MoPL Room T1

Plenary I Manfred Morari: "Process Control and Beyond" (Plenary Session)

Chair: Skogestad, Sigurd — Norwegian Univ. of Science & Tech

Co-Chair: Budman, Hector M. — Univ. of Waterloo

09:00-09:55 MoPL.1

*Process Control and Beyond**.

Morari, Manfred — ETH Zurich

MoA1 Room T3

Performance and Fault Monitoring I (Regular Session)

Chair: Tulsyan, Aditya — Massachusetts Inst. of Tech

Co-Chair: Bollas, George — Univ. of Connecticut

10:30-10:50 MoA1.1

Reachability-Based Fault Detection Method for Uncertain Chemical Flow Reactors, pp. 1-6.

Tulsyan, Aditya — Massachusetts Inst. of Tech

Barton, Paul — Massachusetts Inst. of Tech

10:50-11:10 MoA1.2

Method of Fault Identiability through Aerospace Built-In Test Applications, pp. 7-12.

Palmer, Kyle — Univ. of Connecticut

Hale, William — Univ. of Connecticut

Han, Lu — Univ. of Connecticut

Jacobson, Clas — United Tech. Corp

Bollas, George — Univ. of Connecticut

11:10-11:30 MoA1.3

Isolation of Plant-Wide Faults Using Causality Detection Methods, pp. 13-18.

Garcia, Guilherme — UFES

Munaro, Celso Jose — Federal Univ. of Espirito Santo

11:30-11:50 MoA1.4

Energy-Based Visualisation of a Counter-Flow Heat Exchanger for the Purpose of Fault Identification, pp. 19-24.

Uren, Kenneth Richard — North-West Univ

van Schoor, George — North-West Univ

MoA2 Room T1

Advances in Predictive Control (Invited Session)

Chair: Zavala, Victor M. — Univ. of Wisconsin-Madison

Co-Chair: Mesbah, Ali — Univ. of California, Berkeley

Organizer: Mesbah, Ali — Univ. of California, Berkeley

Organizer: Zavala, Victor M. — Univ. of Wisconsin-Madison

10:30-10:50 MoA2.1

Data-Driven Plant-Model Mismatch Quantification in Model Predictive Control (I), pp. 25-30.

Wang, Siyun — The Univ. of Texas at Austin

Simkoff, Jodie — The Univ. of Texas at Austin

Baldea, Michael — The Univ. of Texas at Austin

Chiang, Leo — The Dow Chemical Company

Castillo, Ivan — The Dow Chemical Company

Bindlish, Rahul — Dow Chemical Company

Stanley, David — The Dow Chemical Company

10:50-11:10 MoA2.2

A Stable and Robust NMPC Strategy with Reduced Models and Nonuniform Grids (I), pp. 31-36.

Yu, Mingzhao — Carnegie Mellon Univ

Biegler, Lorenz T. — Carnegie Mellon Univ

11:10-11:30 MoA2.3

A Robust NMPC Scheme for Semi-Batch Polymerization Reactors (I), pp. 37-42.

Jang, Hong — Korea Advanced Inst. of Science and Tech

Lee, Jay H. — KAIST

Biegler, Lorenz T. — Carnegie Mellon Univ

11:30-11:50 MoA2.4

New Architectures for Hierarchical Predictive Control (I), pp. 43-48.

Zavala, Victor M. — Univ. of Wisconsin-Madison

11:50-12:10 MoA2.5

Stochastic Model Predictive Control with Integrated Experiment Design for Nonlinear Systems (I), pp. 49-54.

Bavdekar, Vinay — Univ. of California, Berkeley

Mesbah, Ali — Univ. of California, Berkeley

MoA3 Room T4

Control and Optimization of Batch Processes (Regular Session)

Chair: Budman, Hector M. — Univ. of Waterloo

Co-Chair: Bonvin, Dominique — EPFL

10:30-10:50 MoA3.1

DRSM Model for the Optimization and Control of Batch Processes, pp. 55-60.

Wang, Zhenyu — Tufts Univ

Klebanov, Nikolai — Tufts Univ

Georgakis, Christos — Tufts Univ

10:50-11:10 MoA3.2

Batch-To-Batch Optimization of Chemical Processes in the Presence of Model-Plant Mismatch Using a Variable Subset of Model Parameters, pp. 61-66.

Hille, Rubin — Univ. of Waterloo

Budman, Hector M. — Univ. of Waterloo

11:10-11:30 MoA3.3

A Novel Algorithm for Design of Mixed Energy-Integrated Batch Process Networks, pp. 67-72.

Shahane, Parikshit — Inst. of Chemical Tech

Jogwar, Sujit — Inst. of Chemical Tech

11:30-11:50 MoA3.4

On the Use of Shape Constraints for State Estimation in Reaction Systems, pp. 73-78.

Srinivasan, Sriniketh — EPFL

Dhurvas, Darsha Kumar — Indian Inst. of Tech. Madras

Billeter, Julien — EPFL

Narasimhan, Shankar — Indian Inst. of Tech. Madras, INDIA

Bonvin, Dominique — EPFL

11:50-12:10 MoA3.5

NCO-Tracking with Changing Set of Active Constraints Using Multiple Solution Models, pp. 79-84.

Ebrahim, Taher Sabry ElSayed Gomaa — Tech. Univ. Dortmund

Hernandez, Reinaldo — TU Dortmund

Subramanian, Sankaranarayanan — TU Dortmund

Kalliski, Marc	TU Dortmund, Faculty Biochemical and Chemical Engineering, Proce
Kraemer, Stefan	INEOS Koeln
Engell, Sebastian	TU Dortmund

MoA4 Room T2

Bioreactor Process Observers and Optimization (Regular Session)

Chair: Perrier, Michel	Ec. Pol
Co-Chair: Bogaerts, Philippe	Univ. Libre De Bruxelles

10:30-10:50 MoA4.1

Cascade Observer Design for a Class of Nonlinear Uncertain Systems - Application to Bioreactor, pp. 85-90.

Hernandez-Gonzalez, Omar	Unicaen Cenidet
Ménard, Tomas	Univ. De Caen
Targui, Boubekeur	Ucbn Greyc Auto Umr 6072, Cnrs
Farza, Mondher	Univ. De Caen, ENSICAEN
M'Saad, Mohammed	GREYC
Astorga Zaragoza, Carlos Manuel	Centro Nacional De Investigación Y Desarrollo Tecnológico

11:10-11:30 MoA4.3

Multi-Objective Optimal Control Study of Fed-Batch Bio-Reactor, pp. 91-96.

Padhiyar, Nitin	Indian Inst. of Tech. Gandhinagar
Patel, Narendra	Vishwakarma Government Engineering Coll. Chandkheda

11:30-11:50 MoA4.4

Smooth Extremum-Seeking Control for Fed-Batch Processes, pp. 97-102.

Jamilis, Martín	Group of Control Applications, LEICI Inst. La Plata Nationa
Garelli, Fabricio	Univ. of La Plata
De Battista, Hernán	Fundacion Facultad De Ingenieria

11:50-12:10 MoA4.5

Greedy Extremum Seeking Control with Applications to Biochemical Processes, pp. 103-108.

Trollberg, Olle	KTH, Royal Inst. of Tech
Jacobsen, Elling	KTH Royal Inst. of Tech

11:50-12:10 MoA4.6

Staged Microbial Fuel Cells with Periodic Connection of External Resistance, pp. 109-114.

Recio Garrido, Didac	Pol. of Montreal
Tartakovsky, Boris	National Res. Council of Canada
Perrier, Michel	Ec. Pol

MoB1 Room T2

Process Optimization and Plantwide Control I (Regular Session)

Chair: Bollas, George	Univ. of Connecticut

13:00-13:20 MoB1.1

A Model-Based Framework for Dynamic Optimization in Power Generation Systems, pp. 115-120.

Han, Lu	Univ. of Connecticut
Bollas, George	Univ. of Connecticut

13:20-13:40 MoB1.2

Subset Measurement Selection for Self-Optimizing Control of Tennessee Eastman Process, pp. 121-126.

Ye, Lingjian	Ningbo Inst. of Tech. Zhejiang Univ
Cao, Yi	Cranfield Univ
Yuan, Xiaofeng	Zhejiang Univ
Song, Zhi-Huan	Zhejiang Univ

13:40-14:00 MoB1.3

Optimal PID Control of Double Integrating Processes, pp. 127-132.

Grimholt, Chriss	Norwegian Univ. of Science and Tech. (NTNU)
Skogestad, Sigurd	Norwegian Univ. of Science & Tech

MoB2 Room T1

Model Based Control I (Regular Session)

Co-Chair: Petit, Nicolas	MINES ParisTech

13:00-13:20 MoB2.1

Robust Optimization of Water-Flooding in Oil Reservoirs Using Risk Management Tools, pp. 133-138.

Siraj, Muhammad Mohsin	Eindhoven Univ. of Tech
Van den Hof, Paul M.J.	Eindhoven Univ. of Tech
Jansen, Jan Dirk	Delft Univ. of Tech

13:20-13:40 MoB2.2

Dual Control and Information Gain in Controlling Uncertain Processes, pp. 139-144.

La, Huu Chuong	Univ. of Heidelberg
Potschka, Andreas	Heidelberg Univ
Schloeder, Johannes P.	Heidelberg Univ
Bock, Hans Georg	Univ. of Heidelberg

13:40-14:00 MoB2.3

Run-To-Run Control with Nonlinearity and Delay Uncertainty, pp. 145-152.

Clerget, Charles-Henri	Total RC\Mines ParisTech
Grimaldi, Jean-Philippe	Total RC
Chèbre, Mériam	TOTAL Refining and Marketing
Petit, Nicolas	MINES ParisTech

MoB3 Room T4

Control Applications in Chromatographic Separation Processes (Regular Session)

Chair: Vande Wouwer, Alain	Univ. De Mons
Co-Chair: Ionescu, Clara	Ghent Univ

13:00-13:20 MoB3.1

Control of Incomplete Separation in Simulated Moving Bed Chromatographic Processes, pp. 153-158.

