



1986
No. 5
Oct.

International Federation of Automatic Control

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Newsletter

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This Newsletter may be reproduced in whole or in part. We encourage reprinting in national and local automatic control periodicals. Acknowledgement to IFAC would be appreciated.

Editor: Gusztáv Hencsey
Layout: Margaret A. Gottfried
published bimonthly

Annual IFAC Meetings in Zürich

The IFAC Council, Boards and Committee meetings were held in the world famous "Eidgenössische Technische Hochschule" (ETH) in conjunction with the 4th IFAC/IFORS Symposium on Large Scale Systems: Theory and Applications.

Before the Council Meeting on August 31, the following IFAC bodies held their sessions: Technical Committees on APCOM, DECOM, EDCOM, MOC, AEROSPACE, SECOM, TERM & STAND; the International Programme Committee of the 1987 IFAC World Congress; Policy, Publications and Finance Committees, Publications Managing Board, Automatica Editorial Board, Technical Board and Executive Board.

The preparations for the Munich World Congress went into their final stage. The IPC meeting was in the focus of attention and the organizers' report again confirmed that our next World Congress is certainly going to be a success. We will come back to the decision of the IPC meeting and to the scientific programme in one of the next issues of the Newsletter.

The reports of the President, the Treasurer, the Secretary, the Technical Board Chairman and the Executive Board Chairman were unanimously accepted at the Council Meeting together with IFAC's budget for 1987. The President highlighted the sound finances of IFAC due to publications income and stated that no increase in membership fees seemed to be required for the moment. The Council accepted a proposal of the Policy Committee Chairman on definitions and award procedures of new IFAC Prizes such as Applications Paper Prize, Young Author Prize and IFAC Control Engineering Textbook Prize. The Council discussed the proposal of the Elections Committee on nominations for 1987-1990 and accepted the list of candidates which will be sent to the NMOs.

Concerning IFAC Symposia and Workshops the Technical Board took measures to improve the quality of the technical meetings. As regards to the number of meetings, it was proposed that no restriction be made but that the scope of events should be narrowed.

cld. p. 2



B.D.O Anderson (AUS)
(Vice-President)

From left to right:
M. Thoma (FRG)
(President)

B. Tamm (SU)
(President-Elect)



From left to right: A. Niemi (SF), A. Fossard (F), H. Akashi (J), I. Sharkass (ET), W. E. Miller (USA).

ctd. from p. 1

The problem of no-show authors was also raised by both the Executive and Technical Board chairmen. After a lively discussion the Council decided to collect statistics from the organizers, specifying no-show authors by countries with and without explanations so that the President can advise the Council and the General Assembly on how to proceed in such cases.

The organizers of the forthcoming IFAC World Congresses informed the Council about the preparations. The IPC chairman of the Tallinn (SU) Congress will be Professor V. Utkin and the date was fixed with August 12—19, 1990. In 1993, the World Congress will be held in Sydney (AUS) with Prof. G. Goodwin as IPC chairman.

In the last round before the decision two NMOs presented two beautiful towns to compete for the 1996 IFAC World Congress, i.e. Spain (Barcelona) and USA (San Francisco). Both of them had done a good job of preparing everything necessary for a successful organisation of this highlight of IFAC.

The Council faced a difficult decision. Finally, as a result of a secret ballot, the US NMO invitation was accepted with a simple majority. The President thanked the Spanish NMO for their excellent preparatory work.

The IFAC Council established a Committee for the Support of Control Engineering Education in Developing Countries chaired by the EDCOM Chairman. For further details please refer to the article on page 5.

The IFAC Council discussed the liaison and cooperation with FIACC members (sister federations) UNESCO, IUTA and ICSU. IFAC will seek consultative status with UNIDO as a non-governmental organization.

Past President T. Vamos (H) prepared a draft proposal concerning responsibilities of engineers as individuals and of engineering associations. The Council members were asked to send him their comments. It was proposed to seek cooperation with other international federations in this matter.

The issues regarding the future of IFAC were discussed and the IFAC Council members will have a meeting in Munich on long-range strategies.

