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Program for Tallinn Finalized 11th IFAC World Congress Tallinn, USSR, 13 - 17 August, 1990

Preparations for Tallinn '90 are proceeding well - this was the general conviction of the IPC members after their third (and last) IPC meeting in Vienna on November 13, 1989.

The IPC received about 1500 papers which have been classified into 38 subject areas covering control theory, design tools and practical applications. For each subject area a Sub-International Program Committee was formed with the responsibility of reviewing the papers in its area. Considering the capacity of the Tallinn Congress Centre and the maximum of 11 parallel sessions, 525 papers have been accepted.

The technical program will consist of plenary, technical, discussion, case study and industrial problem sessions.

Four plenary speakers have been invited to present the state of the art and the future development of automatic control, including such fields as theory of discrete event dynamic systems, social and cultural effects of automation, education of control engineers and development of control theory. The 120 technical sessions (two hours each) have been arranged to cover all subject areas. They have all been scheduled to start at fixed times, permitting the participants to move from one session to another, depending on their interest in particular papers.

Parallel to the technical sessions, 8 discussion sessions and 4 case-study sessions provide the opportunity for the exchange of experience and opinions between the

industrial and academic people, regarding the technology transfer, the problems caused by complexity, and the role of man in a highly organized industry.

The Congress carries the message "Automatic Control in the Service of Mankind". Emphasis will be placed on both theory and practice, science and industry, to work towards the improvement of human life, to achieve an adequate conformity between new technology and human environment, between increased consumption of resources and the undisturbed nature, between technological and social processes. Automatic control, systems engineering and information processing are advancing in close affiliation. This mighty junction ensures modelling and identification and the solution of intricate problems with which we are faced and putting them at the service of the people.

The National Organizing Committee as well as the local organizers are doing their best to combine your professional activities with pleasure during the Congress period. A number of cultural and social events and a program for the accompanying persons are offered.

The Third Announcement and Program of the IFAC'90 Congress with the Registration Form will be distributed at the beginning of March 1990.

Prof. Ants Work
NOC Chairman

PC Software for Control Education

The Education Committee (EDCOM) is organizing a discussion session on PC software for control education at the IFAC Congress in Tallinn. It will be different from a normal discussion session in that some short presentations and demonstrations are planned describing teaching software, and hopefully, some software may be available for delegates to copy for a small fee. Any person wishing to give a presentation on teaching software should contact

Prof. D.P. Atherton
School of Engineering & Applied Sciences
University of Sussex
Falmer, Brighton BN1 9QT, UK

no later than

30 April, 1990

It will only be possible to consider presentations on PC Teaching software which can be made available to other users either commercially at a reduced rate for teaching purposes or at a nominal fee from the developer. The submission to Prof. Atherton should include a short description of the software and its use in teaching, details of its availability and confirmation of willingness to give a demonstration on an IBM PC AT (or compatible) with maths coprocessor.

New National Member Organization

Hong Kong Institution of Engineers

The Hong Kong Institution of Engineers (HKIE) was elected a NMO of IFAC on September 1, 1989. The HKIE is a multidisciplinary institution, consisting of 15 divisions and the number is still increasing. Each division is responsible for the learned society activities in its own area. The Control, Automation and Instrumentation (CAI) Division was founded in 1987 to coordinate activities in the areas of control, automation and instrumentation as the name implies. To coordinate the activities of the CAI, four technical sub-committees, i.e. CAE, Robotics and Manufacturing Automation, Instrumentation and Industrial Control and Control Theory are formed this year. Each technical sub-committee has its own committee and is responsible to the Division Committee. It is the CAI committee that initially represent the interest of the HKIE as a NMO in IFAC, though other divisions such as Electrical, Electronics, Mechanical and Marine, Production and Industrial Engineering also share similar interests. The membership of the HKIE is about 8.700 and is growing at a rate of about 10 % per year. The Council of the HKIE consists of appr. 30 members. The Secretariat of the HKIE is staffed by a team of full time staff headed by H.W. Hood, the Secretary of the HKIE. The Committee of the CAI Division consists of 18 members.

