“Problems of Mathematical Physics and Mathematical Modelling"
Conference program

Session “Methods of mathematical physics”

Session №1
Head: Nikolay A. Kudryashov
Room: 406
Time start: Monday, 25 June, 10:00

1. *Aksenov A.V., Chicherina A.D., Chicherin I.S.* Self-similar solution for the problem of power-law liquid flow
along an inclined plane
2. *Khakimova Z.N.* The replenishment method and new solvable cases of third-order nonlinear differential equations of Emden – Fowler type
3. *Dorodnitsyn V., Kozlov R., Meleshko S., Winternitz P.* Lie group classification of first and second order delay ordinary differential equations
4. *Sorokin V.G., Polyanin A.D.* Nonlinear delay partial differential equations: Linear and nonlinear instability of solutions and numerical integration
5. *Butuzov V.F., Nefedov N.N., Omel'chenko O.E., Recke L.* Partially dissipative system with multizonal initial and boundary layers
6. *Davydova M.A., Nefedov N.N.* Multidimensional singularly perturbed reaction-diffusion-advection problems with balanced nonlinearity and their applications in the theory of nonlinear heat conductivity
7. *Adzhiev S.Z., Melikhov I.V., Vedenyapin V.V.* Kinetic models of the coalescence-fragmentation: the derivation of equations, the determination of the coefficients of the equations by the experimental distribution functions
8. *Sergeev S.A., Tolchennikov A.A., Petrov P.S.* Simulation of the propagation of acoustic pulse signal propagation in a shallow sea with penetrable bottom with the Maslov's canonical operator

Session №2
Head: Nikolay A. Kudryashov
Room: 406
Time start: Monday, 25 June, 15:00

1. *Aksenov A.V., Druzhkov K.P.* Symmetries of the system of two-dimensional shallow water
over a rough bottom equations
2. *Petrov P.N., Dobrokhotov S.Y.* Semiclassical asymptotics of the solution of the Helmholtz equation in a three-dimensional layer of variable thickness with a localized right-hand side
3. *Dryuma V.* On geometric applications of nonlinear integrable equations
4. *Kasimov A.R.* Supersonic waves of spin reversal in molecular magnets
5. *Antonov I.D., Porubov A.V.* Influence of compressibility on the foam fracture modeling
6. *Polyanin A.D., Shingareva I.K.* The method of nonlocal transformations: Applications to singularly perturbed boundary-value problems with a small parameter

7. *Vedenyapin B.V., Adzhiev S.Z., Kazantseva V.V., Melikhov I.V.* The chemical kinetics and the connection between the hydrodynamic and kinetic descriptions

8. *Sekerzh-Zen'kovich S.Y., Tolchennikov A.A.* Comparison of tsunami heights calculated by asymptotic formulas with known numerical results for the transoceanic tsunami propagation.

Session №3
Head: Nikolay A. Kudryashov
Room: 406
Time start: Tuesday, 26 June, 10:00

1. *Dobrokhotov S.Y., Nazaikinskii V.E.* Pair of Lagrangian manifolds and asymptotic solutions of nonhomogeneous partial (pseudo)differential equations with localized right hand side

2. *Grigorieva E.V., Kaschenko S.A., Glazkov D.V.* Normal forms for the model of optoelectronic oscillator with delay

3. *Glyzin S.D., Kolesov A.Y., Rozov N.K.* Quasi-Stable Structures of the Repressilator Model

4. *Kashchenko I.S.* Dynamics of spatially distributed delay logistic equation

5. *Preobrazhenskaia M.M.* Stability of Antiphase Regime in a System of Two Coupled Nonlinear Relaxation Oscillators

6. *Shargatov V.A., Il'ichev A., Gorkunov S.V., Artamonov I.A.* Stability of phase transition evaporation interfaces in the form of travelling fronts

7. *Teterev A.V., Rudak L.V., Mandrik P.A.* Modeling of a pulse detonation chamber

8. *Romanov O.* Modeling of laser-induced acoustic signals in layered nanostructures

Session №4
Head: Nikolay A. Kudryashov
Room: 406
Time start: Tuesday, 26 June, 15:00

1. *Bagderina Y.Y.* Equivalence of second-order ODEs to the Painleve equations

2. *Kuznetsov N.V., Mokaev T.N.* Hidden Attractors in Fundamental Problems and Applied Models

3. *Garashchuk I.R., Sinelshchikov D.I., Kudryashov N.A.* Multistability in a model of oscillations of an encapsulated microbubble contrast agent close to an elastic wall

