Eurasian Conference on Applied Mathematics

PRELIMINARY CONFERENCE PROGRAM. CURRENT VERSION. 22.12.2021 13:30

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Zoom: ***https://us02web.zoom.us/j/88905137016?pwd=Nm42L3pwQjVpcGhJWFVyVXNYZmxpZz09***

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GMT + 7	***December 16, Thursday***	**Sobolev Institute of Mathematics, Koptyga street 4, Conference Hall** **Zoom:** https://us02web.zoom.us/j/88905137016?pwd=Nm42L3pwQjVpcGhJWFVyVXNYZmxpZz09 Zoom conference ID: 889 0513 7016 Password: 940237
9:00-9:30	Gunther Uhlmann University of Washington (USA)	The Calderon Problem for Nonlocal Operators
9:35-10:05	Plamen D. Stefanov Purdue University (USA)	Inverse Problems for semilinear wave equations
10:10-10:40	Eric Todd Quinto, James Webber Tufts University (USA)	Microlocal analysis of Fourier Integral Operators in scattering tomography
10:45-11:05	**Coffee-Break**	
11:05-11:35	Alexey Penenko, Viktoria Konopleva, Alexander Bobrovskikh, Ulyana Zubairova Institute of Computational Mathematics and Mathematical Geophysics (Novosibirsk, Russia)	Adjoint-ensemble-based analysis of the coefficient identification problems for production-loss models
11:40-12:10	Masahiro Yamamoto Tokyo University (Japan)	Inverse problems for transport equations of first order by Carleman estimate
12:15-12:45	Masaru Ikehata Hiroshima University (Higashihiroshima, Japan)	On finding a penetrable obstacle via the time domain enclosure method for the Maxwell system
12:50-14:00	**Lunch**	
14:00-14:30	Andrey Kozelkov Russian Federal Nuclear Center – All-Russian Scientific Research Institute of Experimental Physics (Sarov, Russia)	Modeling of problems of marine hydrodynamics based on three-dimensional Navier-Stokes equations
14:35-15:05	Yevgeniy Bondar Khristianovich Institute of Theoretical and Applied Mechanics (Novosibirsk, Russia)	Direct simulation Monte Carlo method for problems of high-altitude aerothermodynamics
15:05-15:35	Alexander Chupakhin Lavrentiev Institute of Hydrodynamics (Novosibirsk, Russia)	Bifurcations and tissues in the problems of applied hydrodynamics: applications to cerebral and abdominal hemodynamics
15:40-16:10	Yurii Averboukh Institute of Mathematics and Mechanics (Ekaterinburg, Russia)	Mean field games with a finite number of states. An approach based on control theory

16:15-16:35	**Coffee-Break**	
16:35-17:05	Vadim Potapov, Igor Bychkov Federal Research Center Information and calculated technology (Kemerovo, Russia)	Digital twin of the Ob-Irtysh basin - the concept and features of the project implementation
17:10-17:40	Vasily Vasiliev, Kyunnei Ilina Ammosov North-Eastern Federal University (Yakutsk, Russia)	On the numerical solution of initial boundary value problems for the reaction-diffusion equation
17:45-18:15	Alexey Dubovik, Valery Galkin Surgut State University (Surgut, Russia)	Analytical solutions to the problem of convective-diffusion pollution transfer on movable medium
18:20-18:50	Nyurgun Lazarev Northeastern Federal University (Yakutsk, Russia)	Inverse problem for cracked inhomogeneous Kirchhoff-Love plate with two hinged rigid inclusions

