Computing and Systems Technology Division Communications

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COMMUNICATIONS

Design Institute for Physical Property Data (DIPPR)
by George Thompson

Have you ever looked for vapor pressures of methyl t-butyl ether? The soil/water partition coefficient for benzene? The critical temperatures of a dichloropropane/toluene mixture? Probably not because you belong to the CAST Division of AIChE. Most members of this Division do not seem to be interested in physical properties of chemicals and their mixtures. I know, however, that there are a few physical property people lurking out there in the Division because some of my friends are members. Why? Partly because there is no better alternative in AIChE. The CAST Division at least deals with computers which are very important in physical property work as well as in one of the major uses of physical property data, chemical process simulation computer programs. Wouldn't it be nice if AIChE had an "Engineering Sciences and Fundamentals" Division corresponding to Programming Group 1?

So now you know I am interested in physical properties - more exactly, thermochemical and thermophysical properties. You might as well know that I am also involved with AIChE's Design Institute for Physical Property Data (DIPPR)R one of the Sponsored Research groups. Those people who do know something about DIPPR tend to think of it as just the Data Compilation, which is the oldest and largest of the DIPPR projects. But there is much more! Since I mentioned the Data Compilation, though, I'll tell you that it will contains values for 29 fixed-point and 15 temperature-dependent properties for 1,675 chemicals by the end of 1996. What chemicals? I don't think Peter Rony would let me list all of them, not at least in one issue of CAST Communications, but the important thing is that they are chemicals of interest to industry. What properties? Oh, the usual stuff that textbooks and handbooks give you bad and incomplete values for: boiling points, melting points, critical properties, heats of formation, liquid densities, heat capacities, viscosities, and thermal conductivities, among others. These are not just plain, ordinary values picked up from the nearest book or journal.

These properties have been carefully evaluated and are perhaps some of the most accurate in the world. I had an email note recently from someone at the Hazardous Material Division of the National Oceanic and Atmospheric Administration (NOAA), which supports the Coast Guard's work in cleaning up oil and chemical spills. He says, "Certainly, DIPPR is used and well respected by environmental modelers."

How did "environmental" come up? I am glad you asked. DIPPR has an Environmental, Safety, and Health Data Compilation Project whose purpose is to develop a comprehensive, consolidated database of environmental, safety and health (ESH) properties of chemicals which are regulated by various agencies of the Federal. Government, or are of importance to the chemical industry and to society at large. What do you think about that?

But industry deals with mixtures. How about a computerized or hard-copy database of evaluated data on mixtures? Useful if you want to know about a certain mixture or if you are into some of those exotic-sounding mixing rules like "van der Waals one-fluid" and "local composition". The current version contains over 2,000 mixture/property data sets and it isn't finished yet!

Polymers? We've got 'em! Three projects on them: Handbook of Polymer Solution Thermodynamics, Handbook of Diffusivities and Thermal Properties for Polymer Solutions, and, to start soon, Handbook of Polymer Miscibility and Interfacial Energy Properties. I'm told that it's often easier and less expensive to make polymer blends to get certain properties than it is to try to synthesize fancy new monomers. Of course everyone knows that interfacial energy is what makes adhesives stick. These "handbooks" not only have databases of, guess what, data, but computer programs containing correlations for calculating these properties.

Speaking of predicting, DIPPR also has a general project on development of new prediction
methods using some of the newer "molecular descriptors" such as connectivity indices as
well as other, more complicated ones, calculated using quantum mechanics.

Finally, some of the best experimental work in the world is associated with four
projects: Experimental Data on Mixtures (mostly vapor-liquid equilibrium measurements),
Pure Liquid Vapor Pressure Measurement, Critical Properties of Pure Compounds, and
Determination of Pure Component Ideal Gas Heat of Formation. If you don't know why these
properties are important in process engineering, you probably are not a process engineer.

If you want properties measured on some pure chemical or mixture (but not by tomorrow) or
want access to some of the best property databases in the world, join one of the DIPPR
projects. If you work in industry, there's a good chance your company already belongs.
If it doesn't, it should be obvious from the material above, that it should.

Questions, comments, or "constructive criticism"? Call me at (918) 333-7176, fax me at
(918) 335-3201, or email me at 103427.2114@compuserve.com. You can also find a very
short Web page on the AIChE web site.

How to Contact the AIChE

Taken from the University of Florida AIChE web site, below are given several of the many ways to contact the American Institute of
Chemical Engineers for information.

**"One-stop shopping" for admissions, publication sales, meeting registration, dues bills, and other AlChE products and
services may be obtained from the:**

AIChExpress Service Center
345 East 47 Street
New York, NY 10017-2395
Telephone: 1-800-AIChemE
Fax: (212) 705-8400
E-mail: xpress@aiche.org

For the AIChE Headquarters:

American Institute of Chemical Engineers (AIChE)
345 East 47 Street
New York, NY 10017-2395
General Inquiries: (212) 705-7338
Reprint Sales: (212) 705-7342
Fax: (212) 752-3294
E-Mail: isg@aiche.org.

For answers to special questions, try one of the following staff:

John Bloomer
Staff Director, Educational Services
Telephone: (212) 705-7526
E-Mail: johnb@aiche.org.

Christine Burke
Staff Director, AIChE Foundation
Telephone: (212) 705-7488
E-Mail: chrib@aiche.org.

Bob Perry

Staff Director, Center for Chemical Process Safety
Telephone: (212) 705-7319
E-Mail: bobp@aiche.org.

Joe Cramer
Group Director, Programming
Telephone: (212) 705-7950
E-Mail: terrg@aiche.org.

Rich Larson
Staff Director, Finance
Telephone: (212) 705-7659
E-Mail: richl@aiche.org.

Jeff Lenard
Staff Director, Communications
Telephone: (212) 705-7660
E-Mail: jeffl@aiche.org.

Mary Markette
Staff Director, Customer Service & Administration
Telephone: (212) 705-7499
E-Mail: marym@aiche.org.

Diane McCauley
Staff Director, Member Activities
Telephone: (212) 705-7329
E-Mail: dianm@aiche.org.

Steve Smith
Staff Director, Publications
Telephone: (212) 705-7335
E-Mail: steps@aiche.org.

Marie Stewart
Staff Director, Meetings & Expositions
Telephone: (212) 705-7324
E-Mail: maris@aiche.org.

Jack Weaver
Staff Director, Center for Waste Reduction Technologies
Telephone: (212) 705-7407
E-Mail: jackw@aiche.org.

Gail Nalven
So You Want to Write a Book?
Telephone: (212) 705-7336
Email: gailn@ix.netcom.com

Not sure who to call? Try (212) 705-7338. The receptionist will refer you to the appropriate person.

Announcement: Glenn Taylor Named Executive Director of AIChE

New York -- Glenn E. Taylor, vice president of joint ventures and manufacturing services for Englehard Corporation in Iselin, New Jersey, has been selected to succeed Richard E. Emmert as executive director of the American Institute of Chemical Engineers (AIChE), effective September 1. To ensure a smooth transition of leadership, Emmert will remain on AIChE staff until November 15.

"Glenn Taylors' experience in developing strategies, managing diverse operations, growing businesses, and aligning organizational goals will be crucial as AIChE moves forward with its strategic planning efforts," said Arthur Humphrey, chair of AIChE's search committee.

Taylor has been an AIChE member since 1959 and is currently a member of the Institute's New Jersey Local Section. He joined Englehard in 1982 and, during his tenure with the company, has held positions of increased responsibility, including director of manufacturing, performance minerals; and group vice president and general manager, paper pigments & chemicals group. In his current position, from which he will retire in August, he heads efforts to expand Englehard's markets in East Asia; oversees its joint ventures in Japan and Korea; and has responsibility for corporate purchasing, and, previously, for corporate environmental, health, and safety issues.

