

Monday 30.09

14.00-16.00 Parallel sessions

Cardiac modelling

- 14.00-14.30 S. Khamzin, A. Dokuchaev, O. Solovyova. Population modeling approach to study age-related effects on the excitation-contraction coupling in human cardiomyocytes
- 14.30-15.00 T. Nesterova, D. Shmarko, K. Ushenin, O. Solovyova. On age-related ionic remodeling and repolarization abnormalities in population of cardiomyocyte models
- 15.00-15.30 A. Bazhutina, N. Balakina-Vikulova, L. Katsnelson, O. Solovyova. Modeling of electrotonic interaction between mechanically active cardiomyocyte and fibroblasts
- 15.30-16.00 V. Kislukhin, E. Kislukhina. Variation of heart rate intervals (R-R) as stochastic process. Analysis of mechanisms for sinus arrhythmia

Physiology and modelling

- 14.00-14.30 B. Kugener. Sudden Infant Death Syndrome: a multifactorial disease
- 14.30-15.00 I. Petrova, D. Gromov. Structural and sensitivity analysis of the model of tuberculosis
- 15.00-15.30 V. Zubkov. Mathematical model of kidney development
- 15.30-16.00 M.P. Dyakovich, V.A. Pankov, V.S. Rukavishnikov. Modeling of hand-arm vibration syndrome occurrence

16.30-18.30 Parallel sessions

Cardiac modelling

- 16.30-17.00 A.K. Tsaturyan. Molecular mechanics of regulation of muscle contraction: experiments, modelling and application to heart diseases
- 17.00-17.30 M. L. Büyükkahraman, G. K. Sabine, H. V. Kojouharov, B. M. Chen-Charpentier, S. R. McMahan, J. Liao. Mathematical modeling and stability analysis of left ventricular remodeling post-myocardial infarction
- 17.30-18.00 F.A. Syomin, A.R. Khabibullina, A.Sh. Osepyan, A.K. Tsaturyan. Numerical analysis of the effects of the left ventricle geometry on heart performance in health and disease
- 18.00-18.30 M. Sysoev. Model of volume change in the left heart ventricle

Physiology and modelling

- 16.30-17.00 N. E. Kosykh, E.A. Levkova, S. Z. Savin. Method of virtual information modeling of living system
- 17.00-17.30 M.L. Blagonravov. To be announced
- 17.30-18.00 D.V. Ermakova. Prediction of the “structure – property” correlation for chelated zinc compounds and some Cannabis-derived cannabinoids
- 18.00-18.30 L. Tine. An in vitro mathematical model for Alzheimer's disease

Tuesday 01.10

11.30-12.30 Parallel sessions

Immunology

- 11.30-12.00 M.Yu. Khristichenko, Yu.M. Nechepurenko, E.V. Sklyarova, D.S. Grebennikov, G.A. Bocharov. Optimal disturbances of steady states of viral infection models
- 12.00-12.30 K. Allai. Dynamics of an HIV mathematical model with CTL and antibody immunities

Cancer

- 11.30-12.00 M. Chaudhary, A. Bratus. Optimal protocol for the mathematical model of the DC and anti-PD-L1 injections effects on a tumor
- 12.00-12.30 P. Das, P. Das. A dynamics on Michealis-Menten kinetics based tumor-immune interactions

14.00-16.00 Parallel sessions

Biomolecular modelling

- 14.00-14.30 N.B. Gudimchuk, V.A. Fedorov, P. S. Orekhov, E.G. Kholina, A.A. Zhmurov, F.I. Ataulakhanov, I.B. Kovalenko. Molecular dynamics modeling of tubulin protofilaments
- 14.30-15.00 G.A. Armeev, G.A. Komarova, A.K. Shaytan. Integrative modeling of nucleosomes and their complexes
- 15.00-15.30 P.S. Orekhov, M.E. Bozdaganyan, K.V. Shaitan. Formation of lipodiscs stabilized by amphiphilic copolymers: Molecular dynamics simulations
- 15.30-16.00 V.A. Fedorov, S.S. Khrushchev, D.M. Ustinin, I.B. Kovalenko, G.Yu. Riznichenko, A.B. Rubin. The electron-transport protein-protein complex formation of plastocyanin and cytochrome of higher plants, green alga and cyanobacteria

Cancer

- 14.00-14.30 M.B. Kuznetsov, A.V. Kolobov. Investigation of solid tumor progression with account of proliferation-migration dichotomy via Darwinian mathematical model
- 14.30-15.00 A.V. Kolobov, M.B. Kuznetsov. Optimization of radiotherapy fractionalization for improvement of efficiency of combined anti-tumor therapy by means of mathematical modeling
- 15.00-15.30 I. Azarov, Yu. Kosinsky, V. Voronova, L. Chu, S. I.S. Sitnikova, S. Dovedi, K. Peskov, G. Helminger. Using Quantitative Systems Pharmacology modeling to predict response and resistance of immune checkpoint inhibitors (ICI) in murine syngeneic tumors
- 15.30-16.00 A. Smirnova, B. Shulgin, Yu. Kosinsky, K. Peskov. Using Bayesian model-based meta-analysis for studying safety of PD-1 and CTLA-4 inhibitors monotherapies and their combination

16.30-17.30 Parallel sessions

Cardiac modelling

16.30-17.00 K. Ushenin. Transformation of extracellular potential to transmembrane potential using deep neural networks

17.00-17.30 S. Khamzin, A. Dokuchaev, O. Solovyova. Automated fast ECG modeling approach

