



IFAC

INFORMATION BULLETIN

Rys

No. **65** July 16, 1971

**International Federation
of Automatic Control**

Published by the IFAC Secretary
G. Ruppel · Postfach 1139
D 4000 Düsseldorf · Germany

New Member of IFAC

IFAC now comprises 35 National Member Organizations since the Algerian „Commissariat National à l'Informatique (C.N.I.)“ has joined IFAC. One of the main tasks of the C.N.I. is to recruit and to educate specialist groups in the field of automation and information and for that purpose it organizes series of courses and seminars. The mailing address of the Algerian National Member Organization of IFAC is:

Commissariat National à l'Informatique (C.N.I.)
4 Boulevard Mohamed V
Algiers, Dem. People's Rep. of Algeria.

Multivariable Technical Control Systems

Advance programme and registration forms make the attachment to the printed second symposium announcement which is now available. This symposium sponsored jointly by the IFAC Technical Committees on Applications and on Theory will be held in Düsseldorf, Germany (Fed. Rep.), October 11-13, 1971 (see also IFAC Bulletin Nos. 58 and 63). The International Programme Committee with *H. Schwarz*, Hannover, as Chairman and *F. Csáki*, Hungary, *G.F. Franklin*, USA, *M.V. Meerov*, USSR, *P.C. Parks*, UK, *G. Quazza*, Italy, *V. Strejc*, Czechoslovakia, and three German members serving on the Committee have made the paper selection and established the scientific programme.

The papers are essentially grouped under:

- Linear Multivariable Systems Theory
 - State Feedback, Controllability
 - Mathematical Systems Realization
 - Transfer Function Representation
 - Parameter Sensitivity and Accuracy
 - Time-Discrete Systems
- Optimal Multivariable Control Systems Theory
 - Model-Following Systems
 - Linear Systems
 - Nonlinear Systems
- Multilevel Technical Systems Theory
- Applications in Process Industries
- Applications in Power Plants and in Power Distribution Systems
 - Power Plants
 - Boilers

This information is available for reproduction

Conference languages are English and German, simultaneous translation will be provided.

Registration fees including one copy of preprints: 180,- DM before August 31, 1971; 240,- DM after that date.

Second Announcement with the advance programme, registration and hotel accommodation forms available from

VDI/VDE-Fachgruppe Regelungstechnik
P.O.B. 1139
D - 4000 Düsseldorf 1 (Fed. Rep.) Germany.

American Automatic Control Council

In 1970, the American Automatic Control Council (AACC), which is the U.S. National Member Organization of IFAC, established, in addition to its initial membership class of „Sponsoring Societies“, a new membership class of „Participating Societies“. These new participating memberships are tailored to accommodate the needs of smaller, more specialized societies. Participating members will not be required to name a formal delegation to AACC, unlike the sponsoring societies which have active representation in the Council as well as in all AACC committees. However, the new membership class does call for representation on technical committees. The first two organizations having joined this new class of membership were the Simulation Councils and the Society for Industrial and Applied Mathematics. The third organization to become a participating member is the Technical Association of the Pulp and Paper Industry.

The Sponsoring Societies of the AACC are: American Institute of Aeronautics and Astronautics, American Institute of Chemical Engineers, American Society of Mechanical Engineers, Institute of Electrical and Electronics Engineers, Instrument Society of America.

US Organizing Committee for IFAC Congress 1975

Following the IFAC Congress in Paris, June 1972 (announced in Bull. No. 61), will be the 6th IFAC Congress scheduled to be held in Cambridge-Boston, USA, August 1975. The National US Organizing Committee which has recently been set up consists of: *N. Cohn* (Chairman), *W.S. Bloor*, *H. Chestnut*, *C.M. Doolittle*, *H.S. Kindler*, *J.C. Lozier*, *D.T. McRuer*, *W.E. Miller*, *O.H. Schuck*, *P.A. Sprague*, *J.E. Ward*, *G. Weiss*, *T.J. Williams*.

The Application of Computer Technology for Development

At the twenty-third session, the UN General Assembly adopted resolution 2458 (XXXIII) requesting the Secretary-General to prepare a report giving special consideration to the situation of the developing countries with regard to:

- a) The results already obtained and the needs and prospects for the use of electronic computers in accelerating the process of economic and social development;
- b) The various forms which international action may take to intensify cooperation in the field of computers;
- c) The role which the United Nations can play in promoting international cooperation in the field, with emphasis on questions concerning the transfer of technology, the training of personnel and technical equipment.

