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Final Details of Toronto Symposium

The latest details issued on the program for the IFAC/IFIP Toronto Symposium on 'Digital Control of Large Industrial Systems' now lists 27 papers covering the fields of: -

- Industrial Process Digital Control
- Direct Digital Control
- System Design

The Symposium, to be held in Toronto's University from June 17th to June 19th is being organised by the Automatic Control Committee of Canada's National Research Council, The Canadian Computer Society, and the Toronto University under the sponsorship of the two international organisations. Highest interest is sure to be aroused by the numerous papers on direct digital control systems. One complete design session devoted solely to this subject, details in papers from the United Kingdom, Holland, France, and the United States, case histories of DDC (Direct Digital Control) as applied to the glass industry and also to the Ford Motor Company. The second day of the Symposium is devoted primarily to large scale systems in the steel and paper industries. Among the papers presented is a Russian contribution describing control computers in a Soviet steel plant used for the automation of production control. Similarly, from Japan and Canada papers describe computer controls of hot strip mills. On the paper industry session, the main emphasis is on the process identification and one paper from France shows how to use statistical correlation to identify the actual system parameters. Sessions on the final day concentrate on refinery, chemical, and electric utility systems with a discussion group lead by J.J. de Jong of the Netherlands summing up control systems in the chemical industry.

Rounding off the whole Symposium is a wide ranging session on some of the background problems of applying digital control systems to industry. Contributions here cover the use of programming languages - one paper describes the use of Fortran for industrial processes. Also the basic question of analogue vs. digital control systems is given an airing by two American contributors. Another process that is being discussed is the use of hierarchical computers in an integrated control system.

While the delegates to the Symposium will have theoretical discussions, practical visits have not been neglected. On June 20th a number of industrial tours are arranged to see computer control of Toronto's traffic system and the applications of control in foundries and a steel company. Further details on this conference can be obtained from: -

Secretary,
Division of University Extension,
University of Toronto,
84 Queen's Park,
Toronto 5,
CANADA.

IFAC Belgium Probes Lime and Cement Control Systems

Programme details of the four day IFAC Symposium on Automatic Control Systems in the lime, cement, and allied industries have now been released by the Belgian Institute of Control and Automation (IBRA), the national body responsible for the Symposium organisation being held in Brussels September 9 - 13, 1968.

Three basic working sessions deal with: -

- raw material processing
- kiln processing problems
- general design and application problems

In all some ten papers from nine countries will be presented in the first session with a further fourteen describing theoretical and practical studies on kiln processing applications. Another thirteen papers on the general design round off the conference with a final day of technical visits to cement works at Lithe, gravel quarries, and rotary kiln units. Among some of the actual working control installations to be seen on these visits are analog controllers and processing computers at the Lithe cement works, punched card and computer control of gravel loading, and the semi-automatic operation of lime kilns.

Control of Raw Materials

In the papers on the processing of raw materials in these industries, each of the problems of gauging the material's properties, grinding, blending and homogenisation are being dealt with separately.

A Belgian paper by J. Joannes of Siemens describes a punched card instantaneous volumetric gauging installation. A feature of this installation sure to arouse great interest is the elimination of weighing scales while retaining the facility of predetermining the total quantities blended.

Among the three papers on grinding, one from France reviews the methodology in installing auto-control systems, while another Belgian paper describes control installations in a cement grinding plant. Highlight of this section is a detailed review of acoustic measurement techniques for grinding control. This paper, by G. Schacknies of Polysius, Germany, proves the validity of a mathematical model and deduces from both theory and practice optimisation criteria for such control systems.

X-ray analysis, particularly fluorescent analysis is a growing technique for use in blending. This is evidenced in two of the three papers in this section. Papers from both Canada and Holland describe techniques and applications. In the Canadian system, installed at the St. Lawrence Cement Company, X-ray analysis is continuously performed for blending five components after crushing, an associated computer determines the set points of the feed regulators from data supplied by the X-ray analysis. The remaining paper in this session from the USSR demonstrates how to generate algorithms for continuous or discontinuous blending.

Homogenisation problems are dealt with three papers from Finland, Norway, and Italy.

Kiln Processes

Here the computer application is increasing, many of the papers dealing with justification studies or actual installations. To clarify the problems, the papers are split into theoretical and installation papers each in turn being divided between the lime making and cement process.

