

## Scientific Program

| Day I: Thursday November 23, 2023 |  |  |
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| Time                              | Speaker  | Title of the talk  |
| 8:30—9:00                         | Registration & Information   |  |
| 9:00—9:30                         | Opening  |  |
| 9:30—10:30                        | <b>Keynote Speaker I, Chaired by Prof. Gennady Bocharov</b>  |  |
|                                   | Prof. Andreas Meyerhans<br>Spain: Universitat Pompeu Fabra   | Pathogenic virus infections: on fate regulation and functional cure strategies   |
| 10:30—11:00                       | Coffee Break   |  |
| 11:30—12:00                       | <b>Keynote Speaker II, Chaired by Andreas Meyerhans - IT Building, Auditorium, Female Side</b>                     |  |
|                                   | Prof. Gennady Bocharov<br>Russian Academy of Sciences, Moscow  | Understanding the pathogenesis of virus infections using mathematical models based on delay differential equations           |
| 12:00—13:00                       | <b>Invited Talks, Chaired by Dr. Abdessamad and Prof. Farrukh Mohamadov - IT Building, Auditorium, Female Side</b> |  |
| 12:00-12:30                       | Prof. Radouane Yafia<br>Morocco: Ibn Tofail University   | Turing Bifurcation Induced by Cross-Diffusion and Amplitude Equation in Oncolytic Therapeutic Model                          |
| 12:30-13:00                       | Prof. Abdulla Azamov<br>Uzbekistan: Institute of Mathematics   | Cinematographic Method for Mathematical Modeling of Heat Transfer and Exchange Processes in Geometrically Complicated Bodies |
| 13:00—14:30                       | Lunch  |  |
| 14:30—16:00                       | <b>Invited Talks, Chaired by Prof. R. Yafia - IT Building, Auditorium, Female Side</b>                             |  |
| 14:30-15:00                       | Prof. Fathalla Rihan<br>UAE: UAEU  | Qualitative and Quantitative Features of DDEs and Applications to Immunology   |
| 15:00-15:30                       | Prof. Attila Denes<br>Hungary: University of Szeged  | Malaria dynamics with bimodality of incubation period in hostsina seasonal environment                                       |
| 15:30-14:00                       | Dr. Ardak Kashkynbayev<br>Kazakhstan: Nazarbayev University (AUA)  | Traveling wave speed and profile of a "go or grow" glioblastoma multiforme model   |

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| <b>16:00—18:00</b> | <b>Day I: Parallel Session I, Chaired by, Mohamed N. Anwar, E1-1055 Female side</b> |   |
| 16:00-16:20        | Dr. Rajivganthi, C<br>India: Vellore Institute of Technology                        | Control Analysis of Nilaparvata Lugens with Wolbachia using Sterile Insect Techniques   |
| 16:20-16:40        | Dr. Hebatallah Alsakaji<br>UAE: UAEU (AUA)  | Optimal Control of Stochastic Michaelis-Menten Kinetics Based Tumour-Immune Interaction with Time Delay   |
| 16:40-17:00        | Prof. Mohamed N. Anwar<br>Egypt: Faros Uni.   | Deterministic and Stochastic SIRC Epidemic model with Time-Delay for COVID-19   |
| 17:00-17:20        | Prof. Y. A. El-Khatib<br>UAE: UAEU (AUA)  | The SEIR model With Unreported Cases and Markovian Switching  |
| 17:20-17:40        | Ms. Ghilmana Sarmad<br>UAE: UAEU (AUA)  | Exploring the Influence of Fear on the Progression of an Infectious Disease in a Delayed Spatiotemporal Epidemic Model Featuring Both Local and Nonlocal Dispersion |

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| <b>16:00—18:00</b> | <b>Day I, Parallel Session II (Fractional Order DEs): Chaired by Prof. Syed Abbas, E1-1045 Female side</b> |  |
| 16:20-16:40        | Dr. Isa Abdullahi Baba<br>Nigeria: Bayero University Kano  | Dynamics of HIV-COVID-19 Co-Infection: A Fractional Order Model and Analysis using Laplace- Adomian Decomposition Method |
| 16:40-17:00        | Dr. K. Udhayakumar<br>UAE: Zayed University  | A fractional-order delay differential tumor-immune model: external treatment and optimal control strategies              |
| 17:20-17:40        | Dr. Rakkiyappan Rajan<br>India: Bharathiar University  | Optimal Control for Cancer Tumor Immune Systems Using Reinforcement Linging  |

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| <b>16:00—18:00</b> | <b>Day I, Parallel Session III Chaired by Prof. Samares Pal E1-1053 Female side</b> |  |
| 16:00-16:20        | Dr. Tri Thanh Pham (AUA)<br>Kazakhstan: Nazarbayev University                       | Multivariate models for assessing the effects of nanoparticles on bacterial growth   |
| 16:20-16:40        | Prof. Motassem Alarydah<br>UAE: Khalifa University                                  | Mathematical Model Integrating Vaccine and Variable Immunity Period in Infectious Disease Dynamics                         |
| 16:40-17:00        | Dr. S Dineshkumar<br>India: VELLORE INSTITUTE OF TECHNOLOGY                         | Higher Order Numerical Scheme for singularly Perturbed Delay Differential Equations with Small Shift Arising in Bioscience |
| 17:00-17:20        | Dr. Khalid Muhammad, UAEU   | Role of the NFAT-signaling network in controlling allergic skin reactions  |
| 17:20—17:40        | Dr. Ahmed Elmwafy<br>Portugal: University of Beira Interior                         | Dynamics of Cohen-Grossberg Neural Network models: Periodic Solutions and Global Exponential Stability                     |
| 17:40—18:00        | Ms. Taimun Qaisar, UAU  | Quadratic Stochastic Process Associated with SIR Models  |