Suvarov, Paul	Univ. De Mons
Vande Wouwer, Alain	Univ. De Mons
Lee, Ju Weon	Max Planck Inst. for Dynamics of Complex Tech. Systems
Seidel-Morgenstern, Andreas	Otto-Von-Guericke Univ
Kienle, Achim	Univ. Magdeburg

13:20-13:40 MoB3.2

A Centralized/decentralized Control Approach for Periodic Systems with Application to Chromatographic Separation Processes, pp. 159-164.

Papathanasiou, Maria	Imperial Coll. London
Sun, Muxin	Imperial Coll. London
Oberdieck, Richard	Imperial Coll. London
Mantalaris, Athanasios	Imperial Coll. London

Pistikopoulos, Efstratios N.	Texas A&M Univ

13:40-14:00 MoB3.3

An Optimization-Driven Novel Operation of Simulated Moving Bed Chromatographic Separation, pp. 165-170.

S V, Vignesh	IIT Bombay
Hariprasad, K	Univ. of Alberta
Athawale, Pratik	IIT Bombay
Bhartiya, Sharad	IIT Bombay

MoB4 Room T3

Control Applications I (Regular Session)

Chair: Boiroux, Dimitri	Tech. Univ. of Denmark
Co-Chair: Olivier, Laurentz Eugene	Sasol / Univ. of Pretoria

13:00-13:20 MoB4.1

On the Significance of the Noise Model for the Performance of a Linear MPC in Closed-Loop Operation, pp. 171-176.

Hagdrup, Morten	Tech. Univ. of Denmark
Boiroux, Dimitri	Tech. Univ. of Denmark
Mahmoudi, Zeinab	Tech. Univ. of Denmark
Madsen, Henrik	Tech. Univ. of Denmark
Poulsen, Niels Kjølstad	Tech. Univ. of Denmark
Poulsen, Bjarne	Tech. Univ. of Denmark
Jorgensen, John Bagterp	Tech. Univ. of Denmark

13:20-13:40 MoB4.2

Fault-Tolerant Nonlinear MPC Using Particle Filtering, pp. 177-182.

Olivier, Laurentz Eugene	Sasol / Univ. of Pretoria
Craig, Ian	Univ. of Pretoria

13:40-14:00 MoB4.3

Optimal Boundary Control of a Contact Thawing Process for Foodstuff, pp. 183-188.

Backi, Christoph Josef	Norwegian Univ. of Science and Tech
leth, john	Aalborg Univ
Gravdahl, Jan Tommy	Norwegian Univ. of Science & Tech

MoC1 Room T2

Computer Applications in Biology and Biotechnology (Poster Session)

Chair: Smets, Ilse	KU Leuven, Department of Chemical Engineering, CREaS

14:00-14:30 MoC1.1

Sensor Configuration Problem: Application to a Membrane Separation Unit, pp. 189-194.

Saltik, Bahadir	Department of Electrical Engineering, Eindhoven Univ. of Te
Ozkan, Leyla	Tech. Univ. of Eindhoven
Weiland, Siep	Eindhoven Univ. of Tech
Van den Hof, Paul M.J.	Eindhoven Univ. of Tech

14:00-14:30 MoC1.2

Chemical Recognition Using the Time-Dependent Cellular Response Profile, pp. 195-199.

Chen, Jiao	Changzhou Coll. of Information and Tech
Xu, KaiLi	JiangSu Univ
Pan, Tianhong	Jiangsu Univ
Li, Haoran	Jiangsu Univ
Li, Zhengming	Jiangsu Univ

14:00-14:30 MoC1.3

In Silico Cell Cycle Predictor for Mammalian Cell Culture Bioreactor Using Agent-Based Modeling Approach, pp. 200-205.

Bayrak, Elif Seyma	Illinois Inst. of Tech
Wang, Tony	Amgen Inc
Jerums, Matt	Amgen
Coufal, Myra	Amgen
Goudar, Chetan	Amgen
Cinar, Ali	Illinois Inst. of Tech
Undey, Cenk	Amgen Inc

14:00-14:30 MoC1.4

On the Applicability of Deterministic Approximations to Model Genetic Circuits, pp. 206-211.

Pájaro, Manuel	IIM-CSIC
Alonso, Antonio A.	IIM-CSIC

14:00-14:30 MoC1.5

Model Development for Phosphate Recovery from Acidic Wastewater, pp. 212-217.

Sbarciog, Mihaela	Mons Univ
Vande Wouwer, Alain	Univ. De Mons

14:00-14:30 MoC1.6

Optimization of a Microalgae Growth Process in Photobioreactors, pp. 218-223.

Ifrim, George Adrian	Dunarea De Jos Univ
TITICA, Mariana	Univ. of Nantes
Barbu, Marian	Dunarea De Jos Univ. of Galati
Ceanga, Emil	Univ. Dunarea De Jos
Caraman, Sergiu	Dunarea De Jos Univ

14:00-14:30 MoC1.7

Unmeasured Concentrations and Reaction Rates Estimation in CSTRs, pp. 224-229.

Lopez-Caamal, Fernando	Univ. Nacional Autonoma De Mexico-UNAM
Moreno, Jaime A.	Univ. Nacional Autonoma De Mexico-UNAM

14:00-14:30 MoC1.8

Dynamic Microorganism Growth Modeling for Shelf Life Prediction : Application to Cooked and Brined Shrimps, pp. 230-235.

Diallo, Mamadou Aliou	Univ. Cheikh Anta Diop (Dakar), Mathematics-Informatics Dep
Bogaerts, Philippe	Univ. Libre De Bruxelles

14:00-14:30 MoC1.9

Plant Growth Modelling : From Experimental Design to Modelling - the Arabidopsis Experiment, pp. 236-241.

Dochain, Denis	Univ. Catholique De Louvain
Maclean, Heather	Univ. Catholique De Louvain

14:00-14:30 MoC1.10

Time-Optimal Control and Parameter Estimation of Diafiltration Processes in the Presence of Membrane Fouling, pp. 242-247.

Jelemensky, Martin	Slovak Univ. of Tech. in Bratislava
Klauco, Martin	Slovak Univ. of Tech. in Bratislava
Paulen, Radoslav	Tech. Univ. Dortmund
Lauwers, Joost	Katholieke Univ. Leuven
Logist, Filip	Katholieke Univ. Leuven

Van Impe, Jan F.M. — KU Leuven
Fikar, Miroslav — Slovak Univ. of Tech. in Bratislava

MoC2 Room T1
Model Based Control (Poster Session)

Chair: Trifkovic, Milana — Univ. of Calgary
Co-Chair: Imsland, Lars — Norwegian Univ. of Science and Tech

14:00-14:30 MoC2.1

Nonlinear Model Predictive Controller for Kick Attenuation in Managed Pressure Drilling, pp. 248-253.
Nandan, Anirudh — Memorial Univ. of Newfoundland
Imtiaz, Syed — Memorial Univ

14:00-14:30 MoC2.2

Robust Control for a Multi-Stage Evaporation Plant in the Presence of Uncertainties, pp. 254-259.
Nguyen, Philipp — Aalto Univ
Tenno, Robert — Aalto Univ. School of Electrical Engineering

14:00-14:30 MoC2.3

Dual Mode MPC for a Concentrated Solar Thermal Power Plant, pp. 260-265.
Alsharkawi, Adham — Univ. of Sheffield
Rossiter, J. Anthony — Univ. of Sheffield

14:00-14:30 MoC2.4

Dual MPC with Reinforcement Learning, pp. 266-271.
Morinelly, Juan E. — Carnegie Mellon Univ
Ydstie, B. Erik — Carnegie Mellon

14:00-14:30 MoC2.5

Energy Management of a Microgrid Via Parametric Programming, pp. 272-277.
Umeozor, Eva Chinedu — Univ. of Calgary
Trifkovic, Milana — Univ. of Calgary

14:00-14:30 MoC2.6

Control of an Exothermic Packed-Bed Tubular Reactor, pp. 278-283.
Najera, Isrrael — Univ. Autónoma Metropolitana-Iztapalapa
Alvarez, Jesus — Univ. Autonoma Metropolitana
Baratti, Roberto — Univ. Degli Studi Di Cagliari
Sotres, César — Univ. Autónoma Metropolitana Unidad Iztapalapa

14:00-14:30 MoC2.7

PID Controller Tuning for Unstable Processes Using a Multiobjective Optimisation Design Procedure, pp. 284-289.
Reynoso-Meza, Gilberto — Pontificia Univ. Católica De Paraná
Carrillo-Ahumada, J. — Univ. Del Papaloapan
Boada, Yadira — Univ. Pol. De València
Picó, Jesús — Univ. Pol. De Valencia

14:00-14:30 MoC2.8

Numerical Optimal Control Mixing Collocation with Single Shooting: A Case Study, pp. 290-295.
Albert, Anders — Norwegian Univ. of Science and Tech
Imsland, Lars — Norwegian Univ. of Science and Tech
Haugen, Joakim — Norwegian Univ. of Science and Tech

MoC3 Room T3
Modelling and System Identification (Poster Session)

Chair: McAuley, K.B. — Queen's Univ
Co-Chair: Lee, Jong Min — Seoul National Univ

14:00-14:30 MoC3.1

Robust Automatic Choke Control – Physical Constraint Based Operation, pp. 296-301.
Kittilsen, Pål — Statoil ASA
Fjalestad, Kjetil — Statoil ASA
Sperle, Ingvild Løvik — Statoil R&D
Aasheim, Robert — Statoil ASA

14:00-14:30 MoC3.2

Control of Reversible Degradation Mechanisms in Fuel Cells: Mitigation of CO Contamination, pp. 302-307.
Tjønnås, Johannes — SINTEF
Zenith, Federico — SINTEF
Halvorsen, Ivar J. — Sintef Ict
Klages, Merle — Zentrum Für Sonnenenergie Und Wasserstoff-Forschung BW (ZSW)
Scholta, Joachim — Zentrum Für Sonnenenergie Und Wasserstoff-Forschung BW (ZSW)

14:00-14:30 MoC3.3

Evaluation of Experiment Designs for MIMO Identification by Cross-Validation, pp. 308-313.
Häggblom, Kurt-Erik — Åbo Akademi Univ

14:00-14:30 MoC3.4

Energy-Based Visualisation of an Axial-Flow Compressor System for the Purposes of Fault Detection and Diagnosis, pp. 314-319.
Fouché, Lourie — North-West Univ
Uren, Kenneth Richard — North-West Univ
van Schoor, George — North-West Univ

14:00-14:30 MoC3.5

Fundamental Modeling and Experimental Investigation of Polymer Washing Process, pp. 320-325.
Son, Sang Hwan — Seoul National Univ
Jeong, Dong Hwi — Seoul National Univ
Ryu, Hyun Woog — LG Chem
Han, Joong Jin — LG Chem
Lee, Jong Min — Seoul National Univ

14:00-14:30 MoC3.6

Modelling Combined LNT-Pscr System and Sensitivity Analysis, pp. 326-331.
Kim, Yeonsoo — Seoul National Univ
Jung, Changho — Hyundai Motor Company
Kim, Chang Hwan — Hyundai Motor Company
Kim, Yong-Wha — Hyundai Motor Company
Lee, Jong Min — Seoul National Univ

14:00-14:30 MoC3.7

Agile Control of CO2 Capture Technology for Maximum Operations Revenue, pp. 332-335.
ABDUL MANAF, NORHUDA — Univ. OF SYDNEY
Qadir, Abdul — The Univ. of Sydney
Abbas, Ali — The Univ. of Sydney

MoC4 Room T4
Control Applications/Fault Detection (Poster Session)

Chair: Palazoglu, Ahmet N. — Univ. of California at Davis

14:00-14:30 — MoC4.1

Handling of Variable Wireless Latency and Updating Frequency in PI Controllers, pp. 336-341.

