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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 Akademienmitglied 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.)

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Message from the President

Since the first 1980 issue the IFAC Newsletter has been produced under the sole responsibility of the IFAC Secretariat, which had just been installed in Laxenburg a little over a year before. It has become a regularly published bi-monthly periodical, as a result of Fred Margulies' efforts.

Not only that the Newsletter has developed into a well-recognized information medium but the IFAC Secretariat too has become very efficient since then. Due to the generous support by the Austrian Government Laxenburg can be considered now as the permanent seat of the IFAC Secretariat with Barbara Aumann and Elfriede Schrott as fulltime staff.

This development could only be achieved by the personal engagement and the untiring efforts of Fred Margulies who carried the responsibility as IFAC Secretary until the Budapest World Congress. He agreed however to continue editing the Newsletter for a while until the new Secretary Gusztáv Hencsey would be acquainted with the Secretariat's work. Now, with the first issue of 1985 G. Hencsey has taken over the editorial responsibility of the Newsletter, too.

On behalf of the whole IFAC family I would like to thank Fred Margulies again for his outstanding contributions as IFAC Secretary and as Editor of the Newsletter. At the same time I wish Gusztáv Hencsey all the best for his new duties.

I am sure that all those who had a chance to participate in the Budapest Congress like to remember the wonderful event. It clearly demonstrated the great effort which had been made by our federation not only to keep up with the tremendous development in our field, but also to improve the quality of our professional activities. However, it seems to me that quite some enthusiasm is needed in order to maintain this high standard of our service which we provide for the worldwide automatic control community.

In order to achieve this goal a great effort is also needed in the future which will be carried out by enthusiastic engineers and scientists coming from IFAC National Member Organizations of over forty countries. These worldwide activities based on personal understanding form an excellent basis to serve mankind.

All the best for 1985!

M. Thoma



IFAC's former Secretary, Prof. Fred Margulies, receives a medal for his merits by the Mayor of Laxenburg, Dr. Herbert Rauch-Höphffner in October 1984.

Data and Facts about the IFAC '84 World Congress

More than half a year has passed since the World Congress of IFAC took place in Budapest, but perhaps it is worth looking back again to these eventful days with the help of the database and the questionnaires filled in by the participants. First of all let us study the distribution of accepted papers and participants by their respective countries of origin:

Countries	Accepted papers	Participants
Argentina	—	3
Australia	7	7
Austria	6	19
Belgium	3	6
Brazil	4	10
Bulgaria	10	43
Canada	16	11
Chile	2	1
China	32	31
Cuba	1	3
Czechoslovakia	19	54
Denmark	6	12
Egypt	3	6
Finland	6	35
France	27	37
German	—	—
Democratic Republic	16	29
Federal Republic of	—	—
Germany	38	77
Greece	2	—
Hungary	22	232
Iceland	—	1
India	—	1
Israel	1	3
Italy	17	23
Japan	88	119
Korea, Republic of	1	2
Kuwait	—	3
Mexico	1	—
Morocco	3	7
Netherlands	12	39
New Zealand	2	1
Norway	3	16
Poland	19	23
Portugal	1	1
Rumania	6	9
Singapore	—	1
South Africa	2	8
Spain	2	10
Sweden	15	39
Switzerland	12	20
Syria	—	1
Turkey	2	2
USSR	24	30
United Kingdom	29	41
USA	96	124
Venezuela	2	—
Vietnam	—	1
Yugoslavia	11	18
Total	569	1159

Participants had notified the Congress organisers in advance which sessions they wanted to visit. The following sessions appeared to be the most popular ones (in brackets: the number of people interested):

Advances in the Control of Robots (149)
Microcomputer Based Control (139)
Sensory Controlled Robots (135)
Adaptive Control Applications (122)

Since the participants had indicated the keywords they were mostly interested in, and the papers contained keywords as well, it is interesting to compare two "popularity lists":

Number of participants in brackets

1. Adaptive Control (154)
2. Identification (144)
3. Robots (126)
4. Computer Control (103)
5. CAD (93)
6. Modelling (76)
7. Process Control (73)
8. Optimal Control (70)
9. Large Scale Systems (64)
10. Power System Control (61)

Keywords in order of popularity

Number of papers in brackets

- Adaptive Control (61)
 Optimal Control (59)
 Identification (56)
 Modelling (44)
 Linear Systems (38)
 Parameter Estimation (38)
 Optimization (36)
 Large Scale Systems (35)
 Multivariable Control Systems (34)
 Control System Synthesis (32)

If we call interest of participants demand, and the papers supply, then the approaching ratio of the number of participants to the number of papers can be considered well-balanced between 1.5 and 3. If the ratio is much higher than this, the supply falls behind the demand. This happened in the following fields where we should have had more papers:

- Artificial Intelligence
- Control Theory
- Education
- Robots

This is a good advice for those preparing the next Congress!

