



Advances in Control Education (ACE2003)

IFAC Symposium

Oulu, Finland, 16 – 18 June, 2003

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Who is Who in IFAC

The 6th IFAC Symposium on Advances in Control Education (ACE2003) was held at the University of Oulu, Finland. ACE symposia are organized triennially sponsored by the IFAC TC on Control Education. Previous events were held as follows:

Swansea, UK, 1988
Boston, USA, 1991
Tokyo, Japan, 1994
Istanbul, Turkey, 1997, and
Gold Coast, Australia, 2000.

Universities are facing new challenges that also effect Control Engineering laboratories. The environment is changing and requirements for openness, flexibility and efficient operation are common. Networking of activities and actors increase and technology is frequently used in eliminating the distance between teachers and students, researcher groups and partners. New technology for this is coming out almost every day and the pace of development is fast. Also, the research in pedagogy deals with the increasing utilization of new learning technology. Anyway, control engineers have always been pioneering also in the area of learning technology, and in this sense the new challenges seem to be controllable for us.

The aim of ACE2003 – the 6th IFAC Symposium on Advances in Control Education – was to act as an international forum for scientists and practitioners, involved in the field of control education, for presenting their latest research, results, ideas and innovations. The symposium disseminated knowledge and experience on alternative methods and approaches in education. In addition to three plenary lectures, the symposium included 12 regular sessions and a panel discussion session on the topic “web – with or without”. Topics of the plenary lectures were the *Role of Interactivity in Control Learning* presented

by Sebastian Dormido (UNED, Spain), *Internet Learning in Control Engineering: a Fuzzy Control Course* presented by Jan Jantzen (Technical University of Denmark) and *Finnish Virtual University* presented by Pekka Kess (Finnish Virtual University). Regular sessions comprised 60 papers and covered the topics of *Simulation and Animation in Web, Development in Control Laboratories, Remote Laboratories and Experiments, Future and Challenges for Control Engineering Curricula, Web Courses, Teaching Control Theory, Advanced Control, Laboratory Exercises and Learning by Doing, Simulation, Control, Possibilities of Computer Networks in Training and Software Tools for Control Education*. As expected, Internet and other web-based applications dominated; 18 of the regular papers presented considered purely this area and it played an important role also in several other papers. It was, however, very interesting to see that there was a good number of papers concerning measurements and laboratory equipment, because it is important to give the students the possibility to work with “real” processes.

In addition to the plenary and regular sessions, a technical excursion was made to the further training institute POHTO, getting acquainted with two training factories; one for electronics and the other for process industry.

The 75 participants represented 25 different countries. In addition to the European countries also Australia, the USA, Japan and Brazil were represented.

The TC on Control Education decided at its meeting that the venue of the next ACE Symposium will be Madrid, Spain in the year 2006.

Dr. Leena Yliniemi, NOC Chair, University of Oulu, Finland
Professor Kauko Leiviskä, IPC Chair, University of Oulu, Finland.



Closing of the Symposium:
L. Vlacic, L. Yliniemi,
K. Leiviska, S. Dormido

Analysis and Design of Hybrid Systems ADHS03

IFAC Conference

Saint-Malo, France, 16–18 June, 2003

The 1st IFAC Conference on Analysis and Design of Hybrid Systems – ADHS03, organised by Supelec and the SEE, was held in Saint-Malo, France, 16–18 June, 2003. ADHS'03 follows the series of earlier successful ADPM conferences held in Paris (1992), Brussels (1994), Reims (1998) and Dortmund (2000). The aim of the conference was not only to provide a forum for researchers but also to stimulate the exchange of ideas, methods, and tools between industry and academia.

In addition to the two Plenary Addresses, the Conference comprised 62 papers out of the 68 contributed papers that were selected by the International Program Committee from 102 submitted papers. The organisation of the sessions was as follows:

- 2 Plenary Addresses given by M. Silva (Zaragoza) who is prominent for his research in Petri Nets, and M.D. Di Benedetto (L'Aquila) and J. Lygeros (Cambridge) who presented the DEWS-centre experiment in research on Hybrid Systems.
- 5 invited sessions including 2 sessions on optimal control of switched and hybrid systems (organised by A. Giua and C. Cassandras), 1 session on modelling and identification of hybrid systems (organised by G. Ferrari-Tracate), 1 session on hybrid Petri nets (organised by I. Demongodin and N. Koussoulas), and 1 session on hierarchical approaches for hybrid systems design (organised by J. Raisch and T. Moor).
- 9 contributed sessions covering the following topics related to hybrid systems: modelling, modelling formalisms, analysis and verification, stability analysis, optimal control, predictive control, behaviour and control synthesis, hybrid systems with uncertainties, Markov processes.
- 1 poster session including 14 papers.

In the light of a vote of the IPC members and session chairs, 13 application-oriented papers were selected and their extended versions will be reviewed for possible inclusion in a special issue of Control Engineering Practice.