Halvorsen, Ivar J. — Sintef Ict

14:00-14:30 — MoC4.2

Design of a Data-Driven Controller for a Spiral Heat Exchanger, pp. 342-346.

Wakitani, Shin — Tokyo Univ. of Agriculture and Tech

Deng, Mingcong — Tokyo Univ. of Agriculture and Tech

Yamamoto, Toru — Hiroshima Univ

14:00-14:30 — MoC4.3

Active Compressor Surge Control System by Using Piston Actuation: Implementation and Experimental Results, pp. 347-352.

Uddin, Nur — Norwegian Univ. of Science and Tech. (NTNU)

Gravdahl, Jan Tommy — Norwegian Univ. of Science & Tech

14:00-14:30 — MoC4.4

Energy-Based Fault Detection for an Autothermal Reformer, pp. 353-358.

Marais, Henri-Jean — North-West Univ

van Schoor, George — North-West Univ

Uren, Kenneth Richard — North-West Univ

14:00-14:30 — MoC4.5

Sensitivity Based Optimization of the Tri-Reforming Based CO₂ Valorization Process, pp. 359-364.

Dwivedi, Abhishek — IIT Bombay

Gudi, Ravindra — IIT Bombay

Biswas, Pratim — Washington Univ. St Louis

14:00-14:30 — MoC4.6

Effect of Sampling Rate on the Divergence of the Extended Kalman Filter for a Continuous Polymerization Reactor in Comparison with Particle Filtering, pp. 365-370.

Hashemi, Reza — TU Dortmund

Engell, Sebastian — TU Dortmund

14:00-14:30 — MoC4.7

Practical Use of Savitzky-Golay Filtering-Based Ensemble Online SVR, pp. 371-376.

Kaneko, Hiromasa — Tokyo Univ

Matsumoto, Takuya — Mitsui Chemicals, Inc

Ootakara, Shigeki — Mitsui Chemical Inc

Funatsu, Kimito — The Univ. of Tokyo

14:00-14:30 — MoC4.8

Variability Reduction Estimation for SISO Systems through Unmeasured Disturbance Estimation, pp. 377-382.

Lima, Maria — Federal Univ. of Rio Grande Do Sul

Trierweiler, Jorge Otávio — Federal Univ. of Rio Grande Do Sul

Farenzena, Marcelo — Federal Univ. of Rio Grande Do Sul

14:00-14:30 — MoC4.9

Variable Elimination-Based Contribution for Accurate Fault Identification, pp. 383-388.

Satoyama, Yusuke — Kyoto Univ

Fujiwara, Koichi — Kyoto Univ

Kano, Manabu — Kyoto Univ

14:00-14:30 — MoC4.10

Reducing Wear of Sticky Pneumatic Control Valves Using Compensation Pulses with Variable Amplitude, pp. 389-393.

Munaro, Celso Jose — Federal Univ. of Espirito Santo

Castro, Gabriel — Petróleo Brasileiro S.A

Silva, Filipe — Univ. Federal Do Espírito Santo

becerra angarita, oscar fernando — UFES

Cypriano, Marcos Vinicius Gomes — Univ. Federal Do Espírito Santo

14:00-14:30 — MoC4.11

Fault Detection for Simulated Valve Faults in a High Pressure Leaching Process, pp. 394-399.

Miskin, Jason John — Stellenbosch Univ

Lindner, Brian — Stellenbosch Univ

Auret, Lidia — Stellenbosch Univ

Dorfling, Christie — Stellenbosch Univ

Bradshaw, Steven — Stellenbosch Univ

MoD1 — Room T1

Process Optimization and Plantwide Control II (Regular Session)

Chair: Foss, Bjarne — Norwegian Univ. of Science & Tech

Co-Chair: Swartz, Christopher L.E. — McMaster Univ

15:50-16:10 — MoD1.1

Spline Fluid Models for Optimization, pp. 400-405.

Jahanshahi, Esmaeil — Norwegian Univ. of Science & Tech

Grimstad, Bjarne — IO-Center, NTNU and ITK, NTNU

Foss, Bjarne — Norwegian Univ. of Science & Tech

16:10-16:30 — MoD1.2

Closed-Loop Formulation for Nonlinear Dynamic Real-Time Optimization, pp. 406-411.

Jamaludin, Mohammad Zamry — McMaster Univ

Swartz, Christopher L.E. — McMaster Univ

16:30-16:50 — MoD1.3

Real-Time Optimization Based on Adaptation of Surrogate Models, pp. 412-417.

Singhal, Martand — EPFL

Marchetti, Alejandro Gabriel — EPFL

Faulwasser, Timm — EPFL

Bonvin, Dominique — EPFL

16:50-17:10 — MoD1.4

Null-Space Method for Optimal Operation of Transient Processes, pp. 418-423.

de Oliveira, Vinicius — Norwegian Univ. of Science and Tech. (NTNU)

Jäschke, Johannes — Norwegian Univ. of Science & Tech

Skogestad, Sigurd — Norwegian Univ. of Science & Tech

17:10-17:30 — MoD1.5

Performance Improvement of Extremum Seeking Control Using Recursive Least Square Estimation with Forgetting Factor, pp. 424-429.

Chioua, Moncef — ABB Corp. Res. Germany

Srinivasan, B. — Ec. Pol. Montreal

Guay, Martin	Queen's Univ
Perrier, Michel	Ec. Pol

MoD2 Room T3

Micro and Nanotechnology Applications (Invited Session)

Chair: Ricardez-Sandoval, Luis Alberto	Univ. of Waterloo
Co-Chair: Adomaitis, Raymond	Univ. of Maryland
Organizer: Ricardez-Sandoval, Luis Alberto	Univ. of Waterloo

15:50-16:10 MoD2.1

Markov Decision Process Based Time-Varying Optimal Control for Colloidal Self-Assembly (I), pp. 430-435.

Tang, Xun	Georgia Inst. of Tech
Bevan, Michael	Johns Hopkins Univ
Grover, Martha	Georgia Inst. of Tech

16:10-16:30 MoD2.2

Distributional Uncertainty Analysis in Transient Heterogeneous Multiscale Catalytic Flow Reactors (I), pp. 436-441.

Chaffart, Donovan R. G.	Univ. of Waterloo
Ricardez-Sandoval, Luis Alberto	Univ. of Waterloo

16:30-16:50 MoD2.3

Mathematical Modeling and Analysis of Carbon Nanotube Photovoltaic Systems (I), pp. 442-447.

Paulson, Joel	Massachusetts Inst. of Tech
Molaro, Mark C.	Massachusetts Inst. of Tech
Bellisario, Darin O.	Massachusetts Inst. of Tech
Strano, Michael S.	Massachusetts Inst. of Tech
Braatz, Richard D.	Massachusetts Inst. of Tech

16:50-17:10 MoD2.4

Dynamic Dimension Reduction for Thin-Film Deposition Reaction Network Models (I), pp. 448-453.

Adomaitis, Raymond	Univ. of Maryland

17:10-17:30 MoD2.5

A Transfer Entropy Method to Quantify Causality in Stochastic Nonlinear Systems, pp. 454-459.

Gao, Jiaqi	Tsinghua Univ
Tulsyan, Aditya	Massachusetts Inst. of Tech
Yang, Fan	Tsinghua Univ
Gopaluni, Bhushan	Univ. of British Columbia

MoD3 Room T2

Modeling of Biological Systems (Regular Session)

Chair: Guzman, Jose Luis	Univ. of Almeria
Co-Chair: Bar, Nadav S.	Norwegian Univ. of Science and Tech

15:50-16:10 MoD3.1

From MFA to FBA: Legitimating Objective Function and Linear Constraints, pp. 460-465.

Bogaerts, Philippe	Univ. Libre De Bruxelles
Richelle, Anne	Univ
Mhallem Gziri, Khadija	Univ. Libre De Bruxelles, 3BIO-BioControl

16:10-16:30 MoD3.2

Application of Dynamic Metabolic Flux Convex Analysis to CHO-DXB11 Cell Fed-Batch Cultures, pp. 466-471.

Fernandes, Sofia	Univ. of Mons
Robitaille, Julien	Lab. in Applied Metabolic Engineering, Department of Chemi
Bastin, Georges	Univ. Catholique De Louvain
Jolicoeur, Mario	École Pol. De Montreal
Vande Wouwer, Alain	Univ. De Mons

16:30-16:50 MoD3.3

New Iterative Approach (ISNCA) for Constrained Matrix Factorization Methods, pp. 472-477.

Bar, Nadav S.	Norwegian Univ. of Science and Tech
Jayavelu, Naresh D.	Univ. of Turku and Åbo Akademi Univ

16:50-17:10 MoD3.4

Event-Based Selective Control Strategy for Raceway Reactor: A Simulation Study, pp. 478-483.