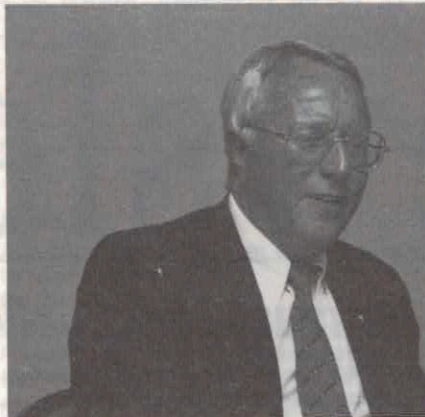
The next Council and related meetings will be held in conjunction with the Munich World Congress, in July 1987. In 1988, it is intended to hold the Council and related meetings in Finland in conjunction with the MMS Symposium scheduled for June 14—16, combining this meeting with a visit to the future congress site in Tallinn.

Please Note:

At the last Technical Board Meeting on August 30, 1986 in Zurich, Switzerland, the Technical Committee on SPACE was re-named Technical Committee on AEROSPACE.

IFAC Congratulates

Karl Johan Aström



who received the Rufus Oldenburger Medal from the American Society of Mechanical Engineers.

Pieter Eykhoff



who was awarded the honorary professorship at Xi'an Jiaotong University, PRC, by Vice-President Dai Jingchen.

New Publications:



Adaptive Control of Chemical Processes

Proceedings of the
IFAC Workshop
Frankfurt/Main, FRG, 21—22 Oct. 1985
Editor: H. Unbehauen

Presents reports on recent industrial applications, experiences and advances in the use of adaptive and self-tuning control in chemical and related processes. Material covered includes new practically orientated adaptive control algorithms as well as the control of various chemical plants such as distillation columns, chemical reactors, drying and bleaching plants, plastic extruders and wastewater neutralization plants.

Digital Computer Applications to Process Control

Proceedings of the
7th IFAC/IFIP/IMACS Conference
Vienna, Austria, 17—20 September, 1985
Editor: M. Paul

Considers the application of modern control engineering on digital computers with a view to improving productivity and product quality, easing supervision of industrial processes and reducing energy consumption and pollution. The topics covered may be divided into two main subject areas: (1) applications of digital control — in the chemical and oil industries, in water turbines, energy and power systems, robotics and manufacturing, cement, metallurgical processes, traffic control, heating and cooling; (2) systems theoretical aspects of digital control — adaptive systems, control aspects, multivariable systems, optimization and reliability, modelling and identification, real-time software and languages, distributed systems and data networks. Of particular interest to systems analysts and computer scientists, control engineers, electrical and electronic engineers, industrial engineers and operational research scientists.

Control Applications of Nonlinear Programming and Optimization

Proceedings of the
5th IFAC Workshop
Capri, Italy, 11—14 June, 1985
Editor: G. di Pillo

Provides a valuable overview of the modern application and optimization of nonlinear programming techniques and software to real-world control problems. Topics covered include: Practical applications to control of real processes: Flight Mechanics and Control, optimal design, structural mechanics, optimal control in chemical engineering systems, railway vehicles, automobiles and robotics. Also covered are nonlinear programming algorithms and software for: Robust direct and indirect optimal control techniques, automatic treatment of state variable constraints, medium- to large scale control problems and lumped parameter or distributed parameter systems. Of particular interest to systems analysts, chemical, structural and aeronautics engineers, control engineers and operational research scientists.

Real-Time Programming

Proceedings of the
13th IFAC/IFIP Workshop
West Lafayette, Indiana, USA, 6—8 Oct. 1985
Editors: G. M. Bull and T. J. Williams

Examines the entire field of real-time programming, with emphasis on the most recent developments in industrial control and the design of process control systems. The topics covered include programming of statistical quality control applications, graphical languages for real-time programming, programming of personal computers and work stations for real-time applications. Essential reading for control, mechanical and industrial engineers, systems analysts and computer scientists.