Before joining Englehard, Taylor was president of Ventech Controls, Inc., in Pasadena, Texas, a company specializing in the recycling of industrial equipment. Previously, he had spent 20 years with Diamond Shamrock Corporation, where he held a number of engineering and operations management positions in Texas, Ohio, Delaware, New Jersey, Mexico, and Colombia,

A chemical engineering graduate of the University of Texas at Austin (UT) and a registered professional engineer in Texas, Taylor has served on the Visiting Committee for UT's Department of Chemical Engineering.

"His senior-level leadership and his 30-plus-year career is impressive," said Emmert. "His record of achievement makes him well-suited to lead the Institute into the next century."

Founded in 1908, the American Institute of Chemical Engineers (AIChE) is a nonprofit organization providing leadership to the chemical engineering profession. Representing 59,000 members in industry, academia, and government, AIChE provides forums to advance the theory and practice of the profession, upholds high professional standards and ethics, and supports excellence in education.

History in the Information Age: Who Will be Able to Read a High-School CD-ROM Yearbook?
contributed by Jeff Siirola, CAST Programming Chairman

A high school in the Kingsport, Tennessee area announced its 1996 CD-ROM based yearbook.

Think about this achievement for a second, and ask the following question: **Who will be able to read it at their 30th annual reunion?**

Some things remain archival. Paper is archival because you are the sensor, not a machine.

The above question, and its answer, places our current computer technology in perspective. One can inquire, What is AIChE headquarters doing today, and what does it plan to do in the future, to archive its valuable electronic information resources for the year, 2027?

So You Want to Write a Book?
By Gail Nalvent, AIChE

Tired of searching for a publisher. Instead of going outside, think of AIChE as your publisher!

AIChE is seeking to develop a line of professional-level, practical, technical books to meet our members needs. Spearheaded by Gail F. Nalven, the Institute's new acquisitions consultant and editor, the AIChE is looking to develop titles that will help members do their jobs more efficiently in this increasingly competitive world. She has guided

similar titles at McGraw-Hill and Van Nostrand Reinhold and hopes to brings the same type of program to AIChE.

The Practical Engineering Perspectives (PEP) series will launch the program. Edited by Ms. Nalven, this series brings together the best of AIChE publications. The first two volumes, Plant Safety and Plant Operation and Optimization have been published and there are three new volumes in the works, two on environmental issues and one on separations. These titles can be purchased through the AIChExpress Service (1-800-AIChemE).

If you have a idea for a book that you would like to write or edit, or you just have an idea for a book that you would like to see on your self, feel free to contact Ms. Nalven at gailn@ix.netcom.com or leave a message for her at 212-705-7336. Her mail address is AIChE, 345 East 47th Street, New York, NY 10017-2395.

MEETINGS AND CONFERENCES

To submit a paper for consideration at any event listed below, please contact the symposium coordinator or session chair directly. For further information or details about each of the four CAST Division programming areas, contact the appropriate Area Chair as noted in the masthead. For general information concerning CAST Division sessions and scheduling, or to correct errors in this listing, please contact Jeffrey J. Siirola (CAST Division Programming Chair), Eastman Chemical Company, PO Box 1972, Kingsport, TN 37662-5150, 423-229-3069, 423-229-4558 (FAX), siirola@eastman.com. Many of these postings are archived on the World Wide Web at http://www.che.wisc.edu/cast10/.

1997 AIChE Spring National Meeting
Houston, Texas
March 9-13, 1997

Meeting Chair: E. Dennis Griffith, Brown & Root Energy Services, PO Box 4574, Houston, TX 77210-4574, 713-575-4582, 713-575-4321 (FAX), aiche-97snm-mpc@ wl.net.

The CAST Division is planning the following program for the Houston National Meeting which is being cosponsored by the Society for Computer Simulation:

Area 10a: Systems and Process Design

Session 45. Reactive and Catalytic Distillation. Amy R. Ciric, University of Cincinnati (Chair) and Michael F. Malone, University of Massachusetts (Co-Chair).

Session 47. Conceptual Design of Nonideal Distillation Systems - A Tutorial.
Michael F. Malone, University of Massachusetts (Chair) and Michael F. Doherty, University of Massachusetts (Co-chair).

Session 48. Industrial Applications of Residue Curve Maps for Nonideal Distillation. Michael F. Malone, University of Massachusetts (Chair) and Michael F. Doherty, University of Massachusetts (Co-chair).

Session 105. Challenge Problems in Systems and Process Design. Miguel J.
Bagajewicz, University of Oklahoma (Chair) and Gavin Towler, University of Manchester Institute of Science and Technology (Co-Chair).

Sessions 106 and 107. New Technology, Needs, and Opportunities in Process Engineering Software I & II. George Stephanopoulos, Massachusetts Institute of Technology (Chair) and Lionel O'Young, Mitsubishi Chemical Corporation (Co-Chair).

Sessions 108 and 109. Technology Reviews in Process Design and Analysis I & II. Antonis C. Kokossis, University of Manchester Institute of Science and Technology (Chair) and Luke Achenie, University of Connecticut (Co-Chair).

Area 10b: Systems and Process Control

Session 110. Process Control Theory and Applications: Opportunities and Challenges. Charles F. Moore, University of Tennessee (Chair) and Thomas A. Badgwell, Rice University (Co-Chair).

Area 10c: Computers in Operations and Information Processing

Session 104. Industrial Applications of Information and Decision Making Systems. Alan B. Coon, Aspen Technology, Inc. (Chair) and Nikolaos V. Sahinidis, University of Illinois (Co-Chair).

ISA Spring Symposium
New Orleans, Louisiana
April 7-9, 1997

The ISA Spring Symposium for Analysis, Chemical and Petroleum Industries, and Environmental Divisions will be held at the Ponchatrain Convention Center in New Orleans on April 7-9, 1997. Programming topics in the Chemical and Petroleum Industries

Division include real-time optimization and constrained control, multivariable control, nonlinear model predictive control, neural net applications, instrumentation for safety, pH control, and instruments and testing to prevent explosions and fires. For more information, contact ISA Headquarters, Meetings Department, 919-549-8411, http://www.isa.org.

Practical Process Control, 2-day short course
University of Connecticut
March 17-18 and June 23-24, 1997
Professor Douglas Cooper

See advertisement in this issue for additional details.

IFAC Symposium on Computer Aided Control Systems Design (CACSD97)
Gent, Belgium
April 28-30, 1997

Information on this IFAC symposium may be found at www.autoctrl.rug.ac.be/ cacsd97.html.

First European Congress on Chemical Engineering (ECCE 1)
Third Italian Conference on Chemical and Process Engineering (ICheaP 3)
Florence, Italy
May 4-7, 1997

This first of a series of biannual events launched by the European Federation of Chemical Engineering is being organized by the Italian Association of Chemical Engineering (AIDIC). The congress goal is to discuss sustainable and cleaner technologies (raw material and waste minimization, recycling and energy integration, process intensification, integrated manufacturing, bioprocessing and biochemical engineering, process control, and on-line optimization, etc.) including topics in process engineering, equipment and unit operations, process industry, products and materials design and processing, and fundamentals.
Deadlines for abstracts is October 31, 1996. For additional information, contact the AIDIC Secretariat, c/o Ambra Poli, Via Ludovico Muratori 29, 20135 Milano, ITALY, 39-2-551-91025, 39-2-551-90952 (FAX), aidic@ipmch8.chin.polimi.it.

Process Systems Engineering / European Symposium on Computer Aided Process Engineering
(PSE '97 / ESCAPE-7)
Trondheim, Norway
May 26-29, 1997

PSE '97 / ESCAPE-7 is a joint event initiated by the Executive Committee of the Process Systems Engineering Symposium Series and the EFCE Working Party on Computer Aided Process Engineering and is being organized by the Center for Process Systems Engineering at the Norwegian University of Science and Technology. The aim of the symposium is to review the latest developments in Process Systems Engineering and Computer Aided Process Engineering, with emphasis on the use of computers and information technology tools and methods in the design and operation of process industry. The symposium will have both oral presentations and poster sessions in the following areas: design and synthesis; control and operations; modeling and simulation; intelligent systems; and industrial applications and case studies. For further information, contact PSE '97 / ESCAPE-7 Secretariat, Department of Chemical Engineering, Norwegian University of Science and Technology, N-7034 Trondheim, NORWAY, 47-73-59-5714, 47-73-59-4080 (FAX), prescape-97@kjemi.unit.no, http://www. kjemi.unit.no/psescape-97.

