

Program
of the International Conference

«Nonlinear Dynamics of Deterministic and Stochastic Systems: Unraveling Complexity»

dedicated to 70th birthday of Prof. Dr. Vadim S. Anishchenko

19-23 May 2014, Saratov, «Volzhsky Dali»

<http://chaos.sgu.ru/nddss2014>

Monday, May 19

8³⁰-9³⁰ – *Breakfast*

9⁴⁵-10⁰⁰ – Conference opening (A. Neiman)

Chair: L. Schimansky-Geier

10⁰⁰-10³⁰ – W. Ebeling, *Stochastic effects in nonlinear lattices*

10³⁰-11⁰⁰ – V. Belykh, *Rigorous analysis of concrete systems having chaotic attractors*

11⁰⁰- 11³⁰ – *Coffee-break*

11³⁰-12⁰⁰ – U. Feudel, *Harmful algal blooms: combining excitability, competition and hydrodynamic flows*

12⁰⁰-12³⁰ – S. Kuznetsov, *Hyperbolic chaos in physical systems*

12³⁰-13⁰⁰ – A. Gonchenko, *Lorenz-like attractors in a nonholonomic model of a Celtic stone*

13⁰⁰-14⁰⁰ – *Lunch*

Chair: H. Braun

14³⁰-15⁰⁰ – S. Gonchenko, *The simplest scenarios of onset of chaos in three-dimensional maps*

15⁰⁰-15³⁰ – V. Anikin, *General explicit solution of spectral problem for Frobenius-Perron operator of piece-wise 1D maps with full branches*

15³⁰-16⁰⁰ – T. Vadivasova, *Experimental studies of stochastic Andronov-Hopf bifurcation*

16⁰⁰-16³⁰ – J. Löber, *Controlling the position of traveling waves in reaction-diffusion systems*

18⁰⁰ – *Welcome party and barbeque*

Tuesday, May 20

8³⁰-9³⁰ – *Breakfast*

Chair: S. Kuznetsov

9³⁰-10⁰⁰ – H. Braun, *Determinism and randomness in neural information processing and the question of the “free will”*

10⁰⁰-10³⁰ – I. Sokolov, *Accessibility and spread in temporal networks*

10³⁰-11⁰⁰ – A. Pankratov, *Minimizing noise-induced errors during high-speed switching of nonlinear systems*

11⁰⁰ - 11³⁰ – *Coffee-break*

11³⁰-12⁰⁰ – D. Goldobin, *On one of the mechanisms of weak-noise-induced reduction of disorder in chaotic dynamics*

12⁰⁰-12³⁰ – L. Ryashko, *Stochastic sensitivity analysis of noise-induced transitions*

12³⁰-13⁰⁰ – I. Bashkirtseva, *Stabilization of stochastic attractors and control of noise-induced chaos*

13⁰⁰-14⁰⁰ – *Lunch*

Chair: W. Ebeling

14³⁰-15⁰⁰ – L. Lerman, *Slow-fast dynamics for a slow varying Duffing type equation*

15⁰⁰-15³⁰ – E. Pankratova, *Emergence of wild attractors in a system of Van der Pol-Duffing oscillators coupled via linear common base*

15³⁰-16⁰⁰ – T. Gurina, *Investigation of conservative chaotic oscillatory systems by using the extended dissipative systems*

16⁰⁰-16³⁰ – L. Turukina, *Quasiperiodic dynamics in ensembles of chaotic oscillators*

16³⁰-18⁰⁰ – *Poster section*

18⁰⁰-19⁰⁰ – *Dinner*

Wednesday, May 21

8³⁰-9³⁰ – *Breakfast*

Chair: V. Belykh

9³⁰-10⁰⁰ – E. Schöll, *Spontaneous symmetry-breaking and partial synchronization in dynamical networks*

10⁰⁰-10³⁰ – G. Osipov, *Phase dynamics of neuron-like oscillators*

10³⁰-11⁰⁰ – V. Nekorkin, *Modeling transient metastable dynamics in neural networks*

11⁰⁰ - 11³⁰ – *Coffee-break*

11³⁰-12⁰⁰ – L. Schimansky-Geier, *Synchronization of stochastic complex networks*

