4th International Conference on Integrable Systems and Nonlinear Dynamics
25.09.2023 – 29.09.2023

Conference Programme
All conference talks are scheduled in Moscow Time (GMT+3).

Monday, 25.09.2023

	Morning session
09:00–09:45	Conference Registration
09:45–10:00	IT company "Tensor", Rector of the YarSU, representatives of the Russian Academy of Sciences
10:00–10:30	Albert Shiryaev "Kolmogorov's memoirs"
10:30–11:00	Gregory Kabatianskii "TBA"
11:00–11:30	**Coffee break**
11:30–12:00	Valery Kozlov, "Formal stability, stability with respect to most of the initial data, and diffusion in analytical systems of differential equations" **(in Russian)**
12:00–12:30	Dmitry Treschev, "Normalisation flow"
12:30–13:00	Vladimir Sokolov "Integrable systems of the Boussinesq type and their formal diagonalisation"
13:00–14:00	**Lunch break**

	Afternoon session
14:00–14:30	Victor Buchstaber "Differential-geometric theory of Mumford's dynamical system and applications"
14:30–15:00	Sergey Dobrokhotov "Billiards with semi-rigid walls and nonlinear coastal waves"
15:00–15:30	Maxim Pavlov "Elliptic Orthogonal Curvilinear Coordinate Nets and Separation of Variables in the Laplace Operator"
15:30–16:00	Dmitry Gurevich "Reflection Equation Algebra and related combinatorics"
16:00–16:30	**Coffee break**
16:30–17:00	Alexander Mikhailov "A novel approach to quantisation of dynamical systems"
17:00–17:30	Ilya Kashchenko "Parabolic PDE on two-dimensional domain as a normal form of singularly perturbed DDE"
17:45–18:15	Dmitry Millionshchikov "Applied combinatorics of universal enveloping Lie algebras"

Tuesday, 26.09.2023

	Morning session
10:00–10:20	Alexander Dmitriev "Direct chaotic wireless communications"
10:20–10:40	Vladimir Nekorkin "On some problems of dynamical networks"
10:40–11:00	Sergey Kashchenko "Asymptotics of self-oscillations in chains of systems of nonlinear equations"
11:00–11:30	**Coffee break**
11:30–11:50	Sergey Gonchenko "On discrete Lorenz-like attractors in three-dimensional maps with the axial symmetry"
11:50–12:10	Vladimir Belykh "On attractors of certain dynamical systems"
12:10–12:30	Boris Bezruchko "Phase dynamic analysis of EEG and cardiac signals in comatose patients"
12:30–12:50	Grigory Osipov "Phase Model of Spike and Birst Activity of a Neuron"
13:00–14:00	**Lunch break**
14:00–15:00	**Excursion**

	Afternoon session
15:00–15:15	Valery Matrosov "Simulation of business and financial cycles"
15:15–15:30	Victor Kazantsev "Structured spiking neuron networks: implementing functions"
15:30–15:45	Vladimir Klinshov "Dynamics of oscillators with pulse delayed coupling"
15:45–16:00	Andrey Polezhaev "Modelling of spatio-temporal structures at the flame front in the reduced model of hydrogen combustion"
16:00–16:15	Semyon Kurkin "The topology of higher-order complexes in functional brain networks associated with major depressive disorder"
16:15–16:30	Dmitry Kasatkin "Complex synchronous behavior in a network of Kuramoto oscillators with heterogeneous adaptive interaction"
16:30–17:00	**Coffee break**
17:00–17:10	Anastasiia Emelianova "The third type of chaos in a system of two adaptively coupled Kuramoto oscillators"
17:10–17:20	Dmitry Shchapin "Implementation of a chaotic oscillation generator based on the concept of mixed dynamics"
17:20–17:30	Aleksei Dmitricev "Novel scenario for Braess's paradox in power grids"
17:30–17:40	Vladislav Khramenkov "Partial stability criterion for power grids"
17:40–17:50	Oleg Maslennikov "Population dynamics of recurrent spiking neural networks: machine learning and computational neuroscience"
17:50–18:00	Sergei Kirillov "Mean-field dynamics of neural network with Gaussian parameter distribution"
18:00–21:00	**Conference Dinner**

