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No. 3  
June

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## San Francisco - Here We Come

### 13th IFAC World Congress

San Francisco, USA, 30 June - 5 July, 1996

The final preparations for the IFAC World Congress are at full swing now. The National Organizing Committee held a meeting on May 3 and 4 at the Congress hotel, inspected the facilities and consulted with hotel personnel. The hotel is located in the heart of San Francisco, perhaps the most exciting city in the United States. The hotel facilities are excellent and it is very good to have everything literally under one roof. The hotel will house not only the technical sessions (including the plenaries and the poster sessions) but also the opening and closing ceremonies and receptions, the Congress dinner (American barbecue) and the technical exhibition. The only potential problem foreseen at this time is that, because of the way the session rooms are set up, some rooms may be a bit tight at some times. So our advice is that if you plan to attend a popular session, be there early to secure a (good) place.

The number of advance registrations is about 1300; a part of them is still being processed. Of these, about 850 are from outside the US and Canada. With more registrations being expected on the spot, we are looking forward to a well attended Congress.

The Final Program is ready and will be available to all participants as part of their registration package. Those needing an advance copy may obtain one by mail, by sending an e-mail request to

tarn@wurobot.wustl.edu

The Final Program contains the detailed listing of the 1414 papers by session, together with an author's index. There have been very few changes relative to the Advance Program; these are listed below:

The title of the Plenary Paper by Brian D.O. Anderson has been changed to:

From Youla-Kucera to Identification, Adaptive and Nonlinear Control

A new special session has been added (Wednesday morning, Track N)

Fiscal Means by Reducing Unemployment in a Developed Economy, by John F. Coales, Cambridge University

A new panel discussion has been added (Monday afternoon, Track E)

Artificial Hearts - A Challenge to Control Engineers

The panel discussion on Standards in the Control Industry has been cancelled.

More information about the technical program and other details can be obtained electronically from the IFAC Congress homepage:

<http://web.eecs.nwu.edu/~ahaddad/ifac96.html>

or via anonymous ftp from:

<ftp://eecs.nwu.edu/directory/pub/ifac96>

The publications are in good shape. The full material has been collected; 34 of the 1414 papers were not received. The material has been compiled into 17 subject volumes and is ready for printing. The Plenary Volume will contain a cumulative contents list and indexes (by author and subject) for all volumes. The preparation of the CD-ROM is also in progress.

The committees selecting the winners of the Congress Prizes (Applications Paper Prize, Young Author Prize, Poster Prize) are working diligently and have made good progress in the selection process. Similarly, the Financial Aid Committee has, in a great effort, selected those authors from developing and financially strained countries who will receive stipends or reduced registration.

Janos Gertler

Editor of Congress Proceedings

# The Technical Board Chairman Reports

## Excerpts from the Triennial Report 1993 – 1996

# Control Engineering Practice

## Volume 4, Number 6, June 1996

Preview:

An Industrial Dead-Time Compensating PI Controller  
(T. Häggglund)  
Stochastic Optimal Controllers for a DC Servo Motor: Applicability and Performance  
(L. Moreno, L. Acosta, J.A. Méndez, A. Hamilton, G.N. Marichal, J.D. Piñero and J.L. Sanchez)  
A Kinetic Model for the Penicillin Biosynthetic Pathway in *Penicillium Chrysogenum*  
(J. Nielsen and H.S. Jørgensen)  
Intelligent Control for a Plant Production System  
(T. Morimoto, K. Hatou and Y. Hashimoto)  
Self-Tuning of a PI Controller Using Fuzzy Logic, for a Construction Unit Testing Apparatus  
(M. Berger)  
Nonlinear Controllers for Vibration Suppression in a Large Flexible Structure  
(F. Casella, A. Locatelli and N. Schiavoni)  
Frequency Domain Approach to Self-Tuning PID Control  
(W.K. Ho, C.C. Hang, W. Wojsznis and Q.H. Tao)  
Adaptive Control of Bilinear Systems with Bounded Disturbances, and its Application  
(Yihui Jin, Xi Sun and Chongzi Fang)

