18th IFAC World Congress

Milan 28 August - 2 September 2011

FINAL REPORT
prepared by S. Bittanti

www.IFAC2011.org
# SUMMARY

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1. IFAC World Congress

IFAC (International Federation of Automatic Control) is a scientific association with the goal of promoting control science and technology in all its forms and applications. Founded in 1957 as a Federation of Nations each represented by a national organism named National Member Organization (NMO), it can now count on the contribution of 52 Countries. For Italy, the NMO is the National Research Council (Consiglio Nazionale delle Ricerche - CNR).

In the life of the Federation, the most prestigious event is IFAC World Congress, a congress held every three years since 1960. Half a century on, this congress has been held for the first time in Italy, to be precise in Milan, 28 August – 2 September 2011.

The Congress was honoured by the special award of the presidential medal bestowed by the President of the Italian Republic, Giorgio Napolitano.
2. Location

The technical sessions were held at the Università Cattolica del Sacro Cuore (UCSC) of Milan. The opening ceremony (Sunday, 28 August) and the banquet (Thursday, 1 September) were held at the new MiCo congress centre in Milan.

3. Scientific papers

The total number of submitted papers was 3629, with 7140 authors from 73 countries. Of these, 2478 papers were accepted, by 5412 authors.

The Congress DVD includes 2473 papers since 5 papers were withdrawn at the last minute due to unexpected hold-ups for their authors.

Therefore the acceptance rate was about 68%.
4. Authors

4.1. Distribution of authors of the 2478 accepted papers (over 100)

- 653 France
- 412 USA
- 401 Italy
- 331 P. R. China
- 311 Germany
- 290 Japan
- 204 UK
- 190 Spain
- 151 Australia
- 146 Sweden
- 144 Russia
- 142 Brazil
- 136 Canada
- 119 The Netherlands

4.2. Distribution of corresponding authors of the 2478 accepted papers (over 100)

- 300 France
- 220 Italy
- 204 USA
- 175 Germany
- 160 Japan
- 160 P. R. China
- 117 UK
- 100 Australia
5. Papers distribution over technical areas

The distribution of the accepted papers over the IFAC technical areas is summarized in the following diagram.

6. Congress events

The main events at the Congress were: plenary lectures, scientific oral presentations (normally of 20 minutes each), scientific poster presentations (each poster being displayed for 2 hours), panel discussions (2 hours each), and lunchtime cultural events (1 hour). In the weekend preceding the Congress, tutorials and workshops were held.

In more detail here is the list of events:

- Five plenary lectures (Monday, Tuesday and Wednesday at 8:30–9:30; Monday and Tuesday at 18:15–19:15)
- Four parallel plenary lectures (2 on Wednesday 18:15–19:15 and 2 on Thursday 8:30–9:30)
an historical plenary panel session on Friday at 14:30-16:00
- 341 oral sessions (2 hours each)
- 9 interactive (poster) sessions (2 hours each)
- 3 panel sessions of two hours each, on Tuesday, Wednesday and Thursday, 16:00-18:00
- 10 pre-congress events held on Saturday 27 and Sunday 28 (4 tutorials, 6 workshops)
- 4 cultural seminars during the lunch breaks on Tuesday, Wednesday, Thursday and Friday. Of these, 3 focused on the work of Leonardo da Vinci and one on the La Scala Opera House in Milan.

The sessions (oral and poster) were divided into 26 tracks, all taking place at UCSC. On each day of the congress, 25 tracks were covered in 25 lecture rooms of the University, whereas the poster tracks, consisting of 9 interactive sessions, took place in the covered porches on the first floor.

### 7. Presentations at the Congress

In total, across all the 341 oral sessions, there were 2027 contributions. The poster contributions scheduled for the 9 interactive sessions totalled 446.

Of these, very few were no-show papers: 62 oral; 31 poster. Therefore, the no show rate was about 3.7%.

Taking this into account, we can conclude that there were

- 1965 contributions presented in oral form
- 415 contributions presented in poster form

The registered participants at the pre-congress events of Saturday 27 and Sunday 28 totalled 176.
8. Plenary lectures

The plenary lectures were given in the Aula Magna of UCSC, in the morning 8:30-9:30 or in the evening 18:15-19.15. The lectures were replicated via video link to other main rooms (Franceschini and Gemelli). A variety of high-interest topics were covered, particularly emerging applications and strong-impact methods:

Peter Terwiesch
ABB Ltd, Zurich Switzerland
Closing the loop: an industrialist’s perspective on the present and future impact of control
Monday 29 August – 8:30-9:30
Chairperson: Wook H. Kwon

Anders Lindquist
Shanghai Jiao Tong University (SJTU), P.R. China and Royal Institute of Technology, Stockholm Sweden
On moment problems in robust control, spectral estimation, image processing and system identification
Monday 29 August – 18:15-19:15
Chairperson: Tamer Basar

Paul K. Houpt
GE Global Research
Niskayuna, NY, USA
Smart grid and renewables integration: controls challenges and opportunities
Tuesday 30 August – 8:30-9:30
Chairperson: Ian K. Craig
Carsten W. Scherer  
University of Stuttgart  
Germany  
*Dissipation-based controller synthesis: successes and challenges*  
Tuesday 30 August – 18:15-19:15  
Chairperson: Lei Guo

Koei Saga  
Toyota Motor Corporation  
Japan  
*Energy management of Toyota Hybrid System*  
Wednesday 31 August – 8:30-9:30  
Chairperson: Janan Zaytoon

The parallel plenary lectures were given in the Aula Magna and in the Franceschini Room (video-linked to the Gemelli and Vito rooms).

Laurent Praly  
MINES ParisTech,  
Fontainebleau, France  
*On observers, a meeting of many view points and applications*  
Wednesday 31 August – 18:15-19:15  
Aula Magna  
Chairperson: Mitsuji Sampei

Brett Ninness  
The University of Newcastle Australia  
*Computational System Identification*  
Wednesday 31 August – 18:15-19:15  
Franceschini Room  
Chairperson: Paul Van den Hof
Alexander Kurzhanski
Lomonosov Moscow State University, Russia
Closed-loop control under realistic information
Thursday 1 September – 8:30-9:30
Aula Magna
Chairperson: Peter Fleming

David B. Doman
United States Air Force Research Laboratory
Wright Patterson AFB OH, USA
Towards insect-like manoeuvrability of flapping-wing micro air vehicles
Thursday 1 September – 8:30-9:30
Franceschini Room
Chairperson: Vladimir Kucera
9. Historical plenary panel session

The purpose of this plenary panel session, entitled *Plugging into the origins of IFAC: The IFAC World Congress of 1960*, was to evoke the early days of IFAC by the accounts of the following team of scholars:

S. Kahne
R.E. Kalman
M. Thoma
T. Vamos
J. Westcott.

The session, with A. Kurzhanski as Chairperson, took place in the Aula Magna on the afternoon of the last congress day, 2 September, 14:30 - 16:00.

Since it was impossible for J. Westcott to take part in the congress, a video with an interview to him (recorded at the Imperial College) was presented in his absence.
10. Panel discussions

All panel discussions took place in the Aula Magna in the late afternoon, 16:00-18:00.

The Impact of Control Technology: Overview, Success Stories, and Research Challenges

Organizers: Anuradha Annaswamy (MIT) and Tariq Samad (Honeywell)
Tuesday 30 August - 16:00-18:00

Energy and Environmental Challenges in Emerging Regions. Opportunities for Control and Monitoring Technologies

Organizers: Francoise Lamnabhi-Lagarrigue (CNRS and European Embedded Control Institute, France) and H.S. Jamadagni (Indian Institute of Science, Bangalore)
Wednesday 31 August - 16:00-18:00

Preparing Tomorrow’s Scientists and Engineers for the Challenges of the 21st century

Organizer: Bozenna Pasik-Duncan (University of Kansas)
Thursday 1 September - 16:00-18:00
11. Pre-congress events

Various pre-congress events were held as now concisely outlined.

President dinner

On the evening of Saturday 27, the President Dinner was held at the Milan Museum of Science and Technology. This is the same location where, one of the earliest international conferences on automatic control, the Convegno Internazionale sui Problemi dell’Automatismo, was organized in 1956. Interestingly enough, that conference, held under the aegis of the National Research Council of Italy (CNR) with more than 1000 delegates, took place in April, prior to the automatic control congress of Heidelberg (when the IFAC resolution was signed – September 1956). During the dinner, the IFAC Outstanding Service Awards were assigned.

Tutorials

On Saturday 27 and Sunday 28, the following tutorials were offered at UCSC:

**Coordination and Control of Multi-agent Systems**
Lecturer: Changbin Yu
Lecture duration: 6 hours

**Energy Shaping for the stabilization of mechanical systems**
Lecturer: Dong Eui Chang
Lecture duration: 6 hours

**Chance Constrained Process Optimization and Control under Uncertainty**
Lecturers: Abebe Geletu and Pu Li
Lecture duration: 9 hours
Model Predictive Control
Lecturers: Lalo Magni, Alberto Bemporad, Lorenz T. Biegler, Mark Cannon, Panagiotis D. Christofides, Daniel Limon, Riccardo Scattolini
Lecture duration: 12 hours

Workshops
Again on Saturday 27 and Sunday 28, the following workshops were held at UCSC:

Model Identification for Predictive Control
Lecturers: Liuping Wang, Higues Garnier, Torsten Soderstrom, Paul Van den Hof, Eric Rogers
Lecture duration: 6 hours

Networked Control Systems
Lecturers: Alberto Bemporad, Maurice Heemeels, Mikael Johansson
Lecture duration: 6 hours

Alarm Systems: Quantitative Analysis and Design
Lecturers: Iman Izadi, Sirish Shaj, Tonwen Chen
Lecture duration: 6 hours

Hierarchical and Distributed Model Predictive Control, Algorithms and Applications
Lecturers: Riccardo Scattolini, Moritz Diehl
Lecture duration: 6 hours

Multiple Vehicle Motion Planning, Navigation and Control, Theory and Practice
Lecture duration: 6 hours

Robust and Adaptive Control
Lecturers: Kevin A. Wise, Eugene Lavretsky
Lecture duration: 12 hours
12. Cultural events

The scientific program of the congress has been enriched with various cultural events consisting of lunchtime seminars and visits to cultural institutions of Milan.

Lunchtime seminars
Four lunchtime cultural seminars held in the Aula Magna. Of these, three dealt with the life and work of Leonardo da Vinci, the most famous citizen of Milan. The fourth dealt with the history of La Scala Opera House of Milan.

All seminars enjoyed a remarkable success, with about 500 attendees each.

In order to facilitate attendance of the afternoon scientific sessions, all cultural seminar participants were offered a lunch box and the Garden of Santa Caterina, adjacent to Aula Magna, was made available to them to enjoy their meal in pleasant surroundings.

**Martin Kemp**
Oxford University, UK
*Leonardo in motion*
Tuesday 30 August – 12:10-13:30
*Chairperson: Pietro Marani*

**Enzo Beacco**
Classical music scholar, Italy
*Teatro alla Scala, the landmark of opera in the world*
Wednesday 31 August – 12:10-13:00
*Chairperson: Sergio Bittanti*
Carlo Orlandini
A European manager, Italy
"Il gran cavallo di Milano", as Leonardo called the monument which never was and now maybe is
Thursday 1 September - 12:10-13:00
Chairperson: Sergio Bittanti

Pietro C. Marani
Politecnico di Milano, Italy
Art and science in Leonardo
Friday 2 September - 13:10-14:00
Chairperson: Carlo Orlandini

Visit to the Atlantic Codex
Milan hosts one of the most complete and prestigious collections of Leonardo da Vinci drawings, the Atlantic Codex. Comprising more than 1000 pages, the Codex is kept at the Biblioteca Ambrosiana (Ambrosiana Library). A special opening of this library, reserved to IFAC congress participants, took place on the evening of Monday, 29 August.

Visit to the Last Supper
Milan hosts also the Last Supper, the celebrated mural painting by Leonardo da Vinci. A special opening of the monk refectory associated with Santa Maria delle Grazie church, where the masterpiece is kept, was reserved to IFAC congress participants on the evening of Wednesday, 31 August.
13. Participants

The registered participants at the congress totalled 2826. The chart below compares this figure with participant numbers at previous congresses.

So the 18th IFAC World Congress in Milan has set a new all-time record attendance.
The distribution of participants by nation is summarized as follows:

<table>
<thead>
<tr>
<th>Country</th>
<th>Participants</th>
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<tbody>
<tr>
<td>France</td>
<td>315</td>
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<td>Italy</td>
<td>308</td>
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<td>Germany</td>
<td>227</td>
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<td>Japan</td>
<td>204</td>
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<td>USA</td>
<td>203</td>
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<td>People Republic</td>
<td>146</td>
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<td>United Kingdom</td>
<td>123</td>
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<td>Sweden</td>
<td>107</td>
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<tr>
<td>Spain</td>
<td>99</td>
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<tr>
<td>Russia</td>
<td>98</td>
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<tr>
<td>Australia</td>
<td>87</td>
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<tr>
<td>The Netherlands</td>
<td>70</td>
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<td>Canada</td>
<td>66</td>
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<tr>
<td>Brazil</td>
<td>61</td>
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<td>South Korea</td>
<td>51</td>
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<tr>
<td>Switzerland</td>
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<td>Belgium</td>
<td>43</td>
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<td>Czech Republic</td>
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<td>Finland</td>
<td>35</td>
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<td>Mexico</td>
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<td>Portugal</td>
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<td>Norway</td>
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<td>Austria</td>
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<td>Denmark</td>
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<td>Romania</td>
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<td>South Africa</td>
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<td>Slovak Republic</td>
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<td>India</td>
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<td>Taiwan</td>
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<td>Singapore</td>
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<td>Israel</td>
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<td>Ireland</td>
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<td>Greece</td>
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<td>Chile</td>
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<td>Slovenia</td>
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<td>Estonia</td>
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<td>Croatia</td>
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<td>Colombia</td>
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<td>Argentina</td>
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<td>Cyprus</td>
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<td>Bulgaria</td>
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<td>New Zealand</td>
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<td>Macedonia</td>
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<td>Tunisia</td>
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<td>Thailand</td>
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<td>Pakistan</td>
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<td>Egypt</td>
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<td>Venezuela</td>
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<td>Senegal</td>
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<td>Morocco</td>
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<td>Mauritius</td>
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<td>Lebanon</td>
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<td>Kuwait</td>
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<td>Cuba</td>
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<td>Bahrain</td>
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<td>Algeria</td>
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14. Opening ceremony

At the Opening Ceremony, held 28 August at the MiCo Congress Centre, around 1600 people took part.

Welcome addresses were provided by:
- Sergio Bittanti, Congress Chairperson
- Alberto Isidori, IFAC President 2008-2011
- Riccardo Pietrabissa, President of ICT Department of the National Research Council of Italy CNR
- Councillor Cristina Tajani, Labour Policy, Economic Development, University and Research Department of the City of Milan, attending for the mayor
- Giampio Bracchi, President of the Politecnico di Milano Foundation, attending on behalf of Politecnico di Milano.
15. Closing ceremony

The Closing Ceremony was held in the Aula Magna – UCSC, 2 September 2011. The ceremony began with a number of awards presented by George Irwin, president of the IFAC Award Committee. The following awards were assigned: Harold Chestnut, Young Author Prize (YAP), Application Paper Prize (APP). Then, in the presence of a representative of Elsevier Co., publisher of the IFAC Journals, (Christopher Greenwell), the awards for the best papers published in those Journals were assigned. Lastly, as chairperson of the selection committee, Robert R. Bitmead delivered the award for the best paper presented in poster form (Interactive Paper Prize - IPP).

Farewell addresses were then provided by:

- Mario Gatti, General Director of UCSC
- Sergio Bittanti, Congress Chair
- Alberto Isidori, IFAC President (2008-2011)

The 19th IFAC World Congress will be held in Cape Town (South Africa) on 24-29 August 2014 and therefore handover of the insignia from the current Presidency to the President Elect, Ian K. Craig, took place. Introductory addresses and invitation to the 2014 Congress were given by

- Ian K. Craig, IFAC President (2011 – 2014)
- Fernando Camisani Calzolari, 19th IFAC World Congress Chairman

During this last talk, the new banner of the 19th Congress was made public.
16. Awards

One of IFAC’s missions is to recognize and reward scientists deserving special mention for their distinguished contributions. The awards were given during various congress events.

16.1. Awards assigned at the opening ceremony

During the Opening Ceremony of 28 August 2011, the IFAC President gave the following awards:

- **Quazza Medal 2011**
  to H. Kimura
  reason: for outstanding contributions to multivariable and robust control

- **Nichols Medal 2011**
  to S. Banda
  reason: for outstanding technical leadership and innovative contributions to the development of advanced flight control critical to the performance and reliability of modern air and space platforms

- **Industrial Achievement Award 2011**
  to A. Van Zanten
  reason: for the development and industrial realization of Antilock-Brake-Systems (ABS) with slip control and model-based Electronic Stability Control (ESC) for automobiles
- **High Impact Paper Award 2011**

During the Opening Ceremony, three new IFAC Advisors, the IFAC Advisors 2011, were nominated:

- **A. Haddad**, reason: for extraordinary lifetime contributions to automatic control science and technology and outstanding leadership in research and education

- **H. Kimura**, reason: for extraordinary lifetime contributions to automatic control science and technology and outstanding leadership in research and education

- **W.H. Kwon**, reason: for outstanding lifetime contributions to the field of automatic control as a scientist and educator, extraordinary and inspiring leadership in IFAC, and most generous contribution to the creation of the IFAC Foundation
16.2. Awards assigned at the banquet

During the banquet of 1 September, the new IFAC Fellows were nominated.

2008

Miroslav KRSTIC
For pioneering contributions to adaptive nonlinear control, extremum seeking, boundary control of distributed parameter systems and control of turbulent fluid flows.

Manfred MORARII
For pioneering contributions to the theory and application of robust process control, model predictive control and hybrid systems control.

Jie HUANG
For contributions in teaching and research on nonlinear control theory and design, and its applications to flight control and guidance, electro-mechanical systems and neural systems.

2009

Frank DOYLE
For outstanding contributions to nonlinear process control and analysis with applications to systems biology and biomedical engineering, leadership in the profession and outstanding service as an educator.

Peter FLEMING
For pioneering research contributions to evolutionary multi-objective optimisation and its application to industrial control design, and for technical and administrative leadership within IFAC.
Lino GUZZELLA
For contributions in modelling, control and optimization of vehicle propulsion systems.

George IRWIN
For outstanding research contributions in modern, parallel, neural and wireless control and identification.

Tohru KATAYAMA
For contributions to estimation of stochastic systems, control of descriptor systems and subspace system identification, and control engineering education.

Giorgio PICCI
For outstanding contributions to stochastic system theory.

Bruno SICILIANO
For outstanding contributions to research and education on theory and application of automatic control to robotic systems, and for professional leadership in the field.

Tzyh Jong TARN
For innovative application of systems theory to quantum mechanical and robotic systems.
Panos ANTSAKLIS  
For fundamental contributions to hybrid control systems, supervisory control of discrete event systems, control of systems over networks and for leadership in the profession.

Siva BANDA  
For technical leadership and innovative development of advanced control design.

Ross BARMISH  
For outstanding contributions to robust control theory for systems with parametric uncertainty.

Christopher BYRNES  
For fundamental contributions to nonlinear control and signal processing.

Ruwei DAI  
For outstanding contributions in research and education on theory and application of automatic control, intelligent and complex systems.

Denis DOCHAIN  
For outstanding contributions to the estimation and control design for biological systems and for professional service to the field.

Tyrone DUNCAN  
For exceptional contributions to stochastic, optimal and adaptive control, filtering theory and stochastic systems.

Shuzhi Sam GE  
For fundamental contributions to adaptive neural network control with applications in robotics.
Jessy GRIZZLE  
For outstanding contributions to nonlinear control theory and to applications in automotive and robotic systems.

Shinji HARA  
For fundamental contributions to robust control, sampled-data control and control system synthesis.

Mustafa KAMMASH  
For fundamental contributions to the theory of robust control and for the applications of systems and control theory to biology.

Wook Hyun KWON  
For outstanding contributions of fundamental theories for both receding horizon controls of ordinary systems and robust stabilizing controls of time delay systems.

Qiu LI  
For outstanding and seminal contributions to robust control theory and to fundamental performance limitations in feedback control systems.

Anders LINDQUIST  
For fundamental contributions to the theory of stochastic systems, signals and control.

Andrew TEEL  
For seminal contributions in nonlinear and hybrid systems analysis and control design.

Masayoshi TOMIZUKA  
For outstanding contributions to adaptive control and discrete time/digital control for mechanical and mechatronic systems, and for contributions and leadership in control engineering education.
Ali ULSOY
For fundamental contributions to
dynamics and control of mechanical systems, especially
manufacturing and automotive systems.

John BAILLIEUL
For contributions to nonlinear control theory, robotics, control of
complex mechanical systems, and information based control
theory.

Bassan BAMIEH
For fundamental contributions to robust control of sampled
date systems, distributed control of spatially invariant systems
and the transition to turbulence in fluid flow.

Shankar BATTACHARRYYA
For fundamental contributions to robust control theory and
control system synthesis.

Edgar BRISTOL
For outstanding contributions to process control.

Jie CHEN
For seminal contributions to the theory of performance
limitations in feedback systems and to robust identification and
control.

Panagiotis CHRISTOFIDES
For contributions to analysis and control of nonlinear and
distributed parameter processes.

Patrizio COLANERI
For contributions to periodic control and switched systems.
Arthur KRENER  
*For contributions to the geometric theory of nonlinear control and estimation.*

Jay LEE  
*For important contributions to the theory and practice of model-based predictive control.*

Zongli LIN  
*For fundamental contributions to the analysis and design of control systems in the presence of actuator saturation.*

Reza MOHEIMANI  
*For outstanding contributions to modelling and control of nanopositioning system.*

Jian SONG  
*For outstanding contributions to engineering cybernetics, automation in space engineering, control theory in social applications, and for significant leadership in the profession.*

Lihua XIE  
*For contributions to robust control and estimation theory with their applications to communication.*
16.3. Awards assigned at the closing ceremony

During the closing ceremony of 2 September, the following awards were assigned:

- **Harold Chestnut Control Engineering Textbook Prize**

  To K.J. Aström and R.M. Murray, authors of the book

  *Feedback Systems: An Introduction for Scientists and Engineers*,


and then the awards for the best papers published in the IFAC Journals:

*Automatica*

- **Survey Prize**

  Vincent Andrieu and Laurent Praly
  A unifying point of view on output feedback designs for global asymptotic stabilization Vol. 45 Issue 8, p. 1789-1798, 2009

- **Theory/Methodology Prize**

  Daizhan Cheng and Hongsheng Qi
- Applications Prize

Han-Lim Choi and Jonathan P. How
Continuous trajectory planning of mobile sensors for informative forecasting
Vol. 46 Issue 8, p. 1266-1275, 2010

Control Engineering Practice

- Best Paper Prize

Three papers ex aequo:

- Seungwuk Moon, Ilki Moon and Kyongsu Yi
  Design, tuning, and evaluation of a full-range adaptive cruise control system with collision avoidance
  Vol. 17, Issue 4, p. 442-455, 2009

- Matteo Corno, Sergio Matteo Savaresi, Mara Tanelli and Luca Fabbri
  On optimal motorcycle braking

- Concepción A. Monje, Blas M. Vinagre, Vicente Feliu and Yang Quan Chen
  Tuning and auto-tuning of fractional order controllers for industry applications
Engineering Applications of Artificial Intelligence

- **AI Theory Prize**

  Yongming Li, Xiaoping Zeng, Liang Han and Pin Wang
  Two coding based adaptive parallel co-genetic algorithm with double agents structure

- **AI Application Prize**

  N. Nariman-Zadeh, M. Salehpour, A. Jamali and E. Haghgoo
  Pareto optimization of a five-degree of freedom vehicle vibration model using a multi-objective uniform-diversity genetic algorithm (MUGA)

Journal of Process Control

- **Survey Paper Prize**

  Youqing Wang, Furong Gao and Francis J. Doyle III
  Survey on iterative learning control, repetitive control, and run-to-run control
  Vol. 19, Issue 10, p. 1589-1600, 2009

- **Application Paper Prize**

  M. Chèbre, Y. Creff and Nicolas Petit
  Feedback control and optimization for the production of commercial fuels by blending
  Vol. 20, Issue 4, p. 441-451, 2010
- Methodology/Theory Paper Prize

Veronica Adetola and Martin Guay
Integration of real-time optimization and model predictive control
Vol. 20, Issue 2, pp. 125-133, 2010

Mechatronics

- Best Paper Prize

Three papers ex aequo:

- Vincent De Sars, Sinan Haliyo and Jerome Szewczy
  A practical approach to the design and control of active endoscopes
  Vol. 20, Issue 2, pp. 251–264, 2010

- Georg Schitter, Philipp J. Thurner and Paul K. Hansma
  Design and input-shaping control of a novel scanner for high-speed atomic force microscopy

- Maarten H. Kimman, H.H. Langen and R.H. Munnig Schmidt
  A miniature milling spindle with Active Magnetic Bearings
After the papers awards, the Congress awards were assigned, i.e. awards for particularly distinguished papers presented at the Congress:

- **Young Author Prize (YAP)** for the best paper at the Congress written by an author under 35 years old:

  Jing Zhang and Re-bing Wu

  for the paper

  *Coherent nonlinear feedback control of quantum systems with applications to quantum optics on chip*

- **Application Paper Prize (APP)** for the best paper in the applications area

  J-M. Godhavn, A. Pavlov, G-oi Kaasa and N. L. Rolland

  for the paper

  *Drilling seeking automatic control solutions*

- **Interactive Paper Prize (IPP)** to

  Sebastian Trimpe and Raffaello D’Andrea

  for the contribution presented in poster form *An Experimental Demonstration of a Distributed and Event-Based State Estimation Algorithm (Balancing Cube)*
17. Congress material

Backpacks bearing the congress logo were distributed to all attendees containing the following material:

- a DVD with all papers presented at the Congress (except the plenary, parallel plenary and historical plenary lectures);
- five booklets with the daily programs (from Monday 29 September to Friday 2 September);
- a booklet with the list of all authors;
- Manifesto di Milano 2011, an illustrated 72-page volume in A4 format outlining the entire scientific and cultural programme;
- Honor roll 1981-2011, a booklet with the complete list of all distinguished scientists who received an IFAC award or prize over the period 1981 - 2011;
- a special ticket bearing the Congress logo offered by the Azienda Trasporti Milanesi (ATM) for unlimited travel on the whole urban area transport network (metro, bus, tram, trolley buses) valid from Monday 29 August to Friday 2 September.

As already said, Milan hosts at the Biblioteca Ambrosiana (Ambrosiana Library) the most complete and prestigious collection of Leonardo da Vinci drawings, the Atlantic Codex.

All award-winning scientists received a special red bag with a DVD on the Atlantic Codex prepared by De Agostini Co. under the Ambrosiana’s supervision. Both the DVD and the bag were customised with the Congress logo.
18. Organising committees

The organization of such a large congress required the joint effort of many scientists from various countries, all with different roles.

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International Program Committee (IPC)

Patrizio Colaneri (IT), IPC co-chair
Alessandro Astolfi (IT, UK), IPC vice-chair, Invited sessions supervisor
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Dongil “Dan” Cho (KR), IPC vice-chair
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**National Organizing Committee (NOC)**

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Claudio Bonivento (IT), Co-chair
Paolo Bolzern (IT), Local arrangements
Marco Campi (IT), Pre-congress tutorial and workshops supervisor
Claudio Melchiorri (IT), Exhibitions
Thomas Parisini (IT), Electronic Submission site supervisor

Fabio Previdi (IT), Publicity chair
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Francesco Casella (IT), Registrations
Pradeep Misra (US), Registrations
Marilena Vendittelli (IT), Registrations

Paolo Rocco (IT), Volunteers team supervisor

Vladimir Kucera (CZ), Young Authors’ Support Committee chair
Luigi Piroddi (IT), Young Authors’ Support Committee
Maria Prandini (IT), Young Authors’ Support Committee
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19. General support to the congress participants

The participation in the congress was made easier thanks to the YAS program and to the Politecnico di Milano accommodation program.

YAS program

Thanks to funds provided by the IFAC Foundation and by the congress sponsors, it was possible to offer a partial financial support to facilitate the participation in the Congress of a number of young authors via the YAS (Young Author Support) program of IFAC.

The young authors who received such support were from:

Argentina
Brazil
Chile
China P.R.
Colombia
Egypt
India
Iran
Mexico
Poland
Pakistan
Romania
Russia
Turkey
Politecnico di Milano accommodation program

The Politecnico di Milano residences were made available at cheap special prices to the interested congress attendees.

This offer was accepted by about a hundred of participants from:

Argentina
Bulgaria
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China P. R.
Cyprus
Colombia
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20. Patronage and sponsors

The National Research Council of Italy (CNR) was the Congress patron. The congress was held under the aegis of the Municipality of Milan, Milan Provincial Government and the Lombardia Regional Government, and under the auspices of Politecnico di Milano and Fondazione Politecnico.

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Sponsors

- ASI Agenzia Spaziale Italiana
- ANIPLA Associazione Nazionale Italiana Per l’Automazione
- AEIT Associazione Italiana Elettrotecnica, Elettronica, Automazione, Informatica e Telecomunicazioni
- DOTEKO Art of Control
- INDEVA Intelligent Devices for handling
- DUCATI
- PIAGGIO GROUP
- ELDOR Corporation
- MATHWORKS
- PENDCON
- SPRINGER
- INTECO
- NATIONAL INSTRUMENTS
- AGUSTA MV Motorcycle Art
- TTC Tecniche Tecnologie Consulenze
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- WILEY-BLACKWELL
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