Theoretical studies in cement manufacture presented at the conference include a computer optimisation process for clinker control by E.S. Kichkina and A.V. Loschinskaya of the USSR, and the use of statistical methods to determine a kiln's dynamic characteristics. This work, by J. Skopal of Czechoslovakia, is planned for use on the computer control of a new kiln. One major contribution will be the paper by two IBM engineers, J. Hayes and F. Rais, in which they describe three types of computer control that can be applied simultaneously in a cement works, predictive control, direct digital control and static methods.

As for installations description, papers from Norway and the U.K. describe advanced computer systems controlling a 1,500 ton a day Norwegian kiln and the generation of computer algorithms for control of a British cement kiln.

Background Problems

Behind the detailed papers are a number of sessions of general problems of applying control to the cement and lime industry. These include papers on the use of centralised control rooms, continuous fluorescence analysis, computer stock control, and the design of special transducers.

For further details and registration (reduced fee registration terminates on June 30th) contact: -

Secretariat de l'IBRA,
3, Rue Ravenstein,
Brussels 1,
BELGIUM.

Semiconductor Device Research

A second Conference on Semiconductor Device Research will be held in Munich in April 1969. This conference is sponsored by the German Section of the Institute of Electrical and Electronics Engineers (IEEE), the Deutsche Physikalische Gesellschaft (DPG), the Verband Deutscher Elektrotechniker (VDE) and the Nachrichtentechnische Gesellschaft im VDE (NTG).

The conference will be combined with the meeting of the Deutsche Physikalische Gesellschaft on Semiconductors, Metals, Magnetics, Low Temperatures and Thermodynamics.

Papers are invited on any of the following topics: -

- Effects using majority-carriers (Gunn-effect, ATT-diode, hot electrons, plasma-effects)
- Field effect and thin film transistors
- High frequency junction devices (novel transistor systems, tunnel-diode, Schottky-diode, varactor)
- Opto-electronic devices (luminescence-, laser- and photo-diode, coupling elements, radiation detectors)
- Galvanomagnetic device
- Piezo-electric semiconductor devices
- Power semiconductor (thyristor, thermoelectric phenomena, sensors)

Abstracts should be submitted by December 15th, 1968 in ten copies to: -

Dr. W. Heywang,
Siemens AG,
Research Laboratory,
8 Munchen 80,
Balanstr. 73, F.R.,
GERMANY.

Further information can be obtained from: -

Dr.-Ing. H.H. Burghoff,
German Section IEEE,
6 Frankfurt/Main 70,
Stresemann Allee 21,
VDE-Haus
GERMANY.

Dr.phil. K. -H. Riewe,
DPG,
645 Hanau,
Heraeusstr. 12-14
GERMANY.

Optimal Systems Planning Symposium

LOCATION

The Symposium will take place at Case Western Reserve University, (formerly Case Institute of Technology), Cleveland, Ohio, June 20–22, 1968.

REGISTRATION

Development - Special Programs
Case Western Reserve University
10900 Euclid Avenue
Cleveland, Ohio 44106

TECHNICAL PROGRAM

Thursday, June 20, 1968

9:00 a.m. **INTRODUCTORY SESSION** -

Welcoming Remarks

T. J. Williams - Conference Chairman
Purdue University, Lafayette, Indiana.

A. R. Moritz - Provost of the University
Case Western Reserve University, Cleveland, Ohio.

H. Chestnut - Chairman, Systems Engineering Committee of IFAC, General Electric Co., Schenectady, New York.

What is Systems Planning?, R. W. House and J. N. Warfield, Battelle Memorial Institute, Columbus, Ohio.

10:00 a.m. **COMMUNICATION SYSTEMS**

Long Range Systems Planning for a Toll Communications Network, Ralph McDowell, American Telephone & Telegraph Co., New York, New York.

Computer Techniques for the Location and Timing of New Wire Centers, C. D. McLaughlin, Bell Telephone Laboratories, Holmdel, New Jersey.

Optimal Size of Telephone Transmission Systems, Nicholas Valcoff, Bell Telephone Laboratories, Holmdel, N. J.

Basic Planning for Future Communication Networks, Bernard Yaged, Bell Telephone Laboratories, Holmdel, New Jersey.

