MCHBS 2021 program (CET times)

September 28

9:00-9.10 – Opening (*G. Pontrelli*)

9.10-9.20 – Welcome address by E. Campana (CNR)

9.20-10.00 Keynote: L. Kovacs (Obuda University, Budapest, Hungary), *Taming cancer: control engineering based tumor therapy.*

Session 1 (*chair P. Palumbo*)

10.00-10.20   P. Ciarletta (Polyt. Milano, Italy), *Mathematical models and tools for personalized medicine.*

10.20-10.40 G. Lucci (Polyt. Torino, Italy), *A mechanical and computational model for glioblastoma multiforme growth and proliferation including patient-specific data.*

10.40-11.00 G. Chiari (Polyt. Torino, Italy) *A mathematical study of the influence of hypoxia on phenotypic heterogeneity in cancer and its impact on radiotherapy effectiveness.*

11.00- 11-20 *Virtual coffee break*

Session 2 (*chair L. Formaggia*)

11.20-11.40 P. Zunino (Polyt. Milan, Italy) , *A multiscale computational model for microvascular oxygen transfer applied to radiotherapy.*

11.40-12.00 E.C. Braun (Univ. Roma Tre, Italy), *Mathematical modelling and model calibration of organ-on-chips.*

12.00-12.20 N. Roselli (IAC-CNR, Italy), *Short-range dynamics in immunocompetent cancer-on-chip experiment: a hybrid PDE-ODE model.*

Session 3 (*chair L. Kovacs*)

12.20-12.40 I. Morilla (Univ. Sorbonne, Paris, France), *Personalised risk predictor for acute cellular rejection in lung transplantation.*

12.40-13.00 G. Fiandaca (Polyt. Torino, Italy), *Tumour phenotypic heterogeneity: the impact of mixing evolutionary trade-offs with a dynamic surrounding micro-environment.*

13.00-14.00 *Lunch break*

13.30 – 14.30 **Poster session I (4 parallel rooms)**

- A. Procopio et al. (Univ. Magna Graecia, Italy) , *Nonlinear Mixed-Effects Modeling approach for the STEMI patients classification.*
https://global.gotomeeting.com/join/246776869 (main meeting)

- M. E. Antunes et. al. (S. Paolo State Univ., Brazil), *Computational simulations of a mathematical model applied to RAI treatment for metastatic papillary thyroid cancer.*
https://global.gotomeeting.com/join/315703061

- M. Nascimben et al. (Engisoft, Eng. Padua, Italy), *Molecular fingerprint-based spiking neural network QSAR for bioconcentration prediction.*
https://global.gotomeeting.com/join/439452749

- C. Mahapatra (Univ. California, USA), *Computational modeling of action potential generation in Gallbladder smooth muscle Cell.*
https://global.gotomeeting.com/join/791323053

Session 4 (*chair A. De Gaetano*)

14.30-14.50 A. Jain (Univ. Texas, USA) , *Theoretical analysis of multi-layer convection-diffusion-reaction transport for understanding and improving drug delivery.*

14.50-15.10 A. Sequeira (Ist. Sup. Tecnico, Lisbon, Portugal), *Recent advances in the description of blood near-wall transport in aneurysms.*

15.10-15.30 E. Manzoni (Univ. Padova, Italy), *Modernization of a cardiovascular hydrodynamic testing system through the automation of its peripheral resistance device.*

15.30-15.50 G. Bretti (IAC-CNR, Italy), *Parameter estimation for cardiovascular flow modeling of fetal circulation.*

15.50-16.10 *Virtual coffee break*

Session 5 (*chair D. Iacoviello*)

16.10-16.30 M. El Khalifi, (Ibn Tofail Univ. Morocco), *The dynamics of a Covid-19 epidemic model.*

16.30-16.50 P. Sibilio (Univ. Sapienza, Roma, Italy), *Network-based scenario analysis of in silico drug repurposing: the case of COVID-19.*

16.50-17.10 D. Iacoviello (Sapienza Univ. Roma, Italy), *Covid-19 emergency: state dependent optimal control strategy.*

September 29

9:00-9.40 Keynote: M. Grassi (Univ. Trieste, Italy), *Drug delivery and mathematical modeling: an historical perspective.*

Session 6 (*chair A. Barakat*)

9.40-10.00   D. Masiello (Univ. Edinburgh, UK), *Mechanistic model of dissolution for irregularly shaped drug particles.*

10.00-10.20 L. D'Orsi (IASI- CNR, Italy), *Modeling of ventilator-patient interaction.*

10.20-10.40 J. Jia (Univ. Edinburgh, UK), *Simulation study of mechanical ventilation control system based on electrical impedance tomography.*

10.40- 11.00 *Virtual coffee break*

Session 7 (*chair M. Grassi*)

11.00-11.20 A. Fensterseifer Schmidt (Univ. Glasgow, UK), *In silico modelling of endovascular drug delivery.*

11.20-11.40 A. McQueen (Univ. Glasgow, UK), *Preliminary approaches to understand how anti-proliferative drugs modulate in-stent restenosis.*

11.40-12.00 B. Sung (UST, Korea), *Analytical model for predicting the temperature-responsive behaviours of implantable and biodegradable microgels.*

Session 8 (*chair P. Zunino*)

12.00-12.20 P. Rochowski (Univ. Gdansk, Poland), *Mass diffusion through composite systems – an electric circuit-based model*.

