

Preliminary conference program

Monday, November 30th.

9:00: Registration of participants (in the Laboratory Building (LB), see <https://mipt.ru/en/about/general/contacts/?map=campus>)

9:30: Welcome

Chair: I. A. Taimanov

10:00: **S. I. Kabanikhin** (ICM&MG SB RAS, Russia)

Two-dimensional analogy of I.M. Gelfand, B.M. Levitan and M.G. Krein equations in hyperbolic inverse problems

10:35: **J. Boman** (Stockholm University, Sweden)

Tomographic region-of-interest reconstruction from incomplete data

11:10: **R. G. Novikov** (Ecole Polytechnique, France)

Inverse scattering without phase information

11:45: **J.-C. Saut** (Université Paris-Sud, France)

Dispersive perturbations of nonlinear hyperbolic equations

12:20: Coffee break & lunch

Section «Inverse problems and integral geometry»

Chair: M. I. Belishev

13:20: **L. N. Pestov** (Immanuel Kant Baltic Federal University, Russia)

Integral geometry problems on convex Riemannian manifolds

13:55: **W. Lionheart** (University of Manchester, UK)

Nonabelian tomography for polarized light and neutrons

14:30: **A. Puro** (Information Science Institute, Estonia)

Optical tensor field tomography of residual stresses in fibers

15:05: **V. A. Sharafutdinov** (Sobolev Institute of Mathematics, Russia)

The linearized problem of magneto-photoelasticity

15:40: Coffee break

16:00: **A. S. Demidov** (Moscow State University, Russia)

Sur le problème inverse magnéto-encéphalographie

16:35: **A. Jollivet** (Université de Lille 1, France), **V. A. Sharafutdinov** (Sobolev Institute of Mathematics, Russia)

An inequality for the zeta function of a planar domain

17:15: **N. I. Klemashev** (Moscow State University, Russia)
The inverse problem in Pareto's theory of consumer demand

17:35: **E. G. Molchanov** (MIPT, Russia)
Finding elasticity of substitution in the recourse distribution problem

Section «Nonlinear PDEs and integrability»

Chair: A. K. Pogrebkov

13:20: **A. V. Faminskii** (Peoples' Friendship University of Russia, Russia)
On global well-posedness results for Zakharov-Kuznetsov equation

13:55: **E. Lakshtanov** (University of Aveiro, Portugal)
On reconstruction of complex-valued once differentiable conductivities

14:30: **O. S. Rozanova** (Moscow State University, Russia)
On a stochastic representation of solutions to systems of quasilinear equations

15:05: **V. N. Razzhevaikin** (Dorodnicyn Computing Centre of RAS, Russia)
Asymptotic behavior of solutions of reaction density dependent diffusion equations and its applications

15:40: Coffee break

16:00: **M. V. Pavlov** (Lebedev Physical Institute of RAS, Russia)
Integrability of the Benney System

16:35: **Shuhua Zhang** (Tianjin University of Finance and Economics, China)
Modeling and computation of mean field equilibria in producers' game with emission permits trading

17:15: **A. P. Antonova** (Peoples' Friendship University of Russia, Russia)
On regularity properties of solutions to Zakharov-Kuznetsov equation

17:35: **M.A. Opritova** (Peoples' Friendship University of Russia, Russia)
Regularity and large-time decay of solutions to generalized Kawahara equation

Tuesday, December 1st

Chair: S. I. Kabanikhin

10:00: **I. A. Taimanov** (Sobolev Institute of Mathematics, Russia)
On a numerical study of the discrete spectrum of two-dimensional Schroedinger operators with soliton potentials

10:35: **M. I. Belishev** (PDMI RAS, Russia)
Intrinsic geometric world of a symmetric semibounded operator

11:10: **S. Kuksin** (Universite Paris-Diderot, France)
Averaging for weakly-nonlinear PDE in finite volume

11:45: **G. M. Henkin** (Université Paris-VI, France), **A. A. Shanin** (MIPT, Russia)
On the Cauchy-Gelfand problem

12:20: Coffee break & lunch

Section «Inverse problems of mathematical physics»

Chair: V. A. Sharafutdinov

13:20: **V. I. Agoshkov** (Institute of Numerical Mathematics of RAS, Russia)
Study and numerical solution of inverse problems of the theory of tides

13:55: **A. Jollivet** (Université de Lille 1, France)
Inverse scattering in classical mechanics

14:30: Coffee break

14:50: **A. S. Shurup, O. D. Romyantseva** (Moscow State University, Russia)
Numerical simulation of the functional approach for recovering vector fields in acoustic tomography

15:25: **A. V. Gasnikov** (MIPT, Russia)
Inverse problems in mathematical modeling of traffic flows

16:00: **A. D. Agaltsov** (Ecole Polytechnique, France)
A global uniqueness result for acoustic tomography of moving fluid

16:20: **A. V. Podoroga, I. V. Tikhonov** (Moscow State University, Russia)
Computer simulation for quasi-linear equations of traffic flow

17:00: Cultural program

Section «Nonlinear PDEs and dynamical systems»

Chair: J.-C. Saut

13:20: **A. N. Sobolevski** (IITP RAS, Russia)
Evolution equations in cosmology: hydrodynamic and kinetic formulations

13:55: **D. V. Tunitsky** (Institute of Control Sciences of RAS, Russia)
On global solvability of one-dimensional nonlinear wave equations

14:30: Coffee break

14:50: **A. A. Belolipetskiy** (Dorodnicyn Computing Centre of RAS, Russia), **A. M. Ter-Krikorov** (MIPT, Russia)
Modified Kantorovich theorem and asymptotic solution of the singularly perturbed systems of ordinary differential equations

