Opening Ceremony Plenary Talks Section I. Mathematical modeling with high-performance computing systems Section II. Mathematical models of transfer and evolution in nonlinear and information-active systems Section III. Mathematical models and software support in computational physics Section IV. Mathematical models in solid state physics and electronics Section V. Mathematical modeling in the mechanics of deformed matter Section VI. Mathematical modeling of turbulent processes and determinated chaos Section VII. Mathematical models of nonlinear dynamics and synergetics Section VIII. Mathematical modeling of processes in transition and boundary layers Section IX. Mathematical and computer models of intellectual systems Section X. Mathematical models in economy and sociology Section XI. Mathematical modeling of biological and ecological systems Section XII. Mathematical modeling of chemical and macromolecular systems **Proceedings of the V ICMM Social Program**

The Conference Program, my be changed. All the changes will be posted on the Conference Information desks.

September 30 Monday

(LIT Congress Hall)

12:00 Opening Ceremony Chairmen I.V. Puzynin (JINR) Vice-director of JINR A.N. Sissakian Mayor of Dubna V.E. Prokh

Director of IMM RAS B.N. Chetverushkin. Introductory word and plenary talk.

Plenary Talks

September 30 Monday

12:55 A.V. Zabrodin Parallel calculations and their applications in fundamental and applied researches.

 $13{:}25-15{:}00\ Lunch$

(LIT Congress Hall, 15:00 - 18:50)

(LIT Congress Hall, 12:55-13:25)

15:00 N.N. Kalitkin, L.V. Kuzmina Thermophysics matter under extreme conditions. 15:30 S.P. Kurdyumov Tewmpoworls, coevolution regulations, influence of past and future development stages

16:00 V.L. Makarov Calculus of institutions.

16:30 V.M. Polterovich Rent seeking and economic growth.

17:00 – 17:20 *Coffee*

17:20 Akira Imada Associative memory by evolving spiking neurons.

17:50 A.B. Rubin, G.Yu. Riznichenko Models of regulation of photosynthetic processes.

18:20 K.V. Brushlinsky, A.N. Kozlov, V.V. Savelyev Computational plasmadynamic problems. 19:00 *Welcome party*

October 1 Tuesday

(LIT Congress Hall, 10:00-13:30)

10:00 **A.B. Kurzhanski** Control process design-from mathematical models to computer animation. 10:30 **E.S. Polovinkin** Modeling feedback control synthesis and numerical calculation of it.

11:00 V.D. Furasov Models and indices of social and economical development of Russia on the boundary of the two centuries.

11:30-12:00 Coffee

12:00 Yu.N. Gavrilets Models of the formation of stereotypes in the socio-economic behavior of individuals.

12:30 A.A. Petrov Mathematical models of the economical dynamic of Russia at present time.

13:00 V.P. Maksimov, A.N. Rumyantsev Linear models in economic dynamics: computer-assisted study

13:30-15:00 Lunch

(LIT Congress Hall, 15:00-19:20)

15:00 A.S. Sidorkin, B.M. Darinsky The mathematical models of processes of switching of ferroelectrics.

15:30 A.M. Lipanov, Yu. F. Kisarov, I. G. Kluchnicov Modeling and theoretic research of the turbulent flows.

16:00 A.I. Koshelev On the modeling of the smooth solutions for the navier-stokes system.

16:30 A.N. Kudinov, V.A. Koldunov Numerical model for calculation of shells and shells' construction without assumptions peculiar to the shells" theory.

17:00-17:20 Coffee

17:20 S.F. Timashev, G. V. Vstovsky Informative essence of turbulency: general phenomenological approach to analysis of chaotic processes.

17:50 V.D. Lakhno The tasks of computer biology.

18:20 Chin-Kun Hu Synchronization in nonlinear coupled systems.

18:50 D.Yu. Ivanov Mathematical modeling of the radiation transfer in disperse turbid media.

October 5 Saturday

(LIT Congress Hall, 10:00-13:20)

10:00 **M.M. Khapaev** Hydrodynamic model in planet three-body problem: evolution and stability. 10:30 **B.E. Pobedria** Modeling of phase transformations in a mechanics of composites.

11:00 **A.B. Kiselev, A.A. Luk'yanov** Mathematical modelling of dynamic processes of irreversible deforming and fracture of solids and structures.

11:30-11:50 Coffee

11:50 N.S. Bakhvalov, M.E. Eglit Asymptotic investigation of two-parametric problems of mehanics of composite materials.

12:20 **Ŷ.A. II'in** Boundary control of processes, described by hyperbolic equations.

12:50 A.S. Sigov Phase diagram of multilayer magnetic structures.

13:20-15:00 *Lunch*

(LIT Congress Hall, 15:00-19:20)

15:00 A.A. Berlin, O.V Gendelman, M.A. Mazo, L.I. Manevitch, N.N. Sinelnicov Melting and vitrification of soft spheres.

15:30 Klaus R. Schneider, Mindaugas Radziunas, Jan Sieber Dynamics of semiconductor lasers. 16:00 P.M. Lima, A. Olivera Numerical methods for a boundary layer problem in non-newtonian fluid mechanics.

16:30 A.B. Zizchenko, A.S. Agjiev, S.P. Konovalov, M.V. Kulagin, P.Pogorelko, V.A. Serebriakov, S.V. Znamenskii The Russian web portal of mathematical resources math-net.ru 17:00-17:20 *Coffee*

17:20 **B. Thalheim** From database development based on object-orientation to component ware.

17:50 V.B. Kudryavtsev, A.S. Strogalov About new results the intellectual systems theory.

18:20 V. N. Kozlov A mathematical approaches to visual pattern definition and geometric transformation of images

18:50 A.B. Vasileva, V.F. Butuzov, N.N. Nefedov Asymptotic investigation of processes with internal layers.

October 6 Sunday

LIT Congress Hall, 10:00-14:10)

10:00 A.V. Latyshev, A.A. Yushkanov Analytic solution of the boundary value problems for ellipsoidal statistical equation.

10:30 **I.V. Puzynin.** Some problems of simulation of complex processes: mathematical and computational chaos.

11:00 N.M. Chernavskya, D.S. Chernavskii, A.S. Malkov, S.Yu. Malkov

Problems demografy, sociology and ecology in model competition of conventional information.

11:30 – 11:50 *Coffee*

11:50 L.Yu. Vasil'eva, G.P. Lapina The functional models of enzymes.

12:20 Yu.V. Polezhaev, A.Yu. Varaksin Modeling of inter-phase slip and turbulence modification in gas-solid flows.

12:50 **K.V. Shaitan** Energy surface geometry and molecular dynamics: from hydrocarbons to peptides and proteins.

13:20 L.A. Uvarova Mathematical modeling of multicomponent heat and mass transfer in the systems with nonlinear properties in the electromagnetic field.

13:50-14:50 Closing of Congress

Section I. Mathematical modeling with high-performance computing systems Chairman – B.N.Chetverushkin Co- Chairman – A. Derv'e

Scientific Secretary – A.A. Kuleshov

October 2 Wednesday

(Room №406(a), 10.00-18.30)

(11:00-11:20, 17:00-17:20 Coffee, 13:30-15:00 Lunch) I.I. Antonova, R.Kessel Simulation of filtration processes in percolation lattices on distributed memory multiprocessor systems

Artemiev A.Yu, Yu.G. Bartenev, Ya.A. Bondarenko, V.A. Erzunov, M.A. Kolesov, A.V. Lomtev, A.S. Maksimov, A.I. Panov, A.I. Prokofiev, M.D. Romanova, A.P. Trubitsin, N.V. Frolova, T.V. Tsareva, E.B. Shchannikova, A.S. Sukhikh, Y. Dandass, D.E. Nielsen, A. Skjellum, V. Valsalam, W. Wu The library of solvers for sparse linear systems. Capabilities, use, development prospects.

O.M. Belotserkovskii, L.M. Kraginsky, M.N. Antonenko, A.V. Konyukhov, A.M.Oparin, S.V. Fortova Implementation of the universal computation technology for modeling spatial problems described by hyperbolic set of equations.

