Inverse and Ill-Posed Problems: Theory and Numerics
XIII international scientific conference and young scientist school

CONFERENCE PROGRAM. CURRENT VERSION. 11.04.2021
PLENARY TALKS

Novosibirsk time zone: GMT+7

Zoom https://us02web.zoom.us/j/86015050654?pwd=ZUJtYW04MkorQlZPT2h1VlFTOUQrZz09

The conference ID: 860 1505 0654
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GMT + 7	April 12, Monday	Zoom https://us02web.zoom.us/j/86015050654?pwd=ZUJtYW04MkorQlZPT2h1VlFTOUQrZz09 The conference ID: 860 1505 0654 Password: 397562
9:00-9:40	Gunther Uhlmann University of Washington (USA)	Travel Time Tomography
9:45-10:25	Plamen D. Stefanov, Samy Tindel Purdue University (USA)	Sampling linear inverse problems with noise
10:30-11:10	George Dulikravich Florida International University (USA)	Multi-Disciplinary Disciplinary Practical Solutions of Inverse Problems
11:15-11:55	Masahiro Yamamoto Tokyo University (Japan)	Stability for inverse problems by Carleman estimates and applications to fluid dynamics
12:00-12:40	Jin Cheng Fudan University (Shanghai, China)	Theory and Algorithms of Extracting Information from Big Data
12:45-13:25	Yanfei Wang Institute of Geology and Geophysics (Beijing, China)	Model-driven and data-driven inverse problems
13:30-14:00	**Lunch**	
14:00-14:30	*Openening Ceremony*	*Sobolev Institute of Mathematics, Koptyga street 4, Conference Hall*
		Zoom https://us02web.zoom.us/j/86015050654?pwd=ZUJtYW04MkorQlZPT2h1VlFTOUQrZz09 *The conference ID: 860 1505 0654* *Password: 397562*
	Symposium "Text processing"	
14:30-15:10	Michail Guzev, Evgenia Nikitina, Elena Chernysh Institute of Applied Mathematics (Vladivostok, Russia)	V. P. Maslov's approach for the analysis of rank distributions
15:15-15:55	Olga Kozhemyakina, Vladimir Barakhnin Federal Research Center for Information and Computing Technologies (Novosibirsk, Russia)	Models and algorithms for complex analysis of Russian poetic texts

16:00-16:40	Maria Timofeeva Sobolev Institute of Mathematics (Novosibirsk, Russia)	Structure of reasoning in a poetic text
16:45-17:00	**Coffee-Break**	**Sobolev Institute of Mathematics, Conference Hall Foyer**
17:00-17:40	Vasily Vasiliev, Anatoly Kardashevsky, Wang Gang Ammosov North-Eastern Federal University (Yakutsk, Russia)	Identification of the order of the Caputo fractional derivative and the diffusion coefficient in the subdiffusion problem
		Zoom https://us02web.zoom.us/j/86015050654?pwd=ZUJtYW04MkorQlZPT2h1VlFTOUQrZz09
18:00-18:40	Maarten de Hoop Rice University (USA)	Globally injective ReLU networks, injective flows and uncertainty quantification

	April 13, Tuesday	*Zoom https://us02web.zoom.us/j/86015050654?pwd=ZUJtYW04MkorQlZPT2h1VlFTOUQrZz09* ***The conference ID: 860 1505 0654*** ***Password: 397562***
9:00-9:40	Michael Klibanov University of North Carolina at Charlotte (USA)	Carleman estimates for globally convergent numerical methods for coefficient inverse problems
9:45-10:25	Vladimir Romanov Sobolev Institute of Mathematics (Novosibirsk, Russia)	The problem of determining the anisotropic conductivity in the equations of electrodynamics
	Symposium "Mean-Field Games"	***Organizers: A.A. Shananin, N. Trusov***
10:30-11:10	Vladimir Shaidurov, Shuhua Zhang, Victoria Kornienko Institute of Computational Modeling (Krasnoyarsk, Rus	The combination of planned and operational management in the Meanfield Game models
11:15-11:55	Yurii Averboukh Institute of Mathematics and Mechanics (Ekaterinburg, Russia)	Markov approximations of dynamical systems
12:00-12:40	Nikolai Trusov, Alexander Shananin Moscow State University (Russia), Moscow Institute of Physics and Technology (Russia)	Consumer loan demand modeling based on Mean Field Games approach
12:45-13:25	Alexander Lapin Sechenov First Moscow State Medical University (Russia)	Efficient iterative methods for solving an optimal control problem decribed by a quasilinear equation with a time-fractional derivative
13:30-14:30	**Lunch**	
14:00-14:40	Vassili Kolokoltsov Warwick University (UK)	Probabilistic approach to the numeric solutions of fractional partial differential equations
14:45-15:25	Otmar Scherzer, Andrea Aspri, Leon Frühauf, Yury Korolev University of Vienna (Austria)	Regularization by projection and learning of operators
15:30-16:10	Bryn Davies ETH Zurich (Switzerland)	Discrete approximations of subwavelength resonator systems
16:15-16:55	Christian Clason University of Graz (Austria)	Total variation regularization of a coefficient inverse problem for the wave equation

