11th IFAC Symposium on Computer Applications in Biotechnology 2010

Leuven, Belgium
7 July 2010

Editors:

Julio R. Banga   **Philippe Bogaerts**
Jan Van Impe   **Denis Dochain**
Ilse Smets

WeMT1   Room ZVH
Process Analytical Tools (Regular Session)
    Chair: Morris, Julian   Newcastle Univ.

09:30-09:50   WeMT1.1
Towards the Robust Application of PAT in Real Time Control, pp. 1-6.
    Morris, Julian (Newcastle Univ.), Chen, Zengping (State Key Lab. of Chemo/Biosensing & Chemometrics,Hunan Un), Lovett, David (Perceptive Engineering, Daresbury Innovation Centre,Daresbury, C)

09:50-10:10   WeMT1.2
Quality-By-Design Using a Gaussian Mixture Density Approximation of Biological Uncertainties, pp. 7-12.
    Rossner, Niko (Tech. Univ. Berlin), Heine, Thomas (Tech. Univ. Berlin), King, Rudibert (Tech. Univ. of Berlin)

10:10-10:30   WeMT1.3
Kernel Regression with Correlated Errors, pp. 13-18.
    De Brabanter, Kris (Katholieke Univ. Leuven), De Brabanter, Jos (Katholieke Univ. Leuven), Suykens, Johan (K.U. Leuven), De Moor, Bart (K.U.Leuven)

10:30-10:50   WeMT1.4
Possibilistic Validation of a Constraint-Based Model under Data Scarcity: Application to Pichia Pastoris Cultures, pp. 19-23.
    Tortajada, Marta (Biopolis S.L.), Llaneras, Francisco (Univ. Pol. de Valencia), Picó, Jesús (Univ. Pol. de Valencia)

10:50-11:10   WeMT1.5
Possibilistic Estimation of Metabolic Fluxes During a Batch Process Accounting for Extracellular Dynamics, pp. 24-29.
    Llaneras, Francisco (Univ. Pol. de Valencia), Sala, Antonio (Univ. Pol. de Valencia), Picó, Jesús (Univ. Pol. de Valencia)

WeMT3   Room B
Systems Biology -- II (Regular Session)
    Chair: Bullinger, Eric   Univ. of Liege

09:30-09:50   WeMT3.1
Parametric Condition for Multistationarity in Biochemical Reaction Networks, pp. 30-35.
    Otero Muras, Irene (ETH Zurich), Banga, Julio R. (IIM-CSIC (Spanish Council for Scientific Res.), Alonso, Antonio A. (IIM-CSIC)

09:50-10:10   WeMT3.2
A Robustness Measure for the Stationary Behavior of Gene Regulation Networks, pp. 36-41.
    Breindl, Christian (Univ. Stuttgart), Waldherr, Steffen (Univ. of Stuttgart), Allgower, Frank (Univ. of Stuttgart)

10:10-10:30   WeMT3.3
Solutions of Weakly Reversible Chemical Reaction Networks Are Bounded and Persistent, pp. 42-47.
    August, Elias (ETH), Barahona, Mauricio (Imperial Coll. London)

10:30-10:50   WeMT3.4
Damping Feedback Stabilization for Cyclic Interconnections Systems: Oscillations Suppression and Synchronization, pp. 48-53.
    Hudon, Nicolas (Queen's Univ.), Guay, Martin (Queen's Univ.)

10:50-11:10   WeMT3.5
Global Sensitivity and Identifiability Implications in Systems Biology, pp. 54-59.
    Dobre, Simona (Nancy Univ.), Bastogne, Thierry (Univ. Henri Poincaré, Nancy 1), Richard, Alain (Univ. Henri Poincaré, Nancy 1)

WeMT4   Room C
Modeling and Control of Environmental Processes (Regular Session)

10:50-11:10   WeMT4.6
Model Reduction of the ASM3 Extended for Two-Step Nitrification, pp. 60-65.
    Cruz Bournazou, Mariano Nicolas (TU-Berlin), Arellano-Garcia, Harvey (TU Berlin), Wozny, Günter (TU-Berlin), Lyberatos, Gerasimos (Univ. of Patras), Kravaris, Costas (Univ. of Patras)

WePlenT5   Room ZVH
Plenary Session -- I (Plenary Session)
    Chair: Vande Wouwer, Alain   Univ. de Mons

11:30-12:30   WePlenT5.1
Hurdles and Challenges for Modelling and Control of Microalgae for CO2 Mitigation and Biofuel Production, pp. 66-77.
    Bernard, Olivier (Inria)

WeAT4   Room C
Control of Biological Processes (Regular Session)
    Chair: Dochain, Denis   Univ. Catholique de Louvain

14:00-14:20   WeAT4.1
Batch-To-Batch Iterative Learning Control of a Fed-Batch Fermentation Process Using Incrementally Updated Models, pp. 78-83.
    Jewaratnam, Jegalakshimi (Newcastle Univ.), Zhang, Jie (Univ. of Newcastle Upon Tyne), Azlan Hussain, Mohd (Univ. of Malaya), Morris, Julian (Newcastle Univ.)

