

# Preliminary conference program

Tuesday, December 5

9:30: Welcome

*Chair: I. A. Taimanov*

10:00: **S. I. Kabanikhin**, M.A. Shishlenin ( ICM&MG SB RAS, Russia)  
Multidimensional analogs of the Gelfand – Levitan-Krein equations

10:35: **M.V. Klibanov** (University of North Carolina at Charlotte, USA)

Phaseless inverse scattering and global convergence for inverse problems

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

Weighted ray transforms and applications

11:45: Z.S. Gaeva, **A.A. Shanin** (MIPT, Russia)

Applying Chebyshev–Markov–Krein algorithm in numerical solving of microphysical hail cloud processes control problem

12:20: Coffee break & lunch

## **Section «Inverse problems and tomography»**

*Chair: J. Boman*

13:20: D.V. Lukyanenko, **A. Yagola** (Moscow State University, Russia), Y. Wang

Regularized inversion of full tensor magnetic gradient data

13:55: **A.D. Agaltsov** (Max Planck Institute for Solar System Research, Germany)  
Inverse scattering without phase information

14:30: **A.S. Demidov** (Moscow State University, Russia)

On the search algorithm for all essentially different solutions of the inverse problem for the Grad-Shafranov equation

15:05: **M. Galchenkova**, A.S. Demidov (MIPT, Russia )

Inverse magnetoencephalography problem and its flat approximation

15:40: Coffee break

16:00: **M.N. Demchenko** (PDMI RAS, Russia)

Local reconstruction of solution of the wave equation from boundary data

16:35: A.S. Mikhaylov, **V.S. Mikhaylov** (PDMI RAS, Russia)

The boundary control method and De Branges spaces

## **Section «GJB equations and convex analyses»**

*Chair: I.B.Petrov*

13:05: **E. S. Polovinkin**

Calculation of Subdifferentials for the Difference of Two Convex Functions

13:55: **M. V. Balashov**

The Lipschitz property of the metric projection in the Hilbert space

14:30: **G.E. Ivanov** (MIPT, Russia)

Weak convexity of functions and the infimal convolution

15:05: **M. S. Lopushanski**

Properties of weakly convex sets in asymmetric normed spaces

15:40: Coffee break

## **Section «Inverse problems in economic measurement»**

*Chair: I.B. Petrov*

16:00: **E. G. Molchanov** (MIPT, Russia)

Finding of substitution elasticity in the inverse problem arising in analysis of economic statistics

16:35 : **D. A. Alimov** (Moscow State University, Russia)

The study of the Bellman equation in the model of production company functioning in conditions of current assets deficit taking into account influence of debt burden

17:15 : **N. I. Klemashev** (Moscow State University, Russia)

Testing economic data for consistency with the model of two rational representative consumers

## **Section « Variational methods »**

*Chair: E. S. Polovinkin*

16:00: S.Z. Adjiev, V.V. Kazantseva, N.N. Fimin, I.V. Melihov, M.A. Negmatov, **V. V. Vedenyapin** (Keldish Inst. Appl. Math., Russia)

The Hamilton–Jacobi method in the non Hamiltonian situation and Boltzmann extremals

16:35: **V. Zh. Sakbaev** (MIPT, Russia)

On the variational description of the averaging quantum dynamical maps

17:15: **A.V. Lapin** (Kazan Federal University, Russia)

Domain decomposition and Uzawa-type iterative methods for an elliptic variational inequality

## Wednesday, December 6

*Chair: R.G.Novikov*

10:00: **T. Hohage** (University of Göttingen, Germany)

Phase retrieval and phase contrast tomography: uniqueness, stability, and reconstruction methods

10:35: **Shuhua Zhang** (Tianjin University of Finance and Economics, Chiana)

Farsighted v.s. myopic optimal pricing and emission reduction strategy in a green supply chain under emission permits trading

11:10: **E. L. Korotyaev** (St.-Petersburg State University, Russia),

Estimates for Laplacians and Schrödinger operators on the lattice

11:45: **G. M. Molchan** (Institute of Earthquake Prediction Theory and Mathematical Geophysics, Russia)

The inviscid Burgers equation with fractional Brownian initial data: the dimension of regular Lagrangian points

12:20: Coffee break & lunch

### **Section « Inverse problems and computations »**

*Chair: M.I. Belishev*

13:20: A.B. Bakushinsky (ISA RAS, Russia), **A.S. Leonov** (National Nuclear Research University 'MEPHI', Russia)

Fast numerical method of solving 3D coefficient inverse problem for wave equation from integral data

13:55: **A.S. Shurup**, O.D. Rumyantseva (Moscow State University, Russia)

Numerical modeling of functional algorithms for purposes of medical and ocean acoustic tomography problems

14:30: **A. S. Fomochkina**, B. G. Bukchin (Institute of Earthquake Prediction Theory and Mathematical Geophysics, Russia)

Application of parallel calculations to speed up the determination of earthquake parameters by a systematic exploration of their values

15:05: **E.G. Shifrin** (MIPT, Russia)

Solving the inverse problem of aerodynamic designing by transformation to a well-posed problem in the hodograph variables

15:40: Coffee break

16:00: **P.V. Stognii** (MIPT, Russia)

Numerical modeling of wave processes in the Arctic with ice formations being present