The Conference was sponsored by the TC on Control Design, and co-sponsored by the TC on Discrete Event Dynamic Systems and the TC on Manufacturing Plant Control. Local sponsorship came from the French Ministry of Research, GDR Automatique, Regional Council of Brittany, and General Council of Ille et Vilaine.

108 participants from 19 countries attended the conference. Sessions were well attended, and there were 6 no shows. The conference venue (Palais du Grand large) was a very pleasant place and stimulating for the participants. The conference provided the opportunity for the juniors and seniors of the hybrid systems community to meet and exchange ideas and new results, and the comments received from participants were all positive. The conference was a success, and the TC on Discrete Event Dynamic Systems is planning to run this event again in 2006 in Cagliari, Italy.

Professor Sebastian Engell, IPC Chair, University of Dortmund.
Doctor Hervé Gueguen, NOC Chair, Supelec.
Professor Janan Zaytoon, IPC Chair, University of Reims.

Mathematical Modelling – MATHMOD

4th IMACS/IFAC Symposium

Vienna, Austria, 5 – 7 February, 2003

The “Fourth International IMACS Symposium on Mathematical Modelling” i.e. 4th MATHMOD Vienna took place at the Vienna University of Technology from Feb. 5–7, 2003. This event was sponsored by IMACS (Int. Association for Mathematics and Computers in Simulation) and also by the Vienna University of Technology and especially by the Division for Mathematics of Control and Simulation (E114/3) at the Vienna University of Technology and cosponsored by IFAC, ASIM (German Simulation Society), GAMM (Society for Applied Mathematics and Mechanics, Germany), VDI/VDE-GMA (Society for Measurement & Automation at VDI/VDE, Germany), OCG (Austrian Computer Soc.), OEMG (Austrian Mathematical Soc.), EUROSIM (Federation of European Simulation Soc.) and ARGESIM (Working Group Simulation News TU Vienna).

The conference gathered about 230 scientists from 29 countries on four continents. This great interest in a topic like this is due to an increasing need for reliable formal models. In some disciplines, use of mathematical models is a rather new approach to problem solution whereas in other disciplines mathematical models have been used for a long time but need continuing adaptation and refinement. In due consequence, an appropriate model can be used to find a good solution to a problem to be solved or, it can be intended to contribute towards a better understanding of what is going on in a system. Examples for the former case are many types of design problems, such as controller design, whereas the request for an improved understanding is often found in connection with non-engineering systems, such as biological or medical systems, economic or environmental systems etc.

However, modelling must not be seen only as e.g. equations or graphs etc. describing the dynamic behaviour of a given system; modelling is also concerned with e.g. the formal description constraints and goals. Last but not least, the modeller must also have in mind which algorithms and/or methods are available for solving a certain type of problem. Otherwise, he/she will end up with a – maybe very accurate – model which cannot be handled further at reasonable cost.

The concrete area of application and the modeller's experience to a certain extent determine not only the modeller's knowledge of modelling principles and his references of modelling approaches and tools, but also his/her knowledge of methods for model simplification or for parameter estimation etc. and hence, the type of the resulting model and of tools to be used for solving the given problem.

Moreover, many methods, relations etc. are discovered repeatedly. Therefore, a conference having mathematical modelling as its central theme will allow for a fruitful and stimulating exchange of ideas - be it the exchange between different areas of applications or be it the exchange between methods and practice.

Consequently, the 4th MATHMOD was devoted to a variety of topics such as comparison of modelling approaches, model simplification, modelling uncertainties, port-based modelling, the impact of items such as these on problem solution, numerical techniques, model validation, automation of modelling and software support for modelling, co-simulation, etc. Moreover, many areas of applications were covered such as e.g. automatic control, design or analysis of engineering, biological, environmental etc. systems. Moreover, a broad

variety of types of systems was discussed such as deterministic systems, stochastic systems, continuous, discrete or hybrid systems, lumped parameter or distributed parameter systems etc.

A wide variety of formal models was discussed during the 4th MATHMOD Vienna and the term “mathematical model” includes classical models such as differential or difference equations, Markov processes, ARMA models as well as more recent approaches such as Bond graphs or Petri nets.

In order to allow for a fruitful exchange of ideas across traditional borderlines, three plenary lectures were given:

Modelling and Simulation in Mechatronics (P. Breedveld, Univ. Twente, The Netherlands)
Modelling and Simulation in Snow Science (K. Kleemayr, Univ. Agricultural Sciences, Vienna)
Modelling, Analysis and Control of Parallel Hybrid Vehicles (N.J. Schouten, M.A. Salman, N. A. Kheir (speaker), Oakland University, USA)

To improve the aforementioned exchange of ideas further, 23 well-known scientists followed the invitation to organize a so-called special session where not only those interested in a more specialized topic could meet and exchange ideas but also colleagues with a different area of specialization could get a good impression of the most recent research topics and results in a particular area.