Available from:

Pergamon Press Ltd.,
Headington Hill Hall,
Oxford OX3 0BW, UK

Automatica Prize Paper Awards

The IFAC Publications Managing Board will again award one thousand Swiss Francs for each of three outstanding contributions to the theory and/or practice of control engineering or control science.

These awards will be presented at the 1987 IFAC World Congress in Munich. They will be awarded for the three best papers published in any of the issues of Automatica in 1984, 1985 and 1986.

Recommendations for the awards are invited from the control engineering community. They should be received before March 1, 1987 by the chairman of the awards committee:

Prof. Pieter Eykhoff
University of Technology
P.O. Box 513
NL-5600 MB Eindhoven,
The Netherlands

It would be most helpful to the committee to have each recommendation accompanied by a few reasons given, why the paper should be considered for the Prize Paper Award.

Real-Time Programming 14th IFAC/IFIP Workshop

Balatonfüred, Lake Balaton,
Hungary, May 26—28, 1986

The 1986 IFAC/IFIP Workshop on Real-Time Programming represented the 14th Meeting in this series since it was first organized in 1971. This was the second time that the Workshop was held in Hungary and for this occasion a venue on the shores of Lake Balaton was chosen.

The International Program Committee planned the program of this Workshop including sessions on real-time environments and executives, software development tools and languages, and on special real-time applications. A "general papers" session was also included in the program. The attendees participated actively; the presentations of 40—45 minutes each were followed by discussions lasting 10—15 minutes, all of which were lively as well as interesting. From this point of view the meeting was certainly a real "workshop".

A total of 15 papers were accepted and 13 of the original 20 abstracts/papers submitted were presented. 47 attendees from 15 countries participated in the Workshop compared to the planned 50.

Preprints were prepared for the Workshop itself and the papers will be included in the Workshop Proceedings to be published by Pergamon Press.

Chairman of the International Program Committee was Prof. Theodore J. Williams of Purdue University, West Lafayette, Indiana, USA.

Finally, it was proposed that the 15th IFAC/IFIP Workshop on Real-Time Programming be held in Valencia, Spain, in 1988.

János Szilankó
NOC Chairman

Support of Developing Countries

The IFAC Council at its annual meeting in Zürich established the Committee for Support of Control Engineering Education in Developing Countries which consists of the EDCOM Chairman as the chairman of the Committee, the DECOM Chairman and the UNESCO Liaison Officers of IFAC as members.

Scope:

Decision on the use of grants from UNESCO, the Royal Society (UK) and others, which the Committee can obtain for the following purposes:

- Support of authors from developing countries at IFAC events;
- Support of short courses in control engineering in developing countries;
- Support of IFAC events in developing countries.

Operation:

1. Every announcement of the IFAC events should state that IFAC has limited funds to help a few authors of accepted papers from developing countries. Authors who believe they are eligible should request application forms from the EDCOM Chairman of IFAC:

Prof. W. Schaufelberger
Fachgruppe für Automatik und
Industrielle Elektronik
ETH Zentrum
CH-8092 Zürich, Switzerland.

The completed application form must reach the EDCOM Chairman at least four months before the respective meeting.

2. The IFAC NMOs can apply to the above address for support of a course in their country at least six months before the suggested date of the course. The application forms are available from the same address. The NMO should send a report about the course not later than one month after the event. Only travel expenses of the lecturers can be supported.
3. The NMO of a developing country can apply for a grant to support an IFAC event in its own country immediately after it has taken place by submitting the financial report to the address given above.

The Committee for Support of Control Engineering Education in Developing Countries reports annually to the Administrative and Finance Committee of IFAC.

Automation for Safety in Shipping and Offshore Petroleum Operations — ASSOPO '85

IFIP/IFAC Symposium

Trondheim — Norway, June 25—27, 1985

ASSOPO '85, an IFIP/IFAC symposium, was organized by the Norwegian Society of Automatic Control (NFA). It was attended by 218 participants coming from 10 countries.