**Papers from the 13th Workshop on Distributed Computer Control Systems (DCCS'95)**  
(Guest Editor: A.E.K. Sahrui)

Preface to the Papers from the 13th Workshop on Distributed Computer Control Systems (DCCS'95)  
(A.E.K. Sahrui)  
Integration of Wireless Mobile Nodes in MAP/MMS  
(P. Morel and J.-D. Decotignie)  
Dynamic Task Mapping in a Real-Time Controller for Distributed Cooperating Robot Systems  
(T. Lueth, T. Laengle and J. Heinzman)  
Multiagent-Based Control Systems: A Hybrid Approach to Distributed Process Control  
(J.R. Velasco, J.C. González, L. Magdalena and C.A. Iglesias)  
On the Complementary Nature of Event-Driven and Time-Driven Models  
(F. De Paoli and F. Tisato)  
Asynchronous and Synchronous Approaches for Programming Distributed Control Systems Based on Standards (R. Schoop and A. Strelzoff)  
Concepts and Analysis of an ATM-Based Communication Transfer Protocol for Distributed Real-Time Systems  
(R. Belschner and M. Lehmann)  
Co-Specification for Co-Design in the Development of Avionics Systems  
(A.E.K. Sahrui, M. Romdhani, A. Jeffroy and A.A. Jerraya)

### IFAC Meeting Papers – Keyword Listing

Human-Oriented Design of Advanced Robotics Systems, September 1995, Vienna, Austria  
Artificial Intelligence in Real-Time Control November 1995, Bled, Slovenia  
Control Education and Technology Transfers September 1995, Parana, Brazil

Index of IFAC Meeting Papers

Book Reviews

Conference Calendar

Since the last triennial World Congress of IFAC, the Federation has undergone a substantial reorganization of its technical structure. Without prejudicing a thorough evaluation of the new structure by the General Assembly and other IFAC bodies, a few general remarks seem to be in place.

The major task to be undertaken in the first year after the changes were made in the IFAC Constitution, was the administrative implementation of the new structure. Thus, in January 1994, 46 Technical Committees were created and grouped in 9 Coordinating Committees. The Technical Committees by and large correspond to the former Working Groups, which were elevated to Technical Committee level, thus giving them more visibility. The Coordinating Committees are a vital link between the Technical Board and its Technical Committees in the new structure. The structure of these committees is not considered to be fixed forever. An amount of overlap in the scopes of the existing committees or the need for new committees in emerging fields should call for changes. A list of the Coordinating Committees and of the Technical Committees is regularly published in the IFAC Journals and in other IFAC publications.

During the second year, the emphasis was on technical events. The third year was dominated by the preparation of the technical program for the Congress in San Francisco. Careful consideration has been given to tuning up the structure of the Coordinating- and Technical Committees.

The field of automatic control is a discipline with a relatively short history and a rapid development. The areas of adaptive systems, control design, computers in control, and system identification continued to enjoy highest popularity. The most dynamically developing areas are those of non-linear systems, automotive control, chemical process control and biomedical engineering. On the other hand, large scale systems, manufacturing technology, economic and management systems as well as the social aspects of automation suffered a slight loss of popularity in terms of IFAC Affiliates. IFAC puts due emphasis on control education. This vital field is promoted through technical meetings, awards and publications. New fields of interest for IFAC are fuzzy and neural systems.

One of the main responsibilities of the Technical Board is to identify the need for technical exchanges in certain fields and to solicit, sponsor and evaluate the resulting technical meetings hosted by NMOs. In total, the following number of meetings has been held during the triennium:

- 23 Symposia (as identified in the Master Plan)
- 8 Conferences
- 32 Workshops
- 4 Regional Conferences (American-, Asian- and European Control Conferences) which are organized in cooperation with IFAC
- 26 co-sponsored events

2 meetings have been approved to be held in 1996 and 15 for 1997. Currently, 11 applications are pending. The most active NMOs in hosting technical meetings (time-span 1980 – 1995) include the USA, France, the UK, Germany, Austria, Japan and China, P.R.