15:25: **L. A. Beklaryan, A. L. Beklaryan** (Central Economics and Mathematics Institute of RAS, Russia)
On traveling wave type solutions in infinite dimensional dynamical systems

16:00: **A. S. Bratus** (Moscow State University of Railway Engineering, Russia)

Distributed replicator system and its application to biology

17:00: Cultural program

Section «Numerical methods» (school for young scientists)

Chair: A. A. Shaninin

13:20: **A. Lagunovskaya** (Keldysh Institute of Applied Mathematics of RAS, Russia)
On the relationship between simulation logit dynamics in the population game theory and mirror descent method in the online optimization using the example of the shortest path problem

13:40: **D. Kamzolov, A. Suvorikova** (MIPT, Russia)
Fast computation Wasserstein Barycenters

14:00: **D. Kamzolov** (MIPT, Russia), **A. Anikin** (Institute for System Dynamics and Control Theory SB RAS, Irkutsk, Russia)
Effective numerical methods for huge-scale linear systems with double-sparsity and applications to pagerank

14:20: **D. Merkulov** (MIPT, Russia)
Convex online optimization with noisy first order oracle

14:40: **V. Dryuma** (Institute of Mathematics and Informatics AS, Moldova)
New solutions of the Euler system of equations for incompressible fluid

15:00: **A. Chernov** (MIPT, Russia)
Primal-dual method for entropy-linear programming

15:20: **S. Omelchenko** (MIPT, Russia)
The evolutionary inference of the simplest model of splitting traffic flow on public and private ones

15:40: **M. Mendel** (MIPT, Russia)
Inverse problem of demand IP-matrix calculation from link loads

16:00: **D. Grigorievykh** (MIPT, Russia)
Mathematical modeling of cracks in the solid deformable bodies using hexahedral mesh

16:20: **A. Aleksandrova** (Peoples' Friendship University of Russia, Russia)
Running wave speed analysis in one Polterovich-Henkin model modification

17:00: Cultural program

Wednesday, December 2nd

Chair: R. Novikov

10:00: **K. Khanin** (University of Toronto, Canada)
On global solutions to the random Hamilton-Jacobi equation

10:35: **I. B. Petrov** (MIPT, Russia)
Numerical investigation in solid mechanics of direct and inverse problems

11:10: **A. K. Pogrebkov** (Steklov Mathematical Institute of RAS, Russia)
Integrable discretizations of integrable PDE's

11:45: Coffee break

12:00: **R. G. Novikov** (Ecole Polytechnique, France)
Introductory lecture for students «Inverse scattering and applications»

14:00: Coffee break & lunch

Section «Modeling in Continuum Mechanics and Inverse Problems using HPC»

Chair: I. B. Petrov

15:00: **O. Ya. Voinov** (MIPT), **V. I. Golubev** (MIPT), **M. S. Zhdanov** (Univ. of Utah)
Migration imaging in acoustic media using Kirchhoff and Born methods

15:20: **A.V. Favorskaya**, **D. I Petrov**, **N. I. Khokhlov**, **I. B. Petrov** (MIPT)
Numerical modeling of seismic prospecting in the Arctic by grid-characteristic method

15:40: **A. V. Favorskaya** (MIPT), **M. S. Zhdanov** (University of Utah)
Elastic Kirchhoff Integrals and Migration

16:00: **K. Beklemysheva**, **A. Ermakov**, **A. Vasyukov** (MIPT)
Modeling non-destructive testing of composite materials for delamination identification

16:20: **V. A. Miryaha** (MIPT), **D. A. Kuchevsky** (MIPT), **A. V. Sannikov** (IHEP)
Numerical simulation of impact of ice formation on Arctic offshore objects.

16:40: **N. B. Yavich** (MIPT), **M. S. Malovichko** (SPbSU), **M. S. Zhdanov** (Utah)
Efficient algorithm for modeling low-frequency electromagnetic field and its applicability to inversion of geophysical data

17:00: **M. S. Malovichko** (MIPT), **N. I. Khokhlov** (MIPT), **M. S. Zhdanov** (Univ. of Utah), **I. B. Petrov** (MIPT)
Integral approximations in seismic modeling

17:40: Coffee break

Section «Nonlinear PDEs and dynamical systems»

Chair: S. Kuksin

15:00: **N. S. Petrosyan** (MSTU "STANKIN")
Asymptotic time-behavior of the solution of the mixed problem for quasilinear scalar conservation law

15:35: **A. Kazeykina** (Université Paris-Sud, France)

On the well-posedness of the Cauchy problem for the Novikov-Veselov equation

16:10: **V. E. Karpov, A. I. Lobanov** (MIPT, Russia)

Mathematical model of the fibrin polymerization and phase change in blood

16:45: **N. K. Volosova, S. P. Vakulenko, K. A. Volosov** (Moscow State University of Railway Engineering, Russia)

On the theory of method of quality control of the railroad track from a moving train

17:40: Coffee break

Section «Inverse problems of mathematical physics»

Chair: L. N. Pestov

15:00: **A. A. Gavrikov, D. U. Knyazkov, A. V. Romanova, V. V. Chernik, A. S. Shamaev**

Direct and inverse problems of sea surface electromagnetic tomography

15:35: **A. G. Yagola** (Moscow State University, Russia)

Error estimation for ill-posed problems

16:10: **V. A. Sedaykina** (Immanuel Kant Baltic Federal University, Russia)

Simulation of acoustical imaging in semigeodesic coordinates by BC-method

16:30: **P. A. Mikheev** (SRISA/NIISI RAS, Russia)

The application of gradient method to electromagnetic wavefront optimization

17:40: Coffee break

18:00: Closing

19:00: Conference dinner