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2005
No. 3
June

Newsletter

Contents:

Opening Ceremony of the IFAC World Congress
Prague, Czech Republic
Sunday, 3 July, 2005
Major IFAC Awards will be Presented

Tamer Basar
Recipient of the Giorgio Quazza Medal

William F. Powers
Recipient of the Nathaniel B. Nichols Medal

Serge Boverie
Recipient of the Industrial Achievement Award

Every three years at each triennial IFAC Congress, the Giorgio Quazza Medal, the Nathaniel B. Nichols Medals and the Industrial Achievement Award are presented.

The **GIORGIO QUAZZA MEDAL** was created in 1979. It is an IFAC award to a distinguished control engineer as a memorial to the late Giorgio Quazza, a leading Italian electrical and control engineer who served IFAC in many capacities in a most distinguished manner. The medal is presented by the President at each IFAC Triennial Congress at the Opening Ceremony. A prize is presented to the recipient together with the medal.

The **NATHANIEL B. NICHOLS MEDAL** was created in 1996. It is an IFAC award that recognizes industrial leadership, outstanding contributions of an individual to design methods, software tools and instrumentation, or significant projects in major applications and advancement of control engineering. The medal is presented by the President at each IFAC Triennial Congress at the Opening Ceremony. A prize is presented to the recipient together with the medal.

The **INDUSTRIAL ACHIEVEMENT AWARD** was created in 2000. It is an IFAC award to an individual, or a team of individuals, who has made a significant contribution to industrial applications of control. The award, together with a certificate, is presented to the recipient by the President at each IFAC Congress at the Opening Ceremony. A prize is presented to the recipient together with the award.

At the last Council meeting in St. Petersburg, in June 2004, the IFAC Council voted who would be the winners of these awards, which will be presented at the Opening Ceremony of the Congress in Prague in July 2005.

The Quazza Medal 2005 is awarded to **Professor Tamer Basar**

For Sustained Seminal Contributions to the Theory and Applications of Control and Dynamics Games

The Nichols Medal 2005 is awarded to **Dr. William F. Powers**

For Leadership, Vision and Pioneering Contributions to Aerospace and Automotive Controls

The Industrial Achievement Award 2005 is presented to **Dr. Serge Boverie**

For promoting and pioneering the development of control engineering and Automatic control process in automotive application field, including; engine control oriented modeling, fuzzy control theory and intelligent sensors for automotive applications

