

## Scientific program of *Shilnikov WorkShop 2021*

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| Date:   | <b>16.12.2021</b>   |   |
| 9-45 - 10-00  | <b>Opening Conference</b>   |   |
| <i>Morning session: chairnam</i> <b>Gonchenko S.</b>            |   |   |
| <b>Time</b>   | <b>Speaker</b>  | <b>Title of the talk</b>  |
| 10-00–10-45   | <b>Belykh V.N.</b>  | Two-dimensional auxiliary systems method  |
| 10-45–11-30   | <b>Treshchev D.V.</b>   | On isochronous systems  |
| 11-30 – 12-15   | <b>Ilyashenko Yu.S.</b>   | Global bifurcations in generic two-parameter families of vector fields on a sphere: a review of problems                              |
| 12-15 – 12-45   | <b>Morozov A.D., Morozov K.E.</b>   | On degenerate resonances and synchronization of quasiperiodic oscillations  |
| <b>Session dedicated to the 75th anniversary of V.Z. Grines</b> |   |   |
| 13-00 – 13-30   | <b>Zhuzhoma E.V.</b>  | On codimension one basic sets of A-flows  |
| 13-30 – 14-00   | <b>Pochinka O.V.</b>  | On the scientific achievements of the Nizhny Novgorod school of topological methods of dynamics                                       |
| <b>Break</b>  |   |   |
| <i>Evening session: chairman</i> <b>Lerman L.</b>               |   |   |
| 14-30 – 15-00   | <b>Kasatkin D.V., Nekorkin V.I.</b>   | Synchronous patterns in Kuramoto networks with adaptive couplings   |
| 15-00 - 15-30   | <b>M.A.Garasev, A.A.Nechaev, A.N.Stepanov, V.V.Kocharovskiy, V.I.V.Kocharovskiy</b> | Multi-scale magnetic field structures in an expanding elongated plasma cloud with hot electrons subject to an external magnetic field |

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| 15-30 - 16-00          | <b>Kashchenko S.A.</b>  | Infinite Turing Bifurcations in Chains of Van der Pol Systems   |   |
| 16-00- 16-30           | <b>А.С. Дмитриев, В.В. Ицков, М. М. Петросян, А.И. Рыжов</b>  | Радиосвязь на хаотических сигналах в дециметровом диапазоне частот  |   |
| <b>Sectional talks</b> |   |   |   |
|                        | <b>Bifurcations and strange attractors</b> <i>chairman</i> Gonchenko A.S.   | <b>Theory of dynamical systems</b> <i>chairman</i> Morozov K.E.   | <b>Applications of dynamical systems</b> <i>chairman</i> Rassadin A.E.  |
| 16-40- 17-10           | Stankevich N.V., Kuznetsov A.P. "Quasi-periodic bifurcations and complex dynamics in two coupled modified Anishchenko-Astakhov generators"              | Efremova L.S. "Periodic trajectories of geometrically integrable maps in the plane"   | Kulikov A. N., Kulikov D. A. "Invariant manifolds of two versions of the weakly dissipative complex Ginzburg-Landau equation"   |
| 17-10 - 17-30          | A.M. Arefev, E.A. Grines, G.V.Osipov "Heteroclinic cycles and chaos in system of four identical phase oscillators with biharmonic coupling"             | Trifonov K.N. "Partially Hyperbolic Symplectic Automorphisms of 4-Torus"  | Rassadin A.E."Remark on the dynamical system in the space of double-sided sequences"  |
| 17-30 - 17-50          | Emelin A.E, Levanova T.A., Osipov G.V. "Dynamics in a phase model of half-center oscillator with inhibitory couplings"                                  | Baldoma I., Giralt M., Guardia,M. "Beyond all orders breakdown of the homoclinic connection to L3"  | Shamanaev P.A. "Periodic solutions of linear inhomogeneous differential equations with two small parameters"                    |
| 17-50 - 18-10          | Slepukhina E. S. "Transitions between tonic spiking and bursting in the stochastic Hindmarsh-Rose neuron model with the Lukyanov-Shilnikov bifurcation" | Lubchenko D.O., Savin A.V. "The Maxwell's billiard demon effect in simplified Tennison-Lichtenberg-Lieberman system with oscillating boundaries"  | Loginov D.O."On the influence of boundary conditions on the dynamic properties of a logistic equation with delay and diffusion" |
| 18-10 - 18-30          | Garashchuk I.R. "Asynchronous chaos and bifurcations in a model of two coupled Hindmarsh-Rose neurons"  | Golokolenov A. V., Savin D. V. "Self-oscillating system with weak dissipation demonstrating the <<stochastic web>> in the conservative limit: approximations, evolution of attractors and chaos in the phase space" | Golubenets V.O. "Relaxation solutions in a logistic equation with state-in-the-past-dependent delay"                            |

