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Control Applications in Post - Harvest and Processing Technology - CAPPT 2006

4th IFAC / CIGR Workshop

Potsdam, Germany, 26 – 29 March, 2006

The Workshop was convened at the Leibniz-Institut für Agrartechnik e.V. (ATB) in Potsdam-Bornim, Germany (<http://www.atb-potsdam.de>), from 26th to 29th March 2006.

The workshop continued the tradition of this specific meeting within the IFAC activities inaugurated in 1995 in Oostende, Belgium and lately organized in 2001 at the University of Tokyo.

The main topics of the workshop series as defined during its inauguration are:

- measurement and modelling
- identification of control structures
- effect of product variability
- compartments and instruments
- man-machine interaction
- economic and management
- social effects
- optimal control; intelligent control

The intention of the programme committee this year was to provide a more attractive activity in the workshop for potential participants from East-Europe and developing countries and besides for young scientists. Consequently, it was decided that the conference fee be reduced for participants from these countries as well as for students.

Therefore, interested participants from the Czech Republic, Hungary, Poland, Kenya, and Bangladesh could be welcomed to give interesting contributions about researches related to their home countries.

The Workshop gave the participants the opportunity to present their scientific work and to provide information about the state of the art in the application of control methods in storage and processes of agricultural and horticultural products. It also presented a productive and interesting forum for discussion and development of new ideas in the field of control applications in Post-Harvest technology.

The topics presented by the participants in the workshop in 2006 were among others:

- multiscale modelling of gas transport
- Neural Network modelling of postharvest processes
- robust and optimal control in food industry and agricultural engineering
- nondestructive quality assessment
- bruise detection on apples using hyperspectral imaging systems
- processing in wine-making
- solar drying of fruits and tomato halves
- potato separator technology
- crop concept model to predict wheat production
- mathematical modelling of mixed-flow grain drying

The workshop was sponsored by the technical

committees

TC 8.1 Control in Agriculture

TC 8.3 Modelling and Control of Environmental Systems

TC 8.4 Control of Biotechnical Systems

TC 7.4 Transportation Systems

TC 7.5 Intelligent Autonomous Vehicles

and also supported by

Verein der Ingenieure / Verband der Elektrotechnik Elektronik Informationstechnik e.V. - VDI / VDE-Gesellschaft Mess- und Automatisierungstechnik (VDI / VDE-GMA); and Max-Eyth-Gesellschaft Agrartechnik im VDI (MEG)

The proceedings are published in the Bornimer Agrartechnische Berichte (BAB), Heft 55, supplemented with a CD-ROM. The BAB is available at atb@atb-potsdam.de.

K. Gottschalk, ATB, Potsdam-Bornim

Power Plants and Power Systems

IFAC Symposium

Kananaskis, Alberta, Canada

25 – 28 June, 2006

The IFAC Symposium on Power Plants and Power Systems is sponsored and organized by the IFAC Technical Committee on Power Plants and Power Systems. It is held every three years and the latest Symposium in this series was held in Kananaskis, Alberta, Canada, between June 25 and 28, 2006.

The program contained two plenary presentations. Alberta is the only province in Canada with full deregulation and a functioning electricity market. One of the plenary talks described Alberta's experience in deregulation and the future plans for the electricity grid in Alberta. With some major blackouts in various parts of the world in recent years, there is a lot of interest in this aspect of power system operation.

The second plenary presentation on "Limitation Control Procedures, Required for Power Plants and Power Systems" was given by Prof. E. Welfonder and Prof. M. Kurth (University of Stuttgart) and described an approach to the possibility of reducing blackouts in the future. Both plenary talks elicited a lot of interest from the attendees.

In addition to the plenary presentations, a total of

REMINDER

Call for Nominations
Harold Chestnut
Control Education Textbook Prize
The deadline for the submission of nominations is
30 June 2007
advice about the details can be obtained from
www.griffith.edu.au/centre/ics/edcom

The Tables of Contents of the IFAC Journals can be found respectively at

Automatica

<http://www.elsevier.com/locate/automatica>

Control Engineering Practice

<http://www.elsevier.com/locate/conengprac>

Engineering Applications of Artificial Intelligence

<http://www.elsevier.com/locate/engappai>

Journal of Process Control

<http://www.elsevier.com/locate/jprocont>

Annual Reviews in Control

<http://www.elsevier.com/locate/arcontrol>

Journal on Mechatronics

<http://www.elsevier.com/locate/mechatronics>

Energy Saving Control in Plants and Buildings IFAC Workshop Bansko, Bulgaria, 2 – 5 October, 2006

The IFAC Workshop on “Energy Saving Control in Plants and Buildings” was held in Bansko, Bulgaria from October 2 to October 5, 2006. It was approved by the Technical Board of IFAC based on the proposal of the Technical Committee on Cost Oriented Automation (T.C. 4.4) and was announced in IFAC’s Newsletter and on the website of IFAC.

