

22, August Wednesday	
<b>9:00–13:00</b>	<b>Morning session “Image analysis and mathematical modeling in tomography”</b> <i>Chairpersons: Dr. N.V. Denisova</i>
9:00 – 9:30 <i>Invited talk</i>	<b>Methods of mathematical modeling in modern diagnostic nuclear medicine</b> <b>N.V. Denisova</b> Institute of Theoretical and Applied Mechanics, Novosibirsk
9:30 – 10:00 <i>Invited talk</i>	<b>Application of Monte Carlo simulations in nuclear medicine imaging</b> <b>J. Cal-Gonzales, T. Beyer</b> Medizinische Universität Wien, MUW
10:00 – 10:30 <i>Invited talk</i>	<b>An algorithm for tracking <i>c. elegans</i> body movement and muscular activity in Ca2+ dynamics video for tuning and validation of its locomotion simulation</b> <b>A.Yu. Palyanov<sup>1,2</sup></b> <sup>1</sup> A.P. Ershov Institute of Informatics Systems SB RAS, Novosibirsk, Russia <sup>2</sup> Novosibirsk State University, Novosibirsk, Russia
10:30 – 10:50	<b>Simulation and image reconstruction of the combined Siemens PET/CT and PET/MRI systems</b> <b>H. Kertesz</b> Medizinische Universität Wien, MUW
10:50 – 11:10	Coffee break
11:10 – 11:25	<b>Mathematical phantoms development for computer simulation of the patient examination procedure by a positron emission tomography method</b> <b>M. Ondar<sup>1,2</sup>, N. Denisova<sup>1</sup></b> <sup>1</sup> Institute of Theoretical and Applied Mechanics SB RAS, Novosibirsk, Russia <sup>2</sup> Novosibirsk State Technical University, Novosibirsk, Russia
11:25 – 11:40	<b>The performance improvement of the permutation test algorithm for GSEA</b> <b>M. Grishchenko<sup>1</sup>, A. Yakimenko<sup>1,2</sup>, M. Khairetdinov<sup>1,2</sup>, A. Lazareva<sup>2</sup></b> <sup>1</sup> Institute Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, Russia <sup>2</sup> Novosibirsk State Technical University, Novosibirsk, Russia
11:40 – 11:55	<b>Inverse problems in tomography: an evolutionary approach</b> <b>V. Dedok</b> Sobolev Institute of Mathematics SB RAS, Novosibirsk, Russia
11:55 – 12:10	<b>An effective subgradient method for simultaneous restoration and segmentation of blurred images</b> <b>T. Serezhnikova</b> <sup>1</sup> Krasovsky Institute of Mathematics and Mechanics UB RAS <sup>2</sup> Ural Federal University, Ekaterinburg, Russia
12:10 – 12:25	<b>Investigation of stopping criterion for OSEM algorithm with application to nuclear medicine</b> <b>Li Jiyu<sup>1</sup>, N.V. Denisova<sup>2</sup>, O. Krivorotko<sup>1,3</sup></b> <sup>1</sup> Novosibirsk State University, Novosibirsk, Russia <sup>2</sup> Khristianovich Institute of Theoretical and Applied Mechanics, Novosibirsk, Russia <sup>3</sup> Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, Russia
12:25 – 12:40	<b>Single-molecular fluorescence spectroscopy in protein folding: a theoretical modeling of multi-color experiments</b> <b>V. A. Andryushchenko<sup>1,2</sup>, A.Yu. Palyanov<sup>1,3</sup>, S.F. Chekmarev<sup>1,2</sup></b> <sup>1</sup> Novosibirsk State University, Novosibirsk, Russia <sup>2</sup> Institute of Thermophysics, SB RAS, Novosibirsk, Russia <sup>3</sup> Institute of Informatics Systems, SB RAS, Novosibirsk, Russia
12:40 – 12:55	<b>Intel Software Solutions for Bioinformatics and Life science</b> <b>Andrianova Olga</b> Director of Software business development in Russia/CEE <b>Gold Sponsor</b>