Overleaf, read more about the winners of these prestigious IFAC Awards

Tamer Basar
Recipient of the Giorgio Quazza Medal in 2005

Tamer Basar was born in Istanbul, Turkey, on January 19, 1946. He received B.S.E.E. degree from Robert College, Istanbul, in 1969, and M.S., M.Phil,and Ph.D. degrees in engineering and applied science from Yale University in 1970, 1971 and 1972, respectively. After stints at Harvard University, Marmara Research Institute (Gebze, Turkey), and Bogazi University (Istanbul), he joined the University of Illinois at Urbana-Champaign (UIUC) in 1981, where he is currently the Fredric G. and Elizabeth H. Nearing Professor of Electrical and Computer Engineering and Research Professor at the Coordinated Science Laboratory. He has spent sabbatical years at Twente University of Technology (The Netherlands; 1978–79), and INRIA (France; 1987–88, 1994–95).Dr. Basar has authored or co-authored over 150 journal articles and book chapters, and over 200 conference publications in the general areas of optimal, robust, and adaptive control; large-scale and decentralized systems and control; dynamic games; stochastic control; estimation theory; stochastic processes; information theory; communication systems and networks; and mathematical economics. He is co-author of the text Dynamic Noncooperative Game Theory (Academic Press, 1982; second edition, 1995; latest edition in SIAM Series in Classics in Applied Mathematics, 1999), editor of the volume Dynamic Games and Applications in Economics (Springer-Verlag, 1986), co-editor of Differential Games and Applications (Springer-Verlag, 1988), co-editor of Advances in Dynamic Games and Applications (Birkhauser, 1994), co-author of the text H-infinity Optimal Control and Related Minimax Design Problems (Birkhauser, 1991; second edition, 1995), and Editor of the centennial volume Control Theory: Twenty-Five Seminal Papers (1932–1981) (IEEE Press, 2001). His current research interests are robust nonlinear and adaptive control; routing, pricing, and congestion control in communication networks; control overwired and wireless networks; mobile computing; and risk-sensitive estimation and control.Tamer Basar is a member of the National Academy of Engineering (of the USA), and also carries memberships in several scientific organizations, among which are SIAM, SEDC (Society for Economic Dynamics and Control), ISDG (International Society of Dynamic Games), GTS (Game Theory Society), AMS (American Mathematical Society), European Academy of Sciences, and the Institute of Electrical and Electronics Engineers. He was elected a Fellow of IEEE in 1983, and has served its Control Systems Society in various capacities, among which are: Past President (2001), President (2000), President-Elect (1999), Vice-President for Financial Affairs (1998), Vice-President for Publications (1997), the Editor for Technical Notes and Correspondence for Transactions on Automatic Control (1992–1994), and as the general chairman (1992) and program chairman (1989) of its flagship conference (Conference on Decision and Control). He has also been active in IFAC (International Federation of Automatic Control), in the organization of several workshops and symposia, and as Editor and Deputy Editor-in-Chief of its flagship journal Automatica from 1992 until 2003, and since 2004 as Editor-in-Chief and Chair of its editorial board. During the period 1990–1994, he was the President of the International Society of Dynamic Games (ISDG, and is currently the Managing Editor of the Annals of ISDG (published by Birkhauser), the Series Editor of Systems & Control: Foundations and Applications (published by Birkhauser), and Honorary Editor of Applied and Computational Mathematics. He is also a subject editor of Wireless Networks and an associate editor of Systems and Control Letters, and is on the editorial and advisory boards of a number of other international journals. Among some of the recent honors and awards he has received are: Giorgio Quazza Medal of the International Federation of Automatic Control (2005), Hendrik W. Bode Lecture Prize of the IEEE Control Systems Society (2004), Tau Beta Pi Daniel C. Drucker Eminent Faculty Award of the College of Engineering of UIUC (2004), election to the National Academy of Engineering (of the USA) (2000), IEEE Millennium Medal(2000), Nearing Distinguished Professorship at UIUC (1998), Axelby Outstanding Paper Award (1995) and Distinguished Member Award (1993) of the IEEE Control Systems Society, and Medal of Science of Turkey (1993).

William F. Powers
Recipient of the Nathaniel B. Nichols Medal in 2005

William F. Powers retired as Vice President – Research from Ford Motor Company on December 31, 2000; he had been with the company since 1979. During his career at Ford, he served as the first Director of Product and Manufacturing Systems in North American Automotive Operations, Program Manager, Car Product Development Specialty Car Programs, where he was responsible for the Thunderbird, Cougar, and Mark VIII vehicles, and Executive Director of Global Information Technology. On February 1, 1996, Dr. Powers assumed the responsibilities of Vice President-Research. Dr. Powers received his B.S. in Aerospace Engineering in 1963 from the University of Florida, and his Ph.D. in Engineering Mechanics in 1968 from the University of Texas at Austin. At NASA Marshall Space Flight Center from 1960-65, he was involved with the development of the Saturn Booster guidance system and Apollo mission analyses. He consulted on the Space Shuttle Program with the NASA Johnson Space Center during the period 1970–79. From 1968–1980, he was a Professor of Aerospace Engineering and Computer, Information and Control Engineering at the University of Michigan. During the 1970s and 80s, he served on numerous control-oriented journal editorial boards and professional society committees. He served as President of the AACC in 1988–89, and he organized and was the first chairman of the IFAC Automotive Technical Committee. He is a member of the National Academy of Engineering, a Fellow of the Institute of Electrical and Electronics Engineers, the American Society of Mechanical Engineers, and the Society of Automotive Engineers, and a foreign member of the Royal Swedish Academy of Engineering Sciences. He serves on the Secretary of Energy's Laboratory Operations Board, the Sandia Nuclear Weapons External Advisory Board, Next Energy's Technical Advisory Committee, the National Academies Board on Energy and Environmental Systems, and the National Academies' Committee on Alternatives and Strategies for Future Hydrogen Production and Use, in addition to a number of university advisory committees. He has received Distinguished Alumnus awards from the University of Texas at Austin Engineering College (1993) and the University of Florida (2001), and the Control Practice Award from the American Automatic Control Council (2004). He and his wife, Linda, reside in Boca Raton and Ann Arbor, and have two children.

