



International Federation of Automatic Control

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2008  
No. 6  
Dec.

# Newsletter

## 17th IFAC World Congress, Seoul, Korea Final Report - Continued

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### Season's Greetings to all Newsletter Readers



Impressum:

Medieninhaber und Herausgeber:  
International Federation of Automatic Control (IFAC), Zurich  
Schlossplatz 12, A-2361 Laxenburg, Austria

Verlagsort und Redaktion:  
Univ.Prof. Dr. tech. K. Schlacher,  
Schlossplatz 12, A-2361 Laxenburg

Hersteller:  
Artur Schefczik & Sohn  
August-Reuss-Gasse, A-1130 Wien

Editor: Kurt Schlacher  
Layout: Ernestine Rudas  
published bimonthly

### Milestone Sessions

Milestone sessions were organized by five Coordinating Committees of IFAC: Committee on Design Methods; Committee on Bio- and Ecological Systems; Committee on Manufacturing and Logistics Systems; Committee on Power and Process Systems; Committee on Transportation and Vehicle Systems; and Committee on Mechatronics, Robotics and Components. These reports serve as background materials for future research, development, and education relevant to technical fields led by each coordinating committee of IFAC. They contain the current state-of-art of the technologies, such as key problems, recent accomplishments, and future perspectives, that address forecasting needs, challenges, and new trends. The following sections describe individual reports in details.

#### 1. Trends in Theory of Control System Design

The report was prepared by the IFAC Coordinating Committee on Design Methods, authored by R. Bars, P. Colaneri, L. Dugard, F. Allgöwer, A. Kleimenov, and C. Scherer. 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. Based on the contributions of the Technical Committees the status presentation gave an overview of the current key problems in control theory and design, evaluated the recent major accomplishments and forecast some new areas. It pointed out some control fields, which could be challenges for future research.

#### 2. Bio- and Ecological Systems: Challenges, Accomplishments and Forecasts

The report was prepared by the IFAC Coordinating Committee on Bio- and Ecological Systems. The authors were E. Carson, D. D. Feng, M.-N. Pons, R. Soncini-Sessa and G. Straten. The complexities of the dynamic processes associated with bio- and ecological systems offer many challenges for the control engineer. Applying dynamic modeling and control can aid understanding of their complexities. Moreover, using such complex systems as test-beds for new control methods can highlight their limitations (e.g. in relation to system identification) and thus act as a catalyst for methodological advance. The presentation continued the theme of exploring opportunities and achievements in applying modeling and control in the bio- and ecological domains.

#### 3. Advances in e-Manufacturing, e-Logistics, and e-Service Systems

The report was prepared by the IFAC Coordinating Committee on Manufacturing & Logistics Systems, authored by S.Y. Nof, F.G. Filip, A. Molina, L. Monostori, and C.E. Pereira. Key problems in manufacturing plant control, modeling and information management, enterprise integration and interoperability, and large-scale complex systems are described. Recent major accomplishments in developing solution methods and tools were reviewed in e-Manufacturing, e-Service, and bio-inspired manufacturing and control; real-time, co-operative/collaborative enterprises; autonomous, collaborative networked organizations; enterprise integration and processes models; and complex systems-of-systems. The presentation concluded with emerging trends, applications forecast, and future roles of engineers and managers in manufacturing, logistics and service systems.

#### 4. Monitoring and Control of Process and Power Systems: Adapting to Environmental Challenges, Increasing Competitiveness and Changing Customer and Consumer Demands

The report was prepared by the IFAC Coordinating Committee on Process and Power Systems, authored by D. Dochain, W. Marquardt, S.-C. Won, O. Malik, M. Kinnaert, and J. Lunze. Process and power plant control, along with fault detection/isolation are being addressed by significant on-going research with many theoretical developments focused on improvements for all of these major industrial applications. The presentation provided an overview of the current key problems, recent accomplishments, trends, and forecast of anticipated developments in this application field.

#### 5. Mechatronics, Robotics and Components for Automation and Control

The report was prepared by the IFAC Coordinating Committee on Mechatronics, Robotics and Components, authored by S. Boverie, D.-I. Cho, H. Hashimoto, M. Tomizuka, W. Wei and D. Zuehlke. The report presented a general overview of the technological fields of mechatronic, robotic, components for automation and control. Several subfields were considered: i) component and instruments; ii) mechatronic; iii) robotics; iv) cost oriented automation; and v) human-machine systems. The current key problems and the recent major accomplishments were addressed. Finally, the most promising developments and applications were presented.