	December 17, Friday	**Novosibirsk State University, Pirogova str. 1, University Administration, Room 212** **Zoom:** https://us02web.zoom.us/j/88905137016?pwd=Nm42L3pwQjVpcGhJWFVyVXNYZmxpZz09 Zoom conference ID: 889 0513 7016 Password: 940237
9:00-9:30	Jijun Liu Southeast University (Nanjing, China)	On fluorescence imaging by diffusion process: model and algorithm
9:35-10:05	Zhen Fan, Fang Liu Central South University (Changsha, China)	Equivalent Input Disturbance-Based Control Strategy Design for PV Grid-connected System Considering Dead Time Effect
10:10-10:40	Nikolai Pertsev Sobolev Institute of Mathematics (Novosibirsk, Russia)	Modeling of the epidemic process based on delay differential equations
10:45-11:05	**Coffee-Break**	
11:40-12:10	Gen Nakamura Hokkaido University (Sapporo, Japan)	Classical unique continuation property for solutions of time fractional evolution equations
12:15-12:45	Alexey Penenko, Vladimir Penenko, Elena Tsvetova, Alexander Gochakov, Elza Pyanova, Viktoria Konopleva Institute of Computational Mathematics and Mathematical Geophysics (Novosibirsk, Russia)	Measurement Data Fusion with Sensitivity Operators
12:50-14:00	**Lunch**	
14:00-14:30	Philipp Bykov, Vladimir Gordin Hydrometeorological Research Center (Moscow, Russia), National Research University Higher School of Economics (Moscow, Russia)	Complex coefficient of turbulent exchange according to high-resolution sounding data of the Earth's atmosphere (modification of the Akkerblom - Ekman model)
14:35-15:05	Igor Petrov Moscow Institute of Physics and Technology (Dolgoprudny, Russia)	On the numerical solution of spatial dynamic problems in the mechanics of a deformable solid
15:05-15:35	Aleksei Volkov, Yurii Averboukh Institute of Mathematics and Mechanics (Ekaterinburg, Russia)	Planning Problem for Finite State Mean Field Games
15:40-16:10	Pavel Gilev, Alexander Papin Altai State University (Barnaul, Russia)	Investigation of the problem of two-phase filtration in a poroelastic medium in the approximation of a two-dimensional Hele-Shaw cell
16:15-16:35	**Coffee-Break**	
16:35-17:05	Jia Sun, Xiao Meng, Aliona Dreglea, Jiao Yu Liaoning Petrochemical University (Funshun, China)	Study on the Acoustic Effect of Nonlinear Media Based on Ultrasound Harmonic Imaging

17:10-17:40	Samad Noeiaghdam, Denis Sidorov Baikal School of BRICS, Irkutsk Technical University (Irkutsk, Russia)	Control of accuracy on semi-analytical methods for solving linear and nonlinear Volterra integral equations with discontinuous kernel
17:45-18:15	Ramlau Ronny Johann Radon Institute for Computational and Applied Mathematics (Linz, Austria)	Regularized Recycling Methods for Inverse Problems - Theory and Applications
18:20-18:50	Moataz Alosaimi, Daniel Lesnic, Jitse Niesen University of Leeds (UK)	Parameter determination problems in thermal wave bioheat transfer

	December 18, Saturday	**Novosibirsk State University, Pirogova str. 1, University Administration, Room 212** **Zoom:** https://us02web.zoom.us/j/88905137016?pwd=Nm42L3pwQjVpcGhJWFVyVXNYZmxpZz09 Zoom conference ID: 889 0513 7016 Password: 940237
9:00-9:30	Elena Grazhdantseva, Svetlana Solodusha Melentiev Institute of Energy Systems (Irkutsk, Russia)	On a system of hyperbolic equations in the problem of unsteady fluid motion
9:35-10:05	Gennady Platov Institute of Computational Mathematics and Mathematical Geophysics (Novosibirsk, Russia)	Numerical Modeling in Climate Research Problems
12:50-14:00	**Lunch**	
14:00-14:30	Sergey Dobrokhotov, Vladimir Nazaikinskii, Anton Tolchennikov, Aleksandr Klyovin, Sergey Sergeev Ishlinsky Institute of Problems of Mechanics (Moscow, Russia)	An analytical-numerical algorithm for calculating the interaction of linear waves generated by localized sources with obstructions in dispersive media
14:35-15:05	Anton Tolchennikov, Sergey Dobrokhotov, Vladimir Nazaikinskii, Igor Nosikov, Sofya Beisel Ishlinsky Institute of Problems of Mechanics (Moscow, Russia)	An analytical-numerical approach for calculating long waves in the ocean based on the variational principle
15:05-15:35	Jun Zou Chinese University of Hong Kong (Hong Kong, China)	Direct sampling method for tracing moving inhomogeneous inclusions
15:40-16:10	Viktor Shcherbakov University of Kassel (Kassel, Germany)	An adaptive time-discretization scheme for rate-independent systems
16:15-16:35	**Coffee-Break**	
16:35-17:05	Gornov A.Yu, Zarodnyuk T.S., Anikin A.S., Sorokovikov P.S. Matrosov Institute for System Dynamics and Control Theory of the SB RAS (Irkutsk, Russia)	Non-convex optimization problems: classification and applied statements
17:10-17:40	Pavel Alexandrov TSEMI IFZ RAS (Moscow, Russia)	Linear inverse problems of geophysics
17:45-17:55	Zuurakan Kadenova Institute of Mathematics (Bishkek, Kyrgyzstan)	On a class of linear integral equations of the third kind with two independent variables
17:55-18:15	Asset Durmagabetov JSC NC KTZ (Nur-Sultan, Kazakhstan	The Riemann hypothesis
	December 19, Sunday	**Sobolev Institute of Mathematics, Koptyga street 4, Conference Hall** **Zoom:** https://us02web.zoom.us/j/88905137016?pwd=Nm42L3pwQjVpcGhJWFVyVXNYZmxpZz09

