



**IFAC**

**International Federation of Automatic Control**

Secretariat: Schlossplatz 12, A-2361 Laxenburg, Austria – Phone (02236) 71 4 47, Fax (02236) 72 8 59, Telex 79248 ifac a

1990  
No. 4  
Aug.

# Newsletter

**Contents:**

New Form of Personal Participation in IFAC

\*

Evaluation of Adaptive Control Strategies in Industrial Applications  
IFAC Workshop, USSR

\*

Newly Approved Events

\*

IFAC Affiliate Registration Card

\*

Papers from the Next Issue of Automatica

\*

IFAC Congratulates

\*

Keywords

\*

## New Form of Personal Participation in IFAC

For a long time the need has been felt in IFAC to make a more direct involvement of individuals in IFAC affairs possible. The newly devised IFAC Affiliate Scheme will make it easier for control engineers and other interested persons all over the world to participate actively in all IFAC activities and will give them more direct information on what is going on in IFAC. Below, an exact description of the new scheme is given (a leaflet is also available directly from the IFAC Secretariat at Laxenburg or at any IFAC-sponsored meeting). The IFAC Affiliate Registration Card is printed on pages 3&4 of this issue but is also available from the Secretariat directly or at any IFAC-sponsored technical meeting.

### IFAC AFFILIATE INFORMATION

IFAC is the International Federation of Automatic Control. Fourty-seven countries are involved in promoting and developing the area of control by organizing technical meetings and by publishing control literature - including the leading journal AUTOMATICA.

IFAC activities are directed towards everyone interested in control engineering research, development and education.

Individual can become IFAC Affiliates and receive the following benefits:

- Free subscription to the IFAC Newsletter, with bimonthly information about IFAC activities and forthcoming conferences.
- Direct access to Calls for Paper and conference information in selected areas of interest.
- Subscription to AUTOMATICA at a personal rate.
- Contacts with IFAC Technical Committees and Working Groups.

To become an IFAC Affiliate fill out the IFAC Affiliate Registration Card (pages 3&4) and send it to the Secretariat at the following address

IFAC Secretariat  
Schlossplatz 12  
2361 Laxenburg  
AUSTRIA  
Tel: 02236/71 4 47  
Fax: 02236/72589

### IFAC TECHNICAL MEETINGS

IFAC organizes some 40 technical events each year with a total of 4000 participants. The meetings are of three types:

- Symposia, which are a series of events devoted to a subarea of control. These are typically held every third year
- Conferences, which are larger meetings on a specific control topic.
- Workshops, which are smaller meetings on a specific control topic.



In addition there is, of course, the **IFAC Congress** organized every third year, covering the whole area of Automatic Control. The next Congresses are planned for Sydney (1993), San Francisco (1996) and Beijing (1999).

The current series of Symposia include:

1. Adaptive Control (Glasgow '89, Grenoble '92)
2. System Identification (Budapest '91, Copenhagen '94)
3. Control Design (Zurich '91)
4. Distributed Parameter Systems (Perpignan '89)
5. Non-Linear Control Systems (Capri '89)
6. Large Scale Systems (Berlin '89, Beijing '92)
7. Fault Detection, Supervision and Safety for Technical Processes (Baden-Baden '91)
8. Distributed Intelligence System (Washington DC '91, Wuppertal '94)
9. Information and Control in Manufacturing (Madrid '89)
10. Transportation Systems (Paris '89)
11. Modelling and Control of National Economies (Edinburgh '89, Beijing '92)
12. Power Systems and Power Plants (Seoul '89)
13. Mining, Mineral and Metal Processing (Buenos Aires '89, Beijing '92)
14. Advanced Control of Chemical Processes (Toulouse '91)
15. Automatic Control in Aerospace (Tsukuba '89, Southampton '91)
16. Robot Control (Vienna '91)
17. Computer Aided Design (Swansea '91)
18. Real Time AI (Shenyang WS '89, Netherlands '92)
20. Man-Machine Systems (Xian '89)
21. Low Cost Automation (Milan '89, Vienna '92)
22. Modelling and Control of Biomedical Systems (Anaheim '91)

## IFAC TECHNICAL COMMITTEES AND WORKING GROUPS

IFAC has 14 Technical Committees which are responsible for planning conferences and promoting the respective subareas of control. Several Technical Committees have Working Groups that focus on specific topics in the control field. A list of the current Technical Committees and Working Groups as well as their chairpersons will be published after the World Congress in Tallinn.

### Evaluation of Adaptive Control Strategies in Industrial Applications

IFAC Workshop  
Tbilisi, USSR, 16-20 October, 1989

Adaptive Control is one of the main growth points in the control theory and attracts the attention of the scientific and industrial community. The Workshop held in Tbilisi was a further proof of this. It was attended by almost 100 scientists and engineers from 13 countries. 105 papers were selected from 195 originally submitted abstracts.

4 plenary sessions, 34 special sessions and 40 poster contributions were held dealing with contributions on the comparison of adaptive control and identification algorithms, synthesis and estimation of adaptive algorithms and process identification and control. The versatility and abundance of adaptive algorithms developed so far made their comparison in real situations and identification of the domains of their most reasonable application really urgent. The workshop opened up new possibilities for a wide exchange of ideas in this field and provided better insights into practical aspects of adaptive control.

The various practical applications discussed in the papers and presented at the workshop re-

fect the state of the art in adaptive control: metallurgy, chemistry, machine-building, biotechnology, robotics, nuclear and hydro-power utilities, image processing, etc.

Summarizing the workshop results we may state that it has been a success. The IPC, nominated by the main sponsor APCOM and the co-sponsor SECOM secured a high scientific standard of the presentations. The organizers, the Georgian Polytechnical Institute, the Institute of Control Systems in Tbilisi and the Institute of Control Sciences in Moscow did everything necessary to make the stay of the participants both fruitful and enjoyable.

It was a unanimous view of the participants that the significant problems discussed make it highly desirable to hold such workshops regularly.

Y.Z. Tsytkin  
IPC Chairman  
V.A. Lototsky  
Workshop Editor

**This Newsletter may be reproduced in whole or in part. We encourage reprinting in national and local automatic control periodicals. Acknowledgement to IFAC would be appreciated.**

Impressum:

Medieninhaber und Herausgeber:  
International Federation of Automatic Control (IFAC),  
Zurich  
Schlossplatz 12, A-2361 Laxenburg, Austria

Verlagsort und Redaktion:  
Dipl. Ing. Dr. Gusztáv Hencsey  
Schlossplatz 12, A-2361 Laxenburg

Hersteller:  
Artur Schefczik & Sohn  
August-Reuss-Gasse, A-1130 Wien

Editor: Gusztáv Hencsey  
Layout: Ernestine Rudas  
published bimonthly



# Newly Approved Events

Title	Date	Place	Deadlines	Further Information
IFAC/IFIP Workshop Real Time Programming	15-17 May 1991	Atlanta, GA USA	15. Jan. 1991	Prof. K. Ramamritham Univ. of Mass., Computer & Inf. Science Dept. Lederle Graduate Res.Center Amherst, MA 01003, USA
IFIP/IFAC/EWICS Working Conf. Dependability of Artificial Intelligence Systems DAISY '91	27-29 May 1991	Vienna Austria	30. Nov. 1990	Prof.G.H. Schildt Inst.f.Technische Informatik Treitlstrasse 3 Vienna, Austria
IFAC Workshop Discrete Event System Theory and Applications in Manufacturing and Social Phenomena	25-27 June 1991	Shenyang China, P.R.	*	Prof. Xu Xinhe Dept. of Automatic Control Northeast University of Technology, Shenyang 110006 China, P.R.
IFAC/IFIP/IFORS/IEA Symposium Man-Machine Systems	09-11 June 1992	The Hague Netherlands	15. Dec. 1990	Prof. P.L. Brinkman Delft Univ. of Technology Fac. of Mech. Engg. & Marine Technology, Mekelweg 2 NL-2628 CD Delft, Netherlands
IFAC Workshop Artificial Intelligence in Real Time Control	16-18 June 1992	Noordwijkerht Netherlands	*	Prof.ir. H.B. Verbruggen Delft Univ. of Technology Fac. of Electrotechn., POB 5031 NL-2600 GA Delft, Netherlands

\* not yet known

IFAC AFFILIATE REGISTRATION CARD	
Surname	
First Name	
Mailing Address	
Phone	Fax
Telex	e-mail
Please return this card to the IFAC Secretariat and you will receive	
<ul style="list-style-type: none"> <li>- free subscription to the IFAC Newsletter</li> <li>- detailed information/call for papers from organizers of IFAC-sponsored and co-sponsored technical events in the areas listed overleaf (please mark one or several of the keywords).</li> <li>- subscription to the IFAC Journal AUTOMATICA at a personal rate DM 92/US \$ 47/year). Please mark if you want to receive the AUTOMATICA order form) <input type="checkbox"/></li> </ul>	
Date	Signature
Please send me the IFAC Information Brochure <input type="checkbox"/>	

## IFAC Secretariat

Schlossplatz 12  
A-2361 Laxenburg  
Austria



### Papers

- A Coordination Theory for Intelligent Machines (F.-Y. Wang, G.N. Saridis)
- Optimal Active Suspension Structure for Quarter-Car Vehicle Models (D. Hrovat)
- Stability of Robotic Manipulators During Transition to and from Compliant Motion (J.K. Mills)
- A Hierarchical Multiple Model Adaptive Control of Discrete-Time Stochastic Systems for Sensor and Actuator Uncertainties (K. Watanabe, S.G. Tzafestas)
- Parameter Estimation Algorithms for a Set-Membership Description of Uncertainty (G. Belforte, B. Bona, V. Cerone)

### Brief Papers

- Direct Adaptive Cutting-Force Control of Milling Processes

- (C.C.H. Ma, Y. Altintas)  
An Observer-Based Compensator for Distributed Delays (R. Luck, A. Ray)
- Design of Disturbance Attenuating Controllers: A Riccati-Based FH Norm Optimization Algorithm (R.A. Paz, J.V. Medanic)
- On The Choice of the Horizon in Long-Range Predictive Control - Some Simple Criteria (R. Scattolini, S. Bittanti)
- Near Optimum Steady State Regulators for Stochastic Linear Weakly Coupled Systems (X-M. Shen, Z. Gajic)
- Towards More Precise Recursive Prediction Error Algorithms (R. Weinfeld)
- Convergence and Exponential Convergence of Identification Algorithms with Directional Forgetting Factor (S. Bittanti, P. Bolzern, M. Campi)
- Improved Stability Robustness Bounds Using State Transformation for Linear Discrete Systems (S.R. Kolla, J.B. Farrison)

### Book Reviews

- International Encyclopaedia of Robotics, Vols 1-3, by R.C. Dorf (Ed.) (P. Kopacek)
- Algorithms Adaptatifs et Approximations Stochastiques. Theorie et Applications, by A. Benveniste, M. Metivier, P. Priouret (M. Najim)
- Nonlinear Dynamical Systems, by P.A. Cook (A. Isidori)

## IFAC Congratulates

Professor Dr. Ing. **Manfred Thoma**, head of the Institut für Regelungstechnik, Technische Universität Hannover, Past President of IFAC was elected Foreign Member of the Ukrainian Academy of Sciences.



Prof. M. Thoma

### Editor's Note

**By the time most of you will read this Newsletter, the IFAC World Congress in Tallinn is already over. In the next issue and the ones to follow we shall come back to you with all the news of the Congress, of the meetings and the new composition of all IFAC bodies, scopes of TCs, if changed, etc.**

### Keywords:

- |   |  |
|---|--|
| 1 <input type="checkbox"/> Adaptive Control and Systems       | 14 <input type="checkbox"/> Economic and Management Systems              |
| 2 <input type="checkbox"/> Aerospace                          | 15 <input type="checkbox"/> Education                                    |
| 3 <input type="checkbox"/> Agriculture                        | 16 <input type="checkbox"/> Electric Power Systems                       |
| 4 <input type="checkbox"/> Artificial Intelligence            | 17 <input type="checkbox"/> Identification & Parameter Estimation        |
| 5 <input type="checkbox"/> Biomedical Engineering and Control | 18 <input type="checkbox"/> Large Scale Systems                          |
| 6 <input type="checkbox"/> Biotechnology                      | 19 <input type="checkbox"/> Man-Machine Systems                          |
| 7 <input type="checkbox"/> Chemical Process Control           | 20 <input type="checkbox"/> Manufacturing Technology                     |
| 8 <input type="checkbox"/> Components and Instruments         | 21 <input type="checkbox"/> Marine Control                               |
| 9 <input type="checkbox"/> Computer Aided Design              | 22 <input type="checkbox"/> Metallurgy, Mining and Mineral Processing    |
| 10 <input type="checkbox"/> Computers in Control              | 23 <input type="checkbox"/> Modelling & Control of Non-Technical Systems |
| 11 <input type="checkbox"/> Control Design                    | 24 <input type="checkbox"/> Nonlinear Systems                            |
| 12 <input type="checkbox"/> Distributed Parameter Systems     | 25 <input type="checkbox"/> Social Effects of Automation                 |
| 13 <input type="checkbox"/> Distributed Systems               | 26 <input type="checkbox"/> Other Fields of Interest                     |