

International Conference-School
Dynamics, Bifurcations and Chaos 2018 (DBC V)
16 – 20 July, 2018
University Conference Center
Nizhny Novgorod University
Gagarina 23, Corp. 1,
New library building (NLB), floor 4

PROGRAM

Monday, July 16

9-00 – 9-45 **Registration** (NLB, Conference Hall)

9-45 – 10-00 **Opening** (NLB, Conference Hall)

Chairman S. Gonchenko (NLB, Conference Hall)

10-00 – 10-45 **L. Lerman**, V. Grines “Nonautonomous vector fields on S^3 with simple dynamics and complicated topology”

10-45 – 11-15 Coffee-break

11-15 – 12-00 **A. Rodrigues** “Dynamics near a periodically forced robust heteroclinic cycle”

12-00 – 12-45 **O. Pochinka** “On obstructions to the existence of a simple arc connecting the multidimensional Morse-Smale diffeomorphisms”

12-45 – 14-30 Lunch

Chairman A. Morozov (NLB, Conference Hall)

14-30 – 15-15 **A. Shilnikov**, Course “Mathematical neuroscience”, Lecture 1

15-15 – 16-00 **S. Maksimenko**, Course “Kolmogorov-Sinai entropy”, Lecture 1

16-00 – 16-30 Coffee-break

Chairman A. Kazakov (NLB, Conference Hall)

16-30-17-00 **M. Malkin** "Estimates on chain recurrent sets for high-dimensional polynomial maps"

17-00-17-30 **M. Gonchenko** “On local and global aspects of the 1:4 resonance in the conservative cubic Henon maps”

17-30-17-50 **O. Kostromina** “On resonances and homoclinic bifurcations in asymmetric pendulum type equation”

17-50-18-10 A. Kazakov, **A. Kozlov** “On asymmetric Lorenz attractors of three-dimensional systems”

Tuesday, July 17

Chairman D. Turaev (NLB, Conference Hall)

10-00 - 10-45 **T. Vadivasova** "Synchronization of chimera structures in a multilayer network of discrete maps with unidirectional interaction between layers"

10-45 – 11-15 Coffee-break

11-15 - 12-00 **W. Govaerts** "Software MatCont: Applications and recent Advances"

12-00 - 12-30 **I. Kashchenko** "Behavior of solutions of spatially distributed delay logistic equation"

12-30-13-00 **T. Gurina** "Homoclinic chaos in the oscillatory system of motion of a plate in a liquid"

13-00 – 14-30 Lunch

Chairman L. Lerman (NLB, Conference Hall)

14-30 – 15-15 **A. Shilnikov**, Course "Mathematical neuroscience", Lecture 2

15-15 – 16-00 **S. Maksimenko**, Course "Kolmogorov-Sinai entropy", Lecture 2

16-00 – 16-30 Coffee-break

Section: Bifurcations and strange attractors (NLB, Conference Hall) Chairman M. Gonchenko	Section: Application of dynamical systems (NLB, Exhibitory room) Chairman A. Rassadin
16-30-16-50 A. Prugger , J. Rademacher "Stability and nonlinear waves in damped driven rotating shallow water models" 16-50-17-10 S. Zaitseva "Bifurcations and stochastic dynamics in the allosteric model" 17-10-17-30 I. Korneev "Features of synchronization of periodic self-sustained oscillators interacting through the memristive conductivity" 17-30-17-50 L. Siemer "Existence and Stability of Inhomogeneous Domain Walls in Landau-Lifschitz-Gilbert Equations with Spin-Torque" 17-50-18-10 E. Grines , A. Kazakov, G. Osipov, I. Sataev, "Chaotic attractors in low-dimensional systems of globally coupled identical phase oscillators"	16-30-16-50 A. Rassadin , A. Stepanov, L. Fomin "Peculiarities of evolution of regularized fractal shapes on surface of solid state in the vicinity of gradient catastrophe" 16.50-17-10 I. Rakut "Generator of periodic signals for analogous modeling of dynamical systems" 17-10 – 17-30 E. Alekseeva, A. Rassadin "Applications of the Kolmogorov type inequalities to solution of one functional-differential equation" 17-30 – 17-50 A. Tronov "Curvature and torsion of phase trajectories of the Rikitake system" 17-50-18-10 TBA

Wednesday, July 18

Day devoted to the 75-anniversary of V.N. Belykh

Chairman G. Osipov (NLB, Conference Hall)

10-00 – 11-00 **V. Belykh** “Study of phase pictures, bifurcations and synchronization without computer aid”

11-00 – 11-30 Coffee-break

11-30 – 12-15 **I. Belykh**, R. Jeter R., M. Porfiri “Windows of opportunity for stochastic networks of coupled maps”

12-15 – 12-45 **A. Morozov**, K. Morozov “On quasiperiodic perturbation of self-oscillation systems”

12-45 – 14-30 Lunch

Chairman I. Belykh (NLB, Conference Hall)

14-30 – 15-15 **V. Klinshov**, V. Nekorkin “Destabilization of regular spiking in networks of pulse delay coupled oscillators”

15-15 – 16-00 **G. Osipov** “Transient and periodic spatiotemporal structures in a reaction-diffusion mechanical system”

16-00 – 16-30 Lunch

Section Session “Dynamics of living systems”