The workshop was organized by: the Bulgarian National Committee of IFAC (chair: Full Member of the Bulgarian Academy of Sciences Academician Professor V. Sgurev), the Federation of the Scientific Technical Unions in Bulgaria (FNTS), the Bulgarian Union of Automation and Informatics (UAI) and the State Agency for Information Technology and Communication (Chairman P. Vachkov).

IFIP (International Federation of Information Processing) and IFORS (International Federation of Operation Research Societies) co-sponsored the Workshop and the following Technical Committees agreed to participate in the organization and development of the technical program of the event:

Components and Technologies for Control (T.C. 4.1);
Manufacturing Plant Control (T.C. 5.1);
Power Plants and Power Systems (T.C. 6.3);
Modelling and Control of Environmental Systems (T.C. 8.3);
Social Impact of Automation (T.C. 9.2);
Developing Countries (T.C. 9.3).

Also the Technical University of Sofia and three institutes from the Bulgarian Academy of Sciences BAS – Institute of Information Technologies, Institute of Control and Systems Research and Institute of Computer and Communication Systems participated in the organization of the Workshop.

The International Program Committee IPC was chaired by Prof. Heinz Erbe (Germany) and included 24 internationally leading specialists from 17 countries. A total of 52 papers was received from participants from 22 countries. The IPC accepted 43 papers from participants from 20 countries for presentation at the workshop.

The National Organizing Committee was chaired by Prof. Emil Nikolov. The basic organization team came from the Department of Industrial Process Control at the Faculty of Automation, Technical University of Sofia. The administrative workload for the co-workers of UAI was considerable. When organizing the IFAC workshop the experience from organizing other important events in our country such as conferences of IFAC and IEEE was very useful indeed. This experience was basically in the field of the information system used for reviewing, for preparing the website of the workshop, the methods for safe communication, preparing the papers for publication in the proceedings on paper as well as on CD, organizing the foreign guests’ accommodation, the social events etc.

64 participants from 20 countries took part in the work of the IFAC workshop. Altogether, 4 plenary and 39 papers were presented. 4 papers were not presented (8,5%). The number of papers from Bulgaria was 14 (30 %). Considering the number of countries presented (in %), the number of papers presented (in %) and the participation (in %) from the host country, the workshop met all the requirements of IFAC.

The IFAC Workshop on “Energy Saving Control in Plants and Buildings” was carried out in a way to allow all participants to listen and take part in the discussions of all papers. Because of the specific nature of the subject this scheme was highly appreciated by all the participants.

There were four plenary sessions:

The Relevance of Energy Saving Control, (Prof. H. Erbe, Germany);

Control Performance Assessment for Building Automation Systems, (PhD Timothy I. SALSBURY, Johnson Controls, USA);

Evolving Fuzzy Rule-based Systems for Modeling of Non-linear Non-stationary Processes (PhD Plamen ANGELOV, UK);

Multi Agent Intelligent Control of Centralized Heating, Ventilation & Air Conditioning Systems - HVAC (Corresponding Member of Bulgarian Academy of Sciences Prof. Mincho HADJIISKI, Bulgaria)

The papers were divided among 8 working sessions: Integrated Control, Fault Detection and Decision Making;
Modeling and Intelligent Control;
Advanced Control (two sessions);
Energy Saving by Control (two sessions);
District Heating and HVAC Control;
New Technologies for Energy Saving.

There was also a Technical Session where different applications in the industry were presented. In the presented papers different theoretic aspects of achieving energy savings through new audit methods, application of the contemporary control theory, intelligent systems etc. were discussed and their applications in industry, administrative and residential buildings were shown.

Because of the specific subject of the workshop parallel discussion of the problems of technology and HVAC control systems appeared to be very suitable.

