IFAC International Federation of Automatic Control
Secretariat: Schlossplatz 12, A-2361 Laxenburg, Austria – Phone (+43 2236) 71 4 47, Fax (+43 2236) 72 8 59, e-mail ifaca @serv.univie.ac.at

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Newsletter

Contents:

Message from the President

It is my pleasure and privilege to deliver the first message to the readers of the IFAC Newsletter. We have just had a very successful Congress, General Assembly as well as Council- and Related Meetings in San Francisco. IFAC as a multinational federation of National Member Organizations (NMOs) is an international family of control communities. The key of IFAC's success is IFAC people and IFAC constitutional principles. Many distinguished control experts from different NMOs have been serving in numerous leadership positions and as IFAC conference organizers all of them in a voluntary capacity. We are also proud of having a professional and efficient Secretariat team permanently located in Laxenburg, Austria, just outside Vienna. We will continue to follow our constitution, and our federation does not engage in any activity with financial and political aims.

The general goals of the leadership team of the 1996-1999 triennium are to maximize the opportunities for all control engineers to benefit from IFAC and to make their contributions to our federation. IFAC now consists of 48 NMOs. The further strengthening of the links between the IFAC leadership team and NMOs will be one of the major issues in our strategic plan. We will provide our NMOs with more opportunities to organize IFAC events, particularly also those NMOs which are not yet very involved in this area. Today's world-wide multimedia environment makes our communications much faster and easier. We will use the advantage of multimedia in our regular communications, newsletter publications and even for making exchanges and discussions on academic topics of general interest. To track the rapid progress of control, systems and computer engineering, IFAC has restructured its Technical Board. Now our Technical Board manages over 40 Technical Committees. Each of them represents a specialty area. We will further adjust our structure to meet the global challenges as we enter the 21st Century.

The 'no-show' author has become an ethical problem for many conference organizers. We will try to solve this problem in different ways. I deeply understand the difficulties for control experts in developing countries to present their papers at IFAC conferences. Establishing an IFAC Foundation will have the purpose of improving the communication of scientific results in the fields of interest of IFAC and the NMOs, especially in developing countries which have IFAC NMOs. The joint efforts of IFAC and NMOs will lead to the launching of the IFAC Foundation in the near future.

In the course of the last few years, IFAC has developed cooperation with regional control conferences in Asia and the Pacific rim, Europe, Latin America and North America. The joint sponsorship and other forms of cooperation will be definitely beneficial to control engineers worldwide.

In addition, we will further focus on the development of our publication business in view of the challenge posed by electronic publications, on affilate journals, quality control and financial strength. Finally, I would like to ask all of you to come to Beijing for the last IFAC Congress of this century in July 1999.

Yong-Zai Lu

13th IFAC World Congress San Francisco, USA

IFAC World Congresses are special occasions: They serve to consider the state-of-the-art of automatic control in all areas covered by IFAC. They are an opportunity for control engineers from all over the world to submit their papers and to present them to the huge audience of the internationally most renowned scientists and engineers. They are places to meet friends from all over the world, to make new friends, to exchange information and to provide information. They give young scientists the chance to enrol their respective paper for the IFAC Congress Young Author Prize, or scientists in general to participate in the contest for one of the other IFAC Congress Awards, such as the IFAC Congress Applications Paper Prize or the IFAC Congress Poster Prize. For all these prizes it is not only the technical merit of the paper which decides which of the 4 or 5 finalists will receive the award and who will receive an honorable mention, but also the presentation. In addition to their numerous other commitments, the Chairmen and members of the Selection Committees are therefore busy attending sessions at which the finalists make their presentations – a very demanding, but also very rewarding task. The awards for these prizes are then presented at the Closing Ceremony. But already the Congress Opening ceremony is a first highlight, before even the first technical presentations are made: At the Opening Ceremony, the President of IFAC has the pleasure and special privilege to present the Quazza Medal and – at the San Francisco Congress for the first time – the Nichols Medal. IFAC was specially honoured that Nathaniel B. Nichols was present at the Opening Ceremony. Further, the President has the special privilege to appoint lifetime Advisors of IFAC and to present to them the Advisor's Seal. Another feature of the Opening Ceremony is the presentation of Best Paper Awards for the IFAC Journals Automatica and Control Engineering Practice. In this and the forthcoming issues of the IFAC Newsletter, the winners and finalists of all awards will be presented to the Newsletter readers.