**Dinner 7—9 PM**

| Day II: Friday November 24, 2023 |  |  |
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| 9:00—10:00                       | <b>Keynote Speaker I, Chaired by Gennady Bocharov IT Building, Auditorium, Female Side</b> |  |
|                                  | Prof. V. Volpert<br>France: CNRS University Lyon 1   | Mathematical modelling of respiratory viral infections   |
| 10—11 AM                         | <b>Invited Talks Chaired by Prof. Vitaly Volpert</b>                                       |  |
| 10:00-10:30                      | Prof. Kalyan Das<br>India: NIFTEM  | Time Lag Prey Predator Model with Allee Effect   |
| 10:30—11:00 Coffee Break         |  |  |
| 11:00—12:30                      | <b>Day II, Parallel Session I: Chaired by Dr. Ibrahim Elmojtaba E1-1055 Female side</b>    |  |
| 11:00-11:20                      | Prof. Mario Lefebvre<br>Canada: Polytechnique Montréal                                     | Explicit solutions to delay differential equations and first-passage times of delayed Wiener processes   |
| 11:20—11:40                      | Dr. Dipo Aldila (AUA)<br>Indonesia: Universitas Indonesia                                  | Bifurcation analysis on the impact of novel TB vaccine   |
| 11:40-12:00                      | Dr. Tahani Al Sariri<br>Oman: Sultan Qaboos University                                     | Optimal heat transport induced by magnetic nanoparticle delivery in vascularized tumors  |
| 12:00-12:20                      | Dr. Kifah Almaqrashi<br>Oman: Sultan Qaboos University                                     | Mathematical Analysis and Parameter Estimation of a Two-Patch Zika Model   |
| 12:30-12:0                       | Prof. Qing Li<br>China: Shijiazhuang Traditional Chinese Hospital                          | A continuum space is the infinitely great  |
| 10:30—12:30                      | <b>Day II, Parallel session II, Chaired by Dr. Ardak KASHKYNBAYEV E1-1045 Female side</b>  |  |
| 10:30—10:50                      | Dr. Soundararajan Ganesan<br>Kazakhstan: Nazarbayev University (AUA)                       | Robust Exponential $H^\infty$ Filtering for Discrete-Time Complex-Valued Neural Networks with Time-Varying Delays  |
| 10:50—11:10                      | Ms. Aisha TURSINKOZHA<br>Kazakhstan: Nazarbayev University (AUA)                           | Structured dynamics of the cell-cycle at multiple scales   |
| 11:10-11:30                      | Dr. Abduzhappar Gaipov<br>Kazakhstan: Nazarbayev University (AUA)                          | In-depth epidemiology and modeling of the future trends of communicable and non-communicable diseases in Kazakhstan using aggregated big data from the Unified National Electronic Healthcare System |
| 11:30-11:50                      | Mrs. Madina Otkel<br>Kazakhstan: Nazarbayev University (AUA)                               | Finite-time/fixed-time synchronization of memristive shunting inhibitory cellular neural networks via sliding mode control   |
| 11:50-12:10                      | Dr. Kathiresan Sivakumar<br>Kazakhstan: Nazarbayev University (AUA)                        | Multi-stability analysis of fractional-order quaternion-valued neural networks with time delay   |
| 12:10-12:30                      | Mr. Zhangir Nuriyev<br>Kazakhstan: Nazarbayev University (AUA)                             | Finite-time synchronization for fuzzy shunting inhibitory cellular neural networks   |
| 12:30—14:30 Lunch Break          |  |  |

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| <b>14:30—16:50</b> | <b>Day II, Parallel Session III: Chaired Prof. Mario Lefebvre, E1-1055 Female side</b> |   |
| 14:30-14:50        | Dr. Abdessamad Tridane<br>UAE: UAEU (AUA)  | Dynamics of A Delayed Spatiotemporal HBV Infection Model with Capsids, CTL Immune Response and General Incidence Function |
| 15:10-15:30        | Dr. Adel Hashish<br>UAE: UAEU (AUA)  | Improved lung model for predicting aerosol deposition in lung airways   |
| 15:30-15:50        | Prof. Abdallah Rababah<br>UAE: UAEU (AUA)  | Degree Reduction of Bezier Curves   |
| 15:50-16:10        | Mr. Americo Matusse<br>South Africa: University of Pretoria                            | Traveling Wave Solutions on Synergistic Co-infection Model in CRP Diseases  |
| 16:10-16:30        | Mr. Ibrahim Nali<br>Morocco: University of Szeged                                      | Dynamical analysis of an HIV infection model including quiescent cells and immune response                                |
| <b>14:30—16:50</b> | <b>Day II, Parallel session IV: Chaired by Prof. Mohammed Syam E1-1045 Female side</b> |   |
| 14:50-15:10        | Ms. Sondos M. Syam<br>Malaysia: Universiti Malaya (AUA)                                | Numerical method for solving integro-differential model of biological species living together                             |
| 15:10-15:30        | Prof. Mehmet Gumus<br>Turkey: Zonguldak Bülent Ecevit University                       | Stability and Bifurcation analysis of an SIR Epidemic Model   |
| 15:50-16:10        | Dr. Emad E. Elmahdy<br>Saudi Arabia: King Saud University (AUA)                        | Reliability Modelling of Heterogeneous Data by Using Different Competing Weibull Mixture Models                           |
| 16:10-16:30        | Ms. Shraddha Salwahan<br>India: Indian Institute of Technology                         | Optimal Control of a a Periodically Switching Epidemic Model  |
| 16:30-16:50        | Dr. Mohamed Saadaoui<br>Algeria: Amaal Tleidji University                              | Existence and stability of solution for fractional wave equation of $\beta(x)$ -Laplace type with viscoelasticity         |