12.20-12.40 A. Coclite (Polyt. Bari, Italy) *A dynamic-immersed boundary approach for computing transport and adhesion of micro-sized carriers in narrow capillaries.*

12.40-13.00 F. Conte (IASI-CNR, Italy) *Recognition of gene signatures in breast cancer subtypes.*

13.00-14.00 *Lunch break*

13.30 – 14.30 **Poster session II   (4 parallel rooms)**

- V. Fazio et. al. (Univ. Trento, Italy), *A multiscale model to unveil the role of humidity and temperature in the mechanical response of protein materials.*
  https://global.gotomeeting.com/join/246630053 (main meeting)

- G. Fiscon et al. (IASI CNR, Roma, Italy) *SAveRUNNER: a network-based algorithm for drug repurposing and its application to COVID-19.*
  https://global.gotomeeting.com/join/329733157

- Sonu et al. (Indian Inst. Technology, India), *Cost-effective optimal control intervention strategies implemented on a COVID-19 model under the influence of awareness: a case study on India.*
  https://global.gotomeeting.com/join/929426941

- J. Matos et al. (San Paulo State University, Brazil), *Mathematical model of metastasis involving immunotherapy with CAR T cells.*
  https://global.gotomeeting.com/join/219634501

Session 9 (*chair L. Preziosi*)

14.30-14.50 F. Iacono (Univ. Pavia, Italy), *Patient-tailored LSTM model for hypoglycemia prevention: an in-silico case study.*

14.50-15.10 F. Di Felice (Univ. L'Aquila, Italy), *Deep reinforcement learning methods for closed-loop glucose control.*

15.10-15.30 I. Di Loreto (Univ. L'Aquila, Italy), *Decentralized glucose control through contracts theory.*

15.30-15.50 *Virtual coffee break*

Session 10 (*chair D. Manca*)

15.50-16.10 R. Cotta (Fed. Univ Rio Janeiro, Brazil), *Diffusion-Reaction drug release model in non-homogeneous micro-capsules via integral transform.*

16.10-16.30 M. Daei Daei (Ecole Polyt, Paleiseau, France), *Computational modelling of stentriever thrombectomy.*

16.30-16.50 M. Pompa (Univ. Catt. Sacro Cuore, Rome, Italy), *A new mathematical model of the human thyroid.*

September 30

9:00-9.40 Keynote: D. Manca (Polyt. Milan, Italy), *Physiologically based pharmacokinetic modeling for individualized medicine with control applications.*

Session 11 (*chair G. Florio*)

9.40-10.00   Y. Lu (Univ. Technology Warsaw, Poland), *Influence of the frequency of periodic mechanical loads on the bone tissue regeneration process.*

10.00-10.20 I. Giorgio (Univ. L'Aquila, Italy), *A diffusive model to describe the biological stimulus in bone remodeling.*

10.20-10.40 M. Cerasuolo (Univ. Portsmouth, UK), *On the use of a hybrid approach to explore drug interaction in the treatment of prostate cancer.*

10.40- 11.00 *Virtual coffee break*

Session 12 (*chair G. Bretti*)

11.00-11.20 L. Bellino (Polyt. Bari, Italy), *A micromechanical-based model for axonal damage.*

11.20-11.40 S. Calandrini (Univ. Perugia, Italy), *Model calibration with Italian data to study the impact of SARS-CoV-2 lineages and the vaccination plan on transmissibility.*

11.40-12.00   C.E. Madubueze (Fed. Univ. Agric., Makurdi, Nigeria), *The role of public health education and environmental control on the transmission dynamics of schistosomiasis.*

Session 13 (*chair E. Barchiesi*)

12.00-12.20 G. Florio (Polyt. Bari, Italy) *A new coarse-grained approach for the mechanical behaviour of biomacromolecules.*

12.20-12.40 B.G. Galuzzi (Univ. Milan Bicocca, Italy) *Differential reaction expression analysis for single-cell metabolic network.*

12.40-13.00 S. Di Stefano (Polyt. Bari, Italy), *Continuum modelling for cell-matrix interactions.*

13.00-14.00 *Lunch break*

13.30 – 14.30 **Poster session III (4 parallel rooms)**

- B. Nath (ISC- CNR, Italy), *Computational modeling of drug release from a compound droplet in the presence of Poiseuille flow.*
  https://global.gotomeeting.com/join/930501469 (main meeting)

- M. P. Borthakur (ISC- CNR, Italy), *Drug release from an emulsified droplet subjected to external shear.*
  https://global.gotomeeting.com/join/883513045

- Y. Hernandez Rodriguez (Warsaw Univ. Techn., Poland), *A new mathematical model for bone's remodelling with dynamic features that predicts bone's behavior.*
  https://global.gotomeeting.com/join/347357437

- N. Branecka (Warsaw Univ. Techn., Poland), *Modeling the reaction of a living cell to mechanical stress in a flowing liquid.*
  https://global.gotomeeting.com/join/977020333

Session 14 (*chair R. Natalini*)

14.30-14.50   N. Vauchelet (Univ. Sorbonne, Paris, France), *Mathematical modeling of a replacement technique to control mosquito-borne diseases.*

14.50-15.10   M.K. Erdal (Univ. California, USA), *Optimal experiment design for learning pharmacokinetic dynamics.*

15.10-15.30 T. Azizi (Kansas State Univ, USA), *Modelling gold nanoparticle biodistribution.*

15.30-15.50 E. Lo Presti (IRIB- CNR, Italy), *From uptake of Zoledronate acid to Isopentenyl Pyrophosphate accumulation: a practice simple mathematical model.*

15.50 Closing