Wednesday, 27.09.2023

	Morning session
10:00–10:20	Tassos Bountis "Dissipative Dynamics of the LLG Equation" **(online)**
10:20–10:40	Haris Skokos "Quantifying chaos using Lagrangian descriptors" **(online)**
10:40–11:00	Sergey Bolotin "Dynamics in the neighborhood of the homoclinic set of a fast-slow Hamiltonian system."
11:00–11:30	**Coffee break**
11:30–11:50	Nikolai Nefedov "Existence and stability of periodic contrast structures in Tikhonov-type system"
11:50–12:10	Vladimir Volkov "The structure of the internal transition layer in the reaction-diffusion problem in the case of a balanced reaction with a weak discontinuity"
12:10–12:30	Andrey Nesterov "Asymptotics of the solution to the cauchy problem for a singularly perturbed differential operator transfer equation with low diffusion and many spatial variables"
12:30–12:50	Ivan Polekhin "On the dynamics and integrability of the Ziegler pendulum"
13:00–14:00	**Lunch break**

	Afternoon session
14:00–14:20	Aleksandr Panin "On blow-up and global existence of the weak solutions to Cauchy problem for a certain nonlinear equation"
14:20–14:40	Nikita Barabash "Periodic Smale horseshoes uncover true complexity of double scroll attractor"
14:40–15:00	Anatoly Markeev "Evolution of Motion of a Solid Suspended on a Thread in a Homogeneous Gravity Field"
15:00–15:20	Marina Davydova "Asymptotically stable solutions with boundary and internal layers in direct and inverse problems for a singularly perturbed heat equation with a nonlinear thermal diffusion coefficient"
15:20–15:40	Sergey Glyzin "Traveling wave solutions in a ring neural networks with a new mathematical model of chemical connections"
15:40–16:00	Evgeny Kubyshkin "Nonlinear oscillations of a vertical flexible shaft with a solid disk"
16:00–16:30	**Coffee Break**
16:30–16:50	Ioannis Stavroulakis "On the critical state for oscillation of first-order delay differential equations" **(online)**
16:50–17:10	Dmitry Serow "On the Problem 1100 as a Whole"
17:10–17:25	Danila Bain "The method of computing Lyapunov exponents for relay differential equations with delay"
17:25–17:40	Vladimir Goryunov "Multimode diffusion chaos in logistic equation with delay and diffusion on a segment"
17:40–17:55	Mikhail Chirkov "Classification of solutions to the local tetrahedron equation"

Thursday, 28.09.2023

	Morning session
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10:00–10:20	Oleg Sheinman "Obstructions for inverse spectral method for Hitchin systems"
10:20–10:40	Sergei Sokolov "TBA"
10:40–11:00	Alexandra Kashchenko "Dependence of the nonlocal dynamics of the coupled oscillators model on the coupling type"
11:00–11:30	**Coffee break**
11:30–11:50	Vladimir Nazaikinskii "Lattice equations and semiclassical asymptotics" **(online)**
11:50–12:10	Anatoly Kulikov "On the question of the uniqueness of the center manifold" **(in Russian)**
12:10–12:30	Liudmila Romakina "The Chaos game with arbitrary jump in an extended hyperbolic plane"
12:30–12:50	Vakha Gishlarkaev "The Fourier transform method for PDEs with power-law nonlinearities and constant coefficients"
13:00–14:00	**Lunch break**

	Afternoon session
	Afternoon session
14:00–14:20	Vladislav Kibkalo "Multi-dimensional billiard books and classification problem"
14:20–14:40	Fedor Lobzin "About generalization of Sadetov method to the problem of biinvolutive polynomial sets constructing"
14:40–15:00	Yasusi Ikeda "Quasiderivations and Quantum Mishchenko-Fomenko Construction" **(online)**
15:00–15:20	Boris Bardin "On orbital stability of pendulum-like periodic motions of a heavy rigid body in a transcendental case"
15:20–15:40	Denis Zakharov "Adaptive measure of coherence as a universal robust criterion for identifying dynamic states of spiking neuronal networks"
15:40–16:00	Nataliya Levashova "Propagation of an autowave front in a discontinuous medium"
16:00–16:30	**Coffee Break**
16:30–16:50	Olga Shchegortsova, "Semiclassical asymptotic solutions of the Schrodinger Equation with a delta-potential and rapidly oscillating initial conditions" **(online)**
16:50–17:10	Eduard Kuznetsov "The investigation of dynamic evolution of the compact planetary system K2-72"
17:10–17:30	Dmitry Kulikov, "Nonlocal Erosion Equation and Nanorelief Formation" **(in Russian)**
17:30–17:50	Maria Banshchikova "Nonlinearity in inverse problems of orbital dynamics on the example of potentially hazardous asteroids and Jupiter's outer satellites"
18:00–19:00	**Poster Session**
19:00	**Buffet**

