



INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL

16TH WORLD CONGRESS

July 4-8, 2005

Praha, Czech Republic

Call for Papers

Call for Papers

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1 Invitation

It is our great pleasure to invite you to participate in the **16th IFAC World Congress** to be held in **Prague, Czech Republic**, from **July 4 to July 8, 2005**. The Congress will be a good opportunity for highlighting the new results and directions of Automatic Control theory, technology and applications. As such, it mainly will concentrate on the following key points:

- **Emphasis on invited lectures including plenaries, surveys and tutorials**
- **Industry participation promotion**
- **Attract young people to study and work in the field**

The participants of the 16th IFAC World Congress will have the opportunity to take part in the wide spectrum of categories for technical presentations, including plenary lectures, survey papers, regular papers of both lecture and poster session types, panel discussions and case studies. Immediately preceding the formal opening of the Congress, tutorials and workshops are being offered to give participants an opportunity to learn new principles, methodologies, technologies and applications that have been developed and/or are developing in recent years.

Prague (Praha) -The City of One Hundred Towers and Spires is situated in the heart of Europe, in the valley of the Vltava river and dominated by the castle perched on the Western bluffs. The city's golden age commenced when Charles IV of Bohemia was elected Holy Roman Emperor in 1346. Visitors are drawn to the 'fairy tale' aspect of the city of its vibrant mixture of styles. Prague is unquestionably a city that is best explored on foot – the entire centre has been designated a UNESCO World Heritage Site. Gothic churches rub shoulders with Cubist, Functionalist and ultra-modern buildings, classical music intermingles with jazz and rock, monumental statues sit next to abstract works. Certainly, the visitors sooner or later are getting tired so it is wise to stick to beer in one of the numerous famous Prague pubs in warm July days.

We look forward to seeing our old and new friends in Prague. You are kindly invited to participate in the 16th IFAC World Congress in the Czech Republic.

Michael Šebek

NOC Chairman

Petr Horáček/ Miroslav Šimandl

IPC Co-Chairmen

Pavel Zítek

Editor

Vladimír Kučera

IFAC President

2 Congress Venue & Dates

Congress Dates

Monday - Friday, July 4-8, 2005

Pre-Congress Tutorial Workshops Dates

Saturday - Sunday, July 2-3, 2005

Congress Venue

Prague Congress Centre

5 května street, No. 65

140 21 Praha 4

Czech Republic

<http://www.kcp.cz>

Czech Technical University in Prague

Technická 2

166 27 Praha 6

<http://www.feld.cvut.cz>

<http://www.fsid.cvut.cz>

3 Congress Structure

The **IFAC Praha 2005** technical program consists of the following activities

- Plenary sessions
- Technical sessions
- Panel discussions
- Tutorials
- Workshops

The exhibition where control and automation companies will have the opportunity to show their latest advances will also be organized. The exhibition is also open to publishers.

Technical sessions consist of papers and posters presentation and are organised around three main **axes: Theory, Technology and Applications**. The sessions of the three axes will run in parallel.

- **Theory:** Presentation and discussion of open problems, new theories, results, trends and developments in *Systems and Signals* and *Design Methods*
- **Technology:** Presentation and discussion of open problems, new technologies, results, trends and developments in *Computers, Cognition and Communication* and *Mechatronics, Robotics and Components*
- **Applications:** Presentation of new industrial and commercial applications in *Manufacturing Systems, Industrial Systems, Transportation Systems and Vehicles, Bio and Ecological Systems* and *Social Systems*

The contributions to each axis will be grouped in **Clusters and Technical Areas** according to the structure of the IFAC Technical Board.

Congress Axes, Clusters, Technical Areas and International Program Subcommittees

The subcommittees of the International Program Committee (IPC), set up by the IFAC Technical Board, will review material submitted or proposed for presentation at the Congress. Each Coordinating Committee of the Technical Board is responsible for one Congress Cluster that covers a coherent sub-field of Automatic Control. Below are the Congress Clusters with their Technical Areas and the International Program Subcommittees.

Congress Axis: Theory

1. Systems and Signals

Technical Areas	Int. Program Subcommittee
	Tohru Katayama (JP), Chair
1.1 Modelling, Identification and Signal Processing	Tomas Mc Kelvey (SE)
1.2 Adaptive and Learning Systems	Akira Sano (JP)
1.3 Discrete Event and Hybrid Systems	Christos G. Cassandras (US)
1.4 Stochastic Systems	Marco Campi (IT)

2. Design Methods

Technical Areas	Int. Program Subcommittee
	Ruth Bars (HU), Chair
2.1 Control Design	Patrizio Colaneri (IT)
2.2 Linear Control Systems	Carlos E. De Souza (BR)
2.3 Non-Linear Control Systems	Frank Allgöwer (DE)
2.4 Optimal Control	Anatoli F. Kleimenov (RU)
2.5 Robust Control	Carsten W. Scherer (NL)

Congress Axis: Technology

3. Computers, Cognition and Communication

Technical Areas	Int. Program Subcommittee
	Volkang Halang (DE), Chair
3.1 Computers for Control	Ricardo Sans (ES)
3.2 Cognition and Control (AI, Fuzzy, Neuro, EC)	Robert Babuska (NL)
3.3 Computers and Telematics	Hubert Roth (DE)

4. Mechatronics, Robotics and Components

Technical Areas	Int. Program Subcommittee
	Annibal Ollero (ES), Chair
4.1 Components and Instruments	Serge Boverie (FR)
4.2 Mechatronic Systems	Roger Goodall (UK)
4.3 Robotics	Jurek Sasiadek (CA)
4.4 Cost Oriented Automation	Heinz H. Erbe (DE)
4.5 Human Machine Systems	Detlef Zuehlke (DE)

5. Manufacturing Systems	
Technical Areas	Int. Program Subcommittee
	Shimon Y. Nof (US), Chair
5.1 Advanced Manufacturing Technology	Gerard Morer (FR)
5.2 Manufacturing Modelling for Management & Control	Laszlo Monostori (HU)
5.3 Enterprise Integration and Networking	Arturo Molina (MX)
5.4 Large Scale Complex Systems	Florin G. Filip (RO)
6. Industrial Systems	
Technical Areas	Int. Program Subcommittee
	Dennis Dochain (BE), Chair
6.1 Chemical Process Control	Wolfgang Marquardt (DE)
6.2 Mining, Mineral and Metal Processing	Sang Chul Won (KR)
6.3 Power Plants and Power Systems	Om Malik (CA)
6.4 Fault Detection, Supervision and Safety of Technical Processes	Michel Kinnaert (BE)
7. Transportation Systems and Vehicles	
Technical Areas	Int. Program Subcommittee
	Uwe Kiencke (DE), Chair
7.1 Automotive Control	Lars Nielsen (SE)
7.2 Marine Systems	Robert Sutton (UK)
7.3 Aerospace	Klaus Schilling (DE)
7.4 Transportation Systems	Markos Papageorgiou (GR)
7.5 Intelligent Autonomous Vehicles	Hajime Asama (JP)
8. Bio and Ecological Systems	
Technical Areas	Int. Program Subcommittee
	Ewart R. Carson (UK), Chair
8.1 Control in Agriculture	Gerrit van Straten (NL)
8.2 Modelling and Control of Biomedical Systems	David Feng (HK)
8.3 Modelling and Control of Environmental Systems	Rodolfo S. Sessa (IT)
8.4 Control of Biotechnological Systems	Marie-Noëlle Pons (FR)
9. Social Systems	
Technical Areas	Int. Program Subcommittee
	A. Talha Dinibütün (TR), Chair
9.1 Economic and Business Systems	Reinhard Neck (AT)
9.2 Social Impact of Automation	Johan Stahre (SE)
9.3 Developing Countries	Gheorghe M. Dimirovski (MK)
9.4 Control Education	Ljubisa B. Vlacic (AU)
9.5 Supplemental Ways of Improving International Stability – SWIIS	Frederick Kile (US)

4 Kinds of Participation

IFAC Praha 2005 activities are primarily based on **live** participation in Technical sessions as:

- **Regular papers** (lecture or poster), grouped in homogeneous subject sessions.
- **Survey papers**, summarising the state of the art in a technical area of special interest. They are to be presented in a lecture session of regular or invited papers, and have double presentation time than a regular paper.
- **Case study papers**, describing a particularly important application in some depth. They have double presentation time than a regular paper.
- **Invited sessions** (lectures), sets of 6 invited papers on a well-defined subject of current interest.
- **Direct remote demonstrations: IFAC Praha 2005** envisages the possibility that the authors of contributed papers make real-time experiments, or demonstrations, related to their papers, through on-line connection with their remote labs or equipment.

The World Congress offers the possibility of attending **Plenary lectures** read by world authorities, **Panel discussions**, **Milestone sessions** and pre-Congress **Tutorials** and **Workshops**.

Milestone session is a special form of the panel discussion organized by the IFAC Technical Board, where Milestone reports describing progress in systems and signals, design methods, computers, cognition and communication, mechatronics, robotics and components, manufacturing, industrial automation, transportation, bio & ecological systems and social systems made between Congresses will be presented.

Tutorials focus on

1. up-to-date well established techniques and their revival (refreshing/updating tutorials)
2. new and emerging topics in all aspects of the theory
3. new and emerging topics in all aspects of applications of systems including systems and signals, design methods, computers, cognition and communication, mechatronics, robotics and components, manufacturing, industrial automation, transportation, bio & ecological systems and social systems are strongly encouraged.

The Tutorials are intended to be primarily "educational" and the major goal is to provide general coverage of the selected topics.

5 Call for Contributions

Authors are invited to submit individual contributions for **regular** papers, **survey** papers and **case study papers** to any of the Congress axes and in any of the technical areas listed in the Congress Structure section. The submitted material must be original, unpublished and must not be considered for publication elsewhere.

All the papers submitted to one axis will undergo the same review process. Accepted papers will be assigned to lecture or poster sessions according to the kind of presentation that suits the nature of work, no value ranking is implied. Authors will also be asked to indicate their preference. Poster and lecture papers will be allowed the same number of pages in the Congress Proceedings and the same level of quality is expected.

The **IFAC Praha 2005** Congress also encourages the submission of **invited sessions** with sets of six invited papers on well-defined subjects of current interest belonging to the scope of the Congress. An invited session will be accepted only if the session and its 6 papers are accepted. Accepted papers of a non-accepted invited session will be included in regular sessions.

Panel session proposals for discussing hot topics are welcome.

Organizers of **tutorials** and **workshops**, which will be organized in conjunction with the 2005 IFAC Congress as a pre-Congress program, are encouraged to submit their proposals. The propositions will be reviewed by the Congress IPC.

The only way of receiving contributions is by means of the *electronic submission forms*, available on the IPC server at <http://www.ifac.cz>.

5.1 Full Draft Paper submission

▷ How to submit:

The **contact author** will register to the Congress server filling his/her *Personal Data Form* and then submit the regular paper, invited paper, survey paper or case study paper electronically using the *Paper Submission Form*.

▷ What to submit:

Authors must submit **full draft paper** as a single PDF (Portable Document Format) or a PS (PostScript) file. **PDF** format is preferred. PostScript files will be converted to PDF files by the IPC Secretariat. All papers must be in their final form including references, tables and figures, and according to the IFAC format. Page size must be European A4. See the instructions for authors at <http://www.ifac.cz> for details and templates for some common word processing tools.

The following limitations apply for

<i>Regular papers</i> (contributed or invited, oral or poster) ...	6 pages and 4MB,
<i>Survey papers</i> ...	12 pages and 6 MB,
<i>Case study papers</i> ...	8 pages and 6 MB.

▷ When to submit:

Submitted papers on electronic support must reach the IFAC Praha 2005 IPC server by **September 8, 2004**.

Papers arriving after this date will not be considered.

Copyright Form

Authors are asked to print, sign and airmail *Copyright Form* to the IPC Secretariat when submitting the draft paper. If the contribution is not accepted, the Copyright Form will have no effect and the author is free to re-submit the material for publication elsewhere. The receipt of the corresponding signed Copyright Form by the IPC Secretariat is a necessary condition for the paper acceptance. A copy of the Copyright Form is also available on the IPC server.

5.2 Invited Session submission

The **organizer** of the invited session will register to the Congress server filling his/her *Personal Data Form* and then send *Invited Session Form* with his/her invited session proposal before **September 8, 2004**. The server validates the data and acknowledges the reception.

The organizer of the invited session personally invites **authors** to participate in his/her session immediately after submitting the session proposal. The organizer asks the prospective authors to submit their papers using the *Invited Paper Submission Form* before **September 8, 2004**.

Invited session and invited papers are reviewed separately. The session organizer is informed about the session acceptance, by December 15, 2004. The necessary condition

for accepting the invited session is that all the individual papers registered to the session are accepted. If the session is not accepted then the invited papers are treated as regular contributed papers. Accepted papers are included in regular sessions.

5.3 Final Paper submission

Authors will receive notification of the acceptance of submitted papers by **December 15, 2004**. Authors of accepted papers must send their final versions in single PDF (Portable Document Format) or as a PS (PostScript) file, according to IFAC format, using the Final Paper Form. See the instructions for authors at <http://www.ifac.cz> for details. The limitations concerning the number of pages and file length are the same as for full draft papers.

Final papers must reach the IFAC Praha 2005 IPC server by **March 1, 2005**.

At least one of the authors must register at time of final paper submission, for their paper to be included in the final program of the Congress.

5.4 Panel Session submission

Panel session organizers should submit the following information:

Title of the Panel Session

Name of the organizer and panelists

Goal (one sentence)

Technical Area

Abstract (250 to 350 words)

through the interactive form available on the Congress web server at www.ifac.cz.

Proposals should reach the IPC Secretariat through the Congress web server no later than **October 15, 2004**.

5.5 Tutorial and Workshop submission

Tutorial and workshop organizers should provide

Title of the Tutorial/Workshop

Name of the organizer and tutors

Goal (one sentence)

Abstract (250 to 350 words)

Program topics to be followed

Duration: half-day (3 hrs), full-day (6 hrs) or two full-days (12hrs).

Audience to be addressed (students, researchers, teachers, plant engineers, product developers, ...)

through the interactive form available on the Congress web server at www.ifac.cz.

Proposals should reach the IPC Secretariat through the Congress web server no later than **October 15, 2004**.

6 Timetable

- **June 1, 2004** - submission site for contributions opens
- **September 30, 2004** - submission of full draft *Papers* and *Invited Sessions* (including invited papers)
- **October 15, 2004** – submission of *Tutorials*, *Workshops* and *Panel Sessions* proposals
- **December 15, 2004** - notification of the acceptance/rejection of submitted contributions
- preliminary program announcement
- **March 1, 2005** - delivery of final papers
- **April 1, 2005** - final program announcement
- **July 2-3, 2005** - pre-Congress program: Tutorials & workshops
- **July 4-8, 2005** - Congress program

7 Congress Publications

The Congress publications will consist of

- A *compact disc* containing the full technical material of the Congress, covering all the Congress Axes, Clusters and Technical Areas.
- A *printed volume* containing the Final Program.(author and paper title, time and location)
- A *printed volume* with the Plenary Papers, selected Survey Papers and Milestone Reports

All these materials will be included in the registration fee.



A *printed brochure* with preliminary program, survey of selected topics and marked industrial related activities, will be available and might be requested from the Congress Secretariat from February 2005.

The participants will be able to order **booklets** with printed papers to be presented in **Technical Areas** for extra fee. The ordering will be done through the Congress Registration Form and will be available to participants registered in advance. The booklets will be distributed to the participants at the time of the Congress.

After the Congress, the IFAC publisher Elsevier will market the official Congress Proceedings, with the papers presented at the Congress.

8 IFAC Copyright Policy

The material submitted for presentation at the IFAC Congress must be original, not published or being considered elsewhere. All papers accepted for presentation will appear in the Preprints of the meeting (CD-ROM) and will be distributed to the participants. Papers duly presented will be archived and offered for sale, in the form of Proceedings, by Elsevier, Oxford, UK. The presented papers will be further screened for possible publication in the IFAC Journals (**Automatica**, **Control Engineering Practice**, **Annual Reviews in Control**, **Journal of Process Control** and **Engineering Applications of Artificial Intelligence**), or in IFAC affiliated journals. All papers presented will be recorded on the IFAC Publications website (<http://www.elsevier.com/locate/ifac>).

Copyright of material presented at the IFAC Congress is held by IFAC. Authors should download a *copyright transfer form* from Congress web site at www.ifac.cz. The IFAC Journals and, after these, IFAC affiliated journals have priority access to all contributions presented. However, if the author is not contacted by an editor of these journals within three months after the meeting, he/she is free to re-submit the material for publication elsewhere. In this case, the paper must carry a reference to the IFAC meeting where it was originally presented.

9 IFAC Congress Prizes

At the Opening Ceremony of **IFAC Praha 2005** the following prizes will be awarded:

- **Giorgio Quazza Medal**
- **Nathaniel B. Nichols Medal**
- **Industrial Achievement Award**
- **Harold Chestnut Control Engineering Textbook Prize**

The **Best Paper Prizes** for the following IFAC Journals will be awarded during the Congress:

- **Automatica**
- **Control Engineering Practice**
- **Journal of Process Control**
- **Journal of Engineering Applications of Artificial Intelligence**

The following prizes will be awarded to the authors for Congress contributions at the Closing Ceremony.

9.1 IFAC Congress Young Author Prize

The Prize consists of a certificate and a monetary award of 1000 € to be split among the authors of the winning paper. A selection committee will nominate candidates. The criteria are high technical quality and a good presentation of results. All authors must be under 35 years of age from July 1st 2005. Eligible authors wishing their papers to be considered for this prize should indicate it in the Paper Registration Form.

9.2 IFAC Congress Application Paper Prize

The prize consists of a certificate and a monetary award of 1000 € to be split among the authors of the winning paper. A selection committee will choose the winning paper, which can be nominated by an author, a CC or TC Chair, or a referee. The award is given for outstanding technical contributions at an IFAC Congress in the area of control applications. This includes, but is not limited to, case studies, design and implementation of control systems and optimization of operations in a process, but generally excludes work of a simulation or laboratory scale nature that does not embrace work on an actual full-scale process.

9.3 IFAC Congress Poster Paper Prize

The Prize consists of a certificate and a monetary award of 1000 € to be split among the authors of the winning paper. A selection committee will nominate candidates. The criteria are high technical quality and a good presentation.

10 Financial Aid

Limited funds from IFAC and the Michel Cuenod Trust Fund are available to assist a small number of authors from developing countries who would not otherwise be able to attend the Congress (others funding contributors have still to be confirmed).

The conditions and procedures will be announced in due time to interested people. Prospective authors wishing to obtain more information should contact the IFAC Praha 2005 Secretariat before submitting the draft of the contribution.

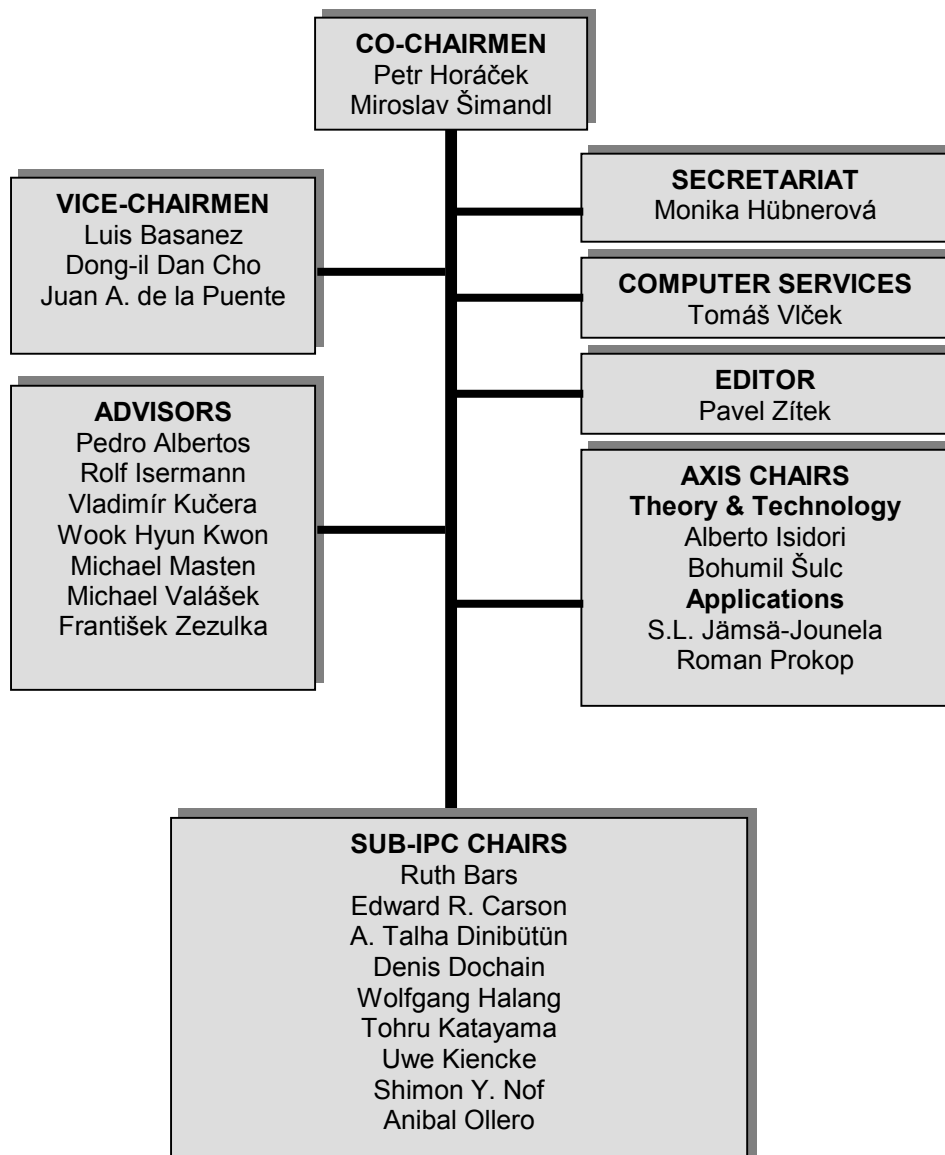
11 No-show papers

It is assumed that authors submit their papers in good faith, that is, they do intend to attend the Congress and there is a reasonable chance they will be able to. Acting otherwise would be professionally unethical. Not presented paper takes away a slot from another author and creates a hole in the lecture session, which can cause serious inconvenience to the audience and the organisers. No-show papers will not be published in the Congress Proceedings.

12 International Program Committee

Petr Horáček (CZ), Co-Chairman
Miroslav Šimandl (CZ), Co-Chairman
Luis Basañez (ES), Vice-Chairman
Juan Antonio de la Puente (ES), Vice-Chairman
Dong-il Dan Cho (KR), Vice-Chairman

Pedro Albertos (ES)
Ruth Bars (HU)
Edward R. Carson (UK)
A. Talha Dinibütün (TK)
Denis Dochain (BE)
Wolfgang Halang (DE)
Rolf Isermann (DE)
Alberto Isidori (IT)
Sirkka-Liisa Jämsä-Jounela (FI)
Tohru Katayama (JP)
Uwe Kiencke (DE)
Vladimír Kučera (CZ)
Wook Hyun Kwon (KR)
Michael Masten (US)
Shimon Y. Nof (US)
Anibal Ollero (ES)
Roman Prokop (CZ)
Bohumil Šulc (CZ)
Michael Valášek (CZ)
Tomáš Vlček (CZ)
František Zezulka (CZ)
Pavel Zítek (CZ)



13 Secretariat

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submission agenda

noc@ifac.cz ... National Organizing Committee