Sirius Mathematics Center

International Conference

Regular and Chaotic Dynamics

On the 30th Anniversary of the Journal "Regular and Chaotic Dynamics"

27–31 October 2025

Program

Sirius Federal Territory, 2025

Organizing Committee

Sergey Bolotin	Steklov Mathematical Institute
Alexander Kilin	Udmurt State University
Valery Kozlov	Steklov Mathematical Institute
Ivan Mamaev	Kalashnikov Izhevsk State Technical University
Andrey Mironov	Sobolev Institute of Mathematics SB RAS
Dmitry Treschev	Steklov Mathematical Institute

The conference is dedicated to the 30th anniversary of the international scientific journal Regular and Chaotic Dynamics. Its purpose is to share scientific knowledge and experience among researchers in the fields of dynamical systems theory, theoretical mechanics, topology, control theory, and to discuss and search for innovative approaches to solving applied problems in the field of robotics and unmanned systems.

The conference is supported by the Ministry of Science and Higher Education of the Russian Federation (the grant to the Steklov International Mathematical Center, agreement no. 075-15-2025-303, and the grant to Ural Mathematical Center, agreement no. 075-02-2025-1609).

Sirius Mathematics Center, Sirius Federal Territory
Steklov International Mathematical Center
Steklov Mathematical Institute of Russian Academy of Sciences
Ural Mathematical Center

Program

27 October, Monday

$09^{30} - 09^{50}$	REGISTRATION OF PARTICIPANTS
$09^{50} - 10^{00}$	OPENING OF THE CONFERENCE
$10^{00} - 10^{35}$	Valery Kozlov (ONLINE) *The Lagrange identity and dynamics in a potential Jacobi field*
$10^{35} - 11^{10}$	Andrey Mironov, Siyao Yin *First integrals of geodesic flows on cones*
$11^{10} - 11^{45}$	Sergey Kuksin *Two approaches to average stochastic perturbations of integrable systems*
$11^{45} - 12^{10}$	COFFEE-BREAK
$12^{10} - 12^{45}$	Alexey Glutsyuk *On geometry and dynamics of exotic rationally integrable planar dual billiards*
$12^{45} - 13^{20}$	Vladislav Kibkalo, Andrey Konyaev *Billiards and families of quadrics associated with integrable geodesic flows for geodesically equivalent metrics*
$13^{20} - 13^{55}$	Andrey Dymov, Lev Lokutsievskiy, and Andrey Sarychev *Energy dissipation in weakly damped Hamiltonian chains*
$13^{55} - 15^{20}$	LUNCH
$15^{20} - 15^{55}$	Olga Pochinka, Vlad Galkin *Topology of 4-manifolds that admit non-singular flows with saddle orbits of the same index*
$15^{55} - 16^{30}$	Andrey Il'ichev *Solutions describing particle trajectories in the field of soliton-like wave structures in a fluid beneath an ice cover*
$16^{30} - 17^{05}$	Vladimir Dragović (ONLINE) *Isoperiodic deformations of meromorphic differentials on Riemann surfaces, soliton equations, and SU(N) Seiberg–Witten theory*

28 October, Tuesday

$10^{00} - 10^{35}$ Božidar Jovanović
Integrable cases of a heavy rigid body with a gyrostat and contact magnetic geodesic and sub-Riemannian flows on $V_{n,2}$

$10^{35} - 11^{10}$ Sergei Tabachnikov (ONLINE)
Cusps of caustics by reflection, results and conjectures

$11^{10} - 11^{45}$ Sergey Bolotin
Chaotic dynamics in the two body problem on a sphere

$11^{45} - 12^{10}$ COFFEE-BREAK

$12^{10} - 12^{45}$ Vladislav Sidorenko
Secular evolution of motions in the planetary version of the non-restricted three-body problem

$12^{45} - 13^{20}$ Alain Albouy (ONLINE)
Central configurations by computer algebra

$13^{20} - 13^{55}$ Boris Bardin, Badma Maksimov
On orbital stability of periodic solutions of Hamiltonian system with two degrees of freedom in resonant cases of degeneration

$13^{55} - 15^{20}$ LUNCH

$15^{20} - 15^{55}$ Alexey Kazakov
On robustly chaotic attractors in the generalized Kuramoto model

$15^{55} - 16^{30}$ Jair Koiller (ONLINE)
Rubber rolling of solids of revolution over the plane: the surprising miracle of the "Nose" function

$16^{30} - 17^{05}$ Alexander Kilin
On the isomorphism of the problems of the rubber rolling of bodies of revolution and on the dynamics of a rubber torus

$17^{05} - 17^{25}$ Evgenia Mikishanina
Problems and prospects in research on the dynamics of mechanical systems with servo-constraints