14:20-14:40   WeAT4.2
Neurofuzzy Control Strategy for an Abattoir Wastewater Treatment Process, pp. 84-89.
    Carlos-Hernandez, Salvador (Cinvestav, Unidad Saltillo), Sanchez, Edgar N. (CINVESTAV), Bueno, J. Andres (Cinvestav Guadalajara)

14:40-15:00   WeAT4.3
Integration of Model-Predictive Scheduling, Dynamic Real-Time Optimization and Output Tracking for a Wastewater Treatment Process, pp. 90-95.
    Elixmann, David (RWTH Aachen Univ.), Busch, Jan (RWTH Aachen Univ.), Marquardt, Wolfgang (RWTH Aachen Univ.)

15:00-15:20   WeAT4.4
Minimal Time Control of Fed-Batch Processes with Growth Functions Having Several Maxima, pp. 96-101.
    Rapaport, Alain (INRA), Dochain, Denis (Univ. Catholique de Louvain)

15:20-15:40   WeAT4.5
Observer-Based Output Feedback Linearizing Control Applied to a Denitrification Reactor, pp. 102-107.
    Torres, Ixbalank (LAAS-CNRS), Queinnec, Isabelle (LAAS-CNRS), Vande Wouwer, Alain (Univ. de Mons)

15:40-16:00   WeAT4.6
Adaptive Extremum Seeking Control of Fedbatch Bioreactors : The Single Measurement Case, pp. 108-113.
    Cougnon, Pascal (Univ. catholique de Louvain), Dochain, Denis (Univ. Catholique de Louvain), Guay, Martin (Queen's Univ.), Perrier, Michel (Ec. Pol.)

WeET3   Room B
Systems Biology -- III (Regular Session)
    Chair: Ferreira, Eugenio   Univ. of Minho

16:30-16:50   WeET3.1
Evaluating the Integration of Proteomic Data for the Prediction of Intracellular Fluxes after Knockout Experiments, pp. 114-119.
    Costa, Rafael (Univ. of Minho), Moutinho Machado, Carlos Daniel (Univ. do Minho), Rocha, Isabel (Univ. of Minho), Ferreira, Eugenio (Univ. of Minho)

16:50-17:10   WeET3.2
Merlin: Metabolic Models Reconstruction Using Genome-Scale Information, pp. 120-125.
    Dias, Oscar (Univ. of Minho), Rocha, Miguel (Univ. of Minho), Ferreira, Eugenio (Univ. of Minho), Rocha, Isabel (Univ. of Minho)

17:10-17:30   WeET3.3
Understanding Clostridium Acetobutylicum ATCC 824 Metabolism Using Genome-Scale Thermodynamics and Metabolomics-Based Modeling, pp. 126-131.
    Salimi, Fahimeh (Univ. of Toronto), Mandal, Rupasri (Univ. of Alberta), Wishart, David (Univ. of Alberta), Mahadevan, Radhakrishnan (Genomatica Inc.)

ThMT1   Room ZVH
Modeling and Identification I (Regular Session)
    Chair: Queinnec, Isabelle   LAAS-CNRS

08:30-08:50   ThMT1.1
AMIGO: A Model Identification Toolbox Based on Global Optimization and Its Applications in Biosystems, pp. 132-137.
    Balsa-Canto, Eva (CSIC), Banga, Julio R. (IIM-CSIC (Spanish Council for Scientific Res.)