A report entitled „The Application of Computer Technology for Development“ dated 1971 has been published by the UN in response to the above request. IFAC, as an advisory group which has participated in the formulation of this report, is pleased with its outcome and is wholeheartedly in support of its recommendations and conclusions. In particular, IFAC supports the proposal for the establishment by the General Assembly of an International Advisory Board on the Application of Computer Technology for Development as recommended in this report.

The following are the principal conclusions and recommendations of this report. These will require appropriate action by Governments in both the developed and developing countries, by the United Nations and organizations in the United Nations family, by national and international organizations and institutes, by industry both public and private and by national and international professionals and user organizations in the field of computer science and technology and related areas.

- I. Education and training for the application of computers to accelerate the process of economic and social development must receive first priority.

Therefore, it is recommended that, in the developing countries:

1. Appropriate centers at the national and regional levels be established or strengthened;
2. Education and training be supported at all levels, ranging through operators, programmers, computer scientists, computer systems analysis, managers and policy-makers as well as the general public;
3. Means be found for creating materials and developing techniques for teaching the effective use of computers and these efforts be encouraged.
4. Better means for exchange of technical information be established.

- II. Each developing country needs a broad national policy, consistent with its national goals, on the application of computer technology.

Therefore, it is recommended that each developing country:

5. Formulate a plan containing realistic goals, listed in order of priority, so that orderly short-term and long-term development may take place;
6. Allocate sufficient resources to implement such a plan.

- III. International co-operation needs to be increased in activities relating to the application of computer technology to development.

Therefore:

7. The Secretary-General believes that the General Assembly may wish to consider the proposal made by the Ad Hoc

Panel of Experts and supported by the ACAST Working Group for the establishment of an International Advisory Board on the Application of Computer Technology for Development which could report annually to the Secretary-General who would transmit the report to the Economic and Social Council and the General Assembly. Two broad types of function might be envisaged for such a board:

- a) To promote the application of computer technology for development through international cooperative efforts in association with the United Nations family of organizations;
- b) To provide, upon request, independent and objective advice to assist developing countries in their decisions on the use of computer technology for their development;

It is also recommended that:

8. Governments of developing countries be encouraged to request the assistance of appropriate organizations in the United Nations family in connection with efforts related to Recommendations 1 - 5;
9. Organizations and institutions in developed countries be encouraged to establish „twinning“ relationships with organizations in the developing countries and that United Nations programmes support such actions.
10. The United Nations family of organizations call more fully on the international professional organizations in their technical assistance and information dissemination activities;
11. Efforts by user groups, manufacturers and the professional community to enhance the compatibility of both hardware and software be encouraged.

- IV. Computer technology will increase in importance in the developing countries during the Second United Nations Development Decade and its diffusion and sound application can make a significant contribution in accelerating the rate of their economic and social development.

Therefore, it is important that in the developing countries:

- a) The analysis and systematization that occur when computerization takes place be recognized in itself as a most significant contribution to improving management decision-making and resource allocation;
- b) Attention be given to the need to improve the quality of collected data;
- c) The commonality of computer techniques in many disciplines be recognized;
- d) The benefits of purchase versus rental of computer equipment be carefully studied (In some developing countries, a national leasing company may be appropriate, while in other parts of the world a regional approach to the lease/purchase problem may be desirable.);
- e) Trade barriers including customs regulations impeding the international movement of equipment, magnetic tapes and cards be minimized;
- f) Exchange of software and data under appropriate conditions of protection be facilitated and encouraged.

The IFAC Executive Council, on recommendation of the IFAC Ad Hoc Committee for the UN headed by *H. Chestnut*, has endorsed the findings of this report on „The Application of Computer Technology for Development“ and has recommended that the IFAC National Member Organizations should request their UN Ambassadors to vote favourably on this report and to urge the establishment for an International Advisory Board on Computer Technology for Development as recommended in the report.

Upon request, copies of the UN Report may be obtained free of charge from:

Dr. I.N. Vasiljev,
First Scientific Officer,
Office for Science and Technology,
Room 3227 C, UNITED NATIONS,
New York, N.Y. 10017, USA.