12⁰⁰-12³⁰ – V. Anishchenko, *Poincare recurrences in systems with positive and zero topological entropy*

12³⁰-13⁰⁰ – A. Zakharova, *Chimera states in networks with symmetry-breaking coupling*

13⁰⁰-14⁰⁰ – *Lunch*

Chair: E. Schöll

14³⁰-15⁰⁰ – T. Kapitaniak, *Synchronization extends the life time of the desired behavior of globally coupled systems*

15⁰⁰-15³⁰ – D. Postnov, *Vasoreactivity patterns: the dynamical point of view*

15³⁰-16⁰⁰ – A. Shabunin, *Phase multistability in a small world network with dynamical structure of couplings*

16⁰⁰-16³⁰ – A. Kazakov, *“Figure-eight attractor” in the problem of the unbalanced ball moving on a rough plane*

18⁰⁰-19⁰⁰ – *Dinner*

Thursday, May 22

8³⁰-9³⁰ – *Breakfast*

10⁰⁰-13⁰⁰ – *Boat tour*

13⁰⁰-14⁰⁰ – *Lunch*

14³⁰-16⁰⁰ – *Poster section*

16⁰⁰-18⁰⁰ – *Visiting Aquapark*

19⁰⁰ – *Conference Banquet*

Friday, May 23

8³⁰-9³⁰ – *Breakfast*

Chair: D. Postnov

9³⁰-10⁰⁰ – J. Kurths, *How basin stability complements the linear-stability paradigm*

10⁰⁰-10³⁰ – A. Neiman, *Emergence of spontaneous oscillations and sensory coding in peripheral receptors*

10³⁰-11⁰⁰ – A. Chetverikov, *Dynamics of electrons distributions and percolation effects in nonlinear 2D lattices*

11⁰⁰ - 11³⁰ – *Coffee-break*

11³⁰-12⁰⁰ – J. Freund, *Phase description of the Huber-Braun neuron model for mammalian cold receptors*

12⁰⁰-12³⁰ – E. Sidak, *Detection of coupling between oscillators from time series based on phase increment correlation*

12³⁰-13⁰⁰ – I. Sysoev, *Detecting coupling using time varying Granger causality approach from time series with fast transient processes*

13⁰⁰-14⁰⁰ – *Lunch*

Chair: A. Neiman

14³⁰-15⁰⁰ – V. Semenov, *Control of noise-induced oscillations in a generalized van der Pol oscillator*

15⁰⁰-15³⁰ – A. Pavlov, *Intracranial hemorrhages in newborns: Diagnostics and analysis with optical imaging and wavelets*

15³⁰-16⁰⁰ – O. Semyachkina-Glushkovskaya, *Why we need male sexual hormones: role of testosterone in cardiovascular physics and diseases*

16⁰⁰-16¹⁵ – *Closing ceremony*

18⁰⁰-19⁰⁰ – *Dinner*

Poster Section I (May 20)