08:50-09:10   ThMT1.2

An Automated Approach to Build Process Models by Detecting Biological Phenomena in (fed-)batch Experiments, pp. 138-143.
Herold, Sebastian (Tech. Univ. Berlin), Heine, Thomas (Tech. Univ. Berlin), King, Rudibert (Tech. Univ. of Berlin)

09:10-09:30   ThMT1.3

Minimising Experimental Time for Kinetic Parameter Identification Using Surface Plasmon Resonance by Injecting Multiple Analytes, pp. 144-149.
Si Mehand, Massinissa (Pol. Montréal), Marchant-Gagnon, Simon (École Pol. de Montréal), De Crescenzo, Gregory (École Pol. de Montréal), Srinivasan, B. (Ec. Pol. Montreal)

09:30-09:50   ThMT1.4

Limiting the Parameter Search Space for Dynamic Models with Rational Kinetics Using Semi-Definite Programming, pp. 150-155.
Fey, Dirk (Univ. of Liege), Bullinger, Eric (Univ. of Liege)

09:50-10:10   ThMT1.5

Selection of Elementary Modes for Bioprocess Control, pp. 156-161.
Soons, Zita (Univ. of Minho), Ferreira, Eugenio (Univ. of Minho), Rocha, Isabel (Univ. of Minho)

ThMT2	Room A
Microalgae Photobioreactors (Regular Session)	
Chair: Vande Wouwer, Alain	Univ. de Mons

08:30-08:50   ThMT2.1

Photobioreactors: Hydrodynamics and Mass Transfer, pp. 162-167.
Jacobi, Anna (Karlsruhe Inst. of Tech.), Ivanova, Dragomira (Company Bio-Compete), Posten, Clemens (Karlsruhe Inst. of Tech.)

08:50-09:10   ThMT2.2

Coupling Biological and Radiative Models to Describe Microalgal Growth in a Photobioreactor, pp. 168-173.
Mairet, Francis (Inria), Titica, Mariana (Univ. of Nantes), Bernard, Olivier (Inria), Pruvost, Jeremy (Univ. de Nantes)

09:10-09:30   ThMT2.3

Cell Cycle Modeling of Microalgae Grown under a Light-Dark Signal, pp. 174-179.
Mocquet, Christophe (CNRS UPMC Lab. d'Océanographie de Villefranche), Bernard, Olivier (Inria), Sciandra, Antoine (LOV)

09:30-09:50   ThMT2.4

Microalgal Biomass Surface Productivity Optimization Based on a Photobioreactor Model, pp. 180-185.
Masci, Pierre (INRIA), Grognard, Frederic (INRIA Sophia-Antipolis), Bernard, Olivier (Inria)

09:50-10:10   ThMT2.5

Modelling and Control Issues of Ph in Tubular Photobioreactors, pp. 186-191.
Fernández Sedano, Ignacio (Univ. of Almeria), Peńa Martín, Jose (Univ. of Almeria), Guzman, Jose Luis (Univ. of Almeria), Berenguel, Manuel (Univ. of Almeria), Acién Fernández, Francisco Gabriel (Univ. of Almeria)

ThM2T1	Room ZVH
Sensors and Observers (Regular Session)	
Chair: Picó, Jesús	Univ. Pol. de Valencia

10:30-10:50   ThM2T1.1

A New On-Line Indicator of Biopolymer Content in Bacterial Cultures, pp. 192-196.
Hrncirík, Pavel (Inst. of Chemical Tech. Prague), Vovsík, Jaroslav (Inst. of Chemical Tech. Prague), Nahlik, Jan (Inst. of Chemical Tech. Prague)

10:50-11:10   ThM2T1.2

Optical Sampling in Situ Microscope for On-Line Monitoring of Animal Cell Cultures, pp. 197-202.
Wiedemann, Philipp (Mannheim Univ. of Applied Sciences), Guez, Jean-Sébastien (Univ. de Lille 1), Cassar, J.P. (Univ. des Sciences et Tech. de LILLE), Egner, Florian (InVivo Biotech Services GmbH), Wiegemann, Hans-Bertram (Univ. of Applied Science), Quintana Duque, Juan Carlos (Hochschule Mannheim), Storhas, Winfried (Mannheim Univ. Inst. of Tech. Microbiology), Schwiebert, Christian (Invivo Biotech Services GmbH), Asanza, Diego (Hochschule Mannheim), Wilkesman, Jeff (Univ. de Carabobo), Suhr, Hajo (Hochschule Mannheim

(Mannheim Univ. of AppliedSciences))

11:10-11:30   ThM2T1.3

Design of a Cascade Observer for a Model of Bacterial Batch Culture with Nutrient Recycling, pp. 203-208.
Rapaport, Alain (INRA), El Hajji, Miled (UMR Analyses des Systčmes et Biométrie, INRA,)

ThM2T2	Room A
Modeling in Heterogeneous Media (Regular Session)	
Chair: Smets, Ilse	Biotec - Bioprocess Tech. And Control

