International Conference
MATHEMATICAL MODELLING
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17 November, 2020
SCHEDULE OF THE CONFERENCE

9:30-12:00 PLENARY SESSION		
12:15-18:00 SECTIONS		
SECTION 1	**SECTION 2**	**SECTION 3**
Mathematical Modelling of Physical Processes and Phenomena	Supercomputer Software and its Application for Engineering	Artificial Intelligence and Data Science

PROGRAM

Plenary session
9:30-12:00

No.	Participant	Theme
1.	Pogosyan Mikhail, MAI	Mathematical modelling and digital environment of the 4.0 Idustry
2.	Avetisyan Arutyun, ISP RAS	Free software as a key component of the technological independence
3.	Bernhard Peters, Luxemburg University	Challenges in Multi-physics Applications for High-Performance Computing
4.	Decheng Wan, Shanghai Jiao Tong University	Efficient naoe-FOAM-SJTU Solver for Ship Flows and Ocean Engineering Flows
5.	Josué Melguizo-Gavilanes, CNRS France	Modelling of Combustion and Detonation Processes in Aircraft Engines
6.	Tishkin Vladimir, IAM RAS	Application of the Galerkin discontinuous method in hydroaerodynamics tasks

Section 1
Mathematical Modelling of Physical Processes and Phenomena
12:15-18:00

No.	Participant	Theme
1.	Maciejewski Andrzej, University of Zielona Góra	Non-integrability of the generalised Hill problem
2.	Przybylska Maria, University of Zielona Góra	Non-integrability of the spring-dumbbell satellite model
3.	Krasilnikov Pavel, MAI	On the evolution of orbits in the circular restricted three-body problem with light pressure. Internal porblem.
4.	Sukhov George, MAI	Numerical orbital stability and bifurcation analysis method for periodic motions of two DOF autonomous Hamiltonian systems
5.	Mladenovic Nenad, SANU	Variable Neighborhood Search
6.	Li Mingzhi, Beihang University	A Model of the Coupled Effect of Two-position Local Geometric Deviation of High-Pressure Compressor Blade on the Aerodynamic Performance
7.	Kraposhin Matvey, ISP RAS	Open Source Software as a construction set for complex digital models of technical systems
8.	Wang Ruoyu, Beihang University	A Mathematical Model for the Forward Variable Bypass Injector in a Double-Bypass Variable Cycle Engine and its Use

No.	Participant	Theme
9.	Borzenko Evgeny, TSU	Simulation of a steady flow of a viscoplastic fluid in a round pipe taking into account viscous dissipation
10.	Kostyushin Kirill, TSU	Mathematical modeling of non-stationary gas-dynamic processes at the start of solid-fuel accelerators
11.	Sembiyev Ordabay, South Kazakhstan State University	Mathematical modeling of the afterburning of toxic components in a flow by a multi-stage water steam supply
12.	Shustov Stanislav, Samara University	Mathematical modeling of the influence of viscosity on the flow in supersonic nozzles at low Reynolds numbers in the approximation of a laminar boundary layer
13.	Gidaspov Vladimir, MAI	Mathematical modeling of the flow of a combustible mixture behind a reflected shock wave
14.	Ivanov Igor, MAI	Numerical simulation of supersonic flows using the hySol software package
15.	Epikhin Andrey, ISP RAS	Numerical simulation of underexpanded jet impingement on a flat plate
16.	Belyaev Pavel, FSUE "RFNC-VNIITF"	Method for numerical simulation of high-intensity flows
17.	Vatutin Kirill, ISP RAN	Far-field sonic boom prediction for supersonic vehicles using free software
18.	Krioukov Viktor, KNRTU-KAI	Tools for mathematical modeling of combustion processes and their application
19.	Levin Mikhail, ISP RAS	To the solution of regularized Stefan problem in the framework of the thermodynamic model of icing
20.	Boyarsky Gleb, MAI	Modeling blood flow in a micropump to support blood circulation
21.	Sakhabutdinov Airat, KNITU-KAI	Mathematical model for measuring the concentration of particles in a liquid during their sedimentation
22.	Ostrik Afanasy, IPCP RAS	Numerical simulation of consequences of aircraft crash on NPP containment
23.	Baghdasaryan Gevorg, NAS RA	Mathematical modeling and study of behavior of thermomagnetoelastic stability of a superconducting cylindrical shell
24.	Nikolaev Sergey, MAI	Modeling the boundaries of the aircraft exit zone to a set point