13:10 – 14:00	Poster session
14:00 – 15:00	Lunch
<b>15:00 – 19:00</b>	<b>Afternoon session “Inverse problems in biology, medicine and social processes”</b> <i>Chairperson: Prof. A.I. Ilyin, Dr. O.I. Krivorotko</i>

15:00 – 15:30 <i>Invited talk</i>	<b>High-performance computing and big data in epidemiology</b> S. Zhang <sup>1</sup> , Yu. Wang <sup>1</sup> , S. Kabanikhin <sup>2</sup> , O. Krivorotko <sup>2</sup> <sup>1</sup> Tianjin University of Finance and Economics, Tianjin, China <sup>2</sup> Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, Russia
15:30 – 15:50	<b>Supercomputer analysis of social, epidemiological and economic processes</b> O. Krivorotko <sup>1,2</sup> <sup>1</sup> Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, Russia <sup>2</sup> Novosibirsk State University, Novosibirsk, Russia
15:50 – 16:10	<b>Chaos theory as a bioinformatics promissory instrument for a human organism systemic response in-depth study</b> B.G. Vainer <sup>1,2</sup> , A.V. Shepelin <sup>2</sup> <sup>1</sup> Rzhanov Institute of Semiconductor Physics SB RAS, Novosibirsk, Russia <sup>2</sup> Novosibirsk State University, Novosibirsk, Russia
16:10 – 16:30	<b>The possibilities of a Universal computer model in the readiness assessment of the Russian regions resource to epidemics of especially dangerous infectious diseases</b> L. Nizolenko, A. Bachinsky State Research Center of Virology and Biotechnology Vector, Koltsovo, Russia
16:30 – 16:50	<b>Method of reconstruction of a sequence of non-ribosomal peptides from mass spectra with noise</b> E. Fomin Institute of Cytology and Genetics SB RAS, Novosibirsk, Russia
16:50– 17:10	Coffee break
17:10 – 17:30	<b>Inverse modeling of diffusion-reaction processes with image-type measurement data</b> A. Penenko <sup>1,2</sup> , Z. Mukatova <sup>1,2</sup> , S. Nikolaev <sup>3</sup> , U. Zubairova <sup>3</sup> <sup>1</sup> Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, Russia <sup>2</sup> Novosibirsk State University, Novosibirsk, Russia <sup>3</sup> Institute of Cytology and Genetics SB RAS, Novosibirsk, Russia
17:30 – 17:45	<b>Mathematical models of p53-microRNA and their applications</b> S.D. Senotrusova <sup>1,2</sup> , O.F. Voropaeva <sup>1</sup> <sup>1</sup> Institute of Computational Technologies SB RAS, Novosibirsk, Russia <sup>2</sup> Novosibirsk State University, Novosibirsk, Russia
17:45 – 18:00	<b>Investigation and numerical solving of a mathematical model of intracellular HIV dynamics: from ODE to PDE</b> D. Yermolenko <sup>1,2</sup> , O. Krivorotko <sup>1,2</sup> , S. Kabanikhin <sup>1,2</sup> <sup>1</sup> Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, Russia <sup>2</sup> Novosibirsk State University, Novosibirsk, Russia
18:00 – 18:15	<b>The optimal control of stochastic differential equations arising in biology, economy and finance</b> E. Kondakova <sup>1</sup> , O. Krivorotko <sup>1,2</sup> , S. Kabanikhin <sup>1,2</sup> <sup>1</sup> Novosibirsk State University, Novosibirsk, Russia <sup>2</sup> Institute of Computational Mathematics and Mathematical Geophysics SB RAS, prospect Akademika Lavrentjeva 6, 630090 Novosibirsk, Russia