10:30-10:50   ThM2T2.1

A Mathematical Study of an Enzymatic Reaction in Non Homogeneous Reactors with Substrate and Product Inhibition: Application to Cellobiose Hydrolysis in a Bioreactor with a Dead-Zone, pp. 209-214.
Saddoud, Ahlem (UMR ASB and EPI MERE), Sari, Tewfik (Univ. Haute Alsace Mulhouse), Rapaport, Alain (INRA), Lortie, Robert (NRC Biotechnology Res. Inst.), Harmand, Jérome (INRA), Dubreucq, Eric (Montpellier SupAgro)

10:50-11:10   ThM2T2.2

Metabolic Modeling of Spatial Heterogeneity of Biofilms in Microbial Fuel Cells, pp. 215-220.
Jayasinghe, Nadeera (Univ. of Toronto), Mahadevan, Radhakrishnan (Univ. of Toronto)

11:10-11:30   ThM2T2.3

Dynamic Modelling and Experimental Validation of a Solid State Fermentation Reactor, pp. 221-226.
Gonzalez-Figueredo, Carlos (Univ. Autonoma de Guadalajara), de la Torre, Luis Miguel (Centro de Investigacion y Estudios Avanzados), Sanchez, Arturo (Centro de Investigacion y Estudios Avanzados)

ThPostersT3	Hall
Poster Session I (Poster Session)	

12:00-13:00   ThPostersT3.1

Dynamic Optimization of Fed-Batch Fermentation Processes for Ethanol Production from Lignocellulose, pp. 227-232.
Chen, Ming-Liang (National Chung Cheng Univ.), Wang, Feng-Sheng (National Chung Cheng Univ.)

12:00-13:00   ThPostersT3.2

QFT Control of Dissolved Oxygen Concentration in a Wastewater Treatment Pilot Plant, pp. 233-238.
Barbu, Marian (Dunarea de Jos Univ. of Galati), Ifrim, George (Dunarea de Jos Univ.), Caraman, Sergiu (Dunarea de Jos Univ.), Bahrim, Gabriela (Dunarea de Jos Univ.)

12:00-13:00   ThPostersT3.3

Challenges in Reverse Engineering of Gene Networks from Algebraic Perspectives, pp. 239-244.
Nadadoor, Venkat R (Univ. of Alberta, Edmonton,Canada), Ben-Zvi, Amos (Univ. of Alberta), Shah, Sirish (Univ. of Alberta)

12:00-13:00   ThPostersT3.4

Interaction among the Gene Products Contributes to the Regulation of Gene Expression, pp. 245-250.
Albert, Jaroslav (Univ. Libre de Bruxelles), Rooman, Marianne (Univ. Libre de Bruxelles)

12:00-13:00   ThPostersT3.5

Specific Growth Rate Estimation in Bioreactors Using Second-Order Sliding Observers, pp. 251-256.
De Battista, Hernán (Univ. of La Plata), Picó, Jesús (Univ. Pol. de Valencia), Garelli, Fabricio (Univ. of La Plata), Vignoni, Alejandro (Univ. Pol. de Valencia)

12:00-13:00   ThPostersT3.6

Robust Trajectory Planning and Robust NMPC of Processes with Model Uncertainties, pp. 257-262.
Heine, Thomas (Tech. Univ. Berlin), Kawohl, Michael (Tech. Univ. Berlin), Rossner, Niko (Tech. Univ. Berlin), King, Rudibert (Tech. Univ. of Berlin)

12:00-13:00   ThPostersT3.7

A Mathematical Model of in Vitro Estrogen-Related Cancer Cell Growth Based on Cell-Cycle Mechanism, pp. 263-268.
Ibrahim, Fadi (Univ. OF ALBERTA), Huang, Biao (Univ. of Alberta), Xing, James (Univ. of Alberta), Roa, Wilson (Department of Oncology, Cross Cancer Inst. Alberta,Canada), Gabos, Stephan (Alberta Health and Wellness)

12:00-13:00   ThPostersT3.8
Mass Spectrometry: System Based Analysis, pp. 269-274.
Urban, Jan (Inst. of Physical Biology, Univ. of South Bohemia),
Vanek, Jan (Univ. of South Bohemia), Stys, Dalibor (Inst. of
Physical Biology, Univ. of South Bohemia)

12:00-13:00   ThPostersT3.9
*Computational Model for Studying the Analogies between
Endocrine Systems of Humans and Rats with Diabetes Mellitus.
Experimental and Simulated Results*, pp. 275-280.
Campetelli, German (GIAIP-CIFASIS), Lupo, Maela
(UNR-CONICET), Fina, Brenda (aa), Zumoffen, David
Alejandro (CIFASIS-CONICET), Basualdo, Marta S.
(GIAIP-CIFASIS- CONICET- FRRo-Univ. Tecnológica
Nacional), Rigalli, Alfredo (aa)

ThPlenT3   Room ZVH
Plenary Session -- II (Plenary Session)
Chair: Banga, Julio R.   IIM-CSIC (Spanish Council for
                                           Scientific Res.

