# Program of Conference "Dynamics in Siberia"

| Monday, March 2 | |
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| 09:00–10:00 | Registration (Ground floor of the Sobolev Institute of Mathematics) |
| Plenary talks (Conference Hall of the Sobolev Institute of Mathematics) | |
| 10:00–10:10 | **Opening ceremony** |
| 10:10–10:50 | **Savenkov E.** *Diffuse interface models: "Digital core" and other applications.* |
| 11:00–11:40 | **Kudryavtseva E.** *Bifurcations through a non-semisimple hyperbolic 1:1 resonance, with examples in rigid body dynamics.* |
| | Coffee break (20 minutes) |
| 12:00–12:40 | **Titarev V.** *Computational study of some rarefied gas flows.* |
| | CONFERENCE PHOTO |
| | Lunch (90 minutes) |

| Section talks (Monday, March 2) | | | |
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| | Section «Applied Mathematics» (Conference Hall, Sobolev Institute of Mathematics) | Section «Partial differential equations» (305, Sobolev Institute of Mathematics) | Section «A» (417, Sobolev Institute of Mathematics) |
| 14:30–14:55 | **Lavrentiev M.** *Computer simulators for the Russian Orbital Station.* | **Averboukh Y.** *Weak KAM theory for nonsmooth Lagrangian.* | **Sheinman O.** *On the "principal" covering of a not principally polarized Prym variety.* |
| 15:00–15:25 | **Ermanyuk E.** *Solid body impact onto a gas-liquid interface.* | **Chesnokov A.** *Large-amplitude internal waves in a thermally stratified reservoir.* | **Akhmet'ev P.** *Desuspension theorem in stable homotopy groups of spheres.* |
| 15:30–15:55 | **Sabelfeld K.** *Stochastic model and simulation algorithm for highly nonlinear electron tunneling process governing the electron transport in varistors.* | **Biberdorf E.** *Study of the spectral problem describing disturbances of the rest state of a polymer liquid in a cylinder (Vinogradov–Pokrovsky model)* | **Belozerov G.** *Construction of multidimensional quadrics using a thread and some generalizations of this* |
| Coffee break (20 minutes) | | | |

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| 16:15–16:40 | **Kulikov I.** *Supercomputing Special Relativistic Hydrodynamics.* | **Gomoyunov M.** *Minimax solutions of path-dependent Hamilton – Jacobi equations with time-measurable Hamiltonian.* | **Kuzovchikov A.** *Gaudin models and Laplace operator on a flag manifold.* |
| 16:45–17:10 | **Shelukhin V.** *Dynamics of granular fluids.* | **Sazhenkov S.** *The Navier-Stokes equations with short-term intensive initial pulse.* | |
| 17:15–17:40 | | **Furtsev A.** *Equilibrium problems of nonlinearly elastic bodies with cracks: the existence theorems and the fictitious domains method.* | |

| Tuesday, March 3 | |
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| **Plenary talks (Conference Hall of the Sobolev Institute of Mathematics)** | |
| 10:00–10:40 | **Vedyushkina V.** *Seifert fibration of billiard book bifurcations.* |
| 10:50–11:30 | **Shchur V.** *Human population genomics: from present times into deep past.* |
| **Coffee break (20 minutes)** | |
| 11:50–12:30 | **Zotov A.** *Zhukovsky-Volterra gyrostat as van Diejen–Ruijsenaars model, Sklyanin algebras and integrable chains.* |
| 12:40–13:20 | **Kozelkov A.** *Modeling of marine hydrodynamics problems based on the Navier-Stokes equations.* |
| **Lunch (90 minutes)** | |

| Section talks (Tuesday, March 3) | | |
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| | **Section «Applied Mathematics»** <br> *(Conference Hall, Sobolev Institute of Mathematics)* | **Section «Partial differential equations»** <br> *(305, Sobolev Institute of Mathematics)* | **Section «A»** <br> *(417, Sobolev Institute of Mathematics)* |
| 15:00–15:25 | **Sadovskii V.** *Numerical simulation of fracture waves in a blocky medium.* | **Zvyagin A.** *On weak solvability of initial-boundary value problems for thermoviscoelastic fluids.* | **Ganeeva D.** *On attractors of generalized iterated function systems from the viewpoint of semigroup dynamical systems.* |
| 15:30–15:55 | **Medvedev S.** *Exact solutions of the direct spectral problem for the Zakharov-Shabat system.* | **Turbin M.** *Weak solvability of the initial boundary value problem for the inhomogeneous incompressible Voigt fluid motion model with a substantial time derivative in the rheological relation.* | **Saraev I.** *On closure of invariant manifolds of saddle fixed points of Morse-Smale systems.* |
| **Coffee break (20 minutes)** | | |
| 16:15–16:40 | **Chupakhin A.** *Biopolymer flow dynamics.* | **Prokudin D.** *Existence and uniqueness of a weak solution of the initial-boundary value problem for the mathematical model of the motion of Kelvin-Voigt fluid mixture.* | **Yudin I.** *Calculating the orders of points in the main tree of a self-similar dendrite* |
| 16:45–17:10 | **Sidorov D.** *Volterra Integral Equations: From Theory to Battery Health Forecasting.* | **Chumakov G.** *Homoclinic Chaos in Some Kinetic Models.* | |

| 17:15–17:40 | **Zvonareva T.** *Numerical solution of the optimal control epidemic problem, taking into account age characteristics.* | **Tersenov A.** *Generalized solutions of porous medium equation with low order terms.* | |

| Wednesday, March 4 | |
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| **Plenary talks (Conference Hall of the Sobolev Institute of Mathematics)** | |
| 10:00–10:40 | **Dobrokhotov S.** *Asymptotics of linear and some nonlinear (pseudo)differential equations with spatially localized right-hand sides.* |
| 10:50–11:30 | **Sidorenko V.** *An application of the integral manifolds theory to the dynamics of a rigid body with a cavity filled with a viscous fluid.* |
| | **Coffee break (20 minutes)** |
| 11:50–12:30 | **Shafarevich A.** *Short-wave asymptotics of the linearized system of shallow water equations with abruptly varying coefficients* |
| 12:40–13:20 | **Kuznetsov N.** *Theory of hidden oscillations and its applications.* |
| 13:30–14:00 | **Guzev M.** *From "DYNAMICS IN SIBERIA" to "MATHEMATICS IN MEDICINE": modeling the effects of laser cavitation in medicine.* |

| Thursday, March 5 | |
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| **Plenary talks (Conference Hall of the Sobolev Institute of Mathematics)** | |
| 10:00–10:40 | **Muravnik A.** *Initial-value problems for nonstationary differential-difference equations: function-series expansions of solutions* |
| 10:50–11:30 | **Nazaikinskii V.** *Homogenization Approach to Linear Problems on High-Frequency Waves in Nonperiodic Media with Rapidly Varying Characteristics.* |
| | **Coffee break (20 minutes)** |
| 11:50–12:30 | **Borisov D.** *Orlicz type spaces related with nonlinear nonlocal functionals.* |
| 12:40–13:20 | **Prasolov M.** *On the existence of biLipschitz homeomorphisms with prescribed Jacobian.* |

| Friday, March 6 | |
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| **Plenary talks (Conference Hall of the Sobolev Institute of Mathematics)** | |
| 10:00–10:40 | **Rudoy E.** *Homogenization of a composite reinforced with thin gradient-elastic inclusions* |
| 10:50–11:30 | **Shishlenin M.** *Inverse problems for nonlinear equations: direct and iterative methods.* |
| 11:40 | **Closing ceremony** |