The main topic of the symposium was recent advances in automation techniques and their applications to offshore operations. Current developments and experience gained in today's offshore operations were reported aiming at improvements to be made in the future to gain higher performance in offshore and related activities. The scientific program was composed of 1 Keynote Paper, 3 Survey Papers, 3 Panel Sessions and 71 Technical Papers. Technical visits were arranged to the SINTEF GROUPS' Two Phase Flow Laboratory and the Ocean Basin Laboratory, and to the Ship Manoeuvring Simulator. In addition a small technical exhibition related to the symposium topics was arranged.

The keynote paper focused on the current degree of automation and its impact on the safety offshore, and pointed out areas which needed further improvements. The survey sessions presented state of the art and direction of future developments towards more economic offshore operations, especially emphasizing subsea production systems.

Risk analysis and risk management were the key topics in several of the technical sessions and showed that much research is conducted in these areas both by the oil and the engineering companies.

Another interesting topic was the current research and development in the area of fibre

optics, both on fibre optic sensors and on fibre optics cables. Fibre optics applications in offshore communication and control systems were reported in several papers, and it was predicted that fibre optics will play an important role in future offshore automation systems including subsea applications. Enhanced protection systems and intelligent instrumentation systems were reported as a key to safer offshore operations.

Two sessions dealt with offshore operation and its safety in hostile environments, like the Arctic region and other regions of extreme environments. Problems due to icing and methods to prevent and handle icing were specially mentioned.

The importance of human reliability and operator training by use of simulators was discussed both in technical sessions and in panel sessions.

ASSOPO '85 was the third conference of the series devoted to automation for safety in shipping and offshore petroleum operations all hosted by the Norwegian Society of Automatic Control (NFA). The number of participants showed that the symposium still holds a strong attraction to people dealing with automation and safety at different levels in organizations and companies and related both to offshore and other activities. The participants expressed the opinion that this series should be continued. Other member organizations are welcome to host a future successor.

Aage Jostein Thunem
General Secretary NOC

News from NMOs Czechoslovakia

Czechoslovak scientists were among the charter members of IFAC, having contributed by their work to its development particularly in its first stage of activities.

Czechoslovak scientists participate in activities of International IFAC bodies as well as in those of its Technical Committees. At this point, the active contributions of Vladimír Strejč, a member of the Publications Committee of IFAC as well as those of lecturer professor Jiří Beneš, DrSc., one of the IFAC Advisors — should be emphasized.

The Czechoslovak IFAC NMO organized the first IFAC Symposium "Identification in Automatic Control Systems" in 1967 as well as the second IFAC Symposium "Identification and Process Parameter Estimation", both held in Prague, and significantly influenced further IFAC activities in the field of identification, thus having contributed to the stabilization of regular symposiums and conferences.

Commendable traditions of the Czechoslovak IFAC NMO activities have found their continuation in the First International Symposium "Lignoautomatica '86" related to automatic measurements and control in the wood processing industry. This Symposium will be held in Bratislava from November 17—21, 1986.

The principal aim of the Czechoslovak NMO is to prepare and organize the participation of Czechoslovak experts in international undertakings sponsored by IFAC. The Czechoslovak delegation was one of the more numerous ones at the past World Congresses, being also adequately represented with respect to papers presented. 14 experts were present at the 8th World Congress of IFAC in Kyoto in 1981, whereas the 9th World Congress of IFAC in Budapest in 1984 was attended by 87 experts, with 19 scientific papers delivered. Presently, preparations are under way for the 10th World Congress in Munich.

These successful activities are being provided, in terms of organization, by the Czechoslovak NMO of IFAC for Automation headed by its Chairman, Prof. Juraj Bizík, DrSc., head of the Department of Automated Control Systems, Faculty of Electrical Engineering, Slovak Technical University in Bratislava, and by its Vice-Chairman, associate professor techn. Jiří Beneš, DrSc., of the Institute of Information Theory and Automatization of the Czechoslovak Academy of Sciences in Prague. The Secretariat resides at the Institute of Technical Cybernetics of the Slovak Academy of Sciences in Bratislava.