14:00-15:00   ThPlenT3.1
*Stoichiometric Modeling and Experimental Analysis of Microbial
Networks**.
Sauer, Uwe (ETH Zurich -- Inst. of Molecular Systems Biology)

ThAT1   Room ZVH
Optimization and Optimal Control (Regular Session)
Chair: Diehl, Moritz   K.U. Leuven

15:30-15:50   ThAT1.1
*A Toolkit for Multi-Objective Optimal Control in Bioprocess
Engineering*, pp. 281-286.
Logist, Filip (Katholieke Univ. Leuven), Houska, Boris (Univ. of
Leuven), Diehl, Moritz (K.U. Leuven), Van Impe, Jan F.M.
(Katholieke Univ. Leuven)

15:50-16:10   ThAT1.2
*Optimisation of Fluorescent Fusion Protein Expression in
Escherichia Coli Via Design of Experiments*, pp. 287-292.
Ellert, Andree (Hamburg Univ. of Applied Sciences), Luttmann,
Reiner (Hamburg Univ. of Applied Sciences)

16:10-16:30   ThAT1.3
*Optimization of Recombinant Enzyme Production with Pichia
Pastoris in an Integrated Industrial Scale-Down Production Plant*,
pp. 293-298.
Loegering, Kai (Hamburg Univ. of Applied Sciences), Luttmann,
Reiner (Hamburg Univ. of Applied Sciences)

16:30-16:50   ThAT1.4
*Design and Optimization of a Two-Stage Bioreactor with Cellular
Recycling for Intensive Ethanol Production*, pp. 299-304.
Aceves-Lara, Cesar-Arturo (INSA), Bideaux, Carine (Univ. de
Toulouse ; UPS, INSA, INP, LISBP; F-31077Toulouse),
Alfenore, Sandrine (Univ. de Toulouse ; UPS, INSA, INP,
LISBP ; F-31077 Toulous), Molina-Jouve, Carole (Univ. de
Toulouse ; UPS, INSA, INP, LISBP ; F-31077 Toulous), Roux,
Gilles (LAAS)

16:50-17:10   ThAT1.5
*Determination of the Optimal Periodic Waveform for a Continuous
Fermentation Process*, pp. 305-310.
D'Avino, Gaetano (Univ. "Federico II" of Naples (ITALY)),
Crescitelli, Silvestro (Dipartimento di Ingegneria Chimica Univ.
degli Studi di Nap), Maffettone, Pier Luca (Dipartimento di
Ingegneria Chimica Univ. degli Studi di Nap), Grosso,
Massimiliano (Univ. degli Studi di Cagliari)

ThAT2   Room A
Food Engineering (Regular Session)
Chair: Van Impe, Jan F.M.   Katholieke Univ. Leuven

15:30-15:50   ThAT2.1
Neural Predictive Control of Broiler Chicken Growth, pp. 311-316.
Demmers, Theo (Royal Veterinary Coll.), Cao, Yi (Cranfield
Univ.), Gauss, Sophie (The Royal Veterinary Coll.), Lowe, John
(the Royal Veterinary Coll.), Parsons, David (Cranfield Univ.),
Wathes, Christopher (The Royal Veterinary Coll.)

15:50-16:10   ThAT2.2
Model-Based Process Control for Optimised Banana Ripening, pp.
317-322.
Toemmers, Stefanie (Hochschule Bremen), Kuhnen, Florian

(Univ. of Applied Sciences Bremen), Blesgen, Andree (Univ. of
Applied Sciences Bremen), Esdorn, Lothar (Univ. Deutschland
GmbH), Hass, Volker C. (Univ. of Applied Sciences Bremen)

16:10-16:30   ThAT2.3
*Sensitivity Analysis of a Two-Dimensional Microbiological Risk
Assessment*, pp. 323-328.
Busschaert, Pieter (Katholieke Univ. Leuven), Geeraerd,
Annemie (Katholieke Univ. Leuven), Uyttendaele, Mieke (Ghent
Univ.), Van Impe, Jan F.M. (Katholieke Univ. Leuven)

