Computing and Systems Technology Division Communications

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CAST Division of AIChE 1991 Executive Committee

Elected Members

Past Chairman
Joseph D. Wright
Xerox Research Centre of Canada
2660 Speakman Drive
Mississauga, Ontario, Canada
L5K 2L1
(416) 823-7091
Fax: (416) 822-6984 (work)
(416) 332-1553 (home)
Bitnet: WRIGHT.XRCC-NS@XEROX.COM

Chairman
G. V. (Rex) Reklaitis
School of Chemical Engineering
Purdue University
West Lafayette, IN 47907
(317) 494-4089
Bitnet: GVR@PURCHE

1st Vice Chairman
Ignacio Grossmann
Chemical Engineering Department
Carnegie-Mellon University
Pittsburgh, PA 15213
(412) 268-2228
Fax: (412) 268-7139
Bitnet: D391GR99@CMCCVB.BITNET

2nd Vice Chairman
Michael F. Doherty
Chemical Engineering Department
University of Massachusetts
Amherst, MA 01003
(413) 545-2359
Fax: (413) 545-1647

Secretary/Treasurer
Maria K. Burka
Chemical and Thermal System Division
Room 1115
National Science Foundation
Washington, DC 20550
(202) 357-9606
Fax: (202) 357-7636
Bitnet: MBURKA@NSF.GOV

Director, 1989-1991
Henry H. Chien
Monsanto Company
800 N. Lindbergh Boulevard
St. Louis, MO 63116
(314) 694-8274

Director, 1989-1991
Arthur L. (Pete) Parker
Shell Oil Company
28620 OSP
P.O. Box 2463
Houston, TX 77252
(713) 241-2165

Director, 1990–1992
Lorenz T. Biegler
Chemical Engineering Department
Carnegie-Mellon University
Pittsburgh, PA 15213
(412) 268-2232
Fax: (412) 268-7139
Bitnet: D101LB01@CMCCVB.CC.CMU.EDU

Director, 1990–1992
Mohinder K. Sood
Mobil Research and Development Corp.
P.O. Box 1026
Princeton, NJ 08540

Director, 1991–1993
James Deam
Monsanto Chemical Company
800 N. Lindbergh Boulevard
St. Louis, MO 63167
(314) 694-1000

Director, 1991–1993
Mark R. Juba
Synthetic Chemicals Division
Eastman Kodak Company
Rochester, NY 14627
(716) 722-1417
Fax: (716) 722-4637

Ex-Officio Members

Programming Board Chairman
Jeffrey J. Siirola
Research Laboratories – B95
Eastman Chemical Company
Kingsport, TN 37662
(615) 229-3069
Fax: (615) 229-4558
Bitnet: SIIROLA@KODAK.COM

Area 10a Chairman
Krishna R. Kaushik
Shell Oil Company
P.O. Box 6249
Carson, CA 90749
(213) 816-2276
Fax: (213) 816-2375

Area 10a Vice Chairman
Christodoulos A. Floudas
Department of Chemical Engineering
Princeton University
Princeton, NJ 08544
(609) 258-4595

Area 10b Chairman
Christos Georgakis
Chemical Process Modeling & Control
Research Center
Lehigh University
111 Research Drive
Mountaintop Campus
Bethlehem, PA 18015-4781
(215) 758-5432
Bitnet: CG00@LEHIGH

Area 10b Vice Chairman
Ali Cinar
Department of Chemical Engineering
Illinois Institute of Technology
10 West 33rd Street
Chicago, IL 60616
(312) 567-3042
Fax: (312) 567-8838

Area 10c Chairman
Mark A. Stadtherr
Department of Chemical Engineering
University of Illinois
1209 W. California Street
Urbana, IL 61801
(217) 333-0275
Fax: (217) 244-8068
Bitnet: MARKST@UIUCVMD

Area 10c Vice Chairman
Gary D. Cera
Mobil R&D Corporation
PO Box 1026
Princeton, NJ 08543-1026
(609) 737-5299
Fax: (609) 737-5325

Area 10d Chairman
Jeffrey C. Kantor
Department of Chemical Engineering
University of Notre Dame
Notre Dame, IN 46556
(219) 239-5797
Fax: (219) 239-8366
Bitnet: JEFF@NDCHEG.CHEG.ND.EDU

Area 10d Vice Chairman
Yannis G. Kevrekides
Department of Chemical Engineering
Princeton University
Princeton, NJ 08544
(609) 258-2818
Fax: (609) 258-6744
Bitnet: YANNIS@MARILYN.PRINCETON.EDU

AIChE Council Liaison
Thomas F. Edgar
Department of Chemical Engineering
University of Texas
Austin, TX 78712-1062
(512) 471-3080

Other Members

Publications Board Chairman
Peter R. Rony
Department of Chemical Engineering
Virginia Polytechnic Institute & State Univ.
Blacksburg, VA 24061
(703) 951-2805
(703) 231-5771 (leave message with secretary)
Fax: (703) 231-7826
Bitnet: RONY@VTVM1

Associate Editor, CAST Communications
Joseph D. Wright
Xerox Research Centre of Canada
2660 Speakman Drive
Mississauga, Ontario, Canada L5K 2L1
(416) 823-7091
Fax: (416) 822-6984 (work)
(416) 332-1553 (home)
Bitnet: WRIGHT.XRCC.NS@XEROX.COM

About This Issue

by Peter R. Rony and Joseph D. Wright

Continuing a tradition in the Computer and Systems Technology Division of the AIChE, we are pleased to publish contributions from our 1990 award winners.

Roger W. H. Sargent, 1990 winner of the Computing in Chemical Engineering Award, addresses the question, "What is Chemical Engineering?" As a footnote, his manuscript was received in Blacksburg and retyped by the editor's secretary. Another secretary in the department read the article, and asked permission to show it to potential chemical engineering students. As she explained to me, "I never had a good answer to the question, What is chemical engineering? Now I do."

George D. Byrne, recipient of the 1990 Computing Practice Award, weighs in with an essay, "Ramblings, Rumblings, or Ruminations," which he reports is quite different from the typical article that he writes.

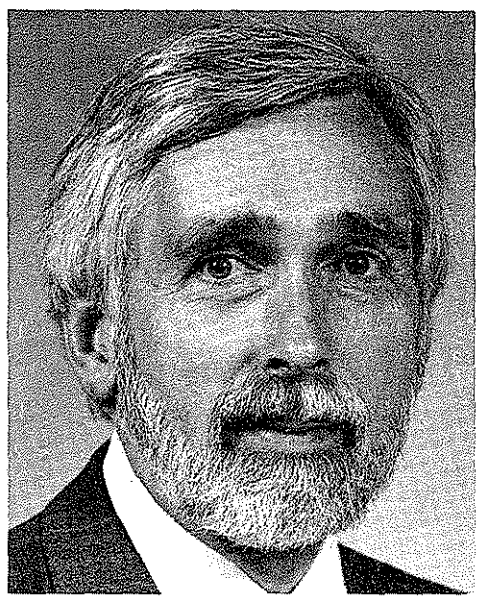
Electronic mail for engineers has been active during the past six months. Accordingly, we have added a new newsletter section to monitor developments in this area. For further details, see the "Electronic Communications" section.

We continue to have problems receiving all Calls for Papers in a timely manner. We recommend that either the chairman or vice chairman of each CAST session provide an electronic mail address to the Programming Board Chairman. Certainly each Area chairman should have such an address. The editors of the newsletter are willing to remind appropriate individuals that Calls are due, but we prefer to do so by E-mail. During February 1991, we succeeded in soliciting five or six Calls at the last minute in such a manner.

As explained in this column in the Summer 1990 issue, we hope to publish industrial contributions as feature articles in the Summer 1991 issue. We solicit your contributions now. All authors who publish in CAST Communications retain copyright ownership. We note the increasing attention given to object-oriented software (for example, the February 1991 issue of IEEE Spectrum), and would be very interested in articles on this subject. We have a contribution on real-time object-oriented computing in mind, but the author is from a company that has already contributed a feature article to this newsletter.

1990 Chairman's Report

by Joseph D. Wright, Past Chairman



Overview

On behalf of the Computers and Systems Technology (CAST) Division of AIChE, I am pleased to submit the 1990 annual Chairman's report. The mission of the CAST Division is to further the applications of mathematical and computing principles in chemical engineering, particularly with respect to analysis, design and control of processes, and management systems. This mission statement is very broad but it is intended to capture the entire realm in which computing and systems technology impacts the day to day performance of practicing chemical engineers.

The activities of the CAST Division are focussed on four key areas. By far the most important is programming at AIChE meetings. Communications to members is second, followed by peer recognition of major contributors to our areas of interest in chemical engineering. And finally, the organization of special conferences provides focussed opportunities for awareness, skill development and training in new areas of interest to our members.

