



NEWSLETTER

COMPUTING AND SYSTEMS TECHNOLOGY DIVISION

American Institute of Chemical Engineers

VOLUME 4: NUMBER 2

OCTOBER 1981

COMPUTING IN CHEMICAL ENGINEERING AWARD

Richard S.H. Mah, Professor of Chemical Engineering at Northwestern University, has been named winner of the CAST Division Computing in Chemical Engineering Award for 1981 in recognition of his outstanding contributions to the development and application of computing and systems technology in Chemical Engineering. A pioneer in computer-aided process design, he piloted many new computing techniques and applications, including a technical program generator, sparse matrix methods, interactive synthesis using computer graphics, process data reconciliation and rectification, thermodynamic availability analysis, energy-efficient distillation, design and scheduling of batch and semi-continuous plants. Several of these techniques have resulted in commercial software or industrial application.

Prof. Mah was born in Shanghai, China and educated in China, Hong Kong and Great Britain. He received his B.Sc. degree from the University of Birmingham in 1957 and the PhD degree from Imperial College in 1961. He worked as a Chemical Engineer for A.P.V. Co. (Crawley, England) from 1957-58, as a research fellow at the University of Minnesota from 1961-63, as a research engineer for Union Carbide Corp. (Charleston) from 1963-67, and as a Senior Project Analyst for ESSO Mathematics and Systems, Inc. (Florin Park) from 1967-72. In 1972 he joined the faculty at Northwestern University as an Associate Professor, and was promoted to Professor in 1977.

Active in AIChE programming since 1972, he is currently Chairman, CAST Division Pro-

gramming Board. He is a Trustee and a past Secretary of CACHE, a member of ACS, ACM and ASEE. At Northwestern University he also serves as Chairman of the University-wide Computing Committee.

The award consists of a plaque and a check for \$1000. Funding for the award is being provided by ChemShare, Inc. of Houston, and Simulation Sciences, Inc., of Fullerton, California.

The award will be presented following the annual dinner meeting in New Orleans (see below). Prof. Mah will then speak on "Chemical Process Structures and Information Flows".

ANNUAL DINNER MEETING, NEW ORLEANS

The CAST Division annual dinner meeting will be held at the Plimsoll Club, atop the International Trademart Building at 2 Canal St. in New Orleans on Tuesday evening, November 10. The schedule is as follows:

Cocktails (cash bar):	6:30 PM
Dinner (Galvez Room):	7:30 PM
Annual Meeting:	8:30 PM

Please make every effort to attend, if you plan to be at the New Orleans meeting of the Institute. The setting should be spectacular, overlooking the river and harbor area, and the food should be exceptional.

ASEE WORKSHOP

Professor Thomas F. Edgar of the University of Texas at Austin will serve as the CAST Division programming coordinator for the ASEE Workshop in Santa Barbara, August 2-6, 1982.

NEW ORLEANS MEETING, CAST SESSIONS
November 8-12, 1981

Monday Nov. 9, PM, Bayou III Session 48

ADVANCES IN PROCESS SYNTHESIS

M. Morari, U. Wisconsin, Madison 53706/R.L. Motard, Washington U. St. Louis MO 63130

INCORPORATING TOXICOLOGY IN THE SYNTHESIS OF INDUSTRIAL CHEMICAL COMPLEXES. I.E. Grossman* R.G. Drabbant, R.K. Jain. Carnegie-Mellon U. Pittsburgh PA.

OPTIMAL DESIGN OF PROCESSING SYSTEM WITH MULTIPLE OBJECTIVES. N. Takama*, T. Umeda. Chiyoda, Tsurumi, Japan.

PREDICTION OF BY-PRODUCTS IN INDUSTRIAL REACTION PATH SYNTHESIS. N. Kedia, R. Govind. U. Cincinnati OH.

A WEAK DECOMPOSITION AND THE SYNTHESIS OF HEAT INTEGRATED DISTILLATION SEQUENCES. A. Sophos, G. Stephanopoulos. U. Minnesota, Minneapolis and B. Linnhoff, ICI Ltd., Corp. Lab., Runcorn Cheshire, England.

SYNTHESIS OF SEPARATION TRAINS BY THERMODYNAMIC ANALYSIS. A. Gomez-Munoz, J.D. Seader*. U. Utah, Salt Lake City.