Serge Boverie
Recipient of the Industrial Achievement Award in 2005

Serge Boverie was born in Alger (France) in 1956. He received his Electrical Engineering degree and DEA in Control Engineering from INSA (Institut National des Sciences Appliquées) in 1979. He was then awarded a PhD in Automatic Control in Toulouse, 1981. After 4 years working for the Helicopter division of the Aerospatiale in Marignane (France). He joined the SIEMENS Automotive SA R&D Department in Toulouse in 1987. Since 2002 he has been head of the department of advanced development related with safety activities in Toulouse. He is also coordinator of the R&D activities for Siemens VDO automotive SAS.

Dr. Boverie's research activities these last 16 years have been strongly related to new developments in the automotive industry. He is leading and promoting innovation within multidisciplinary teams including physician, physiologist, researchers, engineers and technicians from public and private organisms in a context of transfer between research and industry.

Dr. Boverie's research and development activities have always been driven by pragmatism and realism, always keeping in mind to provide realistic solutions to existing and well identified problems, trying to find the best, to the point and most innovative solutions taking care of industrial constraints like cost, integration and implementation capability.

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His main achievements are related to engine control, diagnostic for automobile engine, development of advanced concepts for driver assistance systems. His most valuable scientific and technological contributions are concerned with the development of control engineering and the automatic control process in the automotive application field; the pioneering with P. Bidan for his contributions related to engine control oriented modeling. Part of this work was honored by the IFAC Congress Applications Price with honorable mention during the IFAC World Congress in Sydney, 1993; the promotion and the development of fuzzy control theory for automotive applications, control and diagnostic; the introduction, promotion and development of new concept of intelligent sensors for automotive applications: for vehicle inner space monitoring, for driver vigilance monitoring. This work has been honored in 2002 by the first price of science delivered by the French ministry of research. Most of these developments are now implemented or to be implemented in commercial applications

In addition Dr Boverie has been the instigator of several European partnership projects (9) and the leader of 2 national projects. He has (co)registered 7 patents and is (co) author of more than 70 paper published in international conferences and journals.

At last and since 1993 he has acted as editor of the CEP journal during more than 8 years.
From July 1999 he has been acting in the capacity of Chairman for the technical committee 'Component and instruments" in the IFAC organization. He was the IPC chair of the SICICA'03 in Aveiro Portugal. He has been nominated as expert in various French national committees.

In 1995 Stefan transferred from Australia to Austria and from academics to industry. After being research director of the start-up company Profactor, he was appointed head of advanced control at Austria's refinery, OMV. The next 3 years he conceived and implemented a 4mn EUR advanced control road map with a pay-back of less than a year. He then advanced to CEO of the aviation business and from there to chief strategist of Refining & Marketing, a 8 bn EUR turnover business in its crucial Central East European growth period.

In his wanderings from academic control engineering to strategy management of an oil company, systems science and its community have remained a continued source of impact and insight for him.

Harold Chestnut Control Engineering Textbook Prize 2005

The 2005 Harold Chestnut Control Engineering Textbook Prize will be presented at the Opening Ceremony of the IFAC Congress in Prague.

It goes to the following book:

Control Systems Design
co-authored by
Graham C. Goodwin
Stefan Graebe
Mario E. Salgado
published by Prentice Hall 2001

with the following citation

This textbook is unique in presenting the most important topics in control engineering design. Solutions to numerous, thoughtfully chosen examples and industrial applications are supported by modern software interactive tools.

Graham C. Goodwin

Graham C. Goodwin obtained a B.Sc (Physics), B.E (Electrical Engineering), and Ph.D from the University of New South Wales. From 1970 until 1974 he was a lecturer in the Department of Computing and Control, Imperial College, London. Since 1974 he has been with the Department of Electrical and Computer Engineering, The University of Newcastle, Australia. He is the co-author of eight monographs: *Control Theory,* Oliver and Boyd (1970), *Dynamic System Identification,* Academic Press (1977), *Adaptive Filtering, Prediction and Control,* Prentice Hall (1984), *Digital Control and Estimation,* Prentice Hall (1989), *Sampling in Digital Signal Processing and Control*, Birkhauser (1996), *Fundamental Limitations in Filtering and Control,* Springer (1997), *Control System Design*, Prentice Hall, (2001), *Constrained Control and Estimation, Springer*, (2004); four edited volumes, and several hundred technical papers.

