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Newsletter

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Offenlegung:

Das Medienwerk „IFAC Newsletter“ wird als Organ der „International Federation of Automatic Control (IFAC)“ verlegt und ist Eigentum dieser internationalen Föderation, deren Tätigkeit der Förderung von Wissenschaft und Technik automatischer Regelung und Steuerung dient. Die Föderation hat ihren Sitz in Genf und ist nach Schweizer Recht als gemeinnütziger Verein angemeldet. Sie verfolgt weder wirtschaftliche noch praktische Ziele. Das Sekretariat der IFAC befindet sich seit 1978 aufgrund eines Übereinkommens mit der Österreichischen Bundesregierung und der Österreichischen Akademie der Wissenschaften in Laxenburg.

Der „IFAC-Newsletter“ erscheint sechsmal jährlich in englischer Sprache unter der Redaktion des Generalsekretärs der IFAC, Dipl.-Ing. Gusztáv Hencsey. Die Zeitschrift dient der Information über die Aktivitäten der IFAC. Sie wird kostenlos an Abonnenten in 48 Ländern versandt, die Kosten werden von der IFAC aus den Beiträgen der derzeit 42 Mitgliedsländer getragen.

Präsident der IFAC ist für 1984/87 Prof. Dr. M. Thoma (BRD), Vizepräsidenten sind Akademiemitglied Prof. Dr. B. Tamm (UdSSR), Prof. B. D. O. Anderson (Australien) und W. E. Miller (USA). Alle Funktionen werden ehrenamtlich ausgeübt.

(To our readers: To comply with the Austrian "Media Act" every publication must contain a declaration once a year concerning ownership and purpose as above.)

Editor: Gusztáv Hencsey

Layout: Margaret A. Gottfried
published bimonthly

ENDSPURT FOR OUR MUNICH HOSTS



Four of the organizers of our Tenth World Congress (from left to right): A. Schillings, D. Reinisch, H. Wiefels, H. Rosenzweig.

Modelling, Decision and Games with Applications to Social Phenomena

IFAC Workshop

Beijing, China, August 11—15, 1986

The workshop, sponsored by the Mathematics of Control Technical Committee and co-sponsored by four other Technical Committees, was organized by the Chinese Association of Automation.

More than sixty papers were presented in three parallel sessions. Originally, more than one hundred papers had been submitted. It was decided at an early stage that the workshop should have a social emphasis. This is reflected in the titles of the sessions, such as: Decision Analysis; Economic Planning; Population Analysis; Resource Management and Dynamic Games and Bargaining. More than eighty scholars participated in the workshop, among them 34 from abroad.

Song Jian, IFAC Council member and Minister of State, welcomed the participants on behalf of the President of IFAC. He stated that "The current all-round economic reforms in China are a complicated social system project that requires research in social sciences as well as in natural sciences, especially quantitative analysis with the aid of control system sciences."

The first plenary lecture was given by T. Basar. His theme was "Decentralisation and Incentives in Organizations". The second plenary lecture was given by Yang Jiachi, an official of the Chinese Association of Automation, and dealt with an overview of applications of systems sciences to socio-economic developments in China. An important issue in this talk was the population projection of China towards the year 2000.

On the closing afternoon of the workshop, Prof. Greenblat (Rutgers Univ., USA) presented a "village development" game to the participants, who took roles of the villagers or of development agents in a hypothetical village. Incorporating such a game into the scientific program was seen as an experiment by the IPC. The participants played their roles with great devotion and the game formed a successful closing session of a well-organized and successful workshop.

Proceedings of the workshop, edited by Song Jian and Yu-Chi Ho, were published by the Chinese Association of Automation for IFAC and were available at the beginning of the workshop.