In addition, the Call for Papers invited scientists to contribute individually.

As a result, about 150 extended abstracts were submitted and were carefully reviewed by the 35 members of the International Program Committee (chaired by Inge Troch) coming from 16 countries worldwide. This reviewing resulted in invitations to 109 authors to present their contribution during the conference as a paper and 7 were invited to present their ideas as a poster. Unfortunately, not all these authors were able to participate in the 4th MATHMOD conference. Nevertheless, the scientific program contained 104 contributed plus 97 papers presented in a special session i. e. a total of 201 regular papers which were collected and arranged in 17 strings of sessions according to their main thematic point:

- Physical Modelling
- Automatic Control
- Mechanics and Mechatronics
- Robotics
- Fluids Systems
- Process Engineering and Process Simulation
- Biology
- Chemical Process Engineering
- Manufacturing Systems
- Finite Automata
- Computing Systems and Discrete (Event) Systems
- Geoinformation Systems and Environmental Systems
- Physiology and Medicine
- Financial and Economic Systems
- Methods
- Model Simplification and Model Reduction
- Identification
- Education

Control Engineering Practice



A Journal of **IFAC** the International Federation of Automatic Control

Papers from the September 2003 Issue

Large Angle Attitude Control of Spacecraft with Actuator Saturation
(H. Bang, Min-Jea Tahk, H.D. Choi)
An Adaptive Control Law for Robotic Manipulator without Velocity Feedback
(F. Alonge, F. D'Ippolito, F.M. Raimondi)
On-line Estimation of Unmeasured Inputs for Anaerobic Wastewater Treatment Processes
(D. Theilliol, J.C. Ponsart, J. Harmand, C. Join, P. Gras)

Special Section on Algorithms and Applications of Iterative Feedback Tuning

(H. Hjalmarsson, M. Gevers)

Iterative Feedback Tuning of PID Parameters: Comparison with Classical Tuning Rules
(O. Lequin, M. Gevers, M. Mossberg, E. Bosmans, L. Triest)
Tuning of a Decoupling Controller for a 2x2 System Using Iterative Feedback Tuning
(S. Gunnarsson, V. Collignon, O. Rousseaux)
Iterative Feedback Tuning for Internal Model Controllers
(F. de Bruyne)
Model-free Frequency Domain Iterative Active Sound and Vibration Control
(T. Meurers, S.M. Veres, A.C.H. Tan)
Iterative Feedback Tuning of Controllers for a Two-mass-spring System with Friction
(K. Hamamoto, T. Fukuda, T. Sugie)
Iterative Correlation-based Controller Tuning with Application to a Magnetic Suspension System
(A. Karimi, L. Miskovic, D. Bonvin)
Iterative Controller Optimization for Nonlinear Systems
(J. Sjöberg, F. de Bruyne, M. Agarwal, B.D.O. Anderson, M. Gevers, F.J. Kraus, N. Linard)
A Signal Convolution Method for Estimation of Controller Parameter Sensitivity Functions for Tuning of Feedback Control Systems by an Iterative Process
(D.J. Murray-Smith, J. Kocian, M. Gong)

Papers from the October 2003 Issue

Special Issue on Control Methods for Telecommunication Networks

(F. Delli Priscoli, J.-P. Thomesse)

Control Methodologies in Networked Control Systems
(Y. Tipsuwan, M.-Y. Chow)
Control Theory Aspects of Power Control in UMTS
(F. Gunnarsson, F. Gustafsson)
Anti-windup Compensator for Active Queue Management in TCP Networks
(K.-J. Park, H. Lim, T. Basar, C.-H. Choi)
An Agent-based Control Mechanism for WFQ in IP Networks
(S.A. Hussain, A. Marshall)
Congestion Control in Differentiated Services Networks Using Fuzzy-RED
(C. Chrysostomou, A. Pitsillides, L. Rossides, M. Polycarpou, A. Sekercioglu)
Rate-based Congestion Control in ATM Switching Networks using a Recursive Digital Filter
(L. Tan, A.C. Pugh, M. Yin)

Integrated Traffic Management for TCP over On-board Processing Satellite Networks
(F. Fedi, A. Pacaccio, G. Losquadro)
Wireless LANs: an Advanced Control System for Efficient Power Saving
(A. Pietrabissa, G. Razzano, L. Andreani)
Integration of Pricing Models between Best-effort and Guaranteed Performance Services in Telecommunication Networks
(M. Baglietto, R. Bolla, F. Davoli, M. Marchese, M. Mongelli)

