00-09:30 V. Steinberg
Search for direct relation between elastic turbulence and turbulent drag reduction
- 09:30-10:00 V. Krasnoselskikh, A. Voshchepynets, A. Volokitin, C. Krafft
Beam plasma interaction in strongly randomly inhomogeneous plasma
- 10:00-10:30 A.K. Pogrebkov
Symmetries of the Hirota difference equations

10:30-10:50 Coffee break

Chairman - I.V. Kolokolov

- 10:50-11:20 G. Falkovich
Wonders of viscous electronics
- 11:20-11:50 I.R. Gabitov, A. Maimistov
Surface Waves on the Interface of Hybrid Metamaterials
- 11:50-12:20 I.V. Oladyshkin, S.B. Bodrov . Yu.A. Sergeev, M. D. Tokman, A.N. Stepanov, A.I. Korytin
Optical emission of graphene due to Landau-Zener transitions in strong THz field
- 12:20-12:50 F. Dias, F. Fedele, J. Brennan, S. Ponce de Leon, J. Dudley
Real world ocean rogue waves explained without the modulational instability

12:50-14:10 Lunch

Chairman - J.J. Rasmussen

- 14:10-14:40 I.V. Kolokolov
Evolution of magnetic field fluctuations in two-dimensional chaotic flow
- 14:40-15:10 K.P. Zybin
Singularity in Navier-Stokes equation under an action of non-uniform, random force
- 15:10-15:40 S.S. Vergeles
Large vortices generation by surface waves excited on a free surface

15:40-16:00 Coffee break

Chairman - A. Slunyaev

- 16:00-16:30 V.B. Efimov
Tuning forks as a generation of quantum turbulence in superfluid turbulence
- 16:30-17:00 V.M. Kontorovich
Stimulated scattering on surface waves and pulsar radiation

Wednesday, 24 May

- 17:00-17:30 **E.V. Sereshchenko, E.A. Kuznetsov**
Isotropization of two-dimensional hydrodynamic turbulence
- 17:30-18:00 **S.A. Aliev, S.V. Filatov A.A. Levchenko, D.A. Khramov**
*Experimental observation of nonlinear generation of vorticity by gravity
surface waves*
- 19:00 **Conference dinner**

Thursday, 25 May

Chairman - V.V. Lebedev

09:00-09:30 **J. Madsen, V. Naulin, A.H. Nielsen, J.J. Rasmussen**

Plasma turbulence and transport barriers

09:30-10:00 **M.D. Bustamante, B.P. Murray**

Energy flux enhancement, intermittency and turbulence via triad Fourier phase dynamics in dispersive and non-dispersive PDEs

10:00-10:30 **G. Bisnovaty-Kogan**

Self-similar solution for the strong shock in a uniformly expanding universe

10:30-10:50 Coffee break

Chairman - E.A. Kuznetsov

10:50-11:20 **A.M. Kamchatnov**

Polarization waves in a two-component Bose-Einstein condensate

11:20-11:50 **V.V. Kiselev, A.A. Raskovalov**

Solitons in spiral structure of magnets and multiferroics

11:50-12:20 **B. Baizakov, Sh. R.Otajonov, K. K. . Ismailov**

On stability of multi-soliton bound states in dispersion-managed optical fibers

12:20-12:50 **S. Konstantenou-Rizos**

Discrete integrable systems and lifts to Yang-Baxter maps: Grassmann extension scheme

12:50-14:10 Lunch

Chairman - M.D. Bustamante

14:10-14:40 **O.V. Zubareva, N.M. Zubarev, N.B. Volkov**

Equilibrium configurations of an uncharged conducting liquid jet in a transverse electric field

14:40-15:10 **S. Roudenko, L.G. Farah, Holmer J.**

Instability of solitary waves in Zakharov-Kuznetsov equation

15:10-15:40 **L.P. Mezhov-Deglin A.A. Levchenko, I.A. Remizov**

Quantum analog of the Kelvin-Helmholtz instability on the surface of superfluid He-II

Thursday, 25 May

Thursday, 25 May

15:40-16:00 Coffee break

Chairman - A.I. Dyachenko

16:00-16:30 **S. Wabnitz**

Spatiotemporal beam nonlinear dynamics in multimode fiber

16:30-17:00 **S. Minaev, R. Fursenko**

Propagation Velocity of Flame Balls Array in Low Lewis Number Gas

Premixture

17:00-17:30 **A.I. Zenchuk**

Multidimensional linearizable n-wave type equation

17:30-18:00 **E.A. Kuznetsov, D.S. Agafontsev, A.A. Mailybaev**

Towards developed hydrodynamic turbulence

18:00 **Conference closing**

Thursday, 25 May