Working Groups of IFAC Technical Committees

(Status October 27, 1986)

Names	Chairmen
TC on Applications	
WG on Electric Power Systems	T. DyLiacco (USA)
WG on Electric Generating Plants	C. Maffezzoni (I)
WG on Chemical Process Control	M. Kümmel (DK)
WG on Mining, Mineral and Metal Processing	C. Stapleton (AUS)
WG on Modelling and Control in Agriculture*	A. J. U. ten Cate (NL)
TC on Economic and Management Systems	
WG on Dynamic Modelling and Control of National and Regional Economies	C. L. Sandblom (CDN)
WG on Energy Systems Management and Economics**	Y. Nishikawa (J)
TC on Education	
WG on Continuing Education	P. M. Larsen (DK)
WG on Educational Programs in Robotics	P. Kopacek (A)
TC on Manufacturing Technology	
WG on Intelligent Systems in Manufacturing*	J. L. Nevins (USA)
TC on Mathematics of Control	
WG on Team and Game Theory	M. Pachter (ZA)
WG on Asymptotic Analysis and Singular Perturbations	G. Blankenship (USA)
WG on Control Applications of Nonlinear Programming	K. Well (FRG)
WG on Stochastic Analysis and Control	R. J. Elliot (GB)
TC on Systems Engineering	
WG on Computer Aided Systems Analysis and Design	G. G. Leininger (USA)
WG on Environmental Systems	T. Takamatsu (J)
WG on Industrial Systems	P. Uronen (SF)
WG on Large Scale Systems Engg. Methodology and Applications	J. Bernussou (F)
WG on Man-Machine Systems	G. Johannsen (FRG)
WG on Supplemental Ways for Improving International Stability (SWIS)	H. Chestnut (USA)
WG on Transportation Systems	R. E. Fenton (USA)
WG on Water Resource Systems	Y. Y. Haimes (USA)
WG on Large Scale Agricultural, Forest and Environmental Systems*	K. Reinisch (GDR)
TC on Theory	
WG on Adaptive Systems in Control and Signal Processing	I. D. Landau (F)
WG on Robust Control Theory	J. Ackermann (FRG)
WG on Control and Signal Processing	A. Beneviste (F)
WG on Actuator and Sensor Placements	A El Jai (MA)
TC on Terminology and Standards	
WG on Guidelines and Specifications for Software for C.A.C.S.D.*	M. Rimvall (CH)

* New WG, established in 1986

** This WG was transferred from the TC on Systems Engineering

IFAC Working Groups are formed as the need arises and dissolved when they have fulfilled their function. Membership in a Working Group can be sought through the IFAC Secretariat, which will forward the request to the TC and Working Group concerned.

News from NMOs — Nigeria

A growing number of members of the IEEE Nigeria Section has been showing interest in the field of Automatic Control and Instrumentation. As a result, a control group was formed within the section with Prof. A. J. Alos as the group coordinator, in order to foster activities in this field. Although the control group is still small, a number of activities have already taken place such as seminars on automation and participation in some international conferences. In order to stimulate the interest in automatic control activities, the IEEE Nigeria Section applied for membership as the National Member Organization of IFAC in Nigeria. The application for membership was approved, becoming effective as of January 1st, 1987.

The IEEE Nigeria Section is still a young one. There are at present 183 members from all over the country.

The members of the Executive Board are:

Dr. T. Raji — Chairman
 Eng. W. Kokoruwe — Vice-Chairman
 Prof. A. J. Alos — Secretary
 Dr. T. Akinbiyi — Financial Secretary.

The Control Engineering Chapter has the following officers:

Prof. A. J. Alos — Coordinator
 Dr. L. O. Kehinde — Secretary
 Mr. J. Katende — Activities Coordinator.

The address of the IEEE Nigeria Section Secretariat is:

Department of Electrical Engineering
 Faculty of Technology
 University of Ibadan
 Ibadan, Nigeria

IFAC Congratulates Tibor Vámos



An honorary degree was conferred on Tibor Vámos, Past President of IFAC, by Tallinn Technical University, USSR.