Boldyrev S.N., Mikhail V. Iakobovski, Dmitrii A. Machin, Sergey A. Sukov

Big Unstructured Mesh Processing. A.I. Bogolubsky Linear Recurrent Sequences and Numerical Equation Solving

Yu.A. Blinkov and V.V. Mozzhilkin An Algorithmic approach to generation of difference schemes in computational hydro- and aerodynamics

V.A. Danilov, M.A. Senilov, V.E. Lyalin Interpretation of data of geophysical will logging with application of rank algorithm of an adaptive choice of subclasses

Ermolaev A.M., V.S. Melezhik Efficient three-dimensional grid treatment of the hydrogen atom dynamics in a strong, high-frequency laser field: analysis of adiabatic stabilization.

Fomin M. A., Viskov Mpls switch queuing model.

Glazunov N.M. Mathematical modeling of Minkowski conjecture on critical determinant of the region and its computer assisted proof.

Iakobovski M, Peter S.Krinov Visualisation of grand chAllEnge data on Distributed multiprocessor systems

Jeleznov N.P., O.N. Miftakhutdinova. Mathematical Modeling Problems in the System of Voluntary Certification of Information Technologies.

M.N. Nazarov On the algorithmization of information storage and security in distributed databases.

N.N. Kalitkin Stiff method of lines

Kim P. A. Vertical data processing on SIMD for defect analysis by the layer image.

D. Kirianov and E. Kirianova Algorithm and software for three-dimensional grid editing for computational physics problems

S. Yu. Kisarova Modeling flow behind the step

Kopyssov S P, A.K. Novikov, M.Yu. Alies Parallel mesh refinement and load balancing in mathematical modeling of elasticity problems.

N.B. Konyukhova and A.L. Dyshko. Multiple self-similar solitons for (two-) three-component higgs fields in the de sitter space

R.A. Kovalenko, V.É. Lyalin Algorithms of optimum control of the slits drilling process because of indentification of vibroacoustic signals of a drilling column

Popov I V., S.V. Polyakov Algorithms for triangular and tetrahedral meshes generation. Sushkevich T.A., S.A. Strelkov, E.V. Vladimirova, E.I. Ignatijeva, A.K. Kulikov, S.V. Maksakova, V.V. Kozoderov. Mathematical modeling of the radiation transfer in natural media with high-performance computing systems.

Rychkov V.N., I.V. Krasnopyorov, S.P. Kopyssov Parallel distributed CORBA-based components in mathematical simulation.

Timchenko S. Hypersonic numerical simulations on the distributed memory parallel computers

Section II. Mathematical models of transfer and evolution in nonlinear and information-active systems

Chairman – L.A.Uvarova

Co- Chairman – P.Lima Scientific Secretary – O.A. Kazakov

October 2 Wednesday

(Room №310, 10.00-18.00) (11:00-11:20, 17:00-17:20 Coffee, 13:30-15:00 Lunch)

Aranson A. B. Computation of collections of correlated faces for several polyhedrons and applications of Newton-Bruno Polyhedrons.

Borisov A V, Yu.V. Kistenev, A. Yu. Trifonov, A.V. Shapovalov

A model of optical soliton-like beam in cubically transversally inhomogeneous medium.

Chernykh V A., A.P. Sukhorukhov, I.G. Zaharova Mathematical modeling of coupled shock waves' evolutions in non-linear viscous medium.

Diogo T, P.M. Lima, N. Ford, S. Valtchev Numerical methods for a Volterra integral equation with nonsmooth solutions.

Egorov A. A. Restoring of autocorrelation function of statistic surface roughness by the light scattering in integrated optical waveguide.

Ionov J.G. Radevkin A.A. Model for study of an optimum mode of regulation of plasma cutting of metal

Kazakov O.A. Algebraic method of dynamic models identification of "power source – load" systems Kessel A R, N.M. Yakovleva Scheme of experimental implementation of two-qubit Deutsch problem algorithm on the individual nuclear spin I=3/2

Itshenko S. Ya. Evalution of integrals needed for calculation of many-electron atoms using the bases of Hylleraas type.

Kuzyakov B.A. Simplicity model of calculation losses for energy transmission channel inside laser technology set-up

Levanov E I, P.P. Volosevich Heat Transfer Simulation Considering Heat Flow Relaxation and Energy Sources.

Nadykto A B and F.Yu Nucleation in complex atmospheric systems

Nadykto A B. Size-dependent composition of critical binary ion clusters

Nigmatullin R, G. Smith Fluctuation-noise spectroscopy and a "universal" fitting function of amplitudes of random sequences.

Pletnev L, Zh. Kurek, S. LoChirco Monte Carlo simulation of the stationary heat and mass transfer in open systems.

Perminov V. A numerical study of mass forest fires initiation

O.N. Shablovsky, D.G. Kroll Relaxational properties of phase boundaries in the non-linear media.

O.N. Shablovsky Exact solutions in the theory of locally-non-equilibrium heat transfer.

Barmakova T.V. Mathematical modeling of processes a heat-mass transfer in highdispersion much components fluid systems.

Semin L.G., V.P. Shapeev, A.N. Cherepanov, V.K. Cherepanova, I.K. Igumenov, A.N. Mikheev Numerical investigation of sublimation processes of metal beta-diketonates in the inert gas flow. **October 4 Friday Room №310, 11.00-16:00**)

(11:00-11:20, 17:00-17:20 Coffee, 13:30-15:00 Lunch)

Shchukin E.R., K.V.Abrosimov, Oulare' Faya, Z.L.Choulimanova, Lamah Jan Marc Deposition of aerosol particles in coaxial cylindrical channels at different wall temperatures Shchukin E.R., Z.L. Choulimanova, Diallo Abdoulaye Mouctar, Souomou Vassina

Quasi – stationary diffusive vaporization and growth of finite assembly of inmovable large interacting drops of pure liquid

Smirnova M.A. Account of temperature in disperse system containing particle of the triangular form Krivenko I.V., Uvarova L.A. Two absorbing cooperating spherical particles in a field of laser radiation. Modeling of distribution of temperature on section of spheres. Resonances of absorption in system of two spherical particles

Solomakha G.M. Mathematical modeling of two-dimensional non-homogeneous stochastic fields Suvorova T.V. Modelling of dynamics behavior of system "Permanent Way – Stratified Soil"

Tatarintsev A.V. Mathematical models of evoly6tion in non-linear thermodynamical systems

Tchijova I.A., Gorelov A.G, Tikhonov V.S. Mathematical simulation of alluvial placer forming Terentiev E.N., N.E. Terentiev, F.V. Shugaev Local-linear method of super-resolution in the passive microwave radiovision systems and optics.

Traytak S.D. Solution of boundary-value problems of the potential theory in multiconnected domains Vedenuapin V.V., J.G. Batisheva, I.V. Melihov, A.Ya. Gorbachevskiy

On the motion of solids in gas with nonuniform surface chemical processes.

Vedenyapin V.V. 130 years of Boltzmann H-theory and discrete velocity models.

Vedenyapin V.V., S.A.Amossov Discrete models of Boltzmann equation: construction algorithm and normality.

POSTERS

Barmakova T.V. Balanced correlations of thermodynamic features of process mass transfer in much components homogeneous viscous liquids under diffuse proceed of processes

Guseva M. Viscous flow of the gas in the groups of heated particles of various forms

Ionov J.G. The mathematical description of dynamic properties of an electric arc system with the generator of low-temperature plasma

Krivenko I.V., Komarov A.Ph. Modeling of interaction of an electromagnetic field with disperse system containing cylindrical particles (long-wave approach)

Semova E M. Mathematical simulation of the influence of the material characteristics and exterior conditions on the process of multiple disintegration of cross-linked rubber-like polymer under intensive stress action such as compression and shear

Shchukin E R, K.V.Abrosimov, Ż.L.Choulimanova, Lamah Jan Marc, A.N. Kabanov On peculiarities of thermophoretic depozition of particles in channels

Shchukin E.R., Camara Seydouba, Z.L.Choulimanova, Berete Mamady, K.V.Abrosimov

Influence of anisotropy on thermophoretic motion of moderatly large solid spherical particles.