The quality of technical meetings is monitored and evaluated by the Chairman and the members of the Technical Board. The quality of technical papers is good. In an attempt to further improve this quality, the Technical Board in 1995 and subsequently also the Council agreed that paper submission for Symposia and Conferences will in the future be on

full draft paper basis. For Workshops this is at the discretion of the organizers.

IFAC is concerned with the registration fees of its technical meetings. A new application form for IFAC sponsored meetings was prepared by the Technical Board and by the Secretariat in 1995. The new form asks for a whole range of registration fees as well as other cost details regarding the meals and accommodation. The organizers of technical meetings are encouraged to offer a limited number of low registration fees for students. Any changes of fees are subject to advance approval to be sought through the IFAC Secretariat. The IFAC bodies are very strict concerning adherence to these regulations. In one case, an organizer failed to obtain approval for the considerable increase of the registration fee and subsequently ignored the request to reduce the fee. As a consequence no events will obtain IFAC approval in this country for three years following the event in question.

The Technical Board has been directly involved in the preparation of the technical program for the 13th IFAC World Congress in San Francisco. These activities included the call for papers, call for workshops, list of keywords, program structure and paper reviews by the Technical Committees.

The efficiency of the new structure of the Technical Board will depend to a large extent on the Coordinating Committees. A training session for the new chairpersons of the Coordinating and Technical Committees is organized during the World Congress, prepared by the Technical Board.

More than one thousand control scientists and engineers have been involved in the Technical Board activities through its various committees. I wish to thank them all for being an essential part of IFAC.