Among the fields of applications Power and Energy Control is still at the top, closely followed by Chemical Industry, Manufacturing Control and Biocontrol.

Here we may mention that the list of keywords was strongly criticized and its modernisation has already begun. The experiences gained during the Congress can be very helpful in this work.

The questionnaires on the technical program and the organisation were filled in by 69 participants of the IFAC '84 World Congress. The majority of these people think

that both smaller meetings and large Congresses are needed. Almost everybody considered the idea of a bunch of colloquia a good one, and they thought it a success. There were only six participants who considered it to be simply a formal trick.

The presentation and the standard of certain papers (language problems, quality of slides etc.), the acoustics of the old building of the Hungarian Academy of Sciences, and the brief time given for lectures and discussions were criticized by a number of participants.

As the questionnaires also contained numerical evaluations let us see how participants classified IFAC '84:

Evaluation of IFAC '84:
(5 is the best — 1 is the worst)

	(6)	5	4	3	2	1
Technical Program	16	25	15	3	—	—
Technical Visits	9	13	7	3	—	—
Technical Support, Information	35	16	3	1	—	—
Social Program	21	17	6	2	—	—
Accommodation	30	22	5	2	—	—
Transport	27	15	9	1	—	—
Hospitality	2	39	15	2	—	1

G. Hencsey

Happy Birthday to IFIP

IFIP's 25th Anniversary Celebration

IFIP (International Federation for Information Processing) — IFAC's sister federation in FIACC — observes its 25th Anniversary with a gala celebration in Munich, Federal Republic of Germany, this year in March. A public symposium will be held at the Technical University of Munich on March 27. All papers from the Symposium as well as additional contributions, not orally presented during the symposium, will be included in a 25th Anniversary Publication. This volume will serve as a commemoration of IFIP's past achievements, as well as a signpost to IFIP's future.

The IFAC family extends its best wishes for a further successful development and hopes for a continuing excellent and cordial co-operation.

UNIDO's Industrial Development Board

21st Session of the Permanent Committee, Vienna, 19—24 November 1984

IFAC had been invited to attend this session and was represented by G. Hencsey, Secretary of IFAC, and by O. G. Ladanyi on behalf of DECOM. The Executive Director of UNIDO, Dr. Abd-El Rahman Khane addressed the opening meeting of the twenty-first session of the 45-nation Permanent Committee, a subsidiary of UNIDO's policy-making body, the Industrial Development Board.

Agenda items to be reviewed included the work programme of UNIDO for the biennium 1986—87, the co-ordination of its activities with other United Nations bodies and organisations in the field of industrial development, as well as an evaluation of its technical co-operation activities. The Permanent Committee also considered the question of UNIDO's network of Industrial Development Field Advisers and an item on the control and limitation of documentation.

FORTHCOMING EVENTS (ctd.)