The Division organizes regular technical meetings and technical visits for its members and annual one-day symposia in areas of current interest. It is the aim of the Division to cooperate with other regional or international institutions in organizing conferences of mutual interest.

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 Zürich 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. Dr. 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 Beiträgen der derzeit 44 Mitgliedsländer getragen.

Präsident der IFAC ist für 1987/90 Akademiemitglied Prof. Dr. B. Tamm (UdSSR). Vizepräsidenten sind Prof. Dr. L. Ljung (S) und Prof. Dr. S. Kahne (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.)

The Riccati Equation in Control, Systems and Signals CNR/IFAC/SIAM/IEEE Conference 26 - 28 June, 1989, Como, Italy

Towards the turn of the seventeenth century, there lived in the Republic of Venice a nobleman named Jacopo Francesco Riccati. On the cold New Year's Eve of 1720 he wrote a letter to his friend Giovanni Rizzetti, where he proposed two new differential equations. In modern symbols, these equations can be written as follows:

$$\dot{x} = \alpha x^2 + \beta t^m$$
$$\dot{x} = \alpha x^2 + \beta t + \gamma t^2$$

where m is a constant. This is probably the first document witnessing the early days of the Riccati Equation, an equation which was to become of paramount importance in the centuries to come.

More than a quarter of a millenium later, a Workshop on the Riccati Equation in Control, Systems and Signals was held at Villa Gallia in Como (Italy), June 26-28, 1989. The workshop had a strong international flavour, with more than 70 participants coming from 17 countries.

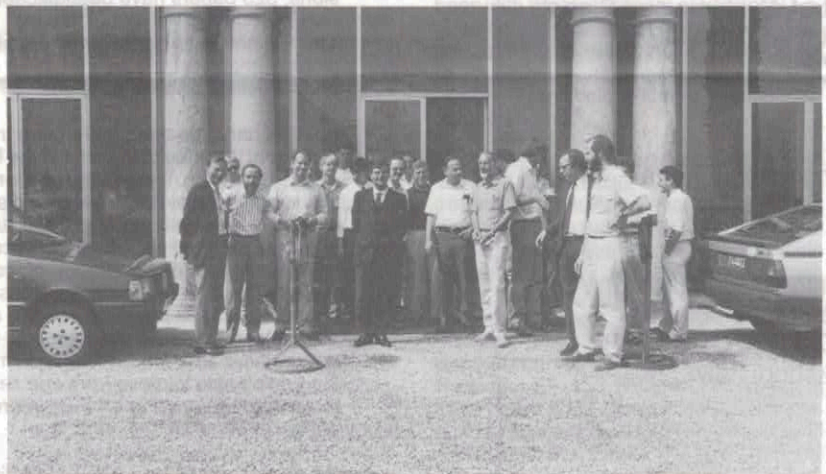
The Program Committee with S. Bittanti as chairman, A.J. Laub, J.C. Willems and H.K. Wimmer had put together a full programme of 3 tutorial, 20 invited and 16 contributed papers.

The meeting was sponsored by the Italian Research Council (CNR), co-sponsored by IFAC and SIAM, and supported by the Politecnico di Milano (Faculty of Engineering, Department of Electronics), Centro di Teoria dei Sistemi of the CNR and Centro di Cultura Scientifica A. Volta. Financial support was provided by CNR.

The titles of the Workshop sessions were in order: Geometry of the Riccati Equation; Optimal filtering and control: Applications; Convergence and receding horizon; The linear matrix inequality, H-infinity control and stochastic realization; The algebraic Riccati equation; Numerical techniques for the solution of the Riccati Equation; Singular problems; Sensitivity and robustness; Games; The Periodic Riccati Equation.

The material distributed to the participants included a set of preprints and a booklet edited by S. Bittanti entitled "Count Riccati and the Early Days of the Riccati Equation", in which the history and prehistory of the Riccati Equation were concisely presented. A few words on Riccati's life and work were also addressed to the audience by Professor Bittanti at the opening of the Conference.

