



INTERNATIONAL FEDERATION
OF AUTOMATIC CONTROL

IFAC Presentation slides

International Federation of Automatic Control, September 2020

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INTERNATIONAL FEDERATION
OF AUTOMATIC CONTROL

Overview about IFAC

Founded in September 1957

IFAC is a Federation of about 50 National Member Organizations

Representing the control community in their countries

IFAC's AIMS

- Promote control science and technology
- Advance international collaboration
- Stimulate research, development and application of automatic control and systems engineering
- Promote dissemination and exchange of information
- Stimulate improvement and extension of education

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IFAC

- Founded in Paris in 1957
- IFAC Members: National Member Organizations. The NMOs represent control engineers from each of the following:

AFRICA

South Africa
Tunisia

AMERICAS

Brazil
Canada
Chile
Cuba
Mexico
Peru
USA

AUSTRALIA

Australia

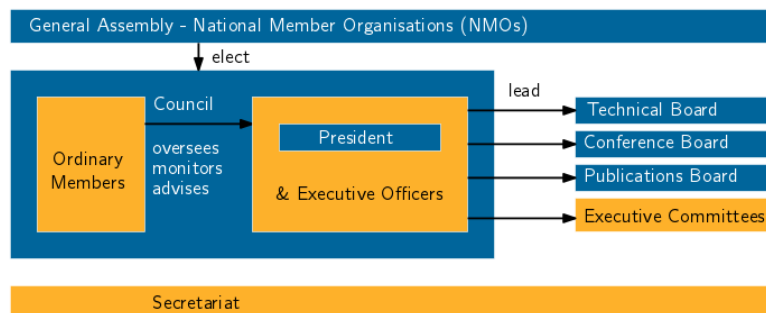
ASIA

China
India
Israel
Japan
Korea Rep.
Malaysia
Pakistan
Singapore

EUROPE

Austria
Azerbaijan
Belgium
Bulgaria
Croatia
Czech Rep.
Denmark
Estonia
Finland
France
Germany
Hungary
Italy
Ireland
Kosovo
Lithuania
Macedonia, Republic of North
Netherlands
Norway
Poland
Portugal
Romania
Russia
Slovakia
Slovenia
Spain
Sweden
Switzerland
Turkey
Ukraine
United Kingdom

IFAC's Structure



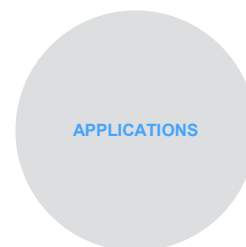
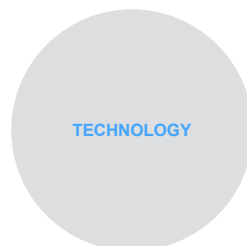
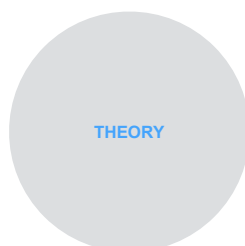
IFAC EVENTS

approximately 40 events per year

- World Congresses
- Symposia (the Technical Board defines the Masterplan)
- Conferences
- Workshops

9 COORDINATING COMMITTEES and 39 TECHNICAL COMMITTEES

organized in three main areas



IFAC COORDINATING COMMITTEES AND TECHNICAL COMMITTEES

THEORY

1. Systems and Signals
 - 1.1. Modelling, Identification and Signal Processing
 - 1.2. Adaptive and Learning Systems
 - 1.3. Discrete Event and Hybrid Systems
 - 1.4. Stochastic Systems
 - 1.5. Networked Systems
2. Design Methods
 - 2.1. Control Design
 - 2.2. Linear Control Systems
 - 2.3. Non-Linear Control Systems
 - 2.4. Optimal Control
 - 2.5. Robust Control
 - 2.6. Distributed Parameter Systems

TECHNOLOGY

3. Computers, Cognition and Communications
 - 3.1. Computers for Control
 - 3.2. Computational Intelligence in Control
 - 3.3. Telematics: Control via Communication Networks
4. Mechatronics, Robotics and Components
 - 4.2. Mechatronic Systems
 - 4.3. Robotics
 - 4.5. Human Machine Systems

IFAC COORDINATING COMMITTEES AND TECHNICAL COMMITTEES

APPLICATIONS

5. Cyber-Physical Manufacturing Enterprises
 - 5.1. Manufacturing Plant Control
 - 5.2. Management and Control in Manufacturing and Logistics
 - 5.3. Integration and Interoperability of Enterprise Systems (I2ES)
 - 5.4. Large Scale Complex Systems
7. Transportation and Vehicle Systems
 - 7.1. Automotive Control
 - 7.2. Marine Systems
 - 7.3. Aerospace
 - 7.4. Transportation Systems
 - 7.5. Intelligent Autonomous Vehicles
6. Power and Process Systems
 - 6.1. Chemical Process Control
 - 6.2. Mining, Mineral & Metal Processing
 - 6.3. Power and Energy Systems
 - 6.4. Safeprocess
8. Bio & Ecological Systems
 - 8.1. Control in Agriculture
 - 8.2. Biological and Medical Systems
 - 8.3. Modelling & Control of Environmental Systems
 - 8.4. Biosystems and Bioprocesses
9. Social Systems
 - 9.1. Economic & Business Systems
 - 9.2. Social Impact of Automation
 - 9.3. Control for Smart Cities
 - 9.4. Control Education
 - 9.5. Technology, Culture and International Stability

IFAC Publications / Periodicals



NEWSLETTER

- Editor is the IFAC Secretary
- For current IFAC News, information and up-to-date announcements of forthcoming events
- TC Chairs, CC Chairs – “please” announce events, discuss past events, provide general info, photos (with explanation), use it as a PR tool
- Introduce new trends ...

IFAC JOURNALS

- **AUTOMATICA**
Publishes papers on original theoretical and experimental research and development, involving all facets of control theory and applications
- **CONTROL ENGINEERING PRACTICE**
Publishes papers which illustrate applications of control theory and its supporting tools; emphasizes practical results

IFAC Publications / Periodicals

- **IFAC JOURNALS**
- **ANNUAL REVIEWS IN CONTROL**
contains review papers related to different areas of automatic control.
- **JOURNAL OF PROCESS CONTROL**
all aspects of Chemical Process Control
- **ENGINEERING APPLICATIONS OF ARTIFICIAL INTELLIGENCE**
Intelligent Real-Time Automation
- **MECHATRONICS**
rapid publication of topical papers featuring practical developments in mechatronics
- **NONLINEAR ANALYSIS: HYBRID SYSTEMS**
devoted to hybrid dynamic systems
- **IFAC JOURNAL OF SYSTEMS AND CONTROL**
across all Areas of Automation and control.



IFAC-PapersOnLine



Starting from 2015, all papers from IFAC meetings (where IFAC is the main sponsor) are published, in partnership with Elsevier, the IFAC Publisher, in the IFAC-PapersOnLine proceedings series hosted at the ScienceDirect web service. All papers published on the web site can be cited using the series ISSN and the individual paper DOI (Digital Object Identifier).

New features in 2020

- [Diamond Open access](#)
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 - authors can share preprints of articles on [arXiv.org](https://arxiv.org) and personal or institutional repositories
- [Two-track submission scheme](#)
 - POL / non-POL tracks



IFAC Awards

- Presented at each Triennial World Congress

The Giorgio Quazza Medal Winners

1981	Kyoto	John F. Coales	UK
1984	Budapest	Yakov Z. Tsytkin	SU
1987	Munich	Karl J. Åström	SE
1990	Tallinn	Petar Kokotovic	US
1993	Sydney	Edward J. Davison	CA
1996	San Francisco	Alberto Isidori	IT
1999	Beijing	Brian D. O. Anderson	AU
2002	Barcelona	Lennart Ljung	SE
2005	Prague	Tamer Basar	US
2008	Seoul	Graham Goodwin	AU
2011	Milan	Hidenori Kimura	JP
2014	Cape Town	David Mayne	UK
2017	Toulouse	Roger Brockett	US
2020	Berlin	W. Murray Wonham	CA

IFAC Awards

- Presented at each Triennial World Congress

Nathaniel B. Nichols Medal Winners

1996	San Francisco	Jürgen Ackermann	DE
1999	Beijing	Gunther Stein	US
2002	Barcelona	Carl Nett	US
2005	Prague	William F. Powers	US
2008	Seoul	Gerd Hirzinger	DE
2011	Milan	Siva Banda	US
2014	Cape Town	Reza Moheimani	AU
2017	Toulouse	Lennart Ljung	SE
2020	Berlin	Masayoshi Tomizuka	US

IFAC Awards

- Presented at each Triennial World Congress

Manfred Thoma Medal

The Manfred Thoma medal, created in 2015, recognizes outstanding contributions of a young researcher and/or engineer under the age of 40 to the field of systems and control in its widest sense. It is named after Manfred M. Thoma, a leading contributor to the field of control and to IFAC, and supporter of the careers of many young scientists.

2017	Toulouse	Ming Cao	NL
2020	Berlin	Florian Dörfler	CH

IFAC Awards

- Presented at each Triennial World Congress

Industrial Achievement Award Winners

2002 Barcelona	Yasuo Ichii, Shoji Murayama and Takahiro Yamasaki	JP
2005 Prague	Serge Boverie	FR
2008 Seoul	not awarded	
2011 Milan	Anton van Zanten	DE
2014 Cape Town	Giovanni Cherubini, Jens Jelitto, Mark Lantz, and Angeliki Pantazi	CH
2017 Toulouse	Francesco Borrelli, David Germann, Dejan Kihass, Daniel Pachner, Jaroslav Pekar, Greg Stewart	US, CA, CZ
2020 Berlin	Francis J. Doyle III	US

High Impact Paper Award Winners

2011 Milan	David Mayne, J.B. Rawlings, C.V. Rao, P.O.M. Sokaert	UK, US, BE
2014 Cape Town	Alberto Bemporad and Manfred Morari	IT, CH
2017 Toulouse	Franco Blanchini	IT
2020 Berlin	Wilson J. Rugh and Jeff S. Shamma	US, SA

IFAC Awards

- Congress Awards
 - IFAC Applications Paper Prize (APP)
 - IFAC Young Author Award (YAA)
 - IFAC Harold Chestnut Control Engineering Textbook Prize
 - IFAC Congress Interactive Paper Prize (IPP)

- Journal Awards
 - AUTOMATICA Paper Prize
 - Control Engineering Practice Paper Prize
 - Journal of Process Control Paper Prize
 - Engineering Applications of Artificial Intelligence Paper Prize
 - Mechatronics Journal Paper Prize
 - Nonlinear Analysis: Hybrid Systems Paper Prize
 - Annual Reviews in Control Paper Prize (new in 2020)

IFAC Fellows

The IFAC Fellow Award is given annually to persons who have made outstanding and extraordinary contributions in the field of interest of IFAC, in the role as an Engineer/Scientist, Technical Leader, or Educator. The first Fellows were elected at the IFAC World Congress in Prague in July 2005.



WHAT IS IFAC ALL ABOUT?

- Enthusiastic engineers and scientists from about 50 countries
- Organizing approximately 40 technical meetings per year
- Investing time, energy and expertise
- For the benefit of the control community world-wide.

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