Date:  
**17.12.2021**

*Morning session: chairnam Malkin M.I.*

| Time          | Speaker   | Title of the talk  |
|---------------|---|--|
| 10-00–10-40   | <b>Grines V.Z.</b>                                    | Topology of ambient manifolds and chaotic hyperbolic dynamics  |
| 10-40–11-20   | <b>Lerman L.M.</b>                                    | Nonautonomous Dynamics: the Uniform Approach   |
| 11-20 – 11-50 | <b>Alfimov G.L., Zezyulin D.A., Slobodyanyuk A.O.</b> | Nonlinear modes and pseudo-modes for NLS equation with complex potential                                   |
| 11-50 – 12-30 | <b>Fiedler B.</b>                                     | Real chaos, and complex time   |
| 12-30 – 13-00 | <b>Vieiro A.</b>                                      | Escape times across a golden Cantorus and the evolution of approximant islands                             |
| 13-00 – 13-40 | <b>Gelfreich V.</b>                                   | Singularly embedded solitons in the fifth order KdV model  |
| 13-40 – 14-20 | <b>Kuptsov P.</b>                                     | Concept of instant Lyapunov exponents and their application for numerical analysis of attractors structure |

**Small break**

*Evening session: chairman Kazakov A.O.*

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| 14-30 – 15-00 | <b>Malkin M., Safonov K.</b>         | One-dimensional factor maps of stable foliations for Lorenz and Rovella attractors |
| 15-00- 15-30  | <b>Ovsyannikov I.I.</b>              | Universal bounds in Lorenz-like systems  |
| 15-30 - 16-00 | <b>Turaev D.</b>                     | A model of a pseudohyperbolic Shilnikov attractor                                  |
| 16-00 - 16-30 | <b>Pikovsky A., Nepomnyashchy A.</b> | Chaos in coupled heteroclinic cycles and its piecewise-linear description          |

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| 16-30 – 17.00 | <b>Kruglov V.P., Kazakov A.O., Karatetskaya E.Yu., Gonchenko S.V.</b> | On new pseudohyperbolic attractor of Lorenz type            |
| 17-00 – 17.30 | <b>Tali Pinsky</b>  | A heteroclinic trefoil for the Lorenz equations.            |
| 17-30 – 18.30 | <b>Shilnikov A.L.</b>   | Leonid Shilnikov and mathematical theory of dynamical chaos |

**Closing  
Posters**

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| 1  | <b>Astrakharchik G.E.</b>                          | Making stable the shear modulus instability   |
| 2  | <b>Barabash N.V., Stasenko S.V., Levanova T.A.</b> | Stable burstings in a STSP model with glia's impact   |
| 3  | <b>Belykh V.N., Barabash N.V., Belykh I.V.</b>     | Non-classical homoclinic bifurcation in a piecewise-smooth Lorenz-type system                                   |
| 4  | <b>Chigarev V., Kazakov A., Pikovsky A.</b>        | On the collision of a chaotic attractor with a chaotic repeller leading to the emergency of hyperchaotic orbits |
| 5  | <b>Grechko D.A., Belykh V.N.</b>                   | Localization of attractors of maps using auxiliary one-dimensional maps   |
| 6  | <b>Gonchenko A.S., Samylina E.A.</b>               | On discrete homoclinic attractors of three-dimensional maps   |
| 7  | <b>Gonchenko M.S.</b>                              | Reversible perturbations of Henon-like maps.  |
| 8  | <b>Gordeeva O.V.</b>                               | On local maps near nonhyperbolic periodic orbits  |
| 9  | <b>Karatetskaya E.Yu.</b>                          | Multistability and hyperchaos in models of coupled repressilators   |
| 10 | <b>Sinelshchikov D.I.</b>                          | Integrability criteria for a family of cubic oscillators  |