



# IFAC

# NEWSLETTER

**International Federation  
of Automatic Control**

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## THE IFAC EVENT OF 1978 7th TRIENNIAL WORLD CONGRESS HELSINKI, JUNE 12-16

**Organizer of the Congress: Finnish Society of Automatic Control**

The congress program covers the whole field of control technology and offers subjects of interest to all control engineers and scientists. While outstanding papers have been accepted irrespective of their specialization, the International Program Committee has given a certain preference to contributions which present new applications of control engineering and to such theory papers which have practical potential. The organizing country is known for many advanced applications of industrial process control and the congress program is supported by visits to local industries.

The technical program consists of the following session groups

- plenary sessions
- technical sessions
- case studies
- round table discussions
- informal sessions

### Plenary Papers

One paper will be delivered by an internationally acknowledged expert each congress day in a plenary session. The speakers will discuss and review recent developments and current problems of control engineering and its links with other fields of engineering and science, and with society in general.

### Technical Sessions

From a large selection of submitted contributions the International Program Committee accepts 300 papers for presentation in 60 technical sessions which run in a sequence of 6 parallel sessions. The session listed below will give a general view of the scope of the technical sessions, although they are still to be considered provisional. The detailed contents of each session will be settled on finalization of the selection process, and will be given in the Final Program.

- Computer Control Center and Dynamic Security in Electric Power Systems
- Multivariable Control of Power Plants
- Metallurgical Process Control
- Multilevel Computer Control of Pulp and Paper Plants
- Chemical, Cement and Biochemical Process Control
- Control of Heating Systems
- Control of Cars and Engines
- Distributed Process Computer Systems
- Advanced Process Computer Applications and Control
- Control in Biomedical Engineering
- Intrinsic Safety: Differences in Standards
- Control Components
- Software for Process Control
- Microprocessors in Control Applications
- Interfaces and Concepts for Industrial Distributed Computer Control
- Systems and Reliability
- Hardware for Control
- Applicability of Control Science Methodology to Management Systems
- Systems Engineering and Automatic Control Education
- Applicability of Control Science Methodology to Economic Systems
- Manufacturing Technology Research
- Singular Perturbations in Control
- Differential Games and Multiple Criterion Control Problems
- Mathematical Programming Applications to Control
- Mathematical Systems Theory
- Effects of Computerization on Clerical Functions in Service Industries
- Navigation, Guidance and Control of Spacecraft
- Guidance and Control of Aircraft
- Optimum Guidance and Control Methods
- Control Subsystems
- Large-Scale Systems Theory and Applications

- Applications of Multilevel Structures
- Applications of Multiobjective Optimization to Water Resources
- Modelling of Water Resources
- Energy System Models
- Control of Large Electrical Power Systems
- Transportation Systems
- Systems Reliability
- Environmental and Urban Systems
- Systems Theory
- Control Theory
- Multivariable Control Systems
- Large-Scale Systems
- Identification Methods
- Adaptive Control
- Periodic Optimization and Optimal Control
- Distributed and Delayed Systems
- Stochastic Systems, Estimation and Filtering

### Case Studies

The case studies deal with the realization of a practical project or with a limited problem field having control aspects in the foreground. The subject matter is presented and discussed by several experts of differing specializations.

#### *Control System for Thermomechanical Pulp Mill at Kaipola*

The Kaipola Mills of United Paper Mills Ltd. include a modern thermomechanical pulping (TMP) plant with a capacity of 360 t/a. The TMP project was started in 1975 and completed in 1977.

The Kaipola TMP plant is highly automated including digital instrumentation and closed loop computer control.

#### *Nuclear Power Station Loviisa 1 - An International Joint Project*

Loviisa 1, built by Imatran Voima Oy (IVO) - the state owned power company, is the first nuclear power plant in Finland. The energy conversion process unit with one VVER 440 PWR, six steam generators and two turbines has been purchased from the USSR, which also delivers and handles the fuel. The plant was successfully started in the beginning of 1977.

#### *Space Technology*

Different design approaches to manned space vehicles and stations and to unmanned space and planetary probes will be presented from system aspects with emphasis on control requirements and the solutions found for practical applications. Actual operational or simulated flight results will support the feasibility of the selected schemes and methods.

#### *The Interface of Control and Biomedical Engineering*

This case study is problem oriented. The involvement of control technology in the area of biomedical engineering and, in particular, in health care delivery represents a new challenge to the control scientist.

The case study is a look at specific aspects and solutions of this major problem.

#### *Copenhagen Central Mail Sorting Office*

In mid-1978 the Danish General Directorate of Posts and Telegraphs starts operations in the new Copenhagen Central Mail Sorting Office. The building complex contains advanced transport installations totalling more than 200 millions DKK.

### Round Table Discussion

Several items of current control engineering interest are discussed by the Discussion Chairman and the invited panel members. All participants are encouraged to comment and contribute to the discussion.

The final list of the Round Table Discussions will be available in the Final Program.

### Informal Sessions

Informal sessions on topics other than those listed can be set up by the congress participants.

### Fees

Registration fees have been set to favour early registration and are:

	Fee received by March 31	Fee received after March 31
Full registration fee	CHF 500,-	CHF 625,-
Student fee	.. 130,-	.. 130,-
Fee for accompanying persons	.. 75,-	.. 75,-

The full registration fee includes a complete set of preprints and an abstract volume.

### Congress Publications

In connection with the technical program of the congress the following publications will be available

- abstracts
- preprints
- proceedings

The abstract volume will contain abstracts of maximum 150 words of the papers in the technical sessions. The abstract volume will be available in English, French, German and Russian. The full papers of the plenary and contributed sessions will be collected in volumes of preprints.

An abstract volume, in a language chosen by the registrant, and a complete set of preprints are included in the full registration fee.

### General Information

The preliminary program including registration forms are available from the National Member Organization of IFAC as listed in IFAC Newsletter nr. 4 1977 or from

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