Section 2
Supercomputer Software and its Application for Engineering
12:15-18:00

No.	Participant	Theme
1.	Panteleev Andrei, MAI	Application of the mini-batch method of adaptive random search in task of synthesis of suboptimal deterministic systems of joint estimation and control
2.	Kuznetsov Dmitri, SPbPU	A software package for Implementation of strong numerical methods of convergence orders 0.5, 1.0, 1.5, 2.0, 2.5, and 3.0 for Ito SDEs with non-commutative multi-dimensional noise
3.	Stepanov Nikita, Dell Technologies	Dell Technologies solutions for HPC
4.	Elagin Vyacheslav, HPE	How HPE is doing Exascale Computing
5.	Rybalko Aleksey, VMWare RUS	Mechanism for analyzing and predicting metrics in the infrastructure maintenance system based on virtualization application programs
6.	Niu Han, Beihang University	Investigation of Incoming Boundary Layer Effects on the Flow Field of Transonic Compressor Rotor
7.	Gusev Evgeny, IPNG SO RAS	Mathematical methods for optimal synthesis of the physical and mechanical structure of composites with the required set of properties under extreme conditions
8.	Korchagova Victoria, ISP RAS	RKDG tool for solution of gas dynamics problems based on open-source software
9.	Strijhak Sergei, ISP RAS	The features of implementing a parallel algorithm in the iceFoam solver for modeling flow around a 2D body and ice accretion using the SWIM model
10.	Struchkov Andrew, RFNC-VNIIEF	Features of the application of the method of geometric multilevel initialization to accelerate the solution of aerodynamic problems on arbitrary unstructured grids

No.	Participant	Theme
11.	Sarazov Alexey, RFNC-VNIIEF	Solving problems of separating objects in the presence of a carrier in the Logos
12.	Arifullin Rinat, MAI	Mathematical modeling of safe payload separation using Logos software on Chimera-type grids
13.	Bykov Leonid, MAI	Improving the numerical algorithm modeling surface characteristics.
14.	Sposobin Andrey, MAI	Numerical simulation of gas-dynamic interaction between particle and shock layer
15.	Krotov Kirill, SevSU	Mathematical modeling and methods for planning the execution of task packages in multi-stage systems under the condition of generating sets.
16.	Sheshenin Sergey, MSU	Calculation of the Stress Concentrations and Effective Elastic Moduli in a Dispersed Composite
17.	Shatskiy Maxim, ISP RAS	HPC modelling of spaceport acoustic field using open source software
18.	Rasskazova Varvara, MAI	Practical realization of algorithm of oriented graph paths decomposition
19.	Zaurbekov Nurgali Abai, KazNPU	Stochastic model for calculating the dispersion of pollutants in the air
20.	Krasnikov Vasiliy, CSU	Prediction of yield strength of Al-Cu alloy with multiscale modeling
21.	Latypov Fanil, CSU	Simulation of nanopore collapse in metals at high-rate compression
22.	Saitov Rail Bashkir State University	Mathematical model of low temperature microwave separation of water-oil emulsion
23.	Snezhina Natalia, DSTU	Computer modeling of the infusion technologies at the manufacturing of polymeric composite structures
24.	Morozov Alexandr, MAI	NVIDIA CUDA technology for modeling dynamic systems with interval parameters

Section 3
Artificial Intelligence and Data Science
12:15-18:00

No.	Participant	Theme
1.	Soshnikov Dmitry, MAI	Recognition at video using an ensemble of deep neural network models with explicit feature detection
2.	Yuan Yuan, Shang Hai Jiao Tong University	Feature extraction of flow field using proper orthogonal decomposition
3.	Meshalkin Valery, Mendeleev University	Modern intelligent computational methods of automated engineering of energy-resource-efficient production systems and supply chains
4.	Denisikhin Sergey, Siemens Russia	Development of a stand for a digital twin of an aircraft
5.	Masich Igor SibFU	Extraction of logical patterns from observations for modeling and classifying objects on the basis of heterogeneous information
6.	Shalagin Sergei KNRTU-KAI	Stochastic identification of the «Object-attribute» table based on the modified Rabiner`s method
7.	Sudakov Vladimir, MAI	Processing judgments of experts by the method of fuzzy weighted summation
8.	Korzhuk Nikolai, TulSU	Simulation of cognitive processes
9.	Sudakov Vladimir, MAI	Deep Reinforcement Learning Models in Portfolio Management Problems
10.	Korsun Oleg, GosNIIAS	Recognition of speech commands using conventional neural networks in small training sets
11.	Sudakov Vladimir, MAI	Piecewise evaluation of machine translation
12.	Maximov Alexey, MAI	Method of assembling visual positioning pipeline for autonomous agricultural vechicles
13.	Kondarattsev Vadim, MAI	Application of Zernike descriptors in the task of building a generating auto-decoder
14.	Stokolesov Maxim, MAI	Lidar data autolabeling using camera image
15.	Mazaew Artemiy, MAI	Determination of taxable buildings using neural network technologies
16.	Sudakov Vladimir, MAI	Forecasting New Product Demand Using Machine Learning

17.	Kanishchev Oleg, FSUE "SPA "Analitpribor"	Methods optimization maintenance strategy of gas analytical systems by semi-Markov model
18.	Protasov Vlasdislav MAI	Molecular-dynamic modeling of the collective self-control system of UAV
19.	Chekin Andrei, MAI	X-Plane aircraft model and Simulink control system integration
20.	Gorikhovskii Viacheslav, SPSU	Application of neural networks for calculation of relaxation terms in the modelling of the CO_2 kinetics