

PRELIMINARY CONFERENCE PROGRAM

Monday, September 12th. Phystech.Bio

9:30: Welcome

Plenary session

Chair: Ch. L. Epstein

10:00: **V. M. Buchstaber** (Steklov Mathematical Institute, Russia)

On a model of Josephson effect, dynamical systems on two-torus and Heun equations

10:35: **L. Baratchart** (INRIA, Sophia Antipolis, France)

Inverse potential problems in divergence form: some uniqueness, separation, and recovery issues

11:10: **F. Golse** (Ecole Polytechnique, France)

On the mean-field and semiclassical limits of the N-body Schrödinger equation

11:45: **V. Michel** (Universite de Paris VI, France)

The two dimensional conductivity inverse problem

12:20: Coffee break & lunch

Section «Inverse problems and tomography»

Chair: M. I. Belishev

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

Boundary rigidity of simple manifolds

13:55: **A. Demidov** (Moscow State University, Russia), **M. Galchenkova** (MIPT,

Russia), **A. Kochurov** (Moscow State University, Russia)

A flat approximation of inverse MEG-problems

14:30: **A. D. Agaltsov** (Ecole Polytechnique, France)

An explicit algorithm for solving the acoustic tomography problem for a moving fluid

15:05: **A. S. Shurup**, **O.D. Rumyantseva** (Moscow State University, Russia)

Acoustic tomography of scalar and vector inhomogeneities based on the Novikov-Agaltsov algorithm

15:40: Coffee break

16:00: **F. O. Goncharov** (MIPT, Russia)

An analog of Chang inversion formula for weighted Radon transforms in multidimensions

16:35 **V. Filatova**, **L. N. Pestov**, **V. Nosikova** (Research Institute of Applied Informatics and Mathematical Geophysics of Immanuel Kant Baltic Federal University)

Application of Reverse Time Migration (RTM) procedure for ultrasound tomography problem

Section «Nonlinear PDEs and dynamical systems»

Chair: A. Tumanov

13:20: **L.A. Beklaryan** (Central Economics and Mathematics Institute, Russia)

The questions of existence of the periodic and limited solutions of travelling wave type

13:55: **S. Yu. Dobrokhoto**v, V. E. Nazaikinskii, B. Tirozzi (Ishlinsky Institute for Problems of Mechanics of RAS)

Asymptotics of wave propagation and run-up in the framework of shallow water equations

14:30: **N. S. Petrosyan** (MSTU "STANKIN", Russia)

Asymptotics of solutions of the Cauchy problem for a quasilinear first order equation with several space variables

15:05: **A. V. Romanov** (Higher School of Economics, Russia)

On normally hyperbolic inertial manifolds of evolutionary equations

15:40: Coffee break

16:00: **V. V. Vedenyapin**, M. A. Negmatov, N. N. Fimin (Keldysh Institute of Applied Mathematics, Russia)

Hydrodynamics and kinetics of Vlasov and Liouville equations

16:35: **A. V. Podoroga**, I. V. Tikhonov (Moscow State University, Russia)

On stability of special solutions for quasi-linear equations of traffic flow

17:10: **V. S. Dryuma** (Institute of Mathematics and Computer Science, Moldova)

On integration of the equations of flows of incompressible liquids

17:45 **V. Chistyakov** (National Research University of ITMO)

On rotational dynamics of a rigid body around non-principal central axis under combined friction acting

Tuesday, September 13th. Phystech.Bio

Plenary session

Chair: F. Golse

10:00: **I. B. Petrov** (MIPT, Russia)

The problem of numerical modeling of dynamic processes in solid heterogeneous environments

10:35: **A. N. Sobolevski** (IITP RAS, Russia)

Optimal transportation and geometry of Wasserstein spaces

11:10: **Ch. L. Epstein** (University of Pennsylvania, USA)

Degenerate diffusions in population biology

11:45: **M. V. Klibanov** (University of North Carolina, USA)

Phaseless inverse scattering problems and global convergence

12:20: Coffee break & lunch

Section «Inverse problems in mathematical physics and modeling »

Chair: L.N. Pestov

13:20: **M.I. Belishev**, S.A. Simonov (St. Petersburg Dept. of Steklov Math. Institute, Russia)
Wave model of the Sturm-Liouville operator with defect indices (1,1) on the semi-axis

13:55: **A.V. Gasnikov** (MIPT, Russia)
Inverse problem in mathematical modeling of computer networks

14:30: Coffee break

14:50: **K.A. Beklemysheva**, A.V. Vasyukov, A.S. Ermakov, A.O. Kazakov (MIPT, Russia)
Numerical modeling of non-destructive testing of composites

15:25: **A. V. Favorskaya** (MIPT, Russia)
Numerical modeling of seismic wave processes using grid-characteristic method

16:00: **O. Ya. Voinov**, V.I. Golubev, M.S. Zhdanov (MIPT, Russia)
Migration imaging in elastic media using Born approximation

16:35: **P. N. Vabishchevich** (Nuclear Safety Institute of RAS, Russia)
Iterative computational identification of a spacewise dependent source in parabolic equations

17:00: Cultural program

Section «Numerical methods» (school for young scientists)

Chair: I. B. Petrov

13:20 **M. V. Muratov** (MIPT, Russia)
Modeling of dynamical processes in multi-dimensional exploration seismology in fracture media problems

13:40: **D. N. Voroshyuk** (MIPT, Russia)
Application of discontinuous Galerkin method in direct 3D seismic exploration problems

14:00: **V.A. Miryaha**, A.V. Sannikov (MIPT, Russia)
Discontinuous Galerkin method for ice specimen strength investigation.