Pawlowski, Andrzej	UNED
Fernández Sedano, Ignacio	Univ. of Almeria
Guzman, Jose Luis	Univ. of Almeria
Berenguel, Manuel	Univ. of Almeria
Acién Fernández, Francisco Gabriel	Univ. of Almeria
Dormido, Sebastián	UNED

MoD4 Room T4

Inferential Sensing, State Estimation and Sensor Development I (Regular Session)

Chair: Porru, Marcella	Eindhoven Univ. of Tech
Co-Chair: Kano, Manabu	Kyoto Univ

15:50-16:10 MoD4.1

Development of a Moving Window Maximum Likelihood Parameter Estimator and Its Application on Ideal Reactive Distillation System, pp. 484-489.

Valluru, Jayaram	IIT Bombay
Purohit, Jalesh	Chemical Engineering Department, Dharmsinh Desai Univ. Nad
Patwardhan, Sachin C.	Indian Inst. of Tech. Bombay
Biegler, Lorenz T.	Carnegie Mellon Univ

16:10-16:30 MoD4.2

Simulation Study of the Particle Filter and the EKF for State Estimation of a Large-Scale DAE-System with Multi-Rate Sampling, pp. 490-495.

Haßkerl, Daniel	TU Dortmund Univ
Arshad, Momin	TU Dortmund Univ
Hashemi, Reza	TU Dortmund
Subramanian, Sankaranarayanan	TU Dortmund
Engell, Sebastian	TU Dortmund

16:30-16:50 MoD4.3

Systematic Observability and Detectability Analysis of Industrial Batch Crystallizers, pp. 496-501.

Porru, Marcella	Eindhoven Univ. of Tech
Ozkan, Leyla	Tech. Univ. of Eindhoven

16:50-17:10 MoD4.4

Sparse Sample Regression Based Just-In-Time Modeling (SSR-JIT): Beyond Locally Weighted Approach, pp. 502-507.

Uchimaru, Taku	Kyoto Univ
Kano, Manabu	Kyoto Univ

17:10-17:30 MoD4.5

On-Line Full Probability Distribution Identification of ARX Model Parameters Based on Bayesian Approach, pp. 508-513.

Valadkhani, Amir Hosein	APAC Res. Group, Industrial Control Center of Excellence, Fa
Khormali, Aminollah	K. N. Toosi Univ. of Tech
Aliyari Shoorehdeli, Mahdi	K. N. Toosi Univ. of Tech
Khaloozadeh, Hamid	K.N.Toosi Univ. of Tech
Fatehi, Alireza	K.N. Toosi Univ. of Tech

Technical Program for Tuesday June 7, 2016

TuPL Room T1

Plenary II Krister Forsman: "Implementation of Advanced Control in the Process Industry without the Use of MPC" (Plenary Session)

Chair: Imsland, Lars	Norwegian Univ. of Science and Tech
Co-Chair: Skogestad, Sigurd	Norwegian Univ. of Science & Tech

08:15-09:10 TuPL.1

Implementation of Advanced Control in the Process Industry without the Use of MPC, pp. 514-519.

Forsman, Krister	Perstorp AB

TuK1N1 Room T2

Keynote I (Semi-Plenary Session)

Chair: Zavala, Victor M.	Univ. of Wisconsin-Madison
Co-Chair: Budman, Hector M.	Univ. of Waterloo

09:15-09:45 TuK1N1.1

Parsimonious Cooperative Distributed MPC for Tracking Piece-Wise Constant Setpoints, pp. 520-525.

Razzanelli, Matteo	Univ. of Pisa. Department of Information Engineering
Pannocchia, Gabriele	Univ. of Pisa

TuK1N2 Room T1

Keynote III (Semi-Plenary Session)

Chair: Skogestad, Sigurd	Norwegian Univ. of Science & Tech
Co-Chair: Imsland, Lars	Norwegian Univ. of Science and Tech

09:15-09:45 TuK1N2.1

Control Loop Performance Monitoring – ABB's Experience Over Two Decades, pp. 526-532.

Starr, Kevin	ABB Inc
Bauer, Margret	Univ. of the Witwatersrand
Petersen, Heiko	ABB Automation GmbH

TuK2N1 Room T1

Keynote II (Semi-Plenary Session)

Co-Chair: Budman, Hector M.	Univ. of Waterloo

09:45-10:15 TuK2N1.1

Vinyl Acetate Monomer (VAM) Plant Model : A New Benchmark Problem for Control and Operation Study, pp. 533-538.

Machida, Yuta	Omega Simulation Co., Ltd
Ootakara, Shigeki	Mitsui Chemical Inc
Seki, Hiroya	Tokyo Inst. of Tech
Hashimoto, Yoshihiro	Nagoya Inst. of Tech
Kano, Manabu	Kyoto Univ
Miyake, Yasuhiro	Ube Industries, Ltd
Anzai, Naoto	Zeon Corp
SAWAI, MASAYOSHI	ZEON Corp
Katsuno, Takashi	YOKOGAWA ELECTRIC Corp
Omata, Toshiaki	Yokogawa Electric Corp

TuK2N2 Room T2

Keynote IV (Semi-Plenary Session)

Chair: Mulas, Michela	Aalto Univ. - School of Engineering
Co-Chair: Villez, Kris	Eawag
Organizer: Budman, Hector M.	Univ. of Waterloo

09:45-10:15 TuK2N2.1

Operation of an Innovative WWTP with Environmental Objectives. a Model-Based Analysis, pp. 539-543.

Mauricio-Iglesias, Miguel	Univ. De Santiago De Compostela
Garrido, Juan Manuel	Univ. De Santiago De Compostela
Lema, Juan Manuel	Univ. De Santiago De Compostela

TuA1 Room T1

Industrial Control Applications (Regular Session)

Chair: Alsop, Nicholas	Borealis AB
Co-Chair: Li, Qin	Statoil ASA

10:30-10:50 TuA1.1

Modelling and Robustness Analysis of Model Predictive Control of Electrical Submersible Pump Lifted Heavy Oil Wells, pp. 544-549.

Krishnamoorthy, Dinesh	Statoil Res. Centre
Bergheim, Elvira Marie	Statoil
Pavlov, Alexey	Statoil ASA
Fredriksen, Morten	Statoil ASA
Fjalestad, Kjetil	Statoil ASA

10:50-11:10 TuA1.2

Implementing Mid Ranging in a DCS Environment, pp. 550-555.

Alsop, Nicholas	Borealis AB

11:10-11:30 TuA1.3

Robustness Analysis and Tuning for Pressure Control in Managed Pressure Drilling, pp. 556-561.

Li, Qin	Statoil ASA
Kamel, Mina	ETH Zurich

11:30-11:50 TuA1.4

Nonlinear MPC for Grade Transitions in an Industrial LDPE Tubular Reactor, pp. 562-567.

Skalen, Staffan	Borealis AB
Josefsson, Fredrik	Borealis AB
Ihrström, Joakim	Borealis AB

11:50-12:10 TuA1.5

Economic Model Predictive Control (EMPC) of an Industrial Diesel Hydroprocessing Plant, pp. 568-573.

Arkun, Yaman	Koc Univ
aydin, erdal	Koc Univ
IS, GAMZE	TUPRAS

TuA2 Room T3

Model Based Control II (Regular Session)

Chair: Dochain, Denis	Univ. Catholique De Louvain
Co-Chair: Alvarez, Jesus	Univ. Autonoma Metropolitana

10:30-10:50 TuA2.1

Asymptotic Tracking of Periodic Operation Based on Control Contraction Metrics, pp. 574-578.

Wang, Ruigang	Univ. of New South Wales
Bao, Jie	The Univ. of New South Wales

10:50-11:10 TuA2.2

On the Equivalence of Storage Functions in Controlled Thermodynamic Systems, pp. 579-584.

Hoang, Ngoc Ha	Univ. of Tech. (VNU-HCM) and Univ. Cath. De Louvain (Belgiu
Dochain, Denis	Univ. Catholique De Louvain

11:10-11:30 TuA2.3

Geometric-Dissipative Control of Exothermic Continuous Reactors, pp. 585-590.

Alvarez, Jesus	Univ. Autonoma Metropolitana
Franco, Hugo	Univ. Nacional Autónoma De México

11:30-11:50 TuA2.4

Low-Order Feedback-Feedforward Controller for Dead-Time Processes with Measurable Disturbances, pp. 591-596.

Rodríguez, Carlos	UNED
Normey-Rico, Julio Elias	Univ. Federal De Santa Catarina
Guzman, Jose Luis	Univ. of Almeria
Berenguel, Manuel	Univ. of Almeria
Dormido, Sebastián	UNED

11:50-12:10 TuA2.5

Distributed Nonlinear Model Predictive Control by Sequential Linearization and Accelerated Gradient Method, pp. 597-602.

Grancharova, Alexandra	Univ. of Chemical Tech. and Metallurgy
Johansen, Tor Arne	Norwegian Univ. of Science and Tech
Petrova, Valeria	Univ. of Chemical Tech. and Metallurgy

TuA3 Room T2

Bioreactor Process Monitoring and Modeling (Regular Session)

Chair: Reichl, Udo	Max Planck Inst. for Dynamics of Complex Tech
Co-Chair: Gerogiorgis, Dimitrios I.	Univ. of Edinburgh

10:30-10:50 TuA3.1

Segmentation and Quantitative Analysis of Normal and Apoptotic Cells from Fluorescence Microscopy Images, pp. 603-608.

Du, Yuncheng	Univ. of Waterloo
Budman, Hector M.	Univ. of Waterloo
Duever, Thomas	Ryerson Univ

10:50-11:10 TuA3.2

On-Line Monitoring of Substrates and Biomass Using Near-Infrared Spectroscopy and Model-Based State Estimation for Enzyme Production by S. Cerevisiae, pp. 609-614.

Krämer, Dominik	Tech. Univ. Berlin
King, Rudibert	Tech. Univ. Berlin

11:10-11:30 TuA3.3

Dynamic Simulation and Visualisation of Fermentation: Effect of Process Conditions on Beer Quality, pp. 615-620.