Shchukin E.R., Camara Seydouba, Diallo Abdoulaye, Z.L.Choulimanova, Bah Mawiatou Kaba Lamine The effect of heterogeneity of thermal properties of aerosol particles on thermophoretic motion

Shchukin E.R., Oulare Faya, Z.L.Choulimanova, Bah Mawiatou Kaba Lamine

Influence of heterogeneity on photophoretic motion of aerosol particles

G.Yu. Yalamov About of the influence of the Coefficient of evaporation on the diffusiophoreses of large volatile aerosole paticles

Section III. Mathematical models and software support in computational physics Chairman – I.V. Puzynin Co- Chairman – Chin Kun Hu

Scientific Secretary – D.V. Podgainyi **October 2 Wednesday**

(LIT Congress Hall, 9:30-18:30) (11:00-11:20, 17:00-17:20 Coffee, 13:30-15:00 Lunch)

Ayrjan E.A., Chin Kun Hu, Sh. Hayryan, I.Pokorny, I.V. Puzynin Born approximation parameters for proteins in ECEPP/3 forcefield.

Dikoussar N.D. Polynomial smoothing by computation in the parameters.

Yanovich L.A., A.V. Tarasevich The interpolation formulas on a set of matrices with Jordan's and Kronecker's multiplication.

Emelichev V.A., Bukhtoyarov S.E. Parametrization of optimality principle "from pareto to slater" and stability analysis of vector trajectorial problems

Egorov A.A., N.G. Zhadaeva On a class of additive iterative methods.

Egorov A.D. Approximations of stochastic integrals, based functional integral transformation.

Dimova S. Numerical investigation of processes in high intensive temperature fields.

Chegis I. Integral equations of the potential theory and computer algorithm for an inner neumann problem.

Abramov A A., K.Balla, V.I.Ul'yanova, L.F.Yukhno

On nonlinear eigenvalue problem for certain differential algebraic equations of index 1.

Zherelo A.V. Approximate formula for one class of integrals over cylindrical domain.

Lobkov A.F., Tereshkin E.V. Regularization of a method of laser cytomonitoring.

K.Kholmurodov, N.Okimoto, Y.Hirano, T.Ebisuzaki MD Simulations on the Dynamics and Conformational changes of Prion Proteins: the Effect of Glu 200 \rightarrow Asp and Glu 200 \rightarrow Lys Mutations in the HuPrP

Polanski A., Amirkhanov I., Puzynina T., Uzhinskii V., Zemlyanaya E. Simulation of nuclear reactions within the framework of OMD model

October 3 Thursday

(LIT Congress Hall, 9:00-18:30)

(11:00-11:20, 17:00-17:20 Coffee, 13:30-15:00 Lunch)

M.V. Altaisky, N.N. Knyazkov, Z.Z. Latypov, S.A. Morev, I.V. Puzynin

Suspensions of micro-particles in stationary acoustic fields.

Kuvshinova E A, S.I. Martynenko Robust multigrid technique for steady-state problems of computational physics.

Martynenko S I, Kuvshinova E.A. (CIAM, MSTU)Multigrid software for "black box" solvers: building blocks and diagnostic tools.

Anikeev V., V. Anikieeva Problem of distribution estimation from experimental data in high-energy physics from the mathematical modeling method point of view.

Antoniou I., V.V. Ivanov, V.V. Ivanov, P.V. Zrelov Statistical model of network traffic. Antoniou I., V.V. Ivanov, V.V. Ivanov, P.V. Zrelov Wavelet filtering of network traffic

measurements.

Barashenkov V.S., A. Polanski, I.V. Puzynin Monte-Carlo modeling of particle beam interactions with heterogeneous media.

Belotelov I., G. Ososkov Comparative study of alignment methods for multi component track detectors.

Edneral V. On analysis of dynamical systems in normal form method by computer algebra tools.

Emel'yanenko G.A., V.N. Samoilov, M.G. Emelianenko Ucertainty principle and the spectral problem in linear algebra.

Gerdt V.P., D.A. Yanovich Finding roots of complicated non-linear polynomials systems.

Midy P., J.-P. Petit Studyng extra dimensions in cosmology via Lie group analysis and dynamical system theory.

Yu.P. Rybakov, S.A. Terletsky Solitons' dynamics in external fields and quantum mechanics.

Serdyukova S.I. Inverse problem for two-dimensional discrete Shcrodinger equation.

Skorohodov S.L. Methods of analytic continuations for the generalized hypergeometric functions pFq, p=q+1.

Tsvetkov V.P., E.V. Bespalko The analytical Representation of solutions of the integral equations for the spinor amplitude in the curved space-time with help the computer system Mapple

October 4 Friday

(LIT Congress Hall, 15:00-18:30)

(11:00-11:20, 17:00-17:20 Coffee, 13:30-15:00 Lunch)

Boyadjiev T., A.N. Tsyrulev Inumerical models of globally defined einstein-yang-mills black holes in coordinates of the kruskal type.

Boyadjiev T., P.P. Fiziev Electrically charged black holes with massive dilaton.

Tsvetkov V.P. Mathematics modeling spin dynamics in the curved space-time.

Suzko A.A. Analytical description of some quantum systems with time-periodic Hamiltonians. Lobanov Y.Y., V.D. Rushai, E.P. Zhidkov Numerical study of open quantum systems in application

Lobanov Y.Y., V.D. Rushai, E.P. Zhidkov Numerical study of open quantum systems in application to the dinuclear system model.

Samsonov B.F., A.A. Suzko Discrete supersymmetries of the Schrodinger equation and non-local exactly solvable potentials.

Sevastianov L.A., Zorin A.V. The matrix representation of the quantum mechanics with a nonnegative quantum distribution function

Zhidkov E.P., E.B. Laneev, M.N. Mouratov On stable solution for a mixed boundary-value problem for Laplace equation with inexact data on an approximately defined boundary.

Kochikov I.V., G.M. Kuramshina, A.G. Yagola Inverse problems of vibrational spectroscopy as nonlinear ill-posed problems

Silaev D.A., Sinitsyin V.V. Mathematical modelling for processes in the desiruction of materials POSTERS

Kostenko B.F., Pribis J., Puzynin I.V. Beyond the Stefan problem

Streltsov I.P., Streltsova O.I. Application of Chebyshev polynomials for solving laplace equation on area as a square with boundary and internal conditions.

Glukhikh M., S.Sadakov Design constrained scenario studies for iter with the plasma quest code **Gerdt V., A. Khvedelidze, Mladenov D.** Algorithmic analysis of Constraints in light-cone version of SU Yand-Mills mechanics.

Kornyak V.V. Efficient calculation in high-dimensional cochain complexes.

Severyanov V.M. Deterministic hyperbolic cellular automata as evolving algebras.

Barashenkov I.V., Woodford S.R., Zemlyanaya E.V. Parametrically driven dark solitons.

Bogolubsky I.L., Bogolubskaya A.A. Spontaneous symmetry breaking and localized solutions in the A3 and A3M Heisenberg models

Boyadjiev T., Tsyrulev A.N. Inumerical models of globally defined einstein-yang-mills black holes in coordinates of the kruskal type.

Chuluunbaatar O, Gusev A.A., Puzynin I.V., Vinitsky S.I. Variational-iteration method for multi-channel three-body scattering problem

Dubovik V.M., Galperin A.G., Richvitsky V.S. A few reciprocally supplement kinetical models.

Dubovik V.M., Galperin A.G., Richvitsky V.S. Dynamical systems of Lotka-Volterra class. **Pupyshev V.V.** Spline algorithm for solving the Faddeev Integro-differntial equations.