18:15 – 18:30	<b>Parameters sensitivity of pharmacokinetics model parameters</b> V. Lifenko <sup>1</sup> , D. Voronov <sup>2</sup> , <sup>1</sup> Novosibirsk State University, Novosibirsk, Russia <sup>2</sup> Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, Russia
18:30 – 18:45	<b>Inverse problem for partial differential equations in social networks</b> T.Zvonareva <sup>1</sup> , S. Kabanikhin <sup>2</sup> , O.Krivorotko <sup>2</sup> <sup>1</sup> Novosibirsk State University <sup>2</sup> Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, Russia
18:45 – 19:00	<b>Identifiability analysis of nonlinear dynamical system</b> Zh.Bektemessov <sup>1*</sup> <sup>1</sup> al-Farabi Kazakh National University, Almaty, Kazakhstan

23, August Thursday	
9:00 – 13:05	<b>Morning session “Big data in bioinformatics”</b> Chairperson: Dr. E.N. Pavlovskiy, Dr. Yu.L. Orlov

9:00 – 9:30 <i>Invited talk</i>	<b>Advanced methods in machine learning for bioinformatics</b> E.N. Pavlovskiy Novosibirsk State University
9:30 – 10:00 <i>Invited talk</i>	<b>Bayesian approach to big data processing: problems and perspectives</b> M.A. Marchenko Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, Russia
10:00– 10:50	<b>Complex information system to study common energy metabolic deficiency under neurodegenerative diseases</b> A. Osypov <sup>1,2</sup> , I. Yu. Popova <sup>2</sup> <sup>1</sup> Institute of Higher Nervous Activity and Neurophysiology RAS, Moscow, Russia <sup>2</sup> Institute of Theoretical and Experimental Biophysics RAS, Pushchino MR, Russia <b>DEPPDB v.3: a portal to study electrostatic and other physical properties of genome DNA and its elements</b> A. Osypov <sup>1,2</sup> , G. Krutinin <sup>3</sup> , E. Krutinina <sup>3</sup> , P. Beskaravayny <sup>3</sup> , S. Kamzolova <sup>3</sup> <sup>1</sup> Institute of Higher Nervous Activity and Neurophysiology RAS, Moscow, Russia <sup>2</sup> Institute of Theoretical and Experimental Biophysics RAS, Pushchino MR, Russia <sup>3</sup> Institute of Cell Biophysics RAS, Pushchino MR, Russia
10:50– 11:10	Coffee break
11:10 – 11:30	<b>Gene network analysis of complex diseases using GenCoNet</b> O. Zolotareva <sup>1,2</sup> , A. Shoshi <sup>1</sup> , R. Hofestadt <sup>1</sup> , A. Maier <sup>1</sup> , V. Ivanisenko <sup>3</sup> , V. Dosenko <sup>4</sup> , E. Bragina <sup>5</sup> <sup>1</sup> Bielefeld University, Bioinformatics / Medical Informatics Department, Bielefeld, Germany <sup>2</sup> Bielefeld University, International Research Group “Computational Methods for the Analysis of the Diversity and Dynamics of Genoms”, Bielefeld, Germany <sup>3</sup> Institute of Cytology and Genetics, Siberian Branch, Russian Academy of Sciences, Novosibirsk, Russia <sup>4</sup> Bogomoletz Institute of Physiology, Kiev, Ukraine <sup>5</sup> Research Institute of Medical Genetics, Tomsk NRMC, Tomsk, Russia
11:30- 11:50	<b>Assessment of software for somatic single nucleotide variant identification using simulated whole-genome sequencing data of cancer</b> W. Kittichotirat <sup>1*</sup> , P. Khongthon <sup>1</sup> , K. Kusonmano <sup>2</sup> , S. Cheevadhanarak <sup>2</sup> <sup>1</sup> Pilot Plant Development and Training Institute, King Mongkut's University of Technology Thonburi, Bangkok 10150, Thailand <sup>2</sup> School of Bioresources and Technology, King Mongkut's University of Technology Thonburi, Bangkok 10150, Thailand