- 1) A. Kuznetsov, I. Sataev, L. Turukina, *Landau-Hopf scenario in low-dimensional network of Van der Pol oscillators*
- 2) V. Anikin, S. Arkadaksky, A. Remizov, *Generating functions for eigenfunctions of Perron-Frobenius operator and Goloubentsev's polynomials*
- 3) S. Astakhov, A. Gulay, N. Fujiwara, J. Kurths, *External synchronization in a system of two coupled van der Pol oscillators with asymmetrical repulsive coupling*
- 4) S. Astakhov, M. Balakin, V. Astakhov, J. Kurths, *The effect of time delay in a coupling channel on synchronization and amplitude death in interacting oscillators with inertial nonlinearity*
- 5) S. Astakhov, O. Astakhov, V. Astakhov, J. Kurths, *Bifurcation mechanism of frequency pulling in a classical two-mode oscillator*
- 6) V. Khorev, M. Prokhorov, V. Ponomarenko, *Recovery of delay information from time series based on the nearest neighbor analysis*
- 7) E. Sidak, D. Smirnov, B. Bezruchko, *Interval estimation of coupling delay for oscillators with various nonlinear and statistical properties of phase dynamics*
- 8) O. Maslennikov, *Dual role of delayed coupling in complex neuronal networks*
- 9) A. Kuznetsov, S. Kuznetsov, N. Stankevich, *Example of a system with two-dimensional torus occurring as a result of blue sky catastrophe*
- 10) A. Kuznetsov, S. Kuznetsov, E. Mosekilde, N. Stankevich, *Coexistence of hidden attractors in a radio-physical oscillator system*
- 11) V. Anishchenko, N. Biryukova, *Peculiarities of Poincaré recurrences in logistic and cubic maps*
- 12) Y. Boev, V. Anischenko, *Afraimovich-Pesin dimension for the transition to chaos in one-dimensional maps*
- 13) A. Slepnev, T. Vadivasova, *Two types of oscillatory regimes in an active medium with periodic boundary conditions*
- 14) O. Isaeva, D. Savin, E. Seleznev, *On synchronization of robust chaos generators*
- 15) O. Isaeva, *Secure and wide-band communication, implemented by pair of synchronized robust generators, associated with hyperbolic (hyper)chaotic maps of the circle and torus*
- 16) I. Dementyeva, A. Kuznetsov, A. Savin, Yu. Sedova, *Dynamics of three coupled logistic maps*
- 17) D. Arzhanukhina, S. Kuznetsov, *Dynamics associated with Arnold cat map and Smale-Williams attractor in autonomous delay system with two feedback loops*

Poster Section II (May 22)

- 1) A. Adilova, A. Kuznetsov, A. Savin, *Dynamics of three coupled discrete Rössler oscillators*
- 2) N. Biryukova, T. Abrosimova, V. Anishchenko, *Poincaré recurrences in a stroboscopic section of a nonautonomous van der Pol oscillator*
- 3) E. Borovkova, A. Karavaev, D. Kulminsky, *Device for monitoring the state of cardiovascular system in real-time*
- 4) A. Chekmareva, A. Kuznetsov, A. Savin, *The destruction of conservative dynamics in the phase equations for the system of coupled oscillators by violations the symmetry*
- 5) A. Kuznetsov, L. Turukina, N. Chernyschov, *Features of the dynamics of oscillators with reactive coupling*
- 6) Yu. Emelianova, A. Kuznetsov, J. Sedova, *The quasi-periodic Hopf bifurcation: properties and examples*
- 7) E. Felk, A. Savin, *Transition to chaos in the degenerate Hamiltonian system with weak nonlinear dissipative perturbation*
- 8) E. Felk, A. Kuznetsov, A. Savin, *The effect of weak dissipation on the system with Arnold's diffusion*
- 9) M. Kornilov, I. Sysoev, *Choosing empirical model parameters for detecting connectivity with nonlinear Granger causality approach from time series with a main time scale*
- 10) V. Kruglov, *Attractor of Smale-Williams type in modified Brusselator model*
- 11) S. Krylov, D. Smirnov, B. Bezruchko, *Conditions for strong effect of sparse sampling in estimation of directional couplings from time series*
- 12) M. Obychev, O. Isaeva, *An example of stage ring system with wave nonlinear elements, manifesting the special phenomena of the theory of chaos: complex analytical dynamics, hyperbolic chaos*
- 13) T. Vadivasova, K. Sergeev, *Noise induced transitions in a small ensemble of active Brownian particles*
- 14) I. Shepelev, T. Vadivasova, *Traveling waves, bifurcations and multistability in bistable active medium with periodic boundary conditions*
- 15) M. Sysoeva, E. Sitnikova, I. Sysoev, *Application of adaptive nonlinear Granger causality: disclosing network changes before and after absence seizure onset in a genetic rat model*
- 16) O. Bibikova, S. Sindeev, E. Zinchenko, M. Kassim, M. Ulanova, A. Gekaluyk, F.A. Al-Fatle, L. Al Hassani, *Wavelet analysis of blood pressure signals and cardiovascular catastrophes*
- 17) A. Pavlov, O. Pavlova, A. Yaseen, M. Mohammad, *Wavelets and their applications to images denoising*