

# BIOMAT 2017

**17<sup>th</sup> BIOMAT International Symposium  
on Mathematical and Computational Biology**

**30<sup>th</sup> October - 03<sup>rd</sup> November 2017 - Institute of Numerical  
Mathematics, Russian Academy of Sciences – Moscow,  
Russian Federation**



President of the BIOMAT Consortium – Prof. Rubem P. Mondaini, Federal University of Rio de Janeiro, Brazil

Co-Chair of the BIOMAT 2017 International Symposium – Prof. Yuri V. Vassilevski, Institute of Numerical Mathematics/RAS, Russian Federation

Co-Chair of the BIOMAT 2017 Symposium – Prof. Vitaly Volpert, University of Lyon1, France

**BIOMAT 2017 – 17th International Symposium  
Mathematical Biology/Biological Physics**

**Institute of Numerical Mathematics – Russian Academy of Sciences,  
Moscow, Russian Federation, October 30<sup>th</sup> – November 03<sup>rd</sup>**

**President of the BIOMAT Consortium – Prof. Rubem P. Mondaini, Federal University of Rio de Janeiro, Rio de Janeiro, Brazil**

**Co-Chair of the BIOMAT 2017 Symposium – Prof. Yuri V. Vassilevski, Institute of Numerical Mathematics/RAS, Moscow, Russian Federation**

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| 08:30 - 09:00 | Monday- Oct 30<br>Opening Session | Tuesday-Oct 31        | Wednesday-Nov 1           | Thursday-Nov 2       | Friday-Nov 3         |
|---------------|-----------------------------------|-----------------------|---------------------------|----------------------|----------------------|
| 09:00 - 09:50 | PT1<br>Finkelstein                | PT4<br>Venturino      | PT7/PTT1<br>Kerner        | PT10<br>Dragovich    | PT13<br>Fedotov      |
| 09:50 -10:15  | CT1<br>Mondaini                   | CT11<br>Srivastava    | CT23<br>Majumdar          | CT33<br>Nony         | CT43<br>Martinez A.  |
| 10:15 - 10:35 | Coffee Break                      |                       |                           |                      |                      |
| 10:35 - 11:00 | CT2<br>Vassilevski                | CT12<br>Gamilov       | CT24<br>S.Chatterjee      | CT34<br>Kuchumov     | CT44<br>Beklemysheva |
| 11:00 - 11:50 | PT2<br>Sinha                      | PT5<br>Liang          | PT8<br>Bairagi            | PT11<br>Röst         | PT14<br>Pal          |
| 11:50 - 12:15 | CT3<br>Albuquerque N.             | CT13<br>A. Chatterjee | CT25<br>Kozyrev           | CT35<br>Kumar        | CT45<br>Leonenko     |
| 12:15 - 13:15 | Lunch                             |                       |                           |                      |                      |
| 13:15 - 13:40 | PT3<br>Sequeira                   | CT14<br>Volpert       | PT9<br>Pardalos           | PT12<br>Banerjee     | CT46<br>Azarov       |
| 13:40- 14:05  |                                   | CT15<br>Raoult        |                           |                      | CT47<br>Zheltkova    |
| 14:05 - 14:30 | CT4<br>Mozokhina                  | CT16<br>Parshin       | CT26<br>Khe               | CT36<br>Clairambault | CT48<br>Razzhevaikin |
| 14:30 - 14:55 | CT5<br>Dénes                      | CT17<br>Cherevko      | CT27<br>Yermolenko        | CT37<br>Polyanovski  | CT49<br>Turlapov     |
| 14:55 - 15:20 | CT6<br>Galchenkova                | CT18<br>Pertsev       | CT28<br>Gotovtsev         | CT38<br>Kuznetsov    | CT50<br>Muratova     |
| 15:20 - 15:40 | Coffee Break                      |                       |                           |                      |                      |
| 15:40 - 16:05 | CT7<br>Guarracino                 | CT19<br>Syunyaev      | CT29<br>Trafalis          | CT39<br>Sokolov      | CT51<br>Danilov      |
| 16:05 - 16:30 | CT8<br>Simakov                    | CT20<br>Allali        | CT30<br>Khristchenko      | CT40<br>Yakushina    | CT52<br>Shoukat      |
| 16:30 -16:55  | CT9<br>Kislukhina                 | CT21<br>Gromov        | CT31<br>Bazhutina         | CT41<br>Rudnev       | CT53<br>Gorodnova    |
| 16:55 -17:20  | CT10<br>Ushenin                   | CT22<br>Bratus        | CT32<br>Kislukhin         | CT42<br>Tverskoi     | CT54<br>Zverev       |
| 17:20 -17:50  |                                   |                       | BIOMAT GA                 |                      | Closing Session      |
| 19:00 -21:00  |                                   | Conference<br>Dinner  | Director Board<br>Meeting |                      |                      |