The IFAC Secretariat is indebted to Dr. H. Chestnut for having prepared this summary of the UN Report for special publication in the IFAC Information Bulletin.

High Reliability Electronic Components

An International Conference on High Reliability Electronic Components, organized by the Centre National d'Etudes Spatiales, France, will be held from March 6 - 10, 1972, in Toulouse on the subjects of:

- Physical Reliability of Components
 - analysis of the processes of deterioration in time, characteristic functional parameters of the component,
 - methods of detecting deterioration,
 - critical analysis of alternative methods of preventing or limiting deterioration;
- Quality Guarantees
 - quality and manufacture,
 - standardisation, specifications, dissemination of information;
- New Components and Quality.

Simultaneous interpretation will be provided from French into English and vice-versa.

Offers of papers with an abstract (20 - 30 lines, in English and in French) should be submitted not later than October 15, 1971, to:

Centre National d'Etudes Spatiales
Division des Relations Universitaires
129, rue de l'Université, PARIS (7^e), France.

IFIP Congress 71

The International Federation for Information Processing (IFIP) has announced the technical programme for IFIP Congress 71, which is to take place in Ljubljana, Yugoslavia, from August 23 to 28, 1971, where the most advanced computer equipment from many countries will be shown. The technical programme consists of invited survey papers and over 200 submitted papers to be presented in five parallel sets of sessions. In addition there will be four symposia on topics of high current interest, and a number of informal evening sessions. The speakers come from 29 different countries.

Congress registration fee which includes a copy of the preprints amounts to US \$ 60.-. Enquiries should be directed to:

IFIP Congress 71,
Congress Office,
Mestni TRG 4, P.O.B. 508,
Ljubljana / Yugoslavia

or, for interested parties in Canada and USA to:

U.S. Committee for IFIP 71,
Box 4197,
Grand Central Post Office,
New York, N.Y. 10017, USA.

Computer-Communications Networks and Teletraffic

The Polytechnic Institute of Brooklyn announces that the twenty-second in its Microwave Research Institute series of annual international Symposia will be held on the above topic in New York City, April 4 - 6, 1972. The symposium will emphasize two categories of papers: First, one which contributes basic and broadly applicable tools for the analysis and/or synthesis of computer-communication networks; second, those papers which are concerned with specific problems associated with the design and operation of such networks. Deadline for abstracts: December 1, 1971. Potential authors should contact:

Polytechnic Institute of Brooklyn,
MRI Symposium Committee,
333 Jay Street, Brooklyn, N.Y. 11201,
Attn: Jerome Fox, Executive Secretary.

Publications

IFAC CONGRESS WARSAW. Some complete sets (50 volumes per set, corresponding to the 50 technical sessions) of the papers presented at the 4th IFAC Congress, Warsaw 1969 together with a subject index and an authors index are still available for sale from the Polish organizers. Incomplete sets will be sold at a reduced price. Individual technical session volumes previously sold at US \$ 2.50 and then US \$ 2.00 may now be purchased at US \$ 1.00 each. Orders should be addressed to:

Naczelna Organizacja Techniczna (N.O.T.)
Biuro Sekretariatu IV Kongresu IFAC,*
Czackiego 3/5
Warszawa / Poland.

AUTOMATIC CONTROL IN SPACE - Vol. 3 is the English translation of the proceedings including 67 papers with transcribed discussions relative to the 3rd IFAC Symposium on Automatic Control in Space held in Toulouse, France, March 1970. The book covers state-of-the-art, recent advances, problem-solving techniques, practical case histories and new applications, and the topics are: man-machine problems in space, rendezvous and docking, planetary exploration, general problems, system design, devices, optimal control, optimal and adaptive control, attitude control, guidance and navigation, and reentry control. Editor: J.A. Aseltine, University of Southern California, Chairman of the IFAC Technical Committee for Space. 808 pages, illustrated, hard cover. Price: \$ 44.00. Published by Instrument Society of America (ISA), 400 Stanwix Street, Pittsburgh, Pa., 15222.

ANALYSIS INSTRUMENTATION - Vol. 9 presents 27 papers on process control problems, applications and methods of analysis (proceedings of the 17th Annual ISA Analysis Instrumentation Symposium, April, 1971, Houston, Texas, USA) and topics include: analytical computer systems, optical methods, air pollution, sampling and calibration systems, radiation methods, water pollution, chromatography, electrochemical and chemical methods.

Edited by A.M. Bartz, R.L. Chapman and Lewis Fowler. 213 pages, illustrated, soft cover. Price: \$ 15.00. Published by Instrument Society of America (ISA).

INSTRUMENTATION IN THE AEROSPACE INDUSTRY - Vol. 17 presents 41 technical papers on the state of the art and advances in space technology, including the application of aerospace instrumentation to environmental problems.

Edited by B. Washburn. 382 pages, illustrated, soft cover. Price: \$ 17.50. Published by Instrument Society of America (ISA).

INSTRUMENTATION IN THE CHEMICAL AND PETROLEUM INDUSTRIES - Vol. 7, comprises proceedings of the 12th Annual ISA Chemical and Petroleum Instrumentation Symposium, April 1971, Houston, Texas, USA. The book's 11 papers focus on the theme „Distillation Control Problems in the Chemical and Petroleum Industries“. The state of the art of distillation control problems, distillation fundamentals, simulation, computer applications, new developments and experimental studies are covered.

Edited by *E.B. Hall*. 123 pages, illustrated, hard cover. Price: \$ 9.00. Published by Instrument Society of America (ISA).

Proceedings of a **BIOENGINEERING Symposium** (Fort Collins, Colorado, USA, May 1971) contains 35 papers on current accomplishments in related areas of bioengineering research and instrumentation. Papers feature the feasibility of improved techniques for many areas of biomedical research. Topics: instrumentation, cellular physiology, computer simulation, clinical and hospital systems, models of physiological systems, neurophysiology, computer analysis of biological data, the cardiovascular system, and systems approach to physiological studies.

Edited by *R. John Morgan* and *Richard J. Gowen*. 172 pages, illustrated, soft cover. Price: \$ 11.00. Published by Instrument Society of America (ISA).

INSTRUMENT MAINTENANCE MANAGEMENT - Vol. 6 contains 21 papers on the theme „New Techniques for a New Decade“ and comprises proceedings of the 16th International ISA Instrumentation Maintenance Management Symposium, April 1971, Baton Rouge, Louisiana, USA.

Fifteen symposium papers cover: Comparison of electronic and pneumatic control systems, Organizing for process computer maintenance, Evaluation of an instrument man, Intrinsic safety and its maintenance aspect, Push-button maintenance, Utilization of time-shared computers in engineering management, Flow meter selection, Computer interface techniques, Control valve noise prediction and attenuation, Process analyzer training, Calibration standards for pneumatic instrumentation, Properly

trained personnel control the cash register of industrial plants, Advantages of using simulators in instrument training, The repair and maintenance of force balance transmitters, Management of a research and development instrument group.

Edited by *Roland M. Touns*. 142 pages, illustrated, hard cover. Price: \$ 9.00. Published by Instrument Society of America (ISA).

INSTRUMENTATION IN THE METALS INDUSTRIES - Vol. 21 focuses on the theme „Instrumentation - The Modern Tool for Reducing Costs“. The 11 papers (proceedings of the 21st International ISA Metals Industries Instrumentation Symposium, March, 1971, Baltimore, Md.) highlight the role that instrumentation and control can play in helping the metals industries become more efficient and productive during severe economic conditions.

Edited by *John J. Belas* and *Stanley A. Bochenski*. 76 pages, illustrated, semi-hard cover. Price: \$ 9.00. Published by Instrument Society of America (ISA).

AICA-IFIP CONFERENCE ON HYBRID COMPUTATION 1970 - Proceedings volume, 844 pages, available at US \$ 40.- from Presses Académiques Européennes, 98 Chaussée de Charleroi, Brussels, Belgium.

SOLID STATE ELECTRONICS. This international journal, published in English, French and German since 1960 under the Editorship of *Dr. W. Crawford Dunlap* (Transportation Systems Center, USA), aims to bring together outstanding papers reporting original work in various areas of applied solid-state physics. Papers covering novel topics extending the frontiers of existing solid-state technology are invited. It is expected that this journal will promote further progress in the important and ever widening borderland between solid-state physics and circuit engineering. For more comprehensive information on this journal, potential subscribers should contact *H.A. Richardson*, Pergamon Press Ltd., Headington Hill Hall, Oxford OX3 OBW, England.