Vladimir Kucera, Vice-President  
Chairman, Technical Board

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# FORTHCOMING EVENTS

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 No. 3  
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Title	1996	Place	Deadline	Further Information
<b>IFAC WORLD CONGRESS</b>	<b>JUNE 30 - JULY 5</b>	<b>SAN FRANCISCO USA</b>	-	<b>IFAC '96</b> <b>POB 111, Mabelton GA 30059 USA</b> <b>Phone +1/708/491-3641</b> <b>FAX +1/708/491-4455</b> <b>e-mail: ifac96@nwu.edu</b>
<b>14th Triennial IFORS Conference OR Bridging the Theory and Practice of Decision Making</b>	<b>July 8 - 12</b>	<b>Vancouver B.C., Canada</b>	-	<b>IFORS Conference</b> <b>Venue West Conference Services Ltd.</b> <b>645-375 Water Street</b> <b>Vancouver, BC, Canada V6B 5C6</b> <b>FAX +1/604 681-2503</b>
<b>1996 Latin American Control Conference (in cooperation with IFAC)</b>	<b>Sept. 9 - 13</b>	<b>Buenos Aires Argentina</b>	-	<b>J.P. Weiz - J. Paiuk</b> <b>AADECA</b> <b>Callao 220 lo "B"</b> <b>1022 Buenos Aires, Argentina</b> <b>FAX +54 1 372 6746</b> <b>e-mail aadeca@satlink.com</b>
<b>IFAC/IFIP Workshop (21st) Real Time Programming</b>	<b>Nov. 4 - 6</b>	<b>Canela Brazil</b>	-	<b>Dr. Carlos E. Pereira</b> <b>UFRGS, El. Engg. Dept.</b> <b>Av. Osvaldo Aranha esq. Sarmento Leite, CEP 90035 - RS</b> <b>Porto Alegre - RS, Brazil</b> <b>FAX +55/51 227 5715</b> <b>e-mail: cpereira@iee.ufrgs.br</b>
<b>IEEE/IFAC Workshop Variable Structure Systems VSS '96</b>	<b>Dec. 5 - 6</b>	<b>Kobe Japan</b>	<b>15 August 1996</b>	<b>Prof. Hideki Hashimoto</b> <b>Institute of Hashimoto Science</b> <b>University of Tokyo</b> <b>7-22-1, Roppongi, Minato-ku</b> <b>Tokyo 106, Japan</b> <b>FAX +81/3/3402-6231*2359</b> <b>e-mail: hashimoto@iis.u-tokyo.ac.jp</b> <b>WWW:</b> <b>http://dfs.iis.u-tokyo.ac.jp/VSS96</b>
Title	1997	Place	Deadline	Further Information
<b>IFAC/IFIP/IFORS Workshop Manufacturing Systems Modelling Management and Control</b>	<b>Feb. 3 - 5</b>	<b>Vienna Austria</b>	<b>31 Aug. 1996</b>	<b>Prof. Peter Kopacek</b> <b>Technical University of Vienna</b> <b>Floragasse 7 a, A-1040 Vienna, Austria</b> <b>FAX +43/1/504 18359</b> <b>e-mail:</b> <b>kopacek@ihrt1.ihrt.tuwien.ac.at</b>
<b>IMACS/IFAC Symposium (2nd) Mathematic Modelling MATHMOD '2</b>	<b>Feb. 5 - 7</b>	<b>Vienna Austria</b>	<b>1 May 1996</b>	<b>Prof. I. Troch</b> <b>Technical University of Vienna (E114/5)</b> <b>Wiedner Hauptstrasse 8 - 10</b> <b>A-1040 Vienna, Austria</b> <b>FAX +43/1/586 8093</b> <b>e-mail: itroch@email.tuwien.ac.at</b>
<b>IFAC Symposium (3rd) Modelling and Control of Biomedical Systems including Biological Systems</b>	<b>March 23 - 26</b>	<b>Warwick UK</b>	<b>May 1996</b>	<b>Prof. K. Godfrey, Dept. of Engineering</b> <b>University of Warwick</b> <b>Coventry CV4 7AL, UK</b> <b>FAX +44/1203/418922</b> <b>kgf@eng.warwick.ac.uk</b>
<b>IFAC Workshop Algorithms and Architectures for Real-Time Control</b>	<b>April 9 - 11</b>	<b>Vilamoura Portugal</b>	<b>15 Sept. 1996</b>	<b>Prof. A.E. de Barros Ruano</b> <b>Unidade de Ciencias Exactas e Humanas</b> <b>Universidade do Algarve</b> <b>Campus de Gambelas</b> <b>P-8000 Faro, Portugal</b> <b>FAX +351/89/818560</b> <b>e-mail: aruano@mozart.si.ualg.pt</b>
<b>IFAC/IEEE Symposium Computer-Aided Control Systems Design - CACSD 97</b>	<b>April 28-30</b>	<b>Ghent Belgium</b>	<b>1 Oct. 1996</b>	<b>Prof. Luc Boullart</b> <b>University of Ghent, Campus Ardoyen</b> <b>Technologiepark - Zwijnaarde, 9</b> <b>B-9052 Zwijnaarde, Belgium</b> <b>FAX +32/9/264 5839</b> <b>e-mail: boullart@autoctrl.rug.ac.be</b>
<b>IFAC Conference Control of Industrial Systems</b>	<b>May 20 - 22</b>	<b>Belfort France</b>	<b>20 May 1996</b>	<b>Dr. Michel Ferney, ENIB, BP 525</b> <b>F-90016 Belfort, France</b> <b>FAX +33/84582342</b>
<b>IMEKO/IFAC Congress New Measurements - Challenges and Visions</b>	<b>June 1 - 6</b>	<b>Tampere Finland</b>	<b>15 May 1996</b>	<b>XIV IMEKO Secretariat</b> <b>Finnish Society of Automation</b> <b>Asemapäälikönkatu 12 C</b> <b>SF-00520 Helsinki, Finland</b> <b>FAX +358 9 1461 650</b> <b>e-mail: atufin@ibm.net</b>

