



Thursday

July 7, 2005

Program Brochure

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International Program sub-Committees

- 1.1 Modelling, Identification & Signal Processing
T. McKelvey (SE)
- 1.2. Adaptive and Learning Systems
A. Sano (JP)
- 1.3. Discrete Event Dynamic Systems
C. Cassandras (US)
- 1.4. Stochastic Systems
M. Campi (IT)

- 2.1. Control Design
P. Colaneri (IT)
- 2.2. Linear Control Systems
C.E. de Souza (BR)
- 2.3. Non-Linear Control Systems
F. Allgöwer (DE)
- 2.4. Optimal Control
A. Kleimenov (RU)
- 2.5. Robust Control
C. Scherer (DE)

- 3.1. Computers for Control
R. Sanz (ES)
- 3.2. Cognition and Control
R. Babuska (NL)
- 3.3. Computers and Telematics
H. Roth (DE)

- 4.1. Components and Instruments
S. Boverie (FR)
- 4.2. Mechatronic Systems
R. Goodall (UK)
- 4.3. Robotics
J. Sasiadek (CA)
- 4.4. Cost Oriented Automation
H. Erbe (DE)
- 4.5. Human Machine Systems
D. Zuehlke (DE)

- 5.1. Manufacturing Plant Control
G. Morel (FR)
- 5.2. Manufacturing Modelling for Management and Control
L. Monostori (HU)
- 5.3. Enterprise Integration and Networking
A. Molina (MX)
- 5.4. Large Scale Complex Systems
F.G. Filip (RO)

- 6.1. Chemical Process Control
W. Marquardt (DE)
- 6.2. Mining, Mineral & Metal Processing
S.C. Won (KR)
- 6.3. Power Plants and Power Systems
O.P. Malik (CA)
- 6.4. Safeprocess
M. Kinnaert (BE)

- 7.1. Automotive Control
L. Nielsen (SE)
- 7.2. Marine Systems
R. Sutton (UK)
- 7.3. Aerospace
K. Schilling (DE)
- 7.4. Transportation Systems
M. Papageorgiou (GR)
- 7.5. Intelligent Autonomous Vehicles
H. Asama (JP)

- 8.1. Control in Agriculture
G. van Straten (NL)
- 8.2. Modelling & Control of Biomedical Systems
D. Feng (AU)
- 8.3. Modelling & Control of Environmental Systems
R. Soncini-Sessa (IT)
- 8.4. Control of Biotechnological Processes
M. Pons (FR)

- 9.1. Economic & Business Systems
R. Neck (AT)
- 9.2. Social Impact of Automation
J. Stahre (SE)
- 9.3. Developing Countries
G. Dimirovski (MK)
- 9.4. Control Education
L. Vlacic (AU)
- 9.5. SWIIS
F. Kile (US)

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IFAC Congress Prizes

The following prizes will be awarded to the authors for Congress contributions at the Closing Ceremony.

- IFAC Congress Young Author Prize
- IFAC Congress Application Paper Prize
- IFAC Congress Poster Paper Prize

Selection committees nominated the following finalists:

Best Application Paper Finalists

Nonlinear Model Predictive Control of Batch Processes: An Industrial Case Study

Zoltan Nagy (University of Stuttgart)

Bernd Mahn (BASF Aktiengesellschaft, Ludwigshafen)

Rudiger Franke (ABB Corporate Research, Ladenburg)

Frank Allgöwer (University of Stuttgart)

Technical area: 6.1. Chemical Process Control

Session: Knowledge Driven Batch Processes (Mo-A06-TO)

Presentation 04-Jul-2005, 13:00-13:20, Small Theatre

Actual Engaged Gear Identification: A Hybrid Observer Approach

Balluchi Andrea (PARADES, Italy)

Luca Benvenuti (Università di Roma, Italy)

Claudio Lemma (PARADES, Italy)

Alberto Sangiovanni-Vincentelli (PARADES, Italy and University of California at Berkeley, USA)

Gabriele Serra (Magnetis Marelli Powertrain, Italy)

Technical area: 7.1. Automotive Control

Session: Powertrain Control (Mo-E20-TO)

Presentation: 04-Jul-2005, 16:10-16:30, Meeting Room 2.1

Evaluation of Sliding Mode Observer for Vehicle Sideslip Angle

Joanny Stéphant (Laboratoire HEUDIASYC, UMR CNRS-UTC, Compiègne, France)

Ali Charara (Laboratoire HEUDIASYC, UMR CNRS-UTC, Compiègne, France)

Dominique Meizel (GERME, ENSIL, Limoges, France)

Technical area: 7.5. Intelligent Autonomous Vehicles

Session: Intelligent Autonomous Vehicles (We-E04-TP)

Presentation: 06-Jul-2005, 15:30-17:30, North Hall

Process Control of an Open Plate Reactor

Staffan Haugwitz (Lund Institute of Technology, Sweden)

Per Hagander (Lund Institute of Technology, Sweden)

Technical area: 6.1. Chemical Process Control

Session: Control of Complex Processes (Th-A06-TO)

Presentation: 07-Jul-2005, 13:20-13:40, Small Theatre

Best Young Author Paper Finalists

Robust Decentralized Pole Assignment

Alireza Esna Ashari (University of Tehran, Iran)

Batool Labibi (K. N. Toosi University of Technology, Iran)

Technical area: 5.4. Large Scale Complex Systems

Session: Large Scale Complex Systems I- Theory (Mo-M21-TO)

Presentation: 04-Jul-2005, 11:20-11:40, Meeting Room 3.4

On the Stability in Almost Periodic Discrete Systems

Oleksiy Ignatyev (Department of Mathematical Sciences, Kent State University, OH, USA)

Technical area: 2.3. Non-Linear Control Systems

Session: Nonlinear Stability II (Mo-A11-TO)

Presentation: 04-Jul-2005, 14:40-15:00, Meeting Room 2.2

Dynamic Output Feedback Stabilization of a Class of a Nonholonomic Hamiltonian Systems

Satoru Sakai (Kyoto University)

Kenji Fujimoto (Nagoya University)

Technical area: 2.3. Non-Linear Control Systems

Session: Nonlinear Control Systems I (Tu-M03-TO)

Presentation: 05-Jul-2005, 11:20-11:40, Terrace 2

Stabilization of Networked Control Systems: Designing Effective Communication Sequences

Lei Zhang (University of Maryland, USA)

Dimitrios Hristu-Varsakelis (University of Macedonia, Greece)

Technical area: 2.2. Linear Control Systems

Session: Analysis and Synthesis of Linear Control Systems I (Th-A02-TP)

Presentation: 07-Jul-2005, 13:00-15:00, North Hall

Awiator's Design of Multi-Objectives Control Laws

Matthieu Jeanneau (AIRBUS, Toulouse, France)

Jérôme Lamolie (AIRBUS & Ecole Centrale de Lille, France)

Guilhem Puyou (AIRBUS, Toulouse, France)

Nicky Aversa (AIRBUS, Toulouse, France)

Technical area: 7.3. Aerospace

Session: Aircraft Control Design (Th-E18-TO)

Presentation: 07-Jul-2005, 15:30-15:50, Meeting Room 3.3

LEGEND TO PROGRAM PAGES

Session (Page) Header

Session Code	Session Type	Technical Area
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Session Code format: Day - Time slot & Room number – Session type

Day: Mo/Tu/We/Th/Fr

Monday/Tuesday/Wednesday/Thursday/Friday

Time slot:

M Morning (10:00-12:00) except for Tuesday

A Afternoon (13:00-15:00) except for Tuesday

E Evening (15:30-17:30) except for Tuesday

Room number:

one of 22 rooms available for parallel sessions

Session type:

PL Plenary

SP Semi-Plenary

TO Technical Oral (regular/invited)

TP Technical Poster

PD Panel Discussion

MS Milestone Session

Example: Mo-A03-TP

Regular Poster Session, Monday afternoon

Paper Code format: Session Code / Paper Order in Session

Example: Mo-M03-TO/1

First presentation in the session {Mo-M03-TO}

Paper order in a poster session is insignificant

Regular, contributed sessions have been designed in IFAC Technical Committees linked to Technical Areas listed in the next page.

Session pages are organized according to the time schedule.

Technical Program pages were generated from the Congress database automatically by the conference software package developed by Certicon, a.s.

CONGRESS TECHNICAL AREAS

1. Systems and Signals
 - 1.1 Modelling, Identification and Signal Processing
 - 1.2 Adaptive and Learning Systems
 - 1.3 Discrete Event and Hybrid Systems
 - 1.4 Stochastic Systems
2. Design Methods
 - 2.1 Control Design
 - 2.2 Linear Control Systems
 - 2.3 Non-Linear Control Systems
 - 2.4 Optimal Control
 - 2.5 Robust Control
3. Computers, Cognition and Communication
 - 3.1 Computers for Control
 - 3.2 Cognition and Control
 - 3.3 Computers and Telematics
4. Mechatronics, Robotics and Components
 - 4.1 Components and Instruments
 - 4.2 Mechatronic Systems
 - 4.3 Robotics
 - 4.4 Cost Oriented Automation
 - 4.5 Human Machine Systems
5. Manufacturing Systems
 - 5.1 Manufacturing Plant Control
 - 5.2 Manufacturing Modelling for Management & Control
 - 5.3 Enterprise Integration and Networking
 - 5.4 Large Scale Complex Systems
6. Industrial Systems
 - 6.1 Chemical Process Control
 - 6.2 Mining, Mineral and Metal Processing
 - 6.3 Power Plants and Power Systems
 - 6.4 Fault Detection, Supervision and Safety of Technical Processes
7. Transportation Systems and Vehicles
 - 7.1 Automotive Control
 - 7.2 Marine Systems
 - 7.3 Aerospace
 - 7.4 Transportation Systems
 - 7.5 Intelligent Autonomous Vehicles
8. Bio and Ecological Systems
 - 8.1 Control in Agriculture
 - 8.2 Modelling and Control of Biomedical Systems
 - 8.3 Modelling and Control of Environmental Systems
 - 8.4 Control of Biotechnological Systems

CONGRESS TECHNICAL AREAS

9. Social Systems

9.1 Economic and Business Systems

9.2 Social Impact of Automation

9.3 Developing Countries

9.4 Control Education

9.5 Supplemental Ways of Improving International Stability

TECHNICAL PROGRAM AT A GLANCE

		industry days					
		3-July-2005	4-July-2005	5-July-2005	6-July-2005	7-July-2005	8-July-2005
Time	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	
08:30							
09:00		R. Kalman ETH Zurich	S. Chand Rockwell Automation	M. Bruns Siemens	N. Cox NASA JPL	M. Athans TU Lisboa	
09:10							
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TECHNICAL PROGRAM AT A GLANCE – THURSDAY, JULY 7, 2005

Thursday July 7, 2005 Session	Area	Poster	Invited	08:30 - 09:30	10:00 - 12:00	13:00 - 15:00	15:30 - 17:30	Page
				Room Code				
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Milestone Session – Bio & Ecological Systems	8.					01		3
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Subspace Methods	1.1.				02			49
Nonlinear Filtering	1.1.					02		94
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Modelling and Interconnection of Open Dynamical Systems	1.1.		X		13			71
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Image Processing and Biomedical Applications	1.1.	P				●		89
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Hybrid and Switched Control	1.3.				12			70
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Control of Jump Stochastic Processes	1.4.				07			63
Hybrid Stochastic Systems	1.4.					07		112
Control, Estimation and Analysis of Stochastic Systems	1.4.	P				●		95
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Control of Mechanical and Flexible Systems	2.1.				08			64
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Time Delay Systems II	2.2.				11			69
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TECHNICAL PROGRAM AT A GLANCE – THURSDAY, JULY 7, 2005

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Fuzzy Control: Stability	3.2.						15	124
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TECHNICAL PROGRAM AT A GLANCE – THURSDAY, JULY 7, 2005

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Congress Center Rooms

Room Name	Floor	Code	Used for
Congress Hall	1&2		Opening Ceremony
Forum Hall Foyer	2		Welcome Party
Conference Hall Foyer			Welcome Party
Forum Hall	2		Closing Ceremony
Conference Hall	4		IFAC General Assembly

Forum Hall	2	♣	Plenaries
Meeting Hall I	1	♦	Semi-Plenaries
Panorama Hall	1	♠	Semi-Plenaries
North Hall	2	●	Poster Sessions
Chamber Hall	3	1	Milestones Panels
Club H	1	2	Panels Regular Sessions
Terrace 2	2	3	Regular Sessions
Club A	1	4	Regular Sessions
Club E	1	5	Regular Sessions
Small Theatre	0	6	Regular Sessions
Terrace 1	2	7	Regular Sessions
Club B	1	8	Regular Sessions
Club D	1	9	Regular Sessions
Club C	1	10	Regular Sessions
Meeting Room 2.2	2	11	Regular Sessions
Meeting Room 4.1	4	12	Regular Sessions
Meeting Room 4.2	4	13	Regular Sessions
Meeting Room 1.1	1	14	Regular Sessions
Meeting Room 2.3	2	15	Regular Sessions
Meeting Room 3.1	3	16	Regular Sessions
Meeting Room 3.2	3	17	Regular Sessions
Meeting Room 3.3	3	18	Regular Sessions
Meeting Room 4.3	4	19	Regular Sessions
Meeting Room 2.1	2	20	Regular Sessions
Meeting Room 3.4	3	21	Regular Sessions
Meeting Room 3.5	3	22	Regular Sessions

NAGIN COX

THE MARS EXPLORATION ROVERS: HITTING THE ROAD ON MARS

Thursday 07-Jul-2005 08:30-09:30, Forum Hall**Chair: Michael K. Masten, United States***Abstract*

Since the beginning of time, people have been fascinated by Mars. However, getting to know our neighbor has been both immensely rewarding and immensely frustrating. From the early missions to Viking, Pathfinder and the more recent missions Mars has been (and is) a challenging destination. The Mars Exploration Rovers were developed at a breakneck pace in 3 years and landed successfully on Mars in January 2004. This paper will discuss how the Mars Rover mission fits into the overall Mars Program and NASA's program of planetary exploration. Building the rovers in such a short time period created some difficult design challenges that were mainly schedule driven. In addition, it will cover the process of selecting the rover landing sites as well as the engineering challenges faced in the entry, descent and landing process. The rovers have a great deal of autonomous control ability on the surface and the process of developing and testing those was part of the challenge of doing these in 3 years. Since landing, we have seen those capabilities at work and they have been critical in the rovers success at finding evidence of past water. As with any robotic mission, the lessons learned from the rover mission but scientific and engineering will feed forward into the upcoming Mars missions as well as other solar system exploration in search of water.

Nagin Cox

Kepler Deputy Project System Engineer

Jet Propulsion Laboratory

Pasadena, California, USA

**WOLFGANG HALANG; RICARDO SANZ, ROBERT BABUŠKA,
HUBERT ROTH**

**INFORMATION AND COMMUNICATION TECHNOLOGIES
IN CONTROL**

Thursday 07-Jul-2005 13:00-15:00, Chamber Hall

**Chair: *Wolfgang Halang, Fernuniversitaet Hagen,
Germany***

**Organizer: *IFAC Coordinating Committee on Computers,
Cognition and Communication***

Abstract

A new approach in control engineering ("Information Processing for Action") is presented, in which control, computers, communication and cognition play equal roles in addressing real-life problems from very small-scale devices to very large-scale industrial processes and non-technical applications. Thus, the C2 paradigm of "Computers for Control" is shifting towards the C4 paradigm of "Computers, Communication and Cognition for Control" providing an integrated perspective on the role computers play in control systems and control plays in computer systems. This change is mainly due to new developments in computers and knowledge management, and the rapidly emerging field of telecommunications providing a number of possible applications in control. Control engineers will have to master computer and software technologies to be able to build the systems of the future, and software engineers need to use control concepts to master the ever-increasing complexity of computing systems.

Wolfgang A. Halang, Fernuniversitaet in Hagen, Germany

Ricardo Sanz, Universidad Politecnica de Madrid, Spain

Robert Babuska, Technische Universiteit Delft, Netherlands

Hubert Roth, Universitaet Siegen, Germany

EWART CARSON, DAVID DAGAN FENG, MARIE-NOËLLE PONS, RODOLFO SONCINI-SESSA, GERRIT VAN STRATEN

**DEALING WITH BIO- AND ECOLOGICAL COMPLEXITY:
CHALLENGES AND OPPORTUNITIES**

Thursday 07-Jul-2005 15:30-17:30, Chamber Hall

Chair: *Ewart Carson, City University London, United Kingdom*

Organizer: *IFAC Coordinating Committee on Bio & ecological systems*

Abstract

Control theory deals with disciplines and methods leading to an automatic decision process in order to improve the performance of a control system. The evolution of control engineering is closely related to the evolution of the technology of sensors and actuators and to the theoretical controller design methods and numerical techniques to be applied in real time computing. New control disciplines, new development in the technologies will fertilize quite new control application fields. The status report gives an overview of the current key problems in control theory and design, evaluates the recent major accomplishments and forecasts some new areas. Challenges for future theoretical work are modelling, analysis and design of systems in quite new applications fields. New effective real-time optimal algorithms are needed for 2D and 3D pattern recognition. Design of very large distributed systems has presented a new challenge to control theory including robust control. Control over the networks becomes an important application area. Virtual reality is developing in impressive rate arising new theoretical problems. Distributed hybrid control systems involving extremely large number of interacting control loops, coordinating large number of autonomous agents, handling very large model uncertainties will be in the center of future research. New achievements in bioinformatics will result in new applications. All these challenges need development of new theories, analysis and design methods.

Ewart Carson, City University London, United Kingdom

David Dagan Feng, University of Sydney, Australia

Marie-Noëlle Pons, CNRS-ENSIC-INPL Nancy, France

Rodolfo Soncini-Sessa, Politecnico di Milano, Italy

Gerrit van Straten, Wageningen University, Netherlands

SPACECRAFT CONTROL

Thursday 07-Jul-2005 10:00-12:00, Chamber Hall

Chair: *Eveline Gottzein, EADS Astrium, Germany*

Co-Chair: *Josef Shinar, Technion, Israel*

1. (10:00) The CASSINI / HUYGENS Space Mission to Explore the Saturnian System

Klaus Schilling, Bayerische Julius-Maximilians Universität Würzburg, Germany

2. (10:40) Optimal Discrete-Time Magnetic Attitude Control of Satellites

Marco Lovera, Politecnico di Milano, Italy

Andras Varga, German Aerospace Center, DLR-Oberpfaffenhofen, Germany

3. (11:00) Remote Control of Target in Space using Magnetic Force

Masaki Nagai, University of Tokyo, Japan

Shinichi Nakasuka, University of Tokyo, Japan

4. (11:20) Robust Control of a Spacecraft Respinup by Weak Internal Forces

Yevgeny Somov, Research Institute for Control of Mechanical Systems, Russian Federation

Gennady Titov, NPO PM, Russian Federation

Sergey Butyrin, Research Institute for Control of Mechanical Systems, Russian Federation

Valentine Rayevsky, NPO PM, Russian Federation

Albert Kozlov, NPO PM, Russian Federation

5. (11:40) Satellite Attitude Tracking by Quaternion-Based Backstepping

Raymond Kristiansen, Narvik University College, Norway

Per Johan Nicklasson, Narvik University College, Norway

Jan Tommy Gravdahl, Norwegian University of Science and Technology, Norway

MODELING AND CONTROL OF ENVIRONMENTAL SYSTEMS

Thursday 07-Jul-2005 10:00-12:00, North Hall**Chair:** *Andrea Castelletti, Politecnico di Milano, Italy***Co-Chair:** *Hector Silveira, Universidade Federal de Santa Catarina, Brazil*

- 1. (10:00) A New Back-propagation Algorithm for Modelling Air Quality Time Series**
Nunnari Giuseppe, University of Catania, Italy
Flavio Cannavò, University of Catania, Italy
- 2. (10:00) A modelling system to assess the aerosol sensitivity to gas emissions**
Edoardo Decanini, Servizio Ambiente, Provincia di Lucca, Italy
Marialuisa Volta, Università degli Studi di Brescia, Italy
- 3. (10:00) A multi model approach for the monitoring of carbon and nitrogen concentrations during the aerobic phase of a biological sequencing batch reactor**
Djalel Mazouni, INRA, France
Maya Ignatova, Romanian Academy of Sciences, Romania
Jérôme Harmand, INRA, France
- 4. (10:00) Aerobic End-Point Detection In A Sequencing Batch Reactor**
Ivan Machon, Universidad de Oviedo, Spain
Hilario López, Universidad de Oviedo, Spain
- 5. (10:00) An Optimal Decision Model for Coastal Aquifers Management**
Michela Robba, University of Genova, Italy
Marco Antonellini, Stanford University, Italy
Giovanni Gabbianelli, University of Bologna, Italy
Riccardo Minciardi, University of Genova, Italy
Roberto Sacile, University of Genova, Italy
Elisa Ulazzi, University of Bologna, Italy

MODELING AND CONTROL OF ENVIRONMENTAL SYSTEMS

Thursday 07-Jul-2005 10:00-12:00, North Hall**Chair:** *Andrea Castelletti, Politecnico di Milano, Italy***Co-Chair:** *Hector Silveira, Universidade Federal de Santa Catarina, Brazil***6. (10:00) An Optimal Fuzzy Approach to Automated Reservoir Management***Alberto Cavallo, Second University of Napoli, Italy**Armando Di Nardo, Second University of Napoli, Italy**Michele Di Natale, Second University of Napoli, Italy**Ciro Natale, Second University of Napoli, Italy***7. (10:00) Automatic Combustion Control for a Gasifying and Direct Melting Furnace***Kazuro Tsuda, JFE R&D Corp., Japan**Minoru Tanabe, JFE R&D Corp., Japan**Hiroyuki Shimamoto, JFE R&D Corp., Japan***8. (10:00) Control System for Chromium Recycling Technology***Vladimír Vašek, Tomas Bata University in Zlín, Czech Republic**Karel Kolomazník, Tomas Bata University in Zlín, Czech Republic**Dagmar Janáčková, Tomas Bata University in Zlín, Czech Republic**Pham Manh Thang, Tomas Bata University in Zlín, Czech Republic***9. (10:00) Drinking Water Treatment: A Neural Network Model for Coagulation Dosing***Bouchra Lamrini, University Cadi Ayyad of Marrakech, Morocco**Ahmed Benhammou, university Cadi Ayyad of Marrakech, Morocco**Asma karama, university Cadi Ayyad of Marrakech, Morocco**Marie Véronique Le Lann, LAAS/CNRS of Toulouse, France, France*

MODELING AND CONTROL OF ENVIRONMENTAL SYSTEMS**Thursday 07-Jul-2005 10:00-12:00, North Hall****Chair:** *Andrea Castelletti, Politecnico di Milano, Italy***Co-Chair:** *Hector Silveira, Universidade Federal de Santa Catarina, Brazil***10. (10:00) Evaluating the Influence of National Policy on Carbon Dioxide Emissions Tradings***Hiroyuki Tamura, Kansai University, Japan**Yoshihisa Inoue, National Institute of Advanced Industrial Science and Technology (AIST), Japan***11. (10:00) Event-driven Operation Monitoring of Wastewater Treatment Process***Zhao Lijie, Automation Research Center, Northeastern University, China**Tianyou Chai, Automation Research Center, Northeastern University, China**Qiumei Cong, Automation Research Center, Northeastern University, China***12. (10:00) Fault Diagnosis under Multiple Sequential Faults of the Rain-gauge Network used to Control the Barcelona Sewer System***Joseba Quevedo, Universitat Politècnica de Catalunya (UPC), Spain**Jaume Figueras, Universitat Politècnica de Catalunya (UPC), Spain**Vicenç Puig, Universitat Politècnica de Catalunya (UPC), Spain***13. (10:00) Fuzzy Logic Control of Integrated Wastewater Systems***Reza Katebi, University of Strathclyde, United Kingdom**Flavia Camilleri, University of Strathclyde, Italy***14. (10:00) Model Based Predictive Control for Wastewater Applications***Marie O' Brien, University of Strathclyde, United Kingdom**Sergio Enrique Pinto Castillo, University of Strathclyde, United Kingdom**Reza Katebi, University of Strathclyde, United Kingdom*

MODELING AND CONTROL OF ENVIRONMENTAL SYSTEMS

Thursday 07-Jul-2005 10:00-12:00, North Hall**Chair:** *Andrea Castelletti, Politecnico di Milano, Italy***Co-Chair:** *Hector Silveira, Universidade Federal de Santa Catarina, Brazil***15. (10:00) Modeling and Validation of a Greenhouse Climate Model***Javier Leal Iga, Universidad Autonoma de Nuevo Leon, Mexico**Efraín Alcorta García, Universidad Autonoma de Nuevo Leon, Mexico**Humberto Rodríguez Fuentes, Universidad Autonoma de Nuevo Leon, Mexico***16. (10:00) Modelling evaluation of EU Road Traffic emission strategies***Veronica Gabusi, Universita' degli Studi di Brescia, Italy**Giovanna Finzi, Universita' degli Studi di Brescia, Italy**Marialuise Volta, Universita' degli Studi di Brescia, Italy***17. (10:00) Modelling the submerged vegetation in the Orbetello lagoon with fuzzy cellular automata***Stefano Marsili-Libelli, University of Florence, Italy**Elisabetta Giusti, University of Florence, Italy***18. (10:00) Nonlinear Observability of Activated Sludge Process Models***Farid Benazzi, University of Strathclyde, United Kingdom**Reza Katebi, University of Strathclyde, United Kingdom***19. (10:00) SBR switching by fuzzy pattern recognition***Stefano Marsili-Libelli, University of Florence, Italy***20. (10:00) Water Treatment by Ozonation: Contaminants Concentration Estimation by Dynamical Neural Network***Isaac Chairez, CINVESTAV, Mexico**Alexander Poznyak, CINVESTAV, Mexico**Tatyana Poznyak, ESIQIE-IPN, Mexico*