CAST Division Structure

The CAST Division has four technical interest Areas. They are: Systems and Process Design (Area 10a), Systems and Process Control (Area 10b), Computers in Operations and Information Processing (Area 10c), and Applied Mathematics and Computer Analysis (Area 10d). Technical programming for AIChE meetings is organized by committees organized within these Areas with special attention given by each of them to cross disciplinary technical sessions arranged jointly with other Divisions of AIChE. In general programming is very well organized in the CAST Division. Block programming techniques have been used extensively for several years. Forward planning is done at least two years in advance of meetings. The 1990 spring national AIChE meeting at Orlando had 13 CAST sessions. The 1990 fall annual AIChE meeting in Chicago had 33.5 CAST sessions, an increase of 9 over the number

originally requested. The sessions are, in general, well attended. There is strong interest by the members in sessions sponsored by CAST. The challenge remains to keep a balance between the research oriented sessions and those of a more practical value to engineers in industry. Programming plans for 1991 and 1992 are well underway with strong support from all of the Areas.

CAST Communications

CAST Division publishes a semi-annual newsletter, "CAST Communications." This newsletter is typically about 40 pages in length and includes sections on Editorial Notes, Awards, Articles of technical interest, Communications on small noteworthy items, and a very major focus on Meetings, Conferences, Short courses, and Workshops. The newsletter has been adopted as the primary mechanism for distributing the Calls for Papers for the CAST Division for future AIChE meetings. Calls for the Houston, Los Angeles, and New Orleans meetings in 1991 and 1992 have been included in the current issue. The CAST Division was delighted to receive the 1990 AIChE Award for Outstanding Newsletter. The work of the Publications Committee with the support of many members with articles and programming news have been instrumental in the success of the newsletter. It is regularly circulated to approximately 2000 members of CAST Division and to Chairmen of local section and Officers of AIChE.

Reward and Recognition

CAST Division is pleased to acknowledge major technical contributions from individuals in its fields of interest. In 1990 we have honoured Professor Roger W. H. Sargent with the 1990 Computing in Chemical Engineering Award. This award was sponsored by Simulation Sciences, Inc. and Dow Chemical. We were pleased to acknowledge George D. Byrne with the CAST Division Computing Practice Award. This award was sponsored by Pergamon Press. Finally, we were pleased to acknowledge R. (Krish) Krishnamurthy with the Ted Peterson Student Paper Award. This award was sponsored by ChemShare and IBM. Detailed statements of the award citations were included in the summer issue of CAST Communications, Volume 13, Number 2.

Outside Activities

CAST Division collaborates with other organizations to sponsor major conferences and meetings of interest to its members. Plans are well underway for the Computer Process Control IV (CPC-IV) conference to be held in South Padre Island, Texas in February 1991. This meeting is co-sponsored by CAST Division and CACHE Corporation. The conference theme is Future Needs and Challenges in Process Control. CAST is also a co-sponsor of the Fourth International Symposium on Process Systems Engineering (PSE '91) to be held in Montebello, Quebec in August 1991. The conference is co-sponsored by the Canadian Society for Chemical Engineering, the National Research Council of Canada, the American Institute of Chemical Engineers, the Institution for Chemical Engineers in Britain, the European Federation of Chemical Engineering, and the Japanese Society of Chemical Engineers. Plans are also well underway for the Foundations of Computer Aided Plant Operations (FOCAPO '92) to be held in the summer of 1992. Details of these conferences are included in CAST Communications and they are also available from the organizers.

New Ideas

CAST continues in 1990 its interest in new experiments to provide services to its members. The paper retrieval project held at the 1989 Annual AIChE meeting was reported on in CAST Communications. The feedback from the information retrieval experiment was communicated to AIChE, and could potentially be used for the entire organization as an alternative to the microfiche ordering system for conference papers. It could be incorporated into the computerized meeting registration system. For 1990, we selected a new experiment to enable demonstration of personal computer based instructional software of interest to faculty members for teaching purposes. CAST arranged for several PC systems to be available for demonstration purposes at the Chicago AIChE meeting under the leadership of Professor Alan Foss of U.C. Berkeley.

Another CAST sponsored new activity is the Process Data Exchange Institute (PDXI). This new institute was approved by AIChE Council and information about the institute has been circulated to CAST Division members. The first formal meeting of PDXI will be held at the Chicago AIChE meeting.

Membership

CAST, in concert with the AIChE, continues to worry about adding new members. Most of the activities of the Division focus on the programming and communications aspects. However, the influence of computing technology on the profession at large leads one to believe that a much broader set of members could be reached than the current approximately 2,000 formal members of the Division. The most recent issue of CAST Communications raised some of these questions and the CAST Division Executive is looking at mechanisms to increase its membership. Key ideas include the use of computer technology for a broader set of applications than the current focus of the four areas within the Division. Increasing the membership will continue to be a priority in 1991.

Summary

In summary, CAST continues as a very active Division of AIChE. Its focus is on providing technical information and services through aggressive programming and clear communications to the membership. A summary statement of CAST goals and objectives is reprinted in the newsletter and was submitted to A.I.Ch.E. Council for publicity use earlier this year. The new list of CAST Officers and Directors is also included inside the front cover of the newsletter.

CAST Executive Committee Meeting (November 12, 1990): Excerpts from Minutes

by Maria Burka, Secretary/Treasurer

Chairman's Report (Joe Wright)

The CAST mission statement prepared for the AIChE was passed out and the Executive Committee asked to comment on it. The CAST newsletter won an award from AIChE. CPC IV is on track. Planning for PSE '91 in Montebello, Quebec is also well on its way; Gerry Sullivan is chairman. We need to look into ways of attracting new members to CAST.

Secretary/Treasurer's Report (Maria Burka)

The minutes of the Orlando Meeting, the treasurer's report, and the proposed budget were accepted. AIChE was contacted and Gordie Ellis said he thought that the monies for advertisements that appeared in the newsletter were sent directly to Peter Rony. He could find no record of receiving anything from advertisers. We are still in the process of clearing up what actually happened. The three award funds are in good shape; there is no need to replenish those funds this year.

Past Chairman's Report (Bruce Finlayson)

Bruce reported on the outcome of the CAST elections. The new 2nd Vice Chairman is Michael Doherty, and the two new Directors are James Deam and Mark Juba.

2nd Vice Chairman's Report (Ignacio Grossman)

Letters were sent to faculty members—and to everyone who has ever nominated someone for a CAST award in the past—in January asking for nominations. In particular, faculty members were asked to consider their finishing graduate students and submit nominations for the Ted Peterson Award.

Pergamon Press sent their $3000 for the Practice Award. There is concern that there are not enough nominations for the Practice Award. Tom Edgar suggested that nominations should be kept on file for more than one year, for example, for three years. They should then be reconsidered with the new nominations during successive time periods. It was decided that this should be adopted and the by-laws be changed accordingly to state some variation of "All nominations should be kept on file for three years. Nominees may update and add to the nominations during this time period."

Report of the Directors

2nd-Year Directors

Pete Parker reported that there are 3000 brochures left. Gary Blau had them, and he has sent them to Henry Chien. These need to be updated. They can be used for one more year and then we need to come up with a more up-to-date version. There are 25 slides which are being given to session chairmen. These have to be collected at the end of each session to be reused.

3rd-Year Directors

Tom McAvoy reported that he has gotten estimates for the printing of new brochures. He can have them printed at the University of Marylan at a cost of $600 for 3000 brochures. Tom Edgar asked that brochures be sent to the American Control Conference in Boston this June. Ali Cinar or Yaman Arkun need to be reminded to request the brochures from Pete Parker.

1st Year Directors

Larry Biegler reported that Council wants cross representation between Divisions. This would mean someone attending the Executive Committee meetings of all the other Divisions—quite a time drain. CAST is considering the wisdom of this use of its members' time. Moe Sood has moved to England for two years.

Programming Board Chairman's Report (Jeff Siirola)

At the Chicago meeting, all CAST sessions have been standing room only. The Los Angeles meeting (November 1991) will be much smaller, and CAST will have to cut back on the number of its sessions because the Meeting Program Chairman is planning to reduce the 295 initially planned sessions to 220. A new development is that CAST will be programming for the summer AIChE meeting in Pittsburgh. CAST will have four and a half sessions there.

There is a change in the timing of programming decisions. This was announced at a retreat AIChE held for all Programming Board Chairmen. Jeff Siirola has to submit plans for 1992 within two weeks of the Chicago meeting. For details, see his report.

The Chicago meeting has been very confusing and there has been poor scheduling. Sessions have been lost, poorly scheduled, etc. Lessons learned

should be kept in mind for future meetings.

1st Vice Chairman's Report (Rex Reklaitis)

Rex was contacted by the Japanese Society of Chemical Engineers about possible joint scheduling of sessions on Computer Integrated Manufacturing for the Los Angeles meeting. It was decided that it is too late to make such plans and that they will be told to work with Area 10C initially to see if there is any synergism. Rex and Ignacio Grossman are beginning to work on putting together a new long-range plan.

Report of the Area Chairmen

Area 10A

Kris Kaushik could not attend; he asked Moe Sood to give his report. Area 10A has completed scheduling plans through 1991.