Papers from the November 2003 Issue

Modelling and Optimisation of a Refining Process for Fibre Board Production
(T.A. Runkler, E. Gerstorfer, M. Schlang, E. Junnemann, J. Hollatz)
Launcher Attitude Control: Discrete-time Robust Design and Gain-scheduling
(O. Voinot, D. Alazard, P. Apkarian, S. Mauffrey, B. Clement)
Hybrid Automata for Linearizing the Model of High-pressure Thawing
(H. Fibranto, L. Boillereaux, J.M. Flaus)
Using Hypothesis Testing Theory to Evaluate Principles for Leakage Diagnosis of Automotive Engines
(M. Nyberg)
Minimax LQG Optimal Control of a Flexible Beam
(I.R. Petersen, H.R. Pota)
Diagnosis of Process Valve Actuator Faults Using a Multilayer Neural Network
(M. Karpenko, N. Sepehri, D. Scuse)
Maximum Allowable Delay Bounds of Networked Control Systems
(D.-S. Kim, Y.S. Lee, W.H. Kwon, H.S. Park)
Implementation of Neural Network Predictive Control to a Multivariable Chemical Reactor
(D.L. Yu, J.B. Gomm)
A Hybrid Approach for Supervisory Control of Furnace Temperature
(W. Wang, H.-X. Li, J. Zhang)
Multirate Control Implementation for an Integrated Communication and Control System
(V. Casanova, J. Salt)

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The organizing committee, Inge Troch, Felix Breitenecker and Friedrich Urbanek, was careful to provide enough time for scientific and other discussions. Hence, there were not only sufficiently long coffee breaks and lunch breaks where participants could meet and talk or could have a look at the many books and journals on display or at the 13 posters. These posters could be discussed with the authors during the breaks but especially during the special Poster Session where also a selection of the 'best poster' took place. Johann Reger from the University Erlangen-Nürnberg with the poster "Analysis of multi-linear systems using Groebner-bases over the finite field GF(2)" was the winner of the best poster award consisting of a one year subscription to the journal "Mathematical and Computer Modelling of Dynamical Systems". Further one year subscriptions to "Simulation News Europe" (SNE) were handed over as second and third prizes for poster presentations to M.Gerzson, Z. Juhacs, A. Nagyvaradi, K. Kuntner (Vezspre, Ungarn) for the poster „Petri net based modelling and parallel simulation of chemical technological systems“ und to E. Coll, J. Martinez, J. Herraes (Valencia, Spain) for the poster „Three-dimensional model of near objects using videogrammetry“ and to two participants for taking active part in the selection.

The written versions of the three invited lectures, of (almost) all contributions to the

Annual Reviews in Control



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Volume 27 – Number 1

Editorial

Computers, Cognition and Communication: Introduction to the Special Section
(J. Zalewski)

Reviews

Time-triggered Real-time Computing
(H. Kopetz)
A CORBA-based Architecture for Strategic Process Control
(R. Sanz)
Safety of Computer Control Systems: Challenges and Results in Software Development
(J. Zalewski, W. Ehrenberger, F. Faglietti, J. Gorski, A. Kornecki)
Programming Languages for Use in Safety-related Applications
(W.A. Halang, J. Zalewski)
Improving Integrity of Embedded Computers in Control
(M. Colnatic, D. Verber, W.A. Halang)
Implementation of Safety Critical Logic Controller by Means of FPGA
(A. Wegrzyn)
A Fail Safe Programmable Logic Controller
(M. Sniezek, J. von Stackelberg)
Neuro-fuzzy Methods for Nonlinear System Identification
(R. Babuska, H. Verbruggen)

IFAC Professional Brief

Modelling of Physical Systems for the Design and Control of Mechatronic Systems
(J. van Amerongen, P. Breedveld)

conference as well as abstracts of all posters are collected in a Proceedings volume (ISBN 3-901608-24-9), edited by I. Troch and F. Breitenecker and published by ARGESIM, Vienna. These Proceedings consist of a printed Abstract volume with one-page abstracts of papers and posters and a CD ROM (2nd Volume) with the full versions of the papers. In addition, the survey lectures and selected regular papers will also appear in a special issue of the IMACS journal "Mathematics and Computers in Simulation". Further, it is intended to invite some authors to submit a suitably enlarged and adapted version of their contribution to "Mathematical and Computer Modelling of Dynamical Systems" (MCMDS). For any of these possibilities, selection of papers is based on a second reviewing procedure based on full papers.

Finally, it should be mentioned that there were also several committee meetings during or immediately after the conference. Among them was a meeting of the IMACS TC-2, the IMACS Technical Committee on "Mathematical Modelling". There the recommendation was given to organize – in view of the growing interest in a conference like this – a 5th MATHMOD symposium at the TU Vienna from February 8 – 10, 2006.