S. Bittanti
A.J. Laub



Participants in the Como Workshop

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Decisional Structures in Automated Manufacturing

IFAC/IFIP/IFORS/CIRP Workshop
Genova, Italy, 18 - 21 Sept., 1989

The Workshop on DSAM took place in Genova, September last year and was organized by the Politecnico di Torino and the University of Genova with the sponsorship of the Consiglio Nazionale delle Ricerche and ELSAG S.p.A., Genova.

For some years, the problem of designing structures or the architectures of planning/control procedures in order to automate the decision-making in Production Management (PM) has challenged the interest of managers and researchers. The declared aim is to shorten the delays in deciding PM strategies for manufacturing plants which are getting more and more complex. This could allow a modification of production plans much more frequently than now, permitting accurate tracking of market requirements while keeping the work-in-process very low.

Intuitively, the solution to this problem involves a number of different experiences and know-how in the field of manufacturing processes, in the solution of large-scale planning/control problems, in the implementation of computerized networks and the management of data and procedures. The best way to approach this problem should be that of "integrating these different experiences and know-how". This was the stated aim of the Workshop organizers and the result of the Workshop presentations and discussions.

A. Villa
G. Murari
NOC Chairmen

New President of IFIP

Academician Blagovest Hristov Sendov was born on 8 February, 1932 in Assenovgrad, Bulgaria. He graduated in mathematics from Sofia University in 1956 and received his Mathematics PhD from Sofia University in 1964. He then went on to study at the Mathematical Institute of the Academy of Sciences of the USSR in 1967. He specialized in numerical methods at Moscow University (1960-1961) and in computer science at the Imperial College, London (1968). In Bulgaria, Academician Sendov first worked as a mathematics teacher from 1956-58 and as an assistant- and then associate professor at Sofia University between 1956 and 1968. From 1968 he has been full professor in Numerical Analysis at Sofia University. From 1967-1970 Prof. Sendov was deputy director of the Institute of Mathematics at the Bulgarian Academy of Sciences and from 1970-73 Dean of the Faculty of Mathematics of Sofia University. 1973-1979 he was rector of Sofia University. In 1980 Prof. Sendov became Vice President of the Bulgarian Academy of Sciences and in 1982 its Vice President and Secretary General. Since 1988 he has been President of the Bulgarian Academy of Sciences.



Blagovest Hristov Sendov

At the international level Academician Sendov was Vice-President and/or Acting

President of the International Association of Universities (IAU) and became its Honorary President in 1985. From 1984 to 1988 he was Vice-President of the International Federation of Information Processing (IFIP). In 1986 Prof. Sendov became member of the Executive Board and General Committee of the International Council of Scientific Unions (ICSU), and in the same year also member of the Committee for the Evaluation of the 10-Year Activities of the United Nations University (UNU). In 1988 he became

member of the Executive Committee and Board of Directors of the International Foundation for the Survival and Development of Humanity (IFSDH). 1988-1989 Professor Sendov was President-Elect of IFIP and became its President in 1989. Professor Sendov became academician in 1981. He received a Honorary Doctor's Degree of Moscow University in 1977. He became member of the British Computer Society in 1968 and of the American Mathematical Society in 1970. Professor Sendov is bearer of the Dimitrov Award for Science (1969). He received the IFIP Silver Core in 1973. In 1974 he was awarded the Cyril and Methodius Order 1st Grade and in 1978 and 1982 the PR of Bulgaria 1st Grade. Academician Sendov is a Member of the Bulgarian Parliament.

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Academician Sendov is a Member of the Bulgarian Parliament.

Control Computers and Communication - CCCT '89

IFAC/IFIP/IFORS Symposium

Paris, France, 19 - 21 September, 1989

The 6th Symposium in this series on automatic control in transportation - control, computers, communications in transportation was held in Paris.

51 technical papers, 3 survey papers, 7 case studies and five posters were presented and 2 round tables were organized, with speakers from 16 countries.