11:50– 12:05	<b>The software and database for Vertebrate imperfect mtDNA repeats annotation.</b> V.A. Shamanskiy <sup>1*</sup> , K.Yu. Popadin <sup>1,2</sup> , K.V. Gunbin <sup>1,3</sup> <sup>1</sup> School of Life Science, Immanuel Kant Federal Baltic University, Kaliningrad, Russia. <sup>2</sup> Center for Integrative Genomics, University of Lausanne, Lausanne, Switzerland <sup>3</sup> Institute of Cytology and Genetics SB RAS, Novosibirsk, Russia
12:05 – 12:20	<b>Deep bioinformatic expert system of analysis, modeling and interpretation of omics BigData of the human genome</b> A. Shlikht, N. Kramorenko Far Eastern Federal University
12:20 – 12:35	<b>ARGO_CEL: GPU based approach for potential composite elements discovery in large DNA datasets</b> O. Vishnevsky <sup>1,2</sup> , A. Bocharnikov <sup>1</sup> , N. Kolchanov <sup>1,2</sup> <sup>1</sup> Institute of Cytology and Genetics SB RAS, Novosibirsk, Russia <sup>2</sup> Novosibirsk State University, Novosibirsk, Russia
12:35– 12:50	<b>Computer system for reconstructing and analyzing random structural models of protein-protein interaction networks</b> N.L. Podkolodnyy <sup>1,2</sup> , D.A. Gavrilov <sup>3</sup> , O.A. Podkolodnaya <sup>1</sup> <sup>1</sup> Institute of Cytology and Genetics SB RAS, Novosibirsk, Russia <sup>2</sup> Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, Russia <sup>3</sup> Novosibirsk State University, Novosibirsk, Russia
12:50– 13:05	<b>Developing FoldGO, the tools for multifactorial functional enrichment analysis</b> A.M. Mukhin <sup>1,2*</sup> , D.S. Wiebe <sup>1,2</sup> , I. Grosse <sup>2,3</sup> , S.A. Lashin <sup>1,2</sup> , V.V. Mironova <sup>1,2</sup> <sup>1</sup> Institute of Cytology and Genetics SB RAS, Novosibirsk, Russia <sup>2</sup> Novosibirsk State University, Novosibirsk, Russia <sup>3</sup> Martin-Luther University, Halle-Wittenberg, Germany
13:05 – 14:00	Poster session
	<b>Algorithm for solving the inverse problem of pharmacokinetics to determine the</b>

	<p><b>transition coefficients.</b>  <u>A. Takuadina</u>  L.N. Gumilev Eurasian National University, Astana, Kazakhstan</p>
	<p><b>Mathematical modeling of medicinal preparations diffusion process in tissues of the person</b>  <u>A. Nafikova</u>  Sterlitamak branch of the Bashkir state university, Sterlitamak, Russia</p>
	<p><b>Mathematical model of membrane potential formation at <i>E. coli</i> growth on nitrite</b>  <u>N.A. Ree</u><sup>1</sup>, Likhoshvai V.A.<sup>1</sup>, T.M. Khlebodarova<sup>1</sup>  <sup>1</sup> Institute of Cytology and Genetics SB RAS, Novosibirsk, Russia</p>
	<p><b>Different effects of agroclimatic factors on time to emergence and time to flowering in nine soybean accessions</b>  <u>K. Kozlov</u><sup>1*</sup>, L. Novikova<sup>1, 2</sup>, I. Seferova<sup>2</sup>, S. Nuzhdin<sup>1,3</sup> and M. Samsonova<sup>1</sup>  <sup>1</sup> Peter the Great St.Petersburg Polytechnic University, St.Petersburg, Russia  <sup>2</sup> Federal Research Center the N. I. Vavilov All-Russian Institute of Plant Genetic Resources, St.Petersburg, Russia  <sup>3</sup> University of Southern California, Los Angeles, CA, USA</p>