1997 American Control Conference
Albuquerque, New Mexico
June 4-6, 1997

The American Automatic Control Council (AACC) will hold the sixteenth American Control Conference (ACC) Wednesday through Friday, June 4-6, 1997 at the Albuquerque Convention Center, Albuquerque, New Mexico. Held in cooperation with the International Federation of Automatic Control (IFAC), this conference will bring together people working in the fields of control, automation, and related areas. Approximately 1000 presentations are expected.

The '97 ACC will cover a range of topics relevant to theory and practical implementation of control and automation. Topics of interest include but are not limited to: robotics, manufacturing, guidance and flight control, power systems, process control, measurement and sensing, identification and estimation, signal processing, modeling and advanced simulation, fault detection, model validation, multivariable control, adaptive and optimal control, robustness, intelligent control, expert systems, neural nets, industrial applications, control engineering education, and computer aided design.

The conference will consist of both invited and contributed presentations. The AIChE Review Chair is Babatunde A. Ogunnaike, Experimental Station, E. I. du Pont de Nemours & Company, PO Box 80101, Wilmington, DE 19880-0101, 302-695-2535, 302-695-2645 (FAX), ogunnaike@esspt0.dnet.dupont.com. For further information, view the AACC homepage at http://web.eecs.nwu.edu/~ahaddad/aacc.html or contact Naim A. Kheir, General Chair ACC97, Department of Electrical & System Engineering, Oakland University, Rochester, MI 48309- 4401, 810-370-2177, 810-370-4633 (FAX), kheir@vela.acs.oakland.edu.

International Symposium on Advanced Control of Chemical
Processes ADCHEM '97
Banff, CANADA
June 9-11, 1997

The ADCHEM '97 meeting will bring together engineers and scientists from universities, R&D laboratories, and the process industries to focus attention on recent advances in the analysis and control of chemical process systems.

The main topics of the meeting include system identification using open and closed loop data, robustness issues, linear and nonlinear model-based control, performance assessment of control loops, process monitoring and fault detection, software sensors, industrial applications in petrochemical, pulp and paper, and metallurgical or other continuous/batch processes, batch process control, real time optimization, adaptive control, multivariate statistical based techniques, neural networks and fuzzy logic systems, and control of discrete event dynamic systems. For further information, see http://www.ualberta.ca/dept/chemeng/adchem.

Fourth International Symposium on Systems Analysis and Computing in Water Quality Management (WATERMATEX 97)
Quebec City, CANADA
June 18-20, 1997

WATERMATEX 97 will take stock of current research in systems analysis, review the strategic achievements of this subject in its application to management of the aquatic environment, and provide a platform for charting some new directions for research in the future. The focus is essentially methodological and includes model calibration and system identification; analysis of uncertainty; ecosystem risk assessment; environmental characterization; field data and system modeling; alternative computational frameworks (classical calculus, qualitative simulation, cellular automata) for knowledge representation and the simulation of environmental systems behavior; forecasting environmental change; quality assurance and policy implications of forecasting environmental change; applications of filtering theory and time-series analysis to environmental systems; groundwater state estimation; decision analysis; mathematical programming and optimization in the planning and management of water quality; applications of process control to wastewater treatment systems; reliability of process operation; and control of microbial ecosystems. For more information, contact Paul Lessard, Department of Civil Engineering, Pavillon Pouliot, University of Laval, Quebec, QC G1K 7P4, CANADA, 418-656-7293, 418-656-2928 (FAX), paul.lessard@gci.ulaval.ca.

Fourth European Control Conference (ECC 97)
Brussels, Belgium
July 1-4, 1997

The European Control Conference will take place from July 1-4, 1997 at the Brussels campus of the Universiti Catholique de Louvain. The European Control Conference is organized every two years with the aim to stimulate contacts between scientists who are active in the area of Systems and Control and to promote scientific exchange within the European community and between Europe and other parts of the world. The scope of the conference includes all aspects of Systems and Control, and ranges from fundamental research to applications in process control and advanced technology. An industry day, with a special focus on industrial control applications, will be organized within the framework of the ECC 97.

Papers and proposals for invited sessions should be sent to the ECC 97 Secretariat, c/o Timshel Conference Consultancy and Management, JB Van Moonstraat 8, B-3000 Leuven, BELGIUM, 32-16-29-00-10, 32-16-29-05-10 (FAX), info@timshel.be. Those who wish to receive the Preliminary Program of the Conference are invited to send an e-mail to the ECC 97 secretariat indicating

their interest and providing their full address. Note that this program will also be sent by e-mail to all the authors submitting a contribution.

Nonlinear Model Based Process Control
Antalya, Turkey
August 10-20, 1997

This NATO Advanced Study Institute is a continuation of a previous event in August 1994 on Methods of Model Based Process Control which convincingly showed that industrial process control would increasingly rely on nonlinear models. Lectures will include nonlinear model predictive control, nonlinear PID controllers, nonlinear process identification and state estimation, geometric methods of nonlinear process control, Newton-type controllers, regularization and control of nonlinear DAE systems, control of multivariable two-time-scale nonlinear systems with disturbances, constraint handling and stability issues, accommodating parametric uncertainty in nonlinear processes, nonlinear adaptive control, and applications in batch/biochemical reactors, pulp and paper processes, and film and sheet forming. Updated information is available at http://www.ankara.edu.tr/science/chemical-eng/psce/natoasi or contact Ridvan Berber, Department of Chemical Engineering, Ankara University, Tandogan, 06100 Ankara, TURKEY, 90-312-221-2425, 90-312-223-2395 (FAX), berber@science.ankara.edu.tr.

Distillation & Absorption '97
Maastricht, Netherlands
September 8-10, 1997

The sixth international conference on Distillation and Absorption is being organized jointly by the Institution of Chemical Engineers and the Nederlands Process Technologen (Dutch Process Engineers). This is the first time that a conference in this well known series is being held in the Netherlands. The Maastricht Exhibition and Conference Centre was selected as the venue for the conference because of its central position, and also because of the area's charm and hospitality.

Colleagues in the fields of research, development and processing will be presenting the newest innovations and latest trends in distillation and absorption. A number of recognized international experts will be giving their views about the future of the field in plenary sessions. There will be an exhibition featuring processes, equipment, software and books running parallel with the conference.

The conference program will address thermodynamics and physical and chemical properties, dynamics and process control, energy and process integration, design methods, absorption and desorption, distillation processes including hybrid processes, and equipment. For more information, contact Tracy Lepkowska, IChemE Conferences Department, 165-189 Railway Terrace, Rugby CV21 3HQ, UNITED KINGDOM, 44-1788-578214 x4220, 44-1788-577182 (FAX), tlepkowska@icheme.org.uk.

CONTROL-97
Sydney, Australia
October 20-22, 1997

"Bringing together industrial and theoretical control advances" is the theme for this biennial conference hosted by the National Committee for Automation Control and Instrumentation of the Institution of Engineers, Australia.

The general aim is to provide a balance between presenting advances in control methodology (theory, design and implementation) and application to major industrial sectors. The technical program will be built around invited plenary speakers, invited tutorial papers, and mini symposia in the areas of process control, petrochemical, power systems, minerals processing, automotive, steel and aluminum, and biomedical. Papers in all theoretical and applied areas are welcome. Deadline for papers is March 21, 1997. For more information, contact International Convention Management Services Pty Ltd, PO Box 547, Manly NSW 2095, AUSTRALIA, 61-2-9976-3245, 61-2-9976-3774 (FAX), control.97@icms.com.au, http://www.ee.usyd.edu.au/~control97/.