FREQUENCY DOMAIN ESTIMATION METHODS

Thursday 07-Jul-2005 10:00-12:00, Club H

Chair: *Johan Schoukens, Vrije Universiteit Brussel, Belgium*

Co-Chair: *Tadeusz Dobrowiecki, Budapest Univ of Technology, Hungary*

1. (10:00) **An Optimisation-based Approach to Interval Model Identification in the Frequency Domain**
Vicenç Puig, Universitat Politècnica de Catalunya, Spain
Albert Masip, Universitat Politècnica de Catalunya, Spain
Joseba Quevedo, Universitat Politècnica de Catalunya, Spain
2. (10:20) **Analysis of windowing/leakage effects in frequency response function measurements**
Johan Schoukens, VUB, Belgium
Y. Rolain, VUB, Belgium
R. Pintelon, VUB, Belgium
3. (10:40) **Cyclic Spectral Based Approach to Closed-Loop Identification**
Lianming Sun, The University of Kitakyushu, Japan
Akira Sano, Keio University, Japan
4. (11:00) **ML identification of closed-loop systems in a specified frequency band**
Rik Pintelon, Vrije Universiteit Brussel, Belgium
Johan Schoukens, Vrije Universiteit Brussel, Belgium
5. (11:20) **Measuring Linear Approximation to Weakly Nonlinear MIMO Systems**
Tadeusz Dobrowiecki, Budapest University of Technology and Economics, Hungary
Johan Schoukens, Vrije Universiteit Brussel, Belgium
6. (11:40) **System identification using Measurements Subject to Stochastic Time Jitter**
Frida Eng, Linkopings universitet, Sweden
Fredrik Gustafsson, Linkopings universitet, Sweden

NONLINEAR CONTROLLER DESIGN

Thursday 07-Jul-2005 10:00-12:00, North Hall**Chair:** *Graham Goodwin, The University of Newcastle, Australia***Co-Chair:** *Lalo Magni, University of Pavia, Italy***1. (10:00) A Stable Real-time Optimal Multiple-model based Control of a Nonlinear Process***Akbar Safavi, Queen Mary, University of London, United Kingdom**A. Khayatian, Shiraz University, Iran**A. Aminzadeh, Shiraz University, Iran**Y.M. Talukder, Queen Mary, University of London, United Kingdom**M.H. Shaeed, Queen Mary, University of London, United Kingdom**H.J.C. Huijberts, Queen Mary, University of London, United Kingdom***2. (10:00) Adaptive Multi-periodic Repetitive Control for a class of Non-linear Systems***Hongwei Dang, the University of Sheffield, United Kingdom**David H. Owens, the University of Sheffield, United Kingdom***3. (10:00) Constrained magnetic levitation control***Martin Kamenský, Slovak Technical University, Slovakia**Mikuláš Huba, Slovak Technical University, Slovakia***4. (10:00) Control of Pendubot Using Input-output Feedback Linearization and Predictive Control***Kahina Guemghar, Supelec, France**Bala Srinivasan, Swiss Federal Institute of Technology, Switzerland**Dominique Bonvin, Swiss Federal Institute of Technology, Switzerland***5. (10:00) Dynamic Non-Minimum Phase Compensation for SISO Nonlinear, Affine in the Input Systems***Marko Bacic, Oxford University, United Kingdom**Mark Cannon, Oxford University, United Kingdom**Basil Kouvaritakis, Oxford University, United Kingdom*

NONLINEAR CONTROLLER DESIGN

Thursday 07-Jul-2005 10:00-12:00, North Hall

Chair: **Graham Goodwin, The University of Newcastle, Australia**

Co-Chair: **Lalo Magni, University of Pavia, Italy**

6. (10:00) Linear Parameter-Varying Anti-windup Control For Active Microgravity Isolation

Feng Zhang, Department of Mechanical Engineering, University of Houston, United States

Ian Fialho, Department of Mechanical Engineering, University of Houston, United States

Karolos Grigoriadis, Department of Mechanical Engineering, University of Houston, United States

7. (10:00) Locally Constrained Optimal and Globally Stable Backstepping Design

Aras Adhami-Mirhosseini, University of Tehran, Iran

Mohammad Javad Yazdanpanah, University of Tehran, Iran

8. (10:00) Neural Network Control of Discrete-time Non-affine MIMO Systems with Disturbances

Jin Zhang, Beijing University of Aeronautics and Astronautics, China

Shuling Dai, Beijing University of Aeronautics and Astronautics, China

9. (10:00) Nonlinear Robust Control via Approximate Feedback Linearization

Reza Banirazi Motlagh, Islamic Azad University, Tehran Sought Unit, Iran

Mohamad Jahed Motlagh, Iran University of Science and Technology, Iran

10. (10:00) On Approach of Multiple Frequency Active Vibration Control under the Actuator with Magnetic Hysteresis Loop

Chao Li, The Seventh Research Division, Beijing University of Aeronautics & Astronautics, China

Jianqin Mao, The Seventh Research Division, Beijing University of Aeronautics & Astronautics, China

11. (10:00) On the inverted pendulum on a cart moving along an arbitrary path

Luca Consolini, Universita' degli Studi di Parma, Italy

Mario Tosques, Universita' degli Studi di Parma, Italy

NONLINEAR CONTROLLER DESIGN

Thursday 07-Jul-2005 10:00-12:00, North Hall

Chair: *Graham Goodwin, The University of Newcastle, Australia*

Co-Chair: *Lalo Magni, University of Pavia, Italy*

12. (10:00) Path planning for non linear systems using trigonometric splines

Vincent Mahout, LAAS CNRS, France

13. (10:00) Receding Horizon Neural H_∞ Control for a Class of Nonlinear Unknown Systems

Choon Ki Ahn, Seoul National University, Korea

Soo Hee Han, Seoul National University, Korea

Wook Hyun Kwon, Seoul National University, Korea

14. (10:00) Reliable H_∞ Control for a Class of Switched Nonlinear Systems

Rui Wang, Northeastern University, China

Jun Zhao, Northeastern University, China

Georgi M. Dimirovski, Dogus University, Turkey

15. (10:00) Robust adaptive tracking control for a class of perturbed uncertain nonlinear systems

Tieshan Li, Dalian Maritime University, China

Yansheng Yang, Dalian Maritime University, China

Biguang Hong, Dalian Maritime University, China

Junsheng Ren, Dalian Maritime University, China

16. (10:00) Robust global stabilizing bounded control of a PVTOL aircraft with lateral coupling

Arturo Zavala-Rio, Instituto Potosino de Investigacion Cientifica y Tecnologica, Mexico

Isabelle Fantoni, Université de Technologie de Compiègne, France

Sergio Salazar, Université de Technologie de Compiègne, France

Rogelio Lozano, Université de Technologie de Compiègne, France

NONLINEAR CONTROLLER DESIGN

Thursday 07-Jul-2005 10:00-12:00, North Hall**Chair:** *Graham Goodwin, The University of Newcastle, Australia***Co-Chair:** *Lalo Magni, University of Pavia, Italy***17. (10:00) Stable Adaptive Control with Recurrent Neural Networks***Dimitri Lefebvre, University Le Havre, France**Salem Zerkaoui, University Le Havre, France**Fabrice Druaux, University Le Havre, France**Edouard Leclercq, University Le Havre, France***18. (10:00) Strong stabilization for a class of nonlinear time-varying control systems with state delays***Vu Ngoc Phat, Vietnam Academy of Science & Technology, Viet Nam**Nguyen M. Linh, Vietnam Academy of Science & Technology, Viet Nam**Ta D. Phuong, Vietnam Academy of Science & Technology, Viet Nam***19. (10:00) The Application of Control using Neuro-dynamic Programming with a Feature Map***Dae Ryook Yang, Korea University, Korea**Dong Kyu Kim, Korea University, Korea**Joeng Ho Ahn, Sungkyunkwan University, Korea**Kwang Soon Lee, Sogang University, Korea***20. (10:00) Tracking of non-square nonlinear systems with model predictive control***Lalo Magni, University of Pavia, Italy**Riccardo Scattolini, Politecnico di Milano, Italy*

NONLINEAR MODEL PREDICTIVE CONTROL

Thursday 07-Jul-2005 10:00-12:00, Terrace 2

Chair: *Martin Guay, Queens University, United Kingdom*

Co-Chair: *Rolf Findeisen, University of Stuttgart, Germany*

1. (10:00) **A new real-time approach for nonlinear model predictive control**
Darryl DeHaan, Queen's University, Canada
Martin Guay, Queen's University, Canada
2. (10:20) **Robust Stabilization of Nonlinear Processes Using Hybrid Predictive Control**
Panagiotis Christofides, University of California, Los Angeles, United States
Prashant Mhaskar, University of California, Los Angeles, United States
Nael H. El-Farra, University of California, Los Angeles, United States
3. (10:40) **Explicit min-max model predictive control of constrained nonlinear systems with model uncertainty**
Alexandra Grancharova, Bulgarian Academy of Sciences, Bulgaria
Tor Arne Johansen, Norwegian University of Science and Technology, Norway
4. (11:00) **RBF-ARX Model-based Robust MPC for Nonlinear Systems**
Hui Peng, Central South University, China
Weihua Gui, Central South University, China
Runmin Zou, Central South University, China
Rafi Youssef, Central South University, China
Zi-Jiang Yang, Kyushu University, Japan
Hideo Shioya, Bailey Japan Co. Ltd., Japan
5. (11:20) **Controlling chaos by predictive control**
Boris Polyak, Institute for Control Science, Russian Federation
Victor Maslov, Institute for Control Science, Russian Federation

NONLINEAR MODEL PREDICTIVE CONTROL

Thursday 07-Jul-2005 10:00-12:00, Terrace 2

Chair: *Martin Guay, Queens University, United Kingdom*

Co-Chair: *Rolf Findeisen, University of Stuttgart, Germany*

**6. (11:40) A Formulation of Nonlinear Model Predictive Control
Using Automatic Differentiation**

Yi Cao, Cranfield University, United Kingdom

SLIDING MODE CONTROL I

Thursday 07-Jul-2005 10:00-12:00, Club A

Chair: *Alexander Loukianov, CINVESTAV del IPN, Mexico*

Co-Chair: *Francesco Casella, Politecnico di Milano, Italy*

1. (10:00) Deadtime block compensation sliding mode control of linear system with delay

Alexander Loukianov, CINVESTAV del IPN Unidad Guadalajara, Mexico

O. Espinosa-Guerra, CINVESTAV del IPN Unidad Guadalajara, Mexico

B. Castillo Toledo, CINVESTAV del IPN Unidad Guadalajara, Mexico

2. (10:20) Extremum Seeking Control via Sliding Mode with Two Surfaces

Rong Xu, The Ohio State University, United States

Umit Ozguner, The Ohio State University, United States

3. (10:40) Neural Sliding Mode Control for Hysteresis Systems

Yonghong Tan, Guilin University of Electronic Technology, China

Chuntao Li, Nanjing University of Aeronautics and Astronautics, China

4. (11:00) On Chattering-Free Discrete-time Sliding Mode Control Design

Seung-Hi Lee, Samsung Adv. Inst. of Tech., Korea

5. (11:20) Output Feedback Tracking Sliding Mode Control with Parallel Feedforward Compensator

Hirofumi Ohtsuka, Kumamoto National College of Technology, Japan

Zenta Iwai, Kumamoto University, Japan

Ikuro Mizumoto, Kumamoto University, Japan

6. (11:40) Sliding Mode Control of Nonlinear Systems with Time-varying Delay

Toshiki Oguchi, Tokyo Metropolitan University, Japan

Kai Tanaka, Ishikawajima-Harima Heavy Industries Co., Ltd., Japan

ACTIVE FAULT DIAGNOSIS/ DECISION SYSTEM DESIGN

Thursday 07-Jul-2005 10:00-12:00, Club E**Chair:** *Gary Balas, University of Minnesota, United States***Co-Chair:** *Dominique Sauter, University Henri Poincaré, Nancy, France***1. (10:00) Auxiliary Signal Design in Uncertain Systems with Known Inputs***Stephen Campbell, North Carolina State University, United States**Ramine Nikoukhah, INRIA Rocquencourt, France***2. (10:20) Active Fault Diagnosis in Closed-loop Systems***Hans Henrik Niemann, Techn. Univ. of Denmark, Denmark**Niels Kjølstad Poulsen, Techn. Univ. of Denmark, Denmark***3. (10:40) Optimal input and decision in multiple model fault detection***Miroslav Simandl, University of West Bohemia in Pilsen, Czech Republic**Ivo Puncochar, University of West Bohemia in Pilsen, Czech Republic**Petr Herejt, University of West Bohemia in Pilsen, Czech Republic***4. (11:00) Dynamic threshold generators for fault detection in uncertain systems***Andreas Johansson, Luleå University of Technology, Sweden**Michael Bask, Luleå University of Technology, Sweden***5. (11:20) Geometric-based approach to fault detection for multilinear affine systems***Frederic Hamelin, Henri Poincare University, Nancy, France, Metropolitan**Taha Boukhobza, Henri Poincare University, Nancy, France, Metropolitan***6. (11:40) Linear Optimization of Parameters in Dynamic Threshold Generators***Michael Bask, Lulea University of Technology, Sweden**Andreas Johansson, Lulea University of Technology, Sweden*

ADVANCED LINEAR CONTROL

Thursday 07-Jul-2005 10:00-12:00, Small Theatre

Chair: *Dale Seborg, UCSB, United States*

Co-Chair: *Morten Hovd, NTNU, Norway*

1. (10:00) Calculating Dynamic Disturbance Rejection Measures

Morten Hovd, Norwegian University of Technology and Science, Norway

Ioannis K. Kookos, UMIST, United Kingdom

2. (10:20) A two-degree-of-freedom Smith control for improved disturbance rejection

Qing-Guo Wang, National University of Singapore, Singapore

Xiang Lu, National University of Singapore, Singapore

Hanqin Zhou, University of Houston, United States

Tong-heng Lee, National University of Singapore, Singapore

3. (10:40) On the use of dynamic inversion for the improvement of PID control

Antonio Visioli, University of Brescia, Italy

Aurelio Piazzoli, University of Parma, Italy

4. (11:00) Multi-model Control of a Simulated pH Neutralization Process

Jari M. Boling, Abo Akademi University, Finland

Dale E. Seborg, Univ. of California, United States

Joao P. Hespanha, Univ. of California, United States

5. (11:20) Multi-loop feedback control of oil well drillstrings

Eduardo Aranda-Bricaire, CINVESTAV, Mexico

Jose Alvarez-Ramirez, UAM-Iztapalapa, Mexico

CONTROL OF STOCHASTIC SYSTEMS

Thursday 07-Jul-2005 10:00-12:00, Terrace 1

Chair: *Giorgio Picci, University of Padova, Italy*

Co-Chair: *Subhrakanti Dey, University of Melbourne, Australia*

1. (10:00) **Stochastic Control Design for Stochastic Uncertain Time-Delay Systems**
Hamidreza Karimi, University of Tehran, Iran
Behzad Moshiri, University of Tehran, Iran
Parviz Jabedar Maralani, University of Tehran, Iran
Boris Lohmann, University of Bremen, Germany
2. (10:20) **Distributed State Estimation for Hidden Markov Models with Dynamic Quantization and Rate Allocation**
Minyi Huang, University of Melbourne, Australia
Subhrakanti Dey, University of Melbourne, Australia
3. (10:40) **Robustness Properties of a Class of Optimal Risk-Sensitive Controllers for Quantum Systems**
Matthew James, Australian National University, Australia
Ian Petersen, University of New South Wales at ADFA, Australia
4. (11:00) **H_∞ Control for Nonlinear Stochastic Systems: The Output-Feedback Case**
Uri Shaked, Tel Aviv Uni., Israel
Nadav Berman, Ben-Gurion University, Israel
5. (11:20) **Stochastic Stability Analysis and Fuzzy Linear Control of Stochastic Nonlinear Time-Delay Systems**
Hamidreza Karimi, University of Tehran, Iran
Behzad Moshiri, University of Tehran, Iran
Caro Lucas, University of Tehran, Iran
6. (11:40) **Information Theoretic Interpretations for H_∞ Entropy**
Hui Zhang, Zhejiang University, China
Youxian Sun, Zhejiang University, China

NEW TOOLS FOR CONTROL OF SMART STRUCTURES

Thursday 07-Jul-2005 10:00-12:00, Club B

Organizer: *Christophe Prieur, LAAS-CNRS, France*

Co-Organizer *Sami Tliba, SATIE - ENS CACHAN, France*

Co-Organizer *Hisham Abou-Kandil, SATIE - ENS CACHAN, France*

Chair: *Christophe Prieur, LAAS-CNRS, France*

1. (10:00) **Multivariable LQG Vibration Control using Charge-Driven Piezoelectric Actuators**
Benjamin Vautier, The University of Newcastle, Australia
Reza Moheimani, The University of Newcastle, Australia
2. (10:20) **Exact Wavefront Correction in Adaptive Optics**
Lionel Rosier, Universite Nancy 1, France
Pierre Le Gall, Universite Nancy 1, France
3. (10:40) **An anti-windup strategy for a flexible cantilever beam**
Sophie Tarbouriech, LAAS-CNRS, France
Christophe Prieur, LAAS-CNRS, France
Joao Manoel Gomes da Silva Jr., UFRGS, Brazil
4. (11:00) **Active Vibration Damping of a Smart Flexible Structure Using Piezoelectric Transducers: H-infinity Design and Experimental Results**
Sami Tliba, SATIE - ENS CACHAN, France, Metropolitan
Christophe Prieur, LAAS CNRS, France, Metropolitan
Hisham Abou-Kandil, SATIE - ENS CACHAN, France, Metropolitan
5. (11:20) **Experimental evaluation of a new active vibration control algorithm**
Fabien Formosa, ESIA-LMeca, France
Jacques Lottin, ESIA-LISTIC, France
6. (11:40) **Optimal shape design for time dependent system - Application to optimal position of actuators**
Arnaud Munch, Université de Franche-Comte, France

ADAPTABILITY TECHNIQUES FOR CONTROL SYSTEM SOFTWARE

Thursday 07-Jul-2005 10:00-12:00, Club D**Organizer:** *Walter Schaufelberger, ETH Zurich, Switzerland***Chair:** *Walter Schaufelberger, ETH-Zürich, Switzerland***Co-Chair:** *Alessandro Pasetti, P&P Software, Switzerland***1. (10:00) The Adaptability Challenge for Embedded Control System Software***Alessandro Pasetti, P&P Software, Switzerland**Vaclav Cechticky, ETH Zürich, Switzerland**Walter Schaufelberger, ETH Zürich, Switzerland***2. (10:20) Platform for Advanced Control Applications***Jaroslav Beran, Honeywell Laboratories Prague, Czech Republic**Brian Horn, Honeywell Process Solutions, United States**Jiri Findejs, Honeywell Laboratories Prague, Czech Republic**Vladimir Havlena, Honeywell Laboratories Prague, Czech Republic**Mikulas Rozloznik, Honeywell Laboratories Prague, Czech Republic***3. (10:40) Software Methodological and Tool Support for Embedded Control Systems***John Favaro, Intecs S.p.A., Italy**Silvia Mazzini, Intecs S.p.A., Italy**Stefano Puri, Intecs S.p.A., Italy**Michele Bavaro, Intecs S.p.A., Italy***4. (11:00) Towards a Validated Object Oriented Design Approach to Control Software***Alban Rasse, Université de Haute Alsace Mulhouse, ESSAIM, MIPS Laboratory, France**Jean-Marc Perrone, Université de Haute Alsace Mulhouse, ESSAIM, MIPS Laboratory, France**Bernard Thirion, Université de Haute Alsace Mulhouse, ESSAIM, MIPS Laboratory, France*

ADAPTABILITY TECHNIQUES FOR CONTROL SYSTEM SOFTWARE

Thursday 07-Jul-2005 10:00-12:00, Club D

Organizer: *Walter Schaufelberger, ETH Zurich, Switzerland*

Chair: *Walter Schaufelberger, ETH-Zürich, Switzerland*

Co-Chair: *Alessandro Pasetti, P&P Software, Switzerland*

5. (11:20) Self-X: The Control Within

Ricardo Sanz, Universidad Politecnica de Madrid, Spain

Ignacio López, Universidad Politecnica de Madrid, Spain

Julita Bermejo, Universidad Politecnica de Madrid, Spain

Rafael Chinchilla, Universidad Politecnica de Madrid, Spain

Raquel P. Conde, Universidad Politecnica de Madrid, Spain

6. (11:40) Adapting Control Software Systems Through Aspect-Oriented Programming

Ondrej Rohlik, ETH, Switzerland

Iwan Birrer, ETH, Switzerland

Philippe Chevalley, ESA, Netherlands

ROBUST CONTROLLER SYNTHESIS BY NORM MINIMIZATION

Thursday 07-Jul-2005 10:00-12:00, Club C

Chair: *Toshiharu Sugie, Kyoto University, Japan*

Co-Chair: *Emmanuel Prempain, University of Liverpool, United Kingdom*

1. (10:00) A new H-infinity design method for high performance robust tracking control

Arvin Dehghani, The Australian National University, Australia

Alexander Lanzon, The Australian National University, Australia

Brian D. O. Anderson, The Australian National University, Australia

2. (10:20) A Comparison of two Algorithms for the Static H-infinity Loop Shaping Problem

Emmanuel Prempain, University of Liverpool, United Kingdom

3. (10:40) Rank-constrained LMI approach to mixed H₂/H_∞ static output feedback controllers

Seog-Joo Kim, Korea Electrotechnology Research Institute, Korea

Young-Hyun Moon, Yonsei University, Korea

Soonman Kwon, Korea Electrotechnology Research Institute, Korea

Kook-Hun Kim, KNICS R&D Center, Korea

4. (11:00) Robust I1 synthesis with error quantification for coprime factor nominal system

Victor Sokolov, Komi Scientific Center, RAS, Russian Federation

5. (11:20) Sensitivity shaping with degree constraint by nonlinear least-squares optimization

Ryozo Nagamune, University of California, Berkeley, United States

Anders Blomqvist, Royal Institute of Technology, Sweden

6. (11:40) The parametrization of all robust stabilizing repetitive controllers

Keiji Satoh, Gunma University, Japan

Kou Yamada, Gunma University, Japan

TIME-DELAY SYSTEMS I

Thursday 07-Jul-2005 10:00-12:00, Meeting Room 2.2

Chair: *Joao M. Gomes da Silva Jr., Univ. Federal do Rio Grande do Sul, Brazil*

Co-Chair: *Pedro L.D. Peres, University of Campinas, Brazil*

1. (10:00) **Stability of Linear Neutral Systems with Mixed Delay and Polytopic Uncertainty**
Dong Yue, Nanjing Normal University, China
Qing-Long Han, Central Queensland Univ, Australia
2. (10:20) **On the robust stability of neutral systems with time-varying delays**
Pedro L. D. Peres, University of Campinas, Brazil
Valter J. S. Leite, UnED-Divinópolis - CEFET-MG, Brazil
Eugenio B. Castelan, DAS-CTC-UFSC, Brazil
Sophie Tarbouriech, LAAS-CNRS, Toulouse, France
3. (10:40) **Stability Analysis of Switched Time-Delay Systems**
Peng Yan, The Ohio State University, United States
Hitay Ozbay, Bilkent University, Turkey
4. (11:00) **Stabilization of Neutral Systems with Saturating Inputs**
Joao Manoel Gomes da Silva Jr., UFRGS, Brazil
Emilia Fridman, Tel-Aviv University, Israel
Alexandre Seuret, EC-Lille, France
Jean-Pierre Riichard, EC-Lille, France
5. (11:20) **Quadratic functional for systems with distributed time delays**
Omar Santos, CINVESTAV - IPN., Mexico
V. L. Kharitonov, CINVESTAV - IPN., Mexico
S. Mondié, CINVESTAV - IPN., Mexico
6. (11:40) **On the disturbance attenuation for input delay systems**
Michael Di Loreto, IRCCyN, CNRS, France
Jean-François Lafay, IRCCyN, CNRS, France
Jean Jacques Loiseau, IRCCyN, CNRS, France

SWITCHED DYNAMIC SYSTEMS II

Thursday 07-Jul-2005 10:00-12:00, Meeting Room 4.1

Chair: *Jose C. Geromel, University of Campinas, Brazil*

Co-Chair: *Fabian Wirth, NUI Maynooth, Ireland*

1. (10:00) **An Exact Stability Test for Planar and Multi-Modal Piecewise Linear Systems**
Yasushi Iwatani, The University of Tokyo, Japan
Shinji Hara, The University of Tokyo, Japan
2. (10:20) **Stabilization of continuous-time switched systems**
José C. Geromel, UNICAMP, Brazil
Patrizio Colaneri, Politecnico di Milano, Italy
3. (10:40) **Feedback linearization of piecewise linear systems**
Kanat Camlibel, Dogus University, Turkey
Ilker Ustoglu, Istanbul Technical University, Turkey
4. (11:00) **Hybrid Control With Sliding Sector**
Yaodong Pan, Tokyo Denki University, Japan
Satoshi Suzuki, Tokyo Denki University, Japan
Katsuhisa Furuta, Tokyo Denki University, Japan
5. (11:20) **Optimal Switched Law of Switched Linear Systems Based on Convergence Direction**
Junsheng Li, Northeast University, China
Liqun Gao, Northeast University, China
6. (11:40) **The Gelfand formula for linear parameter-varying and linear switching systems**
Fabian Wirth, The Hamilton Institute, NUI Maynooth, Ireland