Impressum:

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

Verlagsort und Redaktion:
Dipl.-Ing. Gusztáv Hencsey
Schlossplatz 12, A-2361 Laxenburg

Hersteller:
Artur Schefczik & Sohn
Kollergasse 7, A-1030 Wien

automatica

The Journal of IFAC the International
Federation of Automatic Control

Papers from the Next Issue — Nov. 1986

Papers

A Multivariable Self-Tuning Controller with Integral Action
(R. Scattolini)

Necessary and Sufficient Conditions for Parameter Convergence in Adaptive Control
(S. Boyd, S. S. Sastry)

Nonlinear Dynamics in Adaptive Control: Chaotic and Periodic Stabilization
(I. M. Y. Mareels, R. R. Bitmead)

A Parameter Estimation Perspective of Continuous Time Model Reference Adaptive Control
(G. C. Goodwin, D. Q. Mayne)

A New Theoretical and Algorithmical Basis for Estimation, Identification and Control
(P. Kovanic)

From Time Series to Linear System, Part II: Exact Modeling
(J. C. Willems)

Brief Papers

A Decentralized Approach to Integrated Flight Control Synthesis
(M. I. Vukobratovic, R. D. Stojic)

On Line Estimation of Microbial Specific Growth Rates
(G. Bastin, D. Dochain)

Time/Fuel Optimal Control of Constrained Linear Discrete Systems
(M. Scott)

On Model Reduction of Discrete Time Systems
(B. D. O. Anderson, E. I. Jury, M. Mansour)

A Higher Order Approximate Model of Singularly Perturbed Systems with White Noise
(K. Yamanaka, M. Agu)

A Method for Parameter Estimation of a Class of Nonlinear Distributed Systems Under Noisy Observations
(Y. Sunahara, S. Aihara, F. Kojima)

A Novel Narrowband Digital Filter and its Application to Multivariable System Identification
(R. Doraiswami, J. Jiang, R. Balasubramanian)

Automation, Work Organization and Skills: the Case of Numerical Control in Small and Medium Size Firms
(R. W. Cavestro)

Technical Communiques

Book Reviews

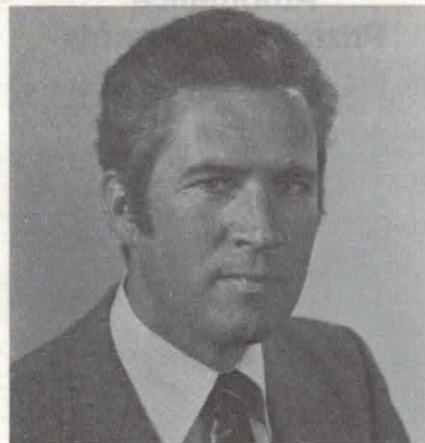
Feedback Control: Theory and Design by K. J. Kurman
(G. Weiss)

Introduction to Differential Games and Control Theory by V. N. Lagunov
(T. Basar)

Applied Dynamic and CAD of Manipulation Robots by M. Vukobratovic & V. Potkonjak
(S. J. Williams)

Feedback Control Systems by J. van de Vegte
(N. A. Kheir)

WHO IS WHO IN IFAC



Prof. Dr.-Ing. R. Isermann
IPC-Chairman
of the 1987 World Congress

Rolf Isermann was born in Stuttgart, Germany. He took the Dipl.-Ing. degree in mechanical engineering in 1962 from the University of Stuttgart and his Dr.-Ing. degree in 1965. In 1968 he became "Privatdozent" for automatic control at the University of Stuttgart and since 1972 "ausserplanmässiger Professor". July—October 1971 he was a visiting professor at Purdue-University, Lafayette, USA. Since 1977 he has been Professor at the Technische Hochschule Darmstadt and head of the Fachgebiet (Laboratory) "Regel-systemtechnik und Prozesslenkung" in the "Institut für Regelungstechnik". 1981/82 he served as Dean of the faculty.

R. Isermann first published books on modelling of industrial processes (1971) and process identification (1971, 1974). The book on "Digital Control Systems" appeared in German (1977), in English (1981), Chinese (1983) and Russian (1984). In 1986 the 2nd edition will be published in German, now consisting of two volumes.