4. *Aleshin S.V., Glyzin S.D., Kaschenko S.A.* Computational aspects of the wave distribution problem in the logistic equation with spatial deviation

5. *Bulatov V.V., Vladimirov Y.V., Vladimirov I.Y.* Far surface gravity waves fields generated by a rapidly moving oscillating source

6. *Sultanov O.A.* Lyapunov functions and asymptotics for near-Hamiltonian systems

7. *Tsvetkova A.V.* On a pair of Lagrangian manifolds connected with the asymptotics of Hermite polynomials

8. *Sinelshchikov D.I., Kudryashov N.A.* Integrable non–autonomous Liénard–type equations

Session №5
Head: Nikolay A. Kudryashov
Room: 406
Time start: Wednesday, 27 June, 10:00

1. *Gavrikov M.B., Taiurskii A.A.* Traveling Waves and Plasma Acceleration in Quasi-Steady Plasma Accelerators (QSPAs) with Longitudinal Field
2. *Savelyev V.V., Shutov I.V.* Nonlinear waves in the Hall magnetohydrodynamics in isothermal approximation
3. *Prosviryakov E.Y.* Exact Polynomial Solutions for the Navier-Stokes Equations
4. *Golovin A.V., Lagodiski V.M.* Functions of differential operators and the relativistic Schrödinger equation
5. *Kudryashov N.A., Muratov R.V., Ryabov P.N.* Statistical features of plastic flow localization in dipolar materials
6. *Lavrova S.F., Kudryashov N.A., Sinelshchikov D.I.* Analytical properties and numerical modelling of the coupled FitzHugh-Nagumo equations
7. *Demina M.V., Kudryashov N.A., Safonoova D.V.* Stationary vortex configurations on a cylindrical surface
8. *Vazhenin G.A., Banov S.M., Dalechina A.V.* Using Machine Learning to predict survival in patients with brain metastases after Gamma Knife radiosurgery.

Session №6
Head: Nikolay A. Kudryashov
Room: 406
Time start: Wednesday, 27 June, 15:00

1. *Kozlov V.K., Chmykhov M.A.* Mathematical modeling of free convection problems in a gravity field in OpenFOAM
2. *Averina V.V., Kudryashov N.A.* Numerical simulation of Fermi-Pasta-Ulam model, its discrete and continuous approximations
3. *Kudryashov N.A., Kutukov A.A.* On the connection between the mKdV-sinh-Gordon hierarchy and the generalized hierarchy of the second Painleve equation
4. *Gaiur I.Y., Sinelshchikov D.I., Kudryashov N.A.* Lax representation and quadratic first integrals for a family of non–autonomous second–order differential equations
5. *Demina M.V.* Invariant algebraic curves and Liouvillian first integrals for polynomial dynamical systems in the plane

Session "Mathematical modelling"

Session №1
Head: Oleg V. Nagornov
Room: 407
Time start: Monday, 25 June, 10:00

1. *Leonov A.S.* Application of M.Riesz potentials for solving a 3D inverse problem of acoustic sounding
2. *Bukharova T.I., Kamynin V.L., Tonkikh A.P.* On Inverse Problem of Determination of the Coefficient in Strongly Degenerate Parabolic Equation
3. *Kamynin V.L., Kostin A.B.* Determination of the right-hand term in degenerate parabolic equation with two independent variables
4. *Nagornov O.V., Tyuflin S.A., Mikhalenko V.N., Chernyakov G.A.* Determination of paleotemperature for the Elbrus glacier based on the inverse problem solution
5. *Orlovsky D.G.* Inverse Problem for a Differential Equation with Caputo fractional derivative in a Hilbert Space
6. *Petrov S.V., Prostokishin V.M.* An Example of a None-zero Walsh Series with Riesz-spaces' Coefficients and Vanishing Partial Sums S_{2^k}
7. *Kostin A.B., Sherstyukov V.B.* Calculation of sums of Rayleigh type by zeros of equation containing Bessel function and its derivative
8. *Tkachenko D.S., Soloviev V.V.* Global uniqueness of the compact support source identification problem
9. *Telyakovskii D.S.* On the Holomorphy of Functions that Define Mappings with Asymptotically Constant Stretching
10. *Baskakov A.V., Volkov N.P.* Refinement of the Reactor Dynamics Mathematical Model