Inge Troch, Vienna

Papers from the October 2003 Issue

Survey Paper

Time-delay Systems: An Overview of Some Recent Advances and Open Problems (J.-P. Richard)

Papers

Robustness of Deadlock Avoidance Algorithms for Sequential Processes (F.-S. Hsieh)

On the Formulation and Solution of Robust Performance Problems (A. Lanzon, M. Cantoni)

Uncertainty of Transfer Function Modelling Using Prior Estimated Noise Models (R. Pintelon, J. Schoukens, Y. Rolain)

Brief Papers

The Periodic Optimality of LQ Controllers Satisfying Strong Stabilization (J.D. Wolfe, J.L. Speyer)

Every Stabilizing Dead-time Controller has an Observer-predictor-based Structure (L. Mirkin, N. Raskin)

Robust Adaptive Compensation of Biased Sinusoidal Disturbances with Unknown Frequency (R. Marino, G.L. Santosuosso, P. Tomei)

Robust Fault-tolerant Self-recovering Control of Nonlinear Uncertain Systems (Z. Qu, C.M. Ihlefeld, Y. Jin, A. Saengdeejing)

Recursive Algorithms for Inner Ellipsoidal Approximation of Convex Polytopes (F. Dabbene, P. Gay, B. T. Polyak)

A Controller Perturbation Technique for Transferring Closed-loop Stability between Systems (S. Mijanovic, G.E. Stewart, G.A. Dumont, M.S. Davies)

Quadratic Stabilization of Sampled-data Systems with Quantization (H. Ishii, B. A. Francis)

A Constrained Genetic Algorithm for Decentralized Control System Structure Selection and Optimization (D.R. Lewin, A. Parag)

Variance Analysis of L_2 Model Reduction when Undermodeling-The Output Error Case (F. Tjarnstrom)

Continuous stirred Tank Reactors: Easy to Stabilise? (R. Antonelli, A. Astolfi)

A Convex Parametrization of Risk-adjusted Stabilizing Controllers (C.M. Lagoa)

On the Model-based Control of Networked Systems (L.A. Montestruque, P.J. Antsaklis)

Corrigendum to: "The Explicit Linear Quadratic Regulator for Constrained Systems" [Automatica 38(1) (2002) 3-20]

(A. Bemporad, M. Morari, V. Dua, E.N. Pistikopoulos)

Erratum to "New Design Relations for 2-DOF PID-like Control Systems" [Automatica 39(5) (2003) 901-908]

(R. Gorez)

Papers from the November 2003 Issue

Papers

The Variation of Non-parametric Estimates in Closed-loop (W.P. Heath)

Squared and Absolute Errors in Optimal Approximation of Nonlinear Systems (P.M. Makila)

Brief Papers

Stochastic Optimal Control and Analysis of Stability of Networked Control Systems with Long Delay (Hu Shousong, Zhu Qixin)

Aircraft Load Alleviation by Robust Yaw-lateral Decoupling (M. Kordt, J. Ackermann)

Polynomial J-spectral Factorization in Minimal State Space (J. Stefanovski)

Minimal Representations of MIMO Time-varying Systems and Realization of Cyclostationary Models (R. Guidorzi, R. Diversi)

Dynamic Anti-windup Based Control Method for State Constrained Systems (J.-K. Park, H.Y. Youn)

Decentralized Control and Disturbance Attenuation for Large-scale Nonlinear Systems in Generalized Output-feedback Canonical Form (P. Krishnamurthy, F. Khorrami)

Necessary and Sufficient Conditions for Existence of J-spectral Factorization for Para-Hermitian Rational Matrix Functions (A.C.M. Ran)

Robustness Analysis of Exact Feedforward Linearization Based on Differential Flatness (V. Hagenmeyer, E. Delaleau)

Optimal Hysteresis for a Class of Deterministic Deteriorating Two-armed Bandit Problem with Switching Costs (F. Dusonchet, M.-O. Hongler)

Robust Learning Control for a Class of Nonlinear Systems with Periodic and Aperiodic Uncertainties (Y.-P. Tian, X. Yu)

Windup Prevention for Unstable Systems (P. Hippe)

Adaptive Actuator Failure Compensation for Parametric Strict Feedback Systems and an Aircraft Application (X. Tang, G. Tao, S.M. Joshi)

Estimation of HIV/AIDS Parameters (X. Xia)

On the Control of Linear Systems Having Internal Variations (M.B. Estrada, M. Malabre)

Digital Optimal Reduced-order Control of Pulse-width-modulated Switched Linear Systems (W.L. De Koning)

On Reachable Sets for Linear Systems with Delay and Bounded Peak Inputs (E. Fridman, U. Shaked)

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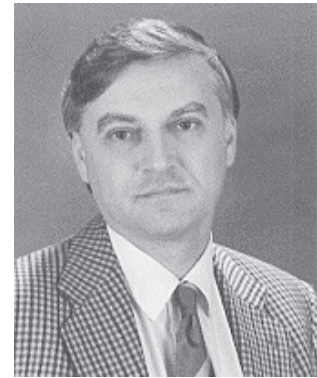
Book Reviews