Area 10B

Christo Georgakis reported that (1) Area 10B has also completed scheduling plans through 1991, (2) Area 10B is scheduling sessions for the 1991 ACC in Boston and for the 1992 ACC in Chicago, and (3) Duncan Mellichamp has retired as the Chairman of Area 10B; the new Vice Chairman is Ali Cinar.

Publications Board Chairman's Report (Joe Wright for Peter Rony)

The Newsletter needs ideas for articles for the Summer 1991 issue. Please contact either Peter or Joe as soon as possible. How about feature articles on object-oriented programming? Or new/improved CPI software?

In his memo, Peter asked whether the summer issue should be published somewhat early so that the Summer 1991 (Pittsburgh) AIChE meeting information can be disseminated to CAST members, or whether it would be more appropriate to hold the issue until he receives information from the "Annual Meeting of Division Programming Chairmen" in February 1991? It was decided that the deadlines for submission and publications would be kept as in the past.

Jeff Siirola requested that the summer deadline be changed back to July 1, 1991; otherwise, things slip and problems develop. It was decided that this was a good idea.

Bruce Finlayson brought up the possibility of publishing a CAST membership directory. This needs to be further discussed.

Process Data Exchange Institute, PDXI (Herb Britt)

1. Council gave the go-ahead for PDXI during spring 1990.

2. June 1990: Council accepted bylaws.

3. August 1990: Developed project list. Gave assignment for who should solicit which companies. Listed approximately 60 potential companies, and need 20 to participate.

4. October 1990: AIChE wrote and sent out contracts. Four companies have signed already, the rest are still considering participation. Contract calls for $5000/year per company. Company lawyers are now perusing papers.

5. PDXI has elected ad-hoc officers. Herb will submit a full report to CAST.

6. PDXI will have its official kickoff at the Houston meeting (April 1991).

7. CAST now has to consider precisely what relationship it wants to have with PDXI. This should be discussed at the Houston meeting.

Council Liaison (Tom Edgar)

AIChE considers CAST to be a very good division. Tom presented a Certificate of Recognition to Joe Wright. The AIChE dues will be increased. This will allow AIChE to break even because membership is not growing. Enrollment in universities is also declining. AIChE has had a large increase in undergraduate student membership but has not had a corresponding increase in graduate student membership.

There was a kickoff of the AIChE Foundation on November 12, 1990. This is viewed as another mechanism to raise money. The fund was established to fund unusual activities such as special minority development projects.

New Business

Moe Sood proposed that academic research should be increasingly focused on operations and data reconciliation. He suggested the formation of an industrial consortium that would raise money to give to academia. This would provide a more organized routine to bring industrial dollars to academic researchers. Joe Wright asked Moe to develop some concrete ideas and bring them to the spring CAST Executive Committee meeting for its reaction.

Joe Wright stated that we need to address new things. Joe asked that everyone submit a one-page write-up of new ideas or initiatives to Rex Reklaitis. What can CAST do differently? Where is technology going. Ask colleagues, non-CAST members, etc. for new, constructive ideas. Joe wants to focus the next meeting, on Tuesday at 7:00 p.m. in Houston, on "Where is technology going?"

Report of the CAST Division Programming Board November 1990

by Jeffrey J. Siirola

The 1990 Programming Board consists of the following members:

Jeffrey J. Siirola, Eastman Chemical Co., Chairman

Krishna R. Kaushik, Shell Oil Co., Chairman 10A

Christodoulos A. Floudas, Princeton, Vice Chairman 10A

Duncan A. Mellichamp, UC-Santa Barbara, Chairman 10B

Christos Georgakis, Lehigh, Vice Chairman 10B

Rajeev Gautam, UOP, Chairman 10C

Mark A. Stadtherr, Illinois, Vice Chairman 10C

Doraiswami Ramkrishna, Purdue, Chairman 10D

Jeffrey C. Kantor, Notre Dame, Vice Chairman 10D

Ignacio E. Grossmann, Special Pittsburgh Meeting

CAST Programming Activities are summarized as follows:

1. CAST programming in 1990 resulted in 46.5 sessions, up 50% from the year before, and up more than 125% in the last five years. Part of the increase is because of the special structure of the Chicago Meeting (see 2. below). However, the 1991 programming proposal is nearly as large at 43.5 sessions (but, see 6. below). The level of programming by the division at both AIChE meetings and specialty conferences appears to be healthy.

2. 1990 Fall Annual AIChE Meeting, Chicago (November 11–16, 1990)

CAST ended up sponsoring a total of 33.5 sessions (up 9 from the number originally requested), approximately 10% of the total sessions at the meeting. Some of the increase was the result of session overflow, and some was the result of session splitting as a result of two shorter afternoon time periods. AIChE headquarters produced and distributed a special promotional flyer highlighting the CAST sessions. This particular meeting was not well managed. The number of sessions was virtually uncontrolled. Series sessions were not necessarily scheduled together or even in the same room. Suggested scheduling for block programming was not followed resulting in overlapping sessions and great inconvenience for attendees. The program booklet was extremely late and contained numerous errors; one CAST session was inadvertently omitted altogether. It is probably safe to assume that there will not be any more mega-meetings in the near future (which also means that we may be less successful in getting all of our requests granted; see programming comment below).

3. Chemical Process Control IV (South Padre Island, TX, Feburary 17–22, 1991)

Harmon Ray and Yaman Arkun have completed plans for the eighth CAST-sponsored week-long specialty conference. The theme for this conference is Future Needs and Challenges in Process Control. CACHE is facilitating the conference arrangements. The complete program was reprinted in CAST Communications, Summer 1990.

4. 1991 Spring National AIChE Meeting, Houston (April 7–11, 1991)

The CAST Division is requesting 10.5 sessions (10A: 4, 10B: 2, 10C: 4, and joint 10A/16B: 0.5). Final calls for papers appeared in the Summer 1990 issue of CAST Communications.

5. Process Systems Engineering '91 (Montebello, Quebec, August 4–9, 1991)

The CAST Division will cosponsor this continuation of the PSE series of meetings with the Canadian Society for Chemical Engineering, the Institution of Chemical Engineers, and the Society for Chemical Engineering Japan. Gerry Sullivan is conference chairman.

6. 1991 Summer National AIChE Meeting, Pittsburgh (August 18–21, 1991)

Because of the special design and computing presence in Pittsburgh—for example, the Pittsburgh Supercomputing Center and the Carnegie-Mellon Engineering Design Research Center (EDRC)— the meeting program chairman (MPC) has asked CAST to sponsor several sessions. The EDRC will play a special role at the summer meeting, perhaps being one of the technical tours (for additional details, please contact Ignacio Grossman or John Anderson at CMU). As it is not our practice to program at Summer meetings, Ignacio Grossmann is serving as special programming chairman for this meeting. He has put together four sessions (two each from 10A and 10C). CAST is also cosponsoring a session being organized by Area 14 on computer techniques in the nuclear industry, and one session jointly with Area 5D on robotics which was postponed from the Houston meeting.

7. 1991 Fall Annual AIChE Meeting, Los Angeles (November 17–22, 1991)

The CAST Division is requesting 27 sessions (10A: 6, 10B:7, 10C: 6, 10D: 6, Joint 10A/10B: 1, and Joint 10B/10C: 1). Initial paper calls appeared in the last issue of CAST Communications. The MPC is being pressured to reduce the meeting size, and it is not clear if all sessions will ultimately be approved.

8. 1992 Spring National AIChE Meeting, New Orleans (March 29–April 2, 1992)

Although the program is still not completely finalized, it looks as if CAST will request about 13 sessions for this meeting. The plans for this meeting will be finalized in Chicago. See also note below.

9. Foundations of Computer-Aided Plant Operations (FOCAPO '92)

Plans for the second FOCAPO conference for the summer of 1992 are underway. Mark Stadtherr and John Hale are conference cochairmen. The technical program will tentatively cover optimal scheduling and planning, computer-integrated manufacturing, interface with process design and control, impact of high-performance computing (both off-line and on-line), data management, knowledge representations, and human factors in process operations. CAST area 10C is the technical sponsor and CACHE Corporation will facilitate the conference arrangements.

10. 1992 Fall Annual AIChE Meeting, Miami Beach (November 1–6, 1992) Plans for this meeting will be formulated in Chicago. See note below.

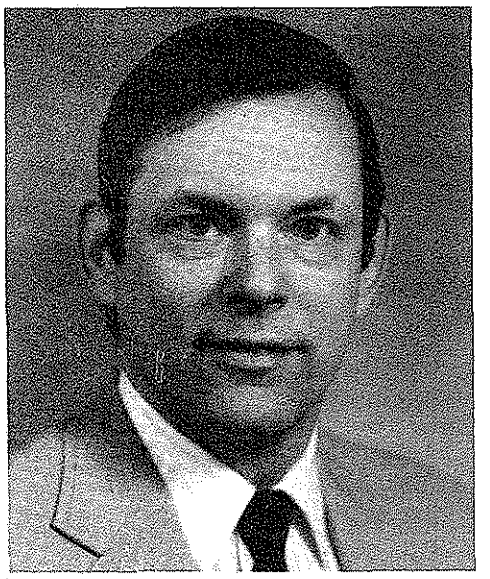
Programming Comments:

AIChE has decided to discontinue the MPC roundtable sessions, which formerly had been conducted Tuesday afternoons at every AIChE meeting. It was at these sessions that requests for sessions had been made and other programming problems ironed out. In its place, AIChE will conduct an annual Programming Retreat each February. At this meeting, all AIChE programming for the following calendar year will be proposed, modified, and accepted or rejected. Also, programming themes for the year following that will be proposed.