Of great interest were those papers that treated the forwarding steps in usage of: Soft sensing for evaluation of thermal comfort for purposes of control and monitoring; intelligent methods for HVAC control systems using model predictive control, neural networks, applying the methods of soft computing for optimization in static and dynamic regimes (genetic algorithms, ant colony optimization), application of Multi Agent Systems. Active discussions were provoked by papers where new results in modeling and simulation of buildings and their control systems, software packages, new sensors and new technical equipment were presented.

Papers dealing with the energy integration, new methods for energy management through control and multicriterial optimization were of great interest. There was a round table on “Emerging Problems of Energy Saving Control and the Contribution of IFAC”. There were lively discussions on topics pre-prepared by Prof. Erbe, basic results of which will be presented at the coordinating committee of IFAC.

The workshop was carried out in the perfect conditions of hotel Perun, Bansko. The NOC provided all the necessary facilities for the participants’ comfort, trips to interesting sights, an official dinner that shall long be remembered.

Based on the feedback from many of the participants, such IFAC workshops on specific subject could contribute to the present concept of IFAC for international scientific events by providing fresh ideas. The representatives of IFAC and the Bulgarian organizers were satisfied with the achieved scientific level and organization of the workshop and left the door wide open for future IFAC-events in Bulgaria.

Heinz-Hermann ERBE, Emil NIKOLOV

Advanced Process Control for Semiconductor Manufacturing IFAC Workshop Singapore, December 4 – 5, 2006

The IFAC Workshop on Advanced Process Control for Semiconductor Manufacturing was held in Singapore on December 4 and 5, 2006. Two plenary papers, 22 regular papers and 1 tutorial were presented during the two days. Regular papers were run in two parallel sessions. About 60 people attended the workshop of which two-third were from industry.

The first keynote speech was given by Mr. K.C. Ang on “300mm e-Manufacturing”, the second one by T.F. Edgar on „Run-to-Run Control, Sampling and Performance Monitoring for High Mix Fabbs.

As transistor size reduces every year and silicon wafer size increases, the International Technology Roadmap for Semiconductors 2006 Update described factory level and company-wide metrology integration for real-time in situ, integrated, and inline metrology tools; continued development of robust sensors and process controllers present difficult challenges. In-situ and inline metrology is becoming requisite for both tight process control and throughput. Information from all metrology, associated with advanced process control, fault detection and classification, and other systems should be integrated into a database useful for determining process control parameters and correlating metrology information to enhance yield.

At the tool and process level, there are new methods and capabilities required to effectively use process and product measurements to impart control. Advanced process control addresses the use of sensors, metrology, and algorithms to monitor equipment, processes and products to provide actionable information for maintenance and control. The successful application of advanced process control in semiconductor manufacturing draws from the domain expertise of multiple disciplines that are typically responsible for delivering separate elements of the complete solution such as Information Technology, Factory Automation, Process Technology, Control Engineering, Yield Management, Metrology etc.

About a quarter of the papers presented and two-third of the attendance were from industry, showing the relevance of the workshop and process control to industry.

Weng Khuen HO

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68 papers were presented in 16 sessions over a period of two and a half days on a variety of topics covering the entire scope of power plants and power systems control. The authors and attendees came from a total of 23 countries from all parts of the world. A total of 76 papers was accepted for presentation out of 112 papers submitted in response to the call for papers. This gave an acceptance rate of 68%. Almost 90% of the papers accepted were presented, which showed a very low rate of no shows.

Among the topics of papers, power plant modeling, simulation, identification and parameter estimation were the most popular ones. Proceedings of the Symposium, with a total of 69 papers, have been published by Elsevier in the series of IFAC publications. Kananaskis Lodge, the venue for the Symposium, is located in the middle of beautiful Kananaskis Country in the Canadian Rocky Mountains. It offers wonderful natural scenery and many opportunities for hiking during the summer. A number of attendees made use of this opportunity to go on hikes. Being away from any major urban facilities, the attendees had an excellent chance to mingle, renew old friendships and make new friends. It also had the positive side effect of high attendance at the technical sessions until the last session.