HEAT AND POWER NETWORKS IN PROCESS DESIGN D.W. Townsend, B. Linnhoff, ICI Ltd., Corp. Lab., Runcorn Cheshire, England.

Monday Nov. 9, PM, Bayou IV, Session 54

ANALYSIS OF NONIDEAL SEPARATION SYSTEMS

M.F. Doherty, U. Massachusetts, Amherst 01003/M.F. Malone, U. Massachusetts.

CONDITIONS FOR UNIQUENESS AND STABILITY OF STEADY-STATE SOLUTIONS IN AZEOTROPIC DISTILLATION COLUMNS M.F. Doherty*, U. Massachusetts, J.D. Perkins, Imperial Coll., London.

MINIMUM REFLUX CALCULATIONS IN COMPLEX COLUMNS K. Nandakumar*, F.D. Otto, U. Alberta, Canada, R.P. Andres, Princeton U.

ADSORPTIVE DISTILLATION R.G. Rice, Louisiana State U. Baton Rouge.

STRIPPING OF CARBON DIOXIDE FROM MONOETHANOLAMINE SOLUTIONS IN CONTINUOUS CONTACTING EQUIPMENT R.H. Weiland*, Clarkson Coll. of Tech, Potsdam NY, M.Y. Rawal, Australian Iron & Steel Ltd., Wollongong, Australia, R.G. Rice, Louisiana State U. Baton Rouge.

COMPUTER MODELLING OF PRESSURE EFFECTS FOR NON-IDEAL MEMBRANE SEPARATIONS R.A. Sheldon* E.V. Thompson, U. Maine, Orono.

PERVAPORATION BY A CONTINUOUS MEMBRANE COLUMN K.C. Hoover, Phillips Petroleum, Bartlesville OK and S-T Hwang*, U. Iowa, Iowa City.

Tuesday, Nov. 10, AM, Bayou III, Sess. 49

COMPUTERS IN PROCESS DESIGN AND ANALYSIS

PART I R.S.H. Mah, Northwestern U. Evanston/ F. Kayihan, Oregon State U., Corvallis.

A COMPUTER PROGRAM FOR STEADY-STATE AND DYNAMIC SIMULATION AND DESIGN OF CHEMICAL PROCESSES R.W.H. Sargent, J.D. Perkins, Imperial College, London, England.

DEVELOPMENT OF A NEW EQUATION-BASED PROCESS FLOWSHEETING SYSTEM M.A. Stadtherr, C.M. Hilton, U. Illinois, Urbana.

EQUATION-ORIENTED FLOWSHEET SIMULATION: OPENING A NEW WORLD OF PROCESS SIMULATION P.D. Babcock, U. Connecticut, Storrs.

AN EQUATION ORIENTED APPROACH TO THE STRUCTURING AND SOLUTION OF CHEMICAL PROCESS DESIGN PROBLEMS M.J. Kolbert, W.J. Meier, N.L. Book, U. Missouri, Rolla.

IMPROVED ALGORITHM FOR DETERMINING OUTPUT VARIABLES IN SPARSE SYSTEMS S.G. Hacker, H. Shankar, S.M. Taylor, L.D. Clements, Texas Tech U., Lubbock.

THE SENSITIVITY OF PROCESS DESIGNS TO THERMODYNAMIC DATA A.R. Nelson, J.H. Olson, S.I. Sandler, U. Delaware, Newark.

Tuesday Nov 10, AM, Bayou IV, Sess. 55

NEW METHODS IN MATHEMATICAL MODELING AND ANALYSIS

D. Ramkrishna, Purdue U., West Lafayette IN 47907/A. Varma, U. Notre Dame, Notre Dame IN 46556

COMPUTER-AIDED MATHEMATICAL ANALYSIS L.E. Scriven, U. Minnesota, Minneapolis.

MULTI-SCALE ANALYSIS OF EFFECTIVE TRANSPORT IN PERIODIC INHOMOGENEOUS MEDIA H-C Chang, U. California, Santa Barbara.

A NEW MODEL REDUCTION TECHNIQUE FOR STAGED SEPARATION OPERATIONS W.E. Stewart*, K.L. Levien, M. Morari, U. of Wisconsin, Madison.

NEW METHODOLOGY FOR ANALYSIS PARTICULATE PROCESSES U. Mann*, M. Rubinovitch, Texas Tech U., Lubbock.

WHEN IS A BED FIXED? R. Aris*, D. Altshuller
R.W. Carr, U. Minnesota, Minneapolis.

PARAMETRIC DEPENDENCE OF MULTIPLE SOLUTIONS
TO NONLINEAR EXTREMUM PROBLEMS L.H. Ungar*,
R.A. Brown, MIT, Cambridge.

Tuesday, Nov. 10, PM, Bayou III, Sess. 50

COMPUTERS IN PROCESS DESIGN AND ANALYSIS
PART II. R.S.H. Mah, Northwestern U.
Evanston IL/F. Kayihan, Oregon State U.,
Corvallis.

INFEASIBLE PATH METHODS FOR SEQUENTIAL MODU-
LAR OPTIMIZATION L.T. Biegler, R.R. Hughes
U. Wisconsin, Madison.

OPTIMAL PROCESS DESIGN UNDER UNCERTAINTY
K.P. Halemane, I.E. Grossmann, Carnegie-
Mellon U., Pittsburgh.

PROCESS OPTIMIZATION WITH THE ADAPTIVE
RANDOMLY DIRECTED SEARCH D.L. Martin, J.L.
Gaddy, U. Arkansas, Fayetteville.

DYMODS - A COMPUTER PROGRAM SYSTEM FOR
SIMULATION OF PROCESS DYNAMICS J.H. Moser,
Shell Development Company, Houston

APPLICATION OF DACSL (DOW ADVANCED CONTINU-
OUS SIMULATION LANGUAGE) TO THE DESIGN AND
ANALYSIS OF CHEMICAL REACTOR SYSTEMS G.
Blau, G. Agin, Dow, Midland MI.

FEASIBLE SPECIFICATIONS IN AZEOTROPIC DIS-
TILLATION G.J. Prokopakis, W.D. Seider,
U. Pennsylvania, Philadelphia.

Tuesday, Nov. 10, PM, Bayou IV, Sess. 56

DYNAMICS AND CONTROL OF CHEMICAL REACTORS
AND PROCESS SYSTEMS - PART I E.K. Reiff,
U. California Berkeley 94720/M. Tirrell and
K. Jensen, U. Minnesota, Minneapolis 55455

OPTIMAL POLICIES IN POLYMERIZATION REACTORS
J.N. Farber, R.L. Laurence*, U. Massachusetts
Amherst.

THE CONTROL OF OSCILLATIONS IN CONTINUOUS
STIRRED TANK EMULSION POLYMERIZATION RE-
ACTORS M. Pollock, J.F. MacGregor, A.E.
Hamielec, McMaster U., Hamilton, Canada

EXPERIMENTAL AND THEORETICAL STUDIES OF THE
DYNAMICS OF CONTINUOUS EMULSION POLYMERIZA-
TION REACTORS F.J. Schork*, W.H. Ray, U.
Wisconsin, Madison.

CONTROL OF BULK POLYSTYRENE REACTORS E.B.
Nauman, Xerox, Rochester NY.

CONVERSION PREDICTION IN HIGH CONVERSION
FREE RADICAL POLYMERIZATIONS S. Balke*,
L. Garcia, R. Patel, Xerox, Mississauga
Ontario, Canada

BATCH COPOLYMERIZATION REACTOR: SELF-TUNING
OPTIMIZATION AND CONTROL T.P. Bejger*, G.
Stephanopoulos, M. Tirrell, U. Minnesota
Minneapolis.

MODELLING, SIMULATION AND CONTROL OF A SEMI-
BATCH COPOLYMERIZATION PROCESS A.F. Johnson
B. Khaligh, J. Ramsay, U. Bradford, Bradford
West Yorks, England

Wednesday, Nov. 11, AM, Bayou III, Sess. 51

COMPUTER AIDED DESIGN OF BATCH & SEMI-CON-
TINUOUS PROCESSES G.V. Reklaitis, Purdue
U. W. Lafayette IN 47907/M. Renard, Merck &
Co., PO Box 2000, Rahway NJ 07065

OPTIMAL DESIGN OF MULTI-PURPOSE BATCH PLANTS
I. Suhami, R.S. Mah, Northwestern U.
Evanston IL

EQUIPMENT SIZING AND UTILIZATION IN MULTI
PRODUCT PLANTS W. Flatz, Sandoz, Ltd.
Basle, Switzerland

DISCRETE VARIABLE OPTIMIZATION STRATEGIES
FOR THE DESIGN OF MULTI-PRODUCT PROCESSES
W. Wiede, Jr., N.C. Yeh, G.V. Reklaitis,
Purdue U., W. Lafayette IN

OPTIMAL DESIGN OF BATCH/SEMI CONTINUOUS MEAT
PROCESSING PLANTS P. Wilson, C. Knopf,
Louisiana State U., Baton Rouge

EQUIPMENT SIZING AND ECONOMIC EVALUATION FOR
BATCH PLANTS L. Silver, S. Bacher, J. Hacik
Merck & Co. Rahway NJ

COMPUTER-AIDED RIGOROUS DESIGN OF BATCH DIS-
TILLATION COLUMNS M. Melcic, University
Computing Centre, Zagreb, Yugoslavia

Wednesday, Nov. 11, AM, Bayou IV, Sess. 57

DYNAMICS AND CONTROL OF CHEMICAL REACTORS
AND PROCESS SYSTEMS - PART II E.K. Reiff,
U. California Berkeley 94720/M. Tirrell and
K. Jensen, U. Minnesota, Minneapolis 55455

STABILITY AND RESPONSE PROPERTIES OF THE
ANALYTICAL PREDICTOR R. Srinivasan, D.A.
Mellichamp, U. California Santa Barbara

ON ESTIMATION AND CONTROL OF BILINEAR SYS-
TEMS: THE BILINEAR SELF-TUNING REGULATOR
S. Svoronos, G. Stephanopoulos, R. Aris,
U. Minnesota, Minneapolis.

ADVANCED MULTIVARIABLE CONTROL OF A PILOT PLANT DISTILLATION COLUMN VIA MINI AND MICRO-COMPUTERS B.A. Ogunnaike, J.P. Lemaire, M. Morari, W.H. Ray*, U. Wisconsin, Madison

DYNAMIC INTERACTION ANALYSIS OF COMPLEX CONTROL SYSTEMS T.J. McAvoy, U. Maryland, College Park

PREDICTIVE CONTROL BASED ON DISCRETE CONVOLUTION MODELS J.J. Marchetti, D.E. Seborg D.A. Mellichamp, U. California, Santa Barbara

INTERNAL MODEL CONTROL - A FLEXIBLE ALGORITHM FOR THE COMPUTER CONTROL OF INDUSTRIAL PROCESSES M. Morari*, C.E. Garcia, U. Wisconsin, Madison

IMPLEMENTATION OF ADAPTIVE SELF-TUNING CONTROLLERS ON LARGE PILOT SCALE PROCESS SYSTEMS L. Kershenbaum*, B.E. Ydstie, Imperial Coll. London, England

Wednesday, Nov. 11, PM, Bayou III Sess. 52

SCHEDULING OF PROCESS OPERATIONS N.E. Rawson IBM Corp. Bethesda MD 20034/I.E. Grossmann, Carnegie-Mellon U., Pittsburgh PA 15213

REVIEW OF SCHEDULING OF PROCESS OPERATIONS G.V. Reklaitis, Purdue U, W. Lafayette IN

THE FLOWSHOP SCHEDULING PROBLEM WITH NO INTERMEDIATE STORAGE D.W.T. Rippin, Swiss Fed. Inst. of Tech., Zurich, Switzerland

PROSIT - AN INTERACTIVE PROCESS SCHEDULING SYSTEM J.M. Neville*, R. Ventaker, T.E. Baker, Exxon Corp., Florham Park NJ

CYCLICAL PRODUCTION SCHEDULING R.C. Heard, R.D. Heard & Co., Bartlesville OK

COMPUTER PROGRAM AIDS TO LONG RANGE OPERATIONS PLANNING FOR THE IDAHO CHEMICAL PROCESSING PLANT H.G. Spencer, Exxon Nuclear Idaho Co, Idaho Falls

Wednesday Nov. 11, PM, Bayou IV, Session 58

DYNAMICS AND CONTROL OF CHEMICAL REACTORS AND PROCESS SYSTEMS. PART III. E.K. Reiff, U. California Berkeley 94720/M. Tirrell and K. Jensen, U. Minnesota, Minneapolis 55455

NONUNIFORM STEADY STATES IN SYSTEMS OF INTERACTING CATALYST PARTICLES: THE CASE OF NEGLIGENT INTERPARTICLE MASS TRANSFER COEFFICIENT T.T. Tsotsis, U. Southern California, Los Angeles

DYNAMICS OF REGENERATION IN FIBROUS-BED REACTORS INDUCED BY PERTURBATIONS IN THE FEED TEMPERATURE F. Shadman*, U. Arizona, Tucson E. Bissett, General Motors, Warren MI.

DYNAMIC ANALYSIS AND CONTROL OF SPOUTED-BED CATALYTIC REACTORS Y. Arkun, K.J. Smith, Rensselaer Poly. Inst., Troy NY

MODEL REDUCTION OF THE FIXED-BED REACTOR E.D. Gilles, U. Epple, U. Stuttgart, W. Ger.

A NEW APPROACH FOR APPROXIMATING THE DYNAMICS OF A CLASS OF DISTRIBUTED PARAMETER PROCESSES J.C. Friedly, J.T. Wyatt, U. Rochester, NY

OPTIMAL CONTROL POLICY FOR SUBSTRATE - INHIBITED KINETICS WITH ENZYME DEACTIVATION IN AN ISOTHERMAL CSTR K-Y San, G. Stephanopoulos*, Caltech, Pasadena

A DIRECT APPROACH TO MULTIVARIABLE, NON-LINEAR (RELAY) CONTROL USING TSYPKIN'S ANALYTICAL METHOD D.D. Bruns, U. Tennessee, Knoxville

STOCHASTIC INFERENCE CONTROL OF THE FLUIDIZED STATE VIA DIFFERENTIAL PRESSURE MEASUREMENTS D.E. Clough, D.C. Gyure, U. Colorado, Boulder

Thursday Nov 12, AM, Bayou III, Sess. 53

GRAPHICS IN CHEMICAL ENGINEERING T.L. Leininger, E. I. du Pont de Nemours & Co Wilmington DE 19898/E.M. Rosen, Monsanto Co., St. Louis MO 63166

CAD/CAM: A VENDOR'S PERSPECTIVE J.L. McCann*, IBM Education Center, Poughkeepsie NY, N.E. Rawson, IBM Corp. Bethesda MD

CAD/CAC (COMPUTER AIDED DESIGN/COMPUTER AIDED CONSTRUCTION) - A CONCEPT WITH INTRIGUING POSSIBILITIES K.C. Book, J.M. Fisher*, P.E. Simacek, E. I. du Pont de Nemours & Co., Wilmington DE

PDMS: ITS IMPACT ON DESIGN ENGINEERING J.F. McKenna, Lummus, Bloomfield NJ, C.R. Hawk*, Compeda Inc. N. Paramus NJ

A GRAPHICS-BASED PROCESS TECHNICIANS INTERFACE R. Weber*, R.J. St. Aubin, M.R. Halberg, Exxon Chem. Americas, Baytown Olefins Plant, Baytown TX; S.W. Yu, Shell Oil Co. Houston

AUTOMATED FLOWSHEET DRAWING P.E. Steacy* Shell Dev. Co. Houston

INTERACTIVE GRAPHICS FOR FUNCTION ANALYSIS IN OPTIMIZATION H.F. Hofmeister, D.W.T. Ripplin*, Technisch-Chemisches Lab. Zurich, Switzerland

Thursday Nov 12, AM, Bayou IV Session 59

RESTRUCTURING PROCESS CONTROL EDUCATION

M. Morari, U. Wisconsin, Madison 53706/
S. Shah, U. Alberta, Edmonton, Alberta, Canada T6G 2G6

THE PARADIGM OF COMPLETE PLANT CONTROL

G. Stephanopoulos, U. Minnesota, Minneapolis

A SYSTEMS APPROACH FOR PROCESS CONTROL

SYSTEM DEVELOPMENT R.A. Baxley, Jr.*
Union Carbide Corp, S. Charleston WV;
G.G. Harrington, Union Carbide Corp. Port Lavaca TX; D. Bienkowski, Applied Business Tech. Corp., New York

TEACHING MULTIVARIABLE CONTROL TO UNDERGRADUATES

W.H. Ray*, M. Morari, U. Wisconsin, Madison

THE CONCEPT OF CONTROLLABILITY IN A CHEMICAL PLANT

R. Shinnar, City College, New York

CHEMICAL PROCESS CONTROL ENGINEERING QUADRANGLE: ECONOMICS, PROCESS, COMPUTER, MATHEMATICS

P.R. Latour, Setpoint Inc., Houston

A REALISTIC APPROACH TO CONTROL SYSTEM DESIGN

C.B. Brosilow, Case Western Reserve U., Cleveland OH

ACADEMIC-INDUSTRIAL WORKSHOP ON PROCESS CONTROL EDUCATION

R.E. Zumwalt, Exxon Research & Engineering Co., Florham Park NJ

ORLANDO MEETING

FEBRUARY 1982

R.S.H. Mah, Coordinator, Chem. Engr, Northwestern U., Evanston IL 60201 (312)492-3452

ENERGY INTEGRATION TECHNIQUES

J.J. Siirola, Tennessee Eastman, Research Lab, Kingsport TN 37662 (615) 246-2111 (ext 3069)/W. Tedder Georgia Tech.

MODELING OF PROCESS SYSTEMS

I.H. Rinard, Halcon R & D Corp. 2 Park Ave., New York NY 10016 (212) 689-1222 (ext 2243)/M. Malone, Chem.Engr., U. Massachusetts, Amherst 01003 (413) 545-0922

COMPUTER-AIDED PROCESS DESIGN AND SIMULATION WITH ASPEN J.D. Seader, Chem. Engr., U. Utah Salt Lake City 84112 (2 sessions)

PROBLEMS WITH DISTRIBUTED COMPUTING NETWORKS

D.M. Himmelblau, Chem., Engr., U. Texas Austin 78712

COMPUTER CONTROL METHODS FOR BATCH CHEMICAL OPERATIONS

J.P. Kennedy, Oil Systems, Box 733 San Leandro CA 94577 (415) 895-9003

NEW DEVELOPMENTS IN INDUSTRIAL PROCESS CONTROL

(2 sessions) A.W. Pollack, Suntech Box 1135 Marcus Hook PA 19061 (215) 447-

APPLICATIONS AND TECHNIQUES IN PROCESS CONTROL

R. Valleryshamp, C&P Dept., DuPont Jackson Lab Deepwater NJ 08023 (609)299-5000 (ext 3364)/ J.P. Shunta, DuPont Engr. Dept., Louviers, Newark DE 19711 (302) 366-2772

GRAPHICS IN CHEMICAL ENGINEERING

E.M. Rosen Monsanto 800 N Lindberg, St. Louis MO 63166/ T. Leininger, DuPont-Louviers 3118, Wilmington DE 19898

PROCESS ECONOMICS BY COMPUTER

I. Klumper, Charles River Assoc, 200 Clarendon St., Boston MA 02116 (617) 266-0500 (ext 309)/ A. Rose, Chem. Engr., USC, Los Angeles CA 90007 (213) 741-5266

PROJECT CONTROL

T. Leininger, DuPont Louviers 3118, Wilmington DE 19898

Also one joint session cosponsored with

Group 5 (Management Div) on UNCERTAINTY ANALYSIS - Chairman: V. Uhl

CAST related sessions at Anaheim, CA, The

Third Chemical Plant Equipment Exposition June 7-10, 1982

Meeting Program Chairman: D.G. Chapel, Fluor

Engineers and Constructors, Inc.

(714) 975-4554

SAFETY ASPECTS OF COMPUTER CONTROL,

Mr. E.S. DeHaven, Dow Chemical U.S.A.

(415)432-5220 Pittsburg, CA

RECENT ADVANCES IN PILOT PLANT PROGRAMS,

Mr. John Kronseder, Fluor Engineers and

Constructors, Inc. Irvine, CA

COMPUTING & PROJECT MANAGEMENT - FROM DESIGN

TO STARTUP, Mr. Ran K. Bhattacharyya, Mobil

Research & Development Corp.

COMPUTERS IN PLANT MANAGEMENT, W.T. Harper,

Amoco Chemicals Corporation, Chicago, IL.

INTERNATIONAL SYMPOSIUM on "Process Systems Engineering" to be held in Kyoto, Japan on August 23-27, 1982.

Special Lectures in the Keynote Sessions

Role of Process Systems Engineering. T. Takamatsu, Kyoto Univ., Japan

Advances in Modelling and Analysis of Chemical Process Systems. R.W.H. Sargent Imperial College, UK

Multi-objective Approach for Decision Making for Chemical Engineering Systems. A.W. Westerberg, Carnegie-Mellon U., USA

Application of Graph Theory to Process Design and Analysis. R.S.H. Mah, Northwestern U., USA

Computer Technology for Process Systems Engineering. R.L. Motard, Washington U. USA

Practical Application of Process Systems Engineering to Energy and Resources Conversion and Management. L.T. Fan, Kansas State U., USA

Computer Aided Process Synthesis. T. Umeda, Chiyods Chem. Eng. & Const., Japan

Process Control System Synthesis. G. Stephanopoulos, National Tech. U., Greece

Computer Aided Plant Operation. E. O'Shima, Tokyo Inst. of Tech., Japan

Optimization Strategies for Flexible Chemical Processes. I. Grossman, Carnegie-Mellon U. USA

Flexibility and Resiliency of Process Systems. M. Morari, U. Wisconsin, USA

Design of Multi-product and Multi-purpose Batch Plants. D.W.T. Rippin, E.T.H. Switzerland

Multivariable Process Control. W.H. Ray U. Wisconsin, USA

For more information contact a member of the International Program Committee:
C.M. Crowe (Canada) D.G. Fisher (Canada)
I. Hasimoto (Japan) E. Kunugida (Japan)
C. McGreavy, Leeds U. (UK) R.L. Motard (USA)
M. Naito (Japan) H. Nishimura (Japan)
W.H. Ray (USA) H. Sayama (Japan) G. Stephanopoulos (Greece) T. Umeda (Japan)
L.T. Fan (USA) R.R. Hughes (USA) A. Ickikawa (Japan) R.S.H. Mah (Vice-Chrman USA)
H. Matsuyama (Japan) S. Matsubara (Japan) E. Nakanishi (Japan) E. O'Shima (Japan)
D.W.T. Rippin (Switzerland) R.W.H. Sargent (Vice-CH UK) T. Takamatsu (Chrman) A.W. Westerberg (USA)

AICHE/CIESC Joint Meeting

A session entitled "Computer Applications in Chemical Engineering" will be presented at the AICHE/CIESC Joint Meeting to be held in Beijing (Peking), China, the week of Sept. 19, 1982. Professor J. D. Seader, the AIChE Co-Chairman of the session, reports that the following four papers will be presented by members of AIChE:

"Integration of Stiff Ordinary Differential Equations in Chemical Process Analysis" by W. D. Seider.

"Methods for Solving Partial Differential Equations in Chemical Engineering" by B. A. Finlayson.

"Developments and Applications of Process Simulation" by L. A. Evans.

"Some Recent Developments in Digital Control Algorithms" by T.F. Edgar.

FOCAPD-II

Professor Arthur W. Westerberg of Carnegie-Mellon University and Dr. Henry H. Chien of Monsanto will serve as Chairman and Co-Chairman of the FOCAPD (Foundations of Computer-Aided Process Design) II Conference planned for the summer of 1983. This conference is sponsored by Area 10a.

INSTRUCTIONS FOR ORDERING MICROFICHE AND PAPER COPIES

Microfiche: Order from AIChE headquarters. Available for 1 year after a meeting.

Prices: \$1.50 per fiche for members - \$3.00 per fiche for non-members.

Paper Copies: Can be ordered from AIChE headquarters, 345 East 47th Street, New York NY 10017, during the first six weeks following a meeting. After that time, please place orders with the Engineering Societies Library at same address. Papers not received in time for microfiche are not available from AIChE. For copies of those papers please contact the Author. Prices are based on 15¢ per page. Call AIChE Technical Publications Dept. (212) 644-7657 for more information. Papers are ordered by paper number as they are identified in the meeting program.

PAYMENT MUST ACCOMPANY ALL ORDERS. U.S. ORDERS ARE SENT POSTPAID. PLEASE INCLUDE \$1.00 PER FOREIGN ORDER TO COVER POSTAGE AND HANDLING. ALL SALES ARE FINAL. NO RETURNS ARE ACCEPTED.