PT = Plenary Talk, PTT = Plenary Tutorial Talk , CT = Contributed Talk, GA = General Assembly

**Oct 30 – 08:30 am– 09:00 am– Opening Session**

**Oct 30, Monday, 09:00 am – 10:15 am – 1<sup>st</sup> Session**

**09:00 am – 09:50 am - PT1 – “TWO VIEWS OF THE PROTEIN FOLDING PUZZLE - Alexei.V. Finkelstein, A. J. Badretdin, O. V. Galzitskaya, D. N. Ivankov, N.S. Bogatyreva – Institute of Protein Research, Russia; The Barcelona Institute of Science and Technology; Universitat Pompeu Fabra, Spain; National Institutes of Health, USA**

**09:50 am - 10:15 am - CT1 – TOWARDS A THERMODYNAMICAL APPROACH OF PROTEIN DATABASES- Rubem P. Mondaini, S.C. de Albuquerque Neto - Federal University of Rio de Janeiro, Brazil**

**Chair: Yuri V. Vassilevski**

**Oct 30, Monday, 10:35 am – 12:15 pm - 2<sup>nd</sup> Session**

**10:35 am – 11:00 am - CT2 – “A STABLE SCHEME FOR SIMULATION OF INCOMPRESSIBLE FLOWS IN TIME-DEPENDENT DOMAINS AND HEMODYNAMICS APPLICATIONS”- Yuri. V. Vassilevski – Institute of Numerical Mathematics/RAS, Russia**

**11:00 am – 11:50 am - PT2 - “EVOLUTION OF SPATIAL PATTERNS IN HOST-PARASITOID METAPOPULATION ”- B.K. Singh, Somdatta Sinha – Indian Institute of Science Education and Research, Mohali, India**

**11:50 am – 12:15 pm – CT3 - “THE ANOVA STATISTICS OF PROTEIN DATABASES VIA ENTROPY MEASURES”- R.P. Mondaini, Simão C. de Albuquerque Neto, Federal University of Rio de Janeiro, BRAZIL**

**Chair: Rubem P.Mondaini**

**Oct 30, Monday, 01:15 pm – 03:20 pm - 3<sup>rd</sup> Session**

**01:15 pm – 02:05 pm – PT3 - “BOUNDARY CONTROL PROBLEMS IN HEMODYNAMICS”- Adelia Sequeira – University of Lisbon, Portugal**

**02:05 pm – 02:30 pm – CT4 - “PRESSURE GRADIENT INFLUENCE ON GLOBAL LYMPH FLOW”- Anastasia S. Mozokhina, S.I. Mukhin – Lomonosov Moscow State University, Russia**

**02:30 pm – 02:55 pm – CT5 - “DYNAMICS OF AN INFECTIOUS DISEASE INCLUDING ECTOPARASITES, RODENTS, AND HUMANS”- Attila Dénes, G. Röst – University of Szeged, Hungary**

**02:55 pm – 03:20 pm – CT6 - “THE INVERSE MAGNETOENCEPHALOGRAPHY PROBLEM AND ITS FLAT APPROXIMATION”- A.S. Demidov – Lomonosov Moscow State University; Marina A. Galchenkova – Moscow Institute of Physics and Technology, Russia**

**Chair: Vitaly Volpert**

Oct 30, Monday, 03:40 pm – 05:20 pm - 4<sup>th</sup> Session

03:40 pm – 04:05 pm – CT7 - “INTEGRATING IMAGING AND OMICS DATA: A REVIEW”- Laura Antonelli, Mario Guaracino, Lucia Maddalena, Mara Sangiovanni – High Performance Computing and Networking Institute, Naples, Italy