Several papers have appeared on the dynamics and control of heat exchangers and steam generators, on process modelling, process identification, parameter estimation, computer aided digital control system design, adaptive control, steady-state optimization and process failure detection and diagnosis. A special aim has always been to develop advanced methods in automatic control in connection with the application first in pilot processes and later on in large scale processes. The close cooperation with several industrial companies gives a valuable feedback for the research activities.

From 1976—78 R. Isermann served as vice-president of the VDI/VDE-Gesellschaft Mess- und Regelungstechnik and since 1979 he has chaired the section "operation of automation systems". Since 1973 he was member and from 1975—78 he served as chairman of the IFAC-Technical Committee on Applications. From 1981 onwards he has been a vice-chairman of the IFAC-Policy Committee. Since 1975 he has served as Associate Editor for IFAC-Automatica. In 1979 he organized the 5th IFAC-Symposium on Identification and System Parameter Estimation in Darmstadt. He chaired the International Program Committee of the 6th IFAC/IFIP-Conference on Digital Computer Applications to Process Control 1980 in Düsseldorf. Presently he is acting as Chairman of the International Program Committee for the 10th IFAC World Congress in Munich, 1987.



FORTHCOMING EVENTS

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| Title | 1986 | Place | Deadlines | Further Information |
|---|-------------------|------------------------------------|-----------|---|
| IFAC Workshop Distributed Computer Control Systems — DCCS 86 | October 13—15 | Mayschoss- Bad Neuenahr, FRG | — | Mr. H. Wiefels VDI/VDE GMR Postfach 1139 D-4000 Düsseldorf, FRG |
| IFAC/EWICS Workshop Safety of Computer Control Systems — SAFECOMP '86 | October 14—17 | Sarlat, F | — | Mr. J. M. A. Rata Chargé de Mission EDF Service IMA 1, Ave. du Général de Gaulle F-92141 Clamart, France |
| IFAC Workshop Mass Spectrometry in Biotechnological Process Analysis and Control | October 23—24 | Graz, A | — | Prof. E. Heinzle Institute for Environmental Research Elisabethstrasse 11 A-8010 Graz, Austria |
| 6th IFAC/IFIP/IMEKO Conference Instrumentation and Automation in the Paper, Rubber, Plastics and Polymerization Industries | October 27—29 | Akron OH, USA | — | Prof. A. Kaya The University of Akron Dept. of Mech. Engrg. Akron, OH 44325, USA |
| IFAC Symposium Automatic Measurement and Control in Woodworking Industry — Lignoautomatica '86 | November 17—21 | Bratislava, CS | — | Dr. Branislav Hruz The State Forest Products Res. Institute Lamacská 1 CS-844 11 Bratislava, CSSR |
| IFAC Symposium Components, Instruments and Techniques for Low Cost Automation and Applications | November 27—29 | Valencia, E | — | Prof. Pedro Albertos Polytechnical University of Valencia P.O. Box 22012 Valencia, Spain |
| IFAC/IFIP/IMACS Symposium Theory of Robots | December 3—5 | Vienna A | — | Dr. P. Kopacek Technical University of Vienna Karlsplatz 13 A-1040 Vienna, Austria |
| IFAC Symposium Control of Distillation Columns and Chemical Reactors | December 8—10 | Bournemouth UK | — | Ms. Rosamund da Gama UK Automatic Control Council c/o The Institute of Measurement and Control 87 Gower Street, London WC1E 6AA, UK |
| IFAC Symposium Automation and Instrumentation for Power Plants | December 15—17 | Bangalore IND | — | Dr. M. Ramamoorthy Central Power Research Institute P.O.B. 1242 Bangalore 560 012, India |
| IFAC Workshop Electrostatic Charges and Discharges and Cosmic Ray Interaction in Satellites | December 15—17 | Paris F | — | Prof. M. Pélégryn Centre d'Etudes et de Recherches de Toulouse B.P. 4025, 31055 Toulouse Cedex, France |
| Title | 1987 | Place | Deadlines | Further Information |
| IMEKO/IFAC Conference Advances in Biomedical Measurement | May | Bratislava, CSSR | * | Dr. P. Kneppo Inst. of Measurement and Measuring Technique Electro-Physical Research Institute of the Slovak Academy of Sciences Dubravska cesta 9 842 19 Bratislava, CSSR |
| X. IFAC WORLD CONGRESS | July 27—31 | Munich FRG | — | Eng. H. Wiefels VDI/VDE Gesellschaft Meß- und Regelungstechnik GMR Postfach 1139 D-4000 Düsseldorf 1, FRG |