Control Applications of Nonlinear Programming

6th IFAC Workshop

London, UK, July 7—8, 1986

The workshop was organised by Profs. Mayne (Electrical Engineering) and Sargent (Chemical Engineering). It was attended by 45 participants from 10 European countries and 20 participants from the United States. Highlights of the meeting were new results on optimal aircraft controls in windshear conditions (Prof. Miele, USA), on new analytical results for periodic control problems (Prof. Speyer and Breakwell, USA), advances in numerical methods for solving differential-algebraic equations (Prof. Sargent, GB) as well as a number of recent applications of various algorithms to realistic problems from aerospace-, chemical- and electrical-engineering as well as to pollution control, metallurgical engineering and economics.

K. H. Well
 WG Chairman
 Control Applications of Nonlinear Programming

Nigeria and Singapore Welcome to IFAC

On January 1st 1987, two new National Member Organisations joined IFAC: the IEEE Nigeria Section and the Instrumentation and Control Society of Singapore.

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Dynamic Modelling and Control of National Economies

5th IFAC/IFORS Conference

Budapest, Hungary, June 17—20, 1986

The papers presented at the conference covered a wide area reflecting the general intentions of the IFAC Economic and Management Systems Committee (EMSCOM). This committee considers as its principal task the modelling, analysis, control and management of various kinds of economic and socio-economic systems. Such self-organizing systems are characterized by a large number of interconnected dynamic relations; their study may yield basic knowledge as well as practical tools to those who deal with planning, policy making and control in economic and socio-economic systems.

The conference was attended by about 150 participants from 30 countries. Academician Tibor Vámos, Past President of IFAC, spoke on behalf of the President of IFAC, Prof. M. Thoma. Professor Yoichi Kaya, Tokyo University and EMSCOM Chairman, said a few words of welcome and the felicitating letter of Professor Jaques Lesourne, President of IFORS, was read.

Three plenary events distinguished the conference. The keynote lecture "Identification in Economics" was given by Prof. Rudolf E. Kalman of the ETH Zürich/University of Florida, Gainesville and Kyoto Prize Winner in 1985. He summarized his far-reaching criticism and fundamentally new approach which may inspire econometricians to seek for new ways and means.

The plenary paper entitled "Modelling Techniques and Applications: Future Development and Social Impact", presented by Prof. Klaus Brunnstein, University of Hamburg, may have pleasantly amazed the audience. To get a deep insight into the future of information techniques and their impact on science and society was actually an eye-opener for many.

A round table discussion on the subject "The Use of Models in a Policy Environment" was organized by Béla Balassa and moderated by Philippe Crabbé. Among the five panel members and many experts from the floor a spirited discussion developed.

87 contributed papers were presented at the conference in three parallel sections consisting of 8 sessions each.

Considering the lectures and discussions held at the conference, the following conclusion can be drawn: keeping abreast with the further development of the already "traditional" methodological frameworks, a trend based upon the conceptions and tools of modern systems and control theory is getting ever stronger; and the demand is growing that the modelling results should appear in such a user-friendly form to support the work of the experts in managing the economy.

B. Martos
L. F. Pau
M. Ziermann
Editors of the Proceedings

Skill Based Automated Manufacturing

IFAC Workshop

Karlsruhe, FRG, September 3—5, 1986

Based on 22 presented papers, the workshop addressed such items as skill based flexible manufacturing and assembly systems, work concepts for the technical office and the steel industry, policies for automated production and man's new role in production. It provided ample discussion, leaving room to the 46 expert attendants from 11 European countries, Australia and the USA for a profound exchange of ideas.

The highlights of the workshop can briefly be summarized as follows. There is broad empirical evidence that we are in a situation of choice with strategic options for future production systems (regarding organization, technology, skills).

The range of this choice can be characterized by the key words "unmanned factory" versus skill based manufacturing. Profound changes on world markets require more flexibility, higher quality and, at the same time, high productivity and low costs by reduced lead time and less work in progress. These requirements make production concepts based on human abilities rather than machine artefacts more likely to be the superior choice.