Session №2
Head: Oleg V. Nagornov
Room: 407
Time start: Monday, 25 June, 15:00

1. *Nagornov O.V., Dunin S.Z.* Cooling effect for evaporating of drops situated at high-conductivity substrate
2. *Ivanova T.M.* Axial closed form texture component approximating the canonical normal distribution
3. *Barmenkov A., Barmenkov N.* On the application of systems of functions of special kind in mathematical physicsl
4. *Belendryasova E.G., Gani V.A., Moradi Marjaneh A., Askari A., Saadatmand D.* A new look at the double sine-Gordon kink-antikink scattering
5. *Nikitaev V.G., Nagornov O.V., Pronichev A.N., Polyakov E.V., Dmitrieva V.V.* Optical radiation sensor signal distortion model in the computer microscopy system
6. *Gubin S.A., Victorov S.B.* The accuracy of the theories based on statistical physics for the thermodynamic modeling of state parameters of dense pure gases (fluids).
7. *Sumskoi S.I.* Simulation of gas release from trunck pipelines using a new numerical method based on the Godunov approach

8. *Gorkunov S.V., Bogdanova Y.A., Karabulin A.V.* An approximate analytical solution for the shock wave structure in a duct with a pseudo-perforated wall

9. *Bogdanova Y.A., Mamedov Z., Kudinov A.V.* The influence of potential parameters of a binary mixture components on the calculation accuracy by the Monte Carlo simulations

Session №3
Head: Oleg V. Nagornov
Room: 407
Time start: Tuesday, 26 June, 10:00

1. *Zaluzhnaya G., Zagrebayev A.* Mathematical modelling and optimization of High-Power Channel-Type Reactor's core charge

2. *Mitrofanov M.S., Nagovitsyna O.A., Sergievskii V.V.* Description of liquid-vapor equilibria in binary associated of nonelectrolyte systems

3. *Peregoudov D.V.* Relativistic length contraction and time dilation as dynamical phenomena

4. *Kondratyev I.A., Moiseenko S.G.* Basic operators method extension for 3D stationary problems on unstructured tetrahedral meshes

5. *Stepin E.V.* Steady trans-Alfvenic and sub-Alfvenic MHD flows in coaxial channels with longitudinal magnetic field

6. *Fedotova A.D., Kolybasova V.V., Krutitskii P.A.* Computation of potential of a single layer for Helmholtz equation in three-dimensional case by quadrature formulas of increased accuracy

7. *Vasilyev S.A., Kolosova I.S.* Tikhonov-type Cauchy problem for Relativistic Schrodinger Equation

8. *Nikabadze M., Ulukhanyan A., Sakhvadze G.* To mathematical modeling of deformation of micropolar thin bodies with two small sizes

9. *Nikabadze M.* Application of eigenvalue problems for tensor and tensor-block matrices for mathematical modeling of micropolar thin bodies

10. *Kozlov I.M., Misuchenko N.I., Teterev A.V.* Modeling of acetylene detonation in a shock tube by the large particle method with TVD correction

Session №4
Head: Oleg V. Nagornov
Room: 407
Time start: Tuesday, 26 June, 15:00

1. *Stadnik N.E., Klindukhov V.V.* On Simulation of Blood Vessels Growth

2. *Murashkin E.V., Radayev Y.N.* Heat transport modelling in hemitropic micropolar continuum

3. *Kazakov K.E., Manzhirov A.V.* Plane contact problem for foundation with multilayer nonuniform coating

4. *Parshin D.A., Manzhirov A.V.* Mathematical model of additively formed solids
for the mechanical analysis of layer-by-layer manufacturing
viscoelastic materials on rotating cylindrical substrates

5. *Dats E.P., Murashkin E.V.* Governing Equations of the Thermoelastoplasticity in Toroidal Coordinates

6. *Dashevskiy I.N.* Dependence of micromobility of dental implants on its thread geometry

7. *Perelmuter M.N.* Boundary integral equations for stress analysis of technical structures (from jet blades to tooth implants)

8. *Kukudzhanov K.V., Levitin A.L.* On the mechanism of electroplasticity of a metal under the action of a pulsed high-energy electromagnetic field

9. *Dashevskiy I.N., Gribov D.A.* On personification of the evaluation of stress-strain state in a mandible according to CT data for different dental implantation schemes

Session "Mathematical methods of processing and data analysis"

Session №3
Head: Alexander V. Kryanev
Room: 408
Time start: Tuesday, 26 June, 10:00