16:30-16:50   ThAT2.4
*Individual-Based Modelling of Non-Motile Bacterial Colony
Formation in Structured Foods: A Comparative Study*, pp. 329-334.
Verhulst, Anke JM (Katholieke Univ. Leuven), Cappuyns, Astrid
M. (Katholieke Univ. Leuven), Van Derlinden, Eva (KULeuven),
Bernaerts, Kristel (Katholieke Univ. Leuven), Van Impe, Jan
F.M. (Katholieke Univ. Leuven)

16:50-17:10   ThAT2.5
*Identi_fication of Simple Mass Balance Models for Plant Growth -
towards Food Production on Manned Space Missions*, pp.
335-340.
Maclean, Heather (Univ. catholique de Louvain), Dochain,
Denis (Univ. Catholique de Louvain)

17:10-17:30   ThAT2.6
*Modeling of Twin-Screw Reactive Extrusion: Application to Alginate
Extraction*, pp. 341-346.
Baron, Régis (IFREMER), Vauchel, Peggy (Univ. Lille1),
Arhaliass, Abdellah (Univ.)

FrMT1   Room ZVH
Anaerobic Digestion (wastewater Treatment) (Regular Session)
Chair: Pons, Marie-Noelle   ENSIC

08:30-08:50   FrMT1.1
*Dynamic Simulation of Anaerobic Digestion of Farm Residues
Using ADM1*, pp. 347-352.
Pons, Marie-Noelle (ENSIC), Adouani, Nouceiba (Nancy Univ.),
Luo, Man (Nancy Univ.), Pacaud, Stéphane (Nancy Univ. INPL)

08:50-09:10   FrMT1.2
Operator Training Simulator for Anaerobic Digestion Processes,
pp. 353-358.
Blesgen, Andree (Univ. of Applied Sciences Bremen), Hass,
Volker C. (Univ. of Applied Sciences Bremen)

09:10-09:30   FrMT1.3
*The Estimation of Stability Boundaries for an Anaerobic Digestion
System*, pp. 359-364.
Sbarciog, Mihaela (Ghent Univ.), Loccufier, Mia (Ghent Univ.),
Noldus, Erik (Ghent Univ.)

09:30-09:50   FrMT1.4
*Modeling of the Anaerobic Digestion of Sewage Sludge: Evaluation
of Several Reactor Configurations*, pp. 365-370.
Donoso-Bravo, Andres (Department of Chemical Engineering
and EnvironmentalTechnology,), Fdz-Polanco, Fernando
(Department of Chemical Engineering and Environmental
Tech.)

09:50-10:10   FrMT1.5
*Equilibria of an Anaerobic Wastewater Treatment Process and
Their Stability*, pp. 371-376.
Benyahia, Boumediene (Univ. of Tlemcen), Sari, Tewfik (Univ.
Haute Alsace Mulhouse), Cherki, Brahim (Univ. of Mulhouse),
Harmand, Jérome (INRA)

FrMT2   Room A
Systems Biology -- IV (Regular Session)
Chair: Bernaerts, Kristel   Katholieke Univ. Leuven

08:30-08:50   FrMT2.1
*A Software Supported Compartmental Modeling Approach for
Paenibacillus Polymyxa*, pp. 377-382.
Violet, Norman (Tech. Univ. Berlin, Germany), Fischer, Erika
(Tech. Univ. Berlin, Germany), Heine, Thomas (Tech. Univ.
Berlin), King, Rudibert (Tech. Univ. of Berlin)

08:50-09:10   FrMT2.2
*A Cybernetic Approach for Modelling of Complex Dynamic
Expression in Recombinant Protein Production with Pichia
Pastoris*, pp. 383-388.
Luttmann, Reiner (Hamburg Univ. of Applied Sciences)

09:10-09:30 FrMT2.3
Constraint-Based Modelling of Chlamydomonas Reinhardtii Photoautotrophic Metabolism, pp. 389-394.
　Cogne, Guillaume (Univ. de Nantes)

09:30-09:50 FrMT2.4
Metabolic Flux and Nutrient Uptake Modeling of Normal and Apoptotic CHO Cells, pp. 395-400.
　Naderi, Saeideh (Univ. of Waterloo), Meshram, Mukesh (Univ. of Waterloo), Wei, Yi-Yun Catherine (Univ. of Waterloo), McConkey, Brendan (Univ. of Waterloo), Ingalls, Brian P. (Univ. of Waterloo), Budman, Hector M. (Univ. of Waterloo), Scharer, Jeno (Univ. of Waterloo)

09:50-10:10 FrMT2.5
Study of the Growth of Escherichia Coli on Mixed Substrates Using Dynamic Flux Balance Analysis, pp. 401-406.
　Joy, Jim (MPI), Kremling, Andreas (Tech. Univ. München)

FrPlenT3 Room ZVH
Plenary Session -- III (Plenary Session)
　Chair: Bogaerts, Philippe　　Univ. Libre de Bruxelles

10:30-11:30 FrPlenT3.1
Monitoring, Control and Optimization of Biosystems: What Are the Stakes?.
　Perrier, Michel (Ec. Pol.)