Graham Goodwin is the recipient of several international prizes including the USA Control Systems Society 1999 Hendrik Bode Lecture Prize, a Best Paper award by IEEE Trans. Automatic Control, a Best Paper award by Asian Journal of Control, and Best Engineering Textbook award from the International Federation of Automatic Control. He is currently Professor of Electrical Engineering, Research Director of the Centre for Complex Dynamic Systems and Control at the University of Newcastle, Australia and a Director of National ICT, Australia. Graham Goodwin is the recipient of an ARC Federation Fellowship; a Fellow of IEEE; an Honorary Fellow of the Institute of Engineers, Australia; a Fellow of the Australian Academy of Science; a Fellow of the Australian Academy of Technology, Science and Engineering; a Member of the International Statistical Institute; a Fellow of the Royal Society, London and a Foreign Member of the Royal Swedish Academy of Sciences.

Stefan Graebe

Stefan Graebe was born in Santa Monica, California, in 1960. After being raised in Germany, he returned to California to obtain his B.Sc. (1983) and M.Sc. (1984) in Systems Science (Electrical Engineering) at the University of California, San Diego (UCSD).

In 1985 he transferred to the Royal Institute of Technology, Stockholm, Sweden, where he undertook to develop early ideas on grey-box identification – identification of non-linear stochastic systems with partial prior information. In 1990 he was awarded a Ph.D. for his work on theory and application of this topic.

Stefan spent the period of 1990-1995 at the University of Newcastle, Australia, acting as research coordinator at the Centre of Industrial Control Science (CICS). There his focus and passion lay on the development of UNAC, Graham Goodwin's idea of a rapid implementation advanced controller; he also (co-)authored some 30 publications.

Mario E. Salgado

Born in Penco, Chile, 1947. He obtained his first degree and professional title of Ingeniero Civil Electrónico from Universidad Técnica Federico Santa María (UTFSM), Valparaíso, Chile. He was awarded a M.Sc. in Control Systems from Imperial College, London and a Ph.D. in Electrical Engineering from the University of Newcastle, Australia

Since 1970, he has been an academic with the Department of Electronic Engineering, UTFSM. Since then he has spent sabbatical periods and short term academic visits at Universidad of Newcastle, Federal University of Campina Grande, Brazil, and Polytechnic University of Valencia, Spain.

During his postgraduate studies he was recipient of several scholarships including The British Council Scholarship, The University of Newcastle Research Scholarship and a Fundación Andes Scholarship.

He has published more than seventy papers in international conferences and journals. He has coauthored two books: "*Control System Design*" (Prentice-Hall, Pearson Education, USA, 2001) and "*Análisis de Sistemas Lineales*" (Prentice-Hall, Pearson Educación, Spain, to be published, 2005); he is also author of several book chapters.

His current research interests include control system design, multivariable control and system modeling.

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Technical Committee on Networked Control Formed

The IFAC Technical Board has announced plans to commence a new Technical Committee in 2005. During the past few years, dramatic advancements have been achieved within Communications and Information technology, and there is a natural synergy between Communications and Control which will be addressed by the new committee.

• Communications technology has to be used when designing and building control systems. For example, feedback loops may be closed by transferring information over communication networks.

• Control technology and control techniques are likewise essential for control of communication networks. For example, feedback control is the essence of many advanced network congestion control protocols.