2:30 p.m. **TRANSPORTATION SYSTEMS**

Oceanic Air Traffic Projections: The Next Decade, M. W. Cardullo, Communications Satellite Corp., Washington, D. C.

A Study of the Journey to Work by Central Business District Employees, J. F. Morrall and B. G. Hutchinson, University of Waterloo, Waterloo, Ontario, Canada.

Automatic Flight Management of Future High Performance Aircraft, D. M. Petrie, The Boeing Company, Seattle, Washington

Alternatives in Transportation System Planning, E. S. Diamant and R. Zimmerman, TRW Systems, Washington, D.C

7:30 p.m. **INVITED TALKS AND PANEL ON PLANNING IN ECONOMIC AND ORGANIZATIONAL SYSTEMS.**

State Planning of Industry, V. A. Trapeznikov, Academician, Institute of Automatics and Telemechanics, Moscow, U.S.S.R.

The Theory of Optimal Economic Growth, K. Shell, Department of Economics, Massachusetts Institute of Technology, Cambridge, Massachusetts.

Planning in R and D Organizations, B. V. Dean, Department of Operations Research, Case Western Reserve University, Cleveland, Ohio.

Modelling in Corporate Planning, G. K. L. Chien, Advanced Planning Division, International Business Machines, White Plains, New York.

Friday, June 21, 1968

9:00 a.m. **ENERGY SYSTEMS** -

Planning of Electric Utility Systems, W. D. Masters, F. P. Sener, L. E. Czerniawski and H. J. McKinnon, Cleveland Electric Illuminating Company, Cleveland, Ohio.

Planning of Large Systems, A. J. Wood, General Electric Company, Schenectady, New York.

A General Hybrid Regression Forecasting Model and its Applications, Keigo Yamada, Mitsubishi Electric Corp., Tokyo, Japan.

Optimal Forecasting for Computer Control of Water Resource Systems, J. Toyoda, Seikei University, Japan - Y. Inoue and O. Yoshida, Mitsubishi Electric Corp., Japan - N. Toriumi, Kanagawa Prefectural Government, Japan.

2:00 p.m. **INDUSTRIAL SYSTEMS**

The Automated Planning and Optimization of Manufacturing Processes, P. B. Berra and M. M. Barash, Purdue University, Lafayette, Indiana.

Modeling of Structure and Optimization of Planning in the Management Control System, M. A. Bermant, K. L. Gorfan, L. E. Mindeli & A. I. Semenov, Central Economic-Mathematical Inst. of USSR Academy of Science, Moscow, U.S.S.R.

Nationwide Resource Allocation, A. Ya. Lerner, I. M. Makarov, and O. I. Aven, Institute Automatica & Telemechanics, Moscow, U.S.S.R.

Dynamic Scheduling in the Process Industries by Predictive Control, C. F. Long and J. D. Schoeffler, Case Western Reserve University, Cleveland, Ohio.

Planning Ingot Mold Sizes in Steel Works, E. Y. Kung and W. E. Baughman, Jones & Laughlin Steel Corp., Pittsburgh, Pennsylvania.

Saturday, June 22, 1968

9:00 a.m. **GENERAL METHODOLOGY** -

Probabilistic Planning of the Spread of Means in an Interconnected System, Jiri Benes, Institute for Information Theory and Automation, Praha, Czechoslovakia.

Soft Decision Engineering, A. C. Eulberg, Gulf General Atomic, Inc., San Diego, California.

Evaluation of Profitability of Industrial Production Supported by R. & D Activity, W. D. T. Davies & D. W. Gillings, Imperial Chemical Industries, Reading, Berkshire, England.

On the Behaviour and Evaluation of the Efficiency of a Class of Large Scale Systems, I. Popchev, Institute of Engineering Cybernetics, Bulgarian Academy of Sciences, Sofia, Bulgaria.

Decision Making and Optimization in Educational Enrollment, Paul Alper, UNESCO, National Polytechnic Institute, Mexico City, Mexico.

To the Question of Functioning of the Economy of a Union Republic in the All-Union System of Planning and Regulation, A. N. Pirmukmamedov, Dept. of Optimum Planning of People's Economy, Institute of Cybernetics, Uzbek, S.S.R.