Dong-Il Cho, IPC Chair

# IFAC Structure

Most people who are acquainted with IFAC, know about the technical side of the Federation: It is manifested by the currently 40 Technical Committees who organize events under the umbrella of IFAC's 48 National Member Organization. In one of the next issues of the IFAC Newsletter, we shall provide a description of the Technical Board with its Technical Committees, their scopes, tasks and activities.

## Executive Board

A Federation such as IFAC also needs other structures to manage the day-to-day administrative business that is required to keep the wheels greased. There is of course the IFAC Council, which meets once a year and is entrusted with conducting the day-to-day business of IFAC by the General Assembly. The Council, in turn, has the Executive Board reporting to it. The Executive Board is the body that deals with all the purely administrative business of IFAC, which is not covered by the Technical Board. The Chair of the Executive Board is, at the same time, one of the two Vice-Presidents of IFAC. At the General Assembly in Seoul, in July 2008, Professor Roger Goodall was elected to this position (see biography right column). The members of the Executive Board are the Chairs of the Executive Committees. They are the

1. Administrative and Finance Committee
2. Awards Committee
3. Policy Committee
4. Publications Committee

In addition to the Chairs of the four Executive Committees, the Past President (W. H. Kwon), the Treasurer (L. Guzzella) and the Secretary (K. Schlacher) are members of the Executive Board.

### 1. Administrative and Finance Committee

Chair: Ian Craig, President-Elect



As the name of the Committee already indicates, it deals with administrative matters of the Secretariat and the overall financial situation of the Federation. It is always chaired by the President-Elect of IFAC, and the Treasurer and the Secretary are ex-officio members. Among others, it prepares the budgets for the Federation and for the Secretariat, checks the financial statements and supervises the activities of the Secretariat.

### 2. Awards Committee

Chair: George Irwin



The Awards Committee is the "youngest" one of IFAC's Executive Committees. In the earlier days, the only IFAC awards were the "Quazza Medal" and the appointment of IFAC Advisors. In 1990, the Outstanding Service Award was introduced, followed by the Applications Paper Prize, the Young Author Prize and the Harold Chestnut Control Engineering Textbook Prize in 1993. In 1996, the Nichols Medal followed. In 2005 the first IFAC Fellows were elected. In addition to these IFAC Prizes and Awards, there are Journal Awards for each of the five IFAC Journals. This ever growing number of Prizes and Awards requires coordination and structure. Each of the Awards has a Selection Committee, whose Chair is a member of the Awards Committee. The major task of the Awards Committee is the coordination of awards activities and the permanent updating, adaptation and further development of the Awards Guidelines, which describes each award separately.

### 3. Policy Committee

Chair: Eduardo Camacho



The Policy Committee advises the Council, at the Council's request or at its own initiative, on the general philosophy, attitude and long range planning of the Federation, on matters concerning the relations between IFAC and other international organizations and between IFAC and its NMOs. It advises the Council on procedural matters and guidelines related to the conduct of business within the Federation and to the organization of technical meetings.

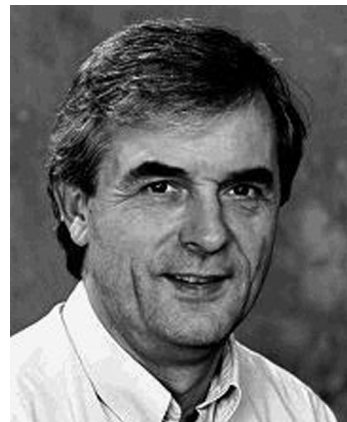
### 4. Publications Committee

Chair: Masayoshi Tomizuka



The Publications Committee is ex officio composed of the Editors-in-Chief of the five IFAC Journals, the Secretary as Editor-in-Chief of the IFAC Newsletter, the Electronic Media Editor, the Chair of the Publications Managing Board and the ordinary members of the Committee. It deals with the overall publications policy, impact factors, the affiliation of Journals as IFAC Affiliated Journals and all web-related publications.

## Roger Goodall Vice-President Executive Board Chair



Roger Goodall graduated from Peterhouse, Cambridge, in 1968. The first 14 years of his career were in industry, two years working as a control engineer on various defence applications before joining British Rail's Research Division in Derby, where he was involved in a number of electronics and control projects for the railway industry. In 1982 he took up an academic position in the Department of Electronic and Electrical Engineering at Loughborough University. He was Head of Department 1990-1994 and was promoted to Professor of Control Systems Engineering (a personal chair) in 1994. He is a Fellow of both the Institution of Electrical Engineers and the Institution of Mechanical Engineers in the UK, and was elected a Fellow of the UK's Royal Academy of Engineering in 2007.