17:00-17:40	Igor Petrov Moscow Institute of Physics and Technology (Russia)	Mechanical and mathematical problems of Arctic exploration
17:45-18:25	Anatoly Yagola Moscow State University (Russia)	How to solve ill-posed problems
	April 14, Wednesday	**Zoom https://us02web.zoom.us/j/86015050654? pwd=ZUJtYW04MkorQlZPT2h1VlFTOUQrZz09**
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9:00-9:40	Eric Todd Quinto, James Webber, Eric Miller Tufts University (USA)	Microlocal Analysis in Compton Tomography: Joint Compton/X-ray-CT Reconstruction
9:45-10:25	Vladimir Belonosov Sobolev Institute of Mathematics (Novosibirsk, Russia)	Inverse problems in the theory of wave processes
10:30-11:10	Dinh Nho Hao, Nguyen Van Duc, Nguyen Van Thang, F Institute of Mathematics (Hanoi, Vietnam)	On an inverse problem for a time fractional advection dispersion equation
11:15-11:55	Valery Zorkaltsev Limnological Institute, Institute of Energy Systems (Irkutsk, Russia)	The points closest to the origin of the linear manifold and polyhedron. Including properties and relationships of the least squares method, the method of least modules, Chebyshevskaya, etc. approximations
12:00-12:40	V.I. Berdyshev Krasovskii Institute of Mathematics and Mechanics (Ye	Optimal trajectory of an observer tracking the movement of an object with a striking device
12:45-13:25	Ivan Kazantsev, R. Turebekov, M. Sultanov Institute of Computational Mathematics and Mathemati	Regular textures on images and ridge functions
13:30-14:00	**Lunch**	
	Symposium "Application of Numerical Optimization Methods for Solving Inverse Problems"	**Organizers: Yu. G. Evtushenko, A.V. Gasnikov, A. Chernov The organization of the symposium is supported by Russian Science Foundation (project No. 21-71-30005).**
14:00-14:30	Alla Albu, Vladimir Zubov, Yuri Evtushenko Computing Center of the Federal Research Center "Inf	Application of the Fast Automatic Differentiation Technique for Solving Inverse Coefficient Problems
14:35-15:05	Aida-zade Kamil Rajab Institute of Management Systems, National Academy of Sciences of Azerbaijan.	Determination of location and volume of leaks in a pipeline network of complex structure for unsteady fluid flow
15:10-15:40	Oleg V. Khamisov Melentiev Energy Systems Institute, Irkutsk	Global optimization methods in inverese convex programming problems
15:45-16:15	Alexandr Gornov Institute of System Dynamics and Control Theory SB RAS (Russia)	Cloud approximations in optimization algorithms
16:20-16:35	Anton Anikin Institute for System Dynamics and Control Theory (Irkutsk, Russia)	Computational technologies for the optimization of ultra-large atomic-molecular clusters
16:40-17:05	**Coffee-Break**	
17:05-17:35	Pavel Dvurechensky WIAS (Berlin)	Accelerated gradient methods and their applications to Wasserstein barycenter problem
17:40-18:10	Vladimir Erokhin Mozhaysky Military Space Academy (St. Petersburg, Russia)	Optimization methods for solving inverse linear programming problems