The new IFAC Technical Committee will address both of these relationships: *control systems implemented with communication hardware - and communication networks designed using control techniques*. The influence of communications in control design is particularly evident in real-time embedded control systems where multiple sensors, actuators, and controllers interact by exchanging data through a single shared communication channel. Another area in which communication networks play an essential role is coordinated control (such as in coordinated control of groups of autonomous agents). The use of communications in control systems obviously achieves unique advantages, but these systems also face special challenges, e.g. quantization, transmission delays, drop-outs, noise, and limited bandwidth. This new Technical Committee will examine controller design techniques that overcome these challenges and thereby take advantage of the benefits of communications networks. On the other hand, the new committee will also address the use of control techniques to improve communications networks, such as better regulation of information packet flow, improved design of routers, source laws (TCP) and associated protocols. Obviously, the historic control tools which achieve closed loop stability are essential for networks. The new IFAC committee will especially focus on *theoretical* techniques and issues.

Professor Sandro Zampieri has been nominated as Chair for the new IFAC Technical Committee.

Prof. S. Zampieri

An organizational meeting for the committee will be held in Prague during the upcoming IFAC World Congress on Thursday, July 7, 10–12, Room A. If you are interested in the committee, and want to attend the kick-off meeting, contact Professor Zampieri to discuss your interests. His e-mail address is: zampi@pop-server.dei.unipd.it

Manufacturing Modelling, Management and Control

IFAC Conference

Athens, Greece, 21 – 22 October, 2004

The beginning of the 21st Century finds manufacturing research and technology development more relevant than ever before. The globalisation of the economy, the increasing shortage in natural resources, and the importance of the environmental issues are some of the challenges that manufacturing will be faced with in the upcoming years. Recent developments, notably in the telecommunications and information technology sectors, present manufacturing with new opportunities. If properly utilised, they can lead to lower cost, faster time-to-market and higher product quality. Modelling, Management and Control of Manufacturing Systems take a new meaning in this new technological era. The wide spread of the Internet, the electronic commerce and the other Internet based business activities, allow manufacturing companies to become global players, irrespective of their size and location. The adaptation of the manufacturing environment to this new wave of technological development represents a major challenge to the manufacturing research community. Simultaneously, the manufacturing education paradigm has to change rapidly in order to provide industry with a new breed of engineers who understand, utilise and develop new technologies in the context of the production environment.

In this context the papers of IFAC Conference on Manufacturing, Modelling, Management and Control – IFAC MiM 04, addressed topics such as Manufacturing Systems Modelling and Simulation, Manufacturing Processes Modelling, Manufacturing Systems Planning and Control, Lean Production and Agile Manufacturing, Concurrent Engineering, Supply Chain Management, Logistics and Manufacturing, Data Management, Virtual Reality and Manufacturing, Life Cycle Design and Manufacturing and Rapid Manufacturing.

Prof. George Chryssolouris, IFAC MiM 04 Conference Chair

IFAC Journals

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

Automatica
http://www.elsevier.com/wps/find/journaldescription.librarians/270/description

Control Engineering Practice
http://www.elsevier.com/wps/find/journaldescription.librarians/123/description

Engineering Applications of Artificial Intelligence
http://www.elsevier.com/wps/find/journaldescription.librarians/975/description

Journal of Process Control
http://www.elsevier.com/wps/find/journaldescription.librarians/30445/description

Annual Reviews in Control
http://www.elsevier.com/wps/find/journaldescription.librarians/429/description

Mechatronics
http://www.elsevier.com/wps/find/journaldescription.cws_home/933/description

New IFAC Journal on Mechatronics

IFAC is proud to announce that the Elsevier Journal on Mechatronics has been elevated to the status of IFAC Journal, side by side with the other IFAC Journals, i.e. Automatica, Control Engineering Practice, Annual Reviews in Control, Journal of Process Control and Engineering Applications of Artificial Intelligence.

The Mechatronics Journal is to provide rapid publication of topical papers featuring practical developments in mechatronics. It covers a wide range of application areas including consumer product design, instrumentation, manufacturing methods, computer integratgion and process and device control. Particular importance is attached to aspects of innovation in mechatronics design philosophy which illustrate the benefits obtainable by an a priori integration of funcionality with embedded microprocessor control. A major item will be the design of machines, devices and systems, possessing a degree of computer based intelligence. The Journal seeks to publish research process in this field with an emphasis on the applied rather than the theoretical. It will also serve the dual role of bringing greater recognition to this important area of engineering. More information on the Journal and subscription possibilities are available at
http://www.elsevier.com/wps/find/journaldescription.cws_home/933/description