What this means is that starting February 1991, all CAST programming for 1992 (Houston and Miami Beach), which will have been put together by the four sub-area committees in Chicago, will be presented by the CAST Programming Chairman for approval. All divisions will hear the plans of all other divisions. Hopefully, duplicate programming will be eliminated, or more likely, opportunities for joint programming identified. The MPCs will then select the sessions they will have for their meetings. These results will be immediately forwarded to the sub-area chairmen who will made necessary notifications if other than the proposed program was approved. Any corrections will also appear in the Summer edition of CAST Communications. Also, in February 1991 the themes for the 1993 AIChE meetings will be developed to be used by our sub-area programming committees when they meet in Los Angeles.

This new session coordination and approval procedure is one of the many new experimental strategies being investigated by Peter Knox as he attempts to improve the overall AIChE programming effort.

At the Chicago AIChE meeting, initial contacts were made between the CAST Division and representatives of the Society of Chemical Engineers (Japan) concerning joint sponsorship of programming, particularly in the area of computer integrated manufacturing. It was agreed that initial efforts will consist of one joint-sponsored existing session in Los Angeles (November 1991), Japanese participation in FOCAPO-92 (June 1992), and two jointly-sponsored sessions specifically on CIM in Miami Beach (November 1992). Rex Reklaitis is the CAST contact in this matter.



Jeffrey J. Siirola is a Senior Research Associate with the Advanced Process Design and Evaluation Research Laboratory at the Eastman Chemical Company Research Laboratories in Kingsport, Tennessee. He received his Ph.D. in chemical engineering from the University of Wisconsin-Madison in 1970, and a B.S.Ch.E. from the University of Utah in 1967. He has been with Eastman since 1972.

Jeff's professional interests include chemical process synthesis, computer-aided process engineering, non-numeric (symbolic) computer programming, artificial intelligence, chemical technology assessment, resource conservation and recovery, and chemical engineering education.

Elected to Sigma Xi, Tau Beta Pi, Phi Beta Kappa, and Phi Kappa Phi, during the 1980s, he has been very active as a volunteer for both the American Institute of Chemical Engineers and the Computer Aids for Chemical Engineering Education (CACHE) Corporation. He is currently the president of CACHE and was vice president during 1988–1990. With the AIChE Computing and Systems Technology (CAST) Division, he is the current programming chairman, was division chairman from 1985–1988, and director from 1981–83. Jeff is also active with the AIChE National Programming Committee and the Education and Accreditation Committee. He was conference chairman for Foundations of Computer-Aided Process Design (FOCAPD 1989) and conference cochairman for Innovative Design Techniques for Energy Efficient Processes, 1975. He received the AIChE A. E. Marshall Award in 1967.

Second Vice-Chairman's Report

by Ignacio E. Grossman

There were a total of 17 nominations that were submitted for the three 1990 CAST awards. The breakdown was as follows:

- 6 for the Computing and Chemical Engineering Award
- 5 for the Computing Practice Award
- 6 for the Ted Peterson Student Paper Award

As was announced in the last newsletter, the winners were Professor Roger Sargent for the Computing and Chemical Engineering Award, Dr. George Byrne for the Computing Practice Award, and Dr. R. Ramkrishna for the Ted Peterson Award. The first two were selected by a committee of 11 which included 5 CAST Directors, and the third by a committee of 3 consisting of previous winners of the Computing and Chemical Engineering Award. The voting was completed by early May which allowed us to include the information on the winners in the AIChE program booklet and in the 1990 summer issue of the CAST Newsletter.

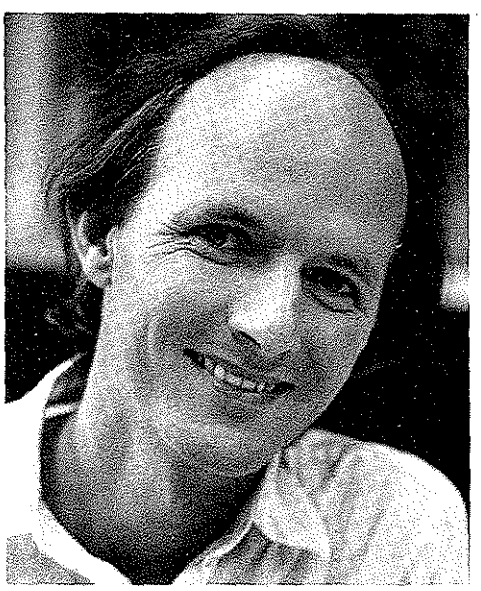
The awards were given at the CAST Awards Banquet at the Chicago Annual AIChE Meeting on November 14, 1990. Each winner received a plaque with the citation for their award. Professor Sargent received a check of $1,500 sponsored by Simulation Sciences and Dow Chemical. Dr. George Byrne received a check of $1,000 sponsored by Pergamon Press. Dr. R. Krishnamurthy received a check of $500 sponsored by ChemShare and IBM. Finally, Professor Sargent gave the thought provoking talk, "What is Chemical Engineering?"

We also requested funding for $3000 to Pergamon Press to continue supporting the Computing Practice Award for the next 3 years. The funding was granted to the CAST Division by Dr. Peter Shepherd. We are most grateful to Pergammon Press for their continued support.

New CAST Division Officers Elected

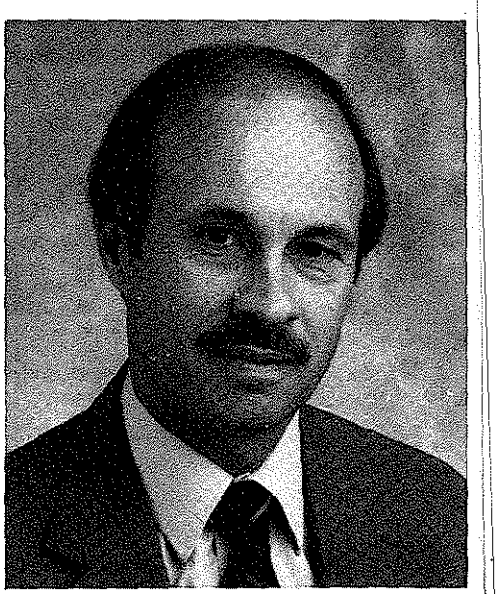
The CAST Division officers election, as certified by Gordie Ellis of the AIChE New York Office, produced 560 valid ballots returned of 1872 sent to members of the Division. Elected were:

Michael F. Doherty
Second Vice Chairman



Michael F. Doherty is Professor and Head of Chemical Engineering at the University of Massachusetts at Amherst. He received his B.Sc. in Chemical Engineering from Imperial College, University of London in 1973, and his Ph.D. in Chemical Engineering from Trinity College, University of Cambridge in 1977. He taught at the University of Minnesota before joinin the faculty at the University of Massachusetts in 1977. He has since held a visiting appointment at the University of Minnesota in the Spring Quarter of 1981 and was a visiting scholar at the University of Californi at Berkeley for the 1984 calendar year. His research interests include design and synthesis of nonideal separation systems, phase equilibriun and separation of reactive mixtures, and nonlinear analysis. Dr. Doherty is also a joint faculty member of the Center for Process Design and Control at the University of Massachusetts and is a trustee of the CACHE Corporation.

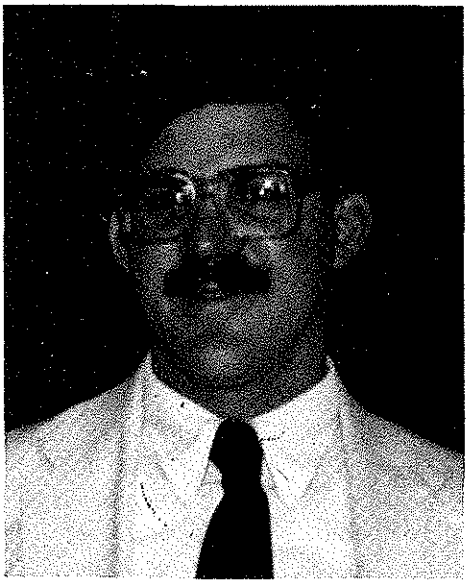
James R. Deam
Director (1991–1993)



James R. Deam is Manager of Process and Control Technology at Monsanto Company. He manages a group of specialists who develop and apply process engineering, control, and related computer-based technologies. Jim has been with Monsanto for 22 years, and his previous experience has included technical and business-related systems positions in St. Louis, Texas, Montreal, and Toronto. He has held committee positions in the local

section of AIChE and led panels and chaired sessions at national meetings. In addition, Jim serves in advisory and executive committee capacities for research consortia and universities. He received his undergraduate degree at the University of Cincinnati and M.S. and Ph.D. degrees in chemical engineering at Oklahoma State University. In his spare time, Jim is a runner and coaches youth activities.