Micro-fiche for summer meeting - Detroit
August 16-19, 1981

Session 22 Chemical Engineering in the Manufacture of Computer Components -- I a,b,c,d,e:
Fiche 2

Session 23 Chemical Engineering in the Manufacture of Computer Components -- II a,c,e:
Fiche 31

Session 24 Engineering Productivity and the Computing Environment of the 1980's -- I
c: Fiche 28; d: Fiche 29

Session 25 Engineering Productivity and the Computing Environment of the 1980's -- I
a,c,d,e: Fiche 35

Session 26 Thermodynamic Availability Analysis -- I a: Fiche 22; b,c: Fiche 23

Session 27 Thermodynamic Availability Analysis -- II a,b,d: Fiche 11; c: Fiche 9;
e: Fiche 10

Session 28 Thermodynamic Availability Analysis -- III a,b,c,d: Fiche 29

CAST EXECUTIVE COMMITTEE

Professor Brice Carnahan, Chairman, Ann Arbor,
(313) 764-3366,

Mr. Paul Gallier, First Vice Chairman; MIT,
Cambridge, Massachusetts, (617) 253-5461

Professor David M. Himmelblau, Second
Vice Chairman; University of Texas, Austin
(512) 471-3434

Dr. Joseph F. Zemaitis, Jr., Secretary/
Treasurer; Chem Solve, Morristown, NJ
(201) 540-0291

Professor Richard R. Hughes, Past Chairman;
Engineering Experiment Station, Madison,
(608) 263-1602

Professor G.V. Reklaitis, Director; Purdue,
West Lafayette, Indiana, (317) 749-2604

Dr. Jeffrey J. Sirola, Director; Tennessee
Eastman, Kingsport, (615) 246-2111 X 3069

Mr. Paul J. Horvath, Director; B.F. Goodrich
Chemical, Cleveland, Ohio (216) 524-0200

Mr. Norman E. Rawson, Director; IBM Corp.
Bethesda, Maryland, (301) 897-2399

Dr. Robert E. Harris, Director; Standard of
Ohio, Cleveland, (216) 575-5116

Professor Thomas F. Edgar, Director;
University of Texas, Austin, Texas,
(512) 471-3434

Professor Richard S.H. Mah, Program Board
Chairman; Northwestern University, Evanston,
IL (312) 492-5357

Professor Lawrence B. Evans, AIChE Council
Liason; MIT, Cambridge (617) 253-4580

Dr. Edward Gordon, Newsletter Chairman;
Fluor E&C, Irvine, CA (714) 975-3531

Professor Alan S. Foss, Program Chairman;
University of California, Berkeley,
(415) 642-4526

Professor Warren E. Stewart, Program Chairman;
Chemical Engineering Department, University
of Wisconsin, Madison (608) 262-1092

OTHER MEETINGS

21st National Heat Transfer Conference
July 24-28, 1983. The 21st National Heat
Transfer Conference, Seattle, Wash. For
further information contact Jerry Chiffriker,
AIChE Meetings Dept. 345 E. 47 St., New York,
NY 10017

Pachec III
May 8-11, 1983, The Third Pacific Area
Chemical Engineering Congress, Seoul, Korea,
AIChE Program Coordinator; W. R. Marshall,
College of Engineering, Univ. of Wisconsin,
WARF Bldg. 610 Walnut St., Madison, Wis. 53706

Houston Meeting
March 27-31, 1983. AIChE's Spring 1983
National Meeting and 12th Petrochemical and
Refining Exposition. Astrohall, Houston,
TX. C.L. Leach, Merichem Co. 2210 South
Memorial, Pasadena, Texas 77402.

Los Angeles Meeting

November 14-18, 1982. AIChE's 1982 Annual
Meeting, Los Angeles Bonaventure Hotel.
Prof. Edward Hohmann, Cal. State Poly. Univ.,
Chemical Engineering Dept. 3801 W. Temple
Ave. Pomona, CA 19768.

ICHEM Double Jubilee

October 13-15, 1982 The Double Jubilee of
the Institution of Chemical Engineers, London,
England. AIChE Contact: H.W. Flood, 183
Main St., Acton, Mass.