# FORTHCOMING EVENTS (ctd.)



1997 American Control Conference (in cooperation with IFAC)	June 4 - 6	Albuquerque NM, USA	15 Sept. 1996	Prof. A. Haddad AACC Secretariat, Dept. of EECs Northwestern University 2145 Sheridan Road Evanston, IL 60208-3118, USA FAX +1/708/491-4455 e-mail: ahaddad@eecs.new.edu
IFAC Symposium (3rd) Intelligent Components and Instruments for Control Applications – SICICA 97	June 9 - 11	Anney France	1 Sept. 1996	Prof. Laurent Foulloy LAMII/CESALP, BP 806 F-74016 Anney, France FAX +33/50 66 60 63 e-mail: foulloy@univ-savoie.fr
IFAC Symposium Advanced Control in Chemical Processes – ADCHEM 97	June 9 - 11	Banff Canada	2 Sep. 1996	Prof. Sirish L. Shah Dept. of Chemical Engineering University of Alberta, Edmonton, Alberta, T6G 2G6 Canada FAX +1/403/492-2881 e-mail: Sirish.Shah@UAlberta.Ca
IFAC/(IFIP/IFORS) Symposium (8th) Transportation Systems	June 16-18	Chania Crete, Greece	31 July 1996	Prof. Markos Papageorgiou Dynamic Symstems and Sim. Lab. Technical University of Crete GR-73100 Chania, Greece FAX +30/821 69410 e-mail:ts97@dssl.tuc.gr
Intl. Conference Transition to Advanced Market Institutions and Economies: Systems and Operations Research Challenges	June 18 - 21	Warsaw Poland	15 June 1996	Prof. Roman Kulikowski Systems Research Institute Polska Akademia Nauk ul. Newelska 6 PL-01-447 Warsaw, Poland FAX: +48/22/372772 e-mail: ibs@ibspan.waw.pl
IFAC Symposium Robust Control Design	June 25-27	Budapest Hungary	30 Sept. 1996	Ms. Csilla Banyasz Computer and Automation Res. Inst. POB 63, H-1518 Budapest, Hungary FAX +361/1667 503 e-mail: h10kev@huella.bitnet
1997 European Control Conference (in cooperation with IFAC)	July 1 - 4	Brussels Belgium	1Sept. 1996	M. Gevers/G. Bastin CESAME, Batiment Euler B-1348 Louvain la Neuve, Belgium FAX +32/10/472 180 e-mail: gevers@auto.ucl.ac.be
IFAC Workshop Singular Solutions and Perturbations in Control Systems	July 7 - 11	Pereslavi- Zalessky Russia	1 April 1996	Prof. Michael G. Dmitriev Program Systems Inst. of R A S m Botik 152140 Pereslavl-Zalessky, Russia FAX 08535/20593 e-mail: dmitriev@spoc.botik.yaroslavl.su
IFAC/(IFORS) Symposium (11th) System Identification – SYSID '97	July 8 - 11	Fukuoka Japan	1 Sept. 1996	SYSID'97 Secretariat: Mrs. Y. Hayashi Fukuoka Institute of Technology 3-30-1 Wajiro-higashi, Higashi-ku Fukuoka 811-02, Japan FAX +81/92-606 1342 y-hayashi@dw.ee.fit.ac.jp
IFAC Symposium (4th) Advances in Control Education ACE 97	July 14-16	Istanbul Turkey	15 Oct. 1996	Prof. A. Talha Dinibütün Istanbul Technical University Mech. Engg. Faculty Gümüssuyu 80191, Istanbul, Turkey FAX +90/212-245 0795 e-mail: mkd nib@tritu.bitnet
IFAC Workshop Intelligent Manufacturing Systems	July 21 - 23	Seoul Korea	30 Nov. 1996	Prof. Hyung Suck Cho Dept. of Mechanical Engineering Korea Advanced Inst. of Science & Technology 373-1, Kusong-dong, Yusung-gu Taejon 305-701, Korea FAX +82/42 869 3210 e-mail: hscho@lca.kaist.ac.kr
1997 Asian Control Conference (in cooperation with IFAC)	July 22-25	Seoul Korea	1 Sept. 1996	Prof. Dong-il Cho, 1997 ASCC Secretariat Automation and Systems Res. Institute Seoul National University, Bldg. 133 Kwanak-ku, Shinrim-dong, San 56 - Seoul 151-742, Korea, Rep. FAX +82/2/889-4239 e-mail: ascc@asri.snu.ac.kr