His research is concerned with practical applications of advanced control, primarily for high performance electro-mechanical systems. He has held a number of research grants from the UK government, the European Commission and a variety of industrial organisations. Current research is concerned with "mechatronic" railway vehicles, advanced sensor systems related to aircraft flight control, and high integrity actuation systems. He has received a number of awards for his work, and in particular is well known internationally for his research in rail vehicle technology.

Specific "world first" achievements during his industrial and academic career have been: the suspension controller design for 3 tonne experimental Maglev vehicle in 1976, redeveloped in 1981 for the world's first operational Maglev system at Birmingham Airport in the UK; the first full-scale active suspension for a railway vehicle in 1979; the first demonstration of a tilting railway vehicle using electro-mechanical actuators in 1981 (now the standard technology for European tilting trains); a 40kg "zero power consumption" magnetic levitation demonstrator in 1996 using controlled electro-magnets with high-temperature superconducting coils; and in 2002 the first experimental demonstration of an actively-stabilised "mechatronic" bogie for a railway vehicle.

His IFAC involvement started as a member of the Technical Committee on Transportation Systems during the 1990s. He was the inaugural Chair of the newly-formed TC on Mechatronic Systems 2000-5, remaining as a regular member and taking active roles in the TC's Mechatronic Systems conferences. For the 2005-8 triennium he was chair of the UK Automatic Control Council (the IFAC NMO) and a member of the Awards Committee. At the IFAC General Assembly meeting in Seoul, Korea, July 2008, he was elected Chair of the Executive Board, thus becoming Vice-President of IFAC.