Fuzzy Control Systems Design and Analysis: A Linear Matrix Inequality Approach, by Kazuo Tanaka and Hua O. Wang (E.G. Collins)

A Unified Algebraic Approach to Linear Control Design, by Robert E. Skelton, Tetsuya Iwasaki and Karolos M. Grigoriadis (T. Watanabe)

Advances in Aircraft Flight Control, by Mark B. Tischler (G. Chen, J.B. Cruz)

WHO IS WHO IN IFAC



K. Schlacher – IFAC Council Member

Kurt Schlacher was born in Graz, Austria, on August 16, 1955. In 1973 he started studying electrical engineering at the Technical University of Graz, and finished 1979 with the diploma degree cum laude. In the year 1980 he did his compulsory national service. In the year 1981 he joined the department of automatic control at the Technical University of Graz, where he received his Ph.D. cum laude in the year 1984 and his habilitation for automatic control in the year 1990. In 1992 he moved to Linz at the Johannes Kepler University, Austria, where he got the position of a full professor for Automatic Control that he holds presently. Apart from several academic positions, he serves as an Associate Editor of the IEEE Transactions on Control Systems Technology. He is also member of the scientific committees of the following journals: IFAC International Journal of Automation Austria, Automatisierungstechnik (Oldenbourg-Verlag, Germany), as well as member of the IFAC Technical Committees on Control Design and Mechatronics. Since 2002 he has been member of the IFAC Council and of the EUCA council. Furthermore, he is head of the Christian Doppler Laboratory for Automatic Control of Mechatronic Systems in Steel Industries. His main interests are modeling and control of nonlinear systems with respect to industrial applications applying differential geometric and computer algebra based methods. He is author of more than 80 publications published in national and international proceedings and journals, as well as co-author of the book Digitale Regelkreise (Oldenbourg-Verlag) together with Prof. Hofer and Prof. Gausch.

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FORTHCOMING EVENTS

2003
No. 5
October

Title	2003	Place	Further Information
IFAC Workshop Intelligent Assembly and Disassembly	October 9 – 11	Bucharest Romania	http://www.iad2003.com e-mail: iad03@icar.pub.ro
IFAC Workshop New Technologies for Automation of the Metallurgical Industry	October 11 – 13	Shanghai China	http://www.baosight.com/ifac03 e-mail: wangwei@dlut.edu.cn
EPS/IFAC/AAPS Int. Conference Accelerator and Large Experimental Physics Control Systems – ICALEPCS 2003	Oct. 13 – 17	Gyeongju Korea	http://icalepcs2003.postech.ac.kr/ e-mail: icalepcs2003@icalepcs2003.postech.ac.kr
Title	2004	Place	Further Information
IFAC Symposium Advanced Control of Chemical Processes – ADCHEM 2003 * (*postponed to 2004)	January 11 – 14	Hong Kong China	http://www.ust.hk/adchem2003 http://www.adchem2003.uni-stuttgart.de/ e-mail: adchem2003@ist.uni-stuttgart.de
IFAC/(CIGR) Workshop 5 th Artificial Intelligence in Agriculture	March 8 – 10	Cairo Egypt	http://www.claes.sci.eg/aia04 e-mail: soliman@claes.sci.eg
IFAC Symposium Computer Applications in Biotechnology	March 28 – 31	Nancy France	http://www.ensic.inpl-nancy.fr/CAB9/ e-mail: cab9@ensic.inpl-nancy.fr
IFAC Symposium 11 th Information Control Problems in Manufacturing – INCOM 2004	April 5 – 7	Salvador Brazil	http://www.eletr.ufrgs.br/incom2004/ e-mail: cpereira@eletr.ufrgs.br
IFAC Symposium Advances in Automotive Control	April 19 – 23	Salerno Italy	http://www.ifac04.unisa.it e-mail: ifac04@unisa.it
IFAC Symposium Cost Oriented Automation – COA04	June 7 – 9	Gatineau Canada	http://www.uqo.ca/blum/ifac/ e-mail: heinz.erbe@tu-berlin.de
IFAC Symposium Automatic Control in Aerospace	June 14 – 18	St. Petersburg Russia	http://aca2004.aanet.ru e-mail: aca2004@aanet.ru
IFAC Symposium Telematics Applications in Automation and Robotics – TA 2004	June 21 – 23	Helsinki Finland	http://www.automaatioseura.fi/TA04 e-mail: office@atu.fi
American Control Conference – in co-operation with IFAC –	June 30 – July 2	Boston MA, USA	http://www.mie.uiuc.edu/acc2004/index.asp e-mail: speyer@seas.ucla.edu
IFAC Symposium Intelligent Autonomous Vehicles – IAV 2004	July 5 – 7	Lisbon Portugal	http://iav04.isr.ist.utl.pt e-mail: iav04@isr.ist.utl.pt
IFAC Symposium Dynamics and Control of Process Systems – DYCOPS-7	July 5 – 7	Cambridge MA, USA	http://www.dycops.org/ e-mail: craven@dycops.org
IFAC Conference Control Applications in Marine Systems – CAMS 2004	July 7 – 9	Ancona Italy	http://cams04.unian.it e-mail: cams04@unian.it
IFAC Workshop Fractional Differentiation and its Applications – FDA '04	July 19 – 20	Bordeaux France	http://www.lap.u-bordeaux.fr/fda04/home.html e-mail: fda04@lap.u-bordeaux.fr
Asian Control Conference (5th) – in co-operation with IFAC –	July 20 – 23	Melbourne Australia	http://www.ascc2004.com/ e-mail: ascc@ee.mu.oz.au
IFAC Symposium Large Scale Systems: Theory and Applications	July 26 – 28	Osaka Japan	http://www-watt.mech.eng.osaka-u.ac.jp/lss2004/ e-mail: ifac-lss04@watt.mech.eng.osaka-u.ac.jp
IFAC Symposium Modeling and Control of Economic Systems	July 28 – 31	Redlands CA, USA	http://newton.uor.edu/ifac_sme_2004/ e-mail: SME_2004@Redlands.edu
IFAC Workshops on – Adaptation and Learning in Control and Signal Processing – ALCOSP	August 30 –	Yokohama Japan	http://www.contr.sd.keio.ac.jp/ifacws04/main.htm e-mail: sano@sd.keio.ac.jp
– Periodic Control Systems – PSYCO	September 1		e-mail: katayama@amp.i.kyoto-u.ac.jp
IFAC Symposium 6 th Nonlinear Control Systems – NOLCOS'04	September 1 – 3	Stuttgart Germany	http://www.nolcos2004.uni-stuttgart.de e-mail: nolcos2004@ist.uni-stuttgart.de
IFAC Multitrack Conference Advanced Control Strategies for Social and Economic Systems	September 2 – 4	Vienna Austria	http://www.ihrt.tuwien.ac.at/acs04/ e-mail: kopacek@ihrt.tuwien.ac.at