1997 AIChE Annual Meeting
Los Angeles, California
November 16-21, 1997

Meeting Program Chair: Dianne Dorland, Department of Chemical Engineering, University of Minnesota Duluth, Duluth, MN 55812-2496, 218-726-7127, 218-726- 6360 (FAX), ddorland@d.umn.edu.

The CAST Division is planning the following sessions at the Los Angeles Annual Meeting which have been approved by the Meeting Program Chair. A final call for papers for this meeting appears later in this issue. Deadline for submission of presentation proposals (electronically only) is March 1 or April 1, 1997 (depending on the Area review procedures). The entire CAST program in Los Angeles is being cosponsored by the Society for Computer Simulation.

CAST Division Plenary Session

1. Recent Developments in Computing and Systems Technology. Michael F. Malone, University of Massachusetts (Chair) and James B. Rawlings, University of Wisconsin (Co-Chair).

Area 10a: Systems and Process Design

1. Design and Analysis. Ka M. Ng, University of Massachusetts (Chair) and Jonathan Vinson, University of Massachusetts (Co-Chair).
2. Process Synthesis. Vasilios Manousiouthakis, University of California Los Angeles (Chair) and Priscilla J. Hill, University of Massachusetts (Co-Chair).
3. Advances in Process Integration. Antonis C. Kokossis, University of Manchester Institute of Science and Technology (Chair) and Mahmoud El-Halwagi, Auburn University (Co-Chair).
4. Reactor System Synthesis and Analysis. Luke Achenie, University of Connecticut (Chair) and Gavin Towler, University of Manchester Institute of Science and Technology (Co-Chair).

Joint Area 10a and Area 10b Session

1. Interaction of Design and Control. Michael L. Luyben, E. I. du Pont de Nemours & Company (Chair) and Michael F. Malone, University of Massachusetts (Co-Chair).

Joint Area 10a and Area 8e Session

1. Process Engineering Applications in Electronic Materials Processing. B. Wayne Bequette, Rensselear Polytechnic Institute (Chair) and Robert F. Hicks, University of California Los Angeles (Co-Chair).

Area 10b: Systems and Process Control

1. Advances in Process Control. Dale E. Seborg, University of California Santa Barbara (Chair) and Dennis D. Sourlas, University of Missouri Rolla (Co-Chair).
2. Nonlinear Control. Masoud Soroush, Drexel University (Chair) and Karlene A. Kosanovich, University of South Carolina (Co-Chair).
3. Applications of Process Control. Thomas A. Badgwell, Rice University (Chair) and Kenneth A. Debelak, Vanderbilt University (Co-Chair).
4. Controller and Process Monitoring. George N. Charos, Amoco Corporation (Chair) and Sheyla L. Rivera, Stevens Institute of Technology (Co-Chair).
5. On-line Dynamic Optimization. Jorge A. Mandler, Air Products and Chemicals, Inc. (Chair) and Oscar D. Crisalle, University of Florida (Co-Chair).
6. Robust Control. Richard D. Braatz, University of Illinois (Chair) and Michael J. Piovoso, E. I. du Pont de Nemours & Company (Co-Chair).

Joint Area 10b and Area 3d Session

1. Control of Particulate Systems. Francis J. Doyle, Purdue University (Chair) and Anthony A. Adetayo, E. I. du Pont de Nemours & Company (Co-Chair).

Joint Area 10b and Area 15c Session

1. Advances in Biosensors and Bioprocess Control. Yuris O. Fuentes, E. I. du Pont de Nemours & Company (Chair) and Robert S. Cherry, Idaho National Engineering Laboratory (Co-Chair).

Area 10c: Computers in Operations and Information Processing

1. Computer Integrated Manufacturing in the Chemical Process Industries (Cosponsored by the International Cooperation Committee of the Society of Chemical Engineers, Japan). Bhavik R. Bakshi, Ohio State University (Chair) and Shinji Hasebe, Kyoto University (Co-Chair).
2. Industrial Applications of Plant and Enterprise-Wide Optimization. Vicky Papageorgaki, Air Products and Chemicals, Inc. (Chair) and Alan B. Coon, Aspen Technology, Inc. (Co-Chair).
3. High Performance Computing in Chemical Process Engineering. Mark A. Stadtherr, University of Notre Dame (Chair) and Thanos Tsirukis, Air Products and Chemicals, Inc. (Co-Chair).
4. Computer-Aided Strategic Decision Making in the Supply Chain. Nikolaos V. Sahinidis, University of Illinois (Chair) and Patrick McCroskey, Dow Chemical Company (Co-Chair).

Joint Area 10c and Area 4a Session

1. Engineering Multimedia for the Classroom. David B. Greenberg, University of Cincinnati (Chair) and Susan M. Montgomery, University of Michigan (Co-Chair).

Joint Area 10c and Area 15a Session

1. Computational Methods in the Food Processing Industry. Steve Lombardo, The Coca Cola Company (Chair) and Joseph F. Pekny, Purdue University (Co-Chair).

Area 10d: Applied Mathematics and Numerical Analysis

1. Nonlinear Dynamics and Pattern Formation. Vemuri Balakotaiah, University of Houston (Chair) and Hsueh-Chia Chang, University of Notre Dame (Co-Chair).
2. Chemical Engineering Applications of Stochastic Processes. Doraiswami Ramkrishna, Purdue University (Chair) and Kyriakos Zygourakis, Rice University (Co-Chair).
3. Parallel Computing Applications in Chemical Engineering. Antony N. Beris, University of Delaware (Chair) and Jeffrey J. Derby, University of Minnesota (Co-Chair).
4. Discretization Methods in Computational Strategies for Chemical Engineering Applications. Pedro Arce, FAMU/FSU College of Engineering (Chair) and Andrew N. Hrymak, McMaster University (Co-Chair).

Joint Area 10d and Area 8a Sessions

1-2. Polymer Processes and Rheology.

Joint Area 10d and Area 15d/e Session

1. Applied Mathematics in Bioengineering. Sriram Neelamegham, Baylor College of Medicine (Chair) and Paul D. Frymier, University of Tennessee (Co-Chair).

CAST DIVISION POSTER SESSION

Section A. Recent News in Systems and Process Design. Michael L. Mavrovouniotis, Northwestern University (Chair) and Amy R. Ciric, University of Cincinnati (Co-Chair).
Section B. Topic and chairs to be chosen from one of the previous Area 10b sessions.
Section C. Statistical Aspects of Process Operations and Information Processing. Karen Yin, University of Minnesota Duluth (Chair) and Scott E. Keeler, DowElanco (Co-Chair).
Section D. Advances in Applied Mathematics. Kyriakos Zygourakis, Rice University (Chair) and Pedro Arce, FAMU/FSU College of Engineering (Co-Chair).
Section E. Demonstrations of Software for Process Control Education. Douglas J. Cooper, University of Connecticut (Chair).

EDUCATIONAL COMPUTER SOFTWARE DEMONSTRATIONS (Joint Effort with Group 4).
Douglas J. Cooper, University of Connecticut (Coordinator) and John T. Bell, University of Michigan (Coordinator).

1998 AIChE Spring National Meeting
New Orleans, Louisiana
March 8-12, 1998

Meeting Chair: George R. Lappin, Albemarle Corporation, PO Box 14799, Baton Rouge, LA 70898, 504-768-6181, pvcb99a@prodigy.com.

The CAST Division is planning the following program for the New Orleans National Meeting. AIChE and the Meeting Program Chair will finalize the sessions at the 1997 Programming Retreat in February, and any corrections will appear in the next issue of CAST Communications. A first call for papers for this meeting appears later in this issue. Deadline for submission of presentation proposals is expected to be August 1, 1997. The entire CAST program in New Orleans is being cosponsored by the Society for Computer Simulation.

Area 10a: Systems and Process Design

1. Design for Retrofit. Miguel J. Bagajewicz, University of Oklahoma (Chair) and Metin Turkay, Rutgers University (Co-Chair).
2. Practical Approaches to Process Design. Mahmoud El-Halwagi, Auburn University (Chair) and Srinivas K. Bagepalli, General Electric Company (Co-Chair).
3. Tutorials in Batch Process Design and Operations. Urmila M. Diwekar, Carnegie Mellon University (Chair) and Russel F. Dunn, Monsanto Chemical Company (Co-Chair).