1. *Malykh M., Sevastianov L., Ying Y.* The construction of explicit conservative difference schemes for autonomous systems of differential equations
2. *Demidova A.V., Demidova T.S., Sobolev A.A.* Stochastic modeling of spreading of computer viruses
3. *Malykh M., Sevastianov L., Nikolaev N.* On the representation of electromagnetic fields in closed waveguides with discontinuous filling using four continuous potentials
4. *Kulyabov D.S., Korolkova A.V., Sevastianov L.A.* Algebraic structure of special relativity
5. *Gevorkyan M.N., Demidova A.V., Kulyabov D.S., Korolkova A.V.* Statistically significant performance testing of Julia scientific programming language
6. *Gostev I., Malykh M., Sevastianov L.* On the Identification of the Objects Shape Invariant to Projective Transformation
7. *Druzhinina O.V., Sevastianov L.A., Vasilyev S.A., Vasilyeva D.G.* Numerical analysis of Kurzanov bearing oscillation
8. *Zavozina A.V., Velieva T.R., Korolkova A.V.* The determination of the coefficients of harmonic linearization for deterministic nonlinear system with control
9. *Apreutesey A.Y., Korolkova A.V.* A Simple Model of Active Queue Management System According to the RED Algorithm

Session №4
Head: Alexander V. Kryanev
Room: 408
Time start: Tuesday, 26 June, 15:00

1. *Shchetinin E.Y., Berezhkov M.S.* Electricity load forecasting with clustering consumers in smart energy grids
2. *Getmanov V.G., Sidorov R.V.* A method of two-dimensional filtering of modulated matrix data sequences
3. *Tolmacheva N.S., Savyolova T.I.* The Monte-Carlo method for modeling of grains, their disorientation for polycrystal
4. *Filipenkov N., Petrova M.* Data Mining of Changing Rules in Time Series
5. *Dobrovolsky M.N., Getmanov V.G., Soloviev A.A., Butirskiy E.Y., Dmitrieva A.N.* Method of anomaly recognition in time series of matrix data based on confidence interval systems and space-time filtering
6. *Shchetinin E., Rassakhan N.* On Some Properties of Tail Dependence Coefficient Nonparametric Estimators
7. *Ovchinnikova A.O., Savyolova T.I.* Application of the improved polycrystalline model in the framework of the EBSD experiment simulation

8. *Kulikov A.N.* On the possibility of implementing the Landau-Hopf-Sell scenario for a transition to turbulence

9. *Kulikov D.A.* The generalized Solow model

Session №5
Head: Sergey Yu. Misyurin
Room: 408
Time start: Wednesday, 27 June, 10:00

1. *Kryanev A.V., Pavlov U.G., Sliva D.E., Ulyanin U.A.* Effective portfolio formation of business dimensions of organizations on the basis of statistical forecasts

2. *Suvorova Y.M., Skryabin K.G., Korotkov E.V.* A new method for triplet periodicity change point detection

3. *Korotkov E.V., Korotkova M.A.* Mathematical method for search of a multi alignment of DNA sequences with weak similarity

4. *Marushkina E.A.* Complex behavior of solutions of the system of three Hutchinson equations with a delayed broadcast connection

5. *Sirotin D.M.* Numerical analysis of invariant characteristics of buckling beam driven oscillations

6. *Bykova N.D.* Study of the dynamics of a system with delay that described of the operation of a nuclear reactor

7. *Gayduk E.V.* About periodic solutions for certain functional equation

Session №6
Head: Sergey Yu. Misyurin
Room: 408
Time start: Wednesday, 27 June, 15:00

1. *Loginov D.O.* Bifurcation as the Coefficients of the Boundary Conditions Change in the Logistic Equation with Delay and Diffusion

2. *Peregoudov D.V., Gvishiani A.D., Yashin I.I., Shutenko V.V.* Application of the statistical tests method for calculation of the hardware function model estimates for streamer detector systems

3. *Bychovec E., Klimanov S.G., Klimov V.V., Kryanev A.V., Sliva D.E.* Mathematical model for predicting the resource allocation within a system in the course of a transition process

4. *Golubtsov P.V.* Information spaces: optimizing sequential and parallel processing for big data

5. *Zhukov V.V., Aleksandrova L.V., Mardashev A.M., Petrov V.A., Tolmachev I.L.* Issues of medical datasets classification

6. *Zhurov A.I.* New functional-separable solutions to unsteady axisymmetric boundary-layer equations in terms of elementary functions

7. *Statnikov I.N., Firsov G.I.* Regression analysis of the results of planned computer experiments in machine mechanics

8. *Misyurin S.Y., Potapov M.A., Nelyubin A.P.* Integrated control of a robotic group with partial dominance of decision variants

9. *Ivlev V.I., Misyurin S.Y., Nosova N.Y.* Comparison of piston, vane and perspective scroll air motors performance