Biomolecular modelling

16.30-17.00 V. Balakshina, I. Gonchar, F. Ataullakhanov. Mechanism of Ndc80 protein and microtubule interaction based on the force spectroscopy data

17.00-17.30 I.B. Kovalenko, P.S. Orekhov, V. D. Dreval, E. G. Kholina, V. A. Fedorov, N.B. Gudimchuk. Comparison of the conformational mobility of GTP- and GDP-bound tubulin using the molecular dynamics method

Wednesday 02.10

11.30-12.30 Parallel sessions

Mathematical methods and analysis

11.30-12.00 A. Araujo, S. Barbeiro, M. Khaksar Ghalati. Numerical solution of time-dependent Maxwell's equations for modeling light scattering in human eye's structures

12.00-12.30 A. Demidov. Minimizing variance and error itself in the problem of recovering the n-th derivative

Epidemiology

11.30-12.00 V. N. Leonenko, S. V. Kovalchuk. Analyzing spatial distribution of individuals predisposed to arterial hypertension in Saint Petersburg using synthetic populations

12.00-12.30 K.O. Okosun, E. Bonyah, M.A. Khan. The dynamics and effects of heavy alcohol consumption on the transmission of gonorrhea with optimal control

Thursday 03.10

11.30-12.30 Parallel sessions

Immunology

11.30-12.00 F. Bautista. Mathematical modeling of bacterial resistance to antibiotics

12.00-12.30 K.K.Loginov, N.V. Pertsev. Stochastic compartmental model of HIV-1 infection

Epidemiology

11.30-12.00 V. N. Leonenko, D.M. Danilenko. Modeling the dynamics of population immunity to influenza in Russian cities

12.00-12.30 D. Omale. Mathematical modeling on the control of HIV/AIDS with campaign on vaccination and therapy

14.00-16.00 Parallel sessions

Immunology

14.00-14.30 W. Garira. Multiscale modelling of mosquito-borne infections

14.30-15.00 D. Gromov. Analysis of a multiple strain virus infection with within host mutations

15.00-15.40 A. Bratus, I. Samokhin, S. Drozhzhin, T. Yakushkina. Evolutionary adaptation of replicator systems and its application to the problem of treatment cells and bacterial disease

15.40-16.00 C. Leon, V. Popov, V. Volpert. Reaction-diffusion model of virus mutation

Mathematical methods and analysis

14.00-14.30 M. Marion. Pulses and waves for reaction-diffusion systems in blood coagulation

14.30-15.00 F. Rihan. Qualitative and quantitative features of delay differential equations in biosciences

15.00-15.30 A. Tokarev. Velocity-amplitude relationship in the Gray-Scott autowave model in isolated conditions

15.30-16.00 N. Sadekov. Mathematical analysis of an atherosclerosis model

16.30-18.30 Parallel sessions

Immunology

16.30-17.00 I. Gainova. Some mathematical models of HIV infection treatment strategies

17.00-17.30 N.V. Pertsev, G.A. Bocharov. Modeling of HIV-1 infection dynamics based on the compartment model

17.30-18.00 D. Grebennikov. Multiscale model of HIV transmission in lymphoid tissues

18.00-18.30 R. Savinkov. Data driven modelling the CD4+T-cells activation

Biological fluids

16.30-17.00 G. Panasenko, R. Stavre. Junction of 3D -1D models of a vessel with elastic wall

17.00-17.30 E. Kislukhina. Microcirculation factors for oxygen delivery

17.30-18.00 A. Mozokhina. Modeling of the transport function of lymphatic vessels

18.00-18.30 I.L. Chernyavsky, A. Erlich, P. Pearce, G.A. Nye, P. Brownbil, R.P. Mayo, O.E. Jensen. Geometry and physics of transport in complex microvascular networks

Friday 04.10

11.30-12.30 Parallel sessions

Mathematical methods and analysis

11.30-12.00 B. Kazmierczak, S. Bialecki, T. Lipniacki. Polarization of concave domains by traveling wave pinning

12.00-12.30 P. Kumar. Theoretical investigation of non-equilibrium bio-heat transfer during thermal therapy

Epidemiology

11.30-12.00 S. Moyo, W Garira. Data science application to environmental and biological systems effects on health: multiscale-multilevel modelling approach

12.00-12.30

14.00-16.00 Parallel sessions

Mathematical methods and analysis

14.00-14.30 T.G. Bilesanmi, P. Oshanwusi, S.O. Abu, C.C. Olisekwe, B.T. Tambou. Mathematical modeling: bridging the gap between concept and realization in synthetic biology

14.30-15.00 I. Petrov, A. Vasyukov, K. Beklemysheva, A. Kazakov. Numerical modeling of elastic waves in human body

15.00-15.30 A. Sofronova, S. Gavrilov, O. Stepanov, K. Peskov, K. Zhudnikov. Joint modelling for longitudinal tumor measurements and risk of death in non-small cell lung cancer.

15.30-16.00

Blood coagulation

14.00-14.30 A. V. Belyaev, Yu. K. Kushchenko, N. G. Tsu, M. A. Kaznacheev. Coarse-grained computer simulations of primary hemostasis

14.30-15.00 M. A. Kaznacheev, A. V. Belyaev. Model of ligand-receptor adhesion for microparticles and ellipsoidal cells

15.00-15.30 A. Bouchnita. Multiscale modelling of platelet-fibrin thrombus growth in the flow

15.30-16.00 N. Ratto. A reduced model of blood coagulation cascade