Yukalova E P., Yukalov V.I. Spectral and dynamical properties of non-linear coherent systems. Akishina E.P., Antoniou I., Ivanov V.V., Kostenko B.F., Stalios A.D. Cellular automata modeling of high burn-up structures in UO₂

Alekseev A, Amoskov V., Belov A., Belyakov V., Filatov O., Kalinin V., Kaparkova M., Konstantinov E., Shatil N., Sytchevsky S., Vasiliev V. Cool-down simulations for the ITER Amoskov V, Belyakov V., Bender S., V.Gusev, Kavin A., Lamzin E., Sadakov S., Sakharov N., Sytchevsky S., Filatov O. Real-time plasma boundary reconstruction including eddy currents influence from external magnetic measurements in the globus-m tokamak Amoskov V., Belov A., Filatov O., Garkusha D., Gribov Yu. Kukhtin V., Lamzin E., Maksimenkova N., Mingalev B., Sadakov S., Sytchevsky S. Penetration of oscillating magnetic field through ITER double walled vacuum vessel

I.V. Amirkhanov, I.V. Puzynin, T.P. Puzynina, I. Sarhadov, E.V. Zemlyanava Influence of the source's form in the model of phase moves in metals exposed to pulsed ion beams

Amoskov V., Belov A., Belyakov V., Belyakova T., Bykov V., Filatov O., Gapionok E.,

Garkusha D., Kokotkov V., Krasikov Yu., Krylov V., Kukhtin V., Lamzin E., Sytchevsky S. Electromagnetic study of the ITER thermal shield

V.Alexeev, V.Amoskov, A.Arneman, A.Belov, V.Belyakov, T.Belyakova, L.Chvartatzkaya, O.Filatov, E.Gapionok, S.Grigoriev, K.Ioki, M.Kaparkova, V.Kokotkov, V.Komarov, E.Konstantinov, V.Kukhtin, E.Lamzin, A.Lipko, A.Makhankov, A.Malkov, I.Mazul, G.Sannazzaro, N.Shatil, S.Sytchevsky, V.Tanchuk, Yu.Utin, V.Vasiliev Numerical Simulation of Transient Processes in ITER as 3D Coupled Problems.

Section IV. Mathematical models in solid state physics and electronics

Co- Chairman – A.S. Sidorkin

Chairman – A.S. Sigov Scientific Secretary – L.S. Shpilenok

(Room №437, 9.30-18.30)

(11:00-11:20, 17:00-17:20 Coffee, 13:30-15:00 Lunch) Akhmadullin R.N., B.N. Filippov, E.M. Vaziev, V.V. Zverev Numerical simulations of the domain walls motion in magnetics based on pseudo-wavelet schemes.

Altukhov V.I., M.V. Katrusheva, R.V. Koneev The some typical peculiarities of thermal conductivity in the phonon model of ferroelectronic crystals with soft phonon mode.

Asotsky D. I. Computations of non-equilibrium processes in 2D electron gas microstructures.

Belokon A.V., V.A.Eremeyev, K.A.Nadolin, A.V.Nasedkin, A.S.Skaliukh, A.N.Soloviev

Finite element methods and algorithms for actual acoustopiezoelectric problems

Bezverbny A.V., A.V. Shapovalov Formation of light-induced lattices of atoms: two-dimensional models.

Bikadorova G.V., V.A. Goldfard, R.G. Grigoriev Simulation of the technology of creation of source and cannel region of power field UNF transistors.

Bityutskaya L.A., S.G. Zhitskey Synchronization effect at phase-transient processes.

Bormontov E.N., Y.I. Bryazgunov, R.S. Nahmanson A model for the capacitance-voltage characteristics of mos structure with complicated doping profile.

Bystrov V., A. Sapronova, M. Green Mathematical modeling of ion channels.

Chuprakov D.A., A.P. Sukhorukov Pertubed quadratic soliton switching.

Darinskii B.M., A.S. Sidorkin, A.A. Sigov Surface waves in polydomain ferroelectrics

Dolgikh A.V., D.L. Dorofeev, B.A. Zon Tolman'snonlinearity of capillary nanowaves.

Doronin S.I. Mathematical modelling of multiple-quantum dynamics of coupled nuclear spins in solids.

Garmashov S.I., V.Yu. Gershanov Mathematical modelling of liquid inclusion migration through a non-uniformly heated crystal.

Gevorkyan E.A. Electromagnetic waves in a waveguide of an arbitrary cross section with space-time periodic dielectric filling.

Gladkov S.O. Theory of thermal conduction in porous dielectrics (Crystal dielectric with the only pore of radius R).

Kashirina N.I., V.D. Lakhno, V.V. Sychyov Variational treatment of the energy of two-electron systems in polar media.

Khapaev M. M. Evolution and stability of solar system.

Kurganskii S.I., N.S. Pereslavtseva, E.V. Levitskaya Modeling of the electronic and transport properties of molybdenum disilicide.

Lobanov V.E., A.P. Sukhorukov, I.G. Zaharova Modeling of trapping three harmonics into spatial soliton in quadratic periodically poled crystals.

Lyubimov D.V., T.P. Lyubimova, A.M. Vorobiev Mathematical modeling of vibration influence on crystal growth in Czochralski configuration.

Morosov A.I., Sigov A.S. Exchange bias in ferromagnetic – antiferromagnetic systems.

Muralev V.A., N.I. Kozlov Simulation of characteristic of the charged particle.

Nechaev V.V., A.S. Tarasov Model of system of intellectual organization, storage and representation given in area of nanotechnologies.

October 3 Thursday

October 2 Wednesday

(Room №413, 10.00-13:00)

(11:00-11:20, 17:00-17:20 Coffee, 13:30-15:00 Lunch)

Polyakov S.V. Spin splitting of electron flows in a quantum channel.

Prylutskyy Yu.I., O.V. Ogloblya, M.V. Makarets, M.P. Kulish, O.P. Dmytrenko

Computer modeling of irradiation effect on the electronic properties of carbon nanotubes.

Rudyak V.Ya., S.L. Krasnolutski Simulation of nanoparticles diffusion in rarefied gas.

Semenov A.E. Mathematical model of an open cycle of photorespiration.

Sidorkin A.A., V.A. Sidorkin Electron emission in ferroelectrics.

Tereshkin E.V., Lobkov A.F. Definition of distribution functions of ultradispersion mediums with the aid a scattering of laser radiance.

Ternovsky V.V., E.A. Sheina, M.M. Khapaev Numerical modeling of magnetization processes in small ferromagnetic sphere.

Tikhonov N.A. Ion exchange membrane as oscillations generator.

Section V. Mathematical modeling in the mechanics of deformed matter Chairman – A.N. Kudinov Co- Chairman – D. Morgan

Scientific Secretary – A.N. Tsyrulev

October 2 Wednesday

(Room №413, 9.30-18.30)

(11:00-11:20, 17:00-17:20 Coffee, 13:30-15:00 Lunch) Aksenov A.V. Linear differential relations between solutions of the class of euler-poisson-darboux equations (with applications)

Bogdanov A.V., Zviagin A.V. Influence of the system of cracks on the stress intensity coefficients Bogdanova N, Terzijska B., Wawryk R. Orthonormal polynomial approximation of thermometric

functions for cernox-ruo2 composition temperature sensors

Borovkov A., Palmov V. Finite element mechanics of composite structures

Brovko G.L. Kinematic and dynamic tensors in models of continuum mechanics

Chemetov N., Fremond M. The education of shape memory alloys

Finoshkina A.S. Usage of the new objective derivatives in models of plasticity at finite strain: the theory and numerical experiments

Kalinovich A.A., Sukhorukov A.P., Zakharova I.G. Pecularities of optical vorticies spreading in quadratic nonlinear media

Katasonov A.M., Labutin S.A. Numerical simulation processes of destruction of bodies under heating

Kiselev A.B., Luk'yanov A.A. Mathematical modeling of dynamic processes of irreversible deforming and fracture of solids and structures

Klishko A.N. The resonance method for measuring shear elastic layer modulus

Leonova E.A. The reduction of certain problems of elastostatics to the problems of potential's theory

Miyazaki T. Mathematical modeling of large earthquakes and volcanic eruptions caused by plate tectonics

Molodtsov I.N. The work-conjugate relations between Eulerian stress and strain measures and constitutive equations in plasticity

Nedelin A.V. Flat tasks for elements from dilatantive composite of a material

Nedelin A.V., Treschev A.A. Model deformation of the reinforced beams – walls from composite of a material in view of cracks

Pobedria B.E. Modeling of phase transformations in a mechanics of composites

Pshenichnov S.G. The effect of relaxation kernels on the nonstationary processes in linearly viscouselastic bodies

Sheshenin S.V., Muravleva L.V. Homogenization of thin solids

Tsvetkov V.P., Tsyrulev A.N. Non-linear deformations of rapidly rotating homogeneous star configurations with broken axial symmetry

Tychkin A.A. Mathematical modeling of stochastic processes of irreversible deformation in continua of mechanics of real matters

Vasiliev A.A., Miroshnichenko A.E., Dmitriev S.V. Discrete and continuum modeling of structural effects in solids with beam-like microstructure

Zvyagin A.V. About wedging of an elastic half-space near a free surface

Natyaganov V. L. Lomonosov and the mystery of an electricity.