Area 10b: Systems and Process Control

1. Model Predictive Control. Michael A. Henson, Louisiana State University (Chair) and Martin Pottmann, E. I. du Pont de Nemours & Company (Co-Chair).
2. Applications of Process Control. Michael A. Henson, Louisiana State University (Chair) and Robert E. Young, Exxon Chemical Company (Co-Chair).

Area 10c: Computers in Operations and Information Processing

1. Industrial Applications of Optimization. Urmila M. Diwekar, Carnegie Mellon University (Chair) and Scott E. Keeler, DowElanco (Co-Chair).
2. Tutorial/Survey of Issues in Process Operations. Bhavik R. Bakshi, Ohio State University (Chair) and Matthew H. Bassett, DowElanco (Co-Chair).

Dynamics and Control of Processes (DYCOPS '98)
Corfu, Greece
May 25-27, 1998

This IFAC conference was formerly known as DYCORD+, Dynamics and Control of Reactors, Distillation Columns, and Batch Processes. For preliminary information and deadlines, contact the international program committee chair Christos Georgakis, Chemical Process Modeling and Control Research Center, Lehigh University, Bethlehem, PA 18015-4781, 610-758-5432, 610-758-5297 (FAX), cg00@ns.cc.legigh.edu.

European Symposium on Computer Aided Process Engineering (ESCAPE 8)
Ostend-Bruges, Belgium
May 31 - June 3, 1998

The 1998 ESCAPE event will be held in Ostend, a city on the North Sea coast of Belgium. A social event will be held in the famous city of Bruges which is within a short distance of Ostend. The symposium will focus on recent developments requiring substantial computer power and on new challenges in the more traditional topics of the ESCAPE meetings. Focus topics include molecular dynamics and modeling in process design, use of computational fluid dynamics in process modeling, integration of processes on an industrial site, on line management of process operations, and industrial applications and case studies.
For more information, contact the conference secretariat Rita Peys, Desguinlei 214, B-2018 Antwerp 1, BELGIUM, 32-3-216-0996, 32-3-216-0689 (FAX), escape8@ ti.kviv.be.

1998 American Control Conference
Philadelphia, Pennsylvania
June 24-26, 1998

The American Automatic Control Council will hold the seventeenth ACC at the Adam's Mark Hotel, Philadelphia, June 24-26, 1998. Held in cooperation with the International Federation of Automatic Control, this conference will bring together people working in the fields of control, automation, and related areas. Presentations will be both invited and contributed. The AIChE Review Chair will be B. Wayne Bequette, Department of Chemical Engineering, Rensselaer Polytechnic Institute, Troy, NY 12180-3590, 518-276-6683, 518-276- 4030 (FAX), beueb@rpi.edu. The deadline for contributed papers is September 15, 1997. For further information, see http://www.ece.nwu.edu/~ahaddad/aacc.

Third International Conference on Foundations of Computer-Aided Process Operations
(FOCAPO-98)
Snowbird, Utah
July 5-10, 1998

The Foundations of Computer-Aided Process Operations Conference will be the third in a series of conferences dealing with the use of computers in support of process operations. Since the first two FOCAPO conferences in 1987 and 1993, there has been an enormous increase in interest in improving the efficiency and effectiveness of process operations. Given the likely continuation of this trend, FOCAPO-98 will bring together operations personnel, management, and researchers for a comprehensive look at the state of the art in computer-aided process operations, a discussion of strategies important to thriving in an environment of continuous change and rapidly advancing technology, and the important challenges to be overcome. The conference will provide a forum for operations personnel to share their experiences emphasizing presentations describing technology that is being reduced to practice or is likely to be in the next five years, provide an opportunity for industrial practitioners, academics, and vendors to interact, and hopefully motivate future research by describing problems that are intractable or expensive to solve with existing approaches.

Principal conference topics and issues will include plant-wide optimization, pilot and semi-plant operations, multiproduct plants, product integrity and risk management, environmental issues, continuous improvement, supply-chain management, and biological processes. Core enabling technologies to be discussed include optimization methods, planning/scheduling, process control as a tool for achieving high level operations objective, knowledge-based systems/neural networks, simulation software, information technology, probability and statistics, computer interfaces/software issues, on-line instrumentation/process monitoring, and abnormal/exceptional situation management. For more information, contact the conference chairs Gary E. Blau, DowElanco, 9330 Zionsville Rd, 317-337-3137, 317-337-3215 (FAX), gblau@ dowelanco.com or Joseph F. Pekny, School of Chemical Engineering, Purdue University, West Lafayette, IN 47907-1283, 317-494-7901, 317-494-0805 (FAX), pekny@ecn.purdue.edu.

1998 AIChE Annual Meeting
Miami Beach, Florida
November 15-20, 1998

Meeting Program Chair: Stanley I. Sandler, Department of Chemical Engineering, University of Delaware, Newark, DE 19716, 302-831-2945, 302-831-4466 (FAX), sandler@che.udel.edu.

The CAST Division is considering the following programming topics for the Miami Beach Annual Meeting. AIChE and the Meeting Program Chair will finalize the sessions at the 1997 Programming Retreat in February, and the approved program will appear in the next issue of CAST Communications. Deadline for submission of presentation proposals is expected to be March 1 or April 1, 1998 (depending on the Area review procedures). The entire CAST program in Miami Beach is being cosponsored by the Society for Computer Simulation.

Recent Developments in Computing and Systems Technology.
Process Synthesis.
Design and Analysis.
Process and Product Design.
Design for Polymer Production and Processing.
Batch Processing.

Design for Operability and Flexibility.
Distillation with Chemical Reaction.
Process Control Applications.
Process and Controller Performance Monitoring.
Batch Process Control.
Nonlinear Control.
Plant-wide Control.
State and Parameter Estimation.
Recent Advances in Process Control.
Data-driven Approaches to Process Control.
Modeling and Control of Particulate Systems.
Design and Control of Microelectronics Manufacturing Processes.
Computer Integrated Manufacturing in the Chemical Process Industries.
Advances in Optimization.
Uncertainty and Risk in Process Operations and Monitoring.
High Performance Computing.
Computational Mixing in Process Operations.
Computational Methods in the Food Processing Industry.
Population Balances and Applications.
Nonlinear Dynamics.
Integral and Spectral Methods.
Parallel Computing Applications.
Applied Mathematics in Materials Processing.
Mathematical Modeling in Cellular Engineering.
Recent Developments in Systems and Process Design (Poster Session).
Topics in Process Operations and Information Processing (Poster Session).
Advances in Applied Mathematics (Poster Session).
Demonstrations of Software for Process Control Education (Poster Session).
Educational Computer Software Demonstrations.

CALL FOR PAPERS

Final Call for CAST Sessions
1997 AIChE Annual Meeting
Los Angeles, California
November 16-21, 1997

The names, addresses, and telephone numbers of the session chairs are given on the next several pages, as are brief statements of the topics to receive special emphasis in selecting manuscripts for these sessions. Prospective session participants are encouraged to observe the deadlines which have been established, but may be changed, by the Meeting Program Chair, Dianne Dorland. A complete call for papers for all sessions at this meeting may be accessed at http://www.aiche.org/meeting/1997/annual/cfp/.

AIChE is currently soliciting electronic submission of proposals-to-present via email or the World Wide Web. To submit via the web, access http://www.aiche.org. For information and instructions about submitting via email, send the following message to listproc@www.aiche.org:

    get annual97 ptp_general
    get annual97 ptp_form
    get annual97 ptp_instructions

When submitting electronically, make note of the unique session number which will be provided for each session title below. Email submissions must be sent directly to listproc@www.aiche.org. Do not send proposals-to-present to the session chair email addresses.