Mark Juba
Director (1991–1993)



Mark Juba is a native of Pittsburgh, Pennsylvania. He received a B.S. degree from Case Western University (1976) and a M.S. from the University of Rochester (1980). He joined the Kodak Research Laboratories in Rochester, New York in January, 1976. Mark worked on process R&D for polymerization and batch organic chemical processes as well as process control applications. During 1988–1989, Mark was on a manufacturing staff assignment to Rochester, where he worked on coordinating the development of waste minimization and air emission reduction projects as Manager of Environmental Projects for the Kodak Park Synthetic Chemicals Division. Mark is currently a production supervisor in the synthetic Polymer Production Department at Kodak Park.

Mark has been active in AIChE on the local and national level. He has served as secretary, vice chairman, chairman, and director of the Rochester section, and has served as co-chairman for technical sessions at national meetings. Mark and his wife, Sharon, have a 10 year old daughter and a 7 year old son.

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Articles

What is Chemical Engineering?

by R. W. H. Sargent, Imperial College

This 1990 Annual Meeting of the AIChE is the largest ever meeting of chemical engineers—a field now so diverse that it divides into 21 parallel lines of interest, spread over five days.

There are 314 sessions, during which more than 2000 chemical engineers will present their latest contributions—each convinced that they are adding to the core of chemical engineering knowledge—or perhaps, since the Amundson Report, they would prefer to think of themselves as working at the frontiers, pioneers in expanding the horizons of chemical engineering.

But what is this "chemical engineering" that generates so much enthusiasm? What is it that all these people feel they share as a common profession?

I do not know if the AIChE has a formal definition, but the I Chem E in its early days gave great thought to the problem, and produced the following definition:

"Chemical engineering is the branch of engineering concerned with processes in which materials undergo a required change in composition, energy content or physical state, with the means of processing, with the resulting products and with their application to useful ends."

This nails the flag of chemical engineering to the mast of engineering, defined in turn by the Engineering Council, London, as follows:

"An engineer is one who acquires and uses scientific, technical and other pertinent knowledge and skills to create, operate and maintain efficient systems, structures, machines, plant, processes and devices of practical and economic value."

This definition of chemical engineering is satisfying in general, covering purely physical as well as chemical processes, the plants, the products and their uses! Yet somehow it makes it all sound like a pretty arid business, and it is not the sort of statement to enthuse bright young people in the schools to come to university and take up chemical engineering as a career. So the I Chem E tried again, this time with a poster for school's careers boards:

"If you do not wash or use deodorant, shave or wear make-up, eat, feed your dog, work on a farm or wear wellies, drive a car, play records, go on holidays, or stay at home, sleep on a mattress or take pills, comb your hair or wear a hat, brush your teeth or wear false ones, go to the movies, watch television, listen to the radio, buy books or read newspapers, then CHEMICAL ENGINEERING does not affect your life."

What is interesting about these definitions is that they are framed in terms of objectives and achievements, rather than skills or techniques, and the same is true of the other engineering disciplines.

For example, electrical engineering is concerned with "the exploitation of electricity for practical purposes," mechanical engineering with "the design, manufacture and maintenance of machinery," while the Institution of Civil Engineers in London still sticks to its original mission statement of 1829,"Civil engineering is the art of directing the great sources of power in Nature for the use and convenience of man, as the means of production and of traffic in states both for external and internal trade, as applied in the construction of roads, bridges, aqueducts, canals, river navigation and docks, for internal intercourse a exchange, and in the construction of ports, harbors, moles, breakwaters and lighthouses, and in the art of artificial navigation by artificial power for the purposes of commerce, and in the construction of machinery and in the drainage of cities and towns," though nowadays of course they have delegated some of these activities to more "junior" institutions.

Scientific disciplines on the other hand seem to define themselves in terms of the study of a range of phenomena. Biology is the study of living organisms, chemistry the stud of the structure and behavior of molecules (whatever they are). Physicists of course, like civil engineers, are a pretentious lot, and claim that physics is the study of all natural phenomena.

When you think about it, there is by definition no unnatural phenomena, so they lay claim to the study of everything—though if you suggest that an engineer or a chemist is therefore a physicist, they do look down their noses and tend to claim that only physicists really know what they are about.

When I was a newly appointed professor, my Head of Department—Professor Ubbelohde, an Oxford chemist—took me along to a private dining club of Fellows of the Royal Society to be shown off as his new protege. During the dinner he got into an argument with the club president, a Cambridge physicist, about the dividing line between chemistry and physics, with lively participation of most of those present. After a while, noticing I had said nothing, Ubbelohde turned to me and said, "Sargent, as a chemical enginee

you ought to be able to give an objective view on this." Thus put on the spot, I ventured, "Chemistry is chemistry until it is understood and then it is accepted as physics." I do not know which of them was the most offended, but it stopped the debate and I was never invited again!

On the differences between physicists and engineers, I am sure you all know the story about physicist, engineer and the technical salesman, who were each given a barometer and challenged to use it to find the height of the Sears Tower here in Chicago:

The physicist carefully measured the pressure at ground level, then at the top of the tower, and thus calculated the height. The engineer took his barometer to the top of the tower, threw it out, and took the time before it hit the ground. The salesman took his barometer to the City Tourist Information Centre and said to the receptionist, "To become the proud owner of this beautiful brass barometer, all you have to do is tell me the exact height of the Sears Tower."

But to return to the matter in hand: To describe chemical engineering in terms of its objectives, or its range of applications, is to circumscribe it forever, to deny that its frontiers can ever be expanded, to condemn it to obsolescence in a developing world as surely as were the old craft guilds of London—the Apothecaries, the Salters, the Fullers, the Mercers and the Chandlers. (Only the medical profession seems to have a satisfactorily open-ended definition in terms of objectives: "To keep people in good health, to treat injury and sickness, and to preserve human life.")

Equally, it does not seem possible to follow the electrical engineers, and define chemical engineering as the application of a range of phenomena—most of us feel insulted if we are called applied chemists, or even (in spite of the physicists) applied physicists. Surely we all subconsciously believe that the real core of chemical engineering is a powerful methodology.

Chemical engineering did not really start in England with Henry Armstrong or George Davis in the eighteen-eighties. They were merely concerned with the scale-up of laboratory chemistry in glassware to bulk production in steel vessels, and the consequent need for industrial chemists to learn enough mechanical engineering to build the requisite plant. Chemical engineering was born in Massachusetts in the nineteen twenties with Warren Lewis's concept of unit operations, and the realization that the wide variety of chemical processes involved only a small number of basic unit operations combined in different ways. No less important was the realization that relatively simple models of these component operations—involving such concepts as the theoretical plate, the perfectly stirred tank, and the two-film theory of heat and mass transfer—sufficed to provide reasonable predictions of process behavior, even with the puny computational power of the slide-rule and the graphical constructions then available.

I think we can justly claim to be the first systems engineers, but since then the systems approach has been widely applied throughout all branches of engineering—and each branch, as it has discovered it, has claimed it as its own. Indeed, the physicists would claim that it is merely another name for the scientific method, and that yet again we are usurping their territory.

In fact, chemical engineers turned their backs on unit operations as a basis for their discipline in the nineteen fifties, in favour of a more "scientific" approach. Walker, Lewis, McAdams and Gilliland's "Principles of Chemical Engineering" was displaced as the standard undergraduate text by Coulson and Richardson's "Chemical Engineering," and a new journal "Chemical Engineering Science" was launched.

Curiously enough, chemical reactors had been left out of the basic unit operations, but in the fifties people like Hougen, Denbigh, Danckwerts, Aris and Amundson established the study of "chemical reaction engineering" as an important new area which took the centre stage. At about the same time, Marshall and Pigford, and again Amundson and Aris, were making it respectable for chemical engineers to make use of mathematics, and "Coulson and Richardson" was in turn swept aside by Bird, Stewart and Lightfoot's "Transport Phenomena."

The fifties also saw the advent of digital computers, and over the years, as we have come to terms with the computer age, we have evolved a new kind of systems engineering, refining the technique of using our physical and chemical understanding to devise simple but adequate models for the purpose in hand, and making use of the increasing armory of mathematical and computing techniques to make ever more accurate predictions of process behavior, and to develop ever more powerful techniques for optimal design and operation of our processes.

Of course we still need experimental investigation—in the plant as well as in the laboratory. But again this new systems approach can make the whole business of experimentation more systematic and more efficient. Using our general understanding of basic mechanisms, we can build up postulated models, then use simulation to explore behavior and pin-point the critical areas for experimental verification; the experimental results in turn indicate the points of weakness in the model, leading to a new iteration of the process. Thus modelling and

simulation are essential tools in developing our understanding of the physical world—and the knowledge and understanding gained is encapsulated in the models we develop.