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9:00-9:30	Alexander Kozlov, Denis Sidorov, Vlad Shakirov, Nikita Tomin, Victor Kurbatsky, Electo Lora Melentiev Energy Systems Institute A. Kozlov, (Irkutsk, Russia), Universidade Federal de Itajubá (Brazil)	ML Approach to Control of Sustainable Community Microgrids
9:35-10:05	Dmitry Lukyanenko Moscow State University (Russia)	On some features of the numerical solving of inverse problems for nonlinear equations of the reaction-diffusion-advection type with data on the position of a reaction front
10:10-10:40	Aris Tersenov Sobolev Institute of Mathematics (Novosibirsk, Russia)	On viscosity solutions of anisotropic parabolic equations
10:45-11:05	**Coffee-Break**	
11:05-11:35	Aliona Dreglea, Mikhail Mochalov, Yury Kozlov Irkutsk State Technical University (Russia)	Risk stratification of intestinal anastomosis using machine learning methods
11:40-12:10	Andrey Akinshin, Natalya Ayupova, Vladimir Golubyatnikov Sobolev Institute of Mathematics (Novosibirsk, Russia)	One numerical model of circadian oscillator
12:15-12:45	Evgeny Burnaev Skolkovo Institute of Science and Technology (Moscow, Russia)	The Robustness of Deep Networks: A Geometrical Perspective
12:50-14:00	**Lunch**	
14:00-14:30	Andrey Palyanov A.P. Ershov Institute of Informatics Systems (Novosibirsk, Russia)	3D biomechanical model reproduces realistic swimming of frog tadpole
14:35-15:05	Konstantin Loginov, Nikolai Pertsev, ValentinTopchii Sobolev Institute of Mathematics (Novosibirsk, Russia)	Numerical simulation of the epidemic process based on a continuous-discrete stochastic model
15:05-15:35	Alexander Leonov, Nikolay Nefedov, Alexander Sharov, Anatoly Yagola Moscow State University, National Research Nuclear University MEPhI (Russia)	"Fast" solution of a two-dimensional inverse problem of elastography by the method of a small parameter
15:40-16:10	Alexander Litvinenko, Ronald Kriemann, Vladimir Berikov RWTH (Aachhen, Germany)	Identification of unknown parameters and prediction of missing values. Comparison of approaches
16:15-16:35	**Coffee-Break**	
16:35-17:05	Andrey Nasedkin Southern Federal University (Rostov-On-Don, Russia)	Determination of the effective properties of piezoelectric composites taking into account the internal structure by the methods of effective modules and finite elements
17:10-17:40	Oleg Zatsepin, Alexey Bragin, Vitaly Vlasov, Alexey Deryabin, Grigory Kaminsky, Eduard Karamov, Andrey Karmanov, Georgy Rykovanov, Sergey Samarin, Andrey Sokolov, Nikolay Solomin, Nikita Teplykh, Maksim Urakov, Kirill Khatuntsev Russian Federal Nuclear Center - all-Russian research Institute of technical physics. Academician E.I.Zababakhina (Snezhinsk, Russia)	Agent-based model of the COVID-19 epidemic evolution
17:45-18:15	Victoria Petrakova, Olgo Krivorotko Institute of Computational Modeling (Krasnoyarsk, Russia)	Consideration of mass behavior of the population in modeling the spread of COVID-19
18:20-18:40	Victoria Larionova, Margarita Tokareva, Rudolf Virts Altai State University (Russia)	Mathematical model of fluid motion in poroelastic ice taking into account phase transitions and ice motion