Section VI. Mathematical modeling of turbulent processes and determinated chaos

Chairman – A.M. Lipanov Co- Chairman – S.F. Timashev

Scientific Secretary – S.G. Lakeev **October 4 Friday**

(Room Nº413, 9.00-17.00)

(11:00-11:20, 17:00-17:20 Coffee, 13:30-15:00 Lunch)

Alexandrov A V, I.V. Abalakin, V.G. Bobkov, T.K. Kozubskaya, V.V. Shiriaev High accuracy methods and software development in computational aeroacoustics. Arimitsu T, N.Arimitsu

Multifractal analysis of various probability density functions in turbulence Busa J, M. Hnatic, E. Jurcisinova, M. Jurcisin, M. Stehlik

Scaling regimes in developed turbulence: some features of their investigations

Chemetov N. On a motion of perfect fluid through a given domain.

Evdokimov E.V., Shapovalov A.V. On the reduction of the deterministic chaos in the multidimensional Ricer-May microevolution model.

Garina S.M., Ladonkina M.Ye., Proncheva N.G., Tishkin V.F., Zmitrenko N.V.

Parallel processing employment for direct simulation of gravity mixing

Gertsenshtein S.Ya., I.A. Pechorin and I.N. Sibgatullin

Direct numerical simulation of turbulent convective flows and the averaging problem

Gertsenshtein S.Ya., Sibgatullin I.N. Mathematical Modeling of Turbulent Processes in Convection.

Gertsenshtein S.Ya., N.S. Bouharin, A.V. Zhukova, A.A. Monakhov and A.N. Sukhorukov. Direct numerical simulation of turbulent jet flows and hard instability

Gorbatchevskiy A.Ya., A.G. Churbanov, I.V. Melikhov

Simulation transition processes in channel with wall-mounted obstacle.

Grafov B.M, M.G. Åstafiev, S.A. Martenianov, L.N. Nekrasov

The Laguerre transforms as a mathematical tool to investigate the turbulent noise.

V.A. Gushchin, A.V. Kostomarov, P.V. Matyushin, E.R. Pavlyukova, T.I. Rozhdestvenskaya Mathematical modelling of 3D separated homogeneous and stratified fluid flows around the bluff bodies.

Guz S.A., R. Mannella, M.V. Sviridov. Catastrophes in Brownian motion.

Kaminsky V.A., V.V. Dil'man. Evolution of interfacial turbulence in interphase transfer processes.

Kisarov Yu.F., S.Yu. Kisarova, M.R. Kukriakova. The comparison of 2D and 3D modeling of flows in the plane channels.

A.Koshelev. On the modelling of the smooth solutions for the navier-stokes system.

Pilishkin V.N. Construction of the system with intelligent properties model on the basis of it representation in the mapping environment.

Ponomarev S.G., B.L. Rozdestvensky, M.I. Stoynov. Direct numerical simulation of twodimensional flows in an infinite plane channel: long wave limit.

Priymak V.G., T. Miyazaki. Direct numerical simulation of intermittency phenomena in turbulent shear flows.

Prudnikov A.S., Savina E.O. Approximate solution the inverse task of surface wave generation by the moving hydrofoil.

Timashev S.F., G.V. Vstovsky. Informative essence of turbulency: general phenomenological approach to analysis of chaotic processes.

Yanilkin Yu.V., V.P. Statsenko, S.V. Rebrov, O.G. Sin'kova, A.L. Stadnik

Study of turbulent gravitational mixing at large density differences using direct 3D numerical simulation.

Yelizarova T.G., A.V.Zherikov, I.S.Kalatchinskaia, Yu.V. Sheretov Numerical modeling of convective flows of the electrically conducting fluid

Section VII. Mathematical models of nonlinear dynamics and synergetics

Chairman – S.P.Kurdyumov Co – Chairman-G.G. Malinetsky

October 2 Wednesday

(Room №420, 10.00-18.30) (11:00-11:20, 17:00-17:20 Coffee, 13:30-15:00 Lunch)

Bakholdin I.B., N.I. Kozlov Numerical and analytical methods of investigation of nondissipative shocks.

Scientific Secretary –A.A. Podlazov

Belashev B.Z., L.M. Soroko Maximum entropy method: theory, modeling and examples of applicatin.

Bochorishvili T.M. Nebieridze Modeling of the computing experiment describing multicomponent disintegrations.

Chekanov N.A., Kh. Elhajjab, N.V. Kamyshanchenko The solution of the one-dimensional Schroedenger equation by the normal form method.

Chernavskii D.S., G.G. Malinetskii, A.S. Malkov Mathematical Modeling of Globalization Process. **Chichurin A.V.** About one method of the construction of solutions for fifth and sixth Painleve equations with CAS Mathematica.

Elkin Yu., V. Biktashev Deduction of the kinematic model of excitation wave dynamics and some consequences.

Gadomski L., D.Kozak-Skoworodkin, M.Jakubiak The modelling of stalle equilibrium position parameters of restricted many – body problems.

Gonchar A. New method of studying of equilibrium points in the restricted many-body problems.

Gorbunova E.O., Yu. A.Kondratenko, M. G.Sadovsky Entropy models in data loss reparation

Gorlov D.V., L.I. Manevitch Asymptotical analysis of strongly unhomogeneous system of two coupled nonlinear oscillators.

Grebenikov A.E., E.A. Grebenikov, N.I.Zemtsova A new class of the homographical solutions of the differential equations of many-body problem.

Grebenikov E.A., A.N.Prokopenya Computer algebra methods in studying some new models of cosmic dynamics.

A.A. Gusev, S.Y.Larsen, D.V. Pavlov, O. Chuluunbaatar, S.I. Vinitsky

The canonical adiabatic approach to the three-body problem with induced gauge fields

Ihsanov E. A linear stability of equilibrium states in restricted Newtonian ten-body problem.

Karelova O.L., V.I. Gorelov Stability of the system of non-linear differential equations depending on marcoviain process.

M.M. Khapaev Evolution and stability of solar system.

Kondrashov V. V. Improvement of the accuracy of solution on a sequence of superposed grids with a set of virtual cells differing in shape.

Kovalevsky M.Yu., V.T. Matskevich, N.A. Chekanov

About spectra of sound waves in dense dispersions of nucleic acids.

Kurakin P.V. Simple one-dimensional pseudo-quantum systems

Levin S.B., E.O. Alt, S.L.Yakovlev Coulomb Fourier transformation: application to three-body Hamiltonians with one attractive Coulomb interaction.

Lobkova O.V. Cognitive model of nonlinear dialectics

October 3 Thursday

(Room №420, 9.30-13.30)

(11:00-11:20, 17:00-17:20 Coffee, 13:30-15:00 Lunch)

Makhov S. A. Sustainable development from standpoint of mathematical modeling.

Neishtadt A.I., D.V.Treschev, V.V.Sidorenko Adiabatic chaos and stable long-periodic motions Pilishkin V.N. Conditions of dynamics systems model forming with help of inner homogeneous systems.

Poloskov I.E. Algorithms of random studies and their realization.

Shahverdian A.Yu., A.V. Apkarian Difference analysis for stochastic systems.

Sobolev V., E. Shchepakina, E. Shchetinina Scenario of loss stability in Ziegler system.

Tai M.L., A.S. Martynova, E.U. Kadina Dynamics of the self-assembly process.

Uvarov A.I. Cognitive model of geoknowledge

Valeev K.G., O.L. Karelova, V.I. Gorelov Optimization of solutions of system of non-linear differential equations depending on marcoviain process.