18:15-18:45	Alexandr Golikov, Yuri Evtushenko Computing Center of the Federal Research Center "Informatics and Management" of the RAS (Russia)	On an inverse linear optimization problem
18:50-19:20	Alexandr Golikov, Yuri Evtushenko Computing Center of the Federal Research Center "Informatics and Management" of the RAS (Russia)	Penalty function, regularization, duality, and Newton's method in linear optimization
19:25-19:40	Abdurakhmon Sadiev Moscow Institute of Physics and Technology (Russia)	Zeroth-order oracle for saddle-point problems
19:45-20:00	Alexander Titov, Fedyor Stonyakin, Mohammad Alkousa, Alexander Gasnikov Higher School of Economics, Nizhny Novgorod Branch (Russia)	Algorithms for saddle point problems with some properties of generalized smoothness
20:05-20:20	Egor Gladin Moscow Institute of Physics and Technology (Russia)	Solving a class of min-min and min-max problems by mixed oracle algorithms
20:25-20:40	Artem Vasin, Alexander Gasnikov, Vladimir Spokoiny Moscow Institute of Physics and Technology (Russia)	Stopping rules for accelerated gradient methods with additive noise in gradient and influence of relative inexactness
20:45-21:00	**Coffee-Break**	
21:00-21:40	Daniel Lesnic, Zhuo, Ismailov University of Leeds (UK)	Determination of the time-dependent intensity of a nonlinear reaction rate
	April 15, Thursday	*Zoom https://us02web.zoom.us/j/86015050654?pwd=ZUJtYW04MkorQlZPT2h1VlFTOUQrZz09*
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9:00-9:40	Yalchin Efendiev Texas A&M University (College Station, USA)	Multiscale modeling: Modeling subgrid effects and temporal splitting
9:45-10:25	Ella Barakhovskaya, Igor Marchuk Novosibirsk State University (Russia)	Numerical simulation of film vapor condensation on a curved edge
10:30-11:10	Vladimir Sharafutdinov, V. Krishnan Sobolev Institute of Mathematics (Novosibirsk, Russia)	Doppler transform on Sobolev spaces
11:15-11:55	Andrey Karchevsky Sobolev Institute of Mathematics (Novosibirsk, Russia)	Solution of the Volterra integral equation of the 1st kind of convolution type
12:00-12:40	Vladimir Golubyatnikov, Elena Yunosheva Sobolev Institute of Mathematics (Novosibirsk, Russia)	On the instability of the stationary point in the model of circadian rhythms
12:45-13:30	**Lunch**	
13:30-14:10	Thorsten Hohage University of Göttingen (Germany)	Sparsity promoting variational wavelet regularization in Besov spaces
14:15-14:55	Jan-F. Pietschmann TU Chemnitz (Germany)	On some inverse problem in biology
15:00-15:40	Mikhail Yu. Kokurin Mari State University (Yoshkar-Ola, Russia)	Ill-posed extremal problems and uniform estimates of the accuracy of regularization methods

15:45-16:25	Alexey Liogky, Victoria Salamatova MIPT, I.M. Sechenov First Moscow State Medical University (Russia)	Modeling of hyperelastic material deformation with tabular defining relations
16:30-17:00	I.E. Stepanova, A.V. Salnikov, A.V. Batov Institute of Physics of the Earth (Russia), Sirius University (Sochi, Russia)	The bad-conditioned linear algebraic equation systems arising in the analytical continuation process of the potential fields
17:05-17:35	Mikhail Kokurin Mari State University (Yoshkar-Ola, Russia)	Estimation of the accuracy of iteratively regularized Gauss-Newton methods with a posteriori iteration stop in terms of the error level of the input data

	April 16, Friday	*Zoom https://us02web.zoom.us/j/86015050654? pwd=ZUJtYW04MkorQlZPT2h1VlFTOUQrZz09*
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9:00-9:40	Gen Nakamura Hokkaido University (Sapporo, Japan)	Reconstruction methods for inverse boundary value problems by single measurement
9:45-10:25	Masaru Ikehata Hiroshima University (Higashihiroshima, Japan)	Prescribing a heat flux coming from a wave equation
10:30-11:10	Yury Volkov Sobolev Institute of Mathematics (Novosibirsk, Russia)	Algorithms for constructing and conditions for convergence of interpolation splines
11:15-11:55	Ivan Svetov Sobolev Institute of Mathematics (Novosibirsk, Russia)	On the decomposition of symmetric tensor fields in R3
12:00-12:40		
12:45-13:25		
13:30-14:30	**Lunch**	
	Symposium "Inverse Scattering and Spectral Problems"	**Organizers: R. Novikov, A. Jollivet**
14:30-15:10	Roman Novikov CNRS, Ecole Polytechnique (Paris, France), IEPT RAS (Moscow, Russia)	Phaseless inverse scattering
15:15-15:55	Nicoleau F. Daudé T. Kamran N. Université de Nantes (Nantes, France)	Stability in the inverse Steklov problem on warped product Riemannian manifolds.
16:00-16:40	Daudé UBFC (Besançon, France)	
16:45-17:25	Keith M. Rogers ICMAT (Spain)	The Calderón inverse problem with Lipschitz conductivities
17:30-18:10	Liu Hongyu City University of Hong Kong (China)	Invisibility enables super-resolution imaging
18:15-18:55	P. Grinevich Steklov Mathematical Institute (Moscow, Russia)	