04:05pm – 04:30 pm – CT8 - “COMPUTATIONAL MODELING OF THE REGULATORY EFFECTS TO THE TRANSPORT OF RESPIRATORY GASES IN THE BODY” - Sergei Simakov, A. Golov – Moscow Institute of Physics and Technology, Institute of Numerical Mathematics RAS, Russia

04:30 pm – 04:55 pm – CT9 –“VOLUME LOADING ON MEAN ARTERIAL PRESSURE (MAP)” - Evghenya V. Kislyukhina, V.V. Kislyukhin – Sklifosovsky Institute for Emergency Medicine, Medisonic, Russia

04:55 pm - 05:20 pm - CT10 – “INFLUENCE OF MYOCARDIUM HETEROGENEITY ON ELECTROCARDIOGRAPHY SIGNALS IN PERSONALIZED HUMAN HEART”- Konstantin S. Ushenin, S.M. Magomedova, O.V. Sopov, V.V. Kalinin, O. Solovyova – Ural Federal University, Institute of Immunology and Physiology, Ural branch, Russia

Chair: Alexei Finkelstein

Oct 31, Tuesday, 09:00 am – 10:15 am - 5<sup>th</sup> Session

09:00 am - 09:50 am - PT4 – “MODELING THE ENDOPHYTIC FUNGUS *EPICOCCUM NIGRUM* TO ACTION FIGHT THE “OLIVE KNOT” DISEASE CAUSED BY *PSEUDOMONAS SAVASTANOI* PV. *SAVASTANOI* (PSV) BACTERIA IN *OLEA EUROPEA* TREES”- C. Berardo, I.M. Bulai, Ezio Venturino – University of Torino, Italy; P. Baptista, T. Gomes – Instituto Politécnico de Bragança, Portugal

09:50 am - 10:15 am - CT11 – “DELAY INDUCED OSCILLATIONS IN A DYNAMICAL MODEL FOR INFECTIOUS DISEASE”- A. Kumar, Prashant K. Srivastava – Indian Institute of Technology Patna, India

Chair: Panayote Pardalos

Oct 31, Tuesday, 10:35 am – 12:15 pm - 6<sup>th</sup> Session

10:35 am - 11:00 am - CT12 – “COMPUTATIONAL MODELLING OF MULTIPLE STENOSES IN CAROTID AND VERTEBRAL ARTERIES”- Timur Gamilov, S. Simakov; P. Kopylov, I.M. Sechenov, Moscow Institute of Physics and Technology, Institute of Numerical Mathematics, First Moscow State Medical University, Russia

11:00 am - 11:50 am - PT5 – “REDUCED-ORDER MULTI-SCALE MODELING OF THE HUMAN ARTERIAL SYSTEM”- Fuyou Liang - Shanghai Jiao Tong University, China P.R.

11:50 am - 12:15 pm - CT13 – “A PLANKTON-NUTRIENT MODEL WITH HOLLING TYPE III RESPONSE FUNCTION”- Anal Chatterjee, Samar Pal– University of Kalyani, India

Chair: Ezio Venturino

Oct 31, Tuesday, 01:15 pm – 03:20 pm - 7<sup>th</sup> Session

01:15 pm – 01:40 pm – CT14 - “MATHEMATICAL MODELLING OF MORPHOGENESIS AND REGENERATION”- Vitaly Volpert – University of Lyon1, France

01:40 pm – 02:05 pm – CT15 – “HOW TO FOLLOW A METRIC IN A SHAPING PROCESS” – Marta Lewicka, University of Pittsburgh, USA, Annie Raoult – University of Paris Descartes, France

02:05 pm – 02:30 pm – CT16 - “ON THE MECHANICAL PROPERTIES OF INTRACRANIAL ANEURYSM WALLS: EXPERIMENTAL RESEARCH”- Daniil V. Parshin, A.S. Yunoshev – Lavrentyev Institute of Hydrodynamics; A.V. Dubovoi, K.S. Ovsyannikov – Federal Center of Neurosurgery, Russia

02:30 pm – 02:55 pm – CT17 – “BLOOD FLOWS IN VASCULAR NETWORKS: NUMERICAL RESULTS VS. EXPERIMENTAL DATA”- Tatiana K. Dobroserdova, Institute of Numerical Mathematics RAS; Alexander A. Cherevko – Lavrentyev Institute of Hydrodynamics, Siberian branch RAS; E.A. Sakharova – Higher School of Economics, National Research University, Russia