		Novosibirsk State University, Pirogova str. 1, University Administration, Room 212

	December 20, Monday	**Zoom:** https://us02web.zoom.us/j/88905137016?pwd=Nm42L3pwQjVpcGhJWFVyVXNYZmxpZz09 Zoom conference ID: 889 0513 7016 Password: 940237
9:00-9:30	Gennady Bocharov, Dmitry Grebennikov, Rostislav Savinkov Marchuk Institute of Computational Mathematics (Moscow, Russia)	Mathematical modelling of immune system and virus infections
9:35-10:05	Vladimir Vasin, Alexander Ageev Institute of Mathematics and Mechanics (Ekaterinburg, Russia)	Methods for solving inverse problems with a priori information
10:10-10:40	Alexander Shananin, Nikolay Trusov, Maksim Tarasenko Moscow Institute of Physics and Technology (Russia)	Mathematical modeling of the state of consumer loans in Russia
10:45-11:05	**Coffee-Break**	
11:05-11:35	Anatoly Yagola, Igor Kolotov, Dmitry Lukyanenko, Inna Stepanova, Yanfei Wang Moscow State University (Russia)	Reconstruction of the magnetic fields of planets from satellite data
11:40-12:10	Jin Cheng Fudan University (Shanghai, China)	An Inverse Problem of Identifying the Source from Local measurements
12:15-12:45	Gulnara Kuramshina Moscow State University (Russia)	Regularized approach for constructing brick structure molecular force field matrices of systems with non-covalent interactions
12:50-14:00	**Lunch**	
14:00-14:30	***Openening Ceremony***	
14:30-15:00	Mikhail Guzev Institute of Applied Mathematics (Vladivostok, Russia)	Construction of non-singular stress fields for systems with cylindrical and spherical symmetry in a non-Euclidean continuum model
15:05-15:35	Mikhail Epov, Vyacheslav Glinskikh Trofimuk Institute of Petroleum Geology and Geophysics (Novosibirsk, Russia)	Modern electrodynamics of oil and gas reservoirs
15:40-16:10	Svetlana Fortova, Vladimir Lebedev, Igor Kolokolov, Alexey Doludenko Institute of Design Automation (Moscow, Russia)	Numerical study of two-dimensional turbulence in a square cell.
16:15-16:35	**Coffee-Break**	
16:35-17:05	Yalchin Efendiev Texas A&M University (College Station, USA)	Multiscale modeling: Modeling subgrid effects and temporal splitting
17:10-17:40	Olga Krivorotko Institute of Computational Mathematics and Mathematical Geophysics (Russia)	Inverse problems of epidemiology
17:45-18:15	Nedyu Popivanov Institute of Informatics and Communication Tehnologies (Sofia, Bulgaria)	Parameters Identification and Forecasting of COVID-19 Transmission Dynamics in Bulgaria with Mass Vaccination Strategy
18:20-18:50	Roman Novikov CNRS, Ecole Polytechnique (Paris, France), IEPT RAS (Moscow, Russia)	Multipoint formulas for inverse scattering at high energies
	December 21, Tuesday	**Novosibirsk State University, Pirogova str. 1, University Administration, Room 212** **Zoom:** https://us02web.zoom.us/j/88905137016?pwd=Nm42L3pwQjVpcGhJWFVyVXNYZmxpZz09