Volkov N.V., O. R. Kozlova Simulation of realisations of random process with set statistical characteristics by the way multivariate correlation functions

Volkova G.D. Mathematical model for presentation of knowledge in the cad-systems

Yakovenko G.N. Mathematical modelling of evolution processes by lie algebras

Yulmetyev R., A. Mokshin, F. Gafarov Mathematical modeling of seismic phenomena by discrete non-markov nonstationary processes

Section VIII. Mathematical modeling of processes in transition and boundary layers Chairman – V.F. Butuzov Co- Chairman – Klaus R. Schneider

Scientific Secretary – N.N. Nefedov

October 3 Thursday

(Room 437, 9:30-18:30)

(11:00-11:20, 17:00-17:20 Coffee, 13:30-15:00 Lunch) Brusnikin M. The fictitious domain method for the navier-stokes equation in multiply connected boundary case

Burd V.Sh. Excitation of nonlinear parametric oscillations by impacts

Butuzov V.F., Kryagimskii S.A., Nedelko I.V. Global domain of attraction of step-like contrast structure in the case of dirichlet conditions

Butuzov V.F., Nefedov N.N., Schneider K.R. Asymptotic method in problems with exchange of stability

Butuzova M.V. Asymptotics of solution with boundary and interior layers in a system of parabolic equations

Bykov A.A., Popov V.Yu., Zubo D.O. Evolution of 2D constrast structures

Dmitriev M.G. Solution of power boundary layer in the some linear-quadratic optimal control problems

Dmitriev M.G., Zhukova G., Petrov A. Interior layers in the nonlinear "power-society" model

Il'in A.M., Suleimanov B.I. About two special functions connected with the cusp singuliarities Galkin V.A. Boundary and internal layers in physical kinetics

Gromova E.A. About limited passage for a singularly perturbed parabolic problem in case of exchange of stability

Kaschenko D.S. Attractors of Second Order Equation with Large Delay

Kaschenko I.S. Investigation of Nonlinear Singularly Perturbed Parabolic Equation

Kaschenko S.A., Mayorov V.V., Myshkin I.Yu. Model of saltatory transmission of nerve impulses, based on singular equations system with delay

Khapaev M.M. One singular-perturbed problem

Kiryushin V.V. On some problem with interior transition layer

Konyaev Yu.A. Asymptotic representation of solution of Schroedinger equation for relativistic and non-relativistic hydrogen-like atom

Konyaev Yu.A. New algorithm of asymptotic analysis of mathematical models with boundary and inner lavers

Konyaev Yu.A. Research of model equations with a power boundary layer

Kuzanyan K., Petrov A., Sokoloff D. Contrast structures and solar dynamo waves

Kuznetsova I.A., Yushkanov A.A. Temperature effect on absorption cross-section of a small conductive particle

Latyshev A.V., Popov V.N., Yushkanov A.A. The influence of the curved surface on a meaning of the isothermal sliding factor

Levashova N.T. An asymptotic of a boundary lauer solution of a reaction-diffusion system of equations in a thin pivot

October 4 Friday

(Room №437, 9:00-13:30)

(11:00-11:20, 17:00-17:20 Coffee, 13:30-15:00 Lunch)

Lyubimov D.V., Lyubimova T.P., Skuridyn R.V., Roux B.

Influence of high-frequency vibrations on the thermocapillary convection in a floating zone **Muralev V.A., Kozlov N.I.** The reachanneling effect in crystals

Nesenenko G. Mathematical modeling singularly perturbed non-linear boundary value problems of the heat and mass transfer in domains with arbitrary curvilinear boundaries

Nikitin A.G. Contrast structures in the integro-differential equations in the two-dimentional space case

Pankratov A.N., Dedus F.F. Adaptive approximation of arbitrary signals

Pavlenko Yu.G. Hamilton's approach to the processes of modelizing, describing by singular perturbed equations

Romanova E.Yu. The numerical analysis of the modeling equations of some classes of singularly perturbed problems

Rubinstein I. Electro-osmotically induced convection at a permselective electrodialysis membrane

Rudyak V.Ya., Savtchenko S.O. Simulation of instability of vortex jet flows

Tupchiev V.A. The asymptotic expansion of solutions of boundary value problems for isentropic system of gas dynamics without pressure

Tupchiev V.A., Fomina N.A. On a correctness and stabilization of the solutions of boundary value problems of chemotaxis

Volkov V.T., Nefedov N. N. Periodic solutions with transition and boundary layers in the "reactiondiffusion" model

Zubo D.O. Evolution and stability of constrast structures in smooth inhomogeneous medium Elyseeva J. Separation theorems for symplectic systems

Section IX. Mathematical and computer models of intellectual systems Chairman – V.B. Kudryavtsev Co- Chairman – B. Thalheim

Scientific Secretary – D.N. Babin

October 2 Wednesday (Moscow State University, Mechanical-Mathematical Faculty12-09)

14-00 - 20-00

P.A. Aliseitchik Computer learning system environment ("Idea") and its modifications

D.N. Babin To the automata models in the information processing

A. Belenki, Dr. I. Fedoseeva Presentation of heterogeneous information in integration information system

A.V. Chechkin Applied intelligent systems

C. Domashnev Enhancing HLA by CIM for large-scale cyber defense exercises

C. Domashnev Seemless integration of Retsina intelligent agents and ModSAF

C. Domashnev Thales-Satellite visibility forecast, a multi agent system

A.V.Galatenko Packing the graphs by means of homogeneous structures

A.A. Irmatov On the number of threshold k-logic function

I.M. Kanaev Adaptive algorithms for reducing complexity of digital images

A.D. Kholodenko To the creating of the language models for Russian

I.V. Kucherenko About the number of reversible homogeneous structures

V.B. Kudryavtsev., E.E. Gasanov Information-Graph Database Model. Storage and Search Complexity

A.A. Kudrin About the automata complexity of evaluations

I.V. Lyalin The solving of automate equations

I.L. Mazurenko Robast algorithm of speech answer identification using additional sources of speech information

M.V. Nosov Test polynomials in the pattern recognition

M.V. Nosov, D.V. Alekseev The capacity of polynomial Boolean function set

V.A. Nosov Systems of distinct representatives for families of fuzzy sets

P.A. Panteleev On modification of distinguishability of an atomaton states

A.S. Podkolzin Computer solver of the mathematical problems

A. Ryjov Fuzzy mathematics

Y. Shankin Autological modeling of the information interaction

A.V. Stepanenkov The complexity of the checking of the number factorability by means of homogeneous structures

A.S. Strogalov Computer learning systems

E.G. Syrkina About the traversal of volume mazes by collective of automata

A.G. Safiullin Automata model of the corporation on the market

October 4 Friday DUBNA, Laboratory of Information Technologies (Room №406-B) 9.00-18.00

(11:00-11:20, 17:00-17:20 Coffee, 13:30-15:00 Lunch)

V.O. Deryabin, D.I. Lobachov, V.S. Rublyov, A.R. Yusupov Dynamic information model P. M. Gopych A neural network memory model with maximum-likelihood recall and recognition properties

V. I. Grounskaia About realizability of words in plane chessboard mazes

I.S. Grunsky, S.V. Sapunov Map validation of robot environments

A.P. Hnykin Intellectual system – necessary invention of reason

V.A. Kokotoushkin, V.I. Mikcheev, A.Yu. Potapova Matrix method of expert data processing

L.I. Lapushkina The dialogical system knowledge control for secondary school elective course of linear algebra

V.E. Lyalin, E.V. Grigorev Application of pattern recognition techniques for automatized synthesis of machines and mechanisms

V.E. Lyalin, A.I. Murynov, B.S. Haba Adaptive evaluation of planar elements of spatial structure of images for there recognition

V.E. Lyalin, V.A. Tenenev, M.A. Senilov, N.B. Palkin Neuronet and fuzzy modeling of interpretation of data of geophysical well logging

E.A. Mikheeva The problem of the functional completeness in Pk

V.I. Mikcheev, V.O. Vaganyan Time modeling in the secondary school course of geometry

K Lobanov, I. Tchijova Image analyse similarity evaluation of petrophysical diagrams of rock samples in depth horizons of kola superdeep section

A. Naumov Modeling of classical experimental design effectiveness

V.V. Nechaev, A.S. Tarasov Models of architecture of self-organizing data ware houses based on a smart agents technology

V.V. Nechaev, A.V. Darin Conceptual modeling representation of personal needs

G.A. Ososkov, A. Stadnik New RBF-like neural network in classification task

T.I. Polyakova Approximated solution of marginal problem in non-momentary theory of shells

Jairo Correa Rodriguez Main trends of pedagogical knowledge formalization

A.V. Sokolov, E.A. Aksenova, A.A. Lazutina, A.V. Tarasyuk Mathematical models of dynamic data structure

A.A. Sytnik, M.S. Lazareva One approach towards modeling of intellectual system with temporal characteristic

A.A. Sytnik, N.S. Vagarina The approach to the decision of intellectual system behavior correction problem

A.A. Sytnik, T.E. Shulga Mathematical models of intellectual systems goal-directed behavior generating

M.Yu. Tikhonchev The recognition of the environment by finite automation

V.O. Vaganyan Mathematics with time parameter: theory and applications

A.A.Vikentiev, L.N. Koreneva About the distances and informativeness (refutabilitie) on probabilitie's the logical formulas (experts statemens)

Section X. Mathematical models in economy and sociology.