## FORTHCOMING EVENTS (ctd.)

Title	1998	Place	Deadline	Further Information
IFAC Workshop Distributed Computer Control Systems	July 28 - 30	Seoul Korea	30 Nov. 1996	Prof. Wook Hyun Kwon Dept. of Control & Instrumentation Engg. Seoul National University San 56-1, Shillim-dong, Kwanak-gu Seoul 151-742, Korea FAX +82/2/ 888 4182 e-mail: whkwon@cisl.snu.ac.kr
IFAC/CIGRE Symposium Control of Power Plants and Power Systems	August 18 - 21	Beijing China, P.R.	31 May 1996	Chinese Association of Automation POB 2728, Beijing 100080, China FAX +86/10/25 45 229
IFAC Symposium Fault Detection, Supervision and Safety for Technical Processes – SAFEPROCESS '97	August 26 - 28	Hull UK	15 Oct. 1996	Prof. Ron Patton, Dept. of El. Engg. The University of Hull Cottingham Rd., Hull HU6 7RX, UK FAX +44/1482/466006 e-mail: r.j.patton@e-eng.hull.ac.uk
IFAC Symposium Robot Control	Sept. 3 - 5	Nantes France	30 Jan 1997	Prof. W. Khalil LAN - Ecole Centrale de Nantes F-44072 Nantes Cedex, France FAX +33 7657 4754 e-mail: khalil@lan.ec.nantes.fr
IFAC Workshop New Trends in Design of Control Systems	Sept. 7 - 10	Smolenice Slovakia	31 Jan. 1997	IFAC Workshop '97 Ms. Alena Kozakova, Fac. of El.Engg. Ilkovicova 3 SK-81219 Bratislava, Slovakia FAX +42/7/ 72 97 34 e-mail: ntdcs@kasr.elf.stuba.sk
IFAC Conference Manoeuvring and Control of Marine Craft – MCMC '97	Sept. 10 - 12	Brijuni Croatia	1 Feb. 1997	Prof. Z. Vukic University of Zagreb, Unska 3 Fac. of El. Engg. and Computing HR-1000 Zagreb, Croatia FAX +385/1/6129809 e-mail: zoran.vukic@fer.hr
IFAC Symposium (6th) Automated Systems Based on Human Skill – Joint Design of Technology and Organization	Sept. 17 - 19	Kranjska gora Slovenia	25 Sept. 1996	Dr. Janko Cernetic J. Stefan Institute, POB 3000 Jamova 39, SLO-1001 Ljubljana, Slovenia FAX +386/61/219 385 e-mail: janko.cernetic@ijs.si
IFAC Symposium AI in Real-Time Control – AIRTC 97	Sept. 23 - 25	Kuala Lumpur Malaysia	1 Dec. 1996	Dr. Marzuki Bin Khalid B.A.T.C., Universiti Teknologi Jalan Semarak 54100 Kuala Lumpur, Malaysia FAX +603/2911294 e-mail: marzuki@batserv.batc.utm.my
IFAC/(ISHS) Workshop (3rd) Mathematical and Control Applications in Agriculture and Horticulture	Sept. 28 - Oct. 2	Hannover Germany	31 Dec. 1996	VDI-VDE GMA, POB 10 11 39 D-40002 Düsseldorf, Germany FAX+ 49/211/6214-161
IFAC Conference System Structure and Control	Oct. 23 - 25	Bucharest Romania	1 June 1997	Prof. Dumitru Popescu Splaiul Independentei 313 Bucharest 6, Romania e-mail: dpopescu@indinf.pub.ro
EPS/IFAC Intl. Conference Accelerator and Large Experimental Physics Control Systems ICALEPCS 97	Nov. 4 - 7	Beijing China, P.R.	*	Prof. Jijiu Zhao Institute of High Energy Physics, POB 918 (10) Beijing, 100039, China, P.R. FAX +86/10/ 821 3374. e-mail: icalepcs@bepc2.ihep.ac.cn
IFAC Symposium Intelligent Autonomous Vehicles – IAV	March 25 - 27	Madrid Spain	*	Prof. Carlos Balaguer Universidad Carlos III de Madrid Depto de Ingenieria, c/Butarque 15 E-28911 Leganes, Madrid, Spain FAX +34 1 624 9430 e-mail: balaguer@ing.uc3m.es
IFAC Symposium Information Control Problems in Manufacturing – INCOM '98	June 24 - 26	Nancy France	8 Sept. 1997	INCOM '98/CRAN-GGP Faculté des Sciences Université Henri Poincaré Nancy I, BP 239 F-54506 Vandoeuvre les Nancy FAX +33/83 91 21 26 e-mail: incom98@cran.u-nancy.fr
IFAC Symposium Low Cost Automation LCA 98	Sept. 8 - 10	Shenyang China, P.R.	1 Oct. 1997	Prof. Chen Zhen-Yu LCA 98 Secretariat, POB 919 Beijing 100081, China, P.R. FAX +86/10/381 6990