Posters / E-posters
Dinmukhammed Akpan "Nijenhuis operators and projectively equivalent metrics in small dimensional cases"
Vladislav Alexeev and Margarita Preobrazhenskaia, "Construction of the asymptotics of a periodic solution of the Mackey–Glass equation"
Gleb Belozerov, "An analogue of the generalized Jacobi and Chasles theorem for spaces of constant Gaussian curvature"
Pavel Bulatov "Numerical integration of one-dimensioned reaction-diffusion- advection problem using adaptive mesh"
Daniil Fomin, "On Polar Flows on Four-dimensional Manifolds With Two Saddle Equilibria"
Elena Gurevich, "New obstruction for Morse-Smale cascades to embed in topological flows"
Leonid Ivanovsky, "Stability loss of the zero solution in one system of diffusionally connected differential equations with the additional internal connection"
Aigul Khakimova, "On a method for classifying integrable chains with three independent variables"
Ivan Kobtsev, "Bifurcations of Liouville tori in a special case of rigid body problem"
Dmitry Kosterin, "Stable solutions of quasi-normal forms of a spatially distributed boundary value problem"
Vladislav Litvinov, "Exact solution of the problem on forced vibrations of a string of variable length"
Denis Maksimov, "Embedding of Invariant Manifolds of Polar Flows with Two Saddles"
Elena Marushkina, "Oscillatory modes in the simplest ring of autogenerators with asymmetric nonlinearity"
Igor Maslenikov "Investigation of local dynamics in the vicinity of the equilibrium state of a logistic equation with a diffusion additive"
Dmitrii Minenkov, "On the heating crisis of the flow in a pipe"
Evgenia Morozova "Dynamics of delay differential equation with simple behavior at infinity"
Igor Nosikov "Identification of two-point ray paths reflected on a coastline by the direct variational approach"
Andrei Orlov, "Existence and stability of solutions with an internal transition layer of the reaction-diffusion-advection equation with KPZ - nonlinearity"
Maksim Pogrebnyak "Parameters estimation in the traffic flow model"
Vyacheslav Romanov, "Construction of periodic solutions of a mathematical model of a rotating disk"
Alexei Rosaev "Application minimal orbit intersection distance to studying young asteroid pairs"
Ilya Saraev, "Kirby Diagram as a Complete Invariant of Polar Flows on 4-dimensional Manifolds"
Roman Simakov "Asymptotics of the Solution of a Singularly Perturbed System of Equations with a Single-Scale Internal Layer"
Lev Smirnov, "Dynamics of oscillator populations globally coupled with distributed phase shifts"
Julia Yakubiv, "Differential equation of the neutral delay type with a discontinuous nonlinearity"
Vera Zelenova, "Relay model of a fading neuron"

Friday, 29.09.2023

	Morning session
10:00–10:20	Jingsong He "Resonant collisions of high-order localized waves in the Maccari system" **(online)**
10:20–10:40	Dmitry Talalaev "Multivalued quandles and associated bialgebras"
10:40–11:00	Sergei Agapov "New examples of integrable magnetic geodesic flows on 2-surfaces" **(online)**
11:00–11:30	**Coffee break**
11:30–11:50	Norbert Hounkonnou "Geometry and probability on the noncommutative 2-torus in a magnetic field" **(online)**
11:50–12:10	Georgy Sharygin "Quasiderivations on universal enveloping algebra and the quantum argument shift method" **(online)**
12:10–12:30	Aleksandr Smirnov "Dubrovin's method for mKdV hierarchy" **(online)**
12:30–12:50	Anton Kazakov "The solution of the black box problem for electrical networks via cluster algebras"
13:00–14:00	**Lunch break**

	Afternoon session
14:00–14:20	Pavlos Kassotakis "Matrix factorisations and pentagon maps"
14:20–14:40	Sergei Igonin "Algebraic constructions of Miura-type transformations for differential-difference equations and associated new integrable equations"
14:40–15:00	Maria Onufrienko "Structurally stable degenerate singularities of integrable systems"
15:00–15:20	Alexander Orlov "Instanton sum of Schwartz-Fateev-Frolov and the function regularized in this way"