



For more information please see the conference website: www.bms2021.ugent.be

For information on travelling, visa, sponsorship, please contact: bms2021@ugent.be

IFAC Main Sponsoring Technical Committee

TC 8.2 – Biological and Medical Systems

IFAC Co-Sponsoring Technical Committees

TC 1.1 – Modelling, Identification and Signal Processing

TC 1.2 – Adaptive and Learning Systems

TC 2.1 – Control Design

TC 4.3 – Robotics

TC 8.4 – Biosystems and Bioprocesses

Organizing Committee:

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NOC Co-Chair: Dirk Verellen, Gasthuisberg Hospital Antwerp and Iridium Cancer Network, Belgium

NOC Industry Vice Chairs: Ljiljana Platisa, IMEC-UGent and Dimitar Prodanov IMEC-KULeuven, Belgium

Important Dates:

Submission site opens:	01 October 2020
Open Invited Track Proposals:	01 November 2020
Draft Paper Submission:	24 January 2021
Paper Decision:	01 March 2021
Final Paper:	01 May 2021

Early Registration Fee:

600EUR (full, includes 2 papers)

300EUR (student, includes one paper)

Early Registration Deadline: 10 May 2021

Papercept:

<http://ifac.papercept.net/conferences/scripts/start.pl>

We are living in challenging, yet sensational and inspiring times. No doubt the year ahead is going to change the view we have on our lives and that on our environment.

More than ever medical and biological systems stay at the core of our societal and economical challenges. No longer these can progress without the interdisciplinarity among them, and progress itself cannot be enabled without the inter-modularity with engineering and computing. Healthcare systems, biological systems, pharmaceutical systems and everything stemming from these are welcomed topics to our 11th IFAC Symposium on Biological and Medical Systems (BMS2021), organized in Ghent, Belgium, through 19-22 September 2021.

BMS2021 features three main themes to provide latest results in context of personalized medicine and personalized medication production processes:

- ✓ drug delivery systems: includes modelling, control, analysis and pharmacological studies, medical devices, clinical trial results;
- ✓ combined cancer therapy: includes nanomedicine, radiation, immunology, stem cells, modelling and control, medical devices and robotics, clinical trial results;
- ✓ pharmaceutical processes: includes process modelling, process control, bio-chemical process optimization, instrumentation.

Experimental, clinical and feasibility studies are particularly welcome contributions. The symposium covers all aspects of biomedicine, physiology, biology, pharmaceutical and epidemiological problems interconnected through multidisciplinary with systems engineering.

The technical program will comprise several types of presentations in regular and invited sessions, tutorial sessions, and special sessions along with workshops and exhibits. An important goal of the conference is to emphasize the enabling role of engineering and control in the emerging Pharma 4.0 context and listen to the challenges from both industry and academia.

The symposium will address the latest progress and challenges posed in all themes of technical committees:

- model formulation, experiment design, identification and validation, biosignal analysis and interpretation,
- advances in sensing and signal processing,
- tracer kinetic modelling from imaging systems,
- biomedical system modelling, simulation and visualization,
- decision support systems and feedback control
- robotics, devices and sensors
- biological systems and controls, etc.
- pharmaceutical processes
- on demand product manufacturing and quality control
- artificial intelligence for decision support systems
- bionic engineering and biomaterials

Application areas may include, but not limited to:

- cellular, metabolic, cardiovascular, neurosystems,
- healthcare management and delivery, disease control, critical care,
- pharmacokinetics and drug delivery,
- decision support systems for the control of physiological and clinical variables,
- biomedical imaging systems,
- intensive and chronic therapy,
- medical information systems
- surgical robotics and medical nano-robotics
- control of voluntary movements, respiration, locomotion
- rehabilitation engineering including rehabilitation robotics,
- kinetic modelling and control of biological systems, artificial organs and biomechanical systems,
- quantification of physiological parameters for diagnosis assessment
- production optimization in pharmaceutical industry
- pharmaceutical product on demand, design, manufacturing and quality assessment
- targeted molecular therapies
- artificial intelligence support in diagnosis and decision making systems

Benchmark Challenge Competition

The symposium will feature a benchmark challenge addressed to all doctoral students who plan to attend the event. A competition will be organized and featured in a special session.

IFAC Young Author Award

In order to stimulate the involvement of young scientists and engineers in IFAC, as well as to recognize top-level contributions of the younger generation in our field and to support their careers, IFAC presents the Young Author Award. Eligibility criteria is to have the PhD-student status of the first and presenting author, at the time of paper submission.

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