Title	1986	Place	Deadlines	Further Information
IFAC Symposium Chemical Process Control	April 21—25	Pretoria, ZA	*	Mr. J. D. N. van Wyk CSIR P.O. Box 395, Pretoria 0001 South Africa
IFAC Workshop Reliability of Instrumentation Systems for Safeguarding and Control	April 22—24	The Hague, NL	*	Mr. J. P. Jansen Shell Intl. Petroleum Mij. Carel von Bylandtlaan 30 2596 HR Den Haag, NL
5th IFAC/IFIP/IMACS/IFORS Symposium Information Control Problems in Manufacturing Technology	April 22—25	Yerevan, SU	April 1, 1985	Organizing Committee of the 5th Symposium ICPMT 65, Profsojuznaja Str. Moscow, 117342, USSR
2nd IFAC Symposium Stochastic Control	May	Vilnius, SU	June 15, 1985	USSR National Committee on Automatic Control 65, Profsojuznaja Str. Moscow, 117342, USSR
4th IFAC/IFIP Symposium Software for Computer Control (SOCOCO)	May 20—23	Graz, A	Sept. 1, 1985	SOCOCO '86 att. Ms. R. Hammer, IIG Schießstattgasse 4a A-8010 Graz, Austria
14th IFAC/IFIP Workshop Real Time Programming	May 25—27	Balaton, H	*	Hungarian National Committee for IFAC Computer and Automation Institute, Kende u. 13—17 H-1502 Budapest, Hungary
IMEKO/IFAC Symposium Intelligent Measurement	June 10—14	Jena, GDR	*	Prof. D. Hofmann Friedrich-Schiller University Section Technology GDR-6900 Jena
5th IFAC/IFORS/IIASA Conference Modeling and Control of National Economies	June 17—20	Budapest, H	*	Dr. Margit Ziermann Institute of Economic Planning Roosevelt tér 7—8 H-1051 Budapest V, Hungary
4th IFAC Symposium Control of Distributed Parameter Systems	June 30 July 3	Pasadena, USA	Sept. 1, 1985	Mr. G. Rodriguez Jet Propulsion Laboratory 3800 Oak Grove Drive Pasadena, CA 91109, USA
5th IFAC/IFIP/IFORS International Conference Control in Transportation Systems	July 8—11	Vienna, A	past	ÖPWZ, Mr. W. Stejskal POB 131 A-1014 Vienna, Austria
IFAC Workshop Adaptive Signal Processing	July	Lund, S	*	Prof. K. J. Aström Dept. of Automatic Control Lund Institute of Technology Sweden
IFAC Symposium Microcomputer Application in Control	July	Istanbul, TR	*	Prof. E. Adali Control Engineering Department Istanbul Technical University Gümüssuyu-Istanbul, Turkey
IFAC Workshop State Space Modelling of Hydrological Systems	July (1 day)	Budapest, H	*	Dr. A. Szöllösi-Nagy VITUKI Pf. 27, H-1453 Budapest Hungary
IFAC Symposium Automation in Aquaculture	August 18—20	Trondheim, N	*	Prof. J. G. Balchen Norwegian Inst. of Technology N-7034 Trondheim NTH, Norway
IFAC Workshop Modelling, Decisions and Games with Applications to Social Phenomena	August 18—22	Beijing, PRC	*	Prof. Zhang Si-Ying Dept. of Automatic Control Northeast Inst. of Technology Shenyang, Liaoning Province, PRC
5th IFAC Symposium Automation in Mining, Mineral and Metal Processing	August 24—28	Tokio, J	*	Prof. Y. Yoshitani Technological University of Nagaoka Dept. of Control Engineering Kamitomioka Nagaoka 949-54, Japan

+ not yet officially approved

* deadline not yet known

Innovation in Biomedical Equipment

ECE — AdHoc Meeting,
Geneva, 15—16 November, 1984

During its fourth session held in March 1984, the Working Party on Engineering Industries and Automation, a subsidiary body of the Economic Commission for Europe (ECE), agreed to undertake a study on innovation in biomedical equipment.

The purpose of the meeting was to make decisions concerning the scope and content of the study as well as the organisational arrangements and schedule for the preparation of the study.

O. G. Ladanyi gave details of the activities of IFAC's TC for Biomedical Engineering, which dealt with the primary utilization of control principles and control techniques in the interdisciplinary area involving engineering, biology and life science. The chairman of the meeting, Prof. Kadefors (Sweden), recalled the need for close co-operation between international organisations (WHO, EFOMP, IEC, IFAC, IFMBE, IFORS and ISO) and the Working Party in order to avoid duplication of work and making the best possible use of the resources available.

It was agreed that the title of the study should be "Current Development and Trends in Biomedical Equipment, with Emphasis on Digital Image Processing". The following types of instrumentation and technology should be covered in the study: X ray equipment, devices of nuclear medicine, ultrasound scanning equipment, all three groups incorporating DIP devices; and magnetic resonance imaging devices. Medical image processing, storage and transmission. Image networks, as proposed for example in filmless radiology, and the application of pattern recognition to image interpretation and image analysis together with the role of artificial intelligence (expert systems) are to be dealt with as well.

Members of the IFAC TC for Biomedical Engineering and other colleagues active in this field are invited to submit relevant published material by mid-April 1985. The submission of the first draft of the study to important institutions and experts for comment and additional contributions is scheduled for September 1985. The IFAC Secretariat is prepared to deliver further information and to submit material to the Secretary of the ECE Working Party.

Abbreviations:

WHO	World Health Organization
EFOMP	European Federation of Organizations for Medical Physics
IEC	International Electrotechnical Commission
IFMBE	International Federation for Medical and Biological Engineering
IFORS	International Federation of Operational Research Societies
ISO	International Organization for Standardization

Dr. O. G. Ladanyi

New Publications



An Essential Reference Source for all Systems Experts, Control Engineers and Operations Researchers

A Bridge between Control Science & Technology

Proceedings of the 9th Triennial World Congress of IFAC, Budapest, Hungary, 2—6 July 1984

Published in 6 volumes

General Editors: J. Gertler, Polytechnic Institute of New York, NY, USA, and L. Keiviczky, Hungarian Academy of Sciences, Budapest, Hungary.