	<p><b>A numerical algorithm of parameter identification in mathematical model of tuberculosis transmission with control programs</b>  <u>S.I. Kabanikhin</u><sup>1,2</sup>, O.I. Krivorotko<sup>1,2</sup>, <u>V.N. Kashtanova</u><sup>2,*</sup>  <sup>1</sup> Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, Russia  <sup>2</sup> Novosibirsk State University, Novosibirsk, Russia</p>
	<p><b>Inverse and ill-posed problems for nonlinear PDE: applications to life and social sciences</b>  <u>M. Shishlenin</u><sup>1,2,3</sup>, D. Lukyanenko<sup>4</sup>  <sup>1</sup> Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, Russia  <sup>2</sup> Sobolev Institute of Mathematics SB RAS, Novosibirsk, Russia  <sup>3</sup> Novosibirsk State University, Novosibirsk, Russia  <sup>4</sup> Moscow State University, Moscow, Russia</p>
	<p><b>Identifiability analysis of mathematical models of immunology and epidemiology</b>  <u>V.A. Latyshenko</u><sup>1</sup>, O.I. Krivorotko<sup>1,2</sup>, S.I. Kabanikhin<sup>1,2</sup>  <sup>1</sup> Novosibirsk State University, Novosibirsk, 630090, Russia  <sup>2</sup> Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, 630090, Russia</p>
	<p><b>Principal component analysis for any type sequences (PCA-Seq)</b>  <u>V. Efimov</u><sup>1-4*</sup>, K. Efimov<sup>5</sup>, V. Kovaleva<sup>2</sup>  <sup>1</sup> Institute of Cytology and Genetics SB RAS, Novosibirsk, Russia  <sup>2</sup> Institute of Systematics and Ecology of Animals SB RAS, Novosibirsk, Russia  <sup>3</sup> Novosibirsk State University, Novosibirsk, Russia  <sup>4</sup> Tomsk State University, Tomsk, Russia  <sup>5</sup> Moscow Institute of Physics and Technology (State University), Moscow, Russia</p>
	<p><b>Comparison of quality of automated gene network recon-struction using connectivity of random and functional net-works</b>  <u>E. Tiys</u><sup>1, 2*</sup>, P. Demenkov<sup>1</sup>, V. Ivanisenko<sup>1</sup>  <sup>1</sup> Institute of Cytology and Genetics SB RAS, Novosibirsk, Russia  <sup>2</sup> Novosibirsk State University, Novosibirsk, Russia</p>
	<p><b>Revealing the research institutes and their interactions: a case study of miRNA research</b>  <u>A. Firsov</u><sup>1</sup>, I. Titov<sup>2</sup>  <sup>1</sup> Novosibirsk State University, Novosibirsk, Russia  <sup>2</sup> Institute of Cytology and Genetics SB RAS, Novosibirsk, Russia</p>
	<p><b>FoldGO for functional annotation of transcriptome data to identify fold-change-specific GO categories</b>  Wiebe D.S.<sup>1,2</sup>, Mukhin A.M.<sup>1,2</sup>, Omelyanchuk N.A.<sup>1,2</sup>, <u>Mironova V.V.</u><sup>1,2,*</sup>  <sup>1</sup> Institute of Cytology and Genetics SB RAS, Novosibirsk, Russia  <sup>2</sup> Novosibirsk State University, Novosibirsk, Russia</p>
	<p><b>Pseudo one-compartment models. Methods for assessing the peripheral compartment for them</b>  <u>N. Asmanova</u>, A.I. Ilin  JSC "Scientific center for anti-infection drugs", Almaty, Kazakhstan</p>
	<p><b>SNP_TATA_Z-TESTER: unsupervised machine learning web-service to compare alternative sequences in front of a given transcription start in the affinity scale of tata-binding protein binding to promoters</b>  <u>P. M. Ponomarenko</u><sup>a</sup>, D. A. Rasskazov<sup>b</sup>, V. V. Suslov<sup>b</sup>, <u>M. P. Ponomarenko</u><sup>b,c,*</sup>  <sup>a</sup>University of La Verne, La Verne, CA 91750, USA</p>