Rodman, Alistair R.	Univ. of Edinburgh
Gerogiorgis, Dimitrios I.	Univ. of Edinburgh

11:30-11:50 TuA3.4

Efficient Generation of Models of Fed-Batch Fermentations for Process Design and Control, pp. 621-626.

Hebing, Lukas	TU Dortmund, Process Dynamics and Operations Group
Neymann, Tobias Claus	TU Dortmund
Thüte, Tobias	Bayer HeathCare AG
Jockwer, Alexander	Bayer HeathCare AG
Engell, Sebastian	TU Dortmund

11:50-12:10 TuA3.5

Modelling the Production of Soluble Hydrogenase in Ralstonia Eutropha by On-Line Optimal Experimental Design, pp. 627-632.

Neddermeyer, Flavia	Tech. Univ. Berlin
Marhold, Volker	Tech. Univ. Berlin
Menzel, Christoph	Tech. Univ. Berlin
Krämer, Dominik	Tech. Univ. Berlin
King, Rudibert	Tech. Univ. Berlin

TuA4 Room T4

Application of PSE Tools to CO2 Capture, Utilization and Storage (Invited Session)

Chair: Lee, Jay H.	KAIST
Co-Chair: Ricardez-Sandoval, Luis Alberto	Univ. of Waterloo
Organizer: Lee, Jay H.	KAIST
Organizer: Ricardez-Sandoval, Luis Alberto	Univ. of Waterloo

10:30-10:50 TuA4.1

Advanced Modeling and Control of a Solid Sorbent-Based CO2 Capture Process (I), pp. 633-638.

Omell, Benjamin	West Virginia Univ
Ma, Jinliang	National Energy Tech. Lab
Mahapatra, Priyadarshi	National Energy Tech. Lab
Yu, Mingzhao	Carnegie Mellon Univ
Lee, Andrew	National Energy Tech. Lab
Bhattacharyya, Debangsu	West Virginia Univ
Zitney, Stephen E.	National Energy Tech
Biegler, Lorenz T.	Carnegie Mellon Univ
Miller, David	National Energy Tech. Lab

10:50-11:10 TuA4.2

Dynamic Data Reconciliation and Model Validation of a MEA-Based CO2 Capture System Using Pilot Plant Data (I), pp. 639-644.

Chinen, Anderson Soares	West Virginia Univ
Morgan, Joshua	West Virginia Univ
Omell, Benjamin	West Virginia Univ
Bhattacharyya, Debangsu	West Virginia Univ
Miller, David	National Energy Tech. Lab

11:10-11:30 TuA4.3

Dynamic Simulation and Analysis of a Pilot-Scale CO2 Post-Combustion Capture Unit Using Piperazine and MEA (I), pp. 645-650.

Gaspar, Jozsef	Tech. Univ. of Denmark, Kgs. Lyngby, Denmark
Ricardez-Sandoval, Luis Alberto	Univ. of Waterloo
Jorgensen, John Bagterp	Tech. Univ. of Denmark
Fosbøl, Philip Loldrup	Tech. Univ. of Denmark, Kgs. Lyngby, Denmark

11:30-11:50 TuA4.4

New Performance Indicators for Evaluation of Adsorbents Developed for CO2 Capture with PSA Processes (I), pp. 651-656.

Ga, Seongbin	KAIST
Jang, Hong	Korea Advanced Inst. of Science and Tech
Lee, Jay H.	KAIST

11:50-12:10 TuA4.5

A Sequential Method for Determining Optimal Stripper Pressure and Terminal Pressure in CO2 Capture and Liquefaction Process Using MEA (I), pp. 657-662.

Park, Taekyoon	Seoul National Univ
Bae, Jaehan	Seoul National Univ
Lee, Chang Jun	Pukyong National Univ
Lee, Jong Min	Seoul National Univ

TuB1 Room T1

Process Planning and Scheduling (Regular Session)

Co-Chair: Jogwar, Sujit	Inst. of Chemical Tech

13:00-13:20 TuB1.1

Bi-Level Demand Response Game with Information Sharing among Consumers, pp. 663-668.

Zhang, Zhaohui	Univ. of Southern California
Deng, Ruilong	Univ. of Alberta
yuan, tao	Univ. of Southern California
Qin, S. Joe	Univ. of Southern California

13:20-13:40 TuB1.2

A Pattern-Based Method for Scheduling of Energy-Integrated Batch Process Networks, pp. 669-674.

Mete, Shrikant	Inst. of Chemical Tech
Jogwar, Sujit	Inst. of Chemical Tech

13:40-14:00 TuB1.3

Production Scheduling of an Air Separation Plant, pp. 675-680.

Misra, Shamik	Indian Inst. of Tech. Bombay
Kapadi, Mangesh	Praxair
Gudi, Ravindra	IIT Bombay
R, Srihari	Praxair India Private Limited

14:20-14:40 TuB1.5

Moving Horizon Scheduling of an Air Separation Unit under Fast-Changing Energy Prices, pp. 681-686.

Pattison, Richard C.	The Univ. of Texas at Austin
Touretzky, Cara R.	The Univ. of Texas at Austin
Johansson, Ted	The Univ. of Texas at Austin
Baldea, Michael	The Univ. of Texas at Austin
Harjunkoski, Iiro	ABB AG, Corp. Res

14:20-14:40 TuB1.5

KPIs As the Interface between Scheduling and Control, pp. 687-692.

Bauer, Margret	Univ. of the Witwatersrand
Harjunkoski, Iiro	ABB AG, Corp. Res
Schlake, Jan-Christoph	ABB Corp. Res. Center
Lucke, Matthieu	Univ. of Lund
Johnsson, Charlotta	Lund Univ

TuB2 Room T4

Performance and Fault Monitoring II (Regular Session)

Chair: Palazoglu, Ahmet N.	Univ. of California at Davis
Co-Chair: El-Farra, Nael H.	Univ. of California, Davis

13:00-13:20 TuB2.1

Use of Sparse Principal Component Analysis (SPCA) for Fault Detection, pp. 693-698.

Gajjar, Shriram	Univ. of California, Davis
Palazoglu, Ahmet N.	Univ. of California at Davis
kulahci, Murat	Tech. Univ. of Denmark

13:20-13:40 TuB2.2

Stability Evaluation Based Non-Steady Variable Identification for Online Fault Prognosis, pp. 699-704.

Zhao, Chunhui	Zhejiang Univ
Wang, Wei	China Tobacco Zhejiang Industrial Co. Ltd
GAO, Furong	Hong Kong Univ. of Sci & Tech

13:40-14:00 TuB2.3

Fault Detection of Multimode Processes Using Concurrent Projection to Latent Structures, pp. 705-710.

Zheng, Ying	Huazhong Univ. of Science and Tech
Qin, S. Joe	Univ. of Southern California
Chai, Tianyou	Northeastern Univ

14:00-14:20 TuB2.4

A Model-Based Framework for Fault Estimation and Accommodation Applied to Distributed Energy Resources, pp. 711-716.

Allen, James	Univ. of California, Davis
El-Farra, Nael H.	Univ. of California, Davis

14:20-14:40 TuB2.5

A Data-Driven Fault Detection Method Based on Dissipative Trajectories, pp. 717-722.

Lei, Qingyang	The Univ. of New South Wales
Munir, Muhammad Tajammal	The Univ. of Auckland
Bao, Jie	The Univ. of New South Wales
Young, Brent	Univ. of Auckland

14:40-15:00 TuB2.6

Causal Analysis for Alarm Flood Reduction, pp. 723-728.

Rodrigo Marco, Vicent	Department of Automatic Control, Lund Univ
Chioua, Moncef	ABB Corp. Res. Germany
Hagglund, Tore	Lund Univ
Hollender, Martin	ABB Corp. Res

TuB3 Room T3

Plantwide Control and Distillation (Regular Session)

Chair: Huusom, Jakob Kjøbsted	Tech. Univ. of Denmark
Co-Chair: Kaistha, Nitin	Indian Inst. of Tech. Kanpur

13:00-13:20 TuB3.1

Comparison of Stabilizing Control Structures for Dividing Wall Columns, pp. 729-734.

Qian, Xing	Tianjin Univ
Jia, Shengkun	School of Chemical Engineering and Tech. Tianjin Univ
Skogestad, Sigurd	Norwegian Univ. of Science & Tech
Yuan, Xigang	Tianjin Univ

13:20-13:40 TuB3.2

Integrated Process Design and Control of Multi-Element Reactive Distillation Processes, pp. 735-740.

Mansouri, Seyed Soheil	Tech. Univ. of Denmark
Sales Cruz, Mauricio	Univ. Autonoma

	Metropolitana-Cuajimalpa
Huusom, Jakob Kjøbsted	Tech. Univ. of Denmark
Gani, Rafiqul	CAPEC, Department of Chemical and Biochemical Engineering, Tech

13:40-14:00 TuB3.3

Control System Design for Furnaces with Multiple Parallel Passes, pp. 741-746.

Ojasvi, Ojasvi	Indian Inst. of Tech. Kanpur
Singh, Aryan	IIT Kanpur
Kaistha, Nitin	Indian Inst. of Tech. Kanpur

14:00-14:20 TuB3.4

Optimal Operation and Stabilising Control of the Concentric Heat-Integrated Distillation Column, pp. 747-752.

Bisgaard, Thomas	Tech. Univ. of Denmark
Skogestad, Sigurd	Norwegian Univ. of Science & Tech
Huusom, Jakob Kjøbsted	Tech. Univ. of Denmark
Abildskov, Jens	Tech. Univ. of Denmark

TuB4 Room T2

Modeling and Control Techniques for Artificial Pancreas Systems (Invited Session)

Chair: Cinar, Ali	Illinois Inst. of Tech
Co-Chair: Dassau, Eyal	Harvard Univ
Organizer: Cinar, Ali	Illinois Inst. of Tech

13:00-13:20 TuB4.1

Hybrid Online Sensor Error Detection and Functional Redundancy for Artificial Pancreas Control Systems (I), pp. 753-758.

Feng, Jianyuan	Illinois Inst. of Tech
Turksoy, Kamuran	Illinois Inst. of Tech
Samadi, Sediqeh	Illiinios Inst. of Tech
Hajizadeh, Iman	Illinois Inst. of Tech
Cinar, Ali	Illinois Inst. of Tech

13:20-13:40 TuB4.2

Model Identification Using Continuous Glucose Monitoring Data for Type 1 Diabetes (I), pp. 759-764.