MATHEMATICAL STRUCTURE OF DYNAMICAL SYSTEMS

Thursday 07-Jul-2005 10:00-12:00, Meeting Room 4.2

Organizer: *Jan Willem Polderman, University of Twente, Netherlands*

Chair: *Jan Willem Polderman, University of Twente, Netherlands*

Co-Chair: *Margreta Kuijper, University of Melbourne, Australia*

1. (10:00) **Algebraic Theory of Time-Varying Linear Systems: A Survey**
Achim Ilchmann, Technical University Ilmenau, Germany
2. (10:40) **An algebraic analysis approach to linear time-varying behaviors**
Eva Zerz, University of Kaiserslautern, Germany
3. (11:00) **Behavioral models over rings--minimal representations and applications to coding and sequences**
Margreta Kuijper, University of Melbourne, Australia
Xin-Wen Wu, University of Melbourne, Australia
Udaya Paramalli, University of Melbourne, Australia
4. (11:20) **Process Algebraic Approach to Hybrid Systems**
Tomas Krilavicius, University of Twente, Netherlands
Ed Brinksma, University of Twente, Netherlands
Yaroslav S. Usenko, University of Twente, Netherlands
5. (11:40) **The controllability test for behaviors revisited**
Jan Willem Polderman, University of Twente, Netherlands

SPECIFIC PROBLEMS IN OPTIMAL CONTROL

Thursday 07-Jul-2005 10:00-12:00, Meeting Room 1.1

Chair: *Fernando Pereira, FEUP - Porto University, Portugal*

Co-Chair: *Jirka Roubal, CTU in Prague, FEL, Czech Republic*

1. (10:00) Approximate Dynamic Programming Strategy for Dual Adaptive Control

Jong Min Lee, Georgia Institute of Technology, United States

Jay H. Lee, Georgia Institute of Technology, United States

2. (10:20) Range Control MPC Approach for Two-Dimensional System

Jirka Roubal, CTU in Prague, FEL, Czech Republic

Vladimír Havlena, Honeywell Prague Laboratory, Czech Republic

3. (10:40) Numerical Computation of Pareto Optimal Strategy for General Multiparameter Singularly Perturbed Systems

Hiroaki Mukaidani, Hiroshima University, Japan

Hua Xu, The University of Tsukuba, Japan

Koich Mizukami, Hiroshima Kokusai Gakuin University, Japan

4. (11:00) Modeling and Control of Dynamical Systems with Active Singularities and Sensing in a Singular Motion Phase

Evgeny Rubinovich, Institute of Control Sciences, Russian Federation

Joseph Bentsman, University of Illinois at Urbana-Champaign, United States

Boris Miller, Institute for Information Transmission Problems, Russian Federation

5. (11:20) Second-order Necessary Conditions for Optimal Impulsive Control

Aram Arutyunov, Peoples Friendship University of Russia, Russian Federation

Fernando Pereira, FEUP - Porto University, Portugal

SPECIFIC PROBLEMS IN OPTIMAL CONTROL

Thursday 07-Jul-2005 10:00-12:00, Meeting Room 1.1

Chair: *Fernando Pereira, FEUP - Porto University, Portugal*

Co-Chair: *Jirka Roubal, CTU in Prague, FEL, Czech Republic*

6. (11:40) Solving Optimal Feedback Control of Chinese Population Dynamics by Viscosity Solution Approach

Bing Sun, Academy of Mathematics and System Sciences, Academia Sinica, China

Bao-Zhu Guo, University of the Witwatersrand, South Africa and Academy of Mathematics and System Sciences, Academia Sinica, China

FUZZY CONTROL: LMI METHODS

Thursday 07-Jul-2005 10:00-12:00, Meeting Room 2.3

Chair: *Thierry Marie Guerra, University of Valenciennes et Hainaut-Cambrésis, France*

Co-Chair: *Gang Feng, City University of Hong Kong, Hong Kong*

1. (10:00) Global Robust H-Infinity Control for Non-Minimum-Phase Uncertain Nonlinear Systems without Strict Triangular Structure

Shengzhi Zhao, Key Laboratory of Process Industry Automation, Ministry of Education, China

Jun Zhao, Key Laboratory of Process Industry Automation, Ministry of Education, China

Georgi M. Dimirovski, Dogus University, Turkey

2. (10:20) Robust H-infinity Output Feedback Control Design for Fuzzy Dynamic Systems with Quadratic D Stability Constraints: An LMI Approach

Sing Kiong Nguang, The University of Auckland, New Zealand

Wudhichai Assawinchaichote, King Mongkut's Uni. of Tech. Thonburi, Thailand

Peng Shi, University of Glamorgan, United Kingdom

3. (10:40) Tracking Control for Uncertain Takagi Sugeno Fuzzy Systems with External Disturbances

Badr Mansouri, Université de Reims, France

Noureddine Manamanni, CRESTIC, Université de Reims, France

Abdelaziz Hamzaoui, CRESTIC, Université de Reims, France

Janan Zaytoon, CRESTIC, Université de Reims, France

4. (11:00) Conditions of Output Stabilization for Uncertain Discrete TS Fuzzy Models

Alexandre Kruszewski, University of Valenciennes et du Hainaut Cambrésis, France, Metropolitan

Thierry Marie Guerra, University of Valenciennes et du Hainaut Cambrésis, France, Metropolitan

FUZZY CONTROL: LMI METHODS

Thursday 07-Jul-2005 10:00-12:00, Meeting Room 2.3

Chair: *Thierry Marie Guerra, University of Valenciennes et Hainaut-Cambrésis, France*

Co-Chair: *Gang Feng, City University of Hong Kong, Hong Kong*

5. (11:20) H^∞ Discrete Time Fuzzy Control with Application to Chaos Control based on Piecewise Lyapunov Functions

C.L. Chen, City Univ. of Hong Kong, Hong Kong

G. Feng, City Univ. of Hong Kong, Hong Kong

X.P. Guan, City Univ. of Hong Kong, Hong Kong

6. (11:40) Observer Design for T-S Fuzzy Systems with Measurement Output Noises

Zhiwei Gao, Tianjin University, University of Duisburg-Essen, China

Xiaoyan Shi, Tianjin University, China

Steven X. Ding, University of Duisburg-Essen, Germany

CONTROL OF POWER CONVERTERS

Thursday 07-Jul-2005 10:00-12:00, Meeting Room 3.1**Chair:** *Harald Weber, University of Rostock, Germany***Co-Chair:** *Pavel Zitek, Czech Technical University in Prague, Czech Republic***1. (10:00) A New Design of Robust Digital Controller for DC-DC Converters***Kohji Higuchi, The University of Electro-Communications, Japan**Kazushi Nakano, The University of Electro-Communications, Japan**Tatsuyoshi Kajikawa, The University of Electro-Communications, Japan**Eiji Takegami, DENSEI-LAMBDA K.K., Japan**Satoshi Tomioka, DENSEI-LAMBDA K.K., Japan**Kazushi Watanabe, DENSEI-LAMBDA K.K., Japan***2. (10:20) Nonlinear Control of Boost AC/DC Converters***Fouad Giri, GREYC, France**Abdelmajid Abouloifa, GREYC, France**Ibtissam Lachkar, LA2I, Morocco***3. (10:40) A robust passive power-based control strategy for three-phase voltage source rectifiers***Jacquelin M.A. Scherpen, Delft University of Technology, Netherlands**Dimitri Jeltsema, Delft University of Technology, Netherlands**Elodie Hageman, Ecole Centrale de Nantes, France***4. (11:00) Boolean Sliding Mode Control of Multilevel Power Converters***Pierre-Yves Richard, Supélec, France**Hervé Cormerais, Supélec, France**Cécile Morvan, Supélec, France**Jean Buisson, Supélec, France*

CONTROL OF POWER CONVERTERS

Thursday 07-Jul-2005 10:00-12:00, Meeting Room 3.1**Chair:** *Harald Weber, University of Rostock, Germany***Co-Chair:** *Pavel Zitek, Czech Technical University in Prague, Czech Republic***5. (11:20) Autonomous Oscillation Generation in the Boost Converter***Daniel J. Pagano, Federal University of Santa Catarina, Brazil**Javier Aracil, University of Seville, Spain**Francisco Gordillo, University of Seville, Spain***6. (11:40) Repetitive-Control System for Harmonic Elimination in Three-Phase Voltage-Source Inverters***Pedro Roncero, E.T.S. Ingenieros Industriales, University of Castilla-La Mancha, Spain**Vicente Feliu-Batlle, E.T.S. Ingenieros Industriales, University of Castilla-La Mancha, Spain**Aurelio García-Cerrada, E.T.S. de Ingeniería (ICAI), Universidad Pontificia Comillas, Spain**Pablo García-González, E.T.S. de Ingeniería (ICAI), Universidad Pontificia Comillas, Spain*

PRODUCTION PLANNING AND SCHEDULING - I

Thursday 07-Jul-2005 10:00-12:00, Meeting Room 3.2

Chair: *Benoit lung, CRAN, France*

Co-Chair: *Laszlo Monostori, SZTAKI, Hungary*

1. (10:00) **Design and implementation of manufacturing automation system through international standards**
Andrea Cataldo, ITIA-CNR, Italy
Emanuele Carpanzano, ITIA-CNR, Italy
Marco Donà, ITIA-CNR, Italy
2. (10:20) **On-line job-shop scheduling of a manufacturing system based on a virtual supervisor concept**
Enrique Baeyens, University of Valladolid, Spain
Jesus Trujillo, University of Valladolid, Spain
Zbigniew Pasek, University of Michigan, United States
3. (10:40) **Planned Lead-times Design in Stochastic Multistage Assembly Systems**
Dong-Ping Song, Imperial College London, United Kingdom
C. Hicks, University of Newcastle upon Tyne, United Kingdom
C.F. Earl, The Open University, United Kingdom
4. (11:00) **Random Start and Forward Search Applied to Solve Multi-Criterion Planning Problems**
Thanh-Tung Dang, Institute of Informatics, Slovak Academy of Sciences, Slovakia
Baltazár Frankovič, Institute of Informatics, Slovak Academy of Sciences, Slovakia
Con Sheahan, Dept. Of Manufacturing & Operations Eng., University of Limerick, Limerick, Ireland, Ireland
Ivana Budinská, Institute of Informatics, Slovak Academy of Sciences, Slovakia
5. (11:20) **Noncooperative Game on Scheduling: The Single Machine Case**
Changjun Wang, Shanghai Jiaotong University, China
Yugeng Xi, Shanghai Jiaotong University, China

PRODUCTION PLANNING AND SCHEDULING - I

Thursday 07-Jul-2005 10:00-12:00, Meeting Room 3.2

Chair: *Benoit lung, CRAN, France*

Co-Chair: *Laszlo Monostori, SZTAKI, Hungary*

6. (11:40) A logistic process scheduling problem: Genetic Algorithms or Ant Colony Optimization?

Carlos Silva, Instituto Superior Tecnico, Portugal

J.M. Sousa, Instituto Superior Tecnico, Portugal

T. Runkler, Siemens AG, CT IC-4, Germany

J.M.G. Sá da Costa, Instituto Superior Tecnico, Portugal

PARAMETER ESTIMATION AND KINETIC MODELLING I

Thursday 07-Jul-2005 10:00-12:00, Meeting Room 4.3

Chair: *David Feng, University of Sydney, Australia*

Co-Chair: *Ewart Carson, City University, London, United Kingdom*

1. (10:00) A Polynomial Approach to Structural Gene Dynamics Modelling

Gerwald Lichtenberg, TU Hamburg-Harburg, Germany

Saadia Faisal, TU Hamburg-Harburg, Germany

Herbert Werner, TU Hamburg-Harburg, Germany

2. (10:20) One-step ahead Prediction for Parameter Estimation in Physiological Hybrid Models

Natal van Riel, Eindhoven University of Technology, Netherlands

Aleksandar Juloski, Eindhoven University of Technology, Netherlands

Jorn op den Buijs, Eindhoven University of Technology, Netherlands

3. (10:40) Hierarchical Modelling in Biology: Systematic Building of Limb Models

Katalin Hangos, Computer and Automation Research Institute, Hungary

Gyorgy Kozmann, University of Veszprém, Research Institute for Technical Physics and Material Sciences, Hungary

Csaba Fazekas, University of Veszprém, Hungary

4. (11:00) New Parameter Estimation Approaches for Dual-input 11C-Acetate Liver Kinetic Model

Sirong Chen, Dept of EIE, the Hong Kong Polytechnic University, Hong Kong

Dagan Feng, School of Information Technologies, the University of Sydney, Australia

5. (11:20) Prediction of Low Frequency Blood Pressure Oscillations via a Combined Heart/Resistance Model

John Ringwood, NUI Maynooth, Ireland

Oliver Kinnane, NUI Maynooth, Ireland

Simon Malpas, University of Auckland, New Zealand

PARAMETER ESTIMATION AND KINETIC MODELLING I

Thursday 07-Jul-2005 10:00-12:00, Meeting Room 4.3

Chair: *David Feng, University of Sydney, Australia*

Co-Chair: *Ewart Carson, City University, London, United Kingdom*

6. (11:40) Real-time Estimation of Mean Arterial Blood Pressure

*Eleonora Zanderigo, Swiss Federal Institute of Technology,
Switzerland*

Daniel Leibundgut, University Hospital Bern, Switzerland

*Franta Kraus, Swiss Federal Institute of Technology,
Switzerland*

Rolf Wymann, University Hospital Bern, Switzerland

*Manfred Morari, Swiss Federal Institute of Technology,
Switzerland*

CONTROL FOR AGRICULTURAL FACILITIES

Thursday 07-Jul-2005 10:00-12:00, Meeting Room 2.1**Organizer:** *Eldert J. Van Henten, Agrotechnology & Food Innovations Ltd., Netherlands***Co-Organizer** *Gerrit van Straten, Wageningen University, Netherlands***Co-Organizer** *Daniel Berckmans, Katholieke Universiteit Leuven, Belgium***Chair:** *Eldert J. Van Henten, Agrotechnology & Food Innovations Ltd., Wageningen, Netherlands***Co-Chair:** *István Farkas, Szent István University, Godollo, Hungary***1. (10:00) Thermal Imaging System for Climate Control of Potato Stores***Klaus Gottschalk, Institut für Agrartechnik Bornim e.V. ATB, Germany**Sabine Geyer, Institut für Agrartechnik Bornim e.V. ATB, Germany**Hans-Jürgen Hellebrand, Institut für Agrartechnik Bornim e.V. ATB, Germany***2. (10:20) Identification for Ion-based Fertigation Control in Soilless Greenhouse Cultivation***Gerrit van Straten, Wageningen University, Netherlands**G.J. van Dijk, Wageningen University, Netherlands**R.J.C. van Ooteghem, Wageningen University, Netherlands**Th. H. Gieling, Agrotechnology and Food Innovations BV, Netherlands**H.J.J. Janssen, Agrotechnology and Food Innovations BV, Netherlands**W.F. Mulckhuijse, Hydrion BV, Netherlands*

CONTROL FOR AGRICULTURAL FACILITIES

 Thursday 07-Jul-2005 10:00-12:00, Meeting Room 2.1

Organizer: *Eldert J. Van Henten, Agrotechnology & Food Innovations Ltd., Netherlands*

Co-Organizer *Gerrit van Straten, Wageningen University, Netherlands*

Co-Organizer *Daniel Berckmans, Katholieke Universiteit Leuven, Belgium*

Chair: *Eldert J. Van Henten, Agrotechnology & Food Innovations Ltd., Wageningen, Netherlands*

Co-Chair: *István Farkas, Szent István University, Godollo, Hungary*

3. (10:40) On-line Estimation of the Ventilation Rate of Greenhouses

Jan Bontsema, Agrotechnology & Food Innovations B.V., Netherlands

Eldert van Henten, Agrotechnology & Food Innovations B.V., Netherlands

Jan Kornet, Agrotechnology & Food Innovations B.V., Netherlands

Jorrit Budding, Priva B.V., Netherlands

Theo Rieswijk, Priva B.V., Netherlands

4. (11:00) Daily Temperature Optimisation in Greenhouse by Reinforcement Learning

Marc Tchamitchian, INRA Avignon, France

Constantin Kittas, University of Thessaly, Greece

Thomas Bartzanas, University of Thessaly, Greece

Christos Lykas, University of Thessaly, Greece

5. (11:20) Neuro-Dynamic Programming-Based Optimal Control for Crop Growth in Precision Agriculture

Julian Pucheta, Instituto de Automatica, Argentina

Daniel Patiño, Instituto de Automatica, Argentina

Rogelio Fullana, Instituto de Automatica, Argentina

Carlos Schugurensky, Instituto de Automatica, Argentina

Benjamín Kuchen, Instituto de Automatica, Argentina

CONTROL FOR AGRICULTURAL FACILITIES

Thursday 07-Jul-2005 10:00-12:00, Meeting Room 2.1**Organizer:** *Eldert J. Van Henten, Agrotechnology & Food Innovations Ltd., Netherlands***Co-Organizer** *Gerrit van Straten, Wageningen University, Netherlands***Co-Organizer** *Daniel Berckmans, Katholieke Universiteit Leuven, Belgium***Chair:** *Eldert J. Van Henten, Agrotechnology & Food Innovations Ltd., Wageningen, Netherlands***Co-Chair:** *István Farkas, Szent István University, Godollo, Hungary***6. (11:40) Fish Farm Automation***Pavel Burget, Czech Technical University in Prague, FEE, Czech Republic**Daniel Pachner, Czech Technical University in Prague, FEE, Czech Republic*

**AUTOMATION OF MINING VEHICLES AND EQUIPMENT IN METAL
INDUSTRY**

Thursday 07-Jul-2005 10:00-12:00, Meeting Room 3.4

Organizer: *Heinz Erbe, Technische Universität Berlin, Germany*

Co-Organizer *Jurek Sasiadek, Carleton University, Canada*

Co-Organizer *Sangchul Won, Pohang University of Science and
Technology, Korea*

Chair: *Ian Craig, University of Pretoria, South Africa*

Co-Chair: *Sangchul Won, Pohang University of Science and
Technology, Korea*

**1. (10:00) An Overview of the Automation of Load-Haul-Dump
Vehicles in an Underground Mining Environment**

*Fernando Camisani-Calzolari, University of Pretoria, South
Africa*

Bruce Dragt, University of Pretoria, South Africa

Ian Craig, University of Pretoria, South Africa

2. (10:40) Modelling the Dynamics of a Load-Haul-Dump Vehicle

Ian Craig, University of Pretoria, South Africa

Bruce Dragt, University of Pretoria, South Africa

*Fernando Camisani-Calzolari, University of Pretoria, South
Africa*

**3. (11:00) Path Tracking of and Autonomous LHD Articulated
Vehicle**

Jurek Sasiadek, Carleton University, Canada

Yi Lu, Carleton University, Canada

**4. (11:20) Comparison of Classical and Modern Control Applied to
an Excavator-Arm**

Roger Dixon, Loughborough University, United Kingdom

C.J. Taylor, Lancaster University, United Kingdom

E.M. Shaban, Lancaster University, United Kingdom

5. (11:40) POSCO Yard Crane Automation

Sangchul Won, POSTECH, Korea

Sang-un Kim, POSTECH, Korea

Seung-Gap Choi, POSCO, Korea

Chintae Choi, RIST, Korea

WEB-BASED TECHNOLOGIES FOR CONTROL EDUCATION

Thursday 07-Jul-2005 10:00-12:00, Meeting Room 3.5

Organizer: *Ljubo Vlacic, Griffith University, Australia*

Co-Organizer *Sebastian Dormido, UNED, Spain*

Co-Organizer *Derek P. Atherton, University of Sussex, United Kingdom*

Chair: *Sebastian Dormido, Universidad Nacional de Educación a Distancia, Spain*

Co-Chair: *Derek Atherton, University of Sussex, United Kingdom*

1. (10:00) Web Based Course in Control Using DYNAST

Derek Atherton, University of Sussex, United Kingdom

Herman Mann, Czech Technical University in Prague, Czech Republic

2. (10:20) Virtual Lab for Teaching Greenhouse Climatic Control

Jose Luis Guzman Sanchez, University of Almeria, Spain

Francisco Rodriguez Diaz, University of Almeria, Spain

Manuel Berenguel Soria, University of Almeria, Spain

Sebastian Dormido Bencomo, UNED, Spain

3. (10:40) Real-time Interaction over the Internet: Model for QoS Adaptation

Christophe Salzmann, EPFL, Switzerland

Denis Gillet, EPFL, Switzerland

Philippe Müllhaupt, EPFL, Switzerland

4. (11:00) An Internet-based Laboratory for Distance Learning in Control Engineering

Tudor Buzdugan, Technical University of Cluj-Napoca, Romania

Ioan Nascu, Technical University of Cluj-Napoca, Romania

Robin De Keyser, Gent University, Belgium

WEB-BASED TECHNOLOGIES FOR CONTROL EDUCATION

Thursday 07-Jul-2005 10:00-12:00, Meeting Room 3.5

Organizer: *Ljubo Vlacic, Griffith University, Australia*

Co-Organizer *Sebastian Dormido, UNED, Spain*

Co-Organizer *Derek P. Atherton, University of Sussex, United Kingdom*

Chair: *Sebastian Dormido, Universidad Nacional de Educación a Distancia, Spain*

Co-Chair: *Derek Atherton, University of Sussex, United Kingdom*

5. (11:20) Petri Net Toolbox for Matlab in Web-based Analysis and Design of Discrete-event Systems

Mihaela-Hanako Matcovschi, Technical University "Gh. Asachi" of Iasi, Romania

Claudiu Lefter, Technical University "Gh. Asachi" of Iasi, Romania

Cristian Mahulea, Technical University "Gh. Asachi" of Iasi, Romania

Octavian Pastravanu, Technical University "Gh. Asachi" of Iasi, Romania

6. (11:40) Web-based Virtual Lab and Remote Experimentation using Easy Java Simulations

Sebastián Dormido Bencomo, UNED, Spain

Rafael Pastor Vargas, UNED, Spain

José Sánchez Moreno, UNED, Spain

APPLICATIONS FOR HUMAN-MACHINE SYSTEMS

Thursday 07-Jul-2005 13:00-15:00, North Hall**Chair: Ahmad Skaf, University of Damascus, Syrian Arab Republic**

- 1. (13:00) A Navigation System for Blind Pedestrians**
Mounir Bousbia-Salah, University of Annaba, Algeria
Mohamed Fezari, University of Annaba, Algeria
Rachid Hamdi, University of Annaba, Algeria
- 2. (13:00) A New Interface for Collaborative Teleoperation**
Narjes Khezami, University of Evry/LSC, France
Samir Otmane, University of Evry/LSC, France
Malik Mallem, University of Evry/LSC, France
- 3. (13:00) A co-operative controlling environment in Man-Machine System**
Ahmad Skaf, University of Damascus, Syrian Arab Republic
- 4. (13:00) Analysis of human perception ability for robot impedance**
Yoshiyuki Tanaka, Graduate School of Engineering, Hiroshima University, Japan
Toshio Tsuji, Graduate School of Engineering, Hiroshima University, Japan
Hideki Miyaguchi, Graduate School of Health Sciences, Japan
- 5. (13:00) Contact Instability in Rate-Control Telemanipulation**
Chi-Cheng Cheng, National Sun Yat-Sen University, Taiwan
Jiun-Hung Chen, National Sun Yat-Sen University, Taiwan
- 6. (13:00) Design of a sensorial and driving locomotion interface**
Yves Dupuis, LISMMA EA2336 Supmeca Toulon, France, Metropolitan
Cedric Anthierens, LISMMA EA2336 Supmeca Toulon, France, Metropolitan
Jean-Luc Impagliazzo, LISMMA EA2336 Supmeca Toulon, France, Metropolitan
Lyudmyla Yuschenko, LISMMA EA2336 Supmeca Toulon, France, Metropolitan

APPLICATIONS FOR HUMAN-MACHINE SYSTEMS

Thursday 07-Jul-2005 13:00-15:00, North Hall

Chair: *Ahmad Skaf, University of Damascus, Syrian Arab Republic***7. (13:00) Development of human daily behavior model and it's application***Yasuyuki Shimada, Kumamoto National College of Technology, Japan**Tsutomu Matsumoto, Kumamoto National College of Technology, Japan**Shigeyasu Kawaji, Graduate School of Science and Technology, Kumamoto University, Japan***8. (13:00) Identification of the Human Behavior in Virtual Environment Tasks as a Non-Linear Control Block***Jorge A. Méndez-Iglesias, CINVESTAV-IPN Mexico, Mexico**Vicente Parra-Vega, CINVESTAV-IPN Mexico, Mexico**Francisco J. Ruiz-Sánchez, CINVESTAV-IPN Mexico, Mexico***9. (13:00) Master-Slave System with Teleoperation for Rehabilitation***Minh Duc Duong, Toyohashi University of Technology, Japan**Chisato Teraoka, Toyohashi University of Technology, Japan**Takashi Imamura, Toyohashi University of Technology, Japan**Takanori Miyoshi, Toyohashi University of Technology, Japan**Kazuhiko Terashima, Toyohashi University of Technology, Japan***10. (13:00) Real Time Sound Source Localization using Time Difference and Phase Difference for Human Robot Interaction***Su-young Chi, ETRI, Korea**Ji-Yeoun Lee, ICU UNIV, Korea**Jae-Yeun Lee, ETRI, Korea**Minsoo Hahn, ICU UNIV, Korea**Young-Jo Cho, ETRI, Korea*