FORTHCOMING EVENTS (ctd.)

Title	2004	Place	Further Information
IFAC Symposium Mechatronic Systems	September 6 – 8	Sydney Australia	http://rumi.newcastle.edu.au/mech2004/ e-mail: mechatronics2004@ee.newcastle.edu.au
IFAC/(IFIP/IFORS/IEA) Symposium 9 th Analysis, Design, and Evaluation of Human-Machine Systems – HMS 04	September 7 – 9	Atlanta GA, USA	http://www.isye.gatech.edu/IFAC-HMS2004 e-mail: sheila.devezin@isye.gatech.edu
IFAC Workshop 5th Time Delay Systems	September 8 – 10	Leuven Belgium	http://www.cs.kuleuven.ac.be/conference/tds04/ e-mail: tds04@cs.kuleuven.ac.be
IFAC Symposium 11 th Automation in Mining, Mineral and Metal Processing – MMM 2004	September 8 – 10	Nancy France	http://www.cran.uhp-nancy.fr/ifac-mmm2004/ e-mail: mmm2004@cran.uhp-nancy.fr
IFAC Workshop 2 nd Advanced Fuzzy/Neural Control	September 16 – 17	Oulu Finland	http://www.ntsatsat.oulu.fi/ e-mail: office@atu.fi
IFAC Workshop Discrete Event Systems	September 22 – 24	Reims France	http://www.univ-reims.fr/wodes04 e-mail: wodes04@univ-reims.fr
IFAC Workshop Modelling and Control for Participatory Planning and Managing Water Systems	Sept. 29 – Oct. 1	Venice Italy	http://not yet available e-mail: rodolfo.soncinisessa@polimi.it
SCS/IFAC Conference Advances in Vehicle Control and Safety – AVCS	October 28 – 31	Genova Italy	http://www.liophant.org/i_m_scs/i3m2004/avcs e-mail: rachid@u-picardie.fr
IFAC Symposium System Structure and Control	December 8 – 10	Oaxaca Mexico	http://sssc04.cinvestav.mx e-mail: jtorres@cinvestav.mx
Title	2005	Place	Further Information
American Control Conference – in co-operation with IFAC –	June 8 – 10	Portland OR, USA	http://www.ee.washington.edu/conf/acc2005/ e-mail: SJayasuriya@mengr.tamu.edu
16TH IFAC WORLD CONGRESS	JULY 4 – 8	PRAGUE CZ	http://www.ifac.cz

Modelling and Analysis of Logic Controlled Dynamic Systems

IFAC Workshop

Irkutsk, Lake Baikal, Russia, July 30 – August 1, 2003

The IFAC Workshop on Modelling and Analysis of Logic Controlled Dynamic Systems was organized by the Russian National Committee of Automatic Control and by the Institute of System Dynamics and Control Theory of the Siberian Branch of the Russian Academy of Sciences.