## Papers

- Explicit Feedbacks Stabilizing the Attitude of a Rigid Spacecraft with Two Control Torques (J.-M. Coron, El-Yazid Kerai)  
PID Control in the Presence of Static Friction: A Comparison of Algebraic and Describing Function Analysis (B. Armstrong, B. Amin)  
On Approximation of Stable Linear Dynamical Systems Using Laguerre and Kautz Functions (B. Wahlberg, P.M. Mäkilä)  
Canonical Correlation Analysis, Approximate Covariance Extension, and Identification of Stationary Time Series (A. Lindquist, G. Picci)  
Tracking Controller for Systems Linear in the Unmeasured States (R.A. Freeman, P.V. Kokotovic)  
Impulsive-Smooth Behavior in Multimode Systems Part I: State-space and Polynomial Representations (A.H.W. Geerts, J.M. Schumacher)  
A Tradeoff Between Period and Order of Linear Periodic Stabilizing Compensators (D.E. Miller)

## Brief Papers

- Design of Discrete Integral Variable Structure Control Systems and Applications to a Brushless DC Motor Control (Tzuen-Lih Chern, Chin-Wen Chuang, Rong-Lin Jiang)  
Use of PRESS Residuals in Dynamic System Identification (Liuping Wang, W.R. Cluett)  
Learning Strictly Positive Real Linear Systems with Uncertain Parameters and Unknown Input Disturbances (Tae-Yong Kuc, Jin Soo Lee)

## Technical Communiqués

- Weighted Minimum Uncertainty Prediction Control (A. Tzes, Ke Li)  
Estimation of Asymptotic Stability Region and Sliding Domain of Uncertain Variable Structure Systems with Bounded Controllers (Kuo-Kai Shyu, Shang-Ru Chen)

## Papers

- New Stability/Performance Results for Singularly Perturbed Systems (L. Saydy)  
Impulse-Smooth Behavior in Multimode Systems Part II: Minimality and Equivalence (A.H.W. Geerts, J.M. Schumacher)  
A Robust MRAC Using Variable Structure Design for Multivariable Plants (Chang-Ju Chien, King-Chuan Sun, A-Chen Wu, Li-Chen Fu)  
The Problem of Pole-Zero Cancellation in Transfer Function Identification and Application to Adaptive Stabilization (M.C. Campi)  
Models and Languages for the Interoperability of Smart Instruments (M. Starowswiecki, M. Bayart)

- Test for Local Structural Identifiability of High-order Non-Linearly Parametrized State Space Models (H.G.M. Dötsch, P.M.J. Van den Hof)  
Subspace-based Identification of Infinite-dimensional Multivariable Systems from Frequency-response Data (T. McKelvey, H. Akçay, L. Ljung)