In order to find efficient production structures, appropriate decisions on work organization, division of functions and on the forms of interaction between man and machine have to be made. Consequently, users have to be involved in the design process, and skill formation has to become part of the development task. Encouraging examples for this demonstrate the need for new orientation of and improved methods for work organization, system design and skill formation.

P. Brödner
IPC Chairman

IFAC Control Engineering Textbook Prize

At the IFAC Council Meeting in August 1986, it was decided to award prizes for the best Control Engineering Textbooks published in one of the official IFAC languages. One thousand five hundred Swiss Francs, for each of the selected books, will be awarded by the IFAC Textbook Prize Award Committee, and they will be presented at each Triennial Congress. The recipient(s) of the award will be the author(s) of the textbook(s) judged to have most contributed to the education of control engineers.

The Control Engineering Textbook Prize will comprise the monetary award and a suitable certificate.

The first prize will be presented at the 1987 IFAC World Congress in Munich, and will be awarded for a textbook or textbooks for which the first edition(s) occurred in 1984, 1985 or 1986.

The IFAC Prize Award Committee for Control Engineering Textbooks consists of the Chairman and the Vice-Chairmen of the IFAC Education Committee and the AUTOMATICA Book Review Editor. (The members of the first Award Committee are Messrs. W. Schaufelberger, D. Atherton, Y. Bar-Shalom, Gu Sheng-Go, M. Kümmel, and P. Martin Larsen.)

Recommendations for the IFAC Control Engineering Textbook Prize are invited from the control engineering community.

Recommendations should be received before April 1, 1987, by the chairman of the awards committee:

Prof. Walter Schaufelberger
Projekt-Zentrum IDA
ETH Zentrum/ETL K14
CH-8092 Zürich
Switzerland

It would be most helpful to the committee to have each recommendation accompanied by specific reasons. Your cooperation will be greatly appreciated. Please respond as soon as possible.

IFAC is checking its Newsletter mailing list. We therefore ask you to fill in this questionnaire, complete with name and address, and to return it to

IFAC Secretariat
Schlossplatz 12
A-2361 Laxenburg

Non reply by June 10, 1987 will be considered discontinuation of subscription. Thank you for your cooperation.

Please print

Name _____

Mailing Address _____

Date _____ Signature _____

Papers

Generalised Predictive Control, Part I: the Basic Algorithm
(D. W. Clarke, C. Mohtadi, P. S. Tuffs)

Generalised Predictive Control, Part II: Extensions and Interpretations
(D. W. Clarke, C. Mohtadi, P. S. Tuffs)

Stability Improvement of a Current Source Inverter-Induction Motor Drive System
(K. Shinohara, S. Nonaka)

Electromagnetic Signal Processing: An Estimation/Identification Application
(J. V. Candy, J. E. Zicker)

On Implicit Modelling Theory: Basic Concepts and Application to Adaptive Control
(G. Casalino, F. Davoli, R. Minciardi, G. Zappa)

On Robustness to Noise of Least Squares Based Adaptive Control
(J. B. Moore, G. Casalino)

Brief Papers

Self Tuning Controllers for Non-linear Systems
(M. Agarwal, D. E. Seborg)

Application of Clarke-Gawthrop Type Controllers for the Bottom Temperature of a Glass Furnace
(V. Wertz, P. Demeuse)

Robust Design of Adaptive Control Systems
(W. R. Cluett, S. L. Shah, D. G. Fisher)

A Control Strategy for a Six-Pulse Bridge Converter Especially Suitable for the Use of Micro-computers
(P. Schwarz)

Conceptual Design of a Human Error Tolerant Interface for Complex Engineering Systems
(W. B. Rouse, N. M. Morris)

Jump Linear Quadratic Control with Random State Discontinuities
(M. Mariton)

Design of Minimal-Degree Compensators with Assignable Poles or Structure
(S. K. Rao, C.-T. Chen)

Reformulation of the Parameter Identification Problem for Systems with Bounded Disturbances
(R. Lozano-Leal, R. Ortega)