	<sup>b</sup> Institute of Cytology and Genetics, SB RAS, Novosibirsk, Russia <sup>c</sup> Novosibirsk State University, Novosibirsk, Russia
	<b>Genome-scale modeling of carbon assimilation in <i>Geobacillus igiciganus</i></b> M. Kulyashov <sup>1</sup> , I. Akberdin <sup>1,2,3</sup> , A. Rozanov <sup>2</sup> , S. Peltek <sup>2</sup> <sup>1</sup> Novosibirsk National Research University, Novosibirsk, Russia <sup>2</sup> Institute of Cytology and Genetics SB RAS, Novosibirsk, Russia <sup>3</sup> Biology Department and Viral Information Institute, San Diego State University, San Diego, USA
14:00– 15:00	Lunch
<b>15:00– 19:00</b>	<b>Afternoon session “Mathematical modeling of Gene Networks”</b> <i>Chairpersons: Prof. V.P. Golubyatnikov, Dr. N.L. Podkolodnyy</i>
15:00 – 15:30 <i>Invited talk</i>	<b>The multiplex phase interlocker: a novel and robust molecular design synchronizing transcription and cell cycle oscillators</b> T.D.G.A. Mondeel <sup>1</sup> , C. Linke <sup>1</sup> , S. Tognetti <sup>2</sup> , W. Liebermeister <sup>3</sup> , M. Loog <sup>4</sup> , H.V. Westerhoff <sup>1</sup> , F. Posas <sup>2</sup> , <u>M. Barberis</u> <sup>1</sup> <sup>1</sup> Swammerdam Institute for Life Sciences, University of Amsterdam, Amsterdam, The Netherlands <sup>2</sup> Departament de Ciències Experimentals i de la Salut, Universitat Pompeu Fabra, Barcelona, Spain <sup>3</sup> Institut für Biochemie, Charité - Universitätsmedizin Berlin, Berlin, Germany <sup>4</sup> Institute of Technology, University of Tartu, Tartu, Estonia
15:30 – 16:00 <i>Invited talk</i>	<b>Circadian rhythms: data analysis and mathematical modeling</b> <u>N.L. Podkolodnyy</u> <sup>1,2*</sup> , N.N. Tverdohleb <sup>1,3</sup> , O.A. Podkolodnaya <sup>1</sup> <sup>1</sup> Institute of Cytology and Genetics SB RAS, Novosibirsk, Russia <sup>2</sup> Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, Russia <sup>3</sup> Novosibirsk State University, Novosibirsk, Russia
16:00 – 16:20	<b>Population-based mathematical modeling antihypertensive drugs effect using BioUML platform</b> I.N. Kiselev <sup>1,2</sup> , V.I. Baranov <sup>3</sup> , F.A. Kolpakov <sup>1,2</sup> <sup>1</sup> Institute of Computational Technologies, SB RAS, Novosibirsk <sup>2</sup> LLC «BIOSOFT.RU» Ltd., Novosibirsk <sup>3</sup> Institute of Physiology and Basic Medicine, Novosibirsk;
16:20 – 16:40	<b>Estimates from evolutionary algorithms theory applied to gene design</b> <u>A. Eremeev</u> <sup>1,2</sup> , A. Spirov <sup>1,3</sup> <sup>1</sup> The Institute of Scientific Information for Social Sciences RAS, Moscow, Russia <sup>2</sup> Omsk Branch of Sobolev Institute of Mathematics SB RAS, Omsk, Russia <sup>3</sup> The I. M. Sechenov Institute of Evolutionary Physiology and Biochemistry RAS, St. Petersburg, Russia
16:50 – 17:10	Coffee break
17:10 – 17:30	<b>HEDGE: Highly accurate GPU-powered protein-protein docking pipeline</b> <u>T. Ermak</u> <sup>1*</sup> , A. Shehovtsov <sup>1</sup> , P. Yakovlev <sup>1</sup> <sup>1</sup> BIOCAD, Saint Petersburg, Russia