This systems approach and the methodology surrounding it is of course the special concern of the CAST Division, and it is clear that this has a place of growing importance with the AIChE. Indeed there are some who have seen it as the nucleus of a new discipline, which in recent years has come to be called "process systems engineering."

Thus it will come as no surprise that, when we were bidding for funds for our new "Interdisciplinary Research Centre for Process Systems Engineering" at Imperial College, our mission statement was:

"To carry out research into computer-based tools for an integrated approach to all aspects of design, operation, control and management for the process industries."

Some might wonder what this leaves for the other chemical engineers to do, and indeed this statement was not merely intended to impress the selection panel. It is a highly political statement—a claim to the high ground of chemical engineering, or even a take-over bid for chemical engineering itself!

But again we are not alone in developing this new systems approach to engineering, and we can hardly claim it as the unique contribution which defines our discipline, or even our profession.

Rather it is the sum total of the education we give our students which is the real strength of chemical engineering—a thorough grounding in the basic sciences (physics, chemistry, and perhaps a little microbiology), mathematics and computing technology, the systems approach to analyzing situations and solving problems, some introduction to the issues involved in managing men and money, and above all a motivation through showing how this collection of knowledge and techniques can be applied to solving worthwhile real-world problems.

The surprising thing is that there doesn't seem to be anything very specific about this programme (I didn't even mention the process industries) and this perhaps shows the futility of attempting a formal definition of anything as wide-ranging and diverse as chemical engineering.

Whatever it is, chemical engineering is the means of bringing together a wide range of people with common interests and common purpose, together involved in a fascinating world of exploration and in a thoroughly worthwhile endeavor for the betterment of mankind.

Roger W. H. Sargent—Courtaulds Professor of Chemical Engineering at Imperial College of Science, Technology, and Medicine—whose career has spanned over thirty years during which time his name has become synonymous with Process Systems Engineering, was the recipient of the 1990 Computing in Chemical Engineering Award. Sponsored by Simulation Sciences, Inc. and Dow Chemical, The Computing in Chemical Engineering Award is given in recognition of an outstanding contribution in the application of computing and systems technology to chemical engineering. The winner receives a plaque, a check for $15 and an invitation to be the after-dinner speak at the CAST Awards Banquet at the Chicago National AIChE Meeting in November.

Ramblings, Rumblings, o Ruminations

by George D. Byrne
Exxon Engineering – Systems Engineering Department
Exxon Research and Engineering Co.
Annandale, NJ 08801
gdbyrne@erenj.bitnet

This article was written at the invitation of Peter Rony, the CAST Newsletter editor. The reason for th invitation was my receiving the CAST Division's 1990 Computing Practice Award. Shortly after the invitation was made, I recalled two personalitie who greatly influenced people and thinking. The two were Blaise Pasca the mathematician, and Theodore Roosevelt. Pascal wrote a book the title of which in English is simply Reflections. Pascal wrote about various things he had thought about and influenced still more people with his examples. Theodore Roosevelt seemed to have a nearly polished way of using the presidency as a bully pulpit to influence others. Quite frankly, I have also heard that when people get to be "middle- aged," they are interested in leaving their mark. (As an aside, how many people do you know who are 114 years old? That takes care of one euphemism, anyway.) So then, we have the purpose of this article, the reason it was invited, and an inkling as to some of the influences underlying its style. That is, the invitation provides a bull pulpit for me to write about some things I have thought about a lot. It

will be up to you to decide if these are ramblings, rumblings, or ruminations.

The Award

The Computing Practice Award did indeed mean more to me than most of you can realize. An award from peers in a field where one has little formal training is indeed a badge of distinction. I have been fortunate enough to have learned from many good people during my life. It is to their credit that they inspired others to learn how to learn and to do that during a lifetime; not to simply learn during days in school. Some from whom I learned were my own children, students, colleagues, and of course the ones people usually talk about—their parents, teachers, clergy, and professors. One person who interested me in chemical engineering was the late Edward B. Stuart, who was chairman of the Chemical and Petroleum Engineering Department at the University of Pittsburgh. He encouraged me to become involved with the department—both students and faculty—and it was the beginning of an interesting involvement in this field. And, at the risk of sounding too serious, there are some lessons we must learn and are sorry we ever had to learn, just as there are some we truly enjoy learning.

Opportunity

Having an opportunity to do something, such as joining the activities of a different department, is only one aspect of opportunity. We need to see that it is really an opportunity, be ready for it, and grasp it. There have been lessons on this topic just about everywhere—athletics, the army, the family, and the work place. May I give an example that is perhaps closer to our own occupations?

Niel Madsen had been at Bettis Atomic Power Laboratory during my early days at Pitt. Around 1970 he moved from Pittsburgh to Lawrence Livermore Laboratory (now Lawrence Livermore National Laboratory). In the fall of 1972 we both happened to be attending an applied mathematics conference in Austin, Texas. Niel was standing in the doorway of his motel room and spotted me ambling across the parking lot. He yelled at me, "Hey George, we need a fourth for bridge. Wanna play?" I did and we did. During the course of the game, he introduced me to the others—Rich Sincovec and, perhaps Fred Fritsch. It turned out that Rich had spent the previous summer at LLL and had enjoyed it. Niel asked if I would be interested in doing something like that. Of course. After the game, and dinner, I pretty much forgot about that conversation. Then one evening, months later, when I was working late in the office, the phone rang. It was Niel. Was I still interested? Could I send a resume out the next morning? That sequence led to my first summer at LLL in 1973 and over 17 years of collaboration and friendship with Alan Hindmarsh, a relationship that I could not have anticipated. I would like to think that our collaboration has made an impact not only on the two of us, but also on the engineering and scientific computing community.

Networking

Of course the previous anecdote involves friendships and friends who know someone who.... That is really what networking is based on. I wish I had understood its value and pleasure much earlier in my life. I suppose in an unsophisticated way, I understood something about it when my brother and I did odd jobs on farms and relied on word-of-mouth to have our availability made known. It can also mean simply picking up the telephone or sitting at the keyboard and asking someone (or an electronic network) the burning technical question that we have on our mind. A network is valuable because it can be the fastest way to get caught up on some specialty, because real experts can tell us not only where to look and what to seek, but they can also tell us what not to do.

My most recent use of this information resource involved talking with a friend from Argonne National Laboratory, Gary Leaf, an interesting, humorous man, who is also a fine teacher and who enjoys teasing me about my corn furrow walk when I am tired. "What is the correct boundary condition for velocity at the center of a sphere?" He, of course, knew. So do others. But, I enjoy talking with Gary. We have a fair amount in common. Happy New Year.

A Fast Way to Learn from the Experts

This leads us to a very simple idea that was insinuated, if not implemented, by Werner Rheinboldt. Suppose there is an area that you might like to learn more about. Then try to find out who the real experts are. Interestingly, they sometimes are not the headliners in a field. Find a conference somewhere that is in need of a session—believe me that is not hard—call a nice round number of these experts about a year in advance and invite them to present a paper at this session you propose to chair. That far in advance, almost no one refuses. And if someone does decline, do not take no for an answer very readily. Point out the advantages to the speaker. Just in case, have a list of would-be speakers that is longer than need be. Set up the session, and then enjoy your cram course, meet some marvelous people, and help to make a technical meeting even better. Everyone—you, the meeting organizers, the speakers, the attendees, and the readers of the proceedings—wins. It is both fun and educational and not all that bad a way for others to get to know you.

The Professional Community

While we are thinking about technical meetings, we might also understand the value of our professional associations, institutes, and societies. They provide both social and

professional activities that are invaluable to us. They also provide an interesting way to see if we can work with others successfully. The key is this, though: I believe that we are obliged to participate in our professional community because we have each benefited from it. And we do have a legacy to pass on. Our involvement might include attending meetings, participating in sessions or panel discussions, holding a local or national office, refereeing papers and proposals, reviewing articles for a review service, or simply sharing our experiences with our peers. Obligation and altruism aside, we can learn a little about management, keep up with current trends, and develop our networks through our professional activities. Besides, it is interesting.

At a local SIAM section meeting last spring, I tried my rusty, bad German on a scientist from East Germany (way back then), who quickly guided me back to English. We chatted some about the talk I had just given and then turned to my planned trip to German speaking Europe. He suggested that I look at the contrasts between East and West Germany while they were still there and to be sure to visit East Berlin. I did. He was right. A very interesting political lesson from an unusual source. We have exchanged technical papers. I wonder if he is still attached to the U.N. in New York.

Adversity

From time to time we will each be faced with an adversity and it can be nearly devastating. Since it may be impossible to overcome some of these adversities by ourselves, we may need the help of others to shorten the span of the difficult time. Unfortunately, it is not really possible to prepare for adversity. One thing is certain, we can not dwell on the what ifs of adversity nor on the adversity itself.