**02:55 pm – 03:20 pm – CT18 - “SOME CONDITIONS OF ERADICATION OF EPIDEMIC PROCESS WITHIN STOCHASTIC AND DETERMINISTIC SIRS MODELS”- Nikolai V. Pertsev, B.J. Piguchin – Sobolev Institute of Mathematics, Russia**

Chair: Somdatta Sinha

Oct 31, Tuesday, 03:40 pm – 05:20 pm - 8<sup>th</sup> Session

**03:40 pm – 04:05 pm – CT19 - “ELECTROPHYSIOLOGICAL CARDIAC MODEL PARAMETERIZATION USING GENERAL ALGORITHMS”- Roman Syunyaev, D. Smirnov, I. Efimov – Moscow Institute of Physics and Technology, Russia; George Washington University, USA**

**04:05 pm – 04:30 pm – CT20 - “EFFECT OF THERAPY OF THE DYNAMICS OF HIV MODEL WITH ADAPTIVE IMMUNE RESPONSE AND TWO SATURATED RATES” - Karam Allali, Youssef Tabit, Sanaa Harroudi – University Hassan II of Casablanca, Mohammedia; University Chouaib Doukkali, El Jadida, Morocco**

**04:30 pm – 04:55 pm – CT21 - “OPTIMAL RESOURCE ALLOCATION FOR HIV PREVENTION AND CONTROL”- Dmitry Gromov, Ingo Bulla, Ethan O. Romero-Severson – Saint Petersburg State University, Russia; Universität Greifswald, Germany; Los Alamos National Laboratory, New Mexico, USA**

**04:55 pm – 05:20 pm – CT22 - “ON VIABLE STRATEGY IN MATHEMATICAL MODEL OF CANCER THERAPY”- Alexander Bratus, I. Samokhin – Moscow State University, Russia**

Chair: Fuyou Liang

Nov 01, Wednesday, 09:00 am – 10:15 am – 9<sup>th</sup> Session

**09:00 am – 09:50 am – PT7/PTT1 – “ INTRODUCTION TO HOMEOSTASIS MODELLING” – Richard Kerner - University of Paris VI, Pierre et Marie Curie, France**

**09:50 am – 10:15 am - CT23 – “SPATIOTEMPORAL PATTERNS AND CHAOS IN NON –EQUILIBRIUM BACTERIAL COMMUNICATION” - Sarangam Majumdar, Sisir Roy – Università degli Studi di L’Aquila, Italy; National Institute of Advanced Studies, Bangalore, India**

Chair: Branko Dragovich

Nov 01, Wednesday, 10:35 am – 12:15pm – 10<sup>th</sup> Session

**10:35 am – 11:00 am – CT24 – “UNRAVELLING THE SENSITIVITY OF TWO MOTIF STRUCTURES UNDER RANDOM PERTURBATION” – S. Halder, Samrat Chatterjee, N. Bairagi – Drug Discovery Research Centre, Translational Health Science and Technology Institute, Faridabad, Centre for Mathematical Biology and Ecology, Jadavpur University, India**

**11:00 am – 11:50 am - PT8 – “ON THE DYNAMIC CONSISTENCY OF SOME DISCRETE PREDATOR-PREY MODELS” - Nandadulal Bairagi – Jadavpur University, India**

**11:50 am – 12:15 pm - CT25 – “DARK STATES IN QUANTUM PHOTOSYNTHESIS” - Sergei V. Kozyrev, I.V. Volovich - Steklov Mathematical Institute, Russia**

Chair: Adelia Sequeira

**Nov 01, Wednesday, 01:15 pm – 03:20 pm – 11<sup>th</sup> Session**

**01:15 pm – 02:05 pm – PT9, –“FREQUENT TEMPORAL PATTERN MINING WITH EXTENDED LISTS”-**  
**A. Kocheturov, Panayote M. Pardalos– Center for Applied Optimization, USA; National Research University, Higher School of Economics, Russia**

**02:05 pm - 02:30 pm - CT26 – “MATHEMATICAL MODELLING OF OSCILLATORY FLUID FLOW IN A TUBE WITH DEFORMABLE WALLS”- Alexander Khe, A. A. Chesnokov, V. Yu. Liapidevskii – Lavrentyev Institute of Hydrodynamics, Novosibirsk State University, Novosibirsk, Russia**