Boiroux, Dimitri	Tech. Univ. of Denmark
Hagdrup, Morten	Tech. Univ. of Denmark
Mahmoudi, Zeinab	Tech. Univ. of Denmark
Poulsen, Niels Kjølstad	Tech. Univ. of Denmark
Madsen, Henrik	Tech. Univ. of Denmark
Jorgensen, John Bagterp	Tech. Univ. of Denmark

13:40-14:00 TuB4.3

The Artificial Pancreas: A Dynamic Challenge (I), pp. 765-772.

Stavdahl, Øyvind	Norwegian Univ. of Science and Tech. (NTNU)
Fougner, Anders Lyngvi	Norwegian Univ. of Science and Tech
Kölle, Konstanze	Norwegian Univ. of Science and Tech
Christiansen, Sverre Christian	Norwegian Univ. of Science and Tech
Ellingsen, Reinold	Norwegian Univ. of Science and Tech
Carlsen, Sven Magnus	Norwegian Univ. of Science and Tech

14:00-14:20 TuB4.4

Retrospective Optimization of Daily Insulin Therapy Parameters: Control Subject to a Regenerative Disturbance Process (I), pp. 773-778.

Patek, Stephen D.	Univ. of Virginia
Lv, Dayu	Univ. of Virginia
Campos-Nanez, Enrique	Univ. of Virginia
Breton, Marc D	Univ. of Virginia

14:20-14:40 TuB4.5

Shaping the MPC Cost Function for Superior Automated Glucose Control (I), pp. 779-784.

Lee, Joon Bok	Univ. of California, Santa Barbara
Gondhalekar, Ravi	Harvard Univ
Dassau, Eyal	Harvard Univ
Doyle, Francis	Harvard Univ

14:40-15:00 TuB4.6

An Automatic Denoising Method with Estimation of Noise Level and Detection of Noise Variability in Continuous Glucose Monitoring, pp. 785-790.

Zhao, Hong	Zhejiang Univ
Zhao, Chunhui	Zhejiang Univ

TuC1 Room T2

Optimization in Systems Biotechnology and Systems Medicine (Invited Session)

Chair: Jacobsen, Elling	KTH Royal Inst. of Tech
Co-Chair: Findeisen, Rolf	Otto-Von-Guericke-Univ. Magdeburg
Organizer: Waldherr, Steffen	Otto-Von-Guericke-Univ. Magdeburg
Organizer: Jacobsen, Elling	KTH Royal Inst. of Tech
Organizer: Findeisen, Rolf	Otto-Von-Guericke-Univ. Magdeburg

15:30-15:50 TuC1.1

Dynamic Flux Balance Analysis of the Metabolism of Microalgae under a Diurnal Light Cycle (I), pp. 791-796.

Baroukh, Caroline	INRA
Steyer, Jean-Philippe	INRA
Bernard, Olivier	INRIA
Chachuat, Benoit	Imperial Coll. London

15:50-16:10 TuC1.2

A Set-Based Optimal Control Approach for Pharmacokinetic / Pharmacodynamic Drug Dosage Design (I), pp. 797-802.

Lucia, Sergio	OvG Univ. of Magdeburg
Schliemann-Bullinger, Monica	Otto-Von-Guericke Univ. Magdeburg
Findeisen, Rolf	Otto-Von-Guericke-Univ. Magdeburg
Bullinger, Eric	Otto-Von-Guericke Univ. Magdeburg

16:10-16:30 TuC1.3

A Two-Loop Optimization Strategy for Multi-Objective Optimal Experimental Design (I), pp. 803-808.

Yu, Hui	Univ. of Strathclyde
Yue, Hong	Univ. of Strathclyde
Halling, Peter	Univ. of Strathclyde

16:30-16:50 TuC1.4

Exploring Design Principles of Gene Regulatory Networks Via Pareto Optimality (I), pp. 809-814.

Otero-Muras, Irene	IIM-CSIC

Banga, Julio R.	IIM-CSIC (Spanish Council for Scientific Res

16:50-17:10 TuC1.5

Robust Target Identification for Drug Discovery (I), pp. 815-820.

Jacobsen, Elling	KTH Royal Inst. of Tech
Nordling, Torbjörn E.M.	National Cheng Kung Univ

17:10-17:30 TuC1.6

Optimization Alternatives for Robust Model-Based Design of Synthetic Biological Circuits, pp. 821-826.

Boada, Yadira	Univ. Pol. De València
Pitarch, Jose Luis	Univ. De Valladolid
Vignoni, Alejandro	Max Planck Inst. of Molecular Cell Biology and Genetics
Reynoso-Meza, Gilberto	Pontificia Univ. Católica De Paraná
Picó, Jesús	Univ. Pol. De Valencia

TuC2 Room T1

Energy and Power Systems (Invited Session)

Chair: Foss, Bjarne	Norwegian Univ. of Science & Tech
Co-Chair: Knudsen, Brage Rugstad	Norwegian Univ. of Science and Tech. (NTNU)
Organizer: Knudsen, Brage Rugstad	Norwegian Univ. of Science and Tech. (NTNU)
Organizer: Foss, Bjarne	Norwegian Univ. of Science & Tech

15:30-15:50 TuC2.1

Optimal Health-Aware Charging Protocol for Lithium-Ion Batteries: A Fast Model Predictive Control Approach (I), pp. 827-832.

Torchio, Marcello	Univ. Degli Studi Di Pavia
Magni, Lalo	Univ. of Pavia
Braatz, Richard D.	Massachusetts Inst. of Tech
Raimondo, Davide Martino	Univ. Degli Studi Di Pavia

15:50-16:10 TuC2.2

Economic Dispatch for Microgrids with Constrained External Power Exchange (I), pp. 833-838.

Zachar, Michael	Univ. of Minnesota
Daoutidis, Prodromos	Univ. of Minnesota

16:10-16:30 TuC2.3

Simulation and Design Methods for Multiphase Multistream Heat Exchangers (I), pp. 839-844.

Watson, Harry	Massachusetts Inst. of Tech
Barton, Paul	Massachusetts Inst. of Tech

16:30-16:50 TuC2.4

Self-Optimizing Control of a Two-Stage Refrigeration Cycle (I), pp. 845-850.

Verheyleweghen, Adriaen	Norwegian Univ. of Science and Tech
Jäschke, Johannes	Norwegian Univ. of Science & Tech

16:50-17:10 TuC2.5

Modifier Adaptation Approach to Deal with Structural and Parametric Uncertainty (I), pp. 851-856.

Rodríguez-Blanco, Tania	Univ. of Valladolid
Sarabia, Daniel	Univ. of Burgos
de Prada, Cesar	Univ. of Valladolid

17:10-17:30 TuC2.6

Economic Optimization of Sawmill Residues Collection for Bioenergy Conversion (I), pp. 857-862.

Zamar, David Sebastian	Univ. of British Columbia
Gopaluni, Bhushan	Univ. of British Columbia
Sokhansanj, Shahab	Department of Chemical and Biological Engineering, Univ. Of
Ebadian, Mahmood	Department of Chemical and Biological Engineering, Univ. Of

TuC3 Room T4

Modelling and System Identification I (Regular Session)

Chair: Baratti, Roberto	Univ. Degli Studi Di Cagliari
Co-Chair: Liu, Tao	Dalian Univ. of Tech. (DLUT)

15:30-15:50 TuC3.1

Output Error Model Identification against Unexpected Load Disturbance, pp. 863-868.

Dong, Shijian	Dalian Univ. of Tech
Liu, Tao	Dalian Univ. of Tech. (DLUT)
Chen, Fengwei	Univ. of Lorraine

15:50-16:10 TuC3.2

Dynamics of Nonlinear Chemical Process with Multiplicative Stochastic Noise, pp. 869-874.

Baratti, Roberto	Univ. Degli Studi Di Cagliari
Tronci, Stefania	Univ. Degli Studi Di Cagliari
Schaum, Alexander	Christian-Albrechts Univ. Zu Kiel
Alvarez, Jesus	Univ. Autonoma Metropolitana

16:10-16:30 TuC3.3

Gas Phase Train in Upstream Oil & Gas Fields: PART-I Model Development, pp. 875-881.

Al-Naumani, Yahya Hamood	The Univ. of Sheffield
Rossiter, J. Anthony	Univ. of Sheffield
Al-Bahlawi, Said	Petroleum Development Oman

16:30-16:50 TuC3.4

Discrete-Time Optimal Control of Electric Hot Water Tank, pp. 882-888.

Beeker, Nathanael	MINES ParisTech
Malisani, Paul	EDF Lab
Petit, Nicolas	MINES ParisTech

16:50-17:10 TuC3.5

Online Optimal Experiment Design: Reduction of the Number of Variables, pp. 889-894.

Lemoine-Nava, Jose Roberto	Tech. Univ. Dortmund
Walter, Sebastian	Univ. Heidelberg
Körkel, Stefan	Univ. Heidelberg
Engell, Sebastian	TU Dortmund

17:10-17:30 TuC3.6

Modelling and Design of Carbon Dioxide Absorption in Rotating Packed Bed and Packed Column, pp. 895-900.

Thiel, Matthias	RWTH Aachen Univ
Wong, David, S.H.	National Tsing-Hua Univ
Yu, Cheng-Hsiu	National Tsing Hua Univ
Kang, Jia-Lin	National Tsing-Hua Univ
Jang, Shi-Shang	National Tsing-Hua Univ
Tan, Chung-San	National Tsing Hua Univ

TuC4 Room T3

Control Applications II (Regular Session)

Chair: Puschke, Jennifer	RWTH Aachen Univ

15:30-15:50 TuC4.1

Robust Control of a Supermarket Refrigeration System Using Multi-Stage NMPC, pp. 901-906.

Subramanian, Sankaranarayanan	TU Dortmund
Ahmad, Adeel	TU Dortmund
Engell, Sebastian	TU Dortmund

15:50-16:10 TuC4.2

Robust Dynamic Optimization of a Semi-Batch Emulsion Polymerization Process with Parametric Uncertainties - a Heuristic Approach -, pp. 907-912.