One evening, when I was a first year graduate student at Iowa State, I sat on the edge of my bed and thought about quitting school. A knock on the door interrupted my thoughts. It was Dick Seagrave, who lived in the dormitory room next to mine. We chatted a while about the situation, and he convinced me that I should not give up. We have remained friends over the years—I am the Godfather of his son—and I am glad he showed up that evening long ago.

I doubt that there are many who do not feel like quitting from time to time. And usually people do not admit to suffering through a time of adversity. The point is to hang in there and do our best. Moreover, when we are pondering the critical decisions at these moments, there are often people who nudge us the right way who expect no reward. These are friends, indeed.

Perseverance

There were several stories about perseverance that made a great impression on me as a child. One is about the little engine that could. Another dealt with a cat, who repeatedly told her kittens, "perseverance wins." Now, I think I understand this saying. But, it is hard to know when an idea is really bad and we should just give up or when it is good and we need to push on. There are some reasonably bright researchers I know (and you do too, I suspect) who simply have spent years doing research on things that cannot possibly work out. So, somewhere there is a line between perseverance and foolhardiness. Perseverance in an intelligent way is a key to doing things others can not do or are not willing to do. Yes, it may mean lots of very, very hard work.

Back in the late 1940s, my brother and I really enjoyed playing tennis in our little Iowa town. During the heat of August, our club had a tournament to sort out who was best. We looked forward to that tournament and playing in front of the tennis buffs and under the supervision of a no-foolin' umpire. My mixed doubles partner was a young lady named Pat Westphal. She was left handed and I right handed—forehands to the outside. She was about 5 feet tall an her head came somewhere between my waist and lower ribs. We had made it to the mixed doubles finals, which had started in the late afternoon of a hot, humid day. Pat a I had lost the first set quickly and th second of the best of three was heade that way. The score was 5–0 in game and our opponents were serving in what they reckoned to be the last game of the match. They were playi as well as we were badly and they were leading in the game 40–love. I still remember the sweat running down the backs of my legs and knowing that one more point, one more game and they would win the gold medal. Instead of giving up, Pat and I did win the game, the set, the next set, the match, and the gold medal. It was the longest match I ev played and they actually won more games than we did. That is perseverance. Perseverance wins.

Accomplishment

There is something about the sense o accomplishment that is highly addictive. Certainly, perseverance plays a role; but knowing that something has been done well or something difficult has been done is a great motivator to do it bigger and better the next time. About a year ago, one of my knees started to act up again—a victim of the sports wars, a few falls, and time. The orthopedic physician suggested some exercises t strengthen the muscles around the knee. The knee started to respond very well and I began adding weight and using more rigorous exercises. From no added weight at all, I have moved up to working with more than body weight in several exercises. Now, a year after stiffly hobbling around, I have visions of matching that 300 pound squat and 385 pound deadlift I made to the shouts of Jerry

Steiner in the weight room in the YMHA back in Pittsburgh one quiet night some 20 years ago. By the way, I think regular workouts of some kind are a very good idea for all of us. So, that is one form of accomplishment that I enjoy.

Knowing we have solved a hard problem, written a good, clean code, publishing some good results are fine stuff. But helping others succeed and watching them grow in stature, is another kind of accomplishment. It may be the most rewarding. Try it.

Ethics

This might sound a little like a sermon or an oatmeal commercial, but it is good stuff. A few years ago I asked a retired vice president of AT&T what one ought to read to understand how to manage better. His answer surprised me. He said, "The Golden Rule is all you need to know. Treat others as you would like to be treated and everything will work out." Simple, heady, and to the point. But, it is a tough dictum that applies to much more than just management. So, we should do what we do because it is the right thing to do. I can guarantee that if we act with good solid ethical reasoning, we will have much more satisfaction from our deeds. It may not be easier. Just more satisfying.

This is an interesting time of the year. Were you pleasantly surprised to hear from someone over the holidays that you may not know very well? I was. Felt good, right? Hmm. Why not sit down and send out a few notes to some other people and make them feel good, too? Well, it is a beginning. Now is as good a time as any to write or make that phone call.

Communications

How could I possibly skip this area? When we are little many of us are taught not to brag. As we went through school, many of us avoided courses in speaking and writing, and, I am sorry to say, saw all too few teachers with good classroom techniques. Technical meetings are sometimes arenas for some very weak presentations. So is it a surprise that some of us do not work on communications or that science and engineering in the U.S. are not very popular fields or, for that matter, well understood or appreciated? You might say that good writing or good speaking skills are gifts. Maybe.

There was a farmer working his field near a fence along a road. His clergyman spotted the farmer, stopped his car, and flagged down the farmer. The farmer dismounted his tractor and stiffly approached the clergyman.

"Henry," the preacher said, "you have a beautiful farm. The crops look good, the buildings are in fine shape, and the fences are true and in good repair. God has truly blessed you with this wonderful gift."

"Reverend," the sweating farmer said, "God has indeed blessed me with good weather, beautiful land, and fine crops. But, I wish you had seen this place back when he had it to Himself."

So, we too need to work on gifts—communications skills—so that others understand our work, we understand theirs, and the worth of it is understood by colleagues, students, laymen, politician, and, let's not forget, the people that pay our bills. Winging it is not good enough. Would it be a good idea to get the word out? You bet. How can we learn to do it better? Reading books on salesmanship, speaking, writing, and presentations, watching others and learning from what they do well and do not so well, sitting in an audience and asking ourselves how could it be done it better. Yes, I think Toastmasters is a good place to learn to express ideas on our feet. When can I find time to do this? Well, today is as good a time to start as any.

Before we move on to the next topic, did you ever wonder why newspaper science editors seldom cover big technical meetings? I did. So, I called an editor and asked. Are you ready? He had no idea there was such a meeting, when it was being held, where it was being held, why he or his publisher or his readers would have any interest whatsoever, or who was at the conference! Amazing? Not at all. I think the amazing thing is that anyone shows up at some of our conferences. Some good public relations and publicity surely can not hurt us. It could even be interesting to see what might happen.

Travel

Foreign travel is very broadening and I recommend it strongly. It seems to be a very good investment in time to learn a few phrases, at least, in the language of the countries to be visited. That in itself can lead to considerable insight in our shrinking world. For whatever reasons, I did not visit abroad (Canada and Mexico do not really count here.) until 1987. It is amazing to look at the Alps and wonder how Hannibal did it or to see where Napoleon's army overran the Piedmontese in the Maritime Alps, or to see the wonders of ancient and modern Rome, the breathtaking changes in Europe, the pubs in the United Kingdom, the pipers in Scotland, and so on. The sights and sounds seem to make classroom teaching a reality and to help understand more of what has happened and what is happening. But, the most amazing thing is to talk and laugh and to share with others from another culture. There are moments and views that can be recalled for years to come:

- The cab driver in London, who showed me the route we were following on a map and who gladly settled for the English currency I had, even though it was short of the fare.
- The East and West Berliners who shared brown bread and cheese

sandwiches and Czech beer with me in our compartment on the train between Berlin and Vienna.

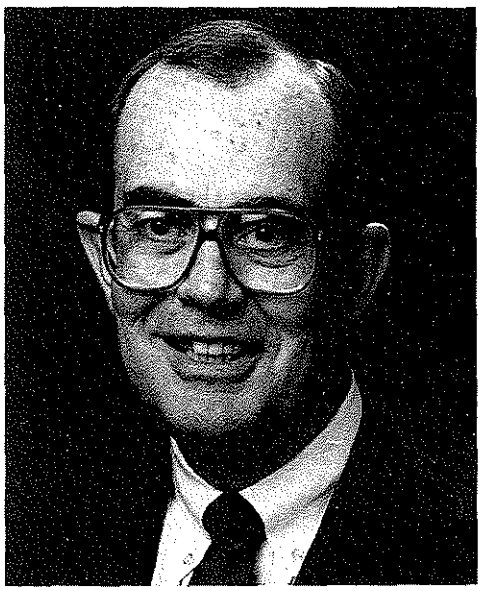
- The majesty of Mont Blanc and the parachutists who jumped from its top and glided to a square in Chamonix.

- The faculty and students in German speaking Europe, who tolerate my bad German and correspond with me in German.

And so on. I happen to believe this helps us to gain in insight and understanding.

Compartments and Departments

So, we go bouncing along through our professional lives, neatly tucked in our compartments and departments: mathematicians, applied mathematicians, computer scientists, chemical engineers, chemists, physicists, ... It has seemed to me that several compartments have some pretty neat things and far out people. I happen to think it is fun and interesting to poke into different compartments from time to time and to learn to speak the local dialect in my heavy accent, and to break bread. It is very broadening and leads to some interesting insights and understanding. It prevents inbreeding, too. Very important stuff back in the farm country. Yes, I do remember someone explaining to me what that computer did, what a suicide squeeze is, learning what a trap block is the hard way, politely being told in English when to use the informal du and when to use the more formal Sie by very nice young German —Marc Heidrich, what a stirred batch reactor is, what a fluidized bed is, and, most recently, looking at some co-polymer stuck together like tapioca pudding in a little pressurized reactor. An uncle of mine, the late Robert Lewis, once said, "I'll go ask that fella. I don't mind making an ass of myself." It is interesting how we learn, isn't it? So we come to the question "Are you a mathematician, an engineer, or a computer scientist?" "Yes," seems to be my perfectly logical answer; but there is more, too.