* Deadline not yet known

FORTHCOMING EVENTS (ctd.)

| Title | 1987 | Place | Deadlines | Further Information |
|---|-----------------|-----------------------------|---------------------|---|
| 3rd Intl. IFIP/IFAC Conference Advances in Production Management Systems (APMS '87) | August 11—14 | Winnipeg Manitoba CDN | — | Prof. A. Kusiak Dept. of Mechanical & Industrial Engrg, University of Manitoba Winnipeg, Manitoba R3T 2N2 Canada |
| 2nd IFIP/IFAC Conference Human Computer Interaction — INTERACT '87 | Sept. 1—4 | Stuttgart FRG | October 31, 1986 | INTERACT '87 Secretary c/o IAO/IPA Nobelstraße 12, D-7000 Stuttgart, FRG |
| IMACS/IFAC Int. Symposium Modelling and Simulation of Distributed Parameter Systems | October 6—9 | Hiroshima J | Dec. 1, 1986 | Dr. T. Futagami Dept. of Civil Engineering Hiroshima Inst. of Technology Miyake, Itsukaichi, Saeki Hiroshima, 731-51, Japan |

| Title | 1988 | Place | Deadlines | Further Information |
|---|-----------------|-----------------------|-------------------|---|
| IFAC/IFIP Symposium Software for Computer Control — SOCOCO '88 | April 26—28 | Johannesburg ZA | * | Prof. I. M. Macleod Dept. of Electrical Engineering, University of Witwatersrand 1 Jan Smuts Ave Johannesburg 2001, ZA |
| IFAC/IFIP/IEA/IFORS Conference Analysis, Design and Evaluation of Man-Machine Systems (MMS '88) | June 14—16 | Oulu SF | * | B. Wahlström Technical Research Centre of Finland Electrical Engineering Lab., Otakaari 7B 02150, Espoo, Finland |
| IFAC Symposium Trends in Control and Measurement Education | July 20—22 | Cardiff UK | * | Ms. Rosamund da Gama The Institute of Measurement and Control 87 Gower Street, London WC1E 6AA |
| IFAC Workshop Robust Adaptive Control | August 22—24 | Newcastle NSW, AUS | * | Prof. G. C. Goodwin Dept. of Electrical & Computer Engrg The University of Newcastle, N.S.W. 2308, Australia |
| 4th IFAC Symposium Computer Aided Design in Control and Engineering Systems | August 23—25 | Beijing PRC | April 15, 1987 | Prof. Chen Zhen-Yu CADCS '88 Secretariat Application Committee of the Chinese Association of Automation P.O. Box 919, Beijing, PRC |
| IFAC/IFORS Symposium Identification and System Parameter Estimation | August 27—31 | Beijing PRC | August 1, 1987 | Prof. Chen Han-Fu Institute of Systems Science Academia Sinica Beijing,, 10080, P. R. China |
| IFAC Symposium Modelling and Control Applications for Power Systems Operation | Sept. | Brussels Belgium | * | J. Debelle Vice President of IBRA Rue Ravenstein 3 B-1000 Brussels, Belgium |

| Title | 1989 | Place | Deadlines | Further Information |
|---|-------|---------------|-----------|--|
| IFAC/IFIP/IEA/IFORS Conference Analysis, Design and Evaluation of Man-Machine Systems (MMS '89) | Sept. | Xian PRC | * | Prof. Wang Ying Luo Xian Jiaotong University Xian, Shaanxi, PRC |
| IFAC Symposium Adaptive Control and Signal Processing | — | Glasgow UK | — | Ms. Rosamund da Gama The Institute of Measurement and Control 87 Gower Street, London WC1E 6AA |

* Deadline not yet known