To give you an idea of the contents of Mechatronics, below the Tables of Contents of the June and July issues

Papers from the June 2005 Issue

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Design and development of a new piezoelectric linear Inchworm actuator
Jian Li, R. Sedaghati, J. Dargahi, D. Waechter
Intelligent switching control of pneumatic actuator using on/off solenoid valves
Kyoungkwan Ahn, Shinichi Yokota
Control Architecture for the pneumatically actuated dynamic walking biped "Lucy"
B. Verrelst, B. Vanderborght, J. Vermeulen, R. van Ham, J. Naudet, D. Lefeber
Fuzzy learning tracking of a parallel cable manipulator for the square kilometre array
Y.X. Su, C.H. Zheng, B.Y. Duan
Optimum positioning of an underwater intervention robot to maximise workspace manipulability
T. Asokan, G. Seet, M. Lau. E. Low

Papers from the July 2005 Issue

Adaptive sliding mode fuzzy control for a two-dimensional overhead crane
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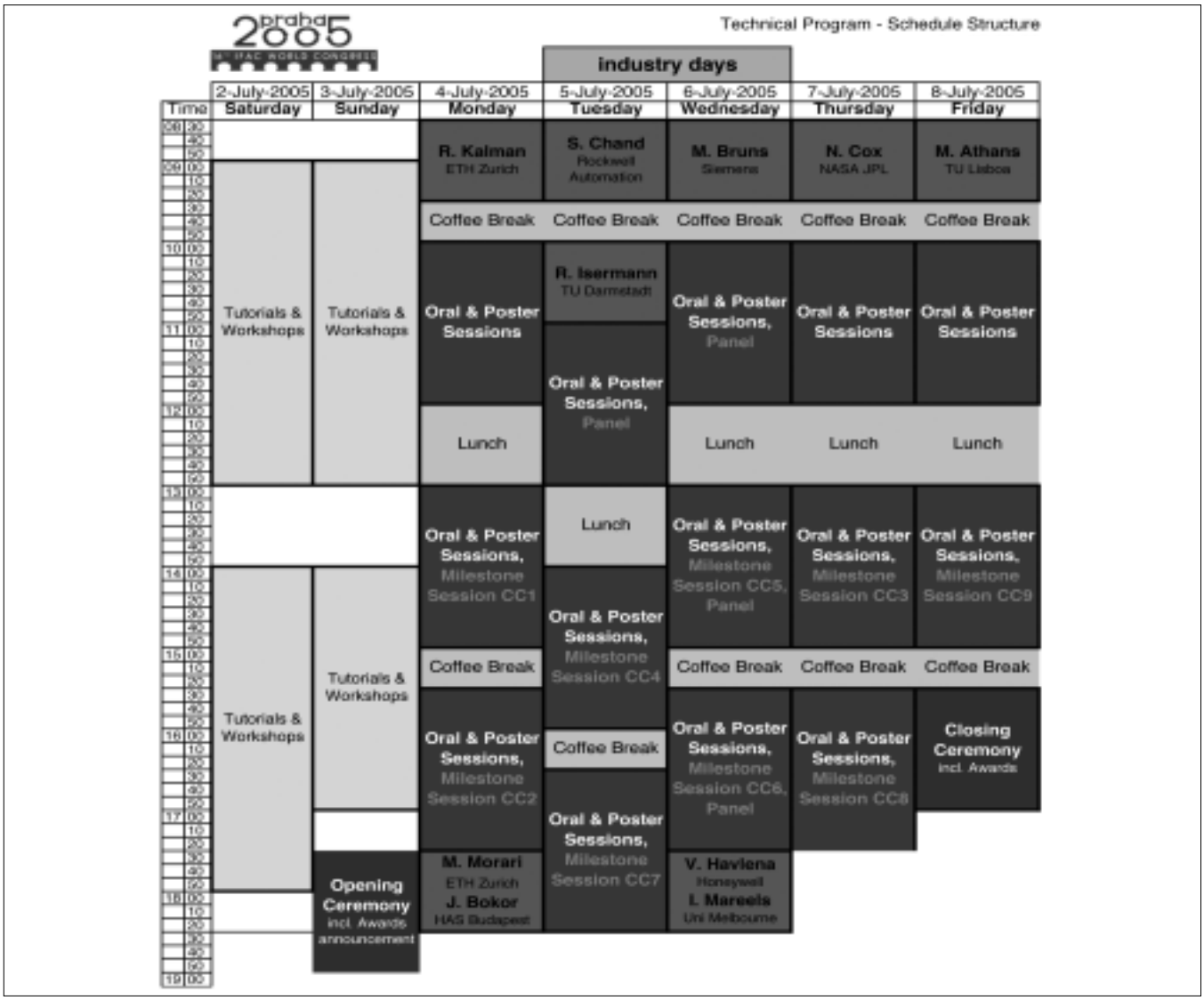
Large stroke and high precision pneumatic-piezoelectric hybrid positioning control using adaptive discrete variable structure control
Mao-Hsiumg Chiang, Chung-Chieh Chen, Tan-Ni Tsou
Strain gauge based control of single-link flexible very lightweight robots robust to payload changes
V. Feliu, F. Ramos
Design of artificial neural networks for rotor dynamics analysis of rotating machine systems
Menderes Kalkan, Sahin Yildirim, Ibrahim Uzmay
Hydraulic master-slave land mine clearance robot hand controlled by pulse modulation
Tytus Wojtara, Kenzo Nonami, Hui Shao, Ryohei Yuasa, Shingo Amano, Daniel Waterman, Yasukazu Nobumoto
Stable bilateral teleoperation under a time delay using a robust impedance control
Hyun Chul Cho, Jong Hyeon Park
Impedance control for a vehicle platoon system
Soo-Yeong Yi, Kil-To Chong