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9:00-9:30	Elizaveta Peskova, Valeriy Snytnikov Institute of Catalysis (Novosibirsk, Russia)	Laser conversion of ethane-methane mixtures in axisymmetric reactors
9:35-10:05	Vyacheslav Karnaev Novosibirsk State University (Russia)	Reconstruction of an inclusion in an elastic body with noised data
10:45-11:05	**Coffee-Break**	
11:05-11:35	Tatyana Averina Institute of Computational Mathematics and Mathematical Geophysics (Novosibirsk, Russia)	An economic algorithm for simulation of a Poisson point process
11:40-12:10	Mikhail Kokurin, Anastasiya Semenova Mari State University (Yoshkar-Ola, Russia)	Iteratively Regularized Gauss-Newton Type Methods for Recovery of Unknown Coefficients in an Epidemiological Model
12:15-12:35	Tatyana Zvonareva, Olga Krivorotko Novosibirsk State University (Russia)	Tensor train optimization for solving the discrete source problem for the diffusion-logistic model
12:35-12:55	Alexey Prikhodko, Maxim Shishlenin Novosibirsk State University (Russia)	Application of deep learning methods in acoustic tomography
12:55-14:00	**Lunch**	
14:00-14:30	Andrey Shurup Moscow State University (Russia)	Numerical reconstruction of high-contrast inhomogeneitis using functional algorithm
14:35-15:05	Sergey Piskarev Moscow State University (Russia)	Approximation of fractional differential equations
15:05-15:35	Vladimir Sivkin Ecole Polytechnique (France)	Reconstruction from phaseless Fourier transform with background information
15:40-16:10	Vladimir Erokhin A.F. Mozhaysky Military-Space Academy (Saint-Petersburg, Russia)	Sufficient conditions for the polynomial-time solvability of a system of linear equations with interval matrix of coefficients
16:15-16:35	**Coffee-Break**	
16:35-17:05	Tatiana Savvateeva, Tatiana Demidova, Sergey Anoshin, Olga Stoyanovskaya Lavrentiev Institute of Hydrodynamics (Russia)	Calculation of the dynamics of gas-monodisperse dust media based on the method of smoothed particle hydrodynamics
17:05-17:35	Vladimir Berikov, Alexander Litvinenko RWTH (Aachhen, Germany)	Machine learning with incorrectly specified training information: an approach using manifold regularization
17:35-18:05	Grigory Kamenskiy FSBI National Medical Research Center of Phthisiopulmonology and Infectious Diseases (Russia)	Nonlinearity of the epidemic process
18:05-18:20	Alexey Shcheglov, Kirill Artemkin MSU-PPI University (Shenzhen, China), Moscow State University (Moscow, Russia)	Numerical solution of the inverse problem for a population model with age structuring and integral nonlinearity
18:20-18:35	Ekaterina Shelygina, Olga Krivorotko Novosibirsk State University (Russia)	Agent-based model of the spread of seasonal acute respiratory viral infections, taking into account traffic flows