**02:30 pm - 02:55 pm - CT27 – “MODELING AND PARAMETER IDENTIFICATION AND OPTIMAL TREATMENT CONTROL FOR MATHEMATICAL MODEL OF CELLULAR HIV DYNAMICS” – Darya V. Yermolenko, O.I. Krivorotko, S.I. Kabanikhin – Novosibirsk State University, Russia**

**02:55 pm - 03:20 pm - CT28 – “PREVIOUS STEP IN UNDERSTANDING THE MECHANISM OF ELECTRON TRANSFER THROUGH DNA”- Marina A. Galchenkova, Pavel Gotovtsev – Moscow Institute of Physics and Technology, National Research Centre “Kurchatov Institute”- Russia**

**Chair: Sergei Fedot**

**Nov 01, Wednesday, 03:40 pm – 05:20 pm – 12<sup>th</sup> Session**

**03:40 pm - 04:05 pm - CT29 – “CONVOLUTIONAL AUTO-ENCODERS BASED FEATURE EXTRACTION FOR THYROID NODULE ULTRASOUND IMAGE”- X.Mei, X. Dong, Theodore Trafalis, T.W. Dreyer, J. Zeng – Columbia University, University of Oklahoma, New York Hospital, University of Illinois at Urbana-Champaign, USA**

**04:05 pm - 04:30 pm - CT30 – “THE OPTIMAL DISTURBANCE TO CONTROL OF VIRUS INFECTION MODEL WITH TIME-DELAYS”- Yu. M. Nechepurenko, M.Yu. Khristchenko, D.S. Grebennikov, G.A. Bocharov , Institute of Numerical Mathematics / RAS, Russia**

**04:30 pm - 04:55 pm - CT31 – “HOW ARCHITECTONICS OF THE HEART LEFT VENTRICLE BASAL PART AFFECTS THE DYNAMICS OF SPIRAL WAVE”- A. Koshelev, Anastasia Bazutina, S. Pravdin, A. Panfilov – Ural Federal University, Ekaterinburg, Russia, Krasovskii Institute of Mathematics and Mechanics, Russia; Ghent University, Belgium**

**04:55 pm – 05:20 pm - CT32 – “MATH MODEL OF THE PASSAGE OF A DIFFUSIBLE INDICATOR THROUGHOUT MICROCIRCULATION BASED ON A STOCHASTIC DESCRIPTION OF DIFFUSION AND FLOW”- Victor V. Kisluskin, E.V. Kislukhina – Medisonic, Sklifosovsky Institute for Emergency Medicine, Russia**

**Chair: Samares Pal**

**Nov 02, Thursday, 09:00 am - 10:15 am – 13<sup>th</sup> Session**

**09:00 am – 09:50 am - PT10 - “P-ADIC SIDE OF THE GENETIC CODE AND THE GENOME” - Branko Dragovich, N. Z. Misic University of Belgrade, Research and Development Institute Lola, Ltd.,**

**09:50 am - 10:15 am - CT33 – “METHODOLOGICAL FRAMEWORK FOR DRUG EVALUATION IN RARE DISEASES: INTEREST OF THE “IN SILICO” APPROACH”- Patrice Nony, Polina Kurbatova, Vitaly Volpert, Nikolai Bessonov- Hospices Civils de Lyon, CNRS – Université de Lyon 1, France: Institute of Mechanical Engineering Problems, Saint Petersburg, Russia**

**Chair: Richard Kerner**

Nov 02, Thursday, 10:35 am - 12:15 pm – 14<sup>th</sup> Session

10:35 am - 11:00 am - CT34 – “PATIENT-SPECIFIC BIOMECHANICAL MODELLING OF BILE FLOW IN THE BILIARY SYSTEM”- Alex Kuchumov – Perm National Research Polytechnic University

11:00 am - 11:50 am - PT11 – “EPIDEMIOLOGICAL MODELS WITH WANING AND BOOSTING OF IMMUNITY”- Gergely Röst, M. Barbarossa, M. Poiner – University of Szeged, Hungary

11:50 am - 12:15 pm - CT35 – “NUMERICAL STUDY ON BIOLOGICAL TISSUE FREEZING USING DUAL-PHASE LAG BIO-HEAT EQUATION”- Sushil Kumar, Sonalika Singh – S.V. National Institute of Technology, Surat, India

