IFAC International Federation of Automatic Control

Newsletter

**1988
No. 1
Feb.**

Contents:

Message from the President

IFAC has now started its eleventh triennial period with fourty four National Member Organizations. The two new members that joined and were accepted by the General Assembly at the Munich Congress were the Kuwait Society of Engineers and the Korean Association of Automatic Control. Let me once more congratulate them and wish a fruitful cooperation with other NMOs and TCs.

As I mentioned at the Closing Session of the Munich Congress it is the spirit of international amity and cooperation which has always been prevailing in IFAC and which joins together people of different origins, religions and countries to best serve the promotion of the science and technology of control and systems engineering to achieve better understanding and a more stable world.

IFAC is to provide opportunities for people from many countries with similar technical interests in control engineering to interact in a manner which is in their best interest. We do this through our programs of meetings and publications which offer opportunities for an informal exchange of ideas associated with these activities.

Our technical strategy is planned and prepared by the Council, Technical Board, Executive Board and the Technical Committees with their Working Groups. The main outcome of this strategy is our professional events — conferences, symposia and workshops. These events, in turn, are organized by our National Member Organizations. That is why the link between the TCs and NMOs, i.e. between the corresponding people, is vitally important.

We need more input from our NMOs about topics of interest to people in their countries. IFAC has always been relying on personal contacts between people devoted to their profession and to our community.

At the present moment IFAC is also concerned with several problems which have to be solved to keep our high standards, to improve our professional output and the international reputation of our organization. Not pretending to a complete list I still should specify some, because I am sure that any progress made by the NMOs in this direction will give us a good chance to reach the goals mentioned.

We need:

— more contributions from industry
— academic people to meet people from industry more often
— better marketing of our activities; sometimes our technical events do not receive sufficient publicity in the daily press
— to invite more young talented and active people
— to activate people to contribute to TCs as members, to attend the annual meetings and technical events.

Our Secretariat is ready to contribute to any activity in which an NMO needs information or assistance. So do not hesitate to contact the Secretariat and provide good feedback in return.

Since publications are one of the most important output I advise to improve contributions and communication with our publisher Pergamon Press, with "Automatica", "Newsletter", the Publications Committee and the Publications Managing Board.

Quite in general I believe that we have to pay great attention to social and ethical problems in addition to the traditional technical ones. Engineers today are responsible for the lives, health and future of more people than any other professional, but the role and reputation of engineers does not always match the growing responsibility of our profession. Therefore it seems worth while to develop an international code of engineering ethics to step up efforts towards increasing safety and security of technical systems. I am convinced that IFAC will make progress in this direction during the next triennial period.

The service which our non-profit, non-political and non-governmental organization provides to the control community is carried out by particular people, by engineers and scientists full of faith in and enthusiasm for IFAC. I should like to express my highest appreciation to everyone who has taken the burden to serve our Federation.

(Editor's note: Excerpts from a letter to all National Member Organizations.)

Mayor of Laxenburg Visits Secretariat

Mag. Heinrich Schneider, Mayor of Laxenburg, visited the premises of the IFAC Secretariat. He showed great interest in the operation of the Federation. To acquaint the citizens of Laxenburg better with IFAC, a lecture on the organization and its work was discussed and will be held in the course of 1988.

FIACC Meeting
Budapest, Hungary, August 31, 1987

The annual meeting of the sister federations was held in conjunction with the IFIP General Assembly. G. Hencsey, IFAC Secretary, reported on the latest IFAC activities on behalf of the President of IFAC. This report focussed on the 10th IFAC World Congress and the decisions taken by the IFAC General Assembly and other IFAC bodies. The participants of the meeting discussed the co-operation with other international organizations such as UNESCO, UNIDO, UITA and ICSU.

During the deliberations on cooperation among and between sister federations, IFAC was distinguished for being the most open organization concerning co-sponsorship, and the participants considered its success an example to be followed.

The IMEKO President, G. Toumanoff (USA), will be FIACC President for the next two years and Gy. Striker (H) continues to be the Honorary Secretary.

The next FIACC meeting will be held in July 1988 during the IFORS World Congress in Paris.

Modelling and Simulation of Distributed Parameter Systems IMACS/IFAC Symposium
Hiroshima, Japan, October 6–9, 1987

This symposium was sponsored by the IMACS Technical Committee on Control Systems and Robotics, and co-sponsored by the IFAC TCs on Theory and Mathematics of Control. The opening session was conducted by Prof. Y. Sunahara and there were three opening addresses by Dr. T. Yoshida (Hiroshima Institute of Technology), Prof. S. G. Tzafestas (IMACS) and Prof. H. T. Banks (IFAC). Prof. S. G. Tzafestas delivered the opening lecture "Impact of Distributed Parameter and Large Scale Systems Theory on the Computer Control of Modern Life Systems". The two special lectures were delivered by Prof. Y. Sunahara and Prof. H. T. Banks during the symposium.

The symposium was attended by 140 delegates from 17 countries and due to the large number of contributors it was necessary to arrange three parallel sessions.

It proved to be very successful with respect to participation, the quality of papers and discussions and the warm atmosphere created by those who attended.

T. Futagami
IPC Chairman

On the occasion of the Technical Board Meeting held in the framework of the annual Council and Related Meetings during the 10th World Congress in Munich, the establishment of some new Working Groups was decided. For the information of our readers find below a complete list of IFAC TCs and their Working Groups. This list may be amended as the need arises for further specialized fields to be covered by Working Groups. Such decisions are usually prepared by the Technical Committees and submitted to the Technical Board at its respective annual meeting in the framework of the Council and Related Meetings. For more detailed information please contact the IFAC Secretariat at Schlossplatz 12, A-2361 Laxenburg, Austria.

List of IFAC TCs and their Working Groups

TC on AEROSPACE
WG on Specifications for an Automatic Data Link between ATC and Planes

TC on APPLICATIONS
WG on Electric Power Systems
WG on Electric Generating Plants
WG on Chemical Process Control
WG on Metallurgical, Mining and Mineral Processing
WG on Modelling and Control in Agriculture
WG on Marine Control
WG on Control and Instrumentation of Biotechnological Processes
WG on Control of Vehicles and Signals

TC on BIOMEDICAL ENGINEERING AND CONTROL
WG on Decision Support Systems for Control of Physiological Variables

TC on COMPONENTS AND INSTRUMENTS

TC on COMPUTERS
WG on Guidelines and Specifications for Software for C.A.C.S.D.
WG on Management of Software Projects
WG on Artificial Intelligence in Control Computing
WG on Distributed Computer Systems

1987—1990
IFAC TCs and Working Groups

TC on DEVELOPING COUNTRIES

TC on ECONOMIC AND MANAGEMENT SYSTEMS
WG on Modelling and Control of National and Regional Economic Systems
WG on Energy Systems Management and Economics

TC on EDUCATION
WG on Educational Programs in Robotics
WG on Continuing Education

TC on MANUFACTURING TECHNOLOGY
WG on Intelligent Systems in Manufacturing

TC on MATHEMATICS OF CONTROL
WG on Game Theory and Multicriteria Optimization
WG on Asymptotic Analysis and Design
WG on Control Applications of Optimization
WG on Stochastic Analysis and Control

TC on SYSTEMS ENGINEERING
WG on Computer Aided Systems Analysis and Design
WG on Industrial Systems
WG on Large Scale Systems Engineering Methodology and Applications
WG on Man-Machine Systems
WG on Supplemental Ways for Improving International Stability
WG on Water Resource Systems
WG on Large Scale Agricultural, Forest and Environmental Systems
WG on Transportation Systems

TC on SOCIAL EFFECTS OF AUTOMATION

TC on THEORY
WG on Adaptive Systems in Control and Signal Processing
WG on Robust Control Theory
WG on Actuator and Sensor Placements
WG on Control Theory and Signal Processing
WG on Theory of Robots

TC on TERMINOLOGY

DPS'87-HIROSHIMA

Title	1988	Place	Deadlines	Further Information
IFAC/IMEKO/IMACS Symposium Modelling and Control in Biomedical Systems	April 6—8	Venice Italy	—	Prof. C. Cobelli Istituto di Elettrotecnica e di Eletronica Università di Padova, Via Gradenigo 6/a I-35131 Padova, Italy
IFAC/IFIP Symposium Software for Computer Control — SOCOCO '88	April 26—28	Johannesburg ZA	—	Prof. I. M. Macleod Dept. of Electrical Engineering, University of Witwatersrand 1 Jan Smuts Ave Johannesburg 2001, ZA
IFAC/IFIP Workshop (15th) Real Time Programming	May 25—27	Valencia Spain	—	Prof. J. A. de la Puente Dept. de Sistemas, Informaticos y Comput. Universidad Politecnico POB 22012 E-46071 Valencia, Spain
IFIP/IFAC Conference Hardware and Software for Real-Time Process Control	May 30— June 1	Warsaw Poland	—	Prof. J. Zalewski Institute of Atomic Energy PL-05-400 Otwock/Swierk, Poland
IUTAM/IFAC Symposium Dynamics of Controlled Mechanical Systems	May 30— June 3	Zurich CH	—	Prof. M. Mansour Institute of Automatics ETH Zurich CH-8092 Zurich, Switzerland
INRIA/IFAC (8th) Conference Analysis and Optimization of Systems	June 8—10	Antibes F	—	Ms. Th. Bricheteau INRIA, B.P. 105 Domaine de Voluceau F-78153 Le Chesnay, France
INRIA/IFAC Bellman Continuum	June 13—14	Sophia Antipolis F	—	Prof. A. Blacquière Université de Paris VII Lab. Automatique Théorique Tour 14–24, 2, place Jussieu F-75251 Paris Cedex 05, France
IFAC Workshop Model Based Process Control	June 13—14	Atlanta, GA USA	—	Prof. Y. Arkun Dept. of Chemical Engrg. Georgia Institute of Techn. Atlanta, GA 30332, USA
IFAC/IFIP/IEA/IFORS Conference Analysis, Design and Evaluation of Man-Machine Systems (MMS '88)	June 14—16	Oulu SF	—	B. Wahlström Technical Research Centre of Finland Electrical Engineering Lab., Otakaari 7 B SF-02150 Espoo, Finland
IFIP/IFAC Conference Software for Manufacturing PROLAMAT	June 14—17	Dresden GDR	—	Prof. D. Kochan Technische Universität Dresden Sektion Fertigungstechnik und Werkzeugmaschinen — PROLAMAT '88 Mommsenstrasse 13, DDR-8027 Dresden, GDR
IFAC Workshop Control Application of Nonlinear Programming	June 21—25	Tbilisi USSR	—	Acad. V. A. Trapeznikov USSR National Committee of Automatic Control, Profsojuznaja ul. 65 Moscow GSP 312, USSR
IFAC/IMEKO/IMACS Symposium Distributed Intelligence Systems: Methodology and Applications	June 27— July 1	Varna BG	—	DIS '88 Symposium Information Centre "INFORMA" POB 26 BG-1592 Sofia, Bulgaria
IFAC Symposium Trends in Control and Measurement Education	July 11—13	Clyne Castle UK	—	Ms. Rosamund da Gama The Institute of Measurement and Control 87 Gower Street, London WC1E 6AA, UK
IFAC Symposium Adaptive Control of Chemical Processes	August 17—19	Lyngby DK	—	Prof. M. Kümmel Denmark Technical University Institute for Kemiteknik, Bldg 229 DK-2800 Lyngby, Denmark
IFAC Workshop Robust Adaptive Control	August 22—24	Newcastle NSW, AUS	—	Prof. G. C. Goodwin Dept. of Electrical & Computer Engrg The University of Newcastle, N.S.W. 2308, Australia

FORTHCOMING EVENTS (ctd.)

Title	1988	Place	Deadlines	Further Information
4th IFAC Symposium Computer Aided Design in Control and Engineering Systems	August 23 — 25	Beijing PRC	—	Prof. Chen Zhen-Yu CADCS '88 Secretariat Application Committee of the Chinese Association of Automation P.O. Box 919, Beijing, PRC
IFAC/IFORS Symposium Identification and System Parameter Estimation	August 27 — 31	Beijing PRC	—	Prof. Chen Han-Fu Institute of Systems Science Academia Sinica Beijing, 10080, PRC
IFAC Symposium Power Systems: Modelling and Control Applications	Sept. 5 — 8	Brussels Belgium	—	J. Debelle, Vice President of IBRA Rue Ravenstein 3 B-1000 Brussels, Belgium
IFAC Workshop Advances in Automation for Hard Rock and Underground Mining	Sept. 12 — 14	Ste Adele CDA	—	Prof. A. Piché Dept. of Mineral Engrg. Ecole Polytechnique de Montreal C.P. 6079, Succ. A Montreal, Quebec H3C 3A7, Canada
3rd Intl. Symposium Systems Analysis and Simulation	Sept. 12 — 16	Berlin GDR	*	Prof. Dr. A. Sydow ZKI der AdW der DDR Kurstrasse 33 DDR-1086 Berlin, GDR
IFAC Workshop Spacecraft Autonomy: Present and Future Capabilities	Sept. 13 — 15	Pasadena CA, USA	*	Mr. G. E. Cunningham Pathfinder Project, Jet Propulsion Lab. Mail Stop 79 — 21, 4800 Oak Grove Drive Pasadena, CA 91109, USA
IFAC Workshop (8th) Distributed Computer Control Systems — DCCS '88	Sept. 13 — 15	Vitznau CH	—	Prof. Bühler, SGA 16 Chemin de Bellerive CH-1007 Lausanne, Switzerland
IFAC Workshop Artificial Intelligence in Real-Time Control	Sept. 21 — 23	Swansea UK	—	Prof. M. G. Rodd Dept. of Electrical Engrg. University College of Swansea Singleton Park, Swansea SA2 8PP, UK
SCI/IFAC Symposium Modelling and Control of Biotechnological Processes	Sept. 25 — 28	Cambridge UK	—	UKACC The Institute of Measurement and Control 87 Gower Street, London WC1E 6AA, UK
IFAC Workshop (2nd) Reliability, Availability and Maintenability of Industrial Instrumentation Systems	Sept. 28 — 30	Bruges B	—	Dr. ir. L. Boullart Automatic Control Lab. University of Ghent Grotesteenweg Noord 2 B-9710 Ghent, Belgium
IFAC/IMACS/IFIP Symposium Robot Control SYROCO '88	October 5 — 7	Karlsruhe FRG	—	Dr. G. Hirzinger DFVLR Oberpfaffenhofen D-8031 Wessling/Oberbayern, FRG
IFAC Workshop Applied Measurements in Mineral and Metal Processing	Oct. 11 — 14	Johannesburg ZA	Feb. 15, 1988	The Organizers SACAC Workshop c/o MINTEK Private Bag X3015, Randburg South Africa
4th IFAC Symposium Systems Analysis Applied to Management of Water Resources	Oct. 11 — 13	Rabat Morocco	*	Prof. M. Najim, AMADEIA c/o Laboratoire Electronique Faculté des Sciences BP 1014, Rabat, Morocco
IFAC/IFIP Symposium Safety of Computer Control Systems — SAFECOMP '88	Nov. 9 — 11	Fulda FRG	—	D. I. H. Wiefels VDI/VDE-GMA, Graf-Recke Str. 84 P.O. Box 1139 D-4000 Düsseldorf 1, FRG

* deadline not yet known

FORTHCOMING EVENTS (ctd.)

Title	1989	Place	Deadlines	Further Information
SCS/IFIP/IFAC Workshop Artificial Intelligence in Management & Economics	January 11—13	Singapore	July 1, 1988	Mrs. Vicky Toh Institute of Systems Science National University of Singapore Kent Ridge, Singapore 0511
IFAC Symposium Adaptive Control and Signal Processing	April 19—21	Glasgow UK	—	Ms. Rosamund da Gama The Institute of Measurement and Control 87 Gower Street, London WC1E 6AA, UK
IFAC/IMACS/IFIP Symposium (5th) Control of Distributed Parameter Systems	June 26—29	Perpignan France	*	A. El Jai Lab. d'Automatique IMP du CNRS Université de Perpignan, 50 Avenue de Villeneuve, F-66000 Perpignan, France
IFAC/IFORS/IMACS/IEEE Intl. Conference Advanced Information Processing in Automatic Control	July 3—7	Nancy France	*	R. Husson, Directeur du CRAN LAUT-ENSEM 2, rue de la Citadelle, BP 850 F-54100 Nancy, Cedex, France
IFAC/IFORS/(IMACS Symposium Large Scale Systems: Theory and Applications	August 28—31	Berlin GDR	*	Prof. H. Fuchs Academy of Sciences of the GDR Kurstrasse 33, DDR-1086 Berlin, GDR
IFAC Symposium Automation in Mining, Mineral and Metal Processing	Sept. 4—8	Buenos Aires Argentina	*	Prof. J. Paiuk c/o AADECA, Venezuela 634 9° P. Off 39 1095 Buenos Aires, Argentina
IFAC/IFIP/IEA/IFORS Conference Analysis, Design and Evaluation of Man-Machine Systems (MMS '89)	Sept. 12—14	Xian PRC		Prof. Wang Ying Luo Xian Jiaotong University Xian, Shaanxi, PRC
IFAC/IFIP/IFORS/CIRP Workshop Decisional Structures in Automated Manufacturing	Sept. 18—21	Genova I	*	Prof. A. Villa Dip. Tecnologia e Sistemi di Produzione Politecnico di Torino C. so Duca degli Abruzzi 24 I-10129 Torino, Italy
IFAC/IFIP/IMACS/IFORS Symposium (6th) Information Control Problems in Manufacturing Technology	Sept. 29— Oct. 1	Madrid E	*	Prof. E. A. Puente Head of Systems Engrg. Dept. UPM, Jose Gutierrez Abascal 2 E-28006 Madrid, Spain
IFIP/IFAC Conference Computer Applications in Production Engineering (CAPE '89)	Oct. 2—5	Tokyo J	Sept. 30, 1988	Conference Secretariat CAPE '89 c/o Conference Dept; Business Center for Academic Societies Japan 2-40-14, Hongo Bunkyo-ku, Tokyo 113, Japan
IFAC/(IMACS/IFIP) Symposium Skill Based Automated Manufacturing	Nov. 15—17	Vienna A	*	Prof. P. Kopacek Dept. of System. Techn. & Automation University of Linz A-4040 Linz-Auhof, Austria

Title	1990	Place	Deadlines	Further Information
XI IFAC WORLD CONGRESS	August 13—17	Tallinn USSR	January, 1989	Institute of Cybernetics Akadeemia tee 21 200108 Tallinn, USSR

* deadline not yet known

Papers from the Next Issue — March 1988

Papers

Analytical Design of Intelligent Machines
(G. N. Saridis, K. P. Valavanis)

Automated Guidance of Vehicles Using Vision
and Projective Invariant Marking
(L. Nielsen)

A Comparative Study of Self-Adaptive Long-
Range Predictive Control Methods
(R. M. C. De Keyser, Ph. G. A. Van de Velde,
F. A. G. Dumortier)

On PID Controller Tuning Using Orthonormal
Series Identification
(C. Zervos, P. R. Belanger, G. A. Dumont)

Robust Control of Flexible Structures: A Case
Study
(J. Bontsema, R. F. Curtain, J. M. Schumacher)

Decentralized Tracking for a Class of Inter-
connected Nonlinear Systems Using Variable
Structure Control
(G. P. Matthews, R. A. DeCarlo)

State-Dependent Optimality of a Singular
Subarc
(J. Shinar)

Linear Estimation of Random Fields with
Second-Order Increments and Its Application
(A. Ohsumi)

Identification of Physical Parameters in
Structured Systems
(S. Dasgupta, B. D. O. Anderson, R. J. Kaye)

On the Design of Man-Machine Systems:
Principles, Practices, and Prospects
(W. B. Rouse, W. J. Cody)

Brief Papers

Simultaneous Generation of Sensitivity
Functions — Transfer Function Matrix
Approach
(S. Bingulac, J. H. Chow, J. R. Winkelman)

Gaussian Approximation in Recursive Estima-
tion of Multiple States of Nonlinear Wiener
Systems
(O. L. R. Jacobs)

Optimization of Hydropower System Opera-
tion with a Quadratic Model
(S. A. Soliman, G. S. Christensen)

Sensitivities of the Prescribed Pole Spectrum
in a Closed-Loop Control System
(M. R. Stojic, M. M. Fedenia, R. M. Stojic)

An Explicit Formula and an Optimal Weight
for the 2-Block Structured Singular Value
Interaction Measure
(C. N. Nett, J. A. Uthgenannt)

The Generalized Hessenberg Representation
and Near Aggregation
(D. K. Lindner, W. R. Perkins)

Technical Communiques
Book Reviews

Robot Analysis and Control by H. Asada and
J-J. E. Slotine
(P. Hills)

Adaptive and Learning Systems: Theory and
Applications by K. S. Narenda (Editor)
(P. Dorato)

Microcomputer Bus Structures and Bus
Interface Design by A. L. Dexter
(B. Sebestyen)

Real-Time Interfacing: Engineering Aspects
of Microprocessor Peripheral Systems by
J. E. Cooling
(D. Petersen)

Distributed Control Systems: Their Evaluation
and Design by M. P. Lukas
(M. G. Rodd)

Michel Cuénod
Trust Fund

Michel Cuénod was Treasurer of IFAC for
21 years and had, from its inception in 1957,
been very much concerned with the dissemi-
nation of Control- and Systems Engineering
in developing countries. Before his untimely
death in 1987 he had himself given his un-
stinted help to the Department of Electrical
Engineering of the Middle East Technical
University in Ankara and had assisted
members of that Department to attend IFAC
Congresses. One of his last wishes was that
a fund should be established to assist
academic staff and students in developing
countries, and particularly those from the
Department of Electrical Engineering of the
Middle East Technical University in Ankara,
to attend IFAC Congresses and other IFAC
meetings. When after his death this desire,
which was also the wish of his widow
Jacqueline, was brought to the attention of
the Council of IFAC, the said Council agreed
unanimously to establish such a fund. Further,
as a token of IFAC's gratitude to Michel
Cuénod for the many outstanding and
valuable services he had rendered to IFAC
and in order to have his name perpetuated in
IFAC, this new Educational Trust Fund
should be called the Michel Cuénod Trust
Fund.

This Trust Fund is initially vested with a sum
of sfr 25,000.— which is earmarked for
members (academic staff or students) of the
Department of Electrical Engineering of the
Middle East Technical University of Ankara,
Turkey. If and when the assets of the Fund
exceed sfr 25,000.— the first sfr 25,000.—
shall be kept in a separate division of the
Fund to be used solely and exclusively for
the group of persons mentioned above. Any
additional monies available to the Trustees
of the Fund shall be administered by them to
be available for the assistance of young
engineers and scientists of other developing
countries in such ways as the Trustees may
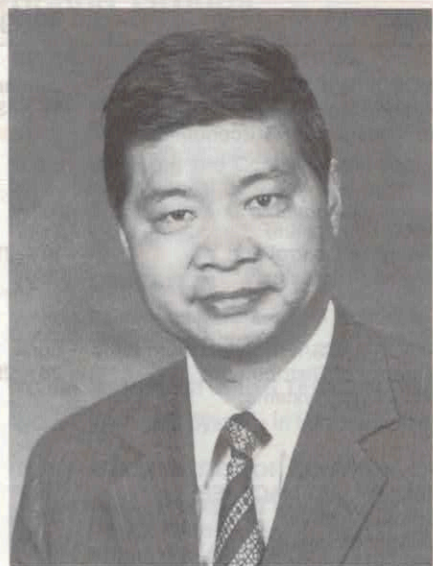determine in order to further objects of the
Trust.

The Fund shall be administered by 3 to 5
trustees, among them, the respective Presi-
dent of IFAC in office, the respective Imme-
diate Past President, the Treasurer of IFAC,
Mrs. Jacqueline Cuénod and Prof. John
F. Coales (Advisor).

Persons wishing to contribute to this Fund
can do so by remitting money to the following
account:

Schweizerische Kreditanstalt
Hauptsitz
CH-8021 Zurich
Switzerland
account number: 681319-30

WHO IS WHO IN IFAC

Prof. Yong-Zai Lu
IFAC Council Member

Prof. Yong-Zai Lu was born in Hangzhou,
China on October 18, 1937. He graduated
from the Department of Chemical Engineering,
Zhejiang University Hangzhou in 1961, and
has been working at Zhejiang University since
then. Since 1984, he has been a full Professor
and Director of the Laboratory for Industrial
Process Modelling and Control, and currently
is also Director of the System Engineering
and Control Research Center, Zhejiang
University, and concurrently Professor at the
Department of Automatic Control, Shanghai
Jiaotong University. In 1980—1982, he was
a visiting Associate Professor at Purdue
Laboratory for Applied Industrial Control,
Purdue University in the US.

Prof. Lu's research interests are mainly in
process modelling and modern control
techniques, large scale system theory and
intelligent control, and their applications in
industry, especially the large scale steel mills,
oil refinery and chemicals. He closely co-
operates with several large-scale industrial
companies to put the academic research
results into practice. A number of integrated
computer control, optimization and produc-
tion scheduling systems as developed by
Prof. Lu have been implemented in the real
production scale steel mills and oil refinery.

He is the author or co-author of five books on
control engineering (one of them was pub-
lished by the Instrument Society of America,
1983) and over 60 papers (half of them were
published in English in International Journals
and Conference Proceedings). He was invited
to give seminars and/or lectures at Universities
and Companies in the USA, Europe and
Japan.

Currently, he is a Vice President of The
Chinese Association of Automation and
National Committee Member of the China
Association of Science and Technology. He
is Editorial Board member of the major
Chinese control related journals. At the last
meeting of the General Assembly in Munich,
July 1987, he was elected ordinary member
of the IFAC Council.