FrPostersT3 Hall
Poster Session II (Poster Session)

12:00-13:00 FrPostersT3.1
Application of End-Point Control and Trajectory Tracking to Batch Processes, pp. 407-412.
　Lin, Haisheng (Univ. of Manchester), Lennox, Barry (Univ. of Manchester), Marjanovic, Ognjen (Univ. of Manchester)

12:00-13:00 FrPostersT3.2
Automation of an Activated Sludge Wastewater Treatment Plant, pp. 413-418.
　Sanchez, Edgar N. (CINVESTAV), Flores-Torres, Victor Rodolfo (Centro de Enseńanza Técnica Industrial), Beteau, Jean-François (INPG), Carlos-Hernandez, Salvador (Cinvestav, Unidad Saltillo)

12:00-13:00 FrPostersT3.3
Advanced Modelling for Media Composition Optimization of Phototrophic Growth, pp. 419-424.
　Salazar, Rodolfo (Univ. de Guadalajara), Lippe, Kai (Tech. Univ. Braunschweig), Alcaraz-Gonzalez, Victor (Univ. of Guadalajara-CUCEI), Franco-Lara, Ezequiel (Tech. Univ. Braunschweig)

12:00-13:00 FrPostersT3.4
Neural Observer for an Abattoir Wastewater Treatment Process, pp. 425-430.
　Carlos-Hernandez, Salvador (Cinvestav, Unidad Saltillo), Sanchez, Edgar N. (CINVESTAV), Belmonte Izquierdo, Ruben (Cinvestav Guadalajara), Diaz Jimenez, Lourdes (Cinvestav Saltillo)

12:00-13:00 FrPostersT3.5
Identification of the Growth Model Parameters for a Culture of Chlorella Vulgaris in a Photobioreactor, pp. 431-436.
　Filali, Rayen (SUPELEC), Tebbani, Sihem (Supelec), Dumur, Didier (Ec. Superieure d'Electricite), Isambert, Arsene (Ec. Centrale Paris), Pareau, Dominique (Ec. Centrale Paris), Lopes, Filipa (Ec. Centrale Paris)

12:00-13:00 FrPostersT3.6
Metabolic Flux Analysis of CHO-320 Cells: Underdetermined Network and Effect of Measurement Errors, pp. 437-442.
　Zamorano, Francisca (Univ. de Mons), Vande Wouwer, Alain (Univ. de Mons), Bastin, Georges (Univ. Catholique de Louvain)

12:00-13:00 FrPostersT3.7
A Multinomial Model of Tumour Growth Treated by Radiotherapy, pp. 443-448.
　Keinj, Roukaya (IECN, Univ. Henri Poincaré), Bastogne, Thierry (Univ. Henri Poincaré, Nancy 1), Vallois, Pierre (Nancy-Univ. CNRS)

12:00-13:00 FrPostersT3.8
An Approach for the Study of Energy Regulated Pathways in Parkinson's Disease, pp. 449-454.

Poliquin, Pierre O. (École Pol. de Montréal), Cloutier, Mathieu (Biotechnology Res. Inst. - National Res. Council of), Perrier, Michel (Ec. Pol.), Jolicoeur, Mario (École Pol. de Montréal)

12:00-13:00 FrPostersT3.9
Characterization of Non Point Source Pollutants and Their Control in Lake Victoria: A Case Study of Gaba Landing Site Uganda, pp. 455-460.
　Banadda, Noble (Makerere Univ.), Nhapi, Innocent (Univ. of Zimbabwe), Wali, Umaru Garba (National Univ. of Rwanda)

FrAT1 Room A
Metabolic Modelling (Regular Session)
　Chair: Klapa, Maria　　Foundation for Res. and Tech.