Chairman – Yu.N. Gavrilets Co - Chairman Yu.N.Cheremnyh

Scientific Secretary – G.Yu. Solyanik October 2 Wednesday (Room J

(Room №406-B, 9.30-18.30)

(11:00-11:20, 17:00-17:20 Coffee, 13:30-15:00 Lunch)

V. Arkin, A. Slastnikov Optimization of Depreciation policy for investment stimulation.

Cheremnyh Y.N. On the internal and external problems of economic globalization.

V.M. Chetverikov, D.D. Geints Statistical model of the number of transactions and events during the united trade session (UTS) on Moscow interbank currency exchange (MICEX).

N.V. Dyachkov, A.N. Rumyantsev, Y.V. Sofronov Oil refinery simulation model.

L.A. Dedov, G. N. Kalashnikova, V.E. Lyalin The substantiation of the common approach to expansion of an index of growth on component of a structural shift of inertia of a structure.

Evstegneev D.V., T.N. Ledasheva, V.I. Gorelov About complex system of territory evaluation.

Evstegneev D.V., T.N. Ledasheva About methods of alternatives ranging at the optimal development strategy chose for modeling system.

Yu.G. Epishin Statistical modelling of socio-economic situations for non-Gaussian distributions of observations.

B.A. Efimov, U.H. Malkov On the existence of the homeostatic state in nonlinear models of the individuals' attitudes.

Y.N. Gavrilets, Y.V. Fomina Applying of causual structure in socio-economic processes forecasting. **S. Ganna** About mathematical models in evolutionary economics.

Gorelov V. I., O.L. Karelova About one social-demography model.

G. Ivanov, K. Lungu Selection of Optimum of logistical system by means of express-modelling with the method of "Dynamics of the average".

G. Ivanov Nontraditional system approach to economical and logistical process modelling.

Holder M., Ilya Tsvetkov The analysis of the Dow Jones industrial average (DJIA) index dynamics by fractal analysis methods.

N.N. Kalitkin, L.V. Kuzmina, M.V. Chernenkov Mathematical methods for clearing accounts.

Konovalov I.B. A neural network based method for a priori selection of more and less predictable future events from a time series of observed variable.

Konstantinov R.V., E.S. Polovinkin One game model of competition of two financial-manufacturing groups.

A.V. Kosacheff, V.E. Lyalin, T.I. Serazetdinova Modern strategic management from the point of view of mathematical construction of objective function.

Kozlov N. I., E.N. Dorogova Models of biological economy.

Krivosheev O.I. Unavoidable instability of decentralized economic system.

Krivosheev O.I. Loss analysis in a free market economy.

Kuznetsov K.B. On an application of activity-based costing.

E.M. Krasavina Informational-analytical system of bank resources control.

October 3 Thursday

(Room №406-B, 9.30-18.30) (11:00-11:20, 17:00-17:20 Coffee, 13:30-15:00 Lunch)

A.S. Kharitonov, V.P. Zvolinsky Development of fibonacci's method in the theory of economic balance.

A.P. Kolchanov, A.N. Rumyantsev A model of controlling bank assets and liabilities.

R.N. Kuzmin, N.P. Savenkova, P.B. Frolikov Spatially homogeneous and non-uniform models in dynamics of development of social intensity.

Lapushkin A.S., Schetinin E.Y. Extreme events risk management based on excesses over threshold model.

A.V. Letchikov, O. Mubarakshin Garch models.

V.E. Lyalin, O. Mubarakshin Value at risk.

V.E. Lyalin Properties of estimations of similarity and difference of economic structures.

V.V. Lebedev Analysis of the phillips curve.

V.V. Lebedev, V.N. Polesskii Mathematical modelling of the structural changes of economy.

Malkov A.S. Spatial Model of international trade and economical interactions.

A.P. Mikhailov Mathematical modelling of internation threat-propagation.

Pinaev V.E, T.N. Ledasheva Modelling of industrial system under analisys of qualitative and economical effectiveness of waste processing.

Tretiakov N.P, O.M. Shakhilislamov Harsher selection on males enhances the maintenance of sex in evolving populations.

Y.N. Tolstova Consideration of methods of data analysis as methods of interactions searching – the basis for solution of some problems of human opinion measurement.

A.N. Safiullin Automata model of the corporation on the market.

Samouylov K. Mathematical modelling of communication networks.

T.I. Serazetdinova, E.N. Shalaeva Multi objective optimization of economical characteristics of production.

Schetinin Eu.Yu. General Hyperbolic distributions for financial data modeling

Shcherbina O. Mathematical modeling of recreational systems development

Shapovalov A.E. The one-sector solow model of economic growth with non-linear resource evolution.

V.A. Shvedovsky The substantiation of possibility in the evolut cybernetic to have product cycles of the social reproduction by transpositions. Solovyov S.A. Strategical management. The Purposes of business undertaking. Mathematical model

Solovyov S.A. Mathematical model of activity of small innovation firm. The "LATENT BANKRUPTCY".

V.N. Sidorenko Modern economic- mathematical methods.

Simonov P.M. Dynamic mathematical models with aftereffect in economics and biology.

Section XI. Mathematical modeling of biological and ecological systems Chairman – V.D. Lakhno

Co - Chairman G.Yu. Riznichenko Scientific Secretary - N.S.Fialko

October 3 Thursday

(Room №406-A, 9.30-18.30)

(11:00-11:20, 17:00-17:20 Coffee, 13:30-15:00 Lunch)

V.V. Andreev Mathematical models of heterogeneous catalytic systems

E.A. Ayrjan, J. Busa, J. Dzurina, J. Plavka Two methods for computing of volume of overlapping spheres

A.V. Beriozkin, P.V. Komarov, P.G. Khalatur, S.K. Talitskikh Structure and thermodynamic properties of system of rigid rod-like polyelectrolytes: comparison of Monte-Carlo simulation and PRISM-theory

G.A. Bogopolsky, A.V. Finkelstein, N.V. Oleinikova, M.A. Roytberg, Sh.R. Sunyaev, **P.K. Vlasov** How similar are aminoacid sequences of the proteins with the common fold?

F.F. Dedus, L.I. Kulikova, S.A. Makhortykh, A.N. Pankratov Adjustable spectral approaches for biological systems analysis

A.V. Derguzov, S.A. Makhortykh Spectral methods in magnetic encephalography inverse problem

A.V. Derguzov, S.A. Kostarev, S.A. Makhortykh, S.A. Rybak Ecological prognosis near intensive acoustic sources

E.A. Ermakova, A.G. Krushelnitsky, V.D. Fedotov Translational and rotational diffusion of proteins: a Brownian dynamics study

P.V. Fursova Jaynes formalism development for ecological communities modeling

N.I. Gamayunov, B.I. Maslennikov Model of formation of electrical potentialmembranes of an axon V.D. Gordevskyy The model of interaction between vortical flows in a gas of rough spheres V.I. Grytsay, V.P. Gachok Self-organization in fusion system of tromboxan and prostacyclin

N.N. Kozlov, E.I. Kugushev, D.I. Sabitov, T.M. Eneev Numerical research of RNA macromolecular structurization processes

N.N. Kozlov Mathematical modeling of the overlapping Genes and Genetic Code

N. Kozlov, V. Kuznetsov, D. Kirianov, E. Kirianova Dynamical models of middle-latitude multiform forest evolution

Y.A. Kriksin, P.G. Khalatur, A.R. Khokhlov The influence of hydrogen bonds on protein-like globular structure

E.S. Kurkina N.L. Semendyaeva Fluctuati on-induced transitions and kinetic oscillations in the lattice-gas model of one surface catalytic reaction