Chair: Nandadulal Bairagi

Nov 02, Thursday, 01:15 pm – 03:20 pm - 15<sup>th</sup> Session

01:15 pm - 02:05 pm - PT12 – “MATHEMATICAL MODELING OF CANCER IMMUNE SYSTEM WITH HUMORAL AND CELL IMMUNE RESPONSES”- Suman Ghosh, Sandip Banerjee – Indian Institute of Technology, Roorkee, India

02:05 pm – 02:30 pm – CT36 - “WHY IS EVOLUTION IMPORTANT IN CANCER AND WHAT MATHEMATICS SHOULD BE USED TO TREAT CANCER?”- Jean Clairambault – INRIA Paris Research Centre/ Université Pierre et Marie Curie, France

02:30 pm – 02:55 pm – CT37 - “POPULATION DYNAMICS OF ANIMALS AS OBJECT OF INTEGRATED MATHEMATICAL MODELING”- D.A. Sarancha, G.K. Kamenev – Valery O. Polyanovsky – Dorodnicyn Computing Center; Engelhardt Institute of Molecular Biology, RAS, Russia

02:55 pm – 03:20 pm – CT38 - “OPTIMIZATION OF COMBINED ANTITUMOR CHEMOTHERAPY WITH BEVACIZUMAB BY MEANS OF MATHEMATICAL MODELING” - Maxim B. Kuznetsov, A.N. Kolobov – P.N. Lebedev Physical Institute, RAS, Institute of Numerical Mathematics, RAS, Russia

Chair: Gergely Röst

Nov 02, Thursday, 03:40 pm – 05:20 pm - 16<sup>th</sup> Session

03:40 pm – 04:05 pm – CT39 - “ESTIMATION OF UNCERTAINTY AND VARIABILITY FOR SYSTEMS PHARMACOLOGY MODELS USING MONTE CARLO SIMULATIONS”- Victor Sokolov, D. Onishchenko, K. Zhudenkov, G. Helmlinger, K. Peskov – M&S Decisions, Moscow, Russia; IMED Biotech Unit, AstraZeneca, USA

04:05 pm – 04:30 pm – CT40 - “MATHEMATICAL MODEL OF CANCER THERAPY WITH MULTIPLICITY PHENOTYPES AND MUTATION”- Tatiana Yakushina, Alexander Bratus, Igor Samokhin – National Research University, Higher School of Economics, Lomonosov Moscow State University, Russia

04:30 pm – 04:55 pm – CT41 – “BENFORD’S LAW AND HEALTH STATISTICS: APPLICATION TO RUSSIAN PREVENTIVE SCREENING DATA”- O. Starunova, Sergey Rudnev – Federal Research Institute for Health Organization and Informatics, Institute of Numerical Mathematics, RAS, Russia

04:55 pm – 05:20 pm – CT42 - “MODELING THE EVOLUTION OF FUNCTIONAL SPECIALIZATION UNDER DIFFERENT FECUNDITY AND VIABILITY RATES AND A RESOURCE CONSTRAINT”- Fuad Aleskerov, Vladimir Makarenkov, Denis Tverskoi – National Research University Higher School of Economics (HSE); V.A. Trapeznikov Institute of Control Sciences – RAS, Russia; Université du Québec à Montreal, Canada.

Chair: Sandip Banerjee

**Nov 03, Friday, 09:00 am – 10:15 am – 17<sup>th</sup> Session**

**09:00 am – 09:50 am – PT13, –“LEVY WALK AND ANOMALOUS TRANSPORT ON SCALE-FREE NETWORK”- Sergei Fedotov- University of Manchester, UK**

**09:50 am - 10:15 am - CT43 – “THE ROLE OF DNA COHERENT EFFECTS IN DNA – PROTEIN SIGNALING”- Aymara Martinez Aragón – National University of Colombia; J.D.T. Arruda Neto – University of S. Paulo, Brazil**

**Chair: Karam Allali**

**Nov 07, Friday, 10:35 am – 12:15 pm – 18<sup>th</sup> Session**

**10:35 am - 11:00 am - CT44 – “NUMERICAL MODELLING OF TRANSCRANIAL ULTRASOUND”- I.B. Petrov, A.V. Vasyukov, Katerina A. Beklemysheva, A.S. Ermakov, A.O. Kazakov, Y.V. Vassilevski , V.Y. Salamatova, A.A. Danilov – Moscow Institute of Physics and Technology, Institute of Numerical Mathematics: G.K. Grigoriev, N.S. Kulberg – MGTS Medical and Health Center, Moscow Scientific and Practical Center of Medical Radiology, Institute of Educational Informatics, Russia**