SPECIAL NOTE TO AUTHORS SUBMITTING ABSTRACTS FOR ANNUAL MEETING SESSIONS SPONSORED BY CAST AREAS 10A, 10B, and 10C:

Because of the large number of anticipated presentation proposals for annual meetings and the limited symposia space available, and in order to maximize the number of good proposals that can be accepted and generally improve programming quality, all proposals for Fall 1997 programming in CAST Areas 10a, 10b, and 10c must be submitted to AIChE ONE MONTH EARLIER than the generally published deadline in order to accommodate the Division Review process. Please note that CAST Area 10d and CAST sessions cosponsored with other AIChE programming groups DO NOT participate in the Division Review process, and therefore remain governed by the standard deadline.

CAST Division Review Procedure for Areas 10a, 10b, and 10c:

1. Abstracts will receive anonymous reviews by three or four session chairs and/or co-chairs and/or the Area Chair and Vice-Chair, for technical content, novelty and style. Submissions may be shifted between sessions or other CAST areas as appropriate.

2. Each area will sponsor one section of the Division Poster Session. Some areas may develop a topical theme for their section while others may have a more general scope to accommodate late news. Unless directed otherwise by the author, all proposals will be considered for both symposium and poster sessions.

Los Angeles Meeting Deadlines:

March 1, 1997 (10a, 10b, and 10c): Submit a proposal-to-present including abstract to AIChE via email to listproc@www.aiche.org or via Web access at http://www.aiche.org.

April 1, 1997 (10d, and sessions cosponsored with other programming groups): Submit a proposal-to-present including abstract to AIChE via email to listproc@www.aiche.org or via web access at http://www.aiche.org.

May 1, 1997: Session content finalized and authors informed of selection.
Authors of accepted proposals may update abstracts electronically.

September 10, 1997: Authors submit final manuscript to AIChE.

November 16, 1997: Speakers bring 60 hard copies of visual aids to be distributed to the audience at the presentation. (This is a CAST Division policy, intended to improve the quality of the presentations and the benefit to the audience.)

Please note that there is an AIChE limitation that no person may author or co-author more than four contributions at any one meeting nor more than one contribution in any one session.

Authors submitting by the above deadlines will be notified of decisions on acceptance as close to May 1 as the schedules of the reviewers, session chairs, the Meeting Program Chair, and AIChE permit. Abstracts of accepted proposals will be available on the Web for public browsing approximately one month before the meeting.

CAST Division Plenary Session

1. Recent Developments in Computing and Systems Technology.

Plenary papers describing recent advances, and new challenges in each of the CAST areas (Systems and Process Design, Systems and Process Control, Computers in Operations and Information Processing, and Applied Mathematics and Numerical Analysis) will be invited by the CAST programming board. The papers are intended to be accessible to a wide audience with interests in any and all of the CAST areas. It is anticipated that this session will be scheduled on Monday morning and that no other CAST sessions will be scheduled in parallel in order to facilitate the broadest possible communication.

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Area 10a: Systems and Process Design

NOTE: THE FOLLOWING SESSIONS PARTICIPATE IN THE CAST DIVISION REVIEW PROCESS.

1. Design and Analysis.

Papers are solicited on recent developments in process design and analysis.
Areas of interest include, but are not limited to, new process modeling methodologies, design and analysis of integrated continuous and/or multipurpose plants and tightly coupled process sub-systems, techniques for the design of specific units, design under uncertainty, use of molecular structure and properties in design, techniques to analyze the operability (flexibility, controllability, reliability) of process plants, design and analysis of novel separation systems, and design for waste minimization.
Design methodologies based on short-cut design methods, conceptual design applications, and algorithmic approaches are welcome. Industrial process applications are particularly encouraged.

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2. Process Synthesis.

This session will address all aspects of process synthesis including heuristic strategies, conceptual approaches, methodologies, mathematical programming approaches, etc. Since choosing between process alternatives involves taking process economics, environmental regulations, controllability, and safety issues into consideration, papers in all these areas are welcome. Also, these papers may focus on current problems or on future trends and challenges in process synthesis research.

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3. Advances in Process Integration.

Papers are solicited related to recent developments in process integration.
The contributions can be new approaches or industrial applications and are expected to demonstrate useful and efficient methods in the context of process design and optimization of chemical processes. The contributions can address grassroots or retrofit problems. The area of application is open.
Examples include overall plant efficiency, yield enhancement, energy conservation, and pollution prevention. Priority will be given to papers that are systematic in nature and can be applied to a wide variety of chemical process industries.

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Co-Chair
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4. Reactor System Synthesis and Analysis.

There has been considerable recent progress in the design of systems for carrying out chemical reactions. This session will address all aspects of reactor system design, including algorithmic design of reactor networks, graphical and artificial intelligence approaches to reactor design, design of combined reaction-separation processes such as reactive distillation, design of multi-phase reactors, etc. Whenever possible, industrial success stories should be reported.

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Joint Area 10a and Area 10b Session

NOTE: THE FOLLOWING SESSION PARTICIPATES IN THE CAST DIVISION REVIEW PROCESS.

1. Interaction of Design and Control.

This session focuses on the general topic of the interaction between process design and process control. Poor control of a chemical process can sometimes be the result of limitations in the plant design. Significant improvements in dynamic process controllability can often be achieved at the design stage by examining issues such as disturbance rejection, startup/shutdown, and variable grade/rate production. Both industrial and academic papers are sought which address the problem of incorporating controllability and operability into the process design (general procedures, methodologies, tools, case studies, etc.).

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Joint Area 10a and Area 8e Session

1. Process Systems Engineering Applications in Electronic Materials Processing.

Papers are solicited which describe process systems engineering applications in electronic materials processing. Papers that include industrial or practical implementation issues and experimental results are especially encouraged. Topics of interest include (but are not limited to): novel measurement techniques, model development, simulation, optimization, process monitoring, and intelligent or model-based control.

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Area 10b: Systems and Process Control

NOTE: THE FOLLOWING SESSIONS PARTICIPATE IN THE CAST DIVISION REVIEW PROCESS. ONE OF THE FOLLOWING TOPICS WILL BE DEVELOPED INTO THE AREA 10B SECTION OF THE CAST DIVISION POSTER SESSION.

1. Advances in Process Control.

All interested persons are invited to submit papers that address recent advances in the area of chemical process control. Priority will be given to papers that present new theoretical results, innovative strategies, new applications and new problem areas. Prospective authors are required to clearly state the contribution of their work to the advancement of the current state of knowledge in the field. The topic and research area is open, although prospective authors are strongly discouraged to submit papers that would be better suited for presentation in one of the other sessions sponsored by the Area 10b of CAST.

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2. Nonlinear Control.

Contributions are sought in the general area of nonlinear control. Papers presenting new theoretical and/or application results are solicited. Areas of interest include, but are not limited to model predictive control, differential geometric control, adaptive control, robust control, and nonlinear dynamic analysis of control systems.

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Co-Chair
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3. Applications of Process Control.

This session will focus on applications of process control theory to the solution of industrial control problems. Its purpose is to highlight the progress being made in applying modern control technology to improve process operations in the chemical process industries. We are soliciting papers that demonstrate how industry has benefited from applying modern control technology and/or present current industrial challenges that are not addressed adequately by existing control methods. The session will include a small number of overview papers from invited speakers from industry and academia and a larger number of submitted papers.

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4. Controller and Process Monitoring.

The focus of this session is on the theoretical and application studies related to control system performance monitoring and process performance monitoring and diagnosis. It covers the methods to ensure process safety, high product quality, process operability, optimum process performance, economic viability, and process profitability. Industrial implementations are particularly welcome. Topics include but are not limited to multivariate statistical methods, neural networks, process chemometrics, fuzzy logic, artificial intelligence for monitoring and diagnosis, and statistical process control.

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5. On-line Dynamic Optimization.