16:35: **V.I. Golubev**, A.V. Favorskaya (MIPT, Russia)

Seismic imaging in elastic media: novel approaches

17:15: Cultural program

## **Section «Numerical methods»**

*Chair: A.V. Lapin*

13:20: **D.I. Petrov** (MIPT, Russia)

Application of numerical methods in seismic problems in the Arctic

13:55: **A.V. Favorskaya** (MIPT, Russia)

About the development of strategies for minimizing of risks of a different nature by full-wave numerical simulation

14:30: **S.S. Omelchenko** (MIPT, Russia)

Solving entropy-regularized optimal transport problem with small parameter of regularization

15:05: **A. Ivanov**, N.I. Khokhlov (MIPT, Russia)

Applying perfectly matched layer boundary condition to wave propagation modeling in layered elastic media

15:40: Coffee break

16:00: **E. N. Aristova**(Keldysh Institute of Applied Mathematics, Russia), N. I. Karavaeva (MIPT, Russia)

Bicompact schemes for numerical solving of transport problems by HOLON algorithms

16:35: **K.A. Beklemysheva** (MIPT, Russia)

Numerical modeling of a low-velocity impact on hybrid composites

17:15: Cultural program

## **Section « Integrable systems »**

*Chair: E.L. Korotyaev*

14:30: **L.V. Bogdanov** (L.D. Landau Institute for Theoretical Physics, Russia)

Matrix extensions of multidimensional dispersionless integrable systems and SDYM equations on the self-dual background

15:05: **K. A. Volosov**, N. K. Volosova, A.K. Volosova ( Moscow State University of Railway Engineering, Russia)

Inverse problems and the Korteweg-de Vries equation

15:40: Coffee break

16:00: **P.G. Grinevich** (L.D. Landau Institute for Theoretical Physics, Russia), P.M. Santini (University of Roma "La Sapienza", Italy)

Direct scattering transform for the periodic self-focusing nonlinear Schrodinger equation

16:35: **Y. Dymarskii** (MIPT, Russia)

Fibration of the space of potentials and periodic solutions of Korteweg–de Vries equation

17:15: Cultural program

**Thursday, December 7**

*Chair: S. I. Kabanikhin*

10:00: **I. A. Taimanov** (Sobolev Institute of Mathematics, Russia)  
The Moutard transformation of two-dimensional Dirac operators and conformal geometry of surfaces in the four-space

10:35: R.Ch. Kulaev (North Ossetia State University, Vladikavkaz), **A.K. Pogrebkov** (Steklov Mathematical Institute and NRU Higher School of Economics, Moscow), A.B. Shabat (Landau Institute for Theoretical Physics, Moscow, and Karachay Cherkessia State University, Karachaevsk)

Darboux system and its generalizations.

11:10: **M.I. Belishev** (Saint-Petersburg Department of the Steklov Mathematical Institute, Russia) On algebras of 3d harmonic quaternion fields

11:45: **V.A. Sharafutdinov** (Sobolev Institute of Mathematics, Russia)  
Orthogonality relations for a stationary flow of ideal fluid

12:20: Coffee break & lunch

## Thursday, December 7

### Section «Quasilinear equations »

*Chair : A.K. Pogrebkov*

13:20: **V. Chistyakov** (University ITMO, Russia)

Quasilinear integral equation in dynamics of rigid body projectile motion in medium conditions close to real ones

13:55: **A. R. Kasimov** (Lebedev Physical Institute, Russia)

Weakly nonlinear reactive shock waves

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

Asymptotic time-behavior of the solution of the mixed problem for quasilinear scalar conservation law

15:05: **A.V. Podoroga** , I.V. Tikhonov (Moscow State University, Russia)

The general principal of the stabilization for periodic solutions of the quasi-linear equation of traffic flow

15:40: Coffee break

16:45: Conference closing

## **Section «Inverse problems and integral geometry »**

*Chair: V.A. Sharafutdinov*

13:20: **J. Boman** (Stockholm University, Sweden)

Injectivity of the Radon transform with restricted data

13:55: **F.O. Goncharov** (Ecole Polytechnique, France)

Injectivity and non-injectivity for weighted Radon transforms

14:30: **A. Jollivet** (Université de Lille 1, France)

Generalized stability estimates in inverse transport theory

15:05: D.D. Karov (Peter the Great St-Petersburg Polytechnic University, Russia), **A. E. Puro** (EuroAkadeemia, Estonia)

Optical polarimetric tomography residual stresses with beam deflection

15:40: Coffee break

16:45: Conference closing

## **Section «Mathematical modeling and PDE's»**

*Chair: E.G. Shifrin*

13:20: **L.S. Pankratov** (MIPT, Russia)

Nonlinear flow through double porosity media in variable exponent Sobolev spaces.

13:55: **K.U. Khubiev** (IAMA KBSC RAS (Nalchik))

Boundary value problem for characteristically loaded hyperbolic-parabolic equation

14:30: **R.A. Kirzhinov** (IAMA KBSC RAS)

On solution uniqueness of a non-local problem for a second-order equation of mixed type

15:05: **P.S. Utkin** (MIPT, Russia) , D.A. Sidorenko,  
Multiscale modeling of shock wave – dense particles cloud interaction

15:40: Coffee break

16:00: **V.S. Dryuma**

On solutions of the flow equations of incompressible liquids

16:45: Conference closing