14:00-14:20 FrAT1.1
Modelling and Simulation of Budding Yeast Cultures, pp. 461-466.
　Neymann, Tobias Claus (TU Dortmund), Wegerhoff, Sven (TU Dortmund), Engell, Sebastian (TU Dortmund)

14:20-14:40 FrAT1.2
Modeling the Progression of Apoptosis in Chinese Hamster Ovary Cells, pp. 467-472.
　Meshram, Mukesh (Univ. of Waterloo), Wei, Yi-Yun Catherine (Univ. of Waterloo), Naderi, Saeideh (Univ. of Waterloo), McConkey, Brendan (Univ. of Waterloo), Ingalls, Brian P. (Univ. of Waterloo), Budman, Hector M. (Univ. of Waterloo), Scharer, Jeno (Univ. of Waterloo)

14:40-15:00 FrAT1.3
Engineering of the Human Cell Line HEK293 to Enhance Recombinant Protein Production, pp. 473-478.
　Henry, Olivier (Ec. Pol. de Montréal), Durocher, Yves (Biotechnology Res. Inst.)

15:00-15:20 FrAT1.4
A Kinetic Modelling Approach to Study the Role of Energy Regulatory Pathways in Chinese Hamster Ovary Cells, pp. 479-484.
　Ghorbaniaghdam, Atefeh (Ec. Pol. de montreal), Henry, Olivier (Ec. Pol. de Montréal), Jolicoeur, Mario (École Pol. de Montreal)

15:20-15:40 FrAT1.5
Simple Metabolic Modelling of Vero Cell Growth on Glucose in Fixed-Bed Bioreactors, pp. 485-490.
　Friesewinkel, Pierre (Univ. Libre de Bruxelles), Niu, Hongxing (Univ. Libre de Bruxelles), Drugmand, Jean-Christophe (Artelis s.a.), Bogaerts, Philippe (Univ. Libre de Bruxelles)

15:40-16:00 FrAT1.6
*Metabol[{ ic• æ Ář [|^&˘ |æ Á⍁ æ̌ • ã Á/[|/âᶾ Á�älᶜ^||Á ̂Ṽ |c˘ ¦^ Ò̰ *ᶘ ^^˙/ᶘ *, pp. 491-495.
　Vernardis, Spyros (Foundation for Res. and Tech.), Chrysanthopoulos, Panagiotis (Foundation for Res. and Tech.), Goudar, Chetan (Bayer HealthCare), Klapa, Maria (Foundation for Res. and Tech.)

FrAT2 Room ZVH
Modeling and Identification II (Regular Session)
　Chair: Alonso, Antonio A.　　IIM-CSIC

14:00-14:20 FrAT2.1
Dynamical Modeling of Alcoholic Fermentation and Its Link with Nitrogen Consumption, pp. 496-501.
　David, Robert (Faculté Pol. de Mons), Dochain, Denis (Univ. Catholique de Louvain), Vande Wouwer, Alain (Univ. de Mons)

14:20-14:40 FrAT2.2
Modeling and Simulation of Single Cell Protein Production, pp. 502-507.
　Jorgensen, John Bagterp (Tech. Univ. of Denmark), Jřrgensen, Sten Bay (Tech. Univ. of Denmark)

14:40-15:00 FrAT2.3
Modelling the Environmental Variable Influences on the Detoxification Kinetics on Mussels Mytilus Edulis Containing Lipophilic Toxins, pp. 508-512.
　Guéguen, Marielle (Univ. of Caen), Baron, Régis (IFREMER), Duinker, Arne (National Inst. of Nutrition and Seafood Res.), Aasen, John A. B. (Norwegian School of Veterinary Science), Naustvoll, Lars Johan (Inst. of Marine Res. Flřdevigen)

15:00-15:20 FrAT2.4
Quantification of MTBE and TBA Biodegradation, pp. 513-518.
　Cappuyns, Astrid M. (Katholieke Univ. Leuven), Debor, Linde J.

(VITO), Smets, Ilse (Biotec - Bioprocess Tech. And Control), Springael, Dirk (Katholieke Univ. Leuven), Bastiaens, Leen (VITO), Van Impe, Jan F.M. (Katholieke Univ. Leuven)

15:20-15:40   FrAT2.5

Modeling Microbial Kinetics As a Function of Temperature: Identification of the Growth/inactivation Interface, pp. 519-524.
Van Derlinden, Eva (KULeuven), Van Impe, Jan F.M. (Katholieke Univ. Leuven)

15:40-16:00   FrAT2.6

Modelling Thermal Stability Changes Upon Mutations in Proteins with Artificial Neural Networks, pp. 525-530.
Folch, Benjamin (Univ. Libre de Bruxelles), Rooman, Marianne (Univ. Libre de Bruxelles), Dehouck, Yves (Univ. Libre de Bruxelles)