Chairman A. Shilnikov (NLB, Conference Hall)

16-30-17-00 **N. Barabash** “Singular-hyperbolic and quasi-strange attractors in a multidimensional piecewise linear Lorenz-like system”

17-00-17-30 **S. Makovkin**, M. Ivanchenko, A. Zaikin “Desynchronization in model neuron-glia multiplex networks”

17-30-18-00 **E. Slepukhina** “Stochastic dynamics near the blue sky catastrophe bifurcation in neuron model”

19.00 -... Banquet

Thursday, July 19

Chairman A. Rodrigues (NLB, Conference Hall)

10-00 – 10-45 **T. Lazaro** “Singularly embedded solitons in a fifth order KdV model”

10-45 – 11-15 Coffee-break

11-15 – 11-45 **M. Kulakov** “On spatio-temporal patterns in 2D model of two-aged populations coupled by migration”

11-45 – 12-15 **L. Glebsky** “Dynamics of modular exponent and the Higman group”

12-15 – 12-45 **I. Sysoev** “Modeling and identification of large ensembles of neurooscillators from vector time series”

13-00 – 14-30 Lunch

Chairman S. Glyzin (NLB, Conference Hall)

14-30 – 15-15 **S. Maksimenko**, Course “Kolmogorov-Sinai entropy”, Lecture 3

15-15 – 16-00 **A. Shilnikov**, Course “Mathematical neuroscience”, Lecture 3

16-00 – 16-30 Coffee-break

Section Session “Dynamics of living systems” + Posters

Chairman A. Gonchenko (NLB, Conference Hall)

16-30-17-00 **D. Alacam** “Modeling Sea Slug Swim Central Pattern Generators”

17-00-17-30 **J. Scully** “Dynamical tools for CPG modelling featuring Dendronotus Iris”

17-30-18-00 **A. Kazakov** “Wild spiral attractor in a four-dimensional extension of the Lorenz system”

Poster session:

- 1) **P. Arinushkin** “Analysis of synchronous operation modes of coupled oscillators of power grids”
- 2) **Yu. Bakhanova** “On the appearance of Shilnikov attractors in one chemical model”
- 3) **M. Bolotov** “Simple and complex chimera states in a nonlinearly coupled oscillatory medium”
- 4) **D. Bolshakov** “Hardware neuron model: excitation and bursting”
- 5) **E. Bubnova** “Homogeneous states in the system of nonidentical phase oscillators”
- 6) **T. Dragunov** “On quasi-periodic perturbations of Duffing - Van der Pol equation”
- 7) **A. Ghamam** “On bifurcations of maps of the cylinder with a cubic function of rotation”
- 8) **A. Kalyakulina** “Synchronization of neuroglial networks induced by extracellular factors”
- 9) **A. Kazakov** “The dynamics of ensemble of neuron-like elements with excitatory couplings”
- 10) **I. Korenkov** “On the wild spiral attractor in 4-dimensional Shimizu-Morioka model”
- 11) **A. Korotkov** “Spiral attractors as the root of a new type of bursting activity in the Rosenzweig-MacArthur model”
- 12) **T. Levanova** “The impact of electrical couplings on the sequential bursting activity in the ensemble of inhibitory coupled Van der Pol elements”
- 13) **T. Medvedeva** “Using the complex network of neuron oscillators for modeling an absence epilepsy”
- 14) **E. Morozova** “Dynamics of periodically spiking neurons in response to inhibitory periodic stimulation”
- 15) **E. Nozdrinova** “On existence of a smooth arc without bifurcations joining source-sink diffeomorphisms on 2-sphere”
- 16) **E. Rybalova** “Solitary state chimera: Appearance and synchronization of the new chimera state”
- 17) **E. Samylina** “Chaotic dynamics and multistability in the nonholonomic model of Celtic stone”
- 18) **E. Shiryayeva** “Discrete spiral attractors of three-dimensional generalized Henon maps”
- 19) **A. Shyhmamedov** “On homoclinic bifurcations leading to the appearance and break-down of Henon-like attractors”
- 20) **L. Smirnov** “Rotational dynamics in the ensemble of three coupled pendulums”

Friday, July 20

Chairman M. Malkin (NLB, Conference Hall)

10-00 - 10-45 **S. Zelik** "Determining functionals and finite-dimensional reduction revisited"

10-45 – 11-15 Coffee-break

11-15 - 11-45 **I. Remizov** "Formula for solution of multidimensional diffusion-type equation"

11-45 - 12-15 **A. Kostyanko** "Inertial manifolds for hyperbolic relaxations of parabolic equations"

12-15 – 12-40 **J. Yang**, J. Rademacher "Spectra, stability and energy estimates for reaction subdiffusion equations"

12-40 – 13-00 **A. Kolinichenko** "Spatiotemporal self-organization in stochastic Brusselator"

13-00 – 14-30 Lunch

Chairman S. Gonchenko (NLB, Conference Hall)

14.30-15-00 **G.Astrakharchik** "Two-ball billiard predicts digits of the number PI in non-integer numerical bases"

15-00-15-30 **A. Clarke**, D. Turaev "Arnold diffusion in multidimensional convex billiards"

15-30-16-00 **C. Bick** "Oscillator Networks: Collective Dynamics through Generalized Interactions"

16-00 – 16-30 Coffee-break and closing