Technical Communiques

Book Reviews

Introduction to System Science by G. M. Sandquist
(P. S. Satsangi)

Introduction to Robotics: Mechanics and Control by J. J. Craig
(M. G. Rodd)

Handbook of Industrial Robotics, Edited by S. Y. Nof
(P. M. Taylor)

Large-Scale Control Systems by M. S. Mahmoud, M. F. Hassan, M. G. Darwish
(Y. Y. Haimes, I. Lefkowitz)

News from Sister Federations

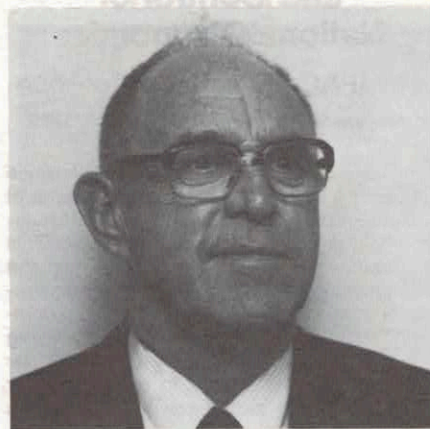
12th IMACS World Congress on Scientific Computation
Paris, France, July 18—22, 1988

The aim of this Congress is to cover all aspects of simulation and scientific computation in theory and applications and to promote the exchange of knowledge and experience between different research groups in this multidisciplinary field.

Those interested in presenting a paper should send a preliminary manuscript or an extended abstract in triplicate to the following address until September 1, 1987:

Pr. Borne
IMACS World Congress
IDN, B.P. 48
59651 Villeneuve d'ASCO Cedex
France

WHO IS WHO IN IFAC



Prof. Jens G. Balchen
Member of the
IFAC Policy Committee

Prof. J. G. Balchen was born in Kristiansand S, Norway in 1926. In 1949 he received a diploma of civil engineering at the Norwegian Institute of Technology, Dept. of Electrical Engineering. He continued his studies in the USA, receiving a Master's Degree of Engineering at Yale University in 1951.

Among the positions held were the one of a teaching and research assistant at the Norwegian Institute of Technology from 1949—1950; a Norwegian State Scholarship for studies in the USA from 1950—1951; a university scholarship of the Norwegian Institute of Technology and associate professorships of control engineering from 1954—1962. Since 1962 Prof. Balchen has been Professor of Control Engineering and he was Head of the Department of Automation Control, SINTEF, in Trondheim from 1955—1968. Moreover, he is editor of the Norwegian Research Bulletin "Modelling, Identification and Control". Apart from his functions in his native country, Norway, Prof. Balchen has made postgraduate studies at Yale University and was visiting Professor at the University of California, Berkeley 1959—60, at the University of California, Santa Barbara 1967—68, 1975—76, 1981—82 and 1985—86. He was invited as guest lecturer at universities in Europe, the USA, the Soviet Union, Japan and Israel.

Prof. Balchen is an elected member of the Norwegian Academy of Technical Sciences, and elected member of the Royal Norwegian Society of Sciences and Humanities, a member of the National Board of Research in Automation and Data Processing.

He acted as principal investigator in the following research programs: Modelling and Control of Fish Behaviour; Modelling and Simulation of Ocean Bio Systems; New Techniques in Aquaculture; Robotics Research.

The last IFAC Symposium on Aquaculture was organized by Professor Balchen in Trondheim in August 1986.

Prof. Balchen is one of the founding fathers of IFAC in that he signed the original document from Heidelberg in 1956 which formed the basis for the establishment of IFAC. Among the positions he has held in IFAC were the following: Member of the IFAC Advisory Committee, Member of the IFAC Executive Council, member of the Technical Committees on Theory, vice-chairman and member of the Technical Committee on Applications, member of the Policy Committee of IFAC.