The Congress as such was for the first time preceded by Workshops which proved to be very successful (see article on page 3). IFAC is proud to say that the number of participants at this IFAC Congress

almost reached the magical number of 2000. The participants came from 60 different countries, with the largest number coming from the USA, followed by Japan, the UK and Germany. A more detailled analysis of the Congress will be published in one of the next issues of this Newsletter.

The IFAC Congress is also the time when the General Assembly of IFAC is held. If the last General Assembly in Sydney in 1993 was characterized by discussions on a very profound change in the technical structure of IFAC, the period following it was one of consolidation and evaluation. This Congress and the General Assembly offered the opportunity, among others, to see if the new structure of the Technical Board has proven itself. And it may be said that the new structure meets the challenges of the future very well indeed. It has become easier to react to changes and newly developing technical areas. Another challenge IFAC will have to face or is already facing is the rapid change in the publications sector, with multimedia, CD-ROMs, etc. being the call of the future. IFAC is well aware of these developments and is already reacting to them in its publications policy.

At the General Assembly also, the new leadership team of IFAC was elected. For the 1996 – 1999 triennium, this team is composed as follows:

COUNCIL

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Gusztáv Hencsey
Newsletter Editor

Giorgio Quazza Medal
Awarded to
Professor Alberto Isidori

IFAC President S. Kahne presents Quazza Medal to Prof. A. Isidori

The Giorgio Quazza Medal is presented at each Triennial IFAC Congress as a memorial to the late Giorgio Quazza, a leading Italian electrical and control engineer who served IFAC in many capacities in a most distinguished manner.

Previous winners of the Quazza Medal have been:

1981	Prof. John F. Coales
1984	Prof. Iakov Z. Tsypkin
1987	Professor Karl J. Åström
1990	Professor Peter Kokotovic
1993	Professor Edward J. Davison

For the 13th IFAC World Congress held in San Francisco, USA, 1996, the Quazza Medal was awarded to Professor Alberto Isidori with the following citation:

For pioneering and fundamental contributions to the theory of non-linear feedback control.

Professor Isidori is professor of automatic control at the University of Rome and also holds a part-time professorship at the Washington University in St. Louis. He has contributed in many ways to the theory of non-linear control systems. Three of his papers have received outstanding paper awards from the International Institute of Electrical Engineers, and from IFAC. He is the author of a fundamental text in this area.

Nathaniel B. Nichols Medal
Awarded to
Professor Jürgen Ackermann

IFAC President S. Kahne presents Nichols Medal to Prof. J. Ackermann

The Nichols Medal was for the first time presented on the occasion of the 13th IFAC World Congress in San Francisco in July 1996. Sponsored by the American Automatic Control Council (the US National Member Organization of IFAC) it is awarded for lifetime contributions to control systems applications and practice. The medal is named for Nathaniel B. Nichols, a distinguished American control engineer who was instrumental in the development of radar during World War II at MIT's Radiation Laboratory. One of the most widely used design tools in control systems is the 'Nichols Chart', created by Nichols in the 1940s. Dr. Nichols is also co-author of an early fundamental book on automatic control, and was present at the

opening ceremony of the IFAC Congress at which the medal was awarded.

The Nichols Medal was presented to Professor Ackermann with the following citation:

For robust control design methods and their use to improve automobile safety.

Professor Ackermann is director of DLR's Institute of Robotics and System Dynamics in Oberpfaffenhofen near Munich, where he leads the Institute's research in dynamics and control. He has contributed to the theory of control systems, a result of which has been named after him as 'Ackermann's Formula'. Recently he has written a fundamental text on robust control.

Professor Ackermann is presently involved in robust yaw stabilization of cars. In an experimental program with industry, this project has resulted in remarkable safety advantages,by a support system which helps the driver to steer the car safely during emergency situations, such as icy roads and heavy side-winds.

13th IFAC Congress Tutorial Workshops

The recently concluded 13th IFAC World Congress in San Francisco was the first Congress to offer tutorial workshops, and they proved to be a popular feature of this Congress. The workshops, conducted on Saturday and Sunday preceding the formal opening of the Congress, provided tutorial information on a variety of topics which were the subject of many of the subsequent papers presented during the Congress.

Tutorial Workshops preceding technical sessions have become a popular feature of many conferences because they provide a forum for in-depth developments of the fundamentals of the subjects. At the 13th IFAC World Congress workshops were designed for this same objective.

The Saturday Workshops were intended to provide "introductory" background material on control tools/methods that have been developed during the last few years. Most of the attendees were control engineers with general, but perhaps not specialized knowledge about the topics presented.

The Sunday Workshops were intended to be more "advanced" and to provide more specialized knowledge for participants who already had a fairly general understanding of the workshop topics.

Eleven Workshops were conducted by outstanding international lecturers from within the control systems field. Many of the lecturers are in fact leaders within the development of their respective subjects. The topics included,

Identification (Theory)
Identification (Applications)
Robust Control (Theory)
Robust Control (Design and Analysis)
Petri Nets in Industrial Automation
Computation and Control
Digital Signal Processors
Sliding Mode Control
Robust Adaptive Control
Intelligent Vehicle Highway Systems
Supervision, Fault Detection, and Diagnosis
Time-Critical Software Design

There were about 40 lecturers who presented various sections of each workshop.

Total attendance at the Tutorial Workshops was 301 which exceeds 15 percent of the total Congress attendance.

Michael K. Masten

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New Editorial Appointments in *Automatica*

Constancy has been a characteristic of Automatica's editorial policy during the period when George Axelby was first Editor and later Editor-in-Chief. Among other things, this steadiness expressed itself in long terms of appointment of the Editors and many of the Associate Editors. It took me personally 25 years from when I joined Automatica as an Associate Editor in 1968 to reach the position of Editor-in-Chief in 1993.

When George retired as Editor-in-Chief of Automatica, some of the original Editors resigned at about the same time: Martin Larsen, Austin Spang, Patrick Parks and Bill Levine. In the past year the remaining 'old-timers' decided to step back and make room for new people.

Karl Åström has been Editor for Survey Papers since 1984. This is one of the many roles in which Karl has contributed to the control field in the last 35 years.

Andrew P. Sage became an Associate Editor in 1968, when Automatica became an IFAC Journal, and an Editor in 1980. As another nestor in the systems and control area he attended for many years to the 'soft' side of control as Editor for Large Scale Systems, Management and Decision Sciences. I cannot count the number of papers he handled wisely and efficiently.

Also, a more recently appointed Editor decided to relinquish her position to find more time for other activities. After having been an Associate Editor for several years, Ruth Curtain became Editor for System Theory in 1993. She took on a large workload and probably realized the shortest turnaround times of all the editors.

IFAC, Automatica's publisher Elsevier Science and I are immensely grateful to the retiring editors for their invaluable contributions to Automatica, in particular, and the control field in general.

The triennial IFAC Congress is the time when IFAC changes guard. In addition, the Automatica team of Associate Editors is being reviewed on this occasion. A number of Asssociate Editors are handing over to others. the Associate Editors' work in acquiring reviews and providing recommendations for acceptance, revision or rejection is vital for the Automatica editorial process. IFAC, Elsevier Science and I express profound thanks to the retiring and continuing Associate Editors.

I conclude this editorial, by introducing the three new Editors:

- Manfred Morari succeeds Karl J. Åström as Editor for Survey Papers
- Roberto Tempo takes over from Ruth Curtain as Editor for System and Control Theory. The editorial area has been slightly redefined.
- Christine M. Mitchell succeeds Andrew P. Sage. Her editorial area is redefined to Systems Engineering, management and Decision Sciences.

Roberto Tempo and Christine Mitchell were previously Associate Editors of Automatica. Manfred Morari acquired his editorial experience elsewhere.

Huibert Kwakernaak, Editor-in-Chief, Automatica