Papers are sought on the formulation, implementation, and/or solution of on-line dynamic optimization problems. Both theoretical and practical contributions are being solicited; all submissions must demonstrate the relevance to chemical engineering applications. Preference will be given to submissions that include a real-time deployment strategy; that include either a dynamic or a static process model; that involve the optimization of specific functionals (including cost and other measures of performance, safety margins, etc.); and that take into account process constraints. In particular, papers are sought that involve real-time optimization approaches for systems described by non-linear differential algebraic equations or other appropriate models, and that invoke solution techniques such as linear and nonlinear programming, variational optimization, response-surface analysis, ridge regression, etc. Applied works that make use of effective ad-hoc methods validated in experimental facilities or through extensive simulations are also requested.

Works should provide specific information on such topics as selection of optimization variables, selection and updating of specific model parameters, coordination with plant scheduling, and implementing results via multivariable process control. Submissions concerning predictive control schemes should address a problem of chemical engineering relevance; the submission of theoretical results of convergence stability, and algorithmic properties of predictive controllers are discouraged.

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6. Robust Control.

This session covers topics in which model uncertainty is explicitly addressed within the controller design procedure. Papers highlighting novel approaches, industrial experience, or comparisons between theoretical predictions and experimental observations are especially welcome. Some areas of interest include, but are not limited to quantifying model uncertainty based on plant input-output data and/or physical considerations, formulations for addressing model uncertainty in systems with constraints and nonlinearities (e.g., robust model predictive control), controller design for tolerance to model uncertainty and potential actuator/sensor faults and failures, computational difficulties associated with robustness analysis and/or synthesis, and real time applications to industrial scale processes.

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Joint Area 10b and Area 3d Session

1. Control of Particulate Systems.

Contributions are sought describing work in the areas of measurement, modeling, and control of particulate processes. Subjects of particular interest are: population balance modeling, advanced measurement technology (including, but not limited to, optical methods), model-based control studies, and experimental studies in particle size control. Presentations of industrial experiences with particle size control and critical discussions of limitations/advantages of current approaches are also welcomed. Abstract should summarize the scope of the work, the methodology employed, and significant conclusions and accomplishments.

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Joint Area 10b and Area 15c Session

1. Advances in Biosensors and Bioprocess Control.

Contributions are solicited for presentations describing novel biosensor development and implementation of novel control strategies for bioreactors. Fundamental or applied papers in any area such as biomedical, pharmaceutical, food, or environmental are invited and are not limited to the following suggested topics. Control approaches based on reverse engineering of biological control systems (at the level of either metabolism or the whole organism) are solicited. We are also interested in sensors and data interpretation systems that provide or use on-line information about the number and physiological status of microorganisms in complex environments, for instance mixed populations. This includes detection of isolated organisms such as food pathogens or deep subsurface microbes as well as monitoring of large populations. We are also soliciting papers on sensing and control in alternative bioreaction systems such as food processing, biofilms, composting, or in-situ bioremediation.

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Area 10c: Computers in Operations and Information Processing

NOTE: THE FOLLOWING SESSIONS PARTICIPATE IN THE CAST DIVISION REVIEW PROCESS.

1. Computer Integrated Manufacturing in the Chemical Process Industries (Cosponsored by the International Cooperation Committee of the Society of Chemical Engineers, Japan).

Contributions are sought describing methodological developments, implementations, and experiences with all aspects of CIM in the process industries. Subjects of particular interest include integration of application areas such as plant information systems, monitoring, diagnosis, control, scheduling, planning, optimization, and design, as well as developments within application areas themselves that focus on integration issues. Presentations of industrial experiences with CIM technology and critical discussions of limitations/advantages of current approaches are also welcomed.

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2. Industrial Applications of Plant and Enterprise-Wide Optimization.

Papers are solicited which describe the application of methods for plant-wide or enterprise-wide optimization in industrially significant contexts.
Application areas of interest include, but are not limited to on-line optimization, planning and scheduling, feedstock selection, etc. Papers which describe the integration of optimization strategies across multiple functional areas or levels (for example, integration of on-line optimization with advanced and regulatory control) are also solicited. Papers dealing with actual industrial applications are encouraged.

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3. High Performance Computing in Chemical Process Engineering.

Impressive gains in computer hardware technology, including the widespread availability of parallel and vector processing architectures, as well as recent advances in the enabling software technology, are making possible today the solution of large-scale, realistically modeled chemical process engineering problems, even in a real-time environment. Papers are sought that describe: (i) novel numerical algorithms and codes that promote the use of high performance computing in process engineering, and (ii) applications of high performance computing technology and techniques to solve large-scale process engineering problems, including process simulation, on-line and off-line optimization, and control. Industrial applications are particularly welcome.

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4. Computer-Aided Strategic Decision Making in the Supply Chain.

Papers are invited to address issues in the development and implementation of computer-aided tools for strategic decision making in the supply chain. Topics of interest include location and sizing of facilities, production planning and scheduling, distribution of products and services in the process industries, as well as methodologies and applications to problems that span the gamut of supply chain management. We will consider new problem representations, mathematical and heuristic solution approaches, and novel software tools. Of particular interest are case studies that demonstrate how industry can benefit from the study of these problems.

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Joint Area 10c and Area 4a Session

1. Engineering Multimedia for the Classroom

We seek challenging and innovative approaches to presentations in the classroom: special courseware, hardware, software, interactive computation, CD-ROMs, etc.

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Joint Area 10c and Area 15a Session

1. Computational Methods in the Food Processing Industry.

There has been an explosion of new food and beverage products in recent years.
As a result processors are constantly looking for methods to maximize the flexibility and agility of new and existing manufacturing facilities. To aid in the prioritization of potential improvements and assessment of new technologies, they are applying computer modeling tools to evaluate costs/benefits. Simulation, scheduling, and design software are being employed to optimize manufacturing layouts, material flows, and task sequencing. The food process industry, and innovative academic and industrial research which could lead to new areas of opportunity in the future.

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Area 10d: Applied Mathematics and Numerical Analysis

1. Nonlinear Dynamics and Pattern Formation.

Papers are sought on nonlinear spatio-temporal patterns in chemical systems.
Of specific interests are reaction-diffusion systems, wave dynamics, mixing kinematics and fluid dynamics and dynamics of systems under control.
Experimental, computational and theoretical papers are all welcomed.

Session Chair
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2. Chemical Engineering Applications of Stochastic Processes.

This symposium will focus on applications of probabilistic concepts to continuous and discrete models of chemical engineering systems. Topics of interest include (but are not limited to) chemical reaction models, percolation processes and population balance models.

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3. Parallel Computing Applications in Chemical Engineering.

Topics of interest include (but are not limited to) applications of parallel computing to fluid mechanics, transport phenomena, process control, molecular dynamics, Monte Carlo techniques etc. Emphasis will be given on new solution methodologies motivated by the availability of parallel computers.

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4. Discretization Methods in Computational Strategies for Chemical Engineering Applications.

The availability of high performance computers and the always pressing need to solve very challenging problems in chemical and other engineering applications offer a very fruitful combination for the development of new and improved strategies in a variety of problems that until recently were difficult to tackle. These may include, for example, applications of transport phenomena and fluid mechanics to material design and processing, environmental, and bioengineering cases. Furthermore, experimental techniques nowadays make it very appealing to have a detailed description of the physical and/or chemical process at the molecular level. This session offers a forum to discuss new advances or improved alternatives to more classical approaches in the development of computational algorithms where the discretization of the differential model and/or the domain of the system plays an important role in the solution of the problem. Contributions from continuum mechanics and molecular approaches in conjuction with sequential or masssively parallel processors are welcome. Interested contributors are encouraged to contact the session chair or co-chair to discuss their contribution.

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Joint Area 10d and Area 8a Sessions

1-2. Polymer Processes and Rheology I and II.

Prospective authors are invited to submit proposal to present forms and abstracts for these jointly-sponsored sessions in care of Area 8a.

