



1981  
No. 4  
July

International Federation of Automatic Control

Secretariat: Schloßplatz 12, A-2361 Laxenburg, Austria

# Newsletter

For information concerning the 8th IFAC World Congress in Kyoto please refer to:

IFAC/81 Secretariat  
Kinki Hatsumei Center  
14 Kawahara-cho, Yoshida  
Sakyo-ku, Kyoto 606  
Japan

or: IFAC Secretariat  
Schloßplatz 12  
A-2361 Laxenburg  
Austria

Y. Sawaragi:

## WELCOME TO KYOTO!

When on August 24th the opening session of the 8th triennial IFAC World Congress will commence in the International Congress Hall of Kyoto, the ancient past of this former capital of Japan will merge with the present activities of control engineers all over the world to make a further step towards shaping the future.

to learn, and to collect information. But I also would like to greet the many thousands of the IFAC family who for one reason or the other cannot be with us during this week. They are no less connected with our work, their activities in science and technology have no less contributed to the present state of the art, they have helped to prepare this

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**The next Newsletter issue containing Congress reports is scheduled for the first half of October 1981.**

Editor: Prof. Dipl.-Ing. Fred Margulies  
Layout: Margaret A. Gottfried  
published bimonthly



"Control Science and Technology for the Progress of Society" has been chosen as the theme of the Congress and the technical programme of the Congress with its plenary lectures, its more than 600 submitted papers, its round table sessions and discussion meetings, with its case studies and plant visits will reflect this theme in the wide variety of activities covered by IFAC.

As President of IFAC and as Chairman of the National Organizing Committee for this Congress I wish to extend my hearty welcome to all of you who will attend the Congress and contribute to its work, be it as speaker, presenting a paper, be it in the formal and informal discussions and deliberations, helping to clarify some of the many issues which confront our world, be it as listener and visitor, who mainly wants to meet people,

Congress and they will hopefully observe its results.

The site of the Congress, Kyoto city, preserves the relics of traditional art and culture of this country more than any other place. For more than 1000 years until 1868 Kyoto was the capital of Japan. It is now a strange mixture of the old and the new. May it help to reconcile the old and the new, to realize the slogan of the Congress, to combine our new science and technology with what was good and desirable in old traditions and aspirations to become the progress of society.

Those of you who attend the Congress should not fail to visit this old city of ours and to make first hand inspections of some of those old assets from the past culture. And those who visit the city, do not fail to attend the lectures and sessions of the Congress.

Welcome to Kyoto!

Welcome to IFAC Congress!

Our greetings to all members of the IFAC Family!



# SYMPOSIA REPORTS

## 3rd IFAC/IFIP/IFORS Conference on "Systems Approach for Development"

Organized by the "Association Marocaine pour le Développement de l'Electronique, l'Informatique et de l'Automatique" and the Faculté des Sciences, University of Mohammed V., this Conference took place in Rabat, Morocco, from 24 — 27 November 1980.

A very interesting and well selected program of a high standard had been arranged by the International Program Committee under its Chairman, Prof. M. Najim of the Faculté des Sciences. It attracted about 300 participants, 200 of which came from Morocco and 100 from 31 other countries.

82 contributed papers were presented in technical sessions dealing with a variety of very specific topics such as different case studies related to the application of systems approach to problems in chemical, petroleum and other industries. One such study from Egypt dealt with scientific manpower planning and another one from Mexico described a model for finding the optimal labor/capital relation for rural roads construction in a developing country. Other papers discussed methodology, modeling, management, water

resources, energy systems (in particular parameter estimation and optimization problems in solar energy systems), as well as computer algorithms and man-machine communication.

More fundamental topics were covered in the Tutorial Papers, which were presented by outstanding invited experts, e. g. **M. A. Cuénod**, who presented the different "aids" that system approach can offer at the different stages of realization of development projects.

**L. Pun** gave an exhaustive survey on computer-aided planning; **T. Vamos** dealt with recent developments in the field of robotics and artificial intelligence and projected a short film which made the presentation very stimulating and relevant; **Y. M. Abdel Fattah** summarized the main aspects of the adaptive control theory and present trends in adaptation and learning; **M. Ribbens-Pavella** in his tutorial paper summarized the problems in power systems control and automation and discussed a number of recent research results.

Finally it should be mentioned that nine Round Table Discussions took place during the Conference, which gave the participants ample opportunity to discuss their own problems and comment on their own experiences. More detailed reports of these discussions might be included in the proceedings. One topic however, which seems of particular importance, is summarized here.

## Automatic Control Education in Developing Countries

This Round Table Discussion was organized by the IFAC Committee on Education. Contributions by Professor **A. Alonso-Concheiro** (Mexico), Professor **Hasan el Hares** (Libya), Professor **M. A. R. Ghonaimy** (Egypt) and Professor **R. A. Padilla** (Venezuela) were presented under the chairmanship of Professor **P. Martin Larsen**, the chairman of EDCOM.

### General Aspects

The objectives of Automatic Control Education in developing countries are closely related to the level of automation and industrialization in the specific country. Therefore it is important to distinguish between different types of developing countries, based upon their human and economical resources as well as their historical background with respect to trade and industry.

The educational programs should in general be closely related to national objectives. Control education specifically should be integrated whenever possible into the national development plan in order to obtain a reliable estimation of the number of specialists needed and the required depth and breadth of their knowledge.

### University Education

The problems related to Automatic Control Education in developing countries can be divided into two main categories: Those common for education in all countries and those specifically related to developing countries. In general there is a gap between theory and practice which originates from the 1960's, when research in control started

to concentrate on abstract mathematical techniques. In the 1970's techniques for large scale systems were developed concurrently with the development of micro computers, computer networks and data base systems, but the gap still exists. Hopefully the continuing evolution of computers in the 1980's will make it possible to apply the available mathematical tools to realistic systems. It is believed that systems and control engineering should be combined in order to educate engineers for integrated system design.

Problems in higher education are certainly functions of deficiencies on lower levels of the educational system. Technical education can and should be introduced in primary and secondary schools.

### The Technician's Education

Successful implementation of automatic process control equipment is very dependent on qualified technicians for maintenance. During the installation a sufficient number of technicians from the manufacturing company capable of running the equipment and appropriate maintenance eventually could be "imported" temporarily, but a qualified national counterpart for each foreign technician should concurrently be educated thoroughly. Furthermore technicians are required for maintenance of university laboratory equipment, the reliability of which is essential for the experimental courses. Educational programs for mid-level and high-level technicians are practically non-existent in most developing countries (in Mexico some efforts have been made recently to ameliorate the situation).

### Conclusions

It was concluded that IFAC has two supplementary possibilities for improving the Automatic Control Education in developing countries, formulated by Dr. M. Cuénod as follows:

1. It is of great importance for the universities in developing countries to have professors with practical experiences. The IFAC Committee on Education could promote the exchange of visiting professors by establishing a list of professors on sabbatical leave or retired engineers who would be interested in and willing to serve as visiting professors in developing countries. Furthermore, a list of universities ready to invite visiting professors should be prepared and disseminated through the IFAC channels.
2. The IFAC Committee on Education should establish a task force of 2 to 3 professors with a well prepared program to give short courses of 2 to 3 weeks duration, supported by governmental organizations like UNESCO. The aim should be to teach the teachers, assistants and graduate students in fields closely related to the needs of the relevant developing country. The fields and topics to be taught and the level of instruction should be carefully defined before the establishment of the task force.

Both proposals will be considered by the IFAC Committee on Education. Seven years ago EDCOM seriously attempted to create a task force for the same purpose, but for various reasons it was never realized. However the time might be ripe now for a new attempt.

Based on the experiences gathered at Rabat a Round Table will be organized during the IFAC Congress in Japan, August 1981, and it is hoped that specific results can be reported at that occasion.



# FORTHCOMING EVENTS

## INTERNATIONAL CONFERENCE ON SYSTEMS METHODOLOGY AND 26th ANNUAL MEETING OF THE SOCIETY FOR GENERAL SYSTEMS RESEARCH (International Inn, Washington, D.C., USA, January 5 — 9, 1982)

The Conference is organized by the Society for General Systems Research and it is sponsored by the International Federation for Systems Research.

Systems methodology as a theme of this conference, is viewed as: (i) the study of method in systems investigation, and (ii) a coherent collection of methods, which result from this study, for making inquiry into relational or structural properties of various classes of systems and for dealing with various classes of systems problems.

The program of the Conference will not be restricted to any particular "school of thought" or a particular problem area in systems methodology. On the contrary, an active effort will be made by the organizers to provide a forum for the broadest possible exchange of ideas relevant to systems methodology. Submitted papers are due August 31, 1981.

For further information please contact:

Lenard R. Troncale,  
Institute for Advanced Systems Studies,  
California State Polytechnic University,  
3801 West Temple Avenue,  
Pomona, CA 91768 USA

## IFAC SYMPOSIUM ON COMPUTER AIDED DESIGN OF MULTIVARIABLE TECHNOLOGICAL SYSTEMS (Purdue University, West Lafayette, Indiana, USA, September 15 — 17, 1982)

Sponsored by:  
IFAC Systems Engineering Committee in cooperation with the IEEE Control System Society and the ASME Dynamics and Controls Division.

Organized by:  
The American Automatic Control Council.

Purpose:  
The objective of the Symposium is to present the state of the art of computer aided design techniques, procedures, and concepts as used in research, development, design, and manufacturing of technological systems and related equipment.

Abstracts:  
Five (5) copies in English (300—500 words) in sufficient detail to permit careful review to:

Professor Gary Leininger  
Purdue University  
IFAC/CAD  
West Lafayette, Indiana 47907 (USA)

Time Schedule:  
Abstract submission December 1, 1981  
Preliminary acceptance February 15, 1982  
Full paper submission May 15, 1982  
Final acceptance June 1, 1982

## ISSOA 82 — 4th INTERNATIONAL SYMPOSIUM ON SHIP OPERATION AUTOMATION (Genova, Italy, September 20 — 22, 1982)

Sponsored by:  
IFIP — International Federation for Information Processing  
IFAC — International Federation of Automatic Control  
CNR — Italian Council of Researches

Organized by:  
IIC — International Institute of Communication  
IAN-CNR — Ship Automation Institute of CNR

Subject Areas:  
Since 1973 the International Symposia on Ship Operation Automation "ISSOA" have occurred regularly every 3 years. The field of ship automation is continuously growing in importance. The items on which papers will be presented, and discussion will take place, have been so defined:

1. Navigation systems
2. Radio aids and other communication systems on the bridge
3. Engine room automation
4. Cargo handling
5. Maintenance
6. Fleet management and control; computer assisted onboard administration
7. Human interactions with automated systems.

Language:  
English, no simultaneous translation provided.

Call for papers:  
Authors are requested to submit in English 2 copies of summaries (approx. 1.000 words) of proposed papers to:

Istituto Internazionale delle  
Comunicazioni  
Via Pertinace — Villa Piaggio  
16125 Genova, Italy

before October 31, 1981. For further information please refer to the same above-mentioned address.

## IFAC/IFIP/IFORS/ IEA-CONFERENCE ON ANALYSIS, DESIGN, AND EVALUATION OF MAN-MACHINE-SYSTEMS September, 27 — 29, 1982, Baden-Baden, F. R. G.

Sponsored by the  
International Federation of Automatic Control (IFAC)  
Technical Committee on Systems Engineering  
Technical Committee on Social Effects of Automation

Co-Sponsored by the  
International Federation for Information Processing (IFIP)  
International Federation of Operations Research Societies (IFORS)  
International Ergonomics Association (IEA)

Conference Language  
English; simultaneous translation into German will be provided.

Topics  
The aim of the Conference is to present, discuss, and summarize various aspects of human-machine interaction in technical systems that more and more frequently include computers as an integral system component. Task issues to be covered are, among others, controlling, monitoring, decision making, fault management, problem solving, and planning.

The Conference will emphasize recent advances in theory, experimental and analytical research, and applications, related to man-machine systems (MMS). Particular interest will be given to:

- Analysis of MMS
- Design of MMS
- Evaluation of MMS

The contributions should be applied or applicable to practical problems in one or more fields.

Abstracts of papers should be in English (500—600 words) and received not later than October 15, 1981.

All correspondence should be addressed to:  
VDI/VDE-Gesellschaft  
Meß- und Regelungstechnik (GMR)  
Postfach 1139, D-4000 Düsseldorf 1  
Federal Republic of Germany

## 6th IFAC SYMPOSIUM ON IDENTIFICATION AND SYSTEM PARAMETER ESTIMATION (Washington, D.C., USA, June 7 — 11, 1982)

This symposium follows the tradition of previous ones, bringing together distinguished scientists in the area of System Identification from all over the world under the auspices of IFAC and the sponsorship of the Control Systems Society of IEEE.

Particular emphasis will be placed on the use of identification and estimation methods in the study of process optimization and control, adaptive learning and robotic systems, biomedical and health care delivery systems, large-scale societal and engineering systems, aero and space vehicle design, seismic data processing, and speech and image analysis. Hardware and software implementation of identification and estimation techniques by the use of microprocessors is also of interest to the Symposium.

All abstracts and manuscripts should be sent to:

Prof. George N. Saridis, Chairman  
International Program Committee  
School of Electrical Engineering  
Purdue University  
West Lafayette, IN 47907 USA

Other correspondence should be sent to:

Prof. George A. Bekey, Chairman  
National Organizing Committee  
Department of Electrical Engineering-Systems  
University of Southern California  
Los Angeles, CA 90007 USA



# New Automatica Editorial Staff Organization

# WHO IS WHO IN IFAC

As described in the May 1981 issue of Automatica, the Editorial Staff Organization has been changed. There are now four Editors who report to the Editor-in-Chief. They are Professor Brian D. O. Anderson (Editor, Optimal Estimation and Adaptive Control); Professor Huibert Kwakernaak (Editor, Optimal Control Theory and Systems); Professor Andrew Sage (Editor, Large Scale Systems); and Dr. H. A. Spang, III (Editor, Computer Control and Applications). They will receive papers direct from authors for evaluation, as in the past, by Associate Editors, and they will notify the authors about the decision to publish the papers.

Special Editors have also been appointed as previously announced in Automatica: Dr. A. Levis, Technical Communiques and Correspondence Editor, Professor George Saridis, Survey Paper Editor, and Professor Mogens Kümmel, Book Review Editor.

The addresses of all these Editors will be listed on the inside front cover of Automatica. Therefore, authors of manuscripts to be

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The Journal of IFAC the International Federation of Automatic Control

Preview for the Next Issue September 1981

## PAPERS

Local Feedback Stabilization of Large Interconnected Power Systems in Emergencies (J. Zaborszky, K. W. Whang, K. V. Prasad, I. N. Katz)

Conditions for Theoretical Coherency in Multimachine Power Systems (U. DiCaprio)

Subsystems, Time Scales, and Multimodeling (P. V. Kokotovic)

Asymptotic Stability of Non-Linear Multi-parameter Singularly Perturbed Systems (H. K. Khalil)

Detection Techniques in Least Squares Identification (R. Kumar, J. B. Moore)

Identification of Stochastic Linear Systems in Presence of Input Noise (T. Söderström)

An Incentive Model of Duopoly with Government Coordination (M. A. Salman, J. B. Cruz, Jr.)

## BRIEF PAPERS

Computer Aided Control System Design Applied to Milk Drying Plants (D. J. Sandoz, O. Wong)

Parameter Identification For a Traffic Flow Model (M. Cremer, M. Papageorgiou)

Maximum A Posteriori Parameter Estimation in Large Scale Systems (P. Chemouil, M. R. Katebi, D. Sastry, M. G. Singh)

Structural Identification and Software Package for Linear Multivariable Systems (K. Furuta, S. Hatakeyama, H. Kominami)

Inverse Systems for Reproducing Linear Functions of Inputs (T. Yoshikawa, T. Sugie)

considered for possible publication in Automatica should send 5 copies direct to the appropriate Editor to reduce delays in the reviewing process. Also one copy of the manuscript should be sent to the Editor-in-Chief for recording in a central file.

It is hoped that this new organization will provide better service to Automatica readers and the world wide control community.



## NEW PUBLICATIONS

### LARGE-SCALE SYSTEMS, Theory and Applications.

The new international journal LARGE-SCALE SYSTEMS (LSS) is devoted to the emphasis of unifying themes, the cross fertilisation of ideas (particularly between theory and practice) and to stimulating interaction between workers in various particular research areas in which Complexity and High Dimensionality play a dominant role.

LARGE-SCALE SYSTEMS is scheduled to appear in 1980 in one volume of 4 issues. The subscription price is US \$ 80.00/D.fl. 156.00 including postage and handling. It is published by North-Holland Publishing Company, Amsterdam.

### FORTHCOMING EVENTS (ctd.)

#### PROBLEMS AND TRENDS IN MEASUREMENT AND INSTRUMENTATION EDUCATION — MICROPROCESSORS AND ALLIED TECHNIQUES

(proceedings of the IMEKO TC1 Colloquium in Budapest, from September 29 to October 1, 1980)

Edited, published and distributed by the IMEKO Secretariat (H-1371 Budapest, POB. 457); US \$ 20,—.

The proceedings contain the Survey Paper by Professor L. Finkelstein (The City University, London), Chairman of the IMEKO Technical Committee on Higher Education (TC1): "Measurement and instrumentation science — the impact of information processing technology".

SECTION I: Changes in the content and organization of measurement and instrumentation as a result of the application of microprocessors.

SECTION II: New development in measurement science relating to the design of intelligent measurement equipment and their place in education.

SECTION III: New requirements and developments in laboratory experiments caused by the application of microprocessors in measurement and instrumentation.

SECTION IV: General current trends and developments in measurement and instrumentation.



Roland R. Chaussard  
Member of IFAC Executive Council

Roland Chaussard was born on July 19, 1927 in Saint Denis S/Seine, France. His undergraduate studies were interrupted in 1941 because of World War II. He attended his graduate studies at the "Conservatoire National des Arts et Métiers" from 1945 to 1956. He graduated in 1959 with a degree of an Electrical Engineer, a diploma awarded by the State (D.P.E.)

In 1945 he joined the "Electricité de France" where he is still working. Electricité de France is a National Company whose mission in France is the generation, transmission and distribution of electric power.

In 1966 Roland Chaussard was given the responsibility of creating the new "Automatic Control Systems in Power Generation" (A.M.P.) Department of the research branch. The department is involved in theoretical research, preliminary simulation studies by means of mathematical models, and test runs to improve and adjust control systems in hydraulic, fossil fuel and nuclear power plants.

In 1976 he reorganized and defined new activities for his department which was renamed "Optimization and Automatic Control of Processes" (O.A.P.). In addition to its former mission, the department is now involved in investigation of problems related to the modification, optimization and control of a variety of industrial processes in order to substitute electricity to fossil fuel while conserving primary energy.

His extra professional activities included the chairmanship and membership in several organizations, and he became a member of the IFAC Applications Committee before 1972; was Vice Chairman of the Systems Engineering Committee from 1972 to 1975; became Chairman of the Systems Engineering Committee in 1975, which he remained until he was made a member of the Executive Council in 1978.

Eigentümer, Herausgeber und Verleger:  
International Federation of Automatic Control (IFAC) Genf/A-2361 Laxenburg

Redaktion und für den Inhalt verantwortlich:  
Dipl.-Ing. Fred Margulies  
Schloßplatz 12, A-2361 Laxenburg

Druck: Artur Schefczik & Sohn  
Breite Gasse 14, A-1070 Wien