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Large Scale Systems: Theory & Applications 1983

Proceeding of the 3rd IFAC/IFORS Symposium, Warsaw, Poland, 11—15 July 1983

Edited by A. Straszak, Systems Research Institute, Polish Academy of Sciences, Warsaw, Poland.

Contains 100 papers which present recent developments and state-of-the-art reviews of large scale systems theory and applications. For automatic and control engineers, systems scientists, mechanical and production engineers, and operational researchers. 710 pp US \$ 130.00

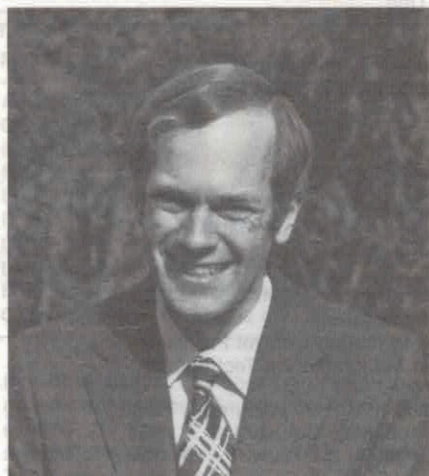
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WHO IS WHO IN IFAC



Prof. Brian D. O. Anderson
Vice President of IFAC

Prof. Anderson was born in Sydney, Australia, in 1941. He is married and has three children. He took his B.Sc. degrees in pure mathematics and electrical engineering at the University of Sydney, Australia, and his Ph.D. degree in electrical engineering at Stanford University, California, in 1966.

From 1967 through 1981 he was Professor of Electrical Engineering at the University of Newcastle, Australia. He also held appointments as a Visiting Professor at Southern Methodist University, Massachusetts; the University of California, Berkeley and Santa Barbara, and at Stanford University. He is currently Professor and Head of the Department of Systems Engineering, Research School of Physical Sciences, at the Australian National University in Canberra.

Prof. Anderson's research interests are in control, communication systems, and networks. He is co-author of five books: Linear Optimal Control; Network Analysis and Synthesis; Foundation of System Theory; and more recently Singular Optimal Control with D. J. Clements and Optimal Filtering with J. B. Moore.

Prof. Anderson was a member of the Australian Research Grants Committee from 1971 to 1977. Since 1977 he has been a member of the Australian Science and Technology Council. He is a Fellow of the Australian Academy of Science, the Australian Academy of Technological Sciences, the Institution of Engineers Australia, the Institute of Electrical and Electronics Engineers and a member of the Society of Industrial and Applied Mathematics. In 1982, he was appointed member of the Australian UNESCO National Commission and of the Radio Research Board. Other appointments include activities as consultant to various Australian and international industrial companies and government institutions.

For many years Prof. Anderson has been actively participating in IFAC activities, e.g. as editor of the IFAC Journal "Automatica" and member and vice chairman of the IFAC Technical Committee on Theory. At the last meeting of the General Assembly in Budapest in July, 1984, he was elected Vice President of IFAC and Chairman of IFAC's Technical Board.



FORTHCOMING EVENTS

Title	1985	Place	Deadlines	Further Information
IFAC/IFORS/IFIP Workshop Artificial Intelligence Pattern Recognition in Economics and Management	March 12—14	Zurich, CH	—	Prof. L. F. Pau Battelle Institute 7, Route de Drize CH-1227 Carouge Switzerland
6th IFAC Workshop Distributed Computer Control Systems	May 20—22	San Francisco, CA, USA	—	Dr. G. J. Suski Lawrence Livermore National Laboratory P.O. Box 5508 Livermore, CA 94550, USA
IFIP/IFAC Conference Programming Languages for Machine Tools (PROLAMAT)	June 11—13	Paris, F	—	AFCET 156, Bd. Pereire F-75017 Paris, France
IFAC Workshop Control Application of Nonlinear Programming and Optimization	June 11—14	Capri, I	—	Prof. G. Di Pillo Dipartimento di Informatica e Sistemistica Universita di Roma "La Sapienza" Via Eudossiana 18 I-00184 Rome, Italy
IFAC Workshop Model Error Concepts and Compensation	June 17—18	Boston, MA, USA	—	Prof. R. E. Skelton Purdue University Aeronautics & Astronautics 331 Grissom Hall West Lafayette, IN 47907, USA
IFAC/ISAGA Workshop Simulation and Games	June 24—26	Alma-Ata, SU	—	Acad. V. A. Trapeznikov Institute of Control Sciences Profsojuznaja 65 Moscow 117342, USSR
IFIP/IFAC Symposium Automation for Safety in Shipping and Offshore Petroleum Operations — ASSOPO '85	June 25—27	Trondheim, N	—	The Norwegian Society of Automatic Control Kronprinsens gt. 17 Oslo 2, Norway
IFAC Symposium Automatic Control in Space	June 25—29	Toulouse, F	—	Prof. M. Pelegrin CERT Complexe Aérospatial de Lespinet 2, Avenue Edouard Belin BP 4025 F-31055 Toulouse Cedex France
7th IFAC/IFORS Symposium Identification and System Parameter Estimation	July 3—7	York, UK	—	Prof. H. A. Barker University College of Swansea Dept. of Electrical and Electronic Engineering Singleton Park Swansea SA2 8PP, UK
IFAC Symposium Automation for Mineral Resource Development	July 9—11	Brisbane, AUS	—	Prof. Alban J. Lynch Julius Kruttschnitt Mineral Research Centre University of Queensland Isles Road, Indooroopilly, QLD 4068 Australia
IFAC Symposium Planning and Operation of Electric Energy Systems	July 22—25	Rio de Janeiro, BR	—	T. E. DyLiacco Consultant 651 Radford Drive Cleveland, OH 44143 USA
3rd IFAC/IFIP Symposium Computer Aided Design in Control and Engineering Systems	July 31— Aug. 2	Copenhagen, DK	—	Prof. P. M. Larsen Electric Power Engineering Building 325 DK 2800 Lyngby, Denmark