Joint Area 10d and Area 15d/e Session

1. Applied Mathematics in Bioengineering

The fields of bioengineering and biotechnology have witnessed the increased application of advanced mathematical methods to data analysis and model building. These advances include robust correlation methods in data analysis, cybernetic model development, reflex circuitry modeling using control principles, parameter estimation in biophysical models, fluid-mechanical models of drug delivery devices, mathematical modeling of microbial transport and environmental interactions, combinatorial methods in genetic engineering, and pharmacokinetic modeling applications. Proposals are solicited which address the general theme of applied mathematics in bioengineering, with special emphasis on experimental results and computational simulation results.

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CAST DIVISION POSTER SESSION

Section A. Recent News in Systems and Process Design.

Posters describing recent original results of interest in the area of process design are solicited. In order to accommodate late-breaking news, submissions will be accepted up until September 1, 1997, although earlier submissions are helpful and welcome. Accepted proposals submitted by the advanced deadline of March 1, 1997 will appear in the printed meeting program.

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Section B. Topics in Systems and Process Control.

One of the topical areas previously outlined in the Area 10b call for papers above will be selected for this section of the CAST Poster Session.

Section C. Statistical Aspects of Process Operations and Information Processing and Process Monitoring, Operation, and Control: Methodology, Applications, and Education.

This poster session is meant to demonstrate both the wealth of statistical tools available to the industrial practitioner, and the significant impact the application of these tools can have on the bottom line. Posters discussing theoretical developments and/or industrial applications of statistics in process operations and information processing are sought. Topics may include but are not limited to decision support systems, process chemometrics, on-line statistical process control, process performance monitoring and diagnosis, dynamic model identification, process optimization, process fault detection and classification, quality management and safety, and applied statistics and chemical engineering education. Industrial applications are particularly welcome.

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Section D. Advances in Applied Mathematics.

Posters describing recent original results of interest in the areas of applied mathematics and numerical analysis are solicited. In order to accommodate late-breaking news, proposals will be accepted up until September 1, 1996, although earlier submissions are helpful and welcome. Accepted proposals submitted by the normal deadline of April 1, 1996 will appear in the printed meeting program.

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Section E. Demonstrations of Software for Process Control Education.

Section Chair
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EDUCATIONAL COMPUTER SOFTWARE DEMONSTRATIONS (Joint Effort with Group 4)

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First Call for CAST Sessions
1998 AIChE Spring National Meeting
New Orleans, Louisiana
March 8-12, 1998

The names, addresses, and telephone numbers of the session chairs are given on the next several pages, as are brief statements of the topics to receive special emphasis in selecting manuscripts for these sessions. Prospective session participants are encouraged to observe the deadlines which have been established, but may be changed, by the Meeting Program Chair, George Lappin.
A complete call for papers for all sessions at this meeting may be accessed at http://www.aiche.org/meeting/1998/spring/cfp/.

AIChE is currently soliciting electronic submission of proposals-to-present via email or the World Wide Web. To submit via the web, access http://www.aiche.org. For information and instructions about submitting via email, send the following message to listproc@www.aiche.org:

   get spring98 ptp_general
   get spring98 ptp_form
   get spring98 ptp_instructions

When submitting electronically, make note of the unique session number which will be provided for each session title below. Email submissions must be sent directly to listproc@www.aiche.org. Do not send proposals-to-present to the session chair email addresses.

New Orleans Meeting deadlines:

August 1, 1997: Submit a proposal-to-present including an abstract to AIChE via email to listproc@www.aiche.org or via Web access at http://www.aiche.org.

October 1, 1997: Session content finalized authors informed of selection.
Authors of accepted proposals may update abstracts electronically.

February 8, 1998: Authors submit final manuscript to AIChE.

March 8, 1998: Speakers bring 60 hard copies of visual aids to be distributed to the audience at the presentation. (This is a CAST Division policy, intended to improve the quality of the presentations and the benefit to the audience.)

Please note that there is an AIChE limitation that no person may author or co-author more than four contributions at any one meeting nor more than one contribution in any one session.

Authors submitting by the above deadlines will be notified of decisions on acceptance as close to October 1 as the schedules of the session chairs, the Meeting Program Chair, and AIChE permit. Abstracts of accepted proposals will be available on the Web for public browsing approximately one month before the meeting.

Area 10a: Systems and Process Design

1. Design for Retrofit.

Technological developments and changing economic structure of the chemical industry forces the existing chemicals productions systems to be re-designed.
One class of retrofit projects involves changes, additions and removal of equipment within a system to conform with environmental regulations, prevent pollution, reduce the energy cost of the systems or improve the overall economics. Another large class of retrofit problems is the debottlenecking of plants to increase capacity. These retrofits can also be accompanied with the aforementioned measures to improve energy efficiency and compliance with regulations. Additionally, plants are subject to modifications to improve controllability, operability, and flexibility. This session will focus on the practical approaches, new trends and new methods in the area of design for retrofit. Topics of special interest include tools and design packages for retrofit design, case studies and techniques. Industrial case studies were systematic approaches have been tested are especially encouraged to be submitted.

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2. Practical Approaches to Process Design.

Over the past two decades, significant progress has been made in developing systematic techniques for process design. In addition to their systematic nature, they have also gained industrial applicability. Examples of such approaches include energy integration, mass integration, scheduling, design of non-ideal separations, reaction systems and batch processing. The focus of this session is to provide an overview of the state of the art of these approaches and illustrate their industrial applicability. The presentations may be in the form of tutorials, review papers or new contributions.
Presentations may target design techniques for retrofit as well as grass-root design scenarios.

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3. Tutorials in Batch Process Design and Operations

Sudden increase in the production of high-value-added, low volume specialty chemicals and biochemicals in recent years have generated a renewed interest in batch processing technology. The most outstanding feature of a batch process is its flexibility. However, it is this flexibility and the unsteady state nature of operation which pose challenging design and operations problems. In view of the practical importance and in response to industrial needs for chemical engineers with a strong background in batch processing, more and more educational institutions are redesigning their curricula to include courses devoted to the subject. From both academic and industrial standpoints, therefore, a session dedicated to tutorials in batch process design and operations is of much significance, which is the motivation for the present undertaking. This session will focus on the issues related to design, operations and scheduling of batch plants. This session seeks papers dealing with all aspects of the design of batch processes including retrofit, trade-offs between design and operations, design under uncertainty, industrial case studies, new design strategies and methodologies etc. Also of interests are the topics related to sequencing and scheduling of batch plants such as resource-constrained scheduling, production planning, scheduling and planning in the face of uncertainties, and methodologies for scheduling.

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Area 10b: Systems and Process Control

1. Model Predictive Control.

Papers focusing on the development, analysis, and application of model predictive control systems are solicited. Experimental studies and contributions from industry are especially encouraged.

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2. Applications of Process Control.

Papers focusing on the application of advanced process control strategies are solicited. Applications to novel process systems and experimental studies are especially encouraged. Papers focusing on model predictive control techniques should be submitted to the other Area 10b session on Model Predictive Control.

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Area 10c: Computers in Operations and Information Processing

1. Industrial Applications of Optimization.

Optimization plays an important role in all phases of process engineering activity, ranging from conception to design to operation. This session will focus on the applications of optimization in synthesis, design, and operation of process plants. Optimization can be described as a four-step decision-making process, where the first step is the knowledge of the system and hence is related to the modeling of the process. The second step involves finding the measure of effectiveness and the third step is related to the optimization algorithms. The fourth step is the synthesis and implementation of the first three steps in order to solve a real world problem with significant economic implications. This session seeks papers dealing with all aspects of optimization steps including modeling, single objective, multi-objective system effectiveness, and new algorithms for solving large scale process engineering problems. Also of interests are topics related to operation, planning, scheduling, and optimization under uncertainty. Special consideration will be given to papers that demonstrate actual practical application of these techniques resulting in measurable economic advantages.

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2. Tutorial/Survey of Issues in Process Operations.

Informative overviews on current or emerging issues in process operations are solicited. Possible areas of interest may include the utilization of the internet by both academia and industry, statistical methods for process monitoring, the future of computer hardware/software for the chemical industry, etc. Submissions from both academia and industry are welcomed.

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