FORTHCOMING EVENTS

**2007
No. 2
April**

Title	2007	Place	Further Information
INSTECC/IFAC Conference Intelligent Control Systems and Optimization – ICINCO 2007	May 09 – 12	Angers France	http://icinco.org/ e-mail: secretariat@icinco.org
IFAC Workshop Technology Transfer in Developing Countries: Automation in Infrastructure Creation	May 17 – 18	Izmir Turkey	http://web.deu.edu.tr/decom07 e-mail: decom07@deu.edu.tr
IFAC Workshop Intelligent Manufacturing Systems - IMS 2007 in conjunction with	May 23 – 25	Alicante Spain	http://www.aurova.ua.es:8080ims2007/ e-mail: ims07@dfists.ua.es
IFAC Workshop Intelligent Assembly and Disassembly IAD 2007	May 23 – 25	Alicante Spain	http://www.aurova.ua.es:8080/iadims07/ e-mail: iad07@dfists.ua.es
IFAC Symposium Computer Applications in Biotechnology - CAB-10	June 04 – 06	Cancun Mexico	http://www.cab2007.org/ e-mail: secretariat@cab2007.org
IFAC Symposium Dynamics and Control of Process Systems - DYCOPS-8	June 06 – 08	Cancun Mexico	http://www.dycops2007.org/ e-mail: secretariat@dycops2007.org
IEEE/IFAC Intl. Workshop Robot Motion and Control – RoMoCo'07	June 11 – 13	Bukowy Poland	http://romoco.put.poznan.pl/ e-mail: krzysztof.kozlowski@put.poznan.pl
IFAC Workshop Dependable Control of Discrete Systems -IFAC DCDS07	June 13 – 15	Paris France	http://www.japura.lurpa.ens-cachan.fr/dcds07/ e-mail: dcds07@lurpa.ens-cachan.fr
Strep-Necst/IFAC Workshop Networked Control Systems: Tolerant to Faults	June 20 – 21	Nancy France	http://www.strep-necst.org/3rdworkshop e-mail: eric.rondeau@cran.uhp-nancy.fr
IFAC Symposium Automatic Control in Aerospace	June 25 - 29	Toulouse France	http://aca2007.onera.fr e-mail: aca2007@oncert.fr
2007 European Control Conference - in cooperation with IFAC -	July 02 – 05	Kos Greece	http://www.ecc07.ntua.gr/ e-mail: ecc07@mail.ntua.gr
IFAC Workshop Convergence of Information Technologies and Control Methods with Power Plants and Power Systems	July 09 – 11	Cluj-Napoca Romania	http://conference.utcluj.ro/icps07 e-mail: icps07@conference.utcluj.ro
2007 American Control Conference - in cooperation with IFAC -	July 11 – 13	New York NY, USA	http://www.a2c2.org/conferences/acc2007/ e-mail: judd@ohio.edu
IFAC Symposium Robot Control – SYROCO 2009	July 10 – 12	Gifu City Japan	http://www.syroco2009.org/ e-mail: syroco2009_office@syroco2009.org
IFAC Symposium 11th Large Scale Systems: Theory and Applications	July 23 – 25	Gdansk Poland	http://www.ely.pg.gda.pl/lss2007 e-mail: lss2007@ely.pg.gda.pl
IFAC Workshop Control of Distributed Parameter Systems	July 24 - 26	Namur Belgium	http://www.fundp.ac.be/sciences/cdps07/ e-mail: joseph.winkin@math.fundp.ac.be e-mail: dochain@csma.ucl.ac.be
IFAC Symposium 5 th Advances in Automotive Control	August 20 – 22	Seascape Resort Aptos, CA, USA	http://aac2007.stanford.edu/ e-mail: roelle@stanford.edu
IFAC Symposium 12 th Automation in Mining, Mineral and Metal Processing - MMM	August 21 – 24	Quebec City Canada	http://www.gch.ulaval.ca/ifacmmm07/ e-mail: ifacmmm07@gel.ulaval.ca
IFAC Symposium 7th Nonlinear Control Systems - NOLCOS	August 22 – 24	Pretoria South Africa	http://www.nolcos2007.org.za e-mail: noc@nolcos2007.org.za
IFAC Workshop Adaptive and Learning in Control and Signal Processing – ALCOSP 07 in conjunction with	August 29 – 31	St. Petersburg Russia	http://conf.physcon.ru/alcosp07/ e-mail: alcosp07@physcon.ru
IFAC Workshop Periodic Control Systems – PSYCO 07	August 29 – 31	St. Petersburg Russia	http://conf.physcon.ru/psyco07/ e-mail: psyco07@physcon.ru

FORTHCOMING EVENTS (ctd.)