17^{30} GROUP PHOTO SESSION

18^{00} FELLOWSHIP BANQUET

29 October, Wednesday

EXCURSION TO KRASNAYA POLYANA

30 October, Thursday

$10^{00} - 10^{35}$ Vladimir Dragović, Borislav Gajić, and Božidar Jovanović
Integrable magnetic flows on n-dimensional spheres and nonholonomic mechanics

$10^{35} - 11^{10}$ Sergei Agapov
On integrability of magnetic geodesic flows on 2-surfaces at different energy levels

$11^{10} - 11^{45}$ Sergey Gonchenko
On global resonances in area-preserving maps leading to infinitely many elliptic periodic points and Poincaré problems in celestial mechanics

$11^{45} - 12^{10}$ COFFEE-BREAK

$12^{10} - 12^{45}$ Alexander Bufetov
Convergence of Random Measures

$12^{45} - 13^{20}$ Luis García-Naranjo (ONLINE)
Affine nonholonomic rolling on the plane

$13^{20} - 13^{40}$ Ivan Bizyaev
Dynamics of a rotating test body in the Schwarzschild metric

$13^{40} - 15^{00}$ LUNCH

$15^{00} - 15^{35}$ Anna Chugainova
Nonclassical discontinuities for nonstrictly hyperbolic conservation laws

$15^{35} - 16^{10}$ Ivan Polekhin
Metric geometry and forced oscillations in mechanical systems

$16^{10} - 16^{30}$ Mikhail Garbuz
The stability of tumbling modes of heavy plate in a resisting medium

$16^{30} - 17^{30}$ POSTERS*

31 October, Friday

$10^{00} - 10^{20}$ Anna Tsvetkova
On the motion and deformation of localized wave beams generated by the Bessel functions

$10^{20} - 10^{40}$ Alexey Elokhin, Andrey Dymov, and Alberto Maiocchi
Method of quasisolutions applied to R. Peierls's theory of thermal conductivity

$10^{40} - 11^{00}$ Evgenii Borisenko
The dynamics of an elastic string under the action of dry friction

$11^{00} - 11^{20}$ Artem Alexandrov
Phase-locking phenomenon in dynamical systems and quantum mechanics

$11^{20} - 11^{45}$ COFFEE-BREAK

$11^{45} - 12^{05}$ Ivan Shilin
Sparkling saddle loops of vector fields on surfaces and related issues

$12^{05} - 12^{25}$ Anna Chugainova, Ruzana Polekhina
Orbital stability of overcompressed discontinuities of a hyperbolic 2×2 system of conservation laws

$12^{25} - 12^{45}$ Elena Pivovarova
Dynamics of a homogeneous ball on a rotating cylinder

$12^{45} - 13^{05}$ Ivan Mamaev
Vortex dynamics on nonsimply connected surfaces

$13^{05} - 13^{40}$ Dmitry Treschev
Integrable perturbations of polynomial Hamiltonians

$13^{40} - 13^{45}$ CLOSING OF THE CONFERENCE

*POSTERS

1. Pavel Aleshin, Anton Shiryaev
   Development of a regulator for orbital stabilization of the orientational motion of a nanosatellite by means of magnetic moment
2. Nurradin Adigozalov
   A semi-analytical approach to secular effects in the motion of Earth's quasi satellites
3. Tatiana Bogatenko, Konstantin Sergeev, and Galina Strelkova
   Constant and periodic forces in two coupled Hodgkin – Huxley neurons
4. Alexander Gonchenko
   On discrete Lorenz-like attractors of three-dimensional maps
5. Tatyana Ivanova, Alexander Kilin
   Analysis of the dynamics of the controlled motion of a three-link wheeled mobile robot within the framework of different friction models
6. Efrosiniia Karatetskaia
   On bifurcations leading to the instant creation of hyperchaotic attractors with two and three positive Lyapunov exponents
7. Vladislav Koryakin
   Robustly chaotic dynamics in a 3-level laser model with opticl pumping
8. Andery Mironov, Siyao Yin
   Billiard trajectories inside cones
9. Nataliia Nikishina, Ivan Kolesnikov, and Andrei Bukh
   Statistical properties of extreme events in the ring of FitzHugh – Nagumo neurons
10. Ivan Proskurnin
    Morsification of semihomogeneous functions with any possible number of critical points
11. Constantin Ruchkin
    Application of Poisson learning for the classification of solutions of Hamilton systems
12. Klim Safonov
    New cases of heteroclinic bifurcations resulting in the emergence of Lorenz-like chaotic attractors

13. Oleg Shilov, Alexey Kazakov
On different types of hyperbolic chaotic sets appearing as a result of the perturbations of Anosov map on a 2D torus

14. Oleg Sumenkov, Sergei Gusev
Robust control design of underactuated systems via a family of time-periodic sliding surfaces

15. Ivan Tarabukin, Sergei Gusev
Stabilization of the equilibrium position of mechanical systems using a drive that monitors a reference speed

16. Kirill Zaichikov
Shilnikov criteria in the extended Shimizu – Morioka system