News from NMOs

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2. I receive the Newsletter together with AUTOMATICA
3. I receive the Newsletter through my National Member Organization
4. I am interested in an AUTOMATICA subscription. Please send me further material



FORTHCOMING EVENTS

1987
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Title	1987	Place	Deadlines	Further Information
IMEKO/IFAC Conference Advances in Biomedical Measurement	May 17-20	Bratislava, CSSR	—	Dr. P. Kneppo Inst. of Measurement and Measuring Technique Electro-Physical Research Institute of the Slovak Academy of Sciences Dubravská 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
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	—	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	—	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/IMEKO/IMACS Symposium Modelling and Control in Biomedical Systems	April 6-8	Venice Italy	*	Prof. C. Cobelli Istituto di Elettrotecnica e di Elettronica University of Padova Via Gradenigo 6/a I-35131 Padova, Italy
4th IFAC Symposium Systems Analysis Applied to Management of Water Resources	April 6-8	Rabat Morocco	*	Prof. M. Najim AMADEIA c/o Laboratoire Electronique Faculté des Sciences BP 1014, Rabat, Morocco
IFAC/IFIP Symposium Software for Computer Control — SOCOCO '88	April 26-28	Johannesburg ZA	April 15, 1987	Prof. I. M. Macleod Dept. of Electrical Engineering, University of Witwatersrand 1 Jan Smuts Ave Johannesburg 2001, ZA
IFAC Workshop Model Based Process Control	June 13-14	Atlanta, GA USA	*	Prof. Y. Arkun Dept. of Chemical Engrg. Georgia Institute of Techn. Atlanta, GA 30332, USA
IFAC/IFIP/IEA/IFORS Conference Analysis, Design and Evaluation of Man-Machine Systems (MMS '88)	June 14-16	Oulu SF	March 31, 1987	B. Wahlström Technical Research Centre of Finland Electrical Engineering Lab., Otakaari 7B 02150 Espoo, Finland

* deadline not yet known

FORTHCOMING EVENTS (ctd.)

Title	1988	Place	Deadlines	Further Information
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 WC1E6AA
IFAC Symposium Adaptive Control of Chemical Processes	August 17—19	Lyngby DK	*	Prof. M. Kümmel Denmark Technical University Institute for Kemiteknik Bldg 229 DK-2800 Lyngby, Denmark
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	April 15, 1987	Prof. Chen Han-Fu Institute of Systems Science Academia Sinica Beijing., 10080, P. R. China
IFAC Symposium Power Systems: Modelling and Control Applications	Sept. 5—8	Brussels Belgium	April 1, 1987	J. Debelle Vice President of IBRA Rue Ravenstein 3 B-1000 Brussels, Belgium
IFAC/IMACS/IFIP Symposium Robot Control SYROCO '88	October 5—7	Karlsruhe FRG	*	Dr. G. Hirzinger DFVLR Oberpfaffenhofen 8031 Wessling/Oberbayern, FRG

Title	1989	Place	Deadlines	Further Information
IFAC Symposium Large Scale Systems: Theory and Applications	August 28—31	Berlin GDR	*	Prof. H. Fuchs Academy of Sciences of the GDR Kurzstrasse 33 DDR-1086 Berlin, GDR
IFAC Symposium Automation in Mining, Mineral and Metal Processing	Sept. 4—8	Buenos Aires Argentina	*	Prof. J. Paiuk c/o AADECA Venezuela 639 9° P.Off 39 1095 Buenos Aires, Argentina
IFAC/IFIP/IEA/IFORS Conference Analysis, Design and Evaluation of Man-Machine Systems (MMS '89)	Sept. 12—14	Xian PRC	*	Prof. Wang Ying Luo Xian Jiaotong University Xian, Shaanxi, PRC
IFAC Symposium Adaptive Control and Signal Processing	—	Glasgow UK	* Atlanta, GA USA	Ms. Rosamund da Gama The Institute of Measurement and Control 87 Gower Street, London WC1E6AA

* deadline not yet known

Please note:

Identification and System Parameter Estimation

IFAC Symposium
Beijing, Aug. 27—31, 1988

The correct date for the receipt of abstracts is April 15, 1987

* deadline not yet known