## FORTHCOMING EVENTS

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Title	2009	Place	Further Information
IFAC Workshop Programmable Devices and Embedded Systems – PDeS 2009	February 10 – 12	Roznov Czech Rep.	<a href="http://pdes2009.vsb.cz">http://pdes2009.vsb.cz</a> e-mail: <a href="mailto:zdenek.slanina@vsb.cz">zdenek.slanina@vsb.cz</a>
IMACS/IFAC Conference Mathematical Modelling – MATHMOD 09	February 11 – 13	Vienna Austria	<a href="http://www.mathmod.at/">http://www.mathmod.at/</a> e-mail: <a href="mailto:inge.troch@stadtkirche.at">inge.troch@stadtkirche.at</a>
IFAC Workshop Control Applications of Optimization - CAO	May 06 – 08	Jyväskylä Finland	<a href="http://www.automaatioseura.fi/CAO'09">http://www.automaatioseura.fi/CAO'09</a> e-mail: <a href="mailto:office@atu.fi">office@atu.fi</a>
IFAC Conference Fieldbuses and Networks in Industrial and Embedded Systems – FeT 2009	May 20 – 22	Ansan Korea	<a href="http://www.fet2009.org">http://www.fet2009.org</a> e-mail: <a href="mailto:fet2009@hanyang.ac.kr">fet2009@hanyang.ac.kr</a>
IEEE/IFAC Intl. Workshop Robot Motion and Control - RoMoCo'09	June 01 – 03	Czarniejewo Poland	<a href="http://romoco.put.poznan.pl/">http://romoco.put.poznan.pl/</a> e-mail: <a href="mailto:krzysztof.kozlowski@put.poznan.pl">krzysztof.kozlowski@put.poznan.pl</a>
IFAC Symposium Information Control Problems in Manufacturing - INCOM 2009	June 03 – 05	Moscow Russia	<a href="http://incom09.org/">http://incom09.org/</a> e-mail: <a href="mailto:noc@incom09.org">noc@incom09.org</a>
IFAC Workshop 2nd Dependable Control of Discrete Systems - DCDS'09	June 10 – 12	Bari Italy	<a href="http://dcds09.poliba.it">http://dcds09.poliba.it</a> e-mail: <a href="mailto:dcds09@deemail.poliba.it">dcds09@deemail.poliba.it</a>
IFAC Symposium Robust Control Design – ROCOND	June 16 – 18	Haifa Israel	<a href="http://www.technion.ac.il/~rocond09">http://www.technion.ac.il/~rocond09</a> e-mail: <a href="mailto:rocond09@technion.ac.il">rocond09@technion.ac.il</a>
IFAC Conference Analysis and Control of Chaotic Systems - CHAOS 2009	June 22 – 24	London UK	<a href="http://www.elec.qmul.ac.uk/chaos09">http://www.elec.qmul.ac.uk/chaos09</a> e-mail: <a href="mailto:chaos09@qmul.ac.uk">chaos09@qmul.ac.uk</a>
IFAC Workshop Aerospace Guidance, Navigation and Flight Control Systems - AGNFCS	June 30 - July 2	Samara Russia	<a href="http://www.ssc.smr.ru/agnfcs09.html">http://www.ssc.smr.ru/agnfcs09.html</a> e-mail: <a href="mailto:agnfcs09@ssc.smr.ru">agnfcs09@ssc.smr.ru</a>
IFAC Symposium Fault Detection, Supervision and Safety for Technical Processes – SAFEPROCESS	June 30 - July 3	Barcelona Spain	<a href="http://safeprocess09.upc.es/">http://safeprocess09.upc.es/</a> e-mail: <a href="mailto:joseba.quevedo@upc.edu">joseba.quevedo@upc.edu</a>
IFAC/CIGRE Symposium Power Plants and Power Systems	July 05 - 08	Tampere Finland	<a href="http://pppsc09.automaatioseura.fi/">http://pppsc09.automaatioseura.fi/</a> e-mail: <a href="mailto:office@atu.fi">office@atu.fi</a>
IFAC Symposium Identification and System Parameter Estimation- SYSID'09	July 06 - 08	St. Malo France	<a href="http://www.sysid2009.org/">http://www.sysid2009.org/</a> e-mail: <a href="mailto:secretariat@sysid2009.org">secretariat@sysid2009.org</a>
IFAC Symposium Advanced Control of Chemical Processes - ADCHEM 2009	July 12 - 15	Istanbul Turkey	<a href="http://www.adchem09.ku.edu.tr/">http://www.adchem09.ku.edu.tr/</a> e-mail: <a href="mailto:dburak@ku.edu.tr">dburak@ku.edu.tr</a>
IFAC Workshop Control of Distributed Parameter Systems	July 20 – 24	Toulouse France	<a href="http://www.laas.fr/CDPS09">http://www.laas.fr/CDPS09</a> e-mail: to be announced
IFAC Symposium Modelling and Control in Biological and Medical Systems — MCBMS 09	August 12 – 14	Aalborg Denmark	<a href="http://www.mcbms09.hst.aau.dk/">http://www.mcbms09.hst.aau.dk/</a> e-mail: <a href="mailto:mcbms09@hst.aau.dk">mcbms09@hst.aau.dk</a>
European Control Conference - in cooperation with IFAC -	August 23 – 26	Budapest Hungary	<a href="http://www.conferences.hu/ecc09/">http://www.conferences.hu/ecc09/</a> e-mail: <a href="mailto:ecc09@conferences.hu">ecc09@conferences.hu</a>
IFAC Workshop Time Delay Systems (8th)	September 01 – 03	Sinaia Romania	<a href="http://www.automation.ucv.ro/tds2009/">http://www.automation.ucv.ro/tds2009/</a> e-mail: <a href="mailto:vrasvan@automation.ucv.ro">vrasvan@automation.ucv.ro</a>
IFAC Symposium Control in Transportation Systems - CTS 2009	September 02 – 04	Redondo Beach CA, USA	<a href="http://ee.usc.edu/CTS09/">http://ee.usc.edu/CTS09/</a> e-mail: <a href="mailto:ioannou@usc.edu">ioannou@usc.edu</a>
IFAC Symposium Robot Control. – SYROCO 2009	September 10 – 12	Gifu Japan	<a href="http://www.syroco2009.org/">http://www.syroco2009.org/</a> e-mail: <a href="mailto:syroco2009_office@syroco2009.org">syroco2009_office@syroco2009.org</a>
EWICS/IFAC Intl. Conference Computer Safety, Reliability and Security – SAFECOMP	September 15 – 19	Hamburg Germany	<a href="http://www.safecomp.org">http://www.safecomp.org</a> e-mail: to be announced