APPLICATIONS FOR HUMAN-MACHINE SYSTEMS

Thursday 07-Jul-2005 13:00-15:00, North Hall

Chair: *Ahmad Skaf, University of Damascus, Syrian Arab Republic***11. (13:00) Sense Feedback Control of Human Muscle By Multi-fingered Robot Hand***Taku Kondo, Toyohashi University of Technology, Japan**Kazuhiko Terashima, Toyohashi University of Technology, Japan**Panya Minyong, Pathumwan Institute of Technology, Thailand**Takanori Miyoshi, Toyohashi University of Technology, Japan**Hideo Kitagawa, Gifu National College of Technology, Japan***12. (13:00) Study on Virtual Manipulation Technology in Virtual Reality Systems***Xiaoyong Lei, Beijing University of Aeronautics and Astronautics, China**Shuling Dai, Beijing University of Aeronautics and Astronautics, China**Jihong Mei, Beijing University of Aeronautics and Astronautics, China**Jin Zhang, Beijing University of Aeronautics and Astronautics, China***13. (13:00) Towards Deadband Control in Networked Teleoperation Systems***Sandra Hirche, Technische Universität München, Germany**Peter Hinterseer, Technische Universität München, Germany**E. Steinbach, Technische Universität München, Germany**Martin Buss, Technische Universität München, Germany*

ANALYSIS AND SYNTHESIS OF LINEAR CONTROL SYSTEMS I

Thursday 07-Jul-2005 13:00-15:00, North Hall

Chair: *Mikulas Alexik, University of Zilina, Slovakia***1. (13:00) A Gain Scheduling Control of Nonlinear Systems along a Reference Trajectory***Atsushi Fujimori, Shizuoka University, Japan**Svante Gunnarsson, Linkoping University, Sweden**Mikael Norrlof, Linkoping University, Sweden***2. (13:00) A New Algorithm for Searching Reciprocal Matrices in LMI Based Control Design***Mark Kogan, Architecture and Civil Engineering University, Russian Federation**Dmitry Balandin, Nizhny Novgorod State University, Russian Federation***3. (13:00) Control of singularly perturbed systems under actuator saturation***Ibone Lizarraga, Universidad del Pais Vasco, Spain**Sophie Tarbouriech, LAAS-CNRS, France**Germain Garcia, LAAS-CNRS, France***4. (13:00) Control of time-delayed LPV systems using delayed feedback***Charudatta Mehendale, University of Houston, United States**Karolos M. Grigoriadis, University of Houston, United States***5. (13:00) Controller synthesis for positive linear systems***Mustapha Ait Rami, Universidad de Valladolid, Spain**Fernando Tadeo, Universidad de Valladolid, Spain***6. (13:00) Finite-dimensional models in evaluating the H_2 norm of continuous-time periodic systems***Jun Zhou, Kyoto University, Japan**Tomomichi Hagiwara, Kyoto University, Japan***7. (13:00) Flatness based control of linear time varying bond graphs***Achir Ali, LAGIS-EC-LILLE, France**Chafik Andaloussi, LAGIS-EC-LILLE, France**Christophe Sueur, LAGIS-EC-LILLE, France*

ANALYSIS AND SYNTHESIS OF LINEAR CONTROL SYSTEMS I

Thursday 07-Jul-2005 13:00-15:00, North Hall

Chair: *Mikulas Alexik, University of Zilina, Slovakia*

8. (13:00) **Hybrid Control of Systems with Input Delay**
Vojislav Filipovic, RCT, Yugoslavia
9. (13:00) **Matrix Inequality Conditions for Dissipativity of Continuous-Time Descriptor Systems and Its Application to Synthesis of Control Gains**
Izumi Masubuchi, Hiroshima University, Japan
10. (13:00) **Modification of Dead Beat Algorithm for Control Processes with Time Delay**
Mikulas Alexik, University of Zilina, Slovakia
11. (13:00) **Path-following for Linear Systems with Unstable Zero Dynamics**
Dragan B. Dacic, University of California, Santa Barbara, United States
Petar V. Kokotovic, University of California, Santa Barbara, United States
12. (13:00) **Robust constrained horizon predictive controller for dead time systems**
Bismark C. Torrico, Federal University of Santa Catarina, Brazil
Julio E. Normey-Rico, Federal University of Santa Catarina, Brazil
13. (13:00) **Stabilization of Networked Control Systems: Designing Effective Communication Sequences**
Lei Zhang, University of Maryland, United States
Dimitrios Hristu-Varsakelis, University of Macedonia, Greece
14. (13:00) **Time Discretization of Piecewise Affine Systems with Sliding Modes**
Michael Schwarz, University of Karlsruhe, Germany
Uwe Kiencke, University of Karlsruhe, Germany
Thomas Erhard Hodrus, University of Karlsruhe, Germany
Volker Krebs, University of Karlsruhe, Germany

ANALYSIS AND SYNTHESIS OF LINEAR CONTROL SYSTEMS I

Thursday 07-Jul-2005 13:00-15:00, North Hall

Chair: *Mikulas Alexik, University of Zilina, Slovakia*

15. (13:00) Stabilization of LTI time-delayed processes using analytical PID controllers

Linlin Ou, Shanghai Jiao Tong University, China

Weidong Zhang, Shanghai Jiao Tong University, China

Danying Gu, Shanghai Jiao Tong University, China

SUBSPACE METHODS

Thursday 07-Jul-2005 13:00-15:00, Club H

Chair: *Magnus Jansson, KTH, Sweden*

Co-Chair: *Andreas Schrempf, University of Applied Sciences, Austria*

1. (13:00) An Interpretation of Subspace Identification Methods

Pouliquen Mathieu, Control Group, GREYC CNRS UMR 6072, France, Metropolitan

Mohammed M'Saad, Control Group, GREYC CNRS UMR 6072, France, Metropolitan

2. (13:20) Stochastic subspace identification guaranteeing stability and minimum phase

Hideyuki Tanaka, Kyoto University, Japan

Tohru Katayama, Kyoto University, Japan

3. (13:40) Recursive Subspace Prediction of Linear Time-varying Stochastic Systems

Ohsumi Akira, Kyoto Institute of Technology, Japan

Kentaro Kameyama, Kyoto Institute of Technology, Japan

4. (14:00) Sequential correlation-based propagator algorithm for recursive subspace identification

Guillaume Mercère, Laboratoire d'Automatique, Génie Informatique et Signal, France

Stéphane Lecoeuche, Laboratoire d'Automatique, Génie Informatique et Signal, France

Christian Vasseur, Laboratoire d'Automatique, Génie Informatique et Signal, France

5. (14:20) Continuous Nonlinear SISO System Identification using Parameterized Linearization Families

Pedro Bolognese Fernandes, University of Dortmund, Germany

Sebastian Engell, University of Dortmund, Germany

6. (14:40) Identification of Approximative Nonlinear State-Space Models by Subspace

Andreas Schrempf, University of Applied Sciences - Upper Austria, Austria

Vincent Verdult, Delft University of Technology, Netherlands

CONTROL OF UNDERACTUATED SYSTEMS

Thursday 07-Jul-2005 13:00-15:00, Terrace 2

Organizer: *Ravi N Banavar, IIT-Bombay, India*

Chair: *Ravi N Banavar, IIT-Bombay, India*

Co-Chair: *Kristin Pettersen, Norwegian University of Science and Technology, Norway*

1. (13:00) **Experimental Results on PBC of a Doubly-Fed Induction Generator Interconnected with an Induction Motor**
Mohamed Becherif, LSS&LGEP-CNRS-SUPELEC, France
Eduardo Mendes, LCIS-ESISAR, France
Romeo Ortega, LSS-CNRS-SUPELEC, France
Jordi Riera, IRI-UPC, Spain
2. (13:20) **SpiderCrane: Model and Properties of a Fast Weight Handling Equipment**
Philippe Mullhaupt, Laboratoire d'automatique, I2S-STI, EPFL, Switzerland
Davide Bucciari, Laboratoire d'automatique, I2S-STI, EPFL, Switzerland
Dominique Bonvin, Laboratoire d'automatique, I2S-STI, EPFL, Switzerland
3. (13:40) **Stability and Robustness of Disturbed-Port Controlled Hamiltonian Systems with Dissipation**
Mohamed Becherif, LSS & LGEP-CNRS-SUPELEC, France
Eduardo Mendes, LCIS-ESISAR-INPG, France
4. (14:00) **Stabilization of an Underwater Vehicle**
Velupillai Sankaranarayanan, IIT-Bombay, India
Ravi Banavar, IIT-Bombay, India
5. (14:20) **Swing-up and Stabilization of Flexible Underactuated**
Hiroshi Yabuno, University of Tsukuba, Japan
6. (14:40) **The extended lambda-method for controlled Lagrangian systems**
Dong Eui Chang, University of Liege, Belgium

NONLINEAR STABILITY AND STRUCTURAL ANALYSIS

Thursday 07-Jul-2005 13:00-15:00, North Hall**Chair:** *Guisepe Franze, University of Calabria, Italy***Co-Chair:** *Jochen Rieber, University of Stuttgart, Germany*

- 1. (13:00) A Flywheel to stabilize a Two-Link Pendulum**
Yannick Aoustin, Ecole Centrale de Nantes, France
Alexander Formal'sky, Moscow Lomonosov State University, Russian Federation
Yuri Martynenko, Moscow Lomonosov State University, Russian Federation
- 2. (13:00) A generalized Persidskii theorem and its applications to nonsmooth gradient dynamical systems**
Amit Bhaya, Federal University of Rio de Janeiro, COPPE/UFRJ, Brazil
Eugenius Kaszkurewicz, Federal University of Rio de Janeiro, COPPE/UFRJ, Brazil
- 3. (13:00) A moving switching plane for the sliding mode control of the third order system**
Andrzej Bartoszewicz, Technical University of Lodz, Poland
Aleksandra Nowacka, Technical University of Lodz, Poland
- 4. (13:00) Boundary Layer Using Dithering in Sliding Mode Control**
Roberto Frasca, Università del Sannio, Italy
Luigi Iannelli, Università del Sannio, Italy
Francesco Vasca, Università del Sannio, Italy
- 5. (13:00) Composite Nonlinear Feedback Control for a Class of Nonlinear Systems with Input Saturation**
Ben M. Chen, National University of Singapore, Singapore
Weiyao Lan, National University of Singapore, Singapore
Yingjie He, National University of Singapore, Singapore
- 6. (13:00) Controllability of Mechanical Systems with Regard for Actuator**
Vladimir Matyukhin, Institute of Control Sciences Russian Academy of Sciences, Russian Federation

NONLINEAR STABILITY AND STRUCTURAL ANALYSIS

Thursday 07-Jul-2005 13:00-15:00, North Hall

Chair: *Guisepppe Franze, University of Calabria, Italy*Co-Chair: *Jochen Rieber, University of Stuttgart, Germany***7. (13:00) Extended controller forms of nonlinear discrete-time systems; the single-input case***Normand-Cyrot Dorothée, CNRS Supelec, France**Salvatore Monaco, University of Rome La Sapienza, Italy***8. (13:00) Global asymptotic stabilization by using the control Lyapunov function***Takayuki Tsuzuki, Hokkaido University, Japan**Yuh Yamashita, Hokkaido University, Japan**Ryuji Enomoto, Toba National College of Maritime Technology, Japan***9. (13:00) Limit Cycle Bifurcation in SISO Control Systems with Saturation***Javier Ros, Escuela Univ. Politecnica Univ. Sevilla, Spain**Emilio Freire, Escuela Superior Ingenieros Univ. Sevilla, Spain**Enrique Ponce, Escuela Superior Ingenieros Univ. Sevilla, Spain***10. (13:00) On Stability Conditions for a Class of Dynamic Fuzzy Models***Ding Haishan, The Seventh Research Division, Beijing University of Aeronautics & Astronautics, 100083, Beijing, China**Mao Jianqin, The Seventh Research Division, Beijing University of Aeronautics & Astronautics, 100083, Beijing, China***11. (13:00) On geometric control and numeric integration of DAEs***Paulo Sergio Pereira da Silva, University of São Paulo, Brazil**Emmanuel Delaleau, Ecole nationale d'ingenieurs de Brest, France**Iderval Silva de Souza, University of São Paulo, Brazil*

NONLINEAR STABILITY AND STRUCTURAL ANALYSIS

Thursday 07-Jul-2005 13:00-15:00, North Hall**Chair:** *Giuseppe Franze, University of Calabria, Italy***Co-Chair:** *Jochen Rieber, University of Stuttgart, Germany***12. (13:00) On the Use of Backstepping to Achieve Finite Time Stability***Sergio Galeani, Universita' di Roma, Italy**Simona Onori, University of New Mexico at Albuquerque, United States**Chaouki T. Abdallah, University of New Mexico at Albuquerque, United States**Peter Dorato, University of New Mexico at Albuquerque, United States***13. (13:00) Order Reduction & Structure Simplification for Nonlinear Systems***Amirhossein Yousefi, Technische Universität München, Germany**Boris Lohmann, Technische Universität München, Germany***14. (13:00) Passivity and Passivity based Controller Design of a Class of Switched Control Systems***Mehrdad Saif, Simon Fraser University, Canada**Weitian Chen, Simon Fraser University, Canada***15. (13:00) Persistent motion and chaos in attitude control with switching actuators***Karl Kienitz, DLR Institute for Robotics and Mechatronics, Germany**Alexandre Mesquita, Instituto Tecnológico de Aeronautica, Brazil***16. (13:00) Stochastic Optimal Control of Partially Observable Nonlinear Systems***Tayfun Çimen, Turkish Naval Forces, Turkish Naval Research Center Command, Turkey**Stephen P. Banks, The University of Sheffield, United Kingdom*

NONLINEAR STABILITY AND STRUCTURAL ANALYSIS

Thursday 07-Jul-2005 13:00-15:00, North Hall

Chair: *Giuseppe Franze, University of Calabria, Italy*

Co-Chair: *Jochen Rieber, University of Stuttgart, Germany*

17. (13:00) Zeno Mode Control of Underactuated Mechanical Systems with Application to Pendubot Stabilization around the Upright Position

Yuri Orlov, CICESE Research Center, United States

Luis Aguilar, CITEDIPN, Mexico

Leonardo Acho, CITEDIPN, Mexico

ROBOT APPLICATIONS

Thursday 07-Jul-2005 13:00-15:00, Club A

Chair: **Gerd Hirzinger, DFLR, Munich, Germany**

Co-Chair: **Luis Basanez, Universitat Politecnica de Catalunya, Barcelona, Spain**

1. (13:00) **A Haptic Excavator System with Active Masses**
Vicente Parra-Vega, Cinvestav, Mexico
Torres-Rodriguez Hassan, Cinvestav, Mexico
Ruiz-Sanchez Francisco, Cinvestav, Mexico
2. (13:20) **Augmented Reality Interface for Free Teleoperation**
Vincent Le Ligeour, Université d'Evry Val d'Essonne, France
Samir Otmane, Université d'Evry Val d'Essonne, France
Malik Mallem, Université d'Evry Val d'Essonne, France
3. (13:40) **Experimental Studies of Impedance Force Tracking Control of a Crack Sealing Robot for Highway Maintenance**
Seul Jung, Chungnam National Univ., Korea
P. Jeon, Chungnam National Univ., Korea
4. (14:00) **Closed-Loop Rigid Model Identification of an Industrial Robot**
Basilio Bona, Politecnico di Torino, Italy
Aldo Curatella, Politecnico di Torino, Italy
5. (14:20) **Nonlinear Adaptive Fuzzy Control for Hydraulic Robots**
Chih-Fu Chang, National Taiwan University, Taiwan
Su-Chin Wang, National Taiwan University, Taiwan
Li-Chen Fu, National Taiwan University, Taiwan

ROBOT APPLICATIONS

Thursday 07-Jul-2005 13:00-15:00, Club A

Chair: *Gerd Hirzinger, DFLR, Munich, Germany*

Co-Chair: *Luis Basanez, Universitat Politecnica de Catalunya, Barcelona, Spain*

6. (14:40) Robot Assisted Playing for Severe Physically Handicapped Children

Gernot Kronreif, ARCSr / Mechatronic Automation Systems, Austria

Barbara Prazak, ARCSr / Rehabilitation and Inclusion, Austria

Martin Fürst, ARCSr / Mechatronic Automation Systems, Austria

Stefan Mina, ARCSr / Rehabilitation and Inclusion, Austria

Martin Kornfeld, ARCSr / Mechatronic Automation Systems, Austria

Andreas Hochgatterer, ARCSr / Rehabilitation and Inclusion, Austria

CONTROL APPLICATIONS OF OPTIMIZATION

Thursday 07-Jul-2005 13:00-15:00, North Hall

Chair: *Hisaya Fujioka, Kyoto University, Japan*Co-Chair: *Paul Wang, University of California, Los Angeles, United States***1. (13:00) A Data-compressed Technique of a Reference Governor in a Piecewise Affine Function***Kiminao Kogiso, Nara Institute of Science and Technology, Japan**Kenji Hirata, Osaka University, Japan***2. (13:00) A Method for Obtaining Continuous Solutions to Multiparametric Linear Programs***Jørgen Spjøtvold, Norwegian University of Science and Technology, Norway**Petter Tøndel, Norwegian University of Science and Technology, Norway**Tor Arne Johansen, Norwegian University of Science and Technology, Norway***3. (13:00) A Receding Horizon Control for Lifting Ping-pong Ball***Sumiko Majima, University of Tsukuba, Japan**Keii Chou, University of Tsukuba, Japan***4. (13:00) An explicit solution to the discrete-time singular LQ regulation problem for non-square plant***Wataru Kase, Osaka Institute of Technology, Japan**Ryoji Miyoshi, Osaka Institute of Technology, Japan**Yasuhiko Mutoh, Sophia University, Japan***5. (13:00) Hev Modeling for a Supervisory Level Power Flow Control Problem***Kasemsak Uthaichana, Purdue University, United States**Sorin Bengea, Eaton Innovation Center, United States**Raymond DeCarlo, Purdue University, United States***6. (13:00) LQ Optimal Control Synthesis for a Class of Pulse Modulated Systems***Ulf Jonsson, Royal Institute of Technology, Sweden**Hisaya Fujioka, Kyoto University, Japan**Chung-Yao Kao, University of Melbourne, Australia**Stefan Almer, Royal Institute of Technology, Sweden*

CONTROL APPLICATIONS OF OPTIMIZATION

Thursday 07-Jul-2005 13:00-15:00, North Hall

Chair: *Hisaya Fujioka, Kyoto University, Japan*Co-Chair: *Paul Wang, University of California, Los Angeles, United States***7. (13:00) Minimization of maximum transient energy growth by output feedback***James Ferris Whidborne, Cranfield University, United Kingdom**John McKernan, Cranfield University, United Kingdom**Anthony J. Steer, Cranfield University, United Kingdom***8. (13:00) Networked Predictive Control of Systems with Random Network Transmission Delay – a Polynomial Approach***Guoping Liu, University of Glamorgan, United Kingdom**J. X. Mu, University of Glamorgan, United Kingdom**D. Rees, University of Glamorgan, United Kingdom***9. (13:00) Numerical static state feedback laws for closed-loop singular optimal control***Stefan de Graaf, Wageningen University, Netherlands**Johannes Stigter, Wageningen University, Netherlands**Gerrit van Straten, Wageningen University, Netherlands***10. (13:00) Optimal Control Problems Involving Set Measures***Paul K.C. Wang, University of California, Los Angeles, United States***11. (13:00) Optimal Control of PWA Systems by Exploiting Problem Structure***Miroslav Baric, Swiss Federal Institute Of Technology, Switzerland**Pascal Grieder, Swiss Federal Institute Of Technology, Switzerland**Mato Baotic, Swiss Federal Institute Of Technology, Switzerland**Manfred Morari, Swiss Federal Institute Of Technology, Switzerland***12. (13:00) Optimal Control through Biologically-Inspired Pursuit***Cheng Shao, University of Maryland, United States**Dimitrios Hristu-Varsakelis, University of Macedonia, Greece*

CONTROL APPLICATIONS OF OPTIMIZATION

Thursday 07-Jul-2005 13:00-15:00, North Hall

Chair: *Hisaya Fujioka, Kyoto University, Japan*Co-Chair: *Paul Wang, University of California, Los Angeles, United States***13. (13:00) Output shaping by means of output constraints in continuous-time predictive control***Çağatay Yavuzylmaz, Hacettepe University, Turkey**Hüseyin Demircioğlu, Hacettepe University, Turkey***14. (13:00) Robust Optimal Control of Flexible Spacecraft During Slewing Maneuvers***Asghar Ebrahimi, ASRA, Iran**S. Ali A. Moosavian, K.N. Toosi University of Technology, Iran**Mehran Mirshams, K.N. Toosi University of Technology, Iran***15. (13:00) Synthesis of optimal signals for dynamical systems by special types of bang-bang actuators***Natallia Kavalionak, Institute of Mathematics, National Academy of Sciences of Belarus, Belarus***16. (13:00) Time Domain Decomposition in Solution of Singular Nonlinear Optimal Control Problems***Raynitchka Tzoneva, PeninsulaTechnikon, South Africa*

**SAFETY AND STRUCTURE ANALYSIS FOR FAULT DIAGNOSIS/
DIAGNOSIS OF HYBRID AND DISCRETE-EVENT SYSTEMS**

Thursday 07-Jul-2005 13:00-15:00, Club E

Chair: *Jan Lunze, Ruhr-Universität Bochum, Germany*

Co-Chair: *Marcel Staroswiecki, University of Lille, France*

1. (13:00) A System Decomposition for Sensor Location in Fault Detection and Isolation

Christian Commault, Laboratoire d'Automatique de Grenoble, France

Jean-Michel Dion, Laboratoire d'Automatique de Grenoble, France

Sameh Yacoub Agha, Laboratoire d'Automatique de Grenoble, France

2. (13:20) A systematic inclusion of diagnosis performance in fault tree analysis

Jan Åslund, Linköping university, Sweden

Jonas Biteus, Linköping university, Sweden

Erik Frisk, Linköping university, Sweden

Mattias Krysander, Linköping university, Sweden

Lars Nielsen, Linköping university, Sweden

3. (13:40) Geometric and hierarchical FDI for the IFATIS two-tank pilot plant

Raffaella Mattone, Universita' di Roma La Sapienza, Italy

Alessandro De Luca, Universita' di Roma La Sapienza, Italy

4. (14:00) Decentralised Diagnosis of Automata Networks

Jörg Neidig, Ruhr-Universität, Germany

Jan Lunze, Ruhr-Universität, Germany

5. (14:20) Finite Memory Observer for Switching Systems: Application to Diagnosis

Abdelfettah Hocine, Institut national Polytechnique de Lorraine, France

Didier Maquin, Institut national Polytechnique de Lorraine, France

José Ragot, Institut national Polytechnique de Lorraine, France

**SAFETY AND STRUCTURE ANALYSIS FOR FAULT DIAGNOSIS/
DIAGNOSIS OF HYBRID AND DISCRETE-EVENT SYSTEMS**

Thursday 07-Jul-2005 13:00-15:00, Club E

Chair: *Jan Lunze, Ruhr-Universität Bochum, Germany*

Co-Chair: *Marcel Staroswiecki, University of Lille, France*

**6. (14:40) Hinf Based Fault Detection and Isolation for Markovian
Jump Systems**

Kaoutar Akouz, Ecole Polytechnique de Montreal, Canada

El Kebir Boukas, Ecole Polytechnique de Montreal, Canada

CONTROL OF COMPLEX PROCESSES

Thursday 07-Jul-2005 13:00-15:00, Small Theatre

Chair: *Cheng-Chin Yu, National Taiwan University, Taiwan*

Co-Chair: *Zoltan Nagy, University of Stuttgart, Germany*

1. (13:00) Nonlinear Dynamics of a Controlled Reverse Flow Reactor

Erasmus Mancusi, University of Benevento, Italy

Antonio Brasiello, University of Salerno, Italy

Lucia Russo, University of Salerno, Italy

Silvestro Crescitelli, University of Naples, Italy

Mario di Bernardo, University of Naples, Italy

2. (13:20) Process Control of an Open Plate Reactor

Staffan Haugwitz, Lund Institute of Technology, Lund University, Sweden

Per Hagander, Lund Institute of Technology, Lund University, Sweden

3. (13:40) Coordinated Control of Reactive Distillation Systems

Cheng-Ching Yu, National Taiwan University, Taiwan

Yu-Cheng Cheng, National Taiwan University, Taiwan

4. (14:00) Comparison of a Robust and a Flatness Based Control for a Separated Shear Flow