It was sponsored by the Technical Committee (TC) on Non-linear Control Systems, TC on Control Design and TC on Optimal Control with the support of the Russian Foundation for Basic Research, the Russian Federal Goal Program "Integration", the Division of Energy, Engineering, Mechanics and Control Processes of the Russian Academy of Sciences, Irkutsk Regional Administration and Irkutsk State University.

53 participants coming from 10 countries had the possibility to listen to 27 plenary papers as well as to 22 contributed presentations grouped in 4 regular sessions. The plenary papers covered the following interesting topics:

- Controller Updating under Operational Logic Changes, presented by P.Albertos, Spain,
- Development of Computer Systems Supported by Machine Intelligence Items Applied in Spacecraft Control Systems, presented by E.A.Mikrin, Russia, in co-authorship with B.E.Chertok, V.N.Branets, A.S.Knutov, Russia and J.Sherrill, J.Clubb, USA,
- Ellipsoidal Technique in Reachability Analysis for Hybrid Systems, presented by A.B.Kurzhan, Russia, in co-authorship with P.Varaiya, USA,
- Fault-tolerant Control of Spacecraft, presented by V.M.Matrosov, Russia,
- The Logic of Walking Machine Control, presented by F.Pfeiffer, Germany,
- A Set-valued Framework for Coordinated Motion Control of Networked Vehicles,

- presented by F.L.Pereira in co-authorship with J.B.Sousa, Portugal,
- Correctness Proof for a Dynamic Adaptive Routing Algorithm for Mobile Ad-hoc Networks, presented by J.S.Baras in co-authorship with Sh.Yang, USA,
- Set-valued Quasi-strategies and the Method of Programmed Iterations, presented by A.G.Chentsov, Russia,
- Model and Optimality Conditions for Hybrid Control Systems, presented by V.I.Gurman, Russia,
- Logic-based Control, presented by S.N.Vassilyev in co-authorship with A.A.Kosov and K.Zherlov, Russia,
- Logical Foundations of Different Styles of Programming (in a Framework of Modelling), presented by N.N.Nepejvoda, Russia,
- Guaranteed State Estimation for Discrete Systems with Uncertainties and Structural Changes, presented by A.I.Malikov, Russia,
- Multiple-Criteria Decision Making Using Fuzzy Analytic Network Process, presented by H.Miyagi in co-authorship with N.Kameya, N.Taira, K.Yamashita, Japan,
- On Compressibility of Discrete Dynamical Systems in Supercritical Case, presented by V.N.Monakhov, Russia,
- Ellipsoidal Bounds of Reachable Sets: Overview and New Results, presented by A.I.Ovsievich in co-authorship with F.L.Chernousko, Russia,
- A Consulting Module in Room Automation presented by A.Dementjev in co-authorship with K.Kabitzsch, Germany,
- Intelligent Mariner's Work Station, presented by S.P.Dmitriev in co-authorship with N.V.Kolesov and A.V.Osipov, Russia,
- Synthesis of Optimal Systems by Closed-loop and Real-time Principles, presented by R.F.Gabasov in co-authorship with F.M.Kirillova, Belorussia,

- A Study of Kripke Modelling of a Multi-Robot System for Cooperative Control, presented by S.Jeyaraman in co-authorship with A.Tsourdos, R.Zbikowski, B.White, UK,
- The Global Stability of Two-position Systems for Controlling Angular Orientation, presented by G.A.Leonov, Russia,
- Hierarchical Models and Artificial Intelligence in Studies and Control of Large Electric Power Systems at Heavy Emergencies, presented by N.I.Voropai, Russia,
- Sufficient Conditions for Classical and Hybrid Optimal Control Problems, presented by V.A.Dykhta in co-authorship with N.V.Antipina, Russia,
- Computability over Abstract Structures, presented by S.S.Goncharov, Russia,
- Method of Collective Control of the Objects Group, presented by I.A.Kaliaev, Russia,
- On Controllability of Discrete Event Systems in a Behavioral Framework, presented by O.Kaneko in co-authorship with T.Misaki and T.Fujii, Japan,
- Impulsive-discontinuous Stabilization of Brockett Integrator, presented by A.M.Kovalev in co-authorship with V.N.Nespirnyy, Ukraine,
- Comparison Method for Analysis of Logic-dynamic Systems, presented by A.V.Lakeyev in co-authorship with P.K.Kuznetsov and S.N.Vassilyev, Russia.

The regular sessions covered the following important areas: Optimal control, Control, Dynamics, Information processing.

Professor A.Kurzhan, Chair of the Russian National Committee of Automatic Control

Professor V.Matrosov, IPC Chair

Professor S.Vassilyev, NOC Chair