IFAC World Congress in Prague – Time Schedule of Technical Meetings



IFAC

FORTHCOMING EVENTS

2005
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Title	2005	Place	Further Information
16TH IFAC WORLD CONGRESS	**JULY 4 – 8**	**PRAGUE Czech Republic**	**http://www.ifac.cz**
CACHE/IFAC Conference Foundation of Systems Biology in Engg. – FOSBE2005	August 7 – 10	St.Barbara, CA USA	http://www.fosbe.org e-mail: craven@fosbe.org
ICINCO/IFAC Conference (2nd) Informatics in Control, Automation and Robotics	September 14 – 17	Barcelona Spain	http://www.incinco.org secretariat@icinco.org
EWICS Intl. Conference 24th Computer Safety, Reliability and Security – SAFECOMP2005	September 28 – 30	Fredrikstad Norway	http://www.safecomp.org e-mail: safecomp2005@hrp.no
IFAC Conference Fieldbus Systems and their Applications – FeT2005	November 14 – 15	Puebla Mexico	http://www.fet2005.cs.buap.mx e-mail: fet2005@cs.buap.mx
Title	**2006**	**Place**	**Further Information**
IFAC Symposium Mathematical Modelling – 5th MATHMOD	February 08 – 10	Vienna Austria	http://www.mathmod.at email: inge.troch@tuwien.ac.at
IFAC Workshop Programmable Devices and Embedded Systems - PDeS	February 14 – 16	Brno Czech Republic	http:// t b a e-mail: t b a

FORTHCOMING EVENTS (ctd.)