George D. Byrne, a Research Associate at Exxon Research and Engineering Company, New Jersey, received the 1990 Computing Practice Award at the CAST Division Award Dinner at the AIChE National Meeting in Chicago. He was cited "for his contributions in numerical methods, especially differential equations, related software, and their applications in chemical engineering." The Computing Practice Award, sponsored by Pergamon Press, honors an outstanding effort that has resulted in a specific embodiment, or possibly an industrial or commercial application, of computing and systems technology. The award consists of $1000 and a plaque.

George received his B.S. degree in Mathematics at Creighton University, and both M.S. (Mathematics) and Ph.D. (Applied Mathematics) from Iowa State University. At the University of Pittsburgh, from 1963 through 1980, he taught courses spanning mathematics, computer science, and chemical engineering; he directed 6 Ph.D. theses and served on over 30 Ph.D. committees. He is a member of SIAM, ACM, AIChE, IAMCS, IEEE, the American Mathematical Society, IMA (British), Sigma Xi, the National Speakers Association, and, of course, Toastmasters International. One supporting letter commented: "A highly uncommon dimension of George is made up by his professional and speaking skills . . . He is one of the most effective speakers I've known..."

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Communications

University of Pennsylvania Scientists Honored for Research Conducted at Pittsburgh Supercomputer Center

Using the facilities of the Pittsburgh Supercomputing Center, scientists at the University of Pennsylvania have developed a computer program for simulating nuclear magnetic resonance (NMR) spectroscopy that executes more than 2 billion floating-point operations per second (2 gigaflops), making it one of the world's fastest programs. At this high level of performance, calculations that previously took days now take minutes, and as a result, computer simulation is a much more valuable tool for solving the problems of using NMR spectroscopy to diagnose human disease.

Manfred G. Prammer and Katherine E. Vogele of the University of Pennsylvania's Department of Biochemistry and Biophysics created the program using the CRAY Y-MP/832 supercomputer at the Pittsburgh Supercomputing Center. The program is still being tested and has not yet been used to diagnose illness in humans. They used PREPnet, a high-speed telecommunications link supported by Bell of Pennsylvania and the Commonwealth of Pennsylvania, to connect with the Pittsburgh Supercomputer Center from the Philadelphia laboratory.

In November, Cray Research Inc. honored Prammer and Vogele's accomplishment with a 1990 Gigaflop Performance Award. With this award, Cray recognizes research scientists and engineers worldwide who have solved practical scientific problems with computer programs operating at sustained speeds over 1.5 billion gigaflops.

"Simulation of nuclear magnetic resonance experiments can save hundreds of hours of expensive machine time on commercial magnetic resonance imagers that are used for clinical diagnoses," said Prammer. In NMR spectroscopy, precision control of radio-frequency (RF) pulses is the key to getting good results, but this is a sophisticated, difficult process. Prammer and Vogele's program simulates the extremely small energy transitions that occur when RF pulses—roughly equivalent to an AM or FM radio signal—pass through the human body.

Because it uses RF pulses instead of x-rays, NMR poses no known hazard to human tissue. While NMR imaging has caught on rapidly during the 1980s for use in medical diagnosis, many scientists believe a related use of the same technology, NMR spectroscopy, has even greater potential. NMR spectroscopy can provide the kind of precise chemical information that normally requires laboratory analysis of tissue samples obtained from biopsy.

The Pittsburgh Supercomputing Center, a joint project of Carnegie Mellon University, the University of Pittsburgh and Westinghouse Electric Corporation, was established in 1986 by a grant from the National Science Foundation with additional support from the Commonwealth of Pennsylvania. Its purpose is to develop and make available high-performance computing for scientific researchers nationwide. To date, more than 2300 researchers at 250 universities and research centers in 47 states have used the Center's facilities.

CAI in Advanced Process Control

by Pradeep B. Desphande

In recent years, phenomenal developments have taken place in control methodologies that are likely to have a profound impact on how tomorrow's processes are controlled for single-input single-output systems some of the new algorithms feature a single tuning constant and dead-time compensation, while for multivariable systems they provide interaction compensation, dead-time compensation, and an ability to deal with constraints. This software package has been brought out to provide training and instruction in several important advanced control techniques.

The CAI software package consists of a set of 15 programs; 12 are for SISO systems, and 3 for multivariable systems. The hardware requirements are an IBM PC/AT with 640K memory and hard disk + monochrome display and Hercules graphics card (or IBM color display and IBM color graphics card) + math coprocessor + IBM Quietwriter printer. The software will also run on many compatible systems. The operating system used is MS DOS version 3.1.

The 15 programs are listed by the names OPEN; PROCESID; CLOSE; RANOPT; LEASTOPT; FEEDFOR; SMITH; SVIMCFAC; SVSMPC; SVFMC; SVIMCPRE; SVDMC; MVIMCPRE; MVDMC; and MVSMPC. A single copy costs $995, with a 50% academic discount.

For further details, please contact Digital Control Technology, 1209 Holsworth Lane, Louisville, KY 40222.

Electronic Communications

A New Newsletter Section "Electronic Communications"

by Peter R. Rony

The pace of electronic communications in chemical engineering is accelerating (one day, for example, this newsletter may become CAST Electronic Communications, to reflect its dominant mode of transmission). In this new section of the newsletter, we shall regularly publish examples of the increasing use of E-mail for communicating the opinions of division members, submitting manuscripts to professional magazines, and electronic broadcasting via the use of engineering bulletin boards. We hope that this section becomes a useful service to division members.

Fuels & Petrochemicals Division Electronic Bulletin Board

The F&PD Electronic Bulletin Board is up and running (and waiting for you to use it). Give it a try today.

Data Phone: (509) 375-2030
Baud rate: 1200
Data bits: 8
Parity: N
Stop bits: 1
24-hour/day operation

The F&PD Bulletin Board is a project of the Executive Committee of the AIChE Fuels and Petrochemicals Division. It has been established to test the feasibility of using on-line bulletin boards to enhance the technical programming of AIChE.

System Operator: Scott Butner, Batelle-Pacific Northwest Laboratories, PO Box 999, Richland, WA 99352. (509) 375-2675.

Electronic Submission to Controls Systems Society

The following information, submitted by Tom Edgar, illustrates the efforts of a sister engineering society, the IEEE, to facilitate the electronic capture of keystrokes and the reduction in the costs of magazine production. The ability to handle a wide variety of graphics and text formats is impressive. Observe a new verb in the English language: "to rekeyboard." While acting as editor-in-chief of the IEEE Computer Society magazine, IEEE MICRO, your newsletter editor collaborated with its managing editor, Joe Schallan, to create the ability to handle electronic manuscripts. Joe called the process, "to capture keystrokes."

"The IEEE has equipment that can accept charts, graphs, and line figures electronically. For further information, please contact Terry Schiesser at (201) 562-3953."

"Attention magazine authors: send us your manuscript disks. The IEEE now has equipment that can convert a disk directly to type, thus avoiding rekeyboarding. Floppy disks will speed the editing and handling process at IEEE. Texts, charts, graphs and figures should be placed on a standard $5\frac{1}{4}$", double sided, high density diskette or $3\frac{1}{2}$" diskettes. There is a variety of software that we can now take into our operation; please look at the attached list to see if any of your software is listed. The list also indicates what extension should be used to save the graph or text in orc to be imported directly into our system. If your software is not on tl list, you can provide your text and graphs in unformatted ASCII files.

"Protect your diskettes in the maili process: keep each disk in its sleeve and encase it in a jacket made from light but fairly rigid cardboard retainers. Please included a printec version of what is on the disk, including the type of software used, that we can make certain that all of the text is completely readable in ou system."

For Macintosh platforms:

PageMaker version 3.0, Quark Xpress, Adobe Illustrator 88, MacDraw, and Stuffit version 1.5.1.

For IBM-PC class platforms:

WordPerfect version 5.1. Import fro Lotus 123 spreadsheet, Micrsoft Exc PlanPerfect, and MathEdit (equations).

Supercalc 5. Import from: SDIF, DIF, CSV, Numbers, Text, VisiCalc, and Dbase.

Text on WordStar version 3, 4.0, or 5.0; Microsoft Word, WordPerfect/ WordPerfect 5, XYWrite, ASCII/8-bit ASCII text files, Writer, MultiMate, DCA, and PRN-to-Table.

PC TEX

Desktop Publishing Software: PageMaker version 3.0 supports a variety of graphic formats: Paint-Type graphics: PC Paint (.PIC), PC Paint Plus (.PCX), PC Paintbrush (.PCX), PC Paintