



Newsletter

IFAC Fellows 2011 Elected

The 2011 IFAC Fellows are:

John BAILLIEUL
 Bassan BAMIEH
 Shanker P. BHATTACHARYYA
 Edgar BRISTOL
 Jie CHEN
 Patrizio COLANERI
 Panagiotis CHRISTOFIDES
 Arthur KRENER
 Jay LEE
 Zongli LIN
 Reza MOHEIMANI
 Jian SONG
 Lihua XIE

Just at the time as this Newsletter is being prepared, the votes for the IFAC Fellow-Candidates 2011 have come in.

As has been the case in previous Newsletters, the Fellows 2011 will also be introduced to our readers in this and forthcoming issues. The sequence in which we shall introduce the Fellows is not alphabetical or otherwise organized, but depends on when the information is received. The newly elected Fellows are also listed on the IFAC website.

The IFAC President together with the Chair of the Fellow Selection Committee will have the pleasure and the privilege to present the Fellow Pin and the Fellow Certificate to all Fellows elected in the years 2009, 2010 and 2011. This will be done in the framework of the banquet at the World Congress in Milan on Thursday, September 1, 2011.

For the new triennial period, however, the Call for Nominations will be issued once for the entire triennium, the number of Fellows who will be elected will be approximately in the range of the one in this current three years' period. The intention of this change is to reduce the administrative workload for both Selection Committee and Secretariat without reducing the number and quality of the distinction.

Contents:

2011 IFAC Fellows 2011 Elected
 *
 Informal Meeting of the IFAC Officers
 in Laxenburg, April 2011
 *
 New Staff Member at IFAC Secretariat
 *
 Mechatronic Systems (IFAC/ASME
 Symposium)
 Boston, USA, September 2010
 *
 Forthcoming Events

Arthur J. Krener



Arthur J. Krener received his PhD in mathematics from the University of California at Berkeley in 1971. From 1971 to 2006 he taught at the University of California at Davis. He retired in 2006 as a Distinguished Professor of Mathematics. Currently he is a distinguished visiting professor in the Department of Applied Mathematics at the Naval Postgraduate School, Monterey, CA, USA. Since 1975 his research has been continuously funded by organizations such as NSF, NASA, AFOSR and ONR.

Professor Krener is a life fellow of the Institute of Electrical and Electronics Engineers (IEEE) and of the Society for Industrial and Applied Mathematics (SIAM) His 1981 IEEE Transactions

on Automatic Control paper with Alberto Isidori, Claudio Gori-Giorgi and Salvatore Monaco won a Best Paper Award. The IEEE Control Systems Society chose his 1977 IEEE Transactions on Automatic Control paper with Hermann as one of 25 Seminal Papers in Control in the last century.

Krener was a Fellow of the John Simon Guggenheim Foundation for 2001-2. In 2004 he was awarded the W.T. and Idalia Reid Prize from Society for Industrial and Applied Mathematics (SIAM) for his contributions to control and system theory. He was the Bode Prize Lecturer at 2006 IEEE CDC. In 2011 Krener receives the IFAC Fellow Award.

In 1988 Krener founded the SIAM Activity Group on Control and Systems Theory and was its first chair. He was again chair of the SIAG CST from 2005-07. He chaired the first SIAM Conference on Control and its Applications in 1989 and the same conference in 2007, both held in San Francisco. He also co-chaired the IFAC Nonlinear Control Design Symposium held at Lake Tahoe, CA/NV, USA) in 1996. He has served as an associate editor for the SIAM Journal on Control and Optimization, as well as for the SIAM book series Advances in Design and Control.

Krener's interests are in developing methods for the control and estimation of nonlinear dynamical systems and stochastic processes.

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

Informal Meeting of the IFAC Officers Laxenburg, Austria, 29 - 30 April, 2011

For the 30th year in a row IFAC officers have convened at the Secretariat in Laxenburg for their informal spring meeting, held this year from 29-30 April. This tradition goes back to times when international communication was much slower and costly than it currently is (no email or fax machines, expensive phone calls, etc.) but continues today because despite of all the advances in technology and communications it is still often more productive and useful to get together to discuss issues and concerns face-to-face. It is also a time for IFAC to strengthen and renew its ties to and support from Austria and the Austrian institutions and authorities which have existed and thrived over the years.

Lecture

Traditionally an IFAC officer presents a lecture at an Austrian university, and 2011 was no exception. This year's presentation on 28 April (the day before the start of the informal meeting) to control professors and students was given at Vienna's Technical University by IFAC President-Elect Professor Ian Craig



Grinding Mill Modeling and Control.

Abstract

The seminar addresses issues relating to the modeling and control of grinding mill circuits as used in minerals processing, with a particular emphasis on (semi) autogenous grinding. In milling circuits it is difficult to control important variables such as the product particle size, because independent control of the amount, size and hardness of the grinding medium in the mill is not possible. Hardness and size changes therefore introduce significant disturbance that necessitates the use of feedback control in order for the plant to operate efficiently. Technical and economic objectives of milling circuits will be discussed and formulated. Next, the issue of modeling the plant for control purposes will be presented and a recently developed model highlighted. The applicability and design of different controllers, ranging from PID to robust non-linear MPC, will then be discussed. Strategies to detect plant changes, and to compensate for feed ore hardness and composition changes, will also be discussed. These include model plant-mismatch detection and disturbance observer design.

Afterwards the officers were taken on a tour of the Technical University. As per IFAC tradition, a dinner was held on Thursday evening before the start of the meeting and was hosted by IFAC President Alberto Isidori. In addition to IFAC officers and staff members there was representation from the Austrian Federal Ministry for Transport, Inno-

vation and Technology, the Austrian Academy of Sciences, the Austrian NMO, other international organizations, the Mayor of Laxenburg, as well as members of the Austrian control community.

Meetings were then held at the Secretariat in Laxenburg on Friday and Saturday, 29-30 April. As is usual, no decisions and votes are taken. The meeting is rather used as a time of discussion and preparation for forthcoming meetings. Another very important aspect is the visit to the Secretariat and exchange with the Secretary and the Secretariat staff. Longtime Secretariat staffers Barbara Aumann and Ernestine Rudas have plans to retire at the end of 2012 so the Secretariat is now entering a transitional phase. To allow for a smooth transition, a new staff member has been sought and found. In due course, a second new Secretariat member will be employed. Barbara and Ernestine will, however, be available for advice, if required, also beyond their official retirement dates.

Thus, new Secretariat staff member Elske Haberl was introduced to the assembled officers at the start of the day on Friday by Secretary Kurt Schlacher.

In addition to the above, various other topics were presented and discussed in preparation for the upcoming General Assembly and the Council- and Related Meetings which will be held in conjunction with the IFAC World Congress in Milan, Italy from 28 August- 2 September 2011. Among others, IFAC PapersOnLine, membership issues, etc. were discussed. Information was also given that, with the approval of membership of the Peruvian Network of Control and Automation - REPCA, IFAC now has 51 National Member Organizations. However, efforts are being made to attract even more organizations worldwide to join the Federation.

Plans for the 2012 Informal Meeting, to be held in Laxenburg 12-14 April 2012, are already underway.

New Staff Member at IFAC Secretariat



Elske Haberl

The IFAC Secretariat has acquired a new staff member. Elske Haberl started working in Laxenburg in January 2011 for 10 hours per week and starting 1 May for 20 hours per week (her hours will increase over time.) The IFAC Secretariat is going through a transitional phase as both Barbara Aumann and Ernestine Rudas plan to retire at the end of 2012 and Elske is working with both ladies to learn the work and duties of IFAC and the Secretariat.

She enjoyed meeting the IFAC Officers on the occasion of the Informal Meeting, saying: „it is so good to be able to put faces to names“. In Milan, she will have even more opportunities to meet members of the big IFAC family.

The search for an additional new staff member is on and of course we will introduce this person to you in a future edition of the newsletter.

Elske is married to an Austrian national and has two children – a seven year old son and three year old daughter. She studied at the University of Missouri (Go Tigers!), Columbia, Missouri, USA, graduating with a B.A. degree in history.

Before coming to IFAC Elske worked as an English assistant for two Viennese kindergartens, in her husband's IT business, as well as completing various editing and translating freelance projects for diverse clients in Austria and abroad.

Outside of work Elske enjoys travel (some favorite destinations are Acadia National Park in Maine, USA, New York City, and the Tuscany region of Italy) visiting art museums, eating chocolate (!!) and reading books.

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Jay H. Lee



Jay H. Lee obtained his B.S. degree in Chemical Engineering from the University of Washington--Seattle, in 1986, and his Ph.D. degree in Chemical Engineering from the California Institute of Technology (Caltech), Pasadena, in 1991. He was with the Department of Chemical Engineering at Auburn University, Auburn, AL, USA from 1991-1998 as Assistant Professor and Associate Professor. From 1998-2000 he was with the School of Chemical Engineering at Purdue University, West Lafayette, IN, USA and then with the School of Chemical Engineering at Georgia Institute of Technology, Atlanta, GA, USA.

Lee has held visiting appointments at E. I. Du Pont de Nemours, Wilmington, DE, USA in 1994 and at Seoul National University, Seoul, South Korea, in 1997. He was a recipient of the National Science Foundation's Young Investigator Award in 1993. He was elected as an IEEE Fellow and as the chair of IFAC TC 6.1 Chemical Process Control this year. As of Fall 2011 Lee will be the head of the Chemical and Biomolecular Engineering Department at KAIST, Daejeon, South Korea.

Lee has published over 120 manuscripts in SCI journals with more than 2500 ISI citations. His research interests are in the areas of system identification, state estimation, robust control, model predictive control and approximate dynamic programming with applications to energy systems and biological systems.

Mechatronic Systems

IFAC/ASME Symposium

Boston, USA, 13 – 15 September, 2010

The 2010 IFAC Symposium on Mechatronic Systems was held jointly with the 2010 ASME Dynamic Systems and Control Conference (DSCC 2010). 110 papers gave a broad overview over the field and reflected vibrant research endeavours worldwide. Important areas of modelling, control precision devices, disk drives, and automotive mechatronics were well represented. A number of sessions reflected important trends - micro and nano devices, networked control systems and cutting edge issues in established areas.

Highlights of the Symposium were the three plenary lectures:

1. Mechatronic Systems in Cars - Status and Outlook, by Dr.-Ing. Rainer Kallenbach, Executive Vice President of Automotive Electronics of Robert Bosch GmbH, Reutlingen, Germany



Abstract:

Mechatronic systems have great and further increasing importance in modern vehicles regarding safety, energy efficiency and comfort. The contribution gave an overview on today's status and future outlook of the application of mechatronic systems in modern cars as well as underlying technologies. The aspects of systems architecture, mechatronics hardware and software as a basis for those systems were covered, selected implementation examples were given.

2. Inspiring Present and Future Engineers to Innovate, by Dean Kaman, Founder of Deka R&D and FIRST (For Inspiration and Recognition of Science and Technology)



Abstract:

The need for scientists and engineers to play a more central, visible, and celebrated role has ne-

ver been clearer or more urgent. As an inventor, entrepreneur, and tireless advocate for science and technology, Kamen spoke about his award-winning inventions and his commitment to FIRST, the non-profit organization he founded to inspire young people's interest and participation in education and careers in science, technology, and engineering.

3. New Actuators for Advanced Mechatronics, by Professor Toshiro Higuchi, Department of Precision Engineering, University of Tokyo, Tokyo, Japan



Abstract:

There has been increasingly wider use of novel actuators in various fields. In industry, precise and high speed positioning is one of the most important technologies. In particular, in the production of semiconductors and flat panel displays, dust-free transporting and precise positioning systems for wafers and thin glass plates are needed to avoid generation of dusts. In peripheral machines for computers like disc memories, small and thin linear actuators are necessary to satisfy the demand for reduction of thickness and weight of the products. In cases like these, conventional actuators seem to have difficulties to satisfy the new and advanced demands in the near future. Therefore, seeking for new actuators has been recently activated. Our laboratory in the University of Tokyo has been engaged in the development of new actuators of various kinds in order to cope with severe demands of coming production systems and future automated machines. Among the developed actuators, I would like to introduce impact drive mechanism and surface acoustic wave motor, as examples of the actuators that utilize piezoelectric materials. And as examples of actuators and manipulations using electrostatic force, powerful electrostatic motor, thin film electrostatic motor, electrostatic transportation devices of particles and droplets, and electrostatic suspension and drive of thin plates of glass and silicon wafers are introduced.

Workshop

A special Workshop was held, dealing with „Rehabilitation and Therapeutic Robotics for Upper and Lower Extremity“. It was directed at researchers in the areas of dynamics systems, controls, robotics, and mechatronics and provided some review of the state of the art without precluding discussion of outstanding challenges in the field.

IFAC Mechatronics Technical Committee Meeting

In the course of its committee meeting, it was decided to schedule the next IFAC Symposium on Mechatronics for China in 2013.

For further details on the Symposium, visit the Symposium website at <https://engineering.purdue.edu/IFACMech10/>

The Tables of Contents of the IFAC Journals can be found respectively at

Automatica
<http://www.elsevier.com/locate/automatica>

Control Engineering Practice
<http://www.elsevier.com/locate/conengprac>

Engineering Applications of Artificial Intelligence
<http://www.elsevier.com/locate/engappai>

Journal of Process Control
<http://www.elsevier.com/locate/jprocont>

Annual Reviews in Control
<http://www.elsevier.com/locate/arcontrol>

Journal on Mechatronics
<http://www.elsevier.com/locate/mechatronics>

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FORTHCOMING EVENTS

2011
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June

Title	2011	Place	Further Information
American Control Conference - in co-operation with IFAC -	June 29 – July 01	San Francisco CA, USA	http://a2c2.org/conferences/acc2011/
IFAC WORLD CONGRESS – 18th Milano 2011	August 28 – Sept. 02	Milan Italy	http://www.ifac2011.org/ e-mail: info@ifac2011.org
SAE/IFAC Intl. Symposium Future Active Safety Technology towards zero-traffic-accident - FAST-zero'11	September 05 – 08	Tokyo Japan	http://www.fast-zero11.info/ e-mail: fast-zero11@ics-inc.co.jp
Title	2012	Place	Further Information
IFAC Workshop Embedded Guidance, Navigation and Control in Aerospace	February 13 – 15	Bangalore India	http://www.ifac.egnca.org (not yet operative) e-mail: not yet available
IFAC Conference Advances in PID Control	March 28 – 30	Brescia Italy	http://pid12.ing.unibs.it e-mail: pid12@ing.unibs.it
IFAC Conference Embedded Systems, Computational Intelligence and Telematics in Control - CESCIT	April 03 – 05	Wuerzburg Germany	http://www7.informatik.uni-wuerzburg.de/cescit e-mail: not yet available
IFAC Symposium Information Control Problems in Manufacturing – INCOM 2012	May 23 – 25	Bucharest Romania	http://www.incom12.ro e-mail: incom12@cimr.pub.ro
IFAC Conference Programmable Devices and Embedded Systems – PdeS 2012	May 23 – 26	Brno Czech Rep.	http://www.pdes2012.feec.vutbr.cz/ e-mail: pdes2012@feec.vutbr.cz
IFAC Workshop Automatic Control in Offshore Oil and Gas Production	May 31 – June 1	Trondheim Norway	http://www.ifac-oilfield.no/
IFAC Conference Analysis and Design of Hybrid Systems - ADHS 2012	June 06 – 08	Eindhoven Netherlands	http://adhs12.org/ e-mail: info@adhs12.org
IFAC Workshop Dynamics and Control in Agriculture and Food Processing – DYCAF	June 13 – 16	Plovdiv Bulgaria	http://dycaf-2012.tu-plovdiv.bg e-mail: altaneva@tu-plovdiv.bg
IFAC Symposium Advances in Control Education - ACE 2012	June 19 – 21	Nizhny Novgorod Russia	http://ace2012.ru/ e-mail: ifac.ace2012@gmail.com
IFAC Symposium Robust Control Design – ROCOND	June 20 – 22	Aalborg Denmark	http://es.aau.dk/conferences/rocond12 e-mail: not yet available (not yet operative)
IFAC Conference Analysis and Control of Chaotic Systems -- CHAOS 12 IFAC Symposium	June 20 – 22	Cancun Mexico	http://www.ipicyt.edu.mx/Chaos12/chaos12.html e-mail: not yet available
American Control Conference - in cooperation with IFAC -	June 27 – 29	Montreal Canada	http://a2c2.org/conferences/acc2012/index.php e-mail: not yet available
Advanced Control of Chemical Processes - ADCHEM-2012	July 10 – 13	Singapore	http://www.adchem2012.org/ e-mail: ivan@adchem2012.org
IFAC Symposium System Identification – SYSID 2012	July 11 – 13	Brussels Belgium	http://www.sysid2012.org/ e-mail: secretariat@sysid2012.org
17th Intl. Conference (cosponsored by IFAC) Methods and Models in Automation and Robotics – MMAR 2012	August 27 – 30	Miedzyzdroje Poland	http:// not yet available e-mail: not yet available
IFAC Symposium Fault Detection, Supervision and Safety for Technical Processes – SAFEPROCESS	August 29 – 31	Mexico City Mexico	http://safeprocess2012.unam.mx/ e-mail: safeprocess12@ingen.unam.mx
IFAC Symposium Power Plants and Power Systems Control	September 02 – 05	Toulouse France	http:// not yet available e-mail: not yet available
IFAC Symposium Robot Control – SYROCO 2012	September 05 – 09	Dubrovnik Croatia	http://www.syroco2012.org/ e-mail: syroco2012@syroco2012.org
IFAC Symposium Control in Transportation Systems - CTS'12	September 12 – 14	Sofia Bulgaria	http://hs27.iccs.bas.bg/
IFAC Workshop Discrete Event System Design – DeSD	October 01 – 04	Campos do Jordao Brazil	http://www.desdes.uz.zgora.pl e-mail: DESDes@iie.uz.zgora.pl
Title	2013	Place	Further Information
IFAC Symposium Advances in Control Education	August 28 – 30	Sheffield UK	http:// not yet available e-mail: not yet available
IFAC Symposium Automatic Control in Aerospace	September 02 – 06	Wuerzburg Germany	http:// not yet available e-mail: not yet available
IFAC Symposium Nonlinear Control Systems - NOLCOS	September 04 – 06	Toulouse France	http:// not yet available e-mail: not yet available