	April 17, Sunday	*Zoom https://us02web.zoom.us/j/86015050654?pwd=ZUJtYW04MkorQlZPT2h1VlFTOUQrZz09*
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	Symposium "Ecology and Climate"	**Organizers: V.N. Lykosov, V.M. Stepanenko**
14:00-14:40	V. N. Lykosov, A. S. Gritsun, A.V. Glazunov, V. M. Stepanenko, E. M. Volodin, E. V. Mortikov Marchuk institute of numerical mathematics (Moscow, Russia)	Supercomputer simulation of the Earth system
14:45-15:25	Aleksey Penenko Institute of Computational Mathematics and Mathematical Geophysics (Novosibirsk, Russia)	Reverse simulation algorithms for air quality studies
15:30-16:10		
16:15-16:55		

	April 19, Monday	*Zoom https://us02web.zoom.us/j/86015050654?pwd=ZUJtYW04MkorQlZPT2h1VlFTOUQrZz09*
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9:00-9:40		
9:45-10:25		
10:30-11:10	Valery P. Ilin Institute of Computational Mathematics and Mathematical Geophysics of SB RAS (Novosibirsk), Russia	The concept of an intelligent computing environment for solving inverse and ill-posed problems
11:15-11:55	Tatyana Voronina Institute of Computational Mathematics and Mathematical Geophysics, (Novosibirsk), Russia	Application of the r-solution method for the inverse tsunami problem

12:00-12:40	Julia Spivak Institute of Applied Mathematics, Far Eastern Federal University, Vladivostok, Russia	Optimization methods for studying inverse problems of magnetic masking of material bodies
12:45-13:25		
13:30-14:30	**Lunch**	
	Symposium "Acoustic tomography"	
14:30-15:10		
15:15-15:55	Anatoly Bakushinsky, Alexander Leonov Moscow State University, Russia	Solution of the three-dimensional inverse problem of scalar acoustics: an algorithm and stability analysis for determining the shapes and positions of inhomogeneities
16:00-16:40	Andrey Shurup Moscow State University, Russia	Acoustic tomography in oceanology, medicine, and geophysics
16:45-17:25		
17:30-18:10		

	April 20, Tuesday	*Zoom https://us02web.zoom.us/j/86015050654?pwd=ZUJtYW04MkorQlZPT2h1VlFTOUQrZz09*
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	Symposium "Mathematical modeling and inverse problems in epidemiology and social processes driven by COVID-19"	*Organizer: O.I. Krivorotko*
9:00-9:40	Cliff Kerr Institute for disease modeling, Seattle, USA	*TBA*
9:45-10:25	O.I. Krivorotko, Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk	Identifiability algorithm for agent-based mathematical models of COVID-19 propagation in Novosibirsk region
10:30-11:10	**I.N. Kiselev, I.R. Akberdin,** M.K. Sugakov, R.N. Sharipov, F.A. Kolpakov, Institute of Computer Technologies SB RAS, Novosibirsk	Mathematical modeling of SARS-Cov-2 spread in different regions using BioUML platform
11:15-11:55		
12:00-12:20	N.Yu. Zyatkov, Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk	Forecasting U.S. Economic Activity Contraction Using Machine Learning
12:25-12:45	**M.I. Sosnovskaya**, O.I. Krivorotko, I.A. Vashchenko, Novosibirsk State University, Novosibirsk	Global optimization method for agent-based mathematical model of COVID-19 propagation in Novosibirsk region
12:50-13:30	V.N. Leonenko ITMO University, Saint Petersburg	Forecasting epidemics of acute respiratory infections in the cities of the Russian Federation, taking into account the population structure and levels of immunity
13:30-14:30	**Lunch**	
14:30-15:10	**K.K. Avilov**, A.A. Romanyukha, Marchuk Institute of Nunerical Mathematics RAS, Moscow	Reverse-engineering the mathematical model of the natural history of tuberculosis on the basis of regular fluorography data
15:15-15:55	T.E. Sannikova, Marchuk Institute of Nunerical Mathematics RAS, Moscow	Using complex networks to model epidemiologically significant contacts

16:00-16:30	**A.A. Romanyukha**, A.S. Karkach, T.E. Sannikova, Marchuk Institute of Nunerical Mathematics RAS, Moscow	Space heterogeneity of the tuberculosis incidence trend. Global incidence rate decline vs clusters of incidence rate increase in Moscow 2000-2019
16:35-16:55	**A.V. Neverov**, O.I. Krivorotko, Novosibirsk State University, Novosibirsk	Landweber regularization of the inverse problem for stochastic differential equations
17:00-17:15	**Coffee-Break**	
17:15-17:55	Victor Mikhailov, Alexander Mikhailov St. Petersburg Department of the Steklov Mathematical Institute, Russia	Inverse dynamic problem for semi-infinite Jacobi matrices and associated Hilbert spaces of analytic functions