**11:00 am – 11:50 am – PT14 - “HERBIVORE HARVESTING AND ALTERNATIVE STEADY STATES IN CORAL REEFS”- Samares Pal – University of Kalyani, India; J. Bhattacharya – Texas A&M University, USA; J. Wu – York University, Canada**

**11:50 am - 12:15 pm - CT45 – “INFLUENCE OF EXTERNAL FACTORS ON INTER-CITY INFLUENZA SPREAD IN RUSSIA: A MODELLING APPROACH”- Vasiliy N. Leonenko, Yu K. Novoselova – ITMO University, Saint Petersburg, Russia**

**Chair: Jean Clairambault**

**Nov 03, Friday, 01:15 pm – 03:20 pm – 19<sup>th</sup> Session**

**01:15 pm – 01:40 pm – CT46 - “AGENT-BASED MODELING OF T CELL MOVEMENT IN A LYMPH NODE: DOES CHEMO-ATTRACTION TOWARDS DENDRITIC CELLS ACCELERATE T CELL REPERTOIRE SCANNING?”- Ivan Azarov, K. Peskov, Y. Kosinsky – M&S Decisions, Moscow, Russia; G. Helmlinger – IMED Biotech Unit, AstraZeneca Pharmaceuticals, USA**

**01:40 pm – 02:05 pm – CT47 - “COMPUTATIONAL TREATMENT OF THE PARAMETER ESTIMATION PROBLEM IN MATHEMATICAL IMMUNOLOGY”- Valerya Zheltkova, Dmitry Zheltkov, Zvi Grossman, Gennady Bocharov, Eugene Tyrtyshnikov – Lomonosov Moscow State University, INM RAS, Russia; Tel Aviv University, Israel**

**02:05 pm – 02:30 pm – CT48 - “REACTION-DIFFUSION EQUATIONS WITH DENSITY DEPENDENT DIFFUSION”- V. N. Razzhevaikin – Dorodnicyn Computing Center, RAS, Russia**

**02:30 pm – 02:55 pm – CT49 - “AUTOMATIC DETECTION OF HEART LANDMARKS FROM TOMOGRAPHY DATA VIA COHERENT POINT DRIFT METHOD”- Dmitry Lachinov, Eugene Vasilev, Maria Podchischaeva, Vadim Turlapov – Lobachevsky State University, Nizhny Novgorod, Russia**

**02:55 pm – 03:20 pm – CT50 - “MATHEMATICAL MODELING OF THE NEURAL ACTIVITY”- Galina V. Muratova, V.V. Bavin – Southern Federal University, Russia**

**Chair: Sergey Simakov**

**Nov 03, Friday, 03:40 pm – 05:20 pm – 20<sup>th</sup> Session**

**03:40 pm – 04:05 pm – CT51 - “SEGMENTATION TECHNIQUES FOR CARDIOVASCULAR MODELING”- Alexander A. Danilov, R.A. Pryamonosov, A.S. Yurova – Institute of Numerical Mathematics, RAS, Moscow Institute of Physics and Technology, Russia**

**04:05 pm – 04:30 pm – CT52 - “METHODS OF ESTIMATING CONFIDENCE BOUNDS IN COST-EFFECTIVENESS ANALYSIS USING AGENT-BASED MODELING” - Affan Shoukat - York University, Toronto, Ontario, Canada**

**04:30 pm – 04:55 pm – CT53 - “NUMERICAL SIMULATIONS OF THE MICROCIRCULATORY BLOOD FLOW VARIATIONS DUE TO ANGIOGENESIS” - Nina Gorodnova, M. Kuznetsov, S. Simakov – Moscow Institute of Physics and Technology, P.N. Lebedev Physical Institute RAS, Russia**

**04:55 pm – 05:20 pm – CT54 - “THE INFLUENCE OF DEFORMATION OF THE LEFT VENTRICLE AND MECHANO ELECTRIC FEEDBACK ON THE SCROLL WAVE DYNAMICS” – Vladimir S. Zverev, A. A. Koshelev, T. I. Epanchintsev – Ural Federal University, Russia**

**Chair: Alexander Bratus**