V.D. Lakhno, N.S. Fialko Long-range charge transfer in DNA

E. Lobanova, E.E. Shnol Dynamic regimes and bifurcations in a mathematical model of blood clotting

A.D. Lukashov, B.Z. Belashev On estimation of palaeoearthquake intensity by modeling

V.Y. Lunin Determination of three-dimentional structure of biological macromolecules: mathematics and computers

N.L. Lunina The use of connectivity properties of electron density distributions in determination of structures of biological macromolecules

I.I. Litvinov, A.V. Finkelstein, M.A. Roytberg The method of the amino acid sequences alignment, taking into account the information about proteins' secondary structures

S.V. Mamikhin Simulation modeling of dynamics of radionuclides in terrestrial ecosystems

October 4 Friday

(Room №406-A, 9.00-16.00)

(11:00-11:20, 17:00-17:20 Coffee, 13:30-15:00 Lunch)

B.I. Maslennikov, N.I. Gamayunov Electrocinetics model of realization nervouspulse along an axon **A.M. Molchanov, N.M. Pankratova, M.N. Ustinin** Analytical model of quality transitions in the human brain

D.A. Molchanova, F.I. Ataullakhanov A study of dynamics of the intrinsic pathway of blood coagulation

V.F. Morozov, A.V. Badasyan, A.V. Grigoryan, M.A. Sahakyan, S. Hayryan,

E.Sh. Mamasakhlisov, Chin-Kun Hu Potts-like model with many-particle ineractions and helix-coil transition

Yu.G. Papulov, M.G. Vinogradova, P.S. Basalaeva Isomer enumeration of aromatic compounds. M.A. Panteleev, V.I. Zarnitsina, F.I. Ataullakhanov Mathematical model of blood coagulation

A. Rubin, G. Riznichenko Models of regulation of photosynthetic processes

E. Shchepakina Canards and black swans in chemical kinetics models

E.S. Shikhovtseva Dynamics of conformational transformations in biopolymer s and macromolecules with bistable unit cells

P.A. Sorokin Individual-based modeling of biological populations

A.D. Suprum, Yu.I. Prylutskyy, A.N. Shut, O.V. Ógloblya, I.A. Zaloilo, N.S. Miroshnichenko Mathematical model of fibre skeletal muscle contraction

Yu.Yu. Tarasevich Mathematical modeling of salt-albumen segregation during wedge-shaped dehydration

A.L. Tchougreeff Effective Methods for Modelling Complex Molecular Systems

A.A. Tychkin, V. Averyanova Modeling of dynamics of epidemics and epizootics on a black-ground of ecotoxins and radiation

M.G. Vinogradova, R.Yu. Papulov, I.Yu. Boitzova Modeling of properties of substituted benzenes and their derivatives in atom-atomic approach

E.V. Zemlyanaya, M.A. Kiselev Determination of the unilamellar DMPC vesicle structure from the small angle neutron scattering data in the framework of model of separated form-factors

Section XII. Mathematical modeling of chemical and macromolecular systems Chairman – K.V. Shaitan Co – Chairman – N.N. Balabaev Scientific Secretary – A.L. Rabinovich

October 3 Thursday

Scientific Secretary – A.L. Rabinovich (Room №406-B, 15.00-19.00) (11:00-11:20, 17:00-17:20 Coffee, 13:30-15:00 Lunch)

Altaisky M.V., F.P. Filatov, V.Yu. Ovodkov Quantum algorithms and sequence alignment.

Arinstein A.E. Oscillations progation stochastic chain.

Balabaev N. Collisional molecular dynamics technique for the modeling of complex polymer systems.

Belyakov A.A., K.V. Shaitan Comparative molecular dynamics of dipeptides and their hydrocarbonaceous analogues.

A.V. Chertovich Conformation-dependent sequence design: bio-evolution mimetics approach.

Efremov R. Peptides and proteins in membranes: what can we learn via computer simulations.

Egorova K., K.V. Shaitan. Molecular dynamics of the quasi-carno cycle for retinal isomerization molecular machine.

Fradkov A., A. Krivtsov, A. Efimov, N. Ponikarov Analysis of controlled dissociation of diatomic molecules by the method of molecular dynamics.

Golo V.L., Shaitan K.V. The existence of dynamical attractors in thermostats with nonlinear dissipation.

Ivajkina A.G., N.K. Balabaev, K.V. Shaitan Molecular dynamics simulation oxidized and reduced states of proteins, containing Fe4S4 clusters in water environment.

A.R. Khokhlov, A.V. Chertovich, E.N. Govorun, V.A. Ivanov, P.G. Khalatur Conformationdependent sequence design: evolutionary approach.

Kornilov V.V., A.L. Robinovich, N.K. Balabaev Molecular dynamics simulations of unsaturated diacylglycerolipid monolayers.

Leontiev K.M., K.V. Shaitan. Automatic approach to the molecular dynamics investigations all of the 400 natural dipeptides

Lovetski K.P., L.A. Sevastianov The conjugate problem in md simulation of 2d convection of rayleigh-benard

October 4 Friday

(LIT Congress Hall, 9:00-13:30) (11:00-11:20, 17:00-17:20 Coffee, 13:30-15:00 Lunch)

Manevitch O.L., G.C. Rutledge, M.A. Mazo Modeling of mechanical behavior of nanoparticle.

Mazo M.A., A.L. Rabinovich, Yu. K. Tovbin The influence of fluid layer structure of fluid mobility in micropores: molecular dynamics simulation.

Mazo M.A., M.Yu. Shamaev, E.B. Gusarova, N.S. Perov, N.K. Balabaev Molecular dynamics simulation of dendrimers in the Lennard-Jones solvent.

Mikhailyuk M.G., K.V. Shaitan Dynamic properties of a-helix and b-structures as molecular component of protein and as isolated molecular structures in the virtual viscous medium. According to the methods of molecular dynamics.

Mikhailyuk M.G., S.V. Esin, Yu.F. Krupyanskii Disulfide bridges effect on dynamics of lysozyme. According to the methods of molecular dynamics.

Mologin D.A., Khalatur P.G. Self-associating copolymers with different molecular architectures: molecular dynamics studies

Morozov I.V., G.E. Norman Relaxation in the volume and on the surface of nonequilibrium two component strongly coupled plasmas

Morozov I.V., G.E. Norman, V.V. Stegailov Dynamical memory time, molecular relaxation and chaos in many-particle systems Nemukhin A.V., B.L. Grigorenko Molecular dynamics simulations of chemical phenomena in

condensed phases

Petrov V.N., K.V. Shaitan Ergodicity of parallel calculated trajectories of molecular dynamics.

Rabinovich A.L., P.O. Ripatti, N.K. Balabaev Molecular dynamics simulations of hydrated unsaturated phosphatidylcholine bilayers.

Shaitan K.V., S.S. Saraikin Aqueos environment influence on molecular dynamics of olygopeptides. Sorokin A., P. Mirabel Kinetics of binary nucleation in aircraft exhaust plume

Stukan M.R., V. A. Ivanov, M. Muller, W. Paul, and K. Binder Monte carlo computer simulation of liquid-crystalline ordering in solution of stiff-chain macromolecules

Syrtcev N.P., P.E. Volynsky, R.G. Efremov Structural and dynamical aspects of fusion peptide binding to cell membrane.

Tourley Ye.V., K.V. Shaitan Molecular dynamics of catenanes and molecular machines of nonbiological nature.

Boyadjiev T. and Tsyrulev A.N. Inumerical models of globally defined einstein-yang-mills black holes in coordinates of the kruskal type.

Round Table Discussion. Prospects of Mathematical Modeling: Continuous or Discrete Models. (Room № 437, 16:00-17:30) **October 4 Friday**

Proceedings of the V ICMM

After the Congress all the papers chosen by the V ICMM Program and Advisory Committees will be published in special issues of referred journals. All the contributors will be provided with the "Formatting Guidelines and Submission Instructions for Authors" immediately upon finishing the Congress.

Social Program

The congress participants are kindly welcomed to take part in the Welcome party, to be held in LIT on Monday, September 30 at 7 PM. On October 3 excursion will be organized.

Congress Dinner October 4 Friday (18:00)

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