## Brief Papers

- Adaptive Control of Induction Motors without Flux Measurement (C.M. Kwan, F.L. Lewis, K.S. Yeung)  
An IV Based Criterion for Model Order Selection (Hoai Nghia Duong, Ioan Doré Landau)  
Global Asymptotic Stabilization of General Nonlinear Systems with Stable Free Dynamics via Passivity and Bounded Feedback (Wei Lin)  
Constructing Discontinuity Surfaces for Variable Structure Systems: A Lyapunov Approach (Wu-Chung Su, S.V. Drakunov, Ü. Özgüner)  
Disturbance Attenuation via State Feedback for Systems with a Saturation Nonlinearity in the Control Channel (Wei Zhan, Le Yi Wang)

## Technical Communiqués

- Linear Controller for an Inverted Pendulum Having Restricted Travel: A High- and Low-Gain Approach (Zongli Lin, A. Saberi, M. Gutmann, Y.A. Shamash)  
Force/Position Regulation for Robot Manipulators with Unmeasurable Velocities and Uncertain Gravity (A. Loria, R. Ortega)

## Book Reviews

- Feedback Control Systems, by John van de Vegte (H.L. Trentelman)  
Modeling of Dynamic Systems, by Lennart Ljung and Torkel Glad (J. Stecha)  
Control of Uncertain Systems, by Dahleh and Diaz Bobillo (A. Rantzer)  
Iterative Learning Control for Deterministic Systems, by Kevin L. Moore (G. Honderd)

## Experience with the Management of Software Projects – MSP '95 5th International Workshop Karlsruhe, Germany 27 – 29 September, 1995

The Workshop took place at the University of Karlsruhe, with Professor Dr. P. Elzer, speaker of the GI-working group "Management of Software Projects" (in technical committee 2.1.1 "Software Engineering") as scientific chairperson. Dr. R. Richter, speaker of the technical committee 5.1.2 "Project-Management", was chairman of the national organizing committee. The aim of this series of workshops has been to exchange ideas and experience between all people involved in software projects. Since 1986 a workshop took place almost every two years on the average. This year's Workshop was attended by 53 participants from 12 countries. The high number of participants with practical experience was particularly satisfying.

The program of the Workshop consisted of four invited and eighteen submitted papers. The main topics were: models of the software development process, productivity in software development, measures to increase quality as well as a stronger orientation of software towards business processes. Before the Workshop proper, two half-day tutorials took place.

Many participants expressed the opinion that software development projects were often regarded from the too narrow point of view of software technology and therefore crucial management aspects were often neglected. Therefore one should concentrate on:

- How are projects to be planned and carried out?
- What organizational know-how is important?
- How can interdisciplinary groups be led and motivated?
- How can software technology and management cooperate better?

The Postprints of the Workshop will be published by Elsevier Science

R. Richter, Chairman NOC  
P. Elzer, Chairman IPC

## Meeting Schedule General Assembly Council- and Related Meetings San Francisco, USA 27 June – 6, July, 1996

In the framework of this year's World Congress, the General Assembly, the IFAC Council and all other bodies of IFAC will hold their administrative Meetings. Below find a survey over the most important meetings scheduled within that period.

Date	Meeting	Time
28 June Friday	Technical Board (outgoing)	09,00 - 12,00 14,00 - 18,00
29 June Saturday	Executive Board (outgoing)	09,00 - 12,00
	Council (outgoing)	13,00 - 18,00
30 June Sunday	Council (outgoing ctd)	09,00 - 12,00
	Congress Opening	afternoon
1 July Monday	General Assembly	13,00 - 18,00
	Inaugural mtgs	18,00 - 19,00
6 July	Technical Board (incoming)	09,00 - 11,00
	Executive Board (incoming)	11,00 - 12,00
	Council (incoming)	13,00 - 16,00

In this period also all Executive Committees and the Coordinating Committees will meet. As a special feature, there will be a training session for all incoming CC and TC Chairpersons, following the inaugural meetings after the General Assembly on Monday, 1 July, starting at 19,00. If you wish to receive a more detailed schedule of the IFAC Committee meetings, please write, fax or e-mail your request to the IFAC Secretariat. You can also obtain a list of the IFAC meetings from the IFAC96 Congress homepage