Title	2006	Place	Further Information
IFAC Workshop Control Applications in Post-Harvest and Processing Technology CAPPT 2006	March 26 – 29	Potsdam Germany	http://CAPPT2006.atb-potsdam.de e-mail: cappt2006@atb-potsdam.de
IFAC Symposium System Identification – SYSID 2006	March 29 – 31	Newcastle Australia	http://sysid2006.org e-mail: secretariat@sysid2006.org
IFAC Sympoisum Advanced Control of Chemical Proceses – ADCHEM 2006	April 2 – 5	Gramado Brazil	http://www.adchem.org e-mail: adchem@enq.ufrgs.br
IFAC Workshop Control Applications of Optimization	April 26 – 28	Cachan-Paris France	http:www.ens-cachan.fr/cao06 e-mail: t b a
IFAC Symposium Information Control Problems in Manufacturing – INCOM 2006	May 17 – 19	St. Etienne France	http://www.emse.fr/incom.fr e-mail: incom06@emse.fr
IFAC Symposium Automated Systems Based on Human Skill and Knowledge	May 22 – 24	Nancy France	http://www.ensgsi.inpl-nancy.fr/ASBoHS06/ e-mail: Laure.Morel@ensgsi.inpl-nancy.fr
IFAC Conference 6th Analysis and Design of Hybrid Systems ADHS'06	June 07 – 09	Alghero Italy	http://www.diee.unica.it/adhs06/ e-mail: adhs06@diee.unica.it
IFAC Symposium 7th Advances in Control Education –ACE 06	June 21 – 23	Madrid Spain	http://www.dia.uned.es/ace2006/index.html e-mail: ace2006@dia.uned.es
IFAC/IEEE Symposium Power Plant and Power System Control	June 25 – 28	Kananaskis/Alberta Canada	http://ifacpps2006.org/ e-mail: ifacPPS2006@ucalgary.ca
IFACConferences Analysis and Control of Chaotic Systems	June 28 – 30	Reims France	http:// www.univ-reims.fr/chaos06 e-mail: chaos06@univ-reims.fr
IFAC Symposium 5th Robust Control – ROCOND	July 05 – 07	Toulouse France	http://www.laas.fr/rocond06 e-mail: rocond06@laas.fr
Asian Control Conference – in cooperation with IFAC	July 18 – 21	Bali Indonesia	http://www.ascc2006.com e-mail: secretariat@ascc2006.com
IFAC Workshop Fractional Differentiation and its Applications	July 19 – 21	Porto Portugal	http://www.gecad.isep.ipp.pt/FDA06 e-mail: fda06@dee.isep.ipp.pt
IFAC Symposium Fault Detection, Supervision and Safety of Technical Processes – SAFEPROCESS	August 30 – September 1	Beijing China	http://www.au.tsinghua.edu.cn/safe/safeprocess2006/ e-mail: safeproess2006@mail.tsinghua.edu.cn
IFAC Symposium 8th Robot Control – SYROCO	September 6 – 8	Bologna Italy	http://www-lar.deis.unibo.it/syroco2006/ e-mail cmelchiorri@deis.unibo.it
IFAC Symposium Mechatronics Systems	September 12 – 14	Wiesloch Germany	http://www.mechatronics2006.com e-mail: ringelmann@vdi.de
IFAC 50th Anniversary Celebration Present and Future of Automatic Control	**September 15**	**Heidelberg Germany**	
IFAC Symposium 6th Modelling and Control of Biomedical Systems	September 20 – 22	Reims France	http://www.univ-reims.fr/mcbms06 e-mail: mcbms06@univ-reims.fr
IFAC Workshop Automation in Mining, Mineral and Metal Processing	September 20 – 22	Cracow Poland	http://konferencje.polsl.pl/IFAC2006 e-mail: IFAC2006@polsl.pl
IFAC Workshop Energy Saving Control in Plants and Buildings	October 2 – 10	Bansko Bulgaria	http:// t b a e-mail: t b a
IFAC Workshop Nonlinear Model Predictive Control for Fast Systems (NMPC_FS'06)	October 9 – 11	Grenoble France	http:// www.lag.ensieg.inpg.fr/NMPC_FS06/ e-mail: NMPC_FS@lag.ensieg.inpg.fr
Title	**2007**	**Place**	**Further Information**
IFAC Symposium Computer Applications in Biotechnology – CAB-10	June 4 – 6	Cancun Mexico	http:// tba e-mail: t b a
IFAC Symposium Dynamics and Control of Process Systems – DYCOPS-8	June 6 – 8	Cancun Mexio	http:// tba e-mail: t b a
IFAC Symposium 12th Automation in Mining, Mineral and Metal Processing – MMM	August 21 – 24	Quebec City Canada	http:// t b a e-mail: t b a
IFAC Symposium Nonlinear Control Systems	August 22 – 24	Pretoria South Africa	http:// www.nolcos2007.org.za e-mail: noc@nolcos2007.org.za
Title	**2008**	**Place**	**Further Information**
17th IFAC WORLD CONGRESS	**July 6 – 11**	**Seoul Korea**	**http://www.ifac2008.org e-mail: Secretariat@ifac2008.org**