IFAC Symposium 6th Intelligent Autonomous Vehicles - I A V	September 03 – 05	Toulouse France	http://www2.laas.fr/iav2007 e-mail: iav2007@laas.fr
IFAC Conference Modeling and Designing Distributed Control Systems in Agriculture- - AGRICONTROL 2007	September 03 – 05	Osijek Croatia	http://www.agricontrol.org e-mail: secretary@agricontrol.org
IFAC Symposium Analysis, Design and Evaluation of Human-Machine Systems	September 04 – 06	Seoul Korea	http://www.ifac-hms-2007.com/ e-mail: wcyoon@kaist.ac.kr
CACHE/IFAC 2 nd Conference Foundations of Systems Biology	September 09 – 12	Stuttgart Germany	http://www.fosbe.org e-mail: witteler@zsb.uni-stuttgart.de
IFAC Workshop Time Delay Systems	September 17 – 19	Nantes France	http://www.irccyn.ec-nantes.fr/TDS07/ e-mail: Jean-Fracois.Lafay@irccyn.ec-nantes.fr
EWICS/IFAC Conference Computer Safety, Reliability and Security - SAFECOMP 2007	September 18 – 21	Nuremberg Germany	http://www.safecomp.org/ e-mail: safecomp2007@informatik.uni-erlangen.de
IFAC Conference Control Applications in Marine Systems - CAMS 2007	September 19 – 21	Bol Croatia	http://www.cams07.fer.hr/ e-mail: zoran.vukic@fer.hr
IFAC Conference Management and Control of Production and Logistics – MCPL'2007	September 27 – 30	Sibiu Romania	http://mcpl2007.ulbsibiu.ro e-mail: mcpl2007@ulbsibiu.ro
IFAC Conference Cost Effective Automation in Networked Product Development and Manufacturing	October 02 - 05	Monterrey Mexico	http://cidyt.mty.itesm.mx/ifac-CEA07 e-mail: IFACcea07.mty@servicios.itesm.mx
IFAC Symposium Computational Economics & Financial Systems	October 09 – 11	Istanbul Turkey	http://www.ifac-cefis.org/ e-mail: contact@ifac-cefis.org
IFAC Symposium System Structure and Control - SSSC 2007	October 17 – 19	Foz do Iguacu Brazil	http://sssc07.ece.ufrgs.br/ e-mail: sssc07@ece.ufrgs.br
IFAC Workshop Advanced Fuzzy and Neural Control	October 29 – 30	Valenciennes France	http://www.univ-valenciennes.fr/congres/afnc07/ e-mail: afnc07-chair@univ-valenciennes.fr
IFAC Workshop Fieldbus and Networks in Industrial and Embedded Systems – FeT 2007	November 07 – 09	Toulouse France	http://www.fet2007.org/ e-mail: contact-fet2007@laas.fr
Title	2008	Place	Further Information
American Control Conference - in cooperation with IFAC	June 12 – 14	Seattle, WA USA	http://www.a2c2.org/conferences/acc2008/ e-mail: to be announced
17 th IFAC WORLD CONGRESS	July 06 – 11	Seoul Korea	http://www.ifac2008.org e-mail: Secretariat@ifac2008.org
IFAC Workshop 9th Intelligent Manufacturing Systems - IMS 2008	October 09 – 10	Szczecin Poland	http://ims08.ps.pl e-mail: ims08@ps.pl
IFAC Workshop 3rd Fractional Differentiation and its Applications	November 05 – 07	Ankara Turkey	http://www.cankaya.edu.tr/fda08 e-mail: fda08@cankaya.edu.tr
Title	2009	Place	Further Information
IFAC Symposium Fault Detection, Supervision and Safety for Technical Processes – SAFEPROCESS	June 30 - July 3	Barcelona Spain	http://www.esaiterrassa.upc.es/safeprocess2009 e-mail: to be announced
IFAC Symposium Identification and System Parameter Estimation - SYSID'09	July 06 - 08	St. Malo France	http:// to be announced e-mail: to be announced
IFAC Symposium Advanced Control of Chemical Processes ADCHEM	July 12 - 15	Istanbul Turkey	http:// to be announced e-mail: to be announced
Title	2010	Place	Further Information
IFAC Symposium Nonlinear Control Systems – NOLCOS 2010	June 30 - July 2	Bologna Italy	http://www.nolcos2010.unibo.it/ e-mail: lmarconi@deis.unibo.it
IFAC Symposium Mining, Mineral and Metal Processing	August 02 – 04	Cape Town South Africa	http:// to be announced e-mail: to be announced