14:20: **O. I. Kassirova**, N. I. Khokhlov (MIPT, Russia)
Using MPI technology for parallelization grid-characteristic method on multi block structured grids.

14:40: **D.I. Petrov**, P.V. Stognii, N.I. Khokholov (MIPT, Russia)
High-order schemes in numerical problems of seismic exploration in the Arctic

15:00: **D. P. Grigorievykh** (MIPT, Russia)
Simulation of large elastic-plastic deformation using markers method on rectangular grids.

15:20: **P.V. Stognii**, D.I. Petrov, I.B. Petrov (MIPT, Russia)
Numerical modeling of various ice formations in north seas and their influence on seismic replies

15:40: **A. Ivanov**, N. I. Khokhlov (MIPT, Russia)
Applying OpenCL technology for seismic modelling using grid-characteristic methods

16:00: **N. I. Klemashev** (Moscow State University, Russia)
Applications of the generalized non-parametric method to the analysis of a stock market crash

17:00: Cultural program

Wednesday, September 14th. Phystech.Bio

Plenary session

Chair: R.G. Novikov

10:00: **J. Boman** (Stockholm University, Sweden)
Holmgren theorems for the Radon transform

10:35: **V. G. Romanov** (Sobolev Institute of Mathematics, Russia)
Some geometric aspects in inverse problems

11:10: **A. B. Shabat** (L.D.Landau Institute for Theoretical Physics, Russia)
Inverse scattering problems revisited

11:45: Coffee break

12:00: **R. G. Novikov** (Ecole Polytechnique, France)
Introductory lecture for students «Tomography and integral geometry»

14:00: Coffee break & lunch

Chair: A. B. Shabat

15:00: **V. Y. Ovsienko** (Université de Reims, France)
Discrete Boussinesq equation and projective differential geometry

15:35: **A. K. Pogrebkov** (Steklov Mathematical Institute, Russia)
Highest Hirota equations and their consequences

16:10: **A. E. Tumanov** (University of Illinois, USA)
Symplectic non-squeezing for the discrete nonlinear Schroedinger equation

16:45: **K. V. Vorontsov** (MIPT, Russia)
Ill-posed problems of non-negative matrix factorization with applications to text analysis

Thursday, September 15th. Phystech.Bio

Memorial session «Legacy of G. M. Henkin»

Chair: V. M. Buchstaber

10:00: **A. A. Shanin** (MIPT, Russia)
Inverse problems in resource distribution models

10:35: **V. M. Polterovich** (Central Economics and Mathematics Institute, Russia)
Schumpeterian dynamics: a survey of different approaches

11:10: **S. G. Gindikin** (Rutgers University, USA)
Complex integral geometry and around

11:45: **R. G. Novikov** (Ecole Polytechnique, France)

Inverse scattering in multidimensions

12:20: Coffee break & lunch

Section «Methods of complex analysis and geometry»

Chair: L. Baratchart

13:20: **S.P. Suetin** (Steklov Mathematical Institute of RAS, Russia)

On the Nuttall partition of a three-sheeted Riemann surface and limit zero distribution of Hermite-Padé polynomials

13:55: **S. Rigat** (Université d'Aix-Marseille, France)

Fokas methods applied to a boundary valued problem for conjugate conductivity equations

14:30: **P. G. Grinevich** (L.D.Landau Institute for Theoretical Physics, Russia), **R.G. Novikov** (Ecole Polytechnique, France)

Moutard transform for the generalized analytic functions with contour singularities and 2-D inverse scattering problem for large data

15:05: **Y. M. Dymarskii** (MIPT, Russia)

Fibration of the periodical eigenfunctions manifold into hypersurfaces

15:40: Coffee break

16:00: **A. L. Lukashov** (MIPT, Russia), **H. Acar** (Anadolu University, Turkey)

Loewner evolution as Itô diffusion

18:00: Closing

Section «Mathematical modeling and inverse problems »

Chair: A. A. Shaninin

13:20: **V. I. Golubev** (MIPT, Russia)

Simulation of 3-D seismic responses from curvilinear geological boundaries

13:55: **P. S. Utkin**, **A. I. Lopato** (MIPT, Russia)

Mathematical modeling of the long-time evolution of the pulsating detonation wave in the shock-attached frame

14:30: **N. B. Yavich**, **M. S. Malovichko**, **M. S. Zhdanov** (MIPT, Russia)

Efficient preconditioning in 3D marine electromagnetic geophysical modeling

15:05: **V. I. Zubov**, **A. F. Albu** (Dorodnicyn Computing Center of RAS, Russia)

The use of fast automatic differentiation technique for solving coefficient inverse problems

15:40: Coffee break

16:00: **A. G. Yagola** (Moscow State University, Russia)

A priori and a posteriori error estimates for solutions of ill-posed problems

16:35: **M. S. Elaeva**, M. Yu. Zhukov, E. V. Shiryayeva (Financial University under the Government of the Russian Federation, Russia)

Interaction of weak and strong discontinuities for two-component mixture separation

17:10: **S. P. Vakulenko**, K. A. Volosov, N. K. Volosova (Moscow State University of Railway Engineering)

The modulational instability in models of Rayleigh beam lying on the elastic basis

18:00: Closing