	December 22, Wednesday	

	Section I	**Zoom**: https://us02web.zoom.us/j/8615596919 Zoom conference ID: 861 559 6919
9:00-9:20	Anastasiya Suslenkova, Olga Stoyanovskaya, Vitaliy Grigoriev Novosibirsk State University (Russia)	The problem of the expansion of a gas-dust ball into a vacuum as a test for numerical models of mechanics of two-phase media
9:20-9:40	Golubyatnikov V.P., Yunosheva E.V. Sobolev Institute of Mathematics, Novosibirsk State University (Russia)	On existence of a cycle in one circadian oscillator model
9:40-9:55	Liubov Neustroeva Ugra State University (Khanty-Mansiysk, Russia)	Determination of point sources in heat and mass transfer problems
9:55-10:15	Vladimir Aristov, Andrey Stroganov, Andrey Yastrebov FITZ IU RAS (Moscow, Russia)	Development of a kinetic model for studying the nature of pandemic wave propagation in Russia
10:15-10:35	Vladimir Belonogov Ugra State University (Khanty-Mansiysk, Russia)	On some classes of inverse problems of determining the heat transfer coefficient in layered media
10:35-10:55	Aleksandr Karakulev, Lev Kotlyar, Ivan Sofronov Moscow Institute of Physics and Technology (Dolgoprudny, Russia)	On ambiguity of the ill-posed problem of production well inflow profiling using distributed fluids temperature logging
10:55-11:15	Daniyar Kaliev, Olga Shvets D. Serikbayev East Kazakhstan State Technical University (Ust-Kamenogorsk, Kazakhstan)	Convolutional neural networks and fire detection tasks based on aerial photography data
11:15-11:35	Anwar Chanyshev, Ilgizar Abdullin, Olga Belousova Novosibirsk State University of Economics and Management (Russia)	Finding the elastic stress-strain state of a section of the mine boundary of an arbitrary shape in an initially isotropic rock mass based on overdetermined data
11:35-11:55	Sultan Alpar, Bolatbek Rysbayuly International Information Technology University (Almaty, Kazakhstan)	Determination of the nonlinear diffusion coefficient of soil
11:55-12:15	Nazerke Mukhametkaliyeva International University of Information Technology (Almaty, Kazakhstan)	Quasilinear inverse problem of thermal conductivity
12:15-12:35	Olzhas Nurgozhaev Kazakh National Pedagogical University named after Abai (Almaty, Kazakhstan)	Digitalization of educational and computational algorithms in education
12:35-12:55	Vadim Shepelev, Nail Inogamov, Svetlana Fortova Institute of Design Automation (Moscow, Russia)	Geometry of femtosecond laser-induced shock wave propagation in metal

	Section II	**Zoom:** https://us02web.zoom.us/j/88905137016?pwd=Nm42L3pwQjVpcGhJWFVyVXNYZmxpZz09 **Zoom conference ID:** 889 0513 7016 **Password:** 940237
9:00-9:20	Shakhlo Merajova, Andrey Karchevsky Bukhara State University (Bukhara, Uzbekistan)	Numerical solution of the inverse problem for an equation of mixed parabolic-hyperbolic type by definition of the right side of the equation
9:20-9:40	Nikita Savchenko, Maxim Shishlenin, Nikita Novikov Novosibirsk State University (Russia)	Modeling the radiation pattern of dynamic acoustic source.

9:40-9:55	Anwar Chanyshev, Larisa Efimenko, Irina Frolova Novosibirsk State University of Economics and Management (Russia)	Determination of the stress-strain state and structure of an initially anisotropic half-plane from overdetermined data on the surface
9:55-10:15	Kazizat Iskakov, Dinara Tokseit, Sergey Kabanikhin, Maxim Shishlenin Eurasian National University (NurSultan, Kazakhstan)	Mathematical model and algorithms for processing georadar data
10:55-11:15	Alexey Shcheglov, Oksana Andrianova University of MSU-SPI, Shenzhen, China, Moscow State University (Moscow, Russia)	Restoration of two functions in the model of oscillation of a rod, one end of which is in an elastic medium
11:15-11:35	Oleg Khamisov, Vitalii Shamansky, Maria Kozlova Melentyev Institute of Energy Systems (Irkutsk, Russia)	Inverse optimization problem related to selection of initial composition of reactants
11:35-11:55	Aliya Shakhatova, Kazizat Iskakov, Maxim Shishlenin, Tolkyn Mirkalikyzy L.N. Gumilyov Eurasian National University (Almaty, Kazakhstan)	Scientific and technical overview of GPR (ground-penetrating radar) devices: the principle of operation
11:55-12:15	Alexey Kalinin, Alla Tyukhtina Lobachevsky Nizhny Novgorod State University (Nizhny Novgorod, Russia)	Some mathematical problems of atmospheric electricity
12:15-12:35	Galitdin Bakanov, Saule Meldebekova International Kazakh-Turkish University named after H.A.Yasavi (Turkestan, Kazakhstan)	On the stability of a differential-difference analogue of an integral geometry problem with a weight function
12:35-13:05	Yuriy Khudak, Denis Parfenov MIREA - Russian Technological University (Moscow, Russia)	Analitytical methods of layered dielectric media (LDM) electrodynamics