FORTHCOMING EVENTS (ctd.)



Title	1985	Place	Deadlines	Further Information
IFAC/IFORS Conference Control Science and Technology for Development	August 20—22	Beijing, PRC	—	Prof. Yan Xiaojun Research Institute of Automation for Machine-Building Industry De Sheng Men Wai Beijing, China
2nd IMACS/IFAC/WGMA International Symposium Systems Analysis and Simulation	Aug. 26—31 1985	Berlin GDR	—	Organizing Committee 2nd Intern. Symposium on Systems Analysis and Simulation Central Institute of Cybernetics and Information Processes of the Academy of Sciences of the GDR P.O.B. 1298 DDR-1086 Berlin
2nd IFAC/IFIP/IFORS/IEA Conference Analysis, Design and Evaluation of Man-Machine Systems	Sept. 10—12	Varese, I	—	Prof. Dr. Ing. Gunnar Johannsen Laboratory for Man-Machine Systems (FB 15) University of Kassel (GhK) P.O. Box 10 13 80, D-3500 Kassel, FRG
7th IFAC/IFIP/IMACS Symposium Digital Computer Application to Process Control	Sept. 17—20	Vienna, A	—	Dr. P. Kopacek O P W Z Postfach 131 1014 Vienna, Austria
4th IFAC Workshop Safety of Computer Control Systems (SAFECOMP '85)	Oct. 1—3 1985	Como I	—	Dr. E. DeAgostino Senior Research Engineer ENEA — Dip. Reattori Termici, CRE-Casaccia Via Anguillarese 301 I-00060 Rome, Italy
IFAC/IFORS Symposium Systems Analysis Applied Water and Related Land Resources	Oct. 2—4	Lisbon, Portugal	—	Prof. Luis Valadares Tavares APDIO Av. Rovisco Pais 1000 Lisbon, Portugal
13th IFAC/IFIP Workshop Real Time Programming	Oct. 7—8	West Lafayette, Ind., USA	—	Prof. T. J. Williams Purdue Laboratory for Applied Industrial Control 334 Potter Center, Purdue Univ., West Lafayette, Ind. 47907, USA
IFAC Workshop Adaptive Control in Chemical Processes	Oct. 21—22 1985	Frankfurt FRG	March 15, 1985	H. Wiefels VDI/VDE GMR P.O. Box 1139 D-4000 Düsseldorf 1, FRG
IFAC Symposium Robot Control	Nov. 6—8	Barcelona, E	—	Secretariat of SYROCO '85 Institute de Cibernetica Diagonal, 647 E-080828 Barcelona, Spain
IFAC Workshop Automatic Control in Petroleum, Petrochemical and Desalination Industries	Nov. 18—20 1985	Kuwait	not yet known	Dr. Jaafar Assiri c/o Dr. Samir Kotob TED/ASD Kuwait Institute for Scientific Research P.O. Box 24885, Safat, Kuwait
IFAC Symposium Modelling and Control of Biotechnological Processes	Dec. 11—13	Noordwijker- hout, NL	—	Prof. Dr. A. Johnson Lab. voor Fysische Technologie Prins Bernhardlaan G 2628 BW Delft The Netherlands