17:30 – 17:50	<b>Agent-based modelling of genetic deafness propagation under various sociodemographic conditions</b> S.A. Lashin <sup>1,2*</sup> , Yu.G. Matushkin <sup>1,2</sup> , A.A. Smirnova <sup>1</sup> , G.P. Romanov <sup>3,4</sup> , O.L. Posukh <sup>1,2</sup> <sup>1</sup> Institute of Cytology and Genetics SB RAS, Novosibirsk, Russia <sup>2</sup> Novosibirsk State University, Novosibirsk, Russia <sup>3</sup> MK Ammosov North-Eastern Federal University, Yakutsk, Russia <sup>4</sup> Yakut Science Centre of Complex Medical Problems, Yakutsk, Russia
17:50 – 18:30	<b>On existence of a piecewise smooth cycle in one asymmetric gene network model with piecewise linear equations</b> <u>V. Golubyatnikov</u> <sup>1,2</sup> , L. Minushkina <sup>2</sup> <sup>1</sup> Sobolev Institute of Mathematics SB RAS, Novosibirsk, Russia <sup>2</sup> Novosibirsk State University, Novosibirsk, Russia <b>On cycles in models of asymmetric circular gene networks</b> <u>V. Golubyatnikov</u> <sup>1,2</sup> , N. Kirillova <sup>2</sup> <sup>1</sup> Sobolev Institute of Mathematics SB RAS, Novosibirsk, Russia <sup>2</sup> Novosibirsk State University, Novosibirsk, Russia
18:30 – 18:50	<b>An inverse problem in modelling of a symmetric gene network regulated by negative feedbacks</b> V. Golubyatnikov <sup>1,2</sup> , <u>V. Gradov</u> <sup>2</sup> <sup>1</sup> Sobolev Institute of Mathematics SB RAS, Novosibirsk, Russia <sup>2</sup> Novosibirsk State University, Novosibirsk, Russia

24, August Friday	
<b>9:00–13:00</b>	<b>Morning session “Analysis of dynamical systems.”</b> <i>Chairpersons: Prof. Sergey Kabanikhin, N. Novikov</i>
9:00 – 9:30 <i>Invited talk</i>	<b>On the construction of the cerebral hemodynamics model based on clinical data</b> A.A. Cherevko <sup>1,4</sup> , M.A. Shishlenin <sup>2,3,4</sup> , A.K. Khe <sup>1,4</sup> , E.E. Bord <sup>4</sup> , V.V. Berestov <sup>5</sup> , K.Y. Orlov <sup>5</sup> , V.A. Panarin <sup>5</sup> <sup>1</sup> Lavrentyev Institute of Hydrodynamics of SB RAS (Novosibirsk), Russia <sup>2</sup> Sobolev Institute of Mathematics of SB RAS (Novosibirsk), Russia <sup>3</sup> Institute of Computational Mathematics and Mathematical Geophysics (Novosibirsk), Russia <sup>4</sup> Novosibirsk State University (Novosibirsk), Russia <sup>5</sup> Meshalkin national medical research center (Novosibirsk), Russia
9:30–9:50	<b>Spatial heterogeneity influences evolutionary scenarios in microbial communities explained by ecological stratification: a simulation study</b> A.I. Klimenko, Yu.G. Matushkin, S.A. Lashin Institute of Cytology and Genetics SB RAS, Novosibirsk, Russia Novosibirsk State University, Novosibirsk, Russia
9:50–10:10	<b>The optimal feedbacks in the mathematical model of chemo-therapy for a nonmonotonic therapy function</b> N. Novoselova <sup>1,2</sup> <sup>1</sup> Krasovskii Institute of Mathematics and Mechanics, Ural Branch of the Russian Academy of Sciences, Yekaterinburg, Russia <sup>2</sup> Ural Federal University, Yekaterinburg, Russia