There were almost 300 participants from 23 countries, more than half of them coming from outside the organizing country.

The aim of this symposium was to present and discuss the latest developments in the automatic control of transportation systems (railways, metros, road and urban, maritime, air traffic) in different countries.

It can be seen and was confirmed by the papers that transportation lends itself to scientific applications in several domains, and thus is a good field for technological research and development. The three main directions, i.e. control, computers and communications have made spectacular progress in the course of the past 20 years, leading from theory to application in a short time.

The result is that the prototypes presented

at the 5th Symposium in Vienna in 1986 are now operational systems, and principles explained in 1986 are the basis of prototypes now in the experimental stage. The panorama depicted contains specific applications such as in rail safety or general developments common to several systems.

Studies and realizations most remarkable are the following:

- Communications take on increasing importance: Transmission of information in all its forms (vocal, data, images), indispensable links between human beings, systems, man and machines; short range, track to train, networks, high flow of data are covered.
- Computers which are more and more powerful are used to increase the performance and to help in operation and maintenance - in parallel logistics is developed: rules for concepts and control.
- Algorithms are created as well, to process images and to operate strategies (route guidance, for example)
- Expert systems begin to enter the operational domain. But they are still mainly used in prototypes for control, maintenance,

logistics; research is still necessary to turn them into tools which are easy to build, operate and to maintain.

The session and round table on safety showed that several theories are elaborated, each of them has its performance and they have to be compared. - The problem of licensing depending on countries' regulations and responsibility balance between supplier and operator is put on. Nevertheless an increased confidence into unmanned systems is to be noticed.

- For motorways, traffic regulations and overall control are under progress.

- For urban traffic, real-time strategies are developed simultaneously with route guidance and information to drivers. This topic is prospective. New systems, new technologies for the next twenty years will be developed.

What will be the most efficient systems and how will they be used? Answers to these two questions can be expected from experiments in many countries (France, Great Britain, Germany, United

Papers From the Next Issue - March 1990

Survey Papers

Qualitative and Quantitative Experiment Design for Phenomenological Models: A Survey
(E. Walter, L. Pronzato)

Papers

Developments in Selective Model Analysis of Small Signal Stability in Electric Power Systems

(I.J. Pérez-Arriaga, G.C. Verghese, F.L. Pagola, J.L. Sancha, F.C. Schweppe)
Coprime Factorization Controller Reduction with Bezout Identity Induced Frequency Weighting

(Y. Liu, B.D.O. Anderson, U-L. Ly)
Modular Model Reduction for Interconnected Systems

(A.F. Vaz, E.J. Davison)
Decentralized Control of Interconnected Systems with Unmodelled Nonlinearity and Interaction

(C-J. Mao, W-S. Lin)
Parametric Uncertainty and Unmodeled Dynamics: Analysis via Parameter Space Methods

(C.V. Hollot, D.P. Looze, A.C. Bartlett)
The Robust Root Locus

(B.R. Barmish, R. Tempo)
A Multivariable Self-Tuning Controller Based on Pole Placement Design

(J. Mikles)
Design of Robust Linear State Feedback Laws: Ellipsoidal Set-Theoretic Approach

(S-D. Wang, T-S. Kuo)
Consistent Order Selection for Noncausal Autoregressive Models via Higher-Order Statistics

(J.K. Tugnait)
A State Observer for Systems Described by Functional Differential Equations

(Y.A. Fiagbedzi, A.E. Pearson)
Approximation of Stable Systems by Laguerre Filters

(P.M. Mäkilä)

Brief Papers

Minimax Robust LQ Control of a Thermo-mechanical Pulping Plant

(H.T. Toivonen, J. Tamminen)
Robust Control for Manipulators with Uncertain Dynamics

(R. Shoureshi, M.E. Momot, M.D. Roesler)
Low Order SISO Controller Tuning Method for the H_2 , H_∞ , and μ Objective Functions

(D.E. Rivera, M. Morari)
A Computational Algorithm for Functional Inequality Constrained Optimization Problems