Ralf Becker, Berlin University of Technology, Germany

Rudibert King, Berlin University of Technology, Germany

5. (14:20) On Sliding-mode Control for Inverse Response Processes

Rubén Rojas, Universidad de Los Andes, Venezuela

Winston García, Universidad de Los Andes, Venezuela

Oscar Camacho, Universidad de Los Andes, Venezuela

6. (14:40) Casing-heading phenomenon in gas-lifted well as a limit cycle of a 2D model with switches

Laure Sinègre, Ecole des Mines de Paris, France

Nicolas Petit, Ecole des Mines de Paris, France

Pierre Lemétayer, TOTAL, France

Philippe Gervaud, TOTAL, France

Philippe Ménégatti, TOTAL, France

CONTROL OF JUMP STOCHASTIC PROCESSES

Thursday 07-Jul-2005 13:00-15:00, Terrace 1

Chair: *Patrizio Colaneri, Politecnico di Milano, Italy*

Co-Chair: *Carlos de Souza, Laboratorio Nacional de Computacao Cientifica, Brazil*

1. (13:00) **General LQ Problem for Infinite Jump Linear Systems and the Minimal Solution of Algebraic Riccati Equations**
Eduardo F. Costa, Univ. São Paulo, Brazil
João Bosco R. do Val, UNICAMP, Brazil
2. (13:20) **Almost sure stability of continuous-time Markov jump linear systems: a randomized approach**
Paolo Bolzern, Politecnico di Milano, Italy
Patrizio Colaneri, Politecnico di Milano, Italy
Giuseppe De Nicolao, Università di Pavia, Italy
3. (13:40) **Mode-Independent H-infinity Control of Discrete-time Markovian Jump Linear Systems**
Carlos E. de Souza, Lab. Nac. de Comp. Cientifica-LNCC, Brazil
4. (14:00) **Stochastic Sliding Mode Control for Systems with Markovian Jump Parameters**
Yuanqing Xia, University of Glamorgan, China
Peng Shi, University of Glamorgan, United Kingdom
G. P. Liu, University of Glamorgan, United Kingdom
D. Rees, University of Glamorgan, United Kingdom
5. (14:20) **State and Output Gaussian Control of Discrete-Time Markov Jump Linear Systems with Horizon Defined by Stopping Times**
Cristiane Nespoli, UNICAMP, Brazil
Yusef Zúñiga, UNESP, Brazil
João B. R. do Val, UNICAMP, Brazil
6. (14:40) **Discounted Continuous Time Markov Decision Processes: The Convex Analytic Approach**
Alexei Piunovskiy, The University of Liverpool, United Kingdom

CONTROL OF MECHANICAL AND FLEXIBLE SYSTEMS

Thursday 07-Jul-2005 13:00-15:00, Club B**Chair:** *T. X. Mei, The University of Leeds, United Kingdom***Co-Chair:** *William Singhose, Georgia Institute of Technology, United States***Co-Chair:** *Gianantonio Magnani, Politecnico di Milano, Italy***1. (13:00) A Controller Enabling Precise Positioning and Sway Reduction in Cranes with On-Off Actuation***Khalid Sorensen, Georgia Institute of Technology, United States**William Singhose, Georgia Institute of Technology, United States**Stephen Dickerson, Camotion Inc., United States***2. (13:20) Active Steering Control for Railway Bogies based on Displacement Measurements***T.X. Mei, The University of Leeds, United Kingdom**S. Shen, The University of Leeds, United Kingdom**R.M. Goodall, Loughborough University, United Kingdom**J.T. Pearson, Loughborough University, United Kingdom***3. (13:40) Controllability analysis of an unstable, non-minimum phase process***Espen Storakaas, NTNU, Norway**Sigurd Skogestad, NTNU, Norway***4. (14:00) Evaluation of Analytic Deflection-Limiting Commands***Michael Robertson, Georgia Institute of Technology, United States**William Singhose, Georgia Institute of Technology, United States***5. (14:20) Internal model based framework for tracking and fault tolerant control of a permanent magnet synchronous motor***Luca Gentili, CASY-DEIS-University of Bologna, Italy**Claudio Bonivento, CASY-DEIS-University of Bologna, Italy**Andrea Paoli, CASY-DEIS-University of Bologna, Italy*

CONTROL OF MECHANICAL AND FLEXIBLE SYSTEMS

Thursday 07-Jul-2005 13:00-15:00, Club B

Chair: *T. X. Mei, The University of Leeds, United Kingdom*

Co-Chair: *William Singhose, Georgia Institute of Technology, United States*

Co-Chair: *Gianantonio Magnani, Politecnico di Milano, Italy*

6. (14:40) The Rate of Change of an Energy Functional for Axially Moving Continua

Kyung-Jinn Yang, University of Electro-Communications, Japan

Keum-Shik Hong, Pusan National University, Korea

Fumitoshi Matsuno, University of Electro-Communications, Japan

SLIDING MODE CONTROL II

Thursday 07-Jul-2005 13:00-15:00, Club D

Chair: *Alan Zinober, The University of Sheffield, United Kingdom*

Co-Chair: *Sarah Spurgeon, University of Leicester, United Kingdom*

1. (13:00) **Decentralised sliding mode control for nonminimum phase nonlinear interconnected systems**

Sarah Spurgeon, University of Leicester, United Kingdom

Xinggong Yan, University of Leicester, United Kingdom

Christopher Edwards, University of Leicester, United Kingdom

2. (13:20) **Integral Sliding Surface Design using an H-infinity Criterion for Decentralized Control**

Fernando Castaños, UNAM, Mexico

Leonid Fridman, UNAM, Mexico

3. (13:40) **Delta-Modulated Feedback in Discretization of Sliding Mode Control**

Xiaohua Xia, University of Pretoria, South Africa

Alan SI Zinober, University of Sheffield, United Kingdom

4. (14:00) **Gain Reduction in Switched Sliding Mode Control**

Antonella Ferrara, University of Pavia, Italy

Riccardo Scattolini, Politecnico di Milano, Italy

5. (14:20) **Sliding mode control of uncertain linear systems based on a high gain observer free of peaking**

Jose Paulo V. S. Cunha, State University of Rio de Janeiro, Brazil

Liu Hsu, COPPE/Federal University of Rio de Janeiro, Brazil

Ramon R. Costa, COPPE/Federal University of Rio de Janeiro, Brazil

Fernando Lizarralde, COPPE/Federal University of Rio de Janeiro, Brazil

6. (14:40) **Variable structure control with unknown input-delay and nonlinear dissipative disturbance**

Laura Levaggi, Universita' di Genova, Italy

Elisabetta Punta, ISSIA - CNR, Italy

ROBUST CONTROLLER SYNTHESIS FOR STOCHASTIC SYSTEMS

Thursday 07-Jul-2005 13:00-15:00, Club C**Chair:** *Nadav Berman, Ben Gurion University, Israel***Co-Chair:** *Boris Polyak, Institute for Control Science, Russian Federation*

- 1. (13:00) Minimax LQG Control for Uncertain Systems with a Normalised Coprime Factor Uncertainty Structure**
Valery Ugrinovskii, Australian Defence Force Academy, Australia
Ian R. Petersen, Australian Defence Force Academy, Australia
- 2. (13:20) H-infinity Output-Feedback of Discrete-time Systems with State-Multiplicative Noise**
Eli Gershon, Tel Aviv, Israel
Uri Shaked, Tel Aviv, Israel
- 3. (13:40) Robust H-infinity Control of Markovian Jump linear Systems with Uncertain Switching Probabilities**
Junlin Xiong, The University of Hong Kong, Hong Kong
James Lam, The University of Hong Kong, Hong Kong
- 4. (14:00) Robust Stabilization of Singular Stochastic Systems with Delays**
El-Kebir Boukas, Ecole polytechnique de Montreal, Canada
Shengyuan Xu, Nanjing University of Science and Technology, China
James Lam, University of Hong Kong, Hong Kong
Junlin Xiong, University of Hong Kong, Hong Kong
- 5. (14:20) State-space Solution to Stochastic H-Infinity Optimization Problem with Uncertainty**
Kurdyukov Alexander, IPU RAS, Russian Federation
Eugeny Maximov, MSTU, Russian Federation

ROBUST CONTROLLER SYNTHESIS FOR STOCHASTIC SYSTEMS

Thursday 07-Jul-2005 13:00-15:00, Club C**Chair:** *Nadav Berman, Ben Gurion University, Israel***Co-Chair:** *Boris Polyak, Institute for Control Science, Russian Federation***6. (14:40) Stochastic Robust Reduced Order H-infinity Observer-based Control***Michel Zasadzinski, Universite Henri Poincare - Nancy I, France**Souheil Halabi, Universite Henri Poincare - Nancy I, France**Hugues Rafaralahy, Universite Henri Poincare - Nancy I, France**Harouna Souley Ali, Universite Henri Poincare - Nancy I, France**Mohamed Darouach, Universite Henri Poincare - Nancy I, France*

TIME-DELAY SYSTEMS II

Thursday 07-Jul-2005 13:00-15:00, Meeting Room 2.2

Chair: *Valery Yurkevich, Novosibirsk State Technical University, Russian Federation*

Co-Chair: *Luigi Piroddi, Politecnico di Milano, Italy*

1. (13:00) A Novel Two-Degree-of-Freedom Control Strategy for Unstable Processes with Delay

Danying Gu, Shanghai Jiaotong University, China

Linlin Ou, Shanghai Jiaotong University, China

Peiyong Chen, Shanghai Jiaotong University, China

Weidong Zhang, Shanghai Jiaotong University, China

2. (13:20) Control of parabolic distributed systems with delay in feedback loop

Valery Yurkevich, Novosibirsk State Technical University, Russian Federation

3. (13:40) Design of Observer-Based Controller for Linear Neutral Systems

Alpaslan Parlakci, Istanbul Bilgi University, Turkey

4. (14:00) H-infinity dynamic output-feedback control for a class of linear neutral delay systems

You Zhang, Northeastern University, China

Chuan Zhang, Northeastern University, China

Siyong Zhang, Northeastern University, China

5. (14:20) Impulsive Control of Discrete-Time Networked Systems with Communication Delays

Shumei Mu, Peking University, China

Tianguang Chu, Peking University, China

Long Wang, Peking University, China

6. (14:40) Limitation of Generalized Delayed Feedback Control for Discrete-Time Systems

Yu-Ping Tian, Southeast University, China

Jiandong Zhu, Southeast University, China

HYBRID AND SWITCHED CONTROL

Thursday 07-Jul-2005 13:00-15:00, Meeting Room 4.1

Chair: *Farag Adel Omran, Institute of Control, Hamburg, Germany*

Co-Chair: *Daniele Casagrande, University of Trieste, Italy*

1. (13:00) Approximate min-max MPC for linear hybrid systems

Miguel Ayala Botto, Instituto Superior Técnico - IDMEC, Portugal

Miguel Silva, Instituto Superior Técnico - IDMEC, Portugal

José Sá da Costa, Instituto Superior Técnico - IDMEC, Portugal

2. (13:20) Decentralized Control of Winding Systems: A Hybrid Evolutionary-Algebraic Approach

Adel Farag, Technical University Hamburg Harburg, Germany

Herbert Werner, Technical University Hamburg Harburg, Germany

3. (13:40) Control of nonholonomic systems: a simple stabilizing time-switching strategy

Daniele Casagrande, University of Trieste, Italy

Alessandro Astolfi, Imperial College London, United Kingdom

Thomas Parisini, University of Trieste, Italy

4. (14:00) Parametrization of decentralized output feedback controllers and robust stabilization of large scale jump systems

Pavel Pakshin, Nizhny Novgorod State Technical University, Arzamas, Russian Federation

Igor Mitrofanov, Nizhny Novgorod State Technical University, Arzamas, Russian Federation

5. (14:20) Invariant Set-Based Robust Softly Switched Model Predictive Control

Mietek Brdys, University of Birmingham, United Kingdom

Jingsong Wang, University of Birmingham, United Kingdom

6. (14:40) Switching controller for buck-boost converter with inverting topology

Valery Yurkevich, Novosibirsk State Technical University, Russian Federation

MODELLING AND INTERCONNECTION OF OPEN DYNAMICAL SYSTEMS

Thursday 07-Jul-2005 13:00-15:00, Meeting Room 4.2

Organizer: *Jan C. Willems, K.U. Leuven, Belgium*

Co-Organizer *Paula Rocha, University of Aveiro, Portugal*

Chair: *Jan C. Willems, K.U. Leuven, Belgium*

Co-Chair: *Paula Rocha, University of Aveiro, Portugal*

1. (13:00) Behavioral descriptions of the object-oriented paradigm for physical system modeling

Thierry Bastogne, Université Henri Poincaré, Nancy 1, France

2. (13:20) The stable embedding problem

Harry Trentelman, University of Groningen, Netherlands

R. Zavala Yoé, University of Groningen, Netherlands

C. Praagman, University of Groningen, Netherlands

H.L. Trentelman, University of Groningen, Netherlands

3. (13:40) Robust stability analysis of uncertain interconnection in the behavioral framework

Kiyotsugu Takaba, Kyoto University, Japan

4. (14:00) Port representations of the telegrapher's equations

Javier Villegas, University of Twente, Netherlands

Hans Zwart, University of Twente, Netherlands

Arjan van der Schaft, University of Twente, Netherlands

5. (14:20) System Representation and Optimal Tracking in Data Space

Yasumasa Fujisaki, Kobe University, Japan

Yiran Duan, Kobe University, Japan

Masao Ikeda, Osaka University, Japan

6. (14:40) Data driven simulation with applications to system identification

Ivan Markovsky, K.U.Leuven, Belgium

Jan C. Willems, K.U.Leuven, Belgium

Paolo Rapisarda, University of Maastricht, Netherlands

Bart L. M. De Moor, K.U.Leuven, Belgium

OPTIMALITY ISSUES IN CONTROL

Thursday 07-Jul-2005 13:00-15:00, Meeting Room 1.1

Chair: *Dario Bauso, Universita' di Palermo, Italy*

Co-Chair: *Mario Salgado, Universidad Tecnica Federico Santa Maria, China*

1. (13:00) A Class of Optimal Decentralized Controllers for Open Loop Stable Processes

Mario Salgado, UTFSM, Chile

Eduardo Silva, UTFSM, Chile

2. (13:20) Existence and Optimality of Nash Equilibria in Inventory

Laura Giarre', Univerista' di Palermo, Italy

Dario Bauso, Universita' di Palermo, Italy

Raffaele Pesenti, Universita' di Palermo, Italy

3. (13:40) Experimental Application of H_1 -Optimal Control in Atomic Force Microscopy

Jochen M. Rieber, University of Stuttgart, Germany

Georg Schitter, ETH Zurich, Switzerland

Andreas Stemmer, ETH Zurich, Switzerland

Frank Allgower, University of Stuttgart, Germany

4. (14:00) Optimal Observation during Control of Dynamic Systems under Uncertainty

Faina Kirillova, Institute of Mathematics, NASB, Belarus

Rafail Gabasov, Belorussian State University, Belarus

Natalia Dmitruk, Institute of Mathematics, NASB, Belarus

5. (14:20) Relatively optimal control: the static solution

Felice Andrea Pellegrino, Università di Udine, Italy

Franco Blanchini, Univarsità di Udine, Italy

6. (14:40) A Comparative Study of Deterministic and Stochastic Optimization Methods for Integrated Design of Processes

Mario Francisco, University of Salamanca, Spain

Silvana Revollar, University of Simón Bolívar, Venezuela

Pastora Vega, University of Salamanca, Spain

Rosalba Lamanna, University of Simón Bolívar, Venezuela

SOLAR AND WIND ENERGY

Thursday 07-Jul-2005 13:00-15:00, Meeting Room 3.1

Chair: *George Oluwande, RWE Npower, United Kingdom*

Co-Chair: *Didier Georges, INPG, France*

- 1. (13:00) A Two Loop Optimal Control of Flexible Drive Train Variable Speed Wind Power Systems**

Iulian Munteanu, University of Galati, Romania

Antoneta Iuliana Bratcu, University of Galati, Romania

Nicolaos Antonio Cutululis, University of Galati, Romania

Emil Ceanca, University of Galati, Romania
- 2. (13:20) Control in variable speed wind turbines based on synchronous generators**

Haro Casado M, University of Cádiz, Spain

Velasco F.J., University of Santander, Spain

Rueda M.T, University of Santander, Spain

Moyano E., University of Santander, Spain
- 3. (13:40) Feedback Linearization Control for a Distributed Solar Collector Field**

Cristina Martínez Cirre, Plataforma Solar de Almería (CIEMAT), Spain

Loreto Valenzuela Gutiérrez, Plataforma Solar de Almería (CIEMAT), Spain

Manuel Berenguel Soria, Universidad de Almería, Spain

Eduardo Fernández Camacho, Universidad de Sevilla, Spain
- 4. (14:00) Modelling and Simulation of a Dish Stirling solar engine**

Marcello Farina, Politecnico di Milano, Italy

Sergio Bittanti, Politecnico di Milano, Italy

Antonio De Marco, Politecnico di Milano, Italy

Silvano Spelta, CESI Milano, Italy
- 5. (14:20) Modelling and control of a solar thermal power plant**

Esko Juuso, University of Oulu, Finland

SOLAR AND WIND ENERGY

Thursday 07-Jul-2005 13:00-15:00, Meeting Room 3.1

Chair: *George Oluwande, RWE Npower, United Kingdom*

Co-Chair: *Didier Georges, INPG, France*

6. (14:40) Robust H_∞ control applied to a solar plant

Miguel A. Corchero, University of Sevilla, Spain

Manuel G. Ortega, University of Sevilla, Spain

Francisco R. Rubio, University of Sevilla, Spain

PRODUCTION PLANNING AND SCHEDULING - II

Thursday 07-Jul-2005 13:00-15:00, Meeting Room 3.2

Chair: *Laszlo Monostori, SZTAKI, Hungary*

Co-Chair: *Benoit lung, CRAN, France*

1. (13:00) **Robustness of the linear workshop to the change of ratio**
Mohamed Fathi Karoui, Ecole Centrale de Lille, France
Simon Collart Dutilleul, Ecole Centrale de Lille, France
Etienne Craye, Ecole Centrale de Lille, France
2. (13:20) **Robust algorithm for the uncertain scheduling problem with moving executors**
Jerzy Jozefczyk, Wroclaw University of Technology, Poland
3. (13:40) **A Constrained Stochastic Production Planning Problem with Imperfect Information of Inventory**
Oscar S. Silva Filho, CENPRA, Brazil
4. (14:00) **Two Phase Technique for Assembly Line Balancing**
Jüri Vain, Tallinn University of technology/Institute of Cybernetics, Estonia
Ingmar Randvee, Institute of Cybernetics, Estonia
Tiit Riismaa, Institute of Cybernetics, Estonia
5. (14:20) **Application of a Modified Holt-Winters Method and of Neural Network Methods to Medium Term Sales Forecasting**
Apostolos Kotsialos, Technical University of Crete, Greece
Markos Papageorgiou, Technical University of Crete, Greece
Antonios Poulimenos, Technical University of Crete, Greece
6. (14:40) **Genetic Algorithm Approach to Multiobjective Rescheduling on Parallel Machines**
Hitoshi Iima, Kyoto Institute of Technology, Japan

AIRCRAFT CONTROL ANALYSIS AND OPTIMIZATION

Thursday 07-Jul-2005 13:00-15:00, Meeting Room 3.3

Organizer: *Alexander Nebylov, State University of Aerospace Instrumentation, Russian Federation*

Co-Organizer *Haydn Thompson, University of Sheffield, United Kingdom*

Chair: *Alexander Nebylov, State University of Aerospace Instrumentation, Russian Federation*

Co-Chair: *Haydn Thompson, University of Sheffield, United Kingdom*

1. (13:00) Cable Assisted Rendezvous for Aircraft with Surface Locations

Daniel Sgarioto, RMIT University, Australia

Pavel Trivailo, RMIT University, Australia

2. (13:20) Computation of worst-case pilot inputs for clearance of flight control laws

Prathyush Menon, University of Leicester, United Kingdom

Declan G. Bates, University of Leicester, United Kingdom

Ian Postlethwaite, University of Leicester, United Kingdom

3. (13:40) Controller gains adjustment for closed-loop modal requirements

Fabien Delmond, ONERA, France

Christelle Cumer, ONERA, France

Daniel Alazard, SUPAERO, France

4. (14:00) Hybrid Optimisation schemes for the clearance of flight control laws

Prathyush Menon, University of Leicester, United Kingdom

Declan G. Bates, University of Leicester, United Kingdom

Ian Postlethwaite, University of Leicester, United Kingdom

5. (14:20) Nonlinear Dynamics and Robust Control of a Gyroplane Rotor

Yevgeny Somov, Research Institute for Control of Mechanical Systems, Russian Federation

Oleg Polyntsev, Scientific and Production Corporation IRKUT, Russian Federation

AIRCRAFT CONTROL ANALYSIS AND OPTIMIZATION

Thursday 07-Jul-2005 13:00-15:00, Meeting Room 3.3

Organizer: *Alexander Nebylov, State University of Aerospace Instrumentation, Russian Federation*

Co-Organizer *Haydn Thompson, University of Sheffield, United Kingdom*

Chair: *Alexander Nebylov, State University of Aerospace Instrumentation, Russian Federation*

Co-Chair: *Haydn Thompson, University of Sheffield, United Kingdom*

6. (14:40) Mixed H2/Hinfinity Sub-Optimization Approach For Integrated Aircraft/Controller Design

Fang Liao, National University of Singapore, Singapore

Kai Yew Lum, National University of Singapore, Singapore

Jian Liang Wang, Nanyang Technological University, Singapore

CONTROL APPLICATIONS TO LIFE MEDICINE I

Thursday 07-Jul-2005 13:00-15:00, Meeting Room 4.3

Chair: *Ewart Carson, City University, London, United Kingdom*

Co-Chair: *David Feng, University of Sydney, Australia*

1. (13:00) A Decision Support System based on a Closed Loop PFC Applied for Type I Diabetes

R. G. Díaz, Univ. Univ. Nacional de Rosario, Argentina

S. Aguerre, Univ. Nacional de Rosario, Argentina

G. Roldan, Univ. Nacional de Rosario, Argentina

Marta Basualdo, Univ. Tecnologica Nacional and Univ. Nacional de Rosario, Argentina

2. (13:20) An Adaptive GPC Approach to Low-flow Anaesthesia

Daniel Coca, University of Sheffield, United Kingdom

Diana S. Coca, University of Sheffield, United Kingdom

Stephen A. Billings, University of Sheffield, United Kingdom

3. (13:40) An Online Fuzzy Gain Scheduling for Blood Pressure Regulation

Chi-Ngon Nguyen, University of Rostock, Germany

Olaf Simanski, University of Rostock, Germany

Agnes Schubert, University of Rostock, Germany

Ralf Kähler, University of Rostock, Germany

Bernhard Lampe, University of Rostock, Germany

4. (14:00) Controlling the transmission of mastitis-causing pathogens

Neil Evans, University of Warwick, United Kingdom

D.M. Cronin, University of Warwick, United Kingdom

L.J. White, University of Warwick, United Kingdom

M.J. Chappell, University of Warwick, United Kingdom

M.J. Chapman, Coventry University, United Kingdom

K.R. Godfrey, University of Warwick, United Kingdom

CONTROL APPLICATIONS TO LIFE MEDICINE I

Thursday 07-Jul-2005 13:00-15:00, Meeting Room 4.3**Chair: Ewart Carson, City University, London, United Kingdom****Co-Chair: David Feng, University of Sydney, Australia****5. (14:20) Imaging and Control for Adaptive Radiotherapy***Olivier Haas, Coventry University, United Kingdom**Gloria Bueno, University Castilla-La Mancha, Spain**Ralf Spriestersbach, Coventry University, United Kingdom**Heiko Himmler, Coventry University, Germany**Keith Burnham, Coventry University, United Kingdom**John Mills, University Hospitals Coventry and Warwickshire NHS Trust, United Kingdom***6. (14:40) PID Control Design for Rehabilitation by Quasi-isometric Training in Paraplegia: A Simulation Study***Fabio Previdi, University of Bergamo, Italy**Maurizio Ferrarin, Fondazione Don Gnocchi ONLUS, Italy**Sergio M. Savaresi, Politecnico di Milano, Italy**Sergio Bittanti, Politecnico di Milano, Italy*

MECHATRONICS IN AGRICULTURE

Thursday 07-Jul-2005 13:00-15:00, Meeting Room 2.1

Chair: *Jan Bontsema, Agrotechnology and Food Innovations Ltd., Wageningen, Netherlands*

Co-Chair: *Jan Anthonis, Catholic University Leuven, Belgium*

1. (13:00) **ISO 11783 - Standard and its Implementation**
Timo Oksanen, Helsinki University of Technology, Finland
Matti Öhman, Helsinki University of Technology, Finland
Mikko Miettinen, Helsinki University of Technology, Finland
Arto Visala, Helsinki University of Technology, Finland
2. (13:20) **Identification of sensor faults on combine harvesters using intelligent methods**
Geert Craessaerts, KULEUVEN, Belgium
Tom Coen, KULEUVEN, Belgium
Josse De Baerdemaeker, KULEUVEN, Belgium
3. (13:40) **Machine Vision for On-Line Weed Identification**
Staphan Maniak, University of West Hungary, Germany
Péter Ákos Mesterházi, University of West Hungary, Hungary
Miklós Neményi, University of West Hungary, Hungary
Gábor Milics, University of West Hungary, Hungary
4. (14:00) **Two Control Laws for a Spray System with Time Varying Delay and Dead Band**
Jan Anthonis, K.U.Leuven, Belgium
Wouter Franssens, K.U.Leuven, Belgium
Alexandre Seuret, LAGIS Ecole Centrale de Lille, France
Jean-Pierre Richard, LAGIS Ecole Centrale de Lille, France
Herman Ramon, K.U.Leuven, Belgium
5. (14:20) **Evaluation of an Algorithm for Cough Detection in Pig Houses**
Philippe Jans, Katholieke Universiteit Leuven, Belgium
Marcella Guarino, University of Milan, Italy
Anna Costa, University of Milan, Italy
Jean-Marie Aerts, Katholieke Universiteit Leuven, Belgium
Daniel Berckmans, Katholieke Universiteit Leuven, Belgium

MECHATRONICS IN AGRICULTURE

Thursday 07-Jul-2005 13:00-15:00, Meeting Room 2.1

Chair: *Jan Bontsema, Agrotechnology and Food Innovations Ltd., Wageningen, Netherlands*

Co-Chair: *Jan Anthonis, Catholic University Leuven, Belgium*

6. (14:40) Architecture of an autonomous agricultural tractor: hardware, software, and control systems

Ray Eaton, The University of New South Wales, Australia

Jayantha Katupitiya, The University of New South Wales, Australia

Anthony Cole, The University of New South Wales, Australia

Craig Meyer, The University of New South Wales, Australia

**CULTURAL AND COST ASPECTS OF CONTROLLING A DISTRIBUTED
COLLABORATIVE ENGINEERING**

Thursday 07-Jul-2005 13:00-15:00, Meeting Room 3.4

Organizer: *Heinz Erbe, Technische Universität Berlin, Germany*

Chair: *Ernst Welfonder, University of Stuttgart, Germany*

Co-Chair: *Heinz H. Erbe, Technische Universität Berlin, Germany*

1. (13:00) Intercultural and Interdisciplinary Issues on Virtual Co-operative Environments

Raffaello Lepratti, Brandenburg University of Technology at Cottbus, Germany

Petra Koeppel, Brandenburg University of Technology at Cottbus, Germany

2. (13:20) Distributed engineering teams and their organizational aspects

Carlos Acosta, Universidad de las Americas, Puebla, Mexico

Efrén Moreno, Universidad de las Americas, Puebla, Mexico

3. (13:40) Modelling and Evaluation of the Health Networks

Jean-Pierre Grandhaye, ERPI-INPL Nancy, France

Auguste Rakotondranaivo, ERPI-INPL Nancy, France

Frédérique Mayer, ERPI-INPL Nancy, France

4. (14:00) Sustainable Further Evolution of the Globalized Society, Required Limitation of the Economic, Ecologic and Demographic Momentum

Ernst Welfonder, University of Stuttgart, Germany

Thilo Frederking, University of Stuttgart, Germany

Roland Ziegler, University of Stuttgart, Germany

**CULTURAL AND COST ASPECTS OF CONTROLLING A DISTRIBUTED
COLLABORATIVE ENGINEERING**

Thursday 07-Jul-2005 13:00-15:00, Meeting Room 3.4

Organizer: *Heinz Erbe, Technische Universität Berlin, Germany*

Chair: *Ernst Welfonder, University of Stuttgart, Germany*

Co-Chair: *Heinz H. Erbe, Technische Universität Berlin, Germany*

**5. (14:20) Collaborative planning of a manufacturing design
project through a novel e-engineering hub**

*Ricardo Mejía, ITESM, Campus Monterrey / LIPSI-ESTIA,
Mexico*

Arturo Molina, ITESM, Campus Monterrey, Mexico

*Godfried Augenbroe, Georgia Institute of Technology / TU-
Delft, United States*

**6. (14:40) Design in Collaboration: Existing Trends and
Application to the Case of Conflict Handling with
CO²MED Software**

*Muriel Lombard, University Henry Poincaré , Nancy1,
France*

Bertrand Rose, University Henry Poincaré , Nancy1, France

Gabriel Ris, University Henry Poincaré , Nancy1, France

VIRTUAL AND REMOTE CONTROL LABORATORIES

Thursday 07-Jul-2005 13:00-15:00, Meeting Room 3.5

Chair: *Naim Kheir, Oakland University, Australia*

Co-Chair: *Peter Joergl, Vienna University of Technology, Austria*

- 1. (13:00) A Laboratory Scale Plant with Hybrid Dynamics and Remote Access via Internet for Control Engineering Education**

Jaroslav Hlava, TU Liberec, Czech Republic

Bohumil Šulc, Czech Technical University in Prague, Czech Republic

Jan Tamáš, Czech Technical University in Prague, Czech Republic
- 2. (13:20) Object-oriented Modeling of Virtual Laboratories for Control Education**

Carla Martin, UNED, Spain

Alfonso Urquia, UNED, Spain

Sebastian Dormido, UNED, Spain
- 3. (13:40) A Straightforward Proposal for Low-cost Development of Virtual and Remote Control Laboratories**

José Luis Díez, Universidad Politecnica de Valencia, Spain

Marina Vallés, Universidad Politecnica de Valencia, Spain

Ángel Valera, Universidad Politecnica de Valencia, Spain

Pedro Albertos, Universidad Politecnica de Valencia, Spain
- 4. (14:00) Automatic Control Learning Management System based on Web Services and Semantic Web**

Jan Tamáš, Czech Technical University in Prague, Czech Republic

Bohumil Šulc, Czech Technical University in Prague, Czech Republic
- 5. (14:20) Web-based Control Design Environment for Distributed Parameter Systems Control Education**

Gabriel Hulkó, Slovak Technical University, Slovakia

Cyril Belavý, Slovak Technical University, Slovakia

Štefan Cibiri, Slovak Technical University, Slovakia

Ján Szuda, Slovak Technical University, Slovakia

VIRTUAL AND REMOTE CONTROL LABORATORIES

Thursday 07-Jul-2005 13:00-15:00, Meeting Room 3.5

Chair: *Naim Kheir, Oakland University, Australia*

Co-Chair: *Peter Joergl, Vienna University of Technology, Austria*

6. (14:40) AIRES: a standard for web-based remote experiments

Alberto Leva, Politecnico di Milano, Italy

Marco Casini, Università di Siena, Italy

Francesco Schiavo, Politecnico di Milano, Italy

ANALYSIS AND SYNTHESIS OF LINEAR CONTROL SYSTEMS II

Thursday 07-Jul-2005 15:30-17:30, North Hall

Chair: *Stefan Kozak, Slovak University of Technology, Slovakia*

1. (15:30) **Boundary Control Systems and the System Node**
Javier Villegas, University of Twente, Netherlands
Yann Le Gorrec, LAGEP, UCB Lyon 1, France
Hans Zwart, University of Twente, Netherlands
Arjan van der Schaft, University of Twente, Netherlands
2. (15:30) **Boundary control of some infinite dimensional systems**
Omer Morgul, Bilkent University, Turkey
3. (15:30) **Controllability and quadratic stabilization of a class of discrete linear repetitive processes**
Krzysztof Galkowski, U. Wuppertal - G. Mercator Guest Profesor, U. Zielona Gora - on sabbatical, Poland
Blazej Cichy, U. Zielona Gora, Poland
Eric Rogers, U. Southampton, United Kingdom
Gerhard Jank, RWTH, Aachen, Germany
4. (15:30) **Discrete System Order-Reduction via Balancing Transformation Using Singular Perturbations**
Saleh Al-Takroui, Rutgers, The State University of New Jersey, United States
Zoran Gajic, Rutgers, The State University of New Jersey, United States
5. (15:30) **Discrete-time Hinf Model Matching Problem in two Degrees of Freedom Control Structure**
Leyla Goren, Istanbul Technical University, Turkey
6. (15:30) **Eigenstructure Assignment for Semi-Proper Systems: Pseudo-State Feedback**
Tim Clarke, University of York, United Kingdom
Andrew Pomfret, University of York, United Kingdom
Jonathan Ensor, University of York, United Kingdom

ANALYSIS AND SYNTHESIS OF LINEAR CONTROL SYSTEMS II

Thursday 07-Jul-2005 15:30-17:30, North Hall

Chair: *Stefan Kozak, Slovak University of Technology, Slovakia*

- 7. (15:30) Minimisation of Transient Perturbation Growth in Linearised Lorenz Equations**
John Mckernan, Cranfield University, United Kingdom
James F. Whidborne, Cranfield University, United Kingdom
George Papadakis, King's College, London, United Kingdom
- 8. (15:30) On Poles and Zeros of Input-Output and Chain-Scattering Systems**
Guangying Zhang, Harbin Institute of Technology, China
Alexander Lanzon, The Australian National University, Australia
- 9. (15:30) On solving discrete-time periodic Riccati equations**
Andras Varga, German Aerospace Center, DLR - Oberpfaffenhofen, Germany
- 10. (15:30) On the Design of Discrete-Time Fixed-Order Controllers for Persistent Disturbance Rejection**
Jialing Chen, E.E. Dept., Pennsylvania State University, United States
Constantino Lagoa, E.E. Dept., Pennsylvania State University, United States
Asok Ray, M. N.E. Dept., Pennsylvania State University, United States
- 11. (15:30) On the solution of the general singular model of 2-D systems**
Nicholas Karampetakis, Aristotle University of Thessaloniki, Greece
- 12. (15:30) Pole placement in infinite dimensions and functional models of linear operators**
Dmitry Yakubovich, Universidad Autonoma de Madrid, Spain
- 13. (15:30) Robust Filtering for Random Sensor Delay Systems**
Fuwen Yang, Brunel University, United Kingdom
Zidong Wang, Brunel University, United Kingdom

ANALYSIS AND SYNTHESIS OF LINEAR CONTROL SYSTEMS II

Thursday 07-Jul-2005 15:30-17:30, North Hall

Chair: *Stefan Kozak, Slovak University of Technology, Slovakia*

- 14. (15:30) The parametrization of all stabilizing multi-period repetitive controllers with the specified frequency characteristics**

Keiji Satoh, Gunma University, Japan

Kou Yamada, Gunma University, Japan

Makoto Kowada, Gunma University, Japan

IMAGE PROCESSING AND BIOMEDICAL APPLICATIONS

Thursday 07-Jul-2005 15:30-17:30, North Hall

Chair: *Er-Wei Bai, University of Iowa, United States*Co-Chair: *Ralf Peeters, Universiteit Maastricht, Netherlands***1. (15:30) Adaptive algorithms and experimental results of a bolus chasing CT scanner***Er-Wei Bai, University of Iowa, United States**H. Bai, West High School (student), Iowa City, Iowa, United States**R. Remersaro, University of Iowa, United States**J. Bennett, University of Iowa, United States**J. Halloran, Cedar Vally Medical, Waterloo, Iowa, United States**M. Vannier, University of Chicago, United States**G. Wang, University of Iowa, United States***2. (15:30) An Image Registration Algorithm Based on Digital Image Fusion***Rong Wang, Key Laboratory of Process Industry Automation, China**Liqun Gao, Key Laboratory of Process Industry Automation, China***3. (15:30) Analysis of a class of infinite dimensional systems based on model decomposition***Jaroslawn Smieja, Silesian University of Technology, Poland**Andrzej Swierniak, Silesian University of Technology, Poland***4. (15:30) Detectability of anomalies from a few noisy tomographic projections***Lionel Fillatre, Université de Technologie de Troyes, France, Metropolitan**Florent Retraint, Université de Technologie de Troyes, France, Metropolitan**Igor Nikiforov, Université de Technologie de Troyes, France, Metropolitan*

IMAGE PROCESSING AND BIOMEDICAL APPLICATIONS

Thursday 07-Jul-2005 15:30-17:30, North Hall**Chair:** *Er-Wei Bai, University of Iowa, United States***Co-Chair:** *Ralf Peeters, Universiteit Maastricht, Netherlands***5. (15:30) Development of Recognition System for Template-marked Digits in Billets***Jihun Ko, Agency for Defense Development, Korea**YoungKow Lee, Pohang Univ. of Science and Technology, Korea**SungHoo Choi, Pohang Univ. of Science and Technology, Korea**Sang Woo Kim, Pohang Univ. of Science and Technology, Korea**JongHak Lee, POSCO Technology Laboratory, Korea***6. (15:30) Distributed-delay Models of the Glucose-Insulin Homeostasis and Asymptotic State Observation***Domenico Di Martino, National Institute of Nuclear Physics, Italy**Andrea De Gaetano, National Research Council, Italy**Alfredo Germani, University of L'Aquila, Italy**Costanzo Manes, University of L'Aquila, Italy**Pasquale Palumbo, Italian National Research Council, Italy***7. (15:30) Estimating the Disease Parameters for Smallpox in London over the period 1708 to 1748***Stephen Duncan, University of Oxford, United Kingdom***8. (15:30) Face identification using multiple combination strategy for human robot interaction***Do-Hyung Kim, ETRI, Korea**Jae-Yeon Lee, ETRI, Korea**Eui-Young Cha, Pusan National University, Korea**Young-Jo Cho, ETRI, Korea*

IMAGE PROCESSING AND BIOMEDICAL APPLICATIONS

Thursday 07-Jul-2005 15:30-17:30, North Hall

Chair: *Er-Wei Bai, University of Iowa, United States*Co-Chair: *Ralf Peeters, Universiteit Maastricht, Netherlands***9. (15:30) Feature Extraction of Human Sleep EEG based on a Peak Frequency Analysis***Katsuhiko Inoue, Kyushu Institute of Technology, Japan**Tomohiro Tsujihata, Kyushu Institute of Technology, Japan**Kousuke Kumamaru, Kyushu Institute of Technology, Japan**Shigeaki Matsuoka, School of Medicine, University of Occupational and Environmental Health, Japan***10. (15:30) Gas jet impinging on liquid surface: Cavity shape modelling and video-based estimation***Magnus Evestedt, Uppsala University, Sweden**Alexander Medvedev, Uppsala University, Sweden***11. (15:30) Modelling of Supercritical Fluid Extraction Using Dynamic Genetic Algorithm based Optimisation***Simon X. Yang, Chongqing Univ. of Posts and Telecommunications, China**Jin Zeng, University of Guelph, Canada**Guoyin Wang, Chongqing Univ. of Posts and Telecommunications, China***12. (15:30) Motion Reconstruction in Natural Scenes from Cortical Activity Waves***Wenxue Wang, Washington University, United States**Bijoy K. Ghosh, Washington University, United States***13. (15:30) Nonlinear Modeling and System Identification for Cortical Control of Arm Prosthetics***Yongji Wang, Huazhong University of science and Technology, China**Jian Huang, Huazhong University of science and Technology, China**Qi Xu, Huazhong University of science and Technology, China**Jiping He, Arizona State University, United States*

IMAGE PROCESSING AND BIOMEDICAL APPLICATIONS

Thursday 07-Jul-2005 15:30-17:30, North Hall

Chair: *Er-Wei Bai, University of Iowa, United States*Co-Chair: *Ralf Peeters, Universiteit Maastricht, Netherlands***14. (15:30) Optimising Neural Network Architectures for Compensator Design***John Goodband, Coventry University, United Kingdom**Olivier Haas, Coventry University, United Kingdom**John Mills, Walsgrave Hospital, Coventry, United Kingdom***15. (15:30) Parkinson's Disease: Modeling the Tremor and Optimizing the Treatment***Mohammad Haeri, Sharif U. of T., Iran**Yashar Sarbaz, Sharif U. of T., Iran**Shahriar Gharibzadeh, Amir Kabir U. of T., Iran***16. (15:30) Spectral Properties of Projection Signals in 3-D Tomography***Yingbo Li, University Wuppertal, Germany**Anton Kummert, University Wuppertal, Germany**Fritz Boschen, University Wuppertal, Germany**Hans Herzog, Institute of Medicine, Research Center Jülich, Germany***17. (15:30) Systematic structure and parameter identification for biological reaction systems supported by a software-tool***Jana Leifheit, Technical University Berlin, Germany**Rudibert King, Technical University Berlin, Germany***18. (15:30) Wavelet Approximation for Implementation in Dynamic Translinear Circuits***Ralf Peeters, Universiteit Maastricht, Netherlands**Joël Karel, Universiteit Maastricht, Netherlands**Ronald Westra, Universiteit Maastricht, Netherlands**Sandro Haddad, Delft University of Technology, Netherlands**Wouter Serdijn, Delft University of Technology, Netherlands*

IMAGE PROCESSING AND BIOMEDICAL APPLICATIONS

Thursday 07-Jul-2005 15:30-17:30, North Hall

Chair: *Er-Wei Bai, University of Iowa, United States*

Co-Chair: *Ralf Peeters, Universiteit Maastricht, Netherlands*

19. (15:30) Wavelet Descriptors for Object Recognition using Mexican Hat Function

Adnan Abou Nabout, University of Wuppertal, Germany

Bernd Tibken, University of Wuppertal, Germany

NONLINEAR FILTERING

Thursday 07-Jul-2005 15:30-17:30, Club H

Chair: *Miroslav Simandl, University of West Bohemia in Pilsen, Czech Republic*

Co-Chair: *Uwe Kiencke, University of Karlsruhe, Germany*

1. (15:30) **A Wavelet Enhanced Integral Approach to Linear Dynamic Data Reconciliation**
Hsiao-Ping Huang, National Taiwan University, Taiwan
Kuo-Yuan Luo, National Taiwan University, Taiwan
2. (15:50) **Formal Linearization of Nonlinear Time-Varying Dynamic Systems using Chebyshev and Laguerre Polynomials**
Hitoshi Takata, Kagoshima University, Japan
Kazuo Komatsu, Kumamoto National College of Technology, Japan
Hideki Sano, Kagoshima University, Japan
3. (16:10) **Nonlinear Observer Design For Lateral Vehicle Dynamics**
Anne von Vietinghoff, Universität Karlsruhe (TH), Germany
Marcus Hiemer, Universität Karlsruhe (TH), Germany
Uwe Kiencke, Universität Karlsruhe (TH), Germany
4. (16:30) **Nonlinear State Estimation by Evolution Strategies Based Particle Filters**
Katsuji Uosaki, Osaka University, Japan
Toshiharu Hatanaka, Osaka University, Japan
5. (16:50) **Sigma Point Gaussian Sum Filter Design using Square Root Unscented Filters**
Miroslav Simandl, University of West Bohemia in Pilsen, Czech Republic
Jindrich Dunik, University of West Bohemia in Pilsen, Czech Republic
6. (17:10) **Using the Bhattacharyya distance in Functional Sampling Density of Particle Filter**
Miroslav Simandl, University of West Bohemia in Pilsen, Czech Republic
Ondrej Straka, University of West Bohemia in Pilsen, Czech Republic

CONTROL, ESTIMATION AND ANALYSIS OF STOCHASTIC SYSTEMS

Thursday 07-Jul-2005 15:30-17:30, North Hall

Chair: **Sandro Zampieri, University of Padova, Italy**Co-Chair: **Xi-Ren Cao, The Hong Kong University of Science and Technology, China****1. (15:30) A Generalised Minimum Variance Controller for Time-varying Systems***Christian Schmid, Ruhr-Universität Bochum, Germany**Li, Zheng, University of Wollongong, Australia***2. (15:30) A Variance-Adaptive Particle Filter with Application to Time-Varying Parameter Estimation***Bai Zhang, Tsinghua University, China**Minze Chen, Tsinghua University, China**D. H. Zhou, Tsinghua University, China***3. (15:30) An improved SPSA algorithm for stochastic optimization with bound constraints***Dobrivoje Popovic, United Technologies Research Center, United States**Andrew R. Teel, University of California Santa Barbara, United States**Mrdjan Jankovic, Ford Motor Company, United States***4. (15:30) Analysis of Dynamic Sensor Coverage Problem using Kalman Filters for Estimation***Abhishek Tiwari, California Institute of technology, United States**Myungsoo Jun, GERC, University of Florida, United States**David E. Jeffcoat, AFRL, Munitions Directorate, Eglin Air Force Base, United States**Richard M. Murray, California Institute of Technology, United States***5. (15:30) Approximate Dynamic Programming Methods for Cooperative UAV Search***Matthew Flint, BAE Systems, Advanced Information Technologies, United States**Emmanuel Fernandez, University of Cincinnati, United States*

CONTROL, ESTIMATION AND ANALYSIS OF STOCHASTIC SYSTEMS

Thursday 07-Jul-2005 15:30-17:30, North Hall

Chair: **Sandro Zampieri, University of Padova, Italy**Co-Chair: **Xi-Ren Cao, The Hong Kong University of Science and Technology, China****6. (15:30) Bias Optimality for Multichain Markov Decision Processes***Xi-Ren Cao, The Hong Kong University of Science and Technology, Hong Kong**Junyu Zhang, The Hong Kong University of Science and Technology, Hong Kong***7. (15:30) Controller Design for a Class of Nonlinear Stochastic Systems with Time-delays***Zidong Wang, Brunel University, United Kingdom**Yurong Liu, Yangzhou University, China***8. (15:30) Current Output Filter for State Estimation of Scalar Nonlinear Systems with Application to Chaotic Communication***Huawei Ruan, Marquette University, United States**Edwin Yaz, Marquette University, United States**Tongyan Zhai, Marquette University, United States***9. (15:30) Estimation and Recognition in Stochastic Systems with Time-Delay (Memory) Continuous-Discrete Observations***Svetlana Rozhkova, Tomsk Polytechnic University, Russian Federation**Nikolay Dyomin, Tomsk State University, Russian Federation***10. (15:30) H-infinity filtering for a class of stochastic bilinear systems with multiplicative noise***Michel Zasadzinski, Universite Henri Poincare - Nancy I, France**Souheil Halabi, Universite Henri Poincare - Nancy I, France**Hugues Rafaralahy, Universite Henri Poincare - Nancy I, France**Harouna Souley Ali, Universite Henri Poincare - Nancy I, France*

CONTROL, ESTIMATION AND ANALYSIS OF STOCHASTIC SYSTEMS

Thursday 07-Jul-2005 15:30-17:30, North Hall

Chair: **Sandro Zampieri, University of Padova, Italy**

Co-Chair: **Xi-Ren Cao, The Hong Kong University of Science and Technology, China**

11. (15:30) Mean and Entropy of B-spline PDF Models: Analysis and Design

Jinglin Zhou, Institute of Automation, Chinese Academy of Sciences, China

Hong Yue, The University of Manchester, United Kingdom

Hong Wang, The University of Manchester, United Kingdom

12. (15:30) On Delay-Dependent Stability for a Class of Discrete Nonlinear Stochastic Systems

Michael Basin, Autonomous University of Nuevo Leon, Mexico

Alexandra Rodkina, University of the West Indies, Jamaica

13. (15:30) Optimal Filtering for Linear Systems with Multiplicative and Additive Wiener Noises

Michael Basin, Autonomous University of Nuevo Leon, Mexico

Mikhail Skliar, University of Utah, United States

HuiChai Zhang, University of Utah, United States

14. (15:30) Robust Capacity for Additive Colored Gaussian Uncertain Channels

Charalambos D. Charalambous, University of Cyprus, Cyprus

Stojan Z. Denic, University of Ottawa, Canada

Seddik M. Djouadi, University of Tennessee, United States

15. (15:30) Robust Mixed H_2/H_∞ Control for Systems with Stochastic Nonlinearity

Fuwen Yang, Brunel University, United Kingdom

Zidong Wang, Brunel University, United Kingdom

16. (15:30) Separation approach for numerical solution of the Fokker-Planck equation in estimation problem

Miroslav Simandl, University of West Bohemia in Pilsen, Czech Republic

Jaroslav Svacha, University of West Bohemia in Pilsen, Czech Republic

CONTROL, ESTIMATION AND ANALYSIS OF STOCHASTIC SYSTEMS

Thursday 07-Jul-2005 15:30-17:30, North Hall

Chair: **Sandro Zampieri, University of Padova, Italy**Co-Chair: **Xi-Ren Cao, The Hong Kong University of Science and Technology, China****17. (15:30) Stabilisation of Uncertain Markovian Jump Singular Systems with Wiener Process***Jamila Raouf, Ecole Polytechnique de Montreal, Canada**El-keibir Boukas, Ecole Polytechnique de Montreal, Canada***18. (15:30) Statistical analysis of stable FDLCP systems described by higher order differential equations***Bernhard Lampe, University of Rostock, Germany**Efim Rosenwasser, SAint Petersburg Marine Technical University, Russian Federation***19. (15:30) Stochastic Power Control for Time-varying Flat Fading Wireless Channels***Mohammed M. Olama, University of Tennessee, United States**Shoab M. Shajaat, University of Arkansas, United States**Seddik M. Djouadi, University of Tennessee, United States**Charalambos D. Charalambous, University of Cyprus, Cyprus***20. (15:30) Suboptimal switching control of queuing systems***Jaroslav Smieja, Silesian University of Technology, Poland***21. (15:30) Two Time-Scale Feasible Direction Method***Vladislav Tadic, University of Sheffield, United Kingdom**Nenad Vlajkovic, University of Belgrade, Yugoslavia**Efstratios Kyriakopoulos, University of Sheffield, United Kingdom*

CONTROL OF NONLINEAR SATURATING SYSTEMS

Thursday 07-Jul-2005 15:30-17:30, Terrace 2**Chair:** *Franco Blanchini, University of Udine, Italy***Co-Chair:** *Panagiotis Christophides, UCLA, United States***1. (15:30) Stability and stabilization of a class of nonlinear systems with saturating actuators***Isabelle Queinnec, LAAS-CNRS, France**Eugenio B. Castelan, DAS-CTC-UFSC, Brazil**Sophie Tarbouriech, LAAS-CNRS, France***2. (15:50) Improving the performance of nonlinear stabilization of multiple integrators with bounded controls***Nicolas Marchand, CNRS, France**Ahmad Hably, Lab. d'Automatique de Grenoble, France***3. (16:10) Analysis of Random Reference Tracking in Systems with Saturating Actuators***Yongsoon Eun, Xerox Corporation, United States**Pierre T. Kabamba, University of Michigan, United States**Semyon M. Meerkov, University of Michigan, United States***4. (16:30) Controller for a nonlinear system with an input constraint by using a control Lyapunov function I***Nami Kidane, Nara Institute of Science and Technology, Japan**Hisakazu Nakamura, Nara Institute of Science and Technology, Japan**Yuh Yamashita, Hokkaido University, Japan**Hirokazu Nishitani, Nara Institute of Science and Technology, Japan***5. (16:50) Controller for a nonlinear system with an input constraint by using a control Lyapunov function II***Nami Kidane, Nara Institute of Science and Technology, Japan**Hisakazu Nakamura, Nara Institute of Science and Technology, Japan**Yuh Yamashita, Hokkaido University, Japan**Hirokazu Nishitani, Nara Institute of Science and Technology, Japan*

CONTROL OF NONLINEAR SATURATING SYSTEMS

Thursday 07-Jul-2005 15:30-17:30, Terrace 2

Chair: *Franco Blanchini, University of Udine, Italy*

Co-Chair: *Panagiotis Christophides, UCLA, United States*

6. (17:10) Stability Analysis and Anti-Windup Design for Discrete-Time Systems by a Saturation-Dependent Lyapunov Function Approach

Yongqiang Wang, Zhejiang University, China

Yong-Yan Cao, Zhejiang University, China

You-Xian Sun, Zhejiang University, China

MULTI-ROBOT SYSTEMS

Thursday 07-Jul-2005 15:30-17:30, Club A

Chair: *Claudio Melchiorri, University of Bologna, Italy*

Co-Chair: *Gerd Hirzinger, DFLR, Munich, Germany*

- 1. (15:30) A Perceptive Reference Frame for Cooperative and Reconfigurable Multi-robot Systems**

Jindong Tan, Michigan Technological University, United States

Tzyh-Jong Tarn, Washington University, United States

Ning Xi, Michigan State University, United States
- 2. (15:50) Modelling and Evaluation of a Multi-agent System for a Collaboration**

Narjes Khezami, University of Evry/LSC, France

Samir Otmane, University of Evry/LSC, France

Malik Mallem, University of Evry/LSC, France
- 3. (16:10) A Knowledge Base for Dynamic Path Planning for Multi-Agents**

Nosan Kwak, Seoul National University, Korea

Sanghoon Ji, Seoul National University, Korea

Beomhee Lee, Seoul National University, Korea
- 4. (16:30) Formated Navigation of Mobile Robots using Distributed Leader-Follower Control**

Atsushi Fujimori, Shizuoka University, Japan

Takeshi Fujimoto, Shizuoka University, Japan

Gabor Bohacs, Budapest University of Technology and Economies, Hungary
- 5. (16:50) Multi-Robot Formation Control and Terrain Servoing with Limited Sensor Information**

Xiaoming Hu, KTH, Sweden

Tove Gustavi, KTH, Sweden

Maja Karasalo, KTH, Sweden

MULTI-ROBOT SYSTEMS

Thursday 07-Jul-2005 15:30-17:30, Club A

Chair: *Claudio Melchiorri, University of Bologna, Italy*

Co-Chair: *Gerd Hirzinger, DFLR, Munich, Germany*

6. (17:10) Optimal Priority Selection for Multi-Agent Task Execution

Sang Hoon Ji, Seoul National University, Korea

Jeong Sik Choi, Seoul National University, Korea

No San Kwak, Seoul National University, Korea

BeomHee Lee, Seoul National University, Korea

NONLINEAR OBSERVERS AND OUTPUT FEEDBACK

Thursday 07-Jul-2005 15:30-17:30, North Hall

Chair: *Christian Ebenbauer, University of Stuttgart, Germany*Co-Chair: *Costas Kravaris, University of Patras, Greece***1. (15:30) A Set of Observers for a Class of Nonlinear Systems***Mondher Farza, GREYC (UMR 6072), Université de Caen, ENSICAEN, France**Mohammed M'Saad, GREYC (UMR 6072), Université de Caen, ENSICAEN, France**Malik Sekher, GREYC (UMR 6072), Université de Caen, ENSICAEN, France***2. (15:30) Approximate Observer Error Linearization for Multi-Output Systems***Klaus Röbenack, Technische Universität Dresden, Germany***3. (15:30) Cryptosystems Based on Synchronized Chua's Circuits***Cruz-Hernández César, CICESE, Mexico**Hazael Serrano-Guerrero, CICESE, Mexico***4. (15:30) Femlab-Based Output Regulation of Nonhyperbolically Nonminimum Phase System and its Real-Time Implementation***Branislav Rehak, Czech Technical University in Prague, Czech Republic**Jorge Orozco-Mora, CINVESTAV-IPN, Unidad Guadalajara, Mexico**Sergej Celikovskiy, Institute of Information Theory and Automation, Czech Republic**Javier Ruis-Leon, CINVESTAV-IPN, Unidad Guadalajara, Mexico***5. (15:30) Nonlinear Observers for Time-Varying Systems Appearing in Dynamical Machine Vision***Hiroshi Inaba, Tokyo Denki University, Japan**Rixat Abdursul, Tokyo Denki University, Japan***6. (15:30) Nonlinear predictive control of a solar plant based on reduced complexity models***José Igreja, INESC-ID/ISEL, Portugal**João Lemos, INESC-ID/IST, Portugal**Rui Neves-Silva, Univ Nova Lisboa, Portugal*

NONLINEAR OBSERVERS AND OUTPUT FEEDBACK

Thursday 07-Jul-2005 15:30-17:30, North Hall**Chair:** *Christian Ebenbauer, University of Stuttgart, Germany***Co-Chair:** *Costas Kravaris, University of Patras, Greece***7. (15:30) On Chattering-free Output Feedback Sliding Mode Design for MIMO Linear System***Chieh-Li Chen, Department of Aeronautics and Astronautics, National Cheng Kung Univ., Taiwan**K. C. Lin, Department of Aeronautics and Astronautics, National Cheng Kung Univ., Taiwan**M. J. Jang, Department of Automation and Control Engineering, Far East College, Taiwan***8. (15:30) On Output Feedback Stability and Passivity in Discrete Linear Systems***Itzhak Barkana, Kulicke @ Soffa Industries, Inc., United States***9. (15:30) On sliding mode observers for non-linear systems under external disturbances***Svetlana Krasnova, Institute of Control Sciences, Russian Federation***10. (15:30) Output Synchronization of Chaotic Oscillators and Private Communication***Didier López-Mancilla, CICESE, Electronics and Telecommunication Department, Mexico**César Cruz-Hernández, CICESE, Telematics Direction, Mexico***11. (15:30) Solvability Conditions of Disturbance Rejection by Measurement Feedback for MIMO Nonlinear Systems***Yufan Zheng, The University of Melbourne, Australia**Guoping Lu, Nantong University, China***12. (15:30) Stabilization of Invariant Sets of Switched Systems by Output Feedback***Yu-Ping Tian, Southeast University, China**Xiang-Ze Lin, Southeast University, China*

FAULT TOLERANT CONTROL

Thursday 07-Jul-2005 15:30-17:30, Club E

Chair: *Eva N. Wu, Binghamton University, United States*

Co-Chair: *José Ragot, CRAN, INPL, France*

1. (15:30) Fault Tolerance of Multihop Wireless Networks

N. Eva Wu, Binghamton University, United States

Xiaohua Li, Binghamton University, United States

Timothy Busch, US Air Force Research Laboratory, United States

2. (15:50) Fault tolerant control : the pseudo-inverse method revisited

Marcel Staroswiecki, University Lille 1, France

3. (16:10) Managing Performance Degradation in Fault Tolerant Control Systems

Youmin Zhang, Aalborg University Esbjerg, Denmark

Jin Jiang, University of Western Ontario, Canada

Zhenyu Yang, Aalborg University Esbjerg, Denmark

Akbar Hussain, Aalborg University Esbjerg, Denmark

4. (16:30) Probabilistic safety assessment of control laws based on IEC standards

Koichi Suyama, Tokyo University of Marine Science and Technology, Japan

5. (16:50) Output Feedback Stochastic Stabilization of Active Fault Tolerant Control Systems: LMI Formulation

Samir Aberkane, UHP., France

Jean Christophe Ponsart, UHP., France

Dominique Sauter, UHP., France

6. (17:10) Fault Tolerant Control Design of Nonlinear Systems using LMI Gain Synthesis

Mickael Rodrigues, Université Henri Poincaré - CRAN, France, Metropolitan

Didier Theilliol, Université Henri Poincaré - CRAN, France, Metropolitan

Dominique Sauter, Université Henri Poincaré - CRAN, France, Metropolitan

OPTIMAL CONTROL THEORY AND DESIGN METHODS

Thursday 07-Jul-2005 15:30-17:30, North Hall

Chair: *John Rossiter, Univeristy of Sheffield, United Kingdom*Co-Chair: *Eva Gyurkovics, Budapest University of Technology and Economics, Hungary***1. (15:30) A Difference based Efficient Approximate Algorithm for Model Predictive Control of Input-Constrained Linear Systems***Yutaka Saitou, Tokyo Institute of Technology/JAPAN, Japan**Jun-ichi Imura, Tokyo Institute of Technology/JAPAN, Japan***2. (15:30) A multi parametric quadratic programming solution to robust predictive control***John Rossiter, Univeristy of Sheffield, United Kingdom**B Pluymers, Katholieke Universiteit Leuven, Belgium**J.A.K. Suykens, Katholieke Universiteit Leuven, Belgium**B De Moor, Katholieke Universiteit Leuven, Belgium***3. (15:30) Approximated Optimal Control of Singularly Perturbed Systems via Haar Wavelets***Hamidreza Karimi, University of Tehran, Iran**Parviz Jabedar Maralani, University of Tehran, Iran**Behzad Moshiri, University of Tehran, Iran**Boris Lohmann, University of Bremen, Germany***4. (15:30) Continuous-time LQ Predictive Pole-placement Control***Peter Gawthrop, University of Glasgow, United Kingdom**Wen-Hua Chen, Loughborough University, United Kingdom**Liuping Wang, RMIT University, Australia***5. (15:30) Delayed time-varying H-infinity control design***Andrey Barabanov, Saint Petersburg State University, Russian Federation**Andrey Ghulchak, Lund Institute of Technology, Sweden***6. (15:30) Enhancing the Structural Stability of LQ optimal controllers via the MCS Adaptive Algorithm***Mario di Bernardo, University of Naples Federico II, Italy**Stefania Santini, University of Naples Federico II, Italy*

OPTIMAL CONTROL THEORY AND DESIGN METHODS

Thursday 07-Jul-2005 15:30-17:30, North Hall

Chair: *John Rossiter, Univeristy of Sheffield, United Kingdom*Co-Chair: *Eva Gyurkovics, Budapest University of Technology and Economics, Hungary***7. (15:30) Guaranteed performance control for discrete-time LQG problems***Duan Li, Chinese University of Hong Kong, Hong Kong**Peilin Fu, Chinese University of Hong Kong, Hong Kong**Fucai Qian, Xi'an University of Technology, China***8. (15:30) H₂ control of preview systems***Agoes Moelja, University of Twente, Netherlands**Gjerrit Meinsma, University of Twente, Netherlands***9. (15:30) Integrated Optimization of Structures and LQR Control Systems for Reduced Order Models***Hakan Temeltas, Istanbul Technical University, Turkey**Mehmet Bozca, Yildiz Technical University, Turkey**Yusuf Cunedioğlu, Istanbul Technical University, Turkey**Ata Mugan, Istanbul Technical University, Turkey***10. (15:30) Multirate sampling and delays in receding horizon stabilization of nonlinear systems***Eva Gyurkovics, Budapest University of Technology and Economics, Hungary**Ahmed Elaiw, Budapest University of Technology and Economics, Hungary***11. (15:30) Neuro-Dynamic Programming for the Exploration of Unknown Graphs***Marco Baglietto, University of Genoa, Italy**Giorgio Battistelli, University of Genoa, Italy**Luca Scardovi, University of Genoa, Italy**Riccardo Zoppoli, University of Genoa, Italy***12. (15:30) Optimal Control of Linear Systems with State Equality Constraints***Sangho Ko, University of California, San Diego, United States**Robert R. Bitmead, University of California, San Diego, United States*

OPTIMAL CONTROL THEORY AND DESIGN METHODS

Thursday 07-Jul-2005 15:30-17:30, North Hall

Chair: *John Rossiter, Univeristy of Sheffield, United Kingdom*Co-Chair: *Eva Gyurkovics, Budapest University of Technology and Economics, Hungary***13. (15:30) Optimal control for switched point delay systems with refractory period***Erik Verriest, Georgia Institute of Technology, United States***14. (15:30) Pareto optimal feedforward constrained regulation of MIMO linear systems***Aurelio Piazzi, University of Parma, Italy**Antonio Visioli, University of Brescia, Italy***15. (15:30) Rejection of Unmeasureable Extended Constant Disturbances using Model Predictive Control***Ruth Milman, University of Toronto, Canada**Edward Joseph Davison, University of Toronto, Canada***16. (15:30) Stability Convergence of Balloon Particle Swarm Optimizer and its Application on Vehicle Vibratory Response Modelling***Pan Feng, Beijing Institute of Technology, China**Jie Chen, Beijing Institute of Technology, China**Ming-Gang Gan, Beijing Institute of Technology, China**Tao Cai, Beijing Institute of Technology, China**Xu-yan Tu, Beijing Institute of Technology, China***17. (15:30) State Derivative Feedback by LQR for Linear Time-invariant Systems***Taha Abdelaziz, Czech Technical University in Prague, Faculty of Mechanical Engineering, Czech Republic**Michael Valasek, Czech Technical University in Prague, Faculty of Mechanical Engineering, Czech Republic***18. (15:30) The Lady, the Bandits and the Body-Guards - a two team dynamic game***Ilan Rusnak, RAFAEL, Israel***19. (15:30) Time Varying Terminal Control***Lars Imsland, Norwegian University of Science and Technology, Norway**John Anthony Rossiter, The University of Sheffield, United Kingdom*

OPTIMAL CONTROL THEORY AND DESIGN METHODS

Thursday 07-Jul-2005 15:30-17:30, North Hall

Chair: *John Rossiter, Univeristy of Sheffield, United Kingdom*

Co-Chair: *Eva Gyurkovics, Budapest University of Technology and Economics, Hungary*

20. (15:30) Transition-Time Optimization for Switched Systems

Henrik Axelsson, Georgia Inst. of Technology, United States

Yorai Wardi, Georgia Inst. of Technology, United States

Magnus Egerstedt, Georgia Inst. of Technology, United States

NONLINEAR CONTROL IN PHYSICS AND MECHANICS

Thursday 07-Jul-2005 15:30-17:30, Small Theatre

Organizer: *Alexander Fradkov, Institute for Problems of Mechanical Engineering, Russian Federation*

Chair: *Alexander Fradkov, Institute for Problems of Mechanical Engineering, Russian Federation*

Co-Chair: *Francisco Gordillo, Universidad de Sevilla, Spain*

1. (15:30) Control of Quantum and Classical Molecular Dynamics

Mikhail Ananyevskiy, St.Petersburg State University, Russian Federation

Alexander Efimov, St.Petersburg State University, Russian Federation

Alexander Fradkov, Institute for Problems of Mechanical Engineering., Russian Federation

2. (15:50) Dynamics and Nonlinear Control of Oscillations in a Complex Crystalline Lattice

Eron Aero, Institute for Problems of Mechanical Engineering RAS, Russian Federation

Boris Andrievsky, Institute for Problems of Mechanical Engineering RAS, Russian Federation

Alexander Fradkov, Institute for Problems of Mechanical Engineering RAS, Russian Federation

Sergey Vakulenko, Institute for Problems of Mechanical Engineering RAS, Russian Federation

3. (16:10) Generalized state space averaging for port controlled hamiltonian systems

Carles Batlle, Technical University of Catalonia, Spain

Enric Fossas, Technical University of Catalonia, Spain

Robert Griñó, Technical University of Catalonia, Spain

Sonia Martínez, University of California at Santa Barbara, Spain

4. (16:30) Speed-gradient algorithms for underactuated nonlinear systems

Javier Aracil, Universidad de Sevilla, Spain

Alexander Fradkov, Russian Academy of Sciences, Russian Federation

Francisco Gordillo, Universidad de Sevilla, Spain

NONLINEAR CONTROL IN PHYSICS AND MECHANICS

Thursday 07-Jul-2005 15:30-17:30, Small Theatre

Organizer: *Alexander Fradkov, Institute for Problems of Mechanical Engineering, Russian Federation*

Chair: *Alexander Fradkov, Institute for Problems of Mechanical Engineering, Russian Federation*

Co-Chair: *Francisco Gordillo, Universidad de Sevilla, Spain*

5. (16:50) Speed-Gradient Control of Passing through Resonance in One- and Two-Dimensional Motion

Dmitry Tomchin, Institute for Problems of Mechanical Engineering, Russian Federation

Olga Tomchina, St.Petersburg Machine Building Institute, Russian Federation

Alexander Fradkov, Institute for Problems of Mechanical Engineering, Russian Federation

6. (17:10) Control of oscillations of magneto-sensitive elastic sphere

Ilya Burkov, St. Petersburg State Polytechnical University, Russian Federation

Igor Brigadnov, North-Western State Technical University, Russian Federation

HYBRID STOCHASTIC SYSTEMS

Thursday 07-Jul-2005 15:30-17:30, Terrace 1

Chair: *Jan Maciejowski, University of Cambridge, United Kingdom*

Co-Chair: *Elena De Santis, University of l'Aquila, Italy*

1. (15:30) Distributed Stochastic Hybrid Systems

Manuela Bujorianu, University of Cambridge, United Kingdom

Marius Bujorianu, University of Kent, United Kingdom

Savi Maharaj, University of Stirling, United Kingdom

2. (15:50) Stability Analysis of Switched Linear Stochastic Systems with Unknown Switchings

Haitao Fang, Key Laboratory of Systems and Control, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, China

Peng Ye, Key Laboratory of Systems and Control, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, China

3. (16:10) Evaluation of Hybrid Bayesian Networks using Analytical Density Representations

Oliver Schrempf, Universität Karlsruhe, Germany

Uwe Hanebeck, Universität Karlsruhe, Germany

4. (16:30) Sequential Monte Carlo simulation of rare event probability in stochastic hybrid systems

Jaroslav Krystul, University of Twente, Netherlands

Henk A.P. Blom, National Aerospace Laboratory NLR, Netherlands

5. (16:50) Moment Asymptotic Stability of Stochastic Hybrid Delay Systems

Chenggui Yuan, University of Wales Swansea, United Kingdom

John Lygeros, University of Patras, Greece

William Glover, University of Cambridge, United Kingdom

Jan Maciejowski, University of Cambridge, United Kingdom

TRACKING AND DISTURBANCE REJECTION

Thursday 07-Jul-2005 15:30-17:30, Club B

Chair: *Jian-Shiang Chen, National Tsing Hua University, China*

Co-Chair: *Zhengtao Ding, University of Manchester, United Kingdom*

1. (15:30) A Minimum-time Control Strategy for Torque Tracking in Permanent Magnet AC Motor Drives

Stefano Miani, DIEGM, University of Udine, Italy

Franco Blanchini, DIMI, University of Udine, Italy

Luca Tubiana, DIEGM, University of Udine, Italy

Umberto Viaro, DIEGM, University of Udine, Italy

Mauro Zigliotto, DIEGM, University of Udine, Italy

Matteo Tomasini, DEE, University of Padova, Italy

2. (15:50) A Wavelet-based Iterative Learning Control Scheme for Motion Control Systems

Jian-Shiang Chen, National Tsing Hua University, Taiwan

K. S. Tzeng, National United University, Taiwan

D. C. Tzeng, National Tsing Hua University, Taiwan

3. (16:10) Enhancing ARX-Model Based MPC by Kalman Filter and Smoother

Lubomir Baramov, Honeywell Prague Laboratory, Czech Republic

Vladimir Havlena, Honeywell Prague Laboratory, Czech Republic

4. (16:30) Intelligent Cruise Control Design with Disturbance Rejection

Jianlong Zhang, University of Southern California, United States

Petros Ioannou, University of Southern California, United States

5. (16:50) Non-smooth disturbance rejection in nonlinear systems using nonlinear internal model

Zhengtao Ding, University of Manchester, United Kingdom

TRACKING AND DISTURBANCE REJECTION

Thursday 07-Jul-2005 15:30-17:30, Club B

Chair: *Jian-Shiang Chen, National Tsing Hua University, China*

Co-Chair: *Zhengtao Ding, University of Manchester, United Kingdom*

6. (17:10) VSS Error Feedback Regulator for Linear Systems

Jorge Rivera, CINVESTAV del IPN Unidad Guadalajara, Mexico

Alexander G. Loukianov, CINVESTAV del IPN Unidad Guadalajara, Mexico

Bernardino Castillo Toledo, CINVESTAV del IPN Unidad Guadalajara, Mexico

Vadim A. Utkin, Institute of Control Sciences, Russian Federation

MODELING OF COMPUTER-BASED CONTROL SYSTEMS

Thursday 07-Jul-2005 15:30-17:30, Club D**Chair:** *Leandro Becker, UFSC, Brazil***Co-Chair:** *Marga Marcos, University of the Basque Country, Spain***1. (15:30) An Approach for Designing Real-time Embedded Systems from RT-UML Specifications***Leandro Becker, UFSC, Brazil**Marco A. Wehrmeister, UFRGS, Brazil**Carlos E. Pereira, UFRGS, Brazil***2. (15:50) Comprehensive Modeling of Computer Control Systems' Functionality and Fault-Tolerance in UML***Shourong Lu, Fernuniversität in Hagen, Germany**Wolfgang A. Halang, Fernuniversität in Hagen, Germany***3. (16:10) UML-PA as an Engineering Model for Distributed Process Automation***Uwe Katzke, University of Wuppertal, Germany**Birgit Vogel-Heuser, University of Wuppertal, Germany***4. (16:30) Formal Modelling of Industrial Distributed Control Systems***Marga Marcos, University of the Basque Country, Spain**Elisabet Estevez, University of the Basque Country, Spain***5. (16:50) Introducing a New Mathematical Abstraction for Modeling Real Time Systems***Vasileios Deligiannis, University of Patras, Greece**Stamatis Manesis, University of Patras, Greece***6. (17:10) Timed Automata Model of Preemptive Multitasking Applications***Libor Waszniowski, Czech Technical University in Prague, Czech Republic**Zdenek Hanzalek, Czech Technical University in Prague, Czech Republic*

**POSITIVE POLYNOMIALS AND LMI OPTIMIZATION WITH APPLICATIONS
TO ROBUST CONTROL**

Thursday 07-Jul-2005 15:30-17:30, Club C

Organizer: *Andrea Garulli, Universita' di Siena, Italy*

Co-Organizer *Didier Henrion, Czech Technical University in
Prague, Czech Republic*

Chair: *Didier Henrion, Czech Technical University in
Prague, Czech Republic*

Co-Chair: *Andrea Garulli, University of Siena, Italy*

1. (15:30) **A sum of squares approximation of nonnegative polynomials**
Jean B. Lasserre, LAAS-CNRS, France
2. (15:50) **Noncommutative Convexity vs. LMI's**
J. William Helton, UC San Diego, United States
Scott McCullough, University of Florida, United States
Victor Vinnikov, Ben Gurion of the Negev, Israel
3. (16:10) **Sum Of Squares Relaxations For Robust Polynomial Semi-Definite Programs**
Camile Hol, Delft University of Technology, Netherlands
Carsten Scherer, Delft University of Technology, Netherlands
4. (16:30) **Polynomially parameter-dependent Lyapunov functions for robust H-infinity performance analysis**
Graziano Chesi, University of Siena, Italy
Andrea Garulli, University of Siena, Italy
Alberto Tesi, University of Firenze, Italy
Antonio Vicino, University of Siena, Italy
5. (16:50) **A Decomposition Approach for Solving KYP-SDPs**
Ragnar Wallin, Linköpings universitet, Sweden
Chung-Yao Kao, University of Melbourne, Australia
Anders Hansson, Linköpings universitet, Sweden
6. (17:10) **Investigation of Parameter Perturbation Region for Positive Polynomials**
Kamil Fatih Dilaver, University of Wuppertal, Germany
Bernd Tibken, University of Wuppertal, Germany

FREQUENCY-DOMAIN ANALYSIS AND DESIGN OF TIME-DELAY
SYSTEMS

Thursday 07-Jul-2005 15:30-17:30, Meeting Room 2.2

Organizer: *Pavel Zitek, Czech Technical University in Prague, Czech Republic*

Co-Organizer *Tomas Vyhlidal, Czech Technical University in Prague, Czech Republic*

Chair: *Pavel Zitek, Czech Technical University in Prague, Czech Republic*

Co-Chair: *Wim Michiels, K. U. Leuven, Belgium*

1. (15:30) **A Comparative Survey in Determining the Imaginary Characteristic Roots of LTI Time Delayed Systems**
Rifat Sipahi, University of Connecticut, United States
Nejat Olgac, University of Connecticut, United States
2. (15:50) **Discrete Approximation of a Time Delay System and Delta Model Spectrum**
Tomas Vyhlidal, Czech Technical University in Prague, Czech Republic
Pavel Zitek, Czech Technical University in Prague, Czech Republic
3. (16:10) **Stability Switches and Reversals of Linear Systems with Commensurate Delays: A Matrix Pencil Characterization**
Silviu-Iulian Niculescu, Univ. de Tech. de Compiègne, France
Peilin Fu, University of California, Riverside, United States
Jie Chen, University of California, Riverside, United States
4. (16:30) **Meromorphic Stabilization and Control of Time Delay Systems**
Pavel Zitek, Czech Technical University, Czech Republic
Vladimir Kucera, Czech Technical University, Czech Republic
Tomas Vyhlidal, Czech Technical University, Czech Republic
5. (16:50) **Robust stabilization of linear time-delay systems via the optimization of real stability radii**
Wim Michiels, K.U. Leuven, Belgium
Thomas Plomteux, K.U. Leuven, Belgium
Dirk Roose, K.U. Leuven, Belgium

**FREQUENCY-DOMAIN ANALYSIS AND DESIGN OF TIME-DELAY
SYSTEMS**

Thursday 07-Jul-2005 15:30-17:30, Meeting Room 2.2

Organizer: *Pavel Zitek, Czech Technical University in Prague,
Czech Republic*

Co-Organizer *Tomas Vyhlidal, Czech Technical University in
Prague, Czech Republic*

Chair: *Pavel Zitek, Czech Technical University in Prague,
Czech Republic*

Co-Chair: *Wim Michiels, K. U. Leuven, Belgium*

**6. (17:10) Rational Implementation of Distributed Delay using
Extended Bilinear Transformations**

*Qing-Chang Zhong, University of Glamorgan, United
Kingdom*

HYBRID DYNAMIC SYSTEMS

Thursday 07-Jul-2005 15:30-17:30, Meeting Room 4.1

Chair: *Richard Murray, California Institute of Technology, United States*

Co-Chair: *Muriel Gapaillard, LISA, France*

1. (15:30) A Survey on Stability Analysis of Discrete-Time Piecewise Affine Systems

Pratik Biswas, Dept. of Electrical Engineering, Stanford University, United States

Pascal Grieder, Automatic Control Laboratory, ETH Zurich, Switzerland

Johan Lofberg, Automatic Control Laboratory, ETH Zurich, Switzerland

Manfred Morari, Automatic Control Laboratory, ETH Zurich, Switzerland

2. (15:50) Continuous Representation for a Class of Optimal Hybrid Control Problems

Muriel Gapaillard, Laboratoire d'Ingénierie des Systèmes Automatisés, France

3. (16:10) Explicit Hybrid Optimal Controller for Disturbance Attenuation in Linear Hybrid Systems

Hai Lin, Univ of Notre Dame, United States

Guisheng Zhai, Osaka Prefecture University, Japan

Panos J. Antsaklis, Univ of Notre Dame, United States

4. (16:30) Cascade Discrete-Continuous State Estimators for a Class of Monotone Systems

Domitilla Del Vecchio, California Institute of Technology, United States

Richard M. Murray, California Institute of Technology, United States

5. (16:50) Hybrid Model Predictive Control in Supermarket Refrigeration Systems

Lars Finn Sloth Larsen, Danfoss A/S, Denmark

Tobias Geyer, ETH, Automatic Control Lab., Switzerland

Manfred Morari, ETH, Automatic Control Lab., Switzerland

HYBRID DYNAMIC SYSTEMS

Thursday 07-Jul-2005 15:30-17:30, Meeting Room 4.1

Chair: *Richard Murray, California Institute of Technology, United States*

Co-Chair: *Muriel Gapillard, LISA, France*

6. (17:10) Steam Generator Water Level Control: A Hybrid System Approach

Didier Dumur, SUPELEC, France

Jean Thomas, SUPELEC, France

Jean Buisson, SUPELEC, France

Pascale Bendotti, EDF/DER, France

Clément-Marc Falinower, EDF/DER, France

STATE ESTIMATION, TRACKING AND SENSOR FUSION

Thursday 07-Jul-2005 15:30-17:30, Meeting Room 4.2

Chair: *Fredrik Gustafsson, Linköping University, Sweden*

Co-Chair: *Marco Terra, University of Sao Paulo, Brazil*

1. (15:30) **A deterministic approach for optimal recursive prediction of singular discrete-time systems**
João Ishihara, University of Brasília, Brazil
Aline Bianco, University of São Paulo at São Carlos, Brazil
Marco Terra, University of São Paulo at São Carlos, Brazil
2. (15:50) **Integrated navigation of cameras for augmented reality**
Thomas Schön, Linköping University, Sweden
Fredrik Gustafsson, Linköping University, Sweden
3. (16:10) **Motion recovery using dynamic vision**
Xinkai Chen, Shibaura Institute of Technology, Japan
Hiroyuki Kano, Tokyo Denki University, Japan
4. (16:30) **Performance Analysis of Kalman-Based Filters and Particle Filters for Non-Linear/Non-Gaussian Bayesian Tracking**
Wenjie Shu, National University of Defense Technology, China
Zhiqiang Zheng, National University of Defense Technology, China
5. (16:50) **Unscented Transform and Its Application in ATC Tracking**
Wenjie Shu, National University of Defense Technology, China
Zhiqiang Zheng, National University of Defense Technology, China
6. (17:10) **System Parameter Estimation Using p-norm Minimization**
Jan Stecha, Czech Technical University in Prague, Czech Republic
Milan Cepak, Czech Technical University in Prague, Czech Republic
Jaroslav Pekar, Czech Technical University in Prague, Czech Republic
Daniel Pachner, Czech Technical University in Prague, Czech Republic

FLEXIBLE CONTROL INSTRUMENTATION

Thursday 07-Jul-2005 15:30-17:30, Meeting Room 1.1

- Organizer:** *Frantisek Zezulka, Brno University of Technology, Czech Republic*
- Co-Organizer** *Petr Neumann, Institut f. Automation und Kommunikation Magdeburg, Germany*
- Co-Organizer** *Zdenek Bradac, Brno University of Technology, Czech Republic*
- Co-Organizer** *Petr Fiedler, Brno University of Technology, Czech Republic*
- Co-Organizer** *Pavel Kucera, Brno University of Technology, Czech Republic*
- Co-Organizer** *Radek Stohl, Brno University of Technology, Czech Republic*
- Chair:** *Frantisek Zezulka, Brno University of Technology, Czech Republic*
- Co-Chair:** *Peter Neumann, Institut f. Automation und Kommunikation Magdeburg, Germany*

1. (15:30) Dynamic Modelling of a Nanomanipulator Chain

Ondrej Jez, Brno University of Technology, FEEC, Czech Republic

Alina Voda-Besancon, ENSIEG INPG, France

Sylvain Marliere, ICA INPG, France

Gildas Besancon, ENSIEG INPG, France

2. (15:50) Object-Oriented Framework for the Design of Home/Building Automation Systems

Jair Araujo, Centro Federal de Educao Tecnolgica do RS, Brazil

Carlos Pereira, Universidade Federal do Rio Grande do Sul, Brazil

3. (16:10) Internet/Intranet oriented Analyzer in the Cement Industry

Frantisek Zezulka, Brno University of technology, Czech Republic

Ales Ciganek, AUTEK s.r.o., Czech Republic

Milan Zavadil, AUTEK s.r.o., Czech Republic

Ondrej Hyncica, Brno University of technology, Czech Republic

FLEXIBLE CONTROL INSTRUMENTATION

Thursday 07-Jul-2005 15:30-17:30, Meeting Room 1.1

- Organizer:** *Frantisek Zezulka, Brno University of Technology, Czech Republic*
- Co-Organizer** *Petr Neumann, Institut f. Automation und Kommunikation Magdeburg, Germany*
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- Co-Organizer** *Pavel Kucera, Brno University of Technology, Czech Republic*
- Co-Organizer** *Radek Stohl, Brno University of Technology, Czech Republic*
- Chair:** *Frantisek Zezulka, Brno University of Technology, Czech Republic*
- Co-Chair:** *Peter Neumann, Institut f. Automation und Kommunikation Magdeburg, Germany*

4. (16:30) Advanced Process Monitoring Systems for Continuous Processes

René Pyszko, VŠB - Technical university Ostrava, Czech Republic

Leopold Cudzik, DASFOS, v.o.s., Czech Republic

Roman Barabáš, DASFOS, v.o.s., Czech Republic

Pavel Fojtík, VŠB - Technical university Ostrava, Czech Republic

Michal Adamik, Třinecké železářny, a.s., Czech Republic

5. (16:50) Integration of 3D Proximity Scanner to Orpheus Robot

Ludek Zalud, Brno Univ. of Technology, Czech Republic

6. (17:10) Validation of the Network Calculus approach for the performance evaluation of switched Ethernet based industrial communications

Jean-Philippe Georges, University Henri Poincaré Nancy, France

Thierry Divoux, University Henri Poincaré Nancy, France

Eric Rondeau, University Henri Poincaré Nancy, France

FUZZY CONTROL: STABILITY

Thursday 07-Jul-2005 15:30-17:30, Meeting Room 2.3

Chair: *Robert Babuska, Delft University of Technology, Netherlands*

Co-Chair: *Radu-Emil Precup, Politehnica University of Timisoara, Romania*

1. (15:30) Robust pole placement in LMI region for Takagi-Sugeno models: application to vehicle spacing control

S. Delprat, University of Valenciennes, LAMIH UMR CNRS 8530, France

P.F. Toulotte, SID, Ecole des Mines de Douai, France

T.M. Guerra, University of Valenciennes, LAMIH UMR CNRS 8530, France

J. Boonaert, SID, Ecole des Mines de Douai, France

2. (15:50) Stability Analysis of Fuzzy Control Systems. Multivariable Point of View

Radu-Emil Precup, Politehnica University of Timisoara, Romania

Stefan Preitl, Politehnica University of Timisoara, Romania

3. (16:10) A delay-dependent stability criteria for T-S fuzzy system with time-delays

Xinping Guan, Yanshan University, China

Fenglei Li, Yanshan University, China

Cailian Chen, City University of Hong Kong, Hong Kong

4. (16:30) Controller synthesis with input and output constraints for fuzzy systems

Miguel Bernal, Czech Technical University, Czech Republic

Hušek Petr, Czech Technical University, Czech Republic

5. (16:50) Discrete Takagi-Sugeno Fuzzy Models: Reduced Number of Stabilization Conditions

Francois Delmotte, UVHC, France

Thierry Marie Guerra, UVHC, France

FUZZY CONTROL: STABILITY

Thursday 07-Jul-2005 15:30-17:30, Meeting Room 2.3

Chair: *Robert Babuska, Delft University of Technology, Netherlands*

Co-Chair: *Radu-Emil Precup, Politehnica University of Timisoara, Romania*

6. (17:10) Output Tracking Control for a Class of Fuzzy Time-Delay Systems

Georgi Dimirovski, Dogus University of Istanbul, Turkey

Xin-Jiang Wei, Noretheastern Univeristy of Shenyang, China

Yuan-Wei Jing, Noretheastern Univeristy of Shenyang, China

FUEL CELLS

Thursday 07-Jul-2005 15:30-17:30, Meeting Room 3.1

Chair: *Maurice Fadel, ENSEEIHT, France*

Co-Chair: *Giancarlo Ferrari-Trecate, INRIA, France*

1. (15:30) Advanced Fuel Cell System Control through State Space

Alfred Rufer, Ecole Polytechnique Fédérale de Lausanne, Switzerland

Felix Grasser, Ecole Polytechnique Fédérale de Lausanne, Switzerland

2. (15:50) Design Criteria Optimizing the Use of Fuel Cell Source in Electric Power System

Pietro Tricoli, University of Naples, Italy

Salvatore D'Arco, University of Naples, Italy

Diego Iannuzzi, University of Naples, Italy

Mario Pagano, University of Naples, Italy

Giovanni Velotto, University of Naples, Italy

3. (16:10) Energy Management of Fuel Cell System and Supercaps Elements

Maurice Fadel, CNRS/INPT/ENSEEIHT/LEEI, France

Stéphane Caux, CNRS/INPT/ENSEEIHT/LEEI, France

Jérôme Lachaize, CNRS/INPT/ENSEEIHT/LEEI, France

Pascal Schott, CEA, France

Laurent Nicod, Alstom Transport, France

4. (16:30) Molten Carbonate Fuel Cell Modelling

Silvia Canevese, Politecnico di Milano, Italy

Sergio Bittanti, Politecnico di Milano, Italy

Antonio De Marco, Politecnico di Milano, Italy

Gianluca Moretti, Politecnico di Milano, Italy

Valter Prandoni, CESI (Centro Elettrotecnico Sperimentale Italiano), Italy

5. (17:10) Hybrid PV – Diesel power generator : design criteria and preliminary performance analysis

Sergio Zanarini, Elettronica Santerno, Italy

Gian Luca Ragazzini, Elettronica Santerno, Italy

DISTRIBUTED PRODUCTION MODELLING AND CONTROL

Thursday 07-Jul-2005 15:30-17:30, Meeting Room 3.2**Chair:** *Duncan McFarlane, Cambridge University, United Kingdom***Co-Chair:** *Arturo Molina, ITEMS, Mexico***1. (15:30) Simulation in Agent-Based Control Systems: MAST Case Study***Vladimir Marik, Czech Technical University, Rockwell Automation Research Center, Czech Republic**Pavel Vrba, Rockwell Automation Research Center, Czech Republic***2. (15:50) Collaborative Communication Protocols for Distributed Microsensor Network Systems***Wootae Jeong, Purdue University, United States**Shimon Y. Nof, Purdue University, West Lafayette, IN 47907, United States***3. (16:10) Automatic Generation a Net of Models for High and Low Levels of Production Control***Zsolt János Viharos, MTA SZTAKI, Hungary***4. (16:30) Conservation of filtering in manufacturing systems***Semyon Meerkov, University of Michigan, United States**Jingshan Li, General Motors Research & Development Center, United States**Emre Enginarlar, Los Alamos National Lab, United States***5. (16:50) Modeling and Decentralized Control of Inventories Linear Dynamic Supply Chains***Alejandro Rodriguez-Angeles, Instituto Mexicano del Petroleo, Mexico**America Morales-Diaz, Instituto Mexicano del Petroleo, Mexico**Anibal Blanco, Instituto Mexicano del Petroleo, Mexico**Arturo Sanchez, CINVESTAV, Mexico*

AIRCRAFT CONTROL DESIGN

Thursday 07-Jul-2005 15:30-17:30, Meeting Room 3.3

Organizer: *Alexander Nebylov, State University of Aerospace Instrumentation, Russian Federation*

Co-Organizer *Haydn Thompson, University of Sheffield, United Kingdom*

Chair: *Alexander Nebylov, State University of Aerospace Instrumentation, Russian Federation*

Co-Chair: *Haydn Thompson, University of Sheffield, United Kingdom*

1. (15:30) Awiator's Design of Multi-Objectives Control Laws

Matthieu Jeanneau, AIRBUS, France

Jérôme Lamolie, AIRBUS & Ecole Centrale de Lille, France

Guilhem Puyou, AIRBUS, France

Nicky Aversa, AIRBUS, France

2. (15:50) Adaptive Reconfigurable Flight Control System Using Multiple Model Mode Switching

Youdan Kim, Seoul National University, Korea

Bokyung Jung, Seoul National University, Korea

Seong-Kyun Jeong, Seoul National University, Korea

Dong-Hyun Lee, Seoul National University, Korea

3. (16:10) Observer-based control of a PVTOL aircraft

Anand Sánchez, Université de Technologie de Compiègne, France

Isabelle Fantoni, Université de Technologie de Compiègne, France

Rogelio Lozano, Université de Technologie de Compiègne, France

Jesús De León Morales, Universidad Autónoma de Nuevo León, Mexico

4. (16:30) Low order Control Augmentation System Designs for the Helicopter UH-60

Emmanuel Prempain, University of Liverpool, United Kingdom

Marc Olivier Dzeukou, SUPAERO TOULOUSE, France

AIRCRAFT CONTROL DESIGN

Thursday 07-Jul-2005 15:30-17:30, Meeting Room 3.3

Organizer: *Alexander Nebylov, State University of Aerospace Instrumentation, Russian Federation*

Co-Organizer *Haydn Thompson, University of Sheffield, United Kingdom*

Chair: *Alexander Nebylov, State University of Aerospace Instrumentation, Russian Federation*

Co-Chair: *Haydn Thompson, University of Sheffield, United Kingdom*

5. (16:50) Longitudinal Axis Flight Control Law Design by Adaptive Backstepping

Hann-Shing Ju, National Chung-Hsing University, Taiwan

Ching-Chih Tsai, National Chung-Hsing University, Taiwan

6. (17:10) QFT for the Design of an Aircraft Flight Control

Alexander Santander, RBIB/SAL, Spain

Joaquin Aranda, UNED, Spain

ADVANCES IN HIGH ORDER SLIDING MODE CONTROL

Thursday 07-Jul-2005 15:30-17:30, Meeting Room 4.3**Organizer:** *Yuri Shtessel, University of Alabama in Huntsville, United States***Co-Organizer** *Sarah Spurgeon, University of Leicester, United Kingdom***Co-Organizer** *Leonid Fridman, Universidad Nacional Autónoma de México, Mexico***Chair:** *Yuri Shtessel, University of Alabama in Huntsville, United States***Co-Chair:** *Leonid Fridman, Universidad Nacional Autónoma de México, Mexico***1. (15:30) Missile Interceptor Guidance and Control using Second Order Sliding Modes***Yuri Shtessel, University of Alabama in Huntsville, United States**Ilya Shkolnikov, Z/I Imaging Corporation, United States**Arie Levant, Tel-Aviv University, Israel***2. (15:50) Analysis of nonlinear variable-structure systems with second-order sliding-modes and dynamic actuators***Alessandro Pisano, University of Cagliari, Italy**Igor Boiko, SNC Lavalin, Canada**Leonid Fridman, National Autonomous University of Mexico, Mexico**Nicola Orani, University of Cagliari, Italy**Elio Usai, University of Cagliari, Italy***3. (16:10) Adjustment of high-order sliding-mode controllers***Arie Levant, Tel-Aviv University, Israel**Michael Alon, Tel-Aviv University, Israel***4. (16:30) Second order sliding mode control of coupled tanks***Sarah Spurgeon, University of Leicester, United Kingdom**M Khalid Khan, University of Leicester, United Kingdom*

ADVANCES IN HIGH ORDER SLIDING MODE CONTROL

Thursday 07-Jul-2005 15:30-17:30, Meeting Room 4.3

Organizer: *Yuri Shtessel, University of Alabama in Huntsville, United States*

Co-Organizer *Sarah Spurgeon, University of Leicester, United Kingdom*

Co-Organizer *Leonid Fridman, Universidad Nacional Autónoma de México, Mexico*

Chair: *Yuri Shtessel, University of Alabama in Huntsville, United States*

Co-Chair: *Leonid Fridman, Universidad Nacional Autónoma de México, Mexico*

5. (16:50) First and Second Order Sliding Mode Regularization Techniques: the Approximability Property

Elisabetta Punta, ISSIA CNR - National Research Council of Italy, Italy

Giorgio Bartolini, DIEE - University of Cagliari, Italy

Tullio Zolezzi, DIMA - University of Genova, Italy

6. (17:10) Multi-input second-order sliding mode control of nonholonomic systems

Antonella Ferrara, University of Pavia, Italy

Luisa Giacomini, University of Pavia, Italy

CONTROL OF NETWORKS AND PLANTS

Thursday 07-Jul-2005 15:30-17:30, Meeting Room 2.1**Chair:** *Prodromos Daoutidis, University of Minnesota, United States***Co-Chair:** *Ali Cinar, Illinois Institute of Technology, United States***1. (15:30) Dynamics and Control of Integrated Process Networks with Multi-Rate Reactions***Michael Baldea, University of Minnesota, United States**Prodromos Daoutidis, University of Minnesota, United States***2. (15:50) Complex Process Networks: Passivity and Optimality***B. Erik Ydstie, Carnegie Mellon, United States**Kendell Jillson, Carnegie Mellon, United States***3. (16:10) Agent-Based Control of Discrete Spatially Distributed Systems***Eric Tatara, Illinois Institute of Technology, United States**Inanc Birol, Illinois Institute of Technology, United States**Fouad Teymour, Illinois Institute of Technology, United States**Ali Cinar, Illinois Institute of Technology, United States***4. (16:30) Price-Driven Coordination for Solving Plant-Wide MPC Problems***Fraser Forbes, University of Alberta, Canada**Ruoyu Cheng, University of Alberta, China**W. San Yip, Alberta Research Council, Canada***5. (16:50) Simulation based Heuristics Methodology for Plant-wide Control of Industrial Processes***N.V.S.N.Murthy Konda, National University of Singapore, Singapore**G.P. Rangaiah, National University of Singapore, Singapore**P.R. Krishnaswamy, National University of Singapore, Singapore***6. (17:10) Increased Oil Production by Advanced Control of Receiving Facilities***John-Morten Godhavn, Statoil ASA, Norway**Stig Strand, Statoil ASA, Norway**Gunleiv Skofteland, Statoil ASA, Norway*

PRACTICAL APPLICATIONS OF ETHICS: BARRIERS AND SOLUTIONS

Thursday 07-Jul-2005 15:30-17:30, Meeting Room 3.4

Organizer: *Marion Hersh, University of Glasgow, United Kingdom*

Chair: *Larry Stapleton, Waterford Institute of Technology, Ireland*

Co-Chair: *Marion Hersh, University of Glasgow, United Kingdom*

1. (15:30) Privacy, Patients and Healthcare Workers

Peter Carew, Waterford Institute of Technology, Ireland

Larry Stapleton, Waterford Institute of Technology, Ireland

2. (15:50) Technology development and ethical decision making: gatekeeping, identity and social construction

Marion Hersh, University of glasgow, United Kingdom

3. (16:10) A Case Study: Practical Ethical Aspects for Technology Transfer and Change in Computer Control System Development

Jozef Bohdan Lewoc, BPBiT Leader (Leading Designer), Poland

4. (16:30) The Global Validity of Ethics: Applying Ethics to Engineering and Technology Development

Balazs Bitay, University of Technology Budapest, Hungary

Dietrich Brandt, University of Technology Aachen, Germany

Eva Savelsberg, University of Technology Aachen, Germany

5. (16:50) Information management in socio economic systems: ethical aspects

Dmitry Kononov, Russian Academy of Sciences, Russian Federation

V. Kulba, Russian Academy of Sciences, Russian Federation

A. Shubin, Russian Academy of Sciences, Russian Federation

6. (17:10) Applications of Narrative Ethics to Engineering

Marion Hersh, University of Glasgow, United Kingdom

Larry Stapleton, Waterford Institute of Technology, Ireland

Deborah Duffy, Waterford Institute of Technology, Ireland

TEACHING CONTROL LABS

Thursday 07-Jul-2005 15:30-17:30, Meeting Room 3.5

Chair: *Talha Dinibutun, Dogus University, Turkey*

Co-Chair: *Jindrich Fuka, Czech Technical University in Prague, Czech Republic*

1. (15:30) **Low-cost flexible speed control experiments**
Alberto Leva, Politecnico di Milano, Italy
Francesco Schiavo, Politecnico di Milano, Italy
2. (15:50) **Improvements of a Three-Tank-System Operated in Real Time with MATLAB in a PLC-Profibus-Network**
Bernhard Voglauer, Vienna University of Technology, Austria
Romain Garcia, L'Institut Francais de Mecanique Avancee, France
H.Peter Jörgl, Vienna University of Technology, Austria
3. (16:10) **Computer based Monitoring and Control of Fedbatch Fermentation Process as an Aim and a Tool for Postgraduate Research**
Carl Kriger, Cape Peninsula University of Technology, South Africa
Raynitchka Tzoneva, Cape Peninsula University of Technology, South Africa
Clemens Posten, Karlsruhe University, Germany
Monica Mironescu, Karlsruhe University, Germany
4. (16:30) **Platform for monitoring and controlling educational laboratory processes over Internet**
Mikael Pohjola, Helsinki University of Technology, Finland
Lasse Eriksson, Helsinki University of Technology, Finland
Vesa Hölttä, Helsinki University of Technology, Finland
Timo Oksanen, Helsinki University of Technology, Finland
5. (16:50) **Virtual Controllers Improve Internet-Based Experiments on Semi Industrial Pilot Plants**
Mieczyslaw Metzger, Silesian University of Technology, Poland

TEACHING CONTROL LABS

Thursday 07-Jul-2005 15:30-17:30, Meeting Room 3.5

Chair: *Talha Dinibutun, Dogus University, Turkey*

Co-Chair: *Jindrich Fuka, Czech Technical University in Prague, Czech Republic*

6. (17:10) The CDIO initiative from an automatic control project course perspective

Mikael Norrlöf, Linköping University, Sweden

Martin Enqvist, Linköping University, Sweden

Svante Gunnarsson, Linköping University, Sweden

Erik Wernholt, Linköping University, Sweden

Anders Hansson, Linköping University, Sweden