Puschke, Jennifer	RWTH Aachen Univ
Mitsos, Alexander	RWTH Aachen Univ

16:10-16:30 TuC4.3

Neural NLMPC Schemes for the Control of the Activated Sludge Process, pp. 913-918.

Goldar Davila, Alejandro	Univ. Simón Bolívar
Revollar, Silvana	Univ. De Salamanca
Lamanna, Rosalba	Univ. Simón Bolívar
Vega, Pastora	Univ. of Salamanca

16:30-16:50 TuC4.4

Robust PID Auto-Tuning for the Quadruple Tank System, pp. 919-924.

Ionescu, Clara	Ghent Univ
Maxim, Anca	Tech. Univ. of Iasi
Copot, Cosmin	Ghent Univ
De Keyser, Robin M.C.	Ghent Univ

16:50-17:10 TuC4.5

Open Loop Optimal Operation and Sensitivity Analysis of a Continuous Biobutanol Fermentation Process with Ex-Situ Adsorption Recovery, pp. 925-930.

Kim, Boeun	KAIST
Jang, Hong	Korea Advanced Inst. of Science and Tech
Lee, Jay H.	KAIST

17:10-17:30 TuC4.6

A Two-Layer Structure for Stabilization and Optimization of an Oil Gathering Network, pp. 931-936.

Codas, Andrés	NTNU
Jahanshahi, Esmaeil	Norwegian Univ. of Science & Tech
Foss, Bjarne	Norwegian Univ. of Science & Tech

WePL Room T1

Plenary III Vassily Hatzimanikatis: "Analysis and Design of Metabolic Networks under Uncertainty" (Plenary Session)

Chair: Budman, Hector M.	Univ. of Waterloo
Co-Chair: Smets, Ilse	KU Leuven, Department of Chemical Engineering, CREaS

08:15-09:10 WePL.1

Analysis and Design of Metabolic Networks under Uncertainty.*

Hatzimanikatis, Vassily	EPFL

WeK1N1 Room T2

Keynote V (Semi-Plenary Session)

Chair: Budman, Hector M.	Univ. of Waterloo
Co-Chair: Mauricio-Iglesias, Miguel	Univ. De Santiago De Compostela

09:15-09:45 WeK1N1.1

A Multi-Scale Model of the Whole Human Body Based on Dynamic Parsimonious Flux Balance Analysis, pp. 937-942.

khaksar Toroghi, Masood	Univ. of Toronto
Cluett, William	Univ. of Toronto
Mahadevan, Radhakrishnan	Univ. of Toronto

WeK1N2 Room T1

Keynote VI (Semi-Plenary Session)

Chair: Alvarez, Jesus	Univ. Autonoma Metropolitana
Co-Chair: de Prada, Cesar	Univ. of Valladolid

09:15-09:45 WeK1N2.1

Stability of Multi-Phase Systems Evolving on an Equilibrium Manifold, pp. 943-948.

Ydstie, B. Erik	Carnegie Mellon

WeK2N1 Room T1

Keynote VII (Semi-Plenary Session)

Chair: Pannocchia, Gabriele	Univ. of Pisa
Co-Chair: Budman, Hector M.	Univ. of Waterloo

09:45-10:15 WeK2N1.1

Dynamic Time to Surge Computation for Electric Driven Gas Compressors During Voltage Dips, pp. 949-954.

Cortinovis, Andrea	ABB Switzerland Ltd
Mercangöz, Mehmet	ABB Switzerland Ltd
Stava, Tor Olav	Gassco As
Van de Moortel, Sture	ABB Switzerland Ltd
Lunde, Erling	Statoil ASA

WeK2N2 Room T2

Keynote VIII (Semi-Plenary Session)

Chair: Smets, Ilse	KU Leuven, Department of Chemical Engineering, CREaS
Co-Chair: de Prada, Cesar	Univ. of Valladolid

09:45-10:15 WeK2N2.1

Pointwise Innovation–based State Observation of Exothermic Tubular Reactors, pp. 955-960.

Schaum, Alexander	Christian-Albrechts Univ. Zu Kiel
Alvarez, Jesus	Univ. Autonoma Metropolitana
Meurer, Thomas	Christian-Albrechts-Univ. Kiel
Moreno, Jaime A.	Univ. Nacional Autonoma De Mexico-UNAM

WeA1 Room T1

Model Based Control III (Regular Session)

Co-Chair: GAO, Furong	Hong Kong Univ. of Sci & Tech

10:30-10:50 WeA1.1

Control of a Solar Furnace Using MPC with Integral Action, pp. 961-966.

Costa, Bertinho	INESC-ID - IST - ULisbon
Lemos, Joao M.	Inesc-Id
Guillot, Emmanuel	PROMES-CNR, 7 Rue Du Four Solaire, 66120 Font Romeu, Odeillo, Fr

10:50-11:10 WeA1.2

State Estimation and Model Predictive Control for the Systems with Uniform Noise, pp. 967-972.

Pavelkova, Lenka	The Inst. of Information Theory and Automation of the CAS
Belda, Kvetoslav	The Inst. of Information Theory and Automation of the CAS

11:10-11:30 WeA1.3

VFA Robust Control of an Anaerobic Digestion Pilot Plant: Experimental Implementation, pp. 973-977.

GARCIA-SANDOVAL, JUAN PAULO	Univ. of Guadalajara
Méndez-Acosta, Hugo Oscar	Univ. of Guadalajara
Gonzalez-Alvarez, Victor	Univ. of Guadalajara
Alvarez, Jesus	Univ. Autonoma Metropolitana
Schaum, Alexander	Christian-Albrechts Univ. Zu Kiel

11:30-11:50 WeA1.4

Model Performance Assessment of a Predictive Controller for Propylene/Propane Separation, pp. 978-983.

Claro, Erica Rejane Pereira	Braskem S.A
Botelho, Viviane Rodrigues	Federal Univ. of Rio Grande Do Sul (UFRGS)
Trierweiler, Jorge Otávio	Federal Univ. of Rio Grande Do Sul
Farenzena, Marcelo	Federal Univ. of Rio Grande Do Sul

11:50-12:10 WeA1.5

'State Déjà Vu' Inter-Agent Learning Adaptive Control Framework, pp. 984-989.

QU, Hongyi	The Hong Kong Univ. of Science and Tech
Zhang, Ridong	Hangzhou Dianzi Univ
GAO, Furong	Hong Kong Univ. of Sci & Tech

WeA2 Room T4

Modelling and System Identification II (Regular Session)

Chair: Samavedham, Lakshminarayanan	National Univ. of Singapore

10:30-10:50 WeA2.1

Machine Learning Based Framework for Multi-Class Diagnosis of Neurodegenerative Disease: A Study on Parkinson Disease, pp. 990-995.

Singh, Gurpreet	National Univ. of Singapore
Vadera, Meet	Department of Mechanical Engineering, Indian Inst. of Tech
Samavedham, Lakshminarayanan	National Univ. of Singapore
Lim, Erle Chuen-Hian	Department of Neurology,

	National Univ. Health System, Nati

10:50-11:10 WeA2.2

Hydrocyclone Cut-Size Estimation Using Artificial Neural Networks, pp. 996-1001.

van Loggenberg, Sarita	North-West Univ. Potchefstroom
van Schoor, George	North-West Univ
Uren, Kenneth Richard	North-West Univ
van der Merwe, Frederik	North-West Univ

11:10-11:30 WeA2.3

Parameter Estimation and Model Order Identification of LTI Systems, pp. 1002-1007.

Varanasi, Santhosh Kumar	Indian Inst. of Tech. Hyderabad
Jampana, Phanindra	Indian Inst. of Tech. Hyderabad

11:30-11:50 WeA2.4

Identication of Wiener Models in the Presence of ARIMA Process Noise, pp. 1008-1013.

ALJAMAAN, IBRAHIM	Univ. OF CALGARY
Westwick, David	Univ. of Calgary
Foley, Michael	Univ. of Calgary

11:50-12:10 WeA2.5

Identification of Linear Dynamic Systems Using Dynamic Iterative Principal Component Analysis, pp. 1014-1019.

Maurya, Deepak	IIT Madras
Tangirala, Arun K.	Indian Inst. of Tech. Madras
Narasimhan, Shankar	Indian Inst. of Tech. Madras, INDIA

WeA3 Room T3

Performance and Fault Monitoring III (Regular Session)

Chair: Hovd, Morten	Norwegian Univ. of Tech. and Science
Co-Chair: Shah, Sirish L.	Univ. of Alberta

10:30-10:50 WeA3.1

An Adaptive Non-Linearity Detection Algorithm for Process Control Loops, pp. 1020-1025.

Aftab, Muhammad Faisal	NTNU
Hovd, Morten	Norwegian Univ. of Tech. and Science
Huang, N	Central Univ
Sivalingam, Selvanathan	Siemens AS

10:50-11:10 WeA3.2

Process Discovery of Operator Actions in Response to Univariate Alarms, pp. 1026-1031.

Hu, Wenkai	Univ. of Alberta
Al-Dabbagh, Ahmad	Univ. of Alberta
Chen, Tongwen	Univ. of Alberta
Shah, Sirish L.	Univ. of Alberta

11:10-11:30 WeA3.3

Mixture Probabilistic PCA for Process Monitoring - Collapsed Variational Bayesian Approach, pp. 1032-1037.

Raveendran, Rahul	Univ. of Alberta
Huang, Biao	Univ. of Alberta

11:30-11:50 WeA3.4

A Revised Technique of Stiction Compensation for Control Valves, pp. 1038-1043.

Bacci di Capaci, Riccardo	Univ. of Pisa
SCALI, Claudio	Univ. of Pisa
Huang, Biao	Univ. of Alberta

11:50-12:10 WeA3.5

Concurrent Canonical Correlation Analysis Modeling for Quality-Relevant Monitoring, pp. 1044-1049.

Zhu, Qinqin	Univ. of Southern California
Liu, Qiang	Northeastern Univ
Qin, S. Joe	Univ. of Southern California

WeA4 Room T2

Modeling and Control of Microalgae Processes (Regular Session)

Chair: Bernard, Olivier	INRIA

10:30-10:50 WeA4.1

Parameter Identification of a Dynamic Model of Cultures of Microalgae Scenedesmus Obliquus – an Experimental Study, pp. 1050-1055.

Deschenes, Jean-Sebastien	Univ. Du Quebec a Rimouski
Vande Wouwer, Alain	Univ. De Mons

10:50-11:10 WeA4.2

Design of a Robust Lipschitz Observer - Application to Monitoring of Culture of Micro-Algae Scenesdesmus Obliquus, pp. 1056-1061.

Feudjio, Christian	Univ. of Mons
Deschenes, Jean-Sebastien	Univ. Du Quebec a Rimouski
Bogaerts, Philippe	Univ. Libre De Bruxelles
Vande Wouwer, Alain	Univ. De Mons

11:10-11:30 WeA4.3

Optimal Operation of Algal Ponds Accounting for Future Meteorology, pp. 1062-1067.

De Luca, Riccardo	Univ. Degli Studi Di Padova
Béchet, Quentin	INRIA
Bezzo, Fabrizio	Univ. of Padova
Bernard, Olivier	INRIA

11:30-11:50 WeA4.4

The Photoinhibistat: Operating Microalgae Culture under Photoinhibition for Strain Selection, pp. 1068-1073.

Mairet, Francis	Inria
Bernard, Olivier	INRIA

11:50-12:10 WeA4.5

A Bacteriostatic Control Approach for Mixotrophic Cultures of Microalgae, pp. 1074-1078.

Deschenes, Jean-Sebastien	Univ. Du Quebec a Rimouski

WeB1 Room T1

Model Based Control IV (Regular Session)

Chair: Ydstie, B. Erik	Carnegie Mellon
Co-Chair: De Keyser, Robin M.C.	Ghent Univ

13:00-13:20 WeB1.1

Reference Tracking Using a Non-Cooperative Distributed Model Predictive Control Algorithm, pp. 1079-1084.

Maxim, Anca	Tech. Univ. of Iasi
Ionescu, Clara	Ghent Univ
Caruntu, Constantin - Florin	Tech. Univ. "Gheorghe Asachi" of Iasi
Lazar, Corneliu	Tech. Univ. Gh. Asachi of Iasi
De Keyser, Robin M.C.	Ghent Univ

13:20-13:40 WeB1.2

Hybrid Model Based Control for Membrane Filtration Process, pp. 1085-1090.

Chan, Lester Lik Teck	Chung-Yuan Christian Univ
Chou, Chen-Pei	Chung-Yuan Christian Univ
Chen, Junghui	Chung-Yuan Christian Univ

13:40-14:00 WeB1.3

Reaction Variants and Invariants Based Observer and Controller Design for CSTRs, pp. 1091-1096.

Zhao, Zixi	Carnegie Mellon Univ
Wassick, John	The Dow Chemical Company
Ferrio, Jeff	The Dow Chemical Company
Ydstie, B. Erik	Carnegie Mellon

14:00-14:20 WeB1.4

Proactive Actuator Fault-Tolerance in Economic MPC for Nonlinear Process Plants, pp. 1097-1102.

Knudsen, Brage Rugstad	Norwegian Univ. of Science and Tech. (NTNU)

14:20-14:40 WeB1.5

Constrained Multivariable Predictive Control of a Train of Cryogenic 13C Separation Columns, pp. 1103-1108.

Ionescu, Clara	Ghent Univ
Muresan, Cristina Ioana	Tech. Univ. of Cluj Napoca
Copot, Dana	Ghent Univ
De Keyser, Robin M.C.	Ghent Univ

WeB2 Room T2

Modelling and System Identification III (Regular Session)

Chair: McAuley, K.B.	Queen's Univ
Co-Chair: Vande Wouwer, Alain	Univ. De Mons

13:00-13:20 WeB2.1

Bayesian Estimation in Stochastic Differential Equation Models Via Laplace Approximation, pp. 1109-1114.

Karimi, Hadiseh	Queen's Univ
McAuley, K.B.	Queen's Univ

13:20-13:40 WeB2.2

A Generalized Instrumental Variable Method Based on Matrix Decomposition for Simultaneous Identification of Bi-Directional Paths in Closed-Loop Systems, pp. 1115-1120.

Jiang, Benben	Beijing Univ. of Chemical Tech
Zhu, Qunxiong	Coll. of Information Science and Tech. Beijing Univ
Zhu, Xiaoxiang	Air Products
Geng, Zhiqiang	Beijing Univ. of Chemical Tech

13:40-14:00 WeB2.3

Latent Autoregressive Gaussian Processes Models for Robust System Identification, pp. 1121-1126.

Mattos, César L. C.	Federal Univ. of Ceará (UFC)
Damianou, Andreas	The Univ. of Sheffield
Barreto, Guilherme A.	Federal Univ. of Ceará (UFC)
Lawrence, Neil D.	The Univ. of Sheffield

14:00-14:20 WeB2.4

Modeling, Sensitivity Analysis and Parameter Identification of a Twin Screw Extruder, pp. 1127-1132.

Grimard, Jonathan	Univ. of Mons
Dewasme, Laurent	Univ. De Mons
Thiry, Justine	Univ. De Liège
Krier, Fabrice	Univ. De Liège
Evrard, Brigitte	Univ. De Liège
Vande Wouwer, Alain	Univ. De Mons

14:20-14:40 WeB2.5

Optimal Experimental Design in the Evaluation of Food Packaging Compliance with Safety Regulations, pp. 1133-1138.

Mauricio-Iglesias, Miguel	Univ. De Santiago De Compostela

WeB3 Room T3

Modeling, Optimization and Control in Biological Waste/water Treatment (Invited Session)

Chair: Smets, Ilse	KU Leuven, Department of Chemical Engineering, CREaS
Co-Chair: Villez, Kris	Eawag
Organizer: Smets, Ilse	KU Leuven, Department of Chemical Engineering, CREaS
Organizer: Villez, Kris	Eawag

13:00-13:20 WeB3.1

Non-Linear Data Reconciliation for a Partial Nitritation (Sharon) Reactor (I), pp. 1139-1144.

Le, Quan	Ghent Univ
Verheijen, Peter J.T.	Delft Univ. of Tech
Mampaey, Kris E.	Ghent Univ
van Loosdrecht, Mark	TU Delft
Volcke, Eveline	Ghent Univ

13:20-13:40 WeB3.2

On the Use of Shape-Constrained Splines for Biokinetic Process Modeling (I), pp. 1145-1150.

Masic, Alma	Eawag
Srinivasan, Sriniketh	EPFL
Billeter, Julien	EPFL
Bonvin, Dominique	EPFL
Villez, Kris	Eawag

13:40-14:00 WeB3.3

Bioflocculation and Activated Sludge Separation: A PLS Case Study (I), pp. 1151-1156.

Smets, Ilse	KU Leuven, Department of Chemical Engineering, CREaS
Gins, Geert	KU Leuven
Van De Staey, Glenn	KU Leuven - Department of Chemical Engineering

14:00-14:20 WeB3.4

Control of Wastewater N2O Emissions by Balancing the Microbial Communities Using a Fuzzy-Logic Approach (I), pp. 1157-1162.

Boiocchi, Riccardo	Tech. Univ. of Denmark
Gernaey, Krist	Tech. Univ. of Denmark
Sin, Gurkan	Tech. Univ. of Denmark

14:20-14:40 WeB3.5

Full-Scale Implementation of an Advanced Control System on a Biological Wastewater Treatment Plant (I), pp. 1163-1168.

Mulas, Michela	Aalto Univ. - School of Engineering
CORONA, Francesco	Aalto Univ. School of Science
Sirviö, Jukka	Mipro Oy
Hyvönen, Seppo	Mipro Ltd
Vahala, Riku	Aalto Univ

14:40-15:00 WeB3.6

Dynamic Modelling of an Anaerobic Digester for Wastes at the Territory Level (I), pp. 1169-1174.

Adouani, Nouceiba	Univ. De Lorraine
Pons, Marie-Noelle	Univ. De Lorraine

Hreiz, Rainier	Univ. De Lorraine
PACAUD, Stéphane	Univ. De Lorraine

WeB4	Room T4
Inferential Sensing, State Estimation and Sensor Development II (Regular Session)	
Chair: Swartz, Christopher L.E.	McMaster Univ
Co-Chair: Shardt, Yuri	Univ. of Duisburg-Essen

13:00-13:20 WeB4.1

A Multi-Rate Moving Horizon Estimation Framework for Electric Arc Furnace Operation, pp. 1175-1180.

Shyamal, Smriti	McMaster Univ
Swartz, Christopher L.E.	McMaster Univ

13:20-13:40 WeB4.2

Phase Partition for Nonlinear Batch Process Monitoring, pp. 1181-1186.

Liu, Jingxiang	Dalian Univ. of Tech
Liu, Tao	Dalian Univ. of Tech. (DLUT)
zhang, jie	Newcastle Univ

13:40-14:00 WeB4.3

Comparative Study of Multicomponent Distillation Static Estimators Based on Industrial and Rigorous Model Datasets, pp. 1187-1192.

Torgashov, Andrei	Inst. for Automation and Control Processes FEB RAS
Skogestad, Sigurd	Norwegian Univ. of Science & Tech
Kozlov, Alexey	Gazpromneft-Omsk Refinery

14:00-14:20 WeB4.4

Development of Soft Sensors for the Case Where the Time Delay Is Random, pp. 1193-1198.

Shardt, Yuri	Univ. of Duisburg-Essen
Yang, Xu	Univ. of Science and Tech. Beijing

14:20-14:40 WeB4.5

Robust Observation Strategy to Estimate Unknown Inputs, pp. 1199-1204.

Torres, Ixbalank	Univ. De Guanajuato
Vargas, Alejandro	Inst. De Ingenieria UNAM
Buitron, German	UNAM, Inst. De Ingenieria, Mexico

14:40-15:00 WeB4.6

On-Line Estimation of the Reactions Rates from Sampled Measurements in Bioreactors, pp. 1205-1210.

Bouraoui, Ibtissem	GREYC
Farza, Mondher	Univ. De Caen, ENSICAEN
Ménard, Tomas	Univ. De Caen
Ben Abdennour, Ridha	Enig, Conpri
M'Saad, Mohammed	GREYC