(L.S. Jennings, K.L. Teo)
Stabilization of Multirate Sampled-Data Linear Systems

(P. Colaneri, R. Scattolini, N. Schiavoni)
A New Structural Framework for Parity Equation Based Failure Detection and Isolation

(J. Gertler, D. Singer)
Optimal Filtering of Linear Discrete Dynamic Systems Based on Least Absolute Value Approximations

(G.S. Christensen, S.A. Soliman)

Optimal Filtering for Continuous Linear Dynamic Systems Based on WLAV Approximations

(G.S. Christensen, S.A. Soliman)
Combined Filtering and Parameter Estimation: Approximations and Robustness

(W.J. Runggaldier, C. Visentin)
A Nonminimal Representation of Reduced Order Observers

(P. Hippe)
Geometric Design Techniques for Observers in Singular Systems

(F.L. Lewis)
A Closed Form Solution for Regular Descriptor Systems Using the Moore-Penrose Generalized Inverse

(R.J. Dias, A. Mesquita)
Remarks on Observability of Implicit Linear Discrete-Time Systems

(A. Banaszuk, M. Kociecki, K.M. Przulski)
Reachability of Sampled Data Systems with Input and Output Delays

(C.P. Diduch, R. Doraiswami)
Implementation Processes of New Technologies - Managerial Objectives and Interests

(H. Hirsch-Kreinsam, R. Schultz-Wild)

Book Reviews

Microprocessors for Engineers - Interfacing for Real-Time Applications, 1987 by P.K. Sinha

(P. Valásek)
Direct Method for Sparse Matrices by I.S. Duff, A.M. Erisman & J.K. Reid

(A.J. Osiadacz)
Manufacturing Systems, An Introduction to the Technologies by David J. Williams

(A. Carrie)
An Introduction to Automata Theory by M.W. Shields

(P. Kolár)
Manufacturing Intelligence by Paul Kenneth Wright and David Allan Bourne

(U.S. Bititei)

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States, Japan). On the European side some common projects are specially interesting. Main topics are standardization, technical differentiation, cost/benefit (revenue), man-machine adaptation.

- Image processing was also specially addressed. It was stated that suitable techniques are more and more efficient for qualitative and quantitative measurement tools, even in underseas applications.

- Rail and road were the most explored domains during this symposium. A survey on air traffic control had nevertheless been a good introduction to communications, an important way of development being multiservice networks.

J.P. Perrin, NOC Chairman
J.J. Henry, IPC Chairman

WHO IS WHO IN IFAC



Edward J. Davison
Chairman of TC on Theory

Edward J. Davison was born in Toronto, Canada in 1938. He received the A.R.C.T. degree in piano from the Royal Conservatory of Music in Toronto in 1958, the B.A.Sc. degree in Engineering-Physics and the M.A. degree in Applied Mathematics from the University of Toronto in 1960, 1961 respectively. In 1964 he received the Ph.D. degree and in 1977 the Sc.D. degree from Cambridge University, England.

From 1964-1966 he was with the University of Toronto; in 1966-67 he was with the University of California, Berkeley, in the Department of Electrical Engineering and Computer Science, and since then he has been with the Department of Electrical Engineering, University of Toronto. His current research interests include the study of multivariable control system theory and design, large scale systems, and computational methods.

Dr. Davison was Associate Editor from 1974-76, Guest Editor in 1977-1978, 1982-1983 and Consulting Editor in 1985 of the IEEE Trans. on Automatic Control. He has been an Associate Editor of "Large Scale Systems: Theory and Applications" since 1979, and is a member of the Editorial Board of "Optimal Control Applications and Methods" since 1983. He was Vice President (Technical Affairs) in 1979-1981, President-Elect in 1982 and President in 1983 of the IEEE Control Systems Society. He received an Athlone Fellowship in 1961-1963, the E.W.R. Steacie Memorial Fellowship in 1974-1977 and the Killam Research Fellowship in 1979-80; 1981-83. In 1984 he received the IEEE Centennial Medal and was elected a Distinguished Member of the IEEE Control Systems Society. He was elected a Fellow of the Royal Society of Canada in 1977, and a Fellow of the IEEE in 1978; in 1986 he was elected "Honorary Professor" of the Beijing Institute of Aeronautics and Astronautics. He has been a designated consulting engineer of the Association of Professional Engineers of the Province of Ontario since 1979, and a Director of Electrical Engineering Associates Ltd. He has received a number of Best Paper Awards from the IEEE Trans. on Automatic Control and has a Current Contents Classic Paper Citation paper.

In IFAC, Dr. Davison served as Associate Editor of Automatica from 1974 to 1987. He was Vice-Chairman of the IFAC Theory Committee from 1978 to 1987, and at present, is serving as Chairman of the IFAC Theory Committee.



FORTHCOMING EVENTS

(of) FORTHCOMING EVENTS (of) 1990
 No. 1
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Title	1990	Place	Deadlines	Further Information
IFIP/IFAC Intl. Conference Modelling the Innovation Communications, Automation & Information Systems	March 21-23	Rome Italy	-	Conf.Secr. c/o Dr. A. Tornambé Fondazione Ugo Bordoni via Baldassare Castiglione 59 I-00142 Rome, Italy
JSME/IFAC Intl. Conference Manufacturing Systems & Environment Looking Toward the 21st Century	May 29 June 1	Tokyo Japan	-	T. Nakajima, The Japan Society of Mech.Eng., Sanshin Hokusei Bldg, 4-9 Yoyogi 2-chome Shibuya-ku, Tokyo 151, Japan
INRIA/IFAC/IEEE/SIAM 9th International Conference Analysis and Optimization of Systems	June 12-15	Antibes France	-	INRIA, Service des Relations Exterieures, Domaine de Volveau, Rocquencourt, BP 105, F-78153 Le Chesnay Cedex, France
IFORS/IFIP/IFAC Int. Conf. Economics and AI CECOIA II	July 2-6	Paris France	*	Dr. P. Bourguine, CEMAGREF 26, rue St. Louis F-78000 Versailles, France
International Symposium (4th) Differential Games and Applications	Aug. 9-10	Helsinki Finland	Feb. 1 1990	Harri Ehtamo, Systems Analysis Lab, Helsinki University of Technology, Otakaari 1 M SF-02150 Espoo, SF
XI IFAC WORLD CONGRESS AUTOMATIC CONTROL IN THE SERVICE OF MANKIND	August 13-17	Tallinn USSR	-	IFAC 90 Secretariat Institute of Cybernetics Akadeemia tee 21 200108 Tallinn, USSR
IFIP/IFAC Conference (3rd) Interact '90	August 27-31	Cambridge UK	-	Ms. Karyn McCartney INTERACT '90, The British Computer Society, 13 Mansfield Street, London W1M 0BP, UK
IMEKO/IFAC Conference Measurement in Clinical Medicine	August 29-31	Sopron Hungary	-	6th IMEKO Conf. on Biomedical Engineering Méréstechnikai és Automatizálási; Tudományos Egyesület; POB 457 H-1372 Budapest, H
Title	1991	Place	Deadlines	Further Information
IFAC/IEEE/IFIP/IMEKO Symp. Intelligent Tuning and Adaptive Control	Jan. 15-17	Singapore	*	Dr. Kang Chang Guan, Instr. & Control Society; 1 Science Park Drive, Nr 61 A; The Fleming, Singapore Science Park Singapore 0511
IFAC/(IFIP) Workshop Computer Software Structures Integrating AI/K BS Systems	May 29-30	Bergen Norway	*	N.P. Sundby, Norwegian Society of Automatic control Kronprinsensgate 17 N-0251 Oslo, N
IFAC Workshop Electric Power Systems Control Centers	June 17-20	Semmering Austria	*	K. Schenk, Senior Director, Siemens Österreich AG Gudrunstr. 11, A-1101 Vienna, A
IFAC/IFORS Symposium (9th) Identification & System Parameter Estimation	July 8-12	Budapest Hungary	July 15 1990	G. Hencsey, Computer&Autom. Inst., HAS, Kende u. 13-17 H-1111 Budapest, H
IFAC/IFIP/IMACS Symposium (5th) Computer Aided Design in Control & Engineering Systems	July 15-17	Swansea UK	*	Prof.H.A. Barker, Dept. of Elect. Electronic Engg., Univ. College of Swansea, Singleton Park Swansea SA2 8PP, UK

FORTHCOMING EVENTS (ctd.)



Title	1991	Place	Deadlines	Further Information
IFAC Symposium Distributed Intelligent Systems DIS '91	Aug. 13-15	Washington DC USA	*	Prof. A.H. Levis LIDS 35-410, M.I.T. Cambridge, MA 02139, USA
EFMI/IIASA/IFAC Intl. Conference Medical Information Systems and Expert Systems	Aug. 19-22	Vienna Austria	*	K.P.Adlassnig, MIE'91 Sec. General c/o Inst. f. Medizin. Computerwissenschaften Garnisong. 13, 8.Hof A-1090 Vienna, A
IFAC Symposium Design Methods of Control Systems	Sept. 4-6	Zurich Switzerland	*	Prof. F. Kraus, ETH Zentrum ETL, CH-8092 Zurich Switzerland
IFAC Symposium Fault Detection, Supervision and Safety for Technical Processes SAFEPROCESS '91	Sept. 10-13	Baden-Baden FRG	*	R.Isermann, Inst. f. Regelungs- technik, TU Darmstadt, FB 19 Schlossgraben 1 D-6100 Darmstadt, FRG
IFAC/(IFIP)/IMACS Symposium Robot Control SYROCO '91	Sept. 16-18	Vienna Austria	*	Prof.I. Troch, TU Vienna Wiedner Hauptstr. 6-10 A-1040 Vienna, Austria
IFAC/ISHS Workshop Mathematical and Control Applications in Agriculture and Horticulture	Sept. 30 Oct. 3	Matsuyama Japan	Oct. 15 1990	Prof. H. Nonami, Dept. of Bio- mechanical Systems, Ehime University, Tarumi Matsuyama 790, Japan
IFAC Symposium Advanced Control of Chemical Processes - ADCHEM '91	Oct. 14-16	Toulouse France	Oct. 1 1990	Prof. K. Najim, ENSIGC, Chemin Chemin de la Loge F-31078 Toulouse Cedex, France

Title	1992	Place	Deadlines	Further Information
IFAC/(IFORS) Workshop Support Systems for Decision and Negotiation Processes	June 24-26	Warsaw Poland	*	R. Kulkowski, System Res.Inst. Newelska 6, PL-01 447 Warsaw Poland
IFAC Symposium Adaptive Control and Signal Processing	July 1-3	Grenoble France	*	L. Dugard, Lab d'Automatique de Grenoble-ENSIEG, BP 46 F-38402 St. Martin d'Herès, F
IFAC/IFORS/(IFIP)/(IIASA) Symp. (7th) Modelling and Control of National Economies	August 18-20	Beijing China, P.R.	*	Prof. Jong-Ming Wu, Dept. of Computer Science and Techn. Beijing Information Technology Institute, Beijing, China, P.R.
IFAC/IFORS Symposium (6th) Large Scale Systems: Theory and Applications	August 22-26	Beijing China, P.R.	*	Prof. Y.P. Zheng IFAC Symp. LSS '92 Secretariat POB 2728, 100080 Beijing China, P.R.
IFAC Symposium (7th) Automation in Mining, Mineral and Metal Processing	August 26-28	Beijing China, P.R.	*	Mr. Sheng Wei-Zhi ARIM Information Section POB 919, 100071 Beijing China, P.R.
IFAC Symposium (3rd) Low Cost Automation	Sept.	Vienna Austria	*	Prof. P. Kopacek c/o OePWZ Rockhgasse 6, A-1014 Vienna Austria

* deadline not yet known
- deadline past