## FORTHCOMING EVENTS (ctd.)

IFAC Conference Analysis and Design of Hybrid Systems -ADHS 09	September 16 – 19	Zaragoza Spain	<a href="http://diisconf.cps.unizar.es/adhs09/web/">http://diisconf.cps.unizar.es/adhs09/web/</a> e-mail: <a href="mailto:adhs09@unizar.es">adhs09@unizar.es</a>
IFAC Conference Manoeuvring and Control of Marine Craft (MCMC'2009)	September 17 – 19	Guaruja Brazil	<a href="http://www.mecanica-poliusp.org.br/07even/cont/mcmc/home.html">www.mecanica-poliusp.org.br/07even/cont/mcmc/home.html</a> e-mail: to be announced
IFAC Conference 2nd Intelligent Control Systems and Signal Processing – ICONS '09	September 21 – 23	Istanbul Turkey	<a href="http://www.icons2009.org">http://www.icons2009.org</a> e-mail: <a href="mailto:icons09@boun.edu.tr">icons09@boun.edu.tr</a>
IFAC Workshop Discrete Event System Design – DesDes'09	October 06 – 08	Gandia, Valencia Spain	<a href="http://www.desdes.uz.zgora.pl">http://www.desdes.uz.zgora.pl</a> e-mail: <a href="mailto:DESDes@iie.uz.zgora.pl">DESDes@iie.uz.zgora.pl</a>
IFAC Workshop Mining, Mineral and Metal Industry	October 14 - 16	Viña del Mar Chile	<a href="http://www.ifacmmm2009.com/">http://www.ifacmmm2009.com/</a> e-mail: <a href="mailto:info@ifacmmm2009.com">info@ifacmmm2009.com</a>
IFAC Symposium Advances in Control Education	October 21 – 23	Kumamoto Japan	<a href="http://www.ace2009.cs.kumamoto-u.ac.jp">www.ace2009.cs.kumamoto-u.ac.jp</a> e-mail: to be announced
<b>Title</b>	<b>2010</b>	<b>Place</b>	<b>Further Information</b>
IFAC Symposium Large Scale Systems: Theory and Applications – LSS 2010	July 11 – 14	Villeneuve d'Ascq France	<a href="http://lss2010.ulbsibiu.ro/">http://lss2010.ulbsibiu.ro/</a> e-mail: <a href="mailto:p.borne@ec-lille.fr">p.borne@ec-lille.fr</a>
IFAC Symposium Mining, Mineral and Metal Processing	August 02 – 04	Cape Town South Africa	<a href="http://to be announced">http:// to be announced</a> e-mail: to be announced
IFAC Symposium Nonlinear Control Systems - NOLCOS 201	September 01 - 03	Bologna Italy	<a href="http://www.nolcos2010.unibo.it/">http://www.nolcos2010.unibo.it/</a> e-mail: <a href="mailto:imarconi@deis.unibo.it">imarconi@deis.unibo.it</a>
IFAC Symposium Intelligent Autonomous Vehicles - IAV	September 06 - 08	Lecce Italy	<a href="http://iav2010.unile.it/">http://iav2010.unile.it/</a> e-mail: <a href="mailto:iav2010@unile.it">iav2010@unile.it</a>
IFAC Symposium Automatic Control in Aerospace	September 06 – 10	Nara Japan	<a href="http://www.space.t.u-tokyo.ac.jp/aca2010">www.space.t.u-tokyo.ac.jp/aca2010</a> e-mail: to be announced
IFAC Conference Management and Control of Production and Logistics – MCPL-2010	September 08 – 10	Coimbra Portugal	<a href="http://www.dei.uc.pt/MCPL2010">http://www.dei.uc.pt/MCPL2010</a> e-mail: to be announced
IFAC Symposium Mechatronic Systems	September 13 – 15	Boston, MA USA	<a href="http://to be announced">http:// to be announced</a> e-mail: to be announced
IFAC Symposium Telematics Applications – TA'2010	October 05 – 08	Timisoara Romania	<a href="http://www.upt.ro/ta2010">http:// www.upt.ro/ta2010</a> e-mail: to be announced

## Transition

**Walter Schaufelberger**  
23 May, 1940 – 14 September, 2008

It was a great shock to all of us who knew him, when we learned of the sudden and unexpected passing of Walter Schaufelberger.

Walter Schaufelberger's name is firmly linked to the development of control engineering and, in particular, to questions of education and further training of young control engineers. He was an excellent researcher and teacher who would always act in the interest of the community. It is therefore not surprising that he has authored several textbooks in the area of control engineering as well as many articles and book chapters.

But his activities did not only stay within the boundaries of the ETH. Early on he was already involved in international activities. First as member and Chair of the Education Committee within IFAC and then, for as long as nine years, he was Council member and Treasurer of IFAC. In this function he has contributed



much to the good standing of the Federation. In all this time he never ceased in his educational aspirations, which he followed, among others, by teaching courses in developing countries. Walter Schaufelberger's involvement in IFAC did not end after three terms of being Treasurer of IFAC. He continued in an advisory function and, later on, as member of the Fellow Selection Committee.

It is therefore not surprising that Walter Schaufelberger held many IFAC awards. He received the Outstanding Service Award in 1999, was appointed IFAC Advisor in 2002 by the President and received the IFAC Fellowship in 2005.

But above and beyond all his professional merits, Walter was a warm-hearted person, always ready to help – to put it in a nutshell – he was a friend. We shall miss him dearly and mourn this great loss together with his family