10:10 – 10:30	<b>Fighting celiac disease: improvement of pH-stability of cathepsin L by computational design</b> A. Chugunov <sup>1,2</sup> , D. Nolde <sup>2</sup> , V.F. Tereshchenkova <sup>3</sup> , E.A. Dvoryakova <sup>4</sup> , I.Yu. Filippova <sup>3</sup> , E.N. Elpidina <sup>4</sup> , R. Efremov <sup>1,2</sup> <sup>1</sup> National Research University Higher School of Economics, Moscow 101000, Russia <sup>2</sup> M.M. Shemyakin & Yu.A. Ovchinnikov Institute of Bioorganic Chemistry, Russian Academy of Sciences, Moscow 117997, Russia <sup>3</sup> Chemical Faculty and <sup>4</sup> A.N. Belozersky Institute of Physico-Chemical Biology of M.V. Lomonosov Moscow State University, Moscow 119234, Russia
10:30–10:50	<b>The uniqueness of the solution of the two-dimensional direct problem is the propagation of the action potential along the nerve fiber.</b> A.J. Satybaev <sup>1*</sup> , G.S. Kurmanalieva <sup>1</sup> <sup>1</sup> Osh Technological University, Osh, Kyrgyzstan
10:50 – 11:10	Coffee break
11:10–11:25	<b>Creation of a modular model of metabolic processes in skeletal muscles during moderate physical load using BioUML platform</b> I.N. Kiselev <sup>1,2</sup> , V.I. Baranov <sup>3</sup> , F.A. Kolpakov <sup>1,2</sup> <sup>1</sup> Institute of Computational Technologies, SB RAS, Novosibirsk <sup>2</sup> LLC «BIOSOFT.RU» Ltd., Novosibirsk <sup>3</sup> Institute of Physiology and Basic Medicine, Novosibirsk
11:25 - 11:40	<b>Asymptotic stability of solutions in one model of disease</b> M.A. Skvortsova <sup>1,2</sup> <sup>1</sup> Sobolev Institute of Mathematics SB RAS, Novosibirsk, Russia <sup>2</sup> Novosibirsk State University, Novosibirsk, Russia
11:40 – 11:55	<b>The 2D coefficient inverse problem of the ultrasound waves propagation</b> N. Novikov <sup>1,3*</sup> , M. Shishlenin <sup>1,2,3</sup> <sup>1</sup> Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, Russia <sup>2</sup> Institute of Mathematics SB RAS, Novosibirsk, Russia <sup>3</sup> Novosibirsk State University, Novosibirsk, Russia
11:55 – 12:10	<b>Digital heart: personalized medicine and inverse problems</b> A. Prikhodko <sup>3*</sup> , M. Shishlenin <sup>1,2,3</sup> <sup>1</sup> Sobolev Institute of Mathematics SB RAS, Novosibirsk, Russia <sup>2</sup> Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, Russia <sup>3</sup> Novosibirsk State University, Novosibirsk, Russia
12:10 – 12:25	<b>Siberian supercomputer center as a service for bioinformatics research</b> I. Chernykh, B. Glinskiy, N. Kuchin, S. Lomakin Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, Russia
12:25 – 12:40	<b>Finding epistasis in high-throughput experimental data</b> L.A. Esteban <sup>1</sup> , N.S. Bogatyreva <sup>1,2,3</sup> , F.A. Kondrashov <sup>4</sup> , D.N. Ivankov <sup>3,4*</sup> <sup>1</sup> Universitat Pompeu Fabra (UPF), 08003 Barcelona, Spain

	<p><sup>2</sup> Bioinformatics and Genomics Programme, Centre for Genomic Regulation (CRG), 88 Dr. Aiguader, 08003 Barcelona, Spain</p> <p><sup>3</sup> Laboratory of Protein Physics, Institute of Protein Research of the Russian Academy of Sciences, 4 Institutskaya str., 142290, Pushchino, Moscow region, Russia</p> <p><sup>4</sup> Institute of Science and Technology, Am Campus 1, 3400 Klosterneuburg, Austria</p>
12:40 – 12:55	<p><b>High performance computing in astrophysics. The organic formation in protostellar disc.</b></p> <p>I.M. Kulikov<sup>1</sup></p> <p><sup>1</sup>Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, 630090, Russia</p>
13:00– 14:00	Poster session
14:00– 15:00	Lunch