Moscow State University of Technology “STANKIN”

**PROGRAM**

# VIII International Conference

**MODELING OF NON-LINEAR PROCESSES AND SYSTEMS**

Moscow

2024

**SCHEDULE**

|  |  |
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| 18.12.24 | Opening, Plenary session – 12.30-19.00 |
| 19.12.24 | Plenary session - 11.00-19.00 |
| 20.12.24 | Plenary session - 11.00-15.30 |
| 21.12.24 | Closing of the conference- 14.00-15.00 |
| 20.12.24 | Section 1. MATHEMATICAL MODELING METHODS AND APPLICATIONS – 16.00 -19.00 |
| 20.12.24 | Section 2. PROBLEMS OF ARTIFICIAL INTELLIGENCE AND ECONOMICAL PROBLEMS – 16.00 -19.00 |
| 20.12.24 | Section 4. MODELING IN TECHNICAL SYSTEMS- 16.00-17.30 |
| 21.12.24 | Section 1. MATHEMATICAL MODELING METHODS AND APPLICATIONS – 10.00- 13.00  Section 2. PROBLEMS OF ARTIFICIAL INTELLIGENCE AND ECONOMICAL PROBLEMS – 11.00 -14.00  Section 3. MOLECULAR AND BIOMOLECULAR SYSTEMS - 11.00-13.45 |
| 21.12.24 | Poster session- 12.00 -14.00 |

* **Invitations to participate in the ZOOM conference will be sent by the organizing Committee and the section chairs**
* **Please send your proposals for inclusion in the conference Decision to the organizing Committee by January 25, 2023**
* **Registration will take place on18.12.2024 and 19.12.2024 in the hall at the entrance to MSTU "STANKIN" and on other days of the conference at the Department of Applied Mathematics (rooms 357a, 357b). During the conference and after its completion, you can get stationery and certificates of participants. A collection of conference materials will be published after the conference (approximately in February). Participants will be able to receive it at the department or by e-mail in pdf.**

**Note. There may be minor changes to the conference program**

**Address:** 1 and 3a, Vadkovskii lane, MSUT “STANKIN”, “Mendeleevskaya” Metro Station, two stops by any bus to “Vadkovskii pereulok” (towards Savelovskaya Metro Station)

Contact: Organizing Committee +7(499) 972-95-20, +7(499)972-94-59

Room 404 or 357a, Department of Applied Mathematics,

Vadkovskii lane, 3a

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PLENARY SESSION

***Meetings are hold in a mixed mode: face-to-face participation and participation via ZOOM. Every 40 minutes there is a break for a few minutes.***

Format: 35 minutes-talk.

## **Wednesday, 18.12.2024**

**Lecture Hall 0311**

**12. 30 Opening**

**13.00.A.V. Shapovalov, A.E. Kulagin, S.A. Siniukov (Tomsk, Russia).** SEMICLASSICALLY LOCALIZED STATES IN SOME OPEN SYSTEMS WITH NONLOCAL INTERACTION

**13.45. Xiaohui Jiang (China, Shanghai).** THE TALK WILL BE ANNOUNCED.

**14.30. V. D. Lakhno (Pushchino, Russia).** NANOBIOELECTRONICS AND QUANTUM CALCULATIONS.

**15.15. L.I. Lapushkina** **(Moscow, Russia).** ARTIFICIAL INTELLIGENCE IN EDUCATION.

**15.45 – 16.15. COFFEE BREAK**

**16.15. G.D. Volkova, T.B.Tyurbeeva (Moscow, Russia).** AN APPROACH TO MODELING THE LIFE CYCLE OF TECHNICAL SYSTEMS

**17.00. A. Arinstein (Israel).** IMITATION MODELING. THE BEHAVIOR ANALYSIS OF THE MIXTURE OF TWO OPPOSITELY CHARGED POLYELECTROLYTES WITH THE HELP OF A MACROSCOPIC MECHANICAL SYSTEM.

**17.45. A.I. Lobanov (Dubna, Russia ).** CONSTRUCTION OF DIFFERENCE SCHEMES AS A SOLUTION TO MATHEMATICAL PROGRAMMING PROBLEMS IN THE SPACE OF INDETERMINATE COEFFICIENTS

**18.30. E.N. Terentiev, F.V. Shugaev, N.E. Shilin-Terentyev** (**Moscow, Russia).** IMAGES OF GRAVITATIONAL WAVES FROM ACCRETION DISKS OF BLACK

HOLES AND NEUTRON STARS EXPLOSIONS

**19.15. Memory** of Najdan Aleksiс - physics and mathematics

**19.35. END OF THE FIRST DAY OF THE CONFERENCE**

## **Thursday, 19.12.2024.**

**Lecture Hall 0311**

***Chairman:* P.M. Pivkin**

**11.00. S.D. Traytak (Moscow, Russia).** METHOD OF FRACTIONAL DERIVATIVES: APPLICATION TO THE SUBDIFFUSION-CONTROLLED REACTIONS IN THE COMB-LIKE STRUCTURES

**11.45. L.A. Krasnobaeva, L.V. Yakushevich (Tomsk, Pushchino, Russia).** FEATURES OF THE MOTION OF KINKS IN RING DNA

**12.30. Zishan Ding** **(China, Shanghai).** THE TALK WILL BE ANNOUNCED.

**13.15. O.V. Germider, V.N. Popov (Arkhangelsk).** MATHEMATICAL SIMULATION OF BENDING OF A THIN NANOPLATE WITHIN THE FRAMEWORK OF THE SECOND-ORDER STRAIN GRADIENT THEORY

**14.00. Chongjun Wu (China, Donghua).** THE TALK WILL BE ANNOUNCED.

**14.45 – 15.15. COFFEE BREAK**

***Chairman:* L.A. Uvarova**

**15.15. Sandra Pinelas (Portugal).** OSCILLATORY BEHAVIOR OF MIXED TYPE DIFFERENTIAL EQUATIONS WITH NON-MONOTONE DEVIATING ARGUMENTS

**16.00. Mariya Borodavkina (Antarctica).** TECHNICAL SOLUTIONS IN NATURE

**16.45. P.M. Lima (Portugal).** NUMERICAL SOLUTION OF TWO-DIMENSIONAL STOCHASTIC NEURAL FIELD EQUATIONS WITH FINITE PROPAGATION SPEED

**17.30. N.N. Kholshchevnikova** **(Moscow, Russia).**  SYSTEMS OF FUNCTIONS AND THEIR APPLICATION

**18.15. END OF THE SECOND DAY OF THE CONFERENCE**

**Friday, 20.12.2024**

**11.00**

**Room 357ж**

***Chairman:* P. V. Moskalev**

**11.00. P.M. Pivkin** **(Moscow, Russia).**  ON SHAPED SURFACES WITH CONSTANT GEOMETRIC CHARACTERISTICS AT THE BOUNDARY OF A NONLINEAR GENERATRIX

**11.45. T.A.Sushkevich** (**Moscow, Russia).** THE ERA OF M.V.KELDYSH: FROM "MATHEMATICS IS THE QUEEN OF ALL SCIENCES" TO "MATHEMATICS IS THE PRODUCTIVE FORCE" AND DIGITAL CIVILIZATION. DEDICATED TO THE 300TH ANNIVERSARY OF THE ACADEMY OF SCIENCES

**12.30. Yu.Yu. Tarasevich, A.V. Eserkepov, I.V. Vodolazskaya (Astrakhan, Russia).** EFFECTIVE ELECTRICAL CONDUCTIVITY OF METAL NETWORKS OF NANOWIRES: APPROACHES OF THE AVERAGE FIELD, EFFECTIVE MEDIUM AND COMPUTER MODELING

**13.15. S.V. Petoukhov (Moscow, Russia).**

INNATE COLLECTIVISM OF PARTS IN THE ORGANISM,

GESTALT ARCHETYPES OF PROBABILITIES IN GENOMIC DNAS,

AND CYCLIC GRAY'S CODES

**14.00. A.B.Nadykto** (**Moscow, Russia).**  THE TALK WILL BE ANNOUNCED

**14.45. Moskalev P. V.** **(Moscow, Russia).** INTERRELATION OF A PRIORI AND A POSTERIORI ESTIMATES WITH APPLIED PROBLEMS OF PERCOLATION THEORY

**15.30** **A.S. Sigov (Moscow, Russia).** THE TALK WILL BE ANNOUNCED.

**16.15– 16.45. COFFEE BREAK**

 **Saturday, 21.12. 2024 14.00- 15.00. CLOSING OF THE CONFERENCE**

**Room 357ж**

**15.00. END OF THE FOURTH DAY OF THE CONFERENCE**

**SECTIONAL PRESENTATIONS**

**1.MATHEMATICAL MODELING METHODS AND APPLICATIONS**

***Meetings are hold in a mixed mode: face-to-face participation and participation via ZOOM. Every 40 minutes there is a break for a few minutes.***

**Format: 15 minutes-talk**

**Friday, 20.12.2024, 16.15-19.00**

**Room 357ж**

**Chairman: O.E. Yaremko**

**O.E. Yaremko, K.R. Zababurin** **(Moscow, Russia).** HOMOTOPY ANALYSIS METHOD FOR THE WAVE EQUATION WITH NON-LOCAL MINOR TERMS

**M. Mosquera Mena, F. R. Freire Carrera (Ecuador).** MATHEMATICAL MODEL AND CONTROL OF AN INVERTED PENDULUM

**M. Mosquera Mena, F. R. Freire Carrera (Ecuador).** MATHEMATICAL MODEL OF AN INVERTED PENDULUM WITH TWO DEGREES OF ROTATION

**N.N.Nefedov, E.I.Nikulin, L. Recke, K.R. Schneider (Moscow, Russia**). ON EXISTENCE AND ASYMPTOTIC STABILITY OF TWO-DIMENSIONAL PERIODIC SOLUTIONS WITH AN INTERNAL TRANSITION LAYER IN A PROBLEM WITH A FINITE ADVECTION

**Ivan Stepanyanand Safa Hameed (Moscow, Russia**). A COMPARATIVE OF FEEDFORWARD ANN EVOLUTIONARY MODEL IMPLEMENTATION TO ADDRESS THE RECOGNITION PROBLEM

**E.N. Aristova, N.I. Karavaeva** **(Moscow, Russia**). MODELING OF THE NONLINEAR INTERACTION OF RADIATION WITH A STATIONARY SUBSTANCE USING BICOMPACT SCHEMES

**A.A. Khvostov, S.Yu. Panov, S.A.Kosukhin, A.V. Ryajskih, A.A. Boger (Voronezh, Russia**). MODELING OFHEAT TRANSFER IN CHANNELS OF THERMAL ACCUMULATORS WITH CYLINDRICAL CONTAINERS

**E.V. Zavitaev, O.V.Rusakov, T.E. Simonova (Mytishchi, Orekhovo.-Zuyevo, Russia ).** LOCAL CONDUCTIVITY OF A THIN CYLINDRICAL WIRE USING A GENERALIZED MODEL OF BOUNDARY CONDITIONS

**E.V. Zavitaev, O.V. Rusakov, A.I. Utkin, K.E. Kharitonov (Mytishchi, Orekhovo.-Zuyevo, Russia).**

CALCULATION OF SELF-INDUCTION OF A THIN CYLINDRICAL METAL WIRE

**I. A. Kolesnikov (Chelyabinsk, Russia).** SPLINE INTERPOLATION SOLUTION PROBLEMS OF OPTIMAL DYNAMIC MEASUREMENTS

**I.A. Kontsevoi (Belarus).** THE WAVE MODE OF PERTURBATION AND MORPHOLOGICALLY STABLE GROWTH OF DENDRITE IN SUPERCOOLED MELTS OF NICKEL AND CUPRUM

**Mandel A.M., Oshurko V.B., Veselko S.G., Karpova E.E., Sharts A.A**. **(Moscow, Russia**). QUANTUM DOT AS A MODEL OF INTERNAL SPACE PARTICLES AND THE VIRTUAL LEVEL AS A RELATIVISTIC ARTIFACT IN THE SCHRODINGER EQUATION

**Makhmudov A. R., Orlov A. O.** **(Moscow, Russia**). THE MOVEMENT OF THE FRONT IN THE REACTION-DIFFUSION PROBLEM IN THE CASE OF A BALANCE OF REACTION AND DIFFUSION

**P. V. Moskalev, A. S. Myagkov**  **(Moscow, Russia**). ON THE CONNECTION OF TRANSIENT FUNCTIONS WITH ESTIMATES OF THE POWER OF CONSTRICTING CLUSTERS ON BETA-WEIGHTED SQUARE LATTICES WITH (1, 0)-NEIGHBORHOOD

**A.S. Myagkov, L.A. Uvarova, P.V. Moskalev (Moscow, Russia**). NUMERICAL AND ANALYTICAL METHODS OF SYMBOLIC REGRESSION IN PERCOLATION PROBLEMS

**P. V. Moskalev, A. G. Bukhovets** **(Moscow, Voronezh, Russia**). ABOUT THE OPTIMAL SAMPLE SIZE FOR EVALUATION FRACTAL DIMENSION OF RANDOMIZED SYSTEMS OF ITERATED FUNCTIONS

**2. PROBLEMS OF ARTIFICIAL INTELLIGENCE AND ECONOMICAL PROBLEMS**

***Meetings are hold in a mixed mode: face-to-face participation and participation via ZOOM. Every 40 minutes there is a break for a few minutes.***

**Format: 15 minutes-talk**

**Friday, 20.12.2024, 16.15-19.00**

**The room number will be announced additionally**

**Chairman: T.V. Karlova, M.Y. Ibatullin**

**N.M. Kuznetsova, T.V. Karlova, A.Yu. Becmeshov, A.S.Sheptumov, A. E. Tikhomirov** **(Moscow, Russia**).PROTECTION OF INFORMATION RESOURCES OF AN ENTERPRISE BASED ON MODELING OF A DATA

**N.M. Kuznetsova (Moscow, Russia**). THE USE OF MUSICAL NOTATION SYSTEMS AS STEGANOGRAPHIC CONTAINERS WITHIN THE FRAMEWORK OF THE TASK OF ENSURING THE CONFIDENTIALITY OF INFORMATION RESOURCES OF THE ENTERPRISE

**E.E. Fomina (Tver, Russia).** METHODS AND MEANS OF DECISION-MAKING IN THE PROCESS OF FORENSIC IDENTIFICATION OF A PERSON BY SIGNS OF GAIT

**T.V. Ryzhkova (Moscow, Russia**). ENTROPY ASSESSMENT OF "USEFUL INFORMATION" ABOUT THE FINANCIAL CONDITION OF THE ENTERPRISE

**Buevich E.A, Yaremko O.E. (Moscow, Russia**). USING A PROCESSOR SHARING SERVICE POLICY TO MODEL SUPERSCALAR MICROPROCESSOR

**M.I. Bulatov, N.V. Eliseeva (Moscow, Russia**). APPLICATION OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING METHODS FOR PROJECT MANAGEMENT IN ROAD CONSTRUCTION ENTERPRISES

**A.E. Sidorova , N.T. Levashova** **(Moscow, Russia**).

AUTOWAVE MODEL OF URBAN ECOSYSTEM DEVELOPMENT AS COMPLEX NONLINEAR SYSTEMS

**A.V. Bystrov, N.V. Eliseeva** **(Moscow, Russia**). DEVELOPMENT OF AN INTELLIGENT TECHNICAL SUPPORT SYSTEM FOR THE UNIVERSITY'S CLASSROOM FUND

**I.E. Doronin** **(Moscow, Russia**). PRODUCTION PLANNING ALGORITHM FOR A MACHINE-BUILDING ENTERPRISE

**G.V. Koshkina, E.E. Fomina,** **U. A. Ivanova** **(Tver, Russia**). ARTIFICIAL INTELLIGENCE AND COPYRIGHT: THE CURRENT STATE OF THE PROBLEM

**K.E. Nikitina-Koshkina G.V. Koshkina, E.E. Fomina, N.A. Stukalova** MODERN APPROACHES TO THE USE OF THE SEQUENTIAL ANALYSIS METHOD

**M.D. Konovalov (Moscow, Russia**). REVIEW OF LANE CHANGE DECISION MAKING SYSTEMS USING TRAFFIC PREDICTION SYSTEMS BASED ON RECURRENT NETWORKS

**M.Y. Ibatullin** **(Moscow, Russia**).THE POSSIBILITIES OF BUILDING AN INFINITE SOCIAL GRAPH OF AN EMPLOYEE

**4.MODELING IN TECHNICAL SYSTEMS**

***Meetings are hold in a mixed mode: face-to-face participation and participation via ZOOM. Every 40 minutes there is a break for a few minutes.***

**Format: 15 minutes-talk**

**Friday, 20.12.2024, 16.15- 17.30**

**The room number will be announced additionally**

**Chairman: P.M. Pivkin**

**A.A. Ershov** **(Moscow, Russia).** DEVELOPMENT OF A NEW COMPUTATIONAL ALGORITHM FOR CONVERTING THE MOVEMENTS OF A GRINDING WHEEL IN AN INSTRUMENTAL COORDINATE SYSTEM TO THE 4-AXIS KINEMATICS OF A CNC GRINDING MACHINE  
**A.M. Yazev** **(Moscow, Russia).** INVESTIGATION OF THE SHAPES OF CONICAL SCREW SURFACES AND THEIR APPLICATION IN THE DESIGN OF CUTTING TOOLS  
**G.N. Ivanov, I.V. Krivenko, M.A. Smirnova, S.R. Ispiryan (Tver, Russia).** THE STUDY OF SAPROPELS USING A HYDROACOUSTIC TUBE  
Математическая модель гигрометра нового поколения

**I.V. Ivanov, O.K.Ivanova (Kaluga,** **Moscow, Russia).** THE MATHEMATICAL MODEL OF A NEW GENERATION HYGROMETER

**V.V. Filatov, M.V. Chumaeva, D.A. Nikolaev** **(Moscow, Russia).** РАЗРАБОТКА МАТЕМАТИЧЕСКИХ И КОМПЬЮТЕРНЫХ МОДЕЛЕЙ ИСПОЛНИТЕЛЬНОГО СИНХРОННОГО ДВИГАТЕЛЯ

**19.00 END OF THE THIRD** **DAY OF THE CONFERENCE**

**1.MATHEMATICAL MODELING METHODS AND APPLICATIONS**

***Meetings are hold in a mixed mode: face-to-face participation and participation via ZOOM. Every 40 minutes there is a break for a few minutes.***

**Format: 15 minutes-talk**

**Saturday, 21.12.2024, 10.00-13.00**

**Room 357ж**

**Chairman: E.M. Krasikova, E. A. Yanovskaya**

**E.A. Devyaterikova (Moscow, Russia**). MATHEMATICAL MODELS OF ODOR IDENTIFICATION AND DIGITALIZATION

**O.R. Volkova, O.D. Bibikov** **(Moscow, Russia**). SOLVING THE PROBLEMS OF APPLYING THE METHOD WIENER-HOPF BY APPLYING HERMITE POLYNOMIALS AND SYNTHESIZING AN INPUT SIGNAL WITH APPROPRIATE CHARACTERISTICS

**Rogozina N.G.** **(Moscow, Russia**). CALCULATION OF THE MORSE INDEX IN THE STUDY OF THE ORBITAL STABILITY OF THE NONLINEAR SCHRODINGER EQUATION ON A STAR GRAPH

**D.N. Romanov (Yaroslavl, Russia).** QUANTUM TRANSPORT IN A NANOLAYER TAKING INTO ACCOUNT THE PARIED COLLISIONS SCATTERING OF CARRIERS

**T.A. La** **(Moscow, Russia**). DERIVATION OF THE EQUATION "CURRENT FUNCTION AND VORTEX" FOR STEPPE FLUID AT SMALL REYNOLDS NUMBERS

**M.N.Shipko , T.P. Kaminskay, M.A. Stepovich, E.S. Savchenko, A.V. Stulov (Ivanovo, Moscow, Kaluga, Vladimir, Russia).** ON THE EFFECT OF WEAK PULSED MAGNETIC FIELDS ON ELECTRICAL MATERIALS

**D.O. Stukalov , N.A. Stukalova, M.A. Smirnova** **(Tver , St. Petersburg, Russia).** SEARCHING FOR INCIDENT EDGES FOR ADJACENT VERTICES IN A SPARSE GRAPH

**E. N. Sosenushkin, E. A. Yanovskaya, A.S. Zhelnov (Moscow, Russia).** ON THE INFLUENCE OF SELECTED MATERIAL ON FRACTAL SURFACE IN MATHEMATICAL MODELING BY ARTIFICIAL INTELLIGENCE METHODS

**E.N. Terentiev, F.V. Shugaev, N.E. Shilin-Terentyev** **(Moscow, Russia).**

GRAVITATIONAL LENSING + TELESCOPE + MATHEMATICAL MICROSCOPE IN

THE STUDY OF THE INTERACTION OF THE QUINUPLET OF STARS, THE

STRUCTURE OF NEUTRON STARS AND QUASARS

**E.N. Terentiev, R.D. Gagarin, E.D. Balaban, D.R. Romanov, I.A. Shatscov** **(Moscow, Russia).**

RESULTS OF APPLICATION OF GRADIENT MORPHOLOGY METHODS

**E.N. Terentiev, F.V. Shugaev, N.E. Shilin-Terentyev** **(Moscow, Russia).**

DIFFICULT TO INTERPRET OBJECTS OF TYPE 2 AND 3 CIVILIZATIONS

**O. N. Shablovsky, D. G. Krol (Belarus).** VIBRATIONS AND WAVES ON THE DENDRITE GROWTH LINE IN A SUPERCOOLED MELT OF A PURE SUBSTANCE

**A.V. Yurkin (Pushchino, Russia).** NEW INFORMATION ABOUT GEOMETRIC TRAJECTORIES OF PARTICLES: "PASCAL'S NONLINEAR TRIANGLE" AND "YURKIN'S BROOM"

**2. PROBLEMS OF ARTIFICIAL INTELLIGENCE AND ECONOMICAL PROBLEMS**

***Meetings are hold in a mixed mode: face-to-face participation and participation via ZOOM. Every 40 minutes there is a break for a few minutes.***

**Format: 15 minutes-talk**

**Saturday, 21.12.2024, 11.00-14.00**

**The room number will be announced additionally**

**Chairman: O.V. Stikhova, A.S. Myagkov**

**Kulizade D. I., Skripochenko V. S., Medov R. O.** **(Moscow, Russia**). REMOTE CONTROL OF ADDITIVE SYSTEMS

**Mavlonazarov H. N.** **(Moscow, Russia**). USING A MULTI-AGENT SYSTEM TO DETECT SPACE DEBRIS

**A.I. Makars, N.V. Eliseeva (Moscow, Russia**). APPLICATION OF SINGULAR VALUE DECOMPOSITION IN NEURAL MACHINE TRANSLATION OPTIMIZATION

**T.Yu. Mukhina, T.V.Ryzhkova** **(Moscow, Russia**). ON THE ORGANIZATION OF STUDENTS' PROJECT WORK USING TIME SERIES ANALYSIS

**V.K. Nuriev, E.M. Krasikova (Moscow, Russia**). ANALYSIS OF CHEST X-RAYS USING ARTIFICIAL NEURAL NETWORK APPARATUS

**Olga E. Pyrkina, Andrei Yu. Yudanov** **(Moscow, Russia**). MARKOV MODEL FOR SIMULATION THE USE OF ENCAPSULATED KNOWLEDGE IN THE MANAGEMENT OF A FINANCIAL INSTITUTION

**O.V. Stikhova (Moscow, Russia**). THE ENERGY SYSTEMS INDUSTRIAL PRODUCTION FACTOR DERIVATIVES MATHEMATICAL ESTIMATION MODEL

**D.O. Stukalov , N.A. Stukalova, G.V. Koshkina, L.V. Semiletova, A.A. Gusarov (Tver , St. Petersburg, Russia).** GENERATION OF CONFIGURATIONS FOR TAINT ANALYSIS USING LARGE LANGUAGE MODELS

**E.Yu. Shchetinin** **(Moscow, Russia**). TITLE OF PAPER ON METHODS OF OBJECT DETECTION IN INFRARED SPECTRUM IMAGES OBTAINED BY UNMANNED AERIAL VEHICLES

**I.V. Kaikova, N.V. Eliseeva** **(Moscow, Russia**). MATHEMATICAL APPARATUS FOR EVALUATING THE DIGITAL MATURITY INDEX OF AN ENTERPRISE

**E.Yu. Romanova (Tver, Russia**). FEATURES OF THE STRUCTURE OF THE SOCIAL SYSTEMS AND THEIR CHANGES UNDER THE INFLUENCE OF VARIOUS FACTORS

**3. MOLECULAR AND BIOMOLECULAR SYSTEMS**

***Meetings are hold in a mixed mode: face-to-face participation and participation via ZOOM. Every 40 minutes there is a break for a few minutes.***

**Format: 15 minutes-talk**

**Saturday, 21.12.2024, 11.00-13.45**

**The room number will be announced additionally**

**Chairman: K.M. Nazarenko, O.B. Nadykto**

**S.Т. Belyakin (Moscow, Russia**). IONIC HOZHKIN-HASLEY MODEL OF THE III GENERATION IN A DISTRIBUTED EXCITIBLE MEDIUM FOR DESCRIBING A REACTION-DIFFUSION SYSTEM

**I.I.Kolesnichenko, L.M.Balashova** **(Moscow, Russia**). MULTIFACTORIAL ANALYSIS OF THE PATHOGENESIS OF RETINOPATHY IN PATIENTS WITH DIABETIC ANGIOPATHY AND RETINOPATHY

**N.T. Levashova, E.A. Generalov, A.E. Sidorova, A.N. Goltsov (Moscow, Russia).** THE USE OF MODULAR TYPE NONLINEARITY FOR MODELING THE DEVELOPMENT OF TUMOR CELL CULTURE IN VITRO

**Shpigun D.K., Sidorova A.E.** **(Moscow, Russia).** Quantitative analysis of the protein secondary structures chirality

**A.I.Loskutov** **(Moscow, Russia).** THE EFFECT OF THE NATURAL ELECTRIC FIELD ON THE MICA SURFACE ON THE BIO-CONJUGATION AND SECONDARY STRUCTURE OF A PEPTIDE COMPOSITE WITH GOLD NANOPARTICLES

**A.O. Lutsenko , A.E. Sidorova** **(Moscow, Russia).** MODELING OF PROTEIN SUPERCOILS TO QUANTIFY CHIRALITY

**Moskalev P.V., Selivanov V.F., Myagkov A.S., Krasnov A.A.** **(Moscow, Voronezh, Russia**). ON PERCOLATION MODELING OF FLOW CHARACTERISTICS OF POROUS TITANIUM

**Nazarenko K.M., Korobov N.A., Markov P.N., Nazarenko E.S., Nadykto A.B. (Moscow, Russia).** THE METHOD OF GEOMETRIC DIFFERENTIATION OF ISOMERS OF MOLECULAR STRUCTURES USING DISTANCE MATRICES

**V.B.Oshurko , A.F.Bunkin, M.Pershin, I.I.Demilkhanov** **(Moscow, Russia).** ONLINEAR OPTICS OF VIRUSES: ON THE POSSIBILITY OF HIGHLY SELECTIVE IN VIVO EXCITATION OF THIS VIRUS

**V.N. Samoilov, A.I. Musin, P.V. Aristarkhov** **(Moscow, Kirov, Russia).** ANALYTICAL AND MOLECULAR DYNAMIC CALCULATIONS OF THE BLOCKING OF ATOMS DURING EMISSION FROM THE SURFACE OF THE FACE (001) Au

**POSTER SESSION**

***Meetings are hold in a mixed mode: face-to-face participation and participation via ZOOM. Every 40 minutes there is a break for a few minutes.***

**Format: The participants of the poster session can briefly present their talk within 5 minutes. Prepared posters can be hung in the same room.**

***Chairman:* E.A. Devyaterikova, L.A. Uvarova**

**Saturday, 21.2024, 13.00 -14.00**

**Room 357ж**

**A.A. Lobko, O.R. Volkova (Moscow, Russia).** THE MILLING PROCESS IN OPTIMIZATION PROBLEMS BASED ON MACHINE LEARNING

**L.Yu. Vasil’eva, L.A. Uvarova, E.Yu. Romanova. (Tver, Moscow, Russia**). THE DISCUSSING OF THE STRUCTURE AND FUNCTIONS OF THE BIONANOENZYMATIC METALCONTAINING COMPLEXES

**Preobrazhenskaya A. R.** **(Moscow, Russia).** MODELING OF SIGNAL TRANSFER IN A BIO-NEURAL NETWORK BASED ON NONLINEAR HAMILTONIAN EQUATIONS

**Palvanov M. R.** **(Moscow, Russia).** INFLUENCE OF THE STRUCTURE OF A DISPERSED MEDIUM ON ACOUSTIC CHARACTERISTICS

**V.A. Khokhlov** **(Moscow, Russia).** CREATING A DATASET OF USED CARS FOR NEURAL NETWORK TRAINING

**Ya.A.Romanov (Tver, Russia).** DEEPENING KNOWLEDGE IN THE FIELD OF CYBERSECURITY IN THE PROCESS OF SCHOOL EDUCATION

**G.N. Ivanov, I.V. Krivenko, M.A. Smirnova, S.R. Ispiryan** **(Tver, Russia).**

INVESTIGATION OF ELASTIC PROPERTIES OF PEAT DURING FREEZING USING ULTRASOUND

**D. M. Silantiev** **(Moscow, Russia).** MODELING OF MESO- AND NANOSYSTEMS AND PROCESSES USING THE MATHEMATICAL THEORY OF CATASTROPHES

**V. S. Dryakina** **(Moscow, Russia).** MATHEMATICAL MODELING OF THE STRUCTURE AND TRANSFER PROCESSES IN 2D NANOSYSTEMS

**Yu. A. Neznanov** **(Moscow, Russia).** ON THE ISSUE OF MODELING TRANSFER PROCESSES USING P-ADIC ANALYSIS

**A.V. Kunitsina, L.A. Uvarova, A.S. Myagkov**  **(Moscow, Russia).** MODELING OF THE HEAT AND MASS TRANSFER PROCESS IN NANOTUBE SYSTEMS

**Пхиьо Вэй Лин (Moscow, Russia).** MODELING OF PHASE TRANSITIONS OF THE FIRST KIND IN DISPERSED MEDIA USING THE MODIFICATION OF THE HOSHEN-KOPELMAN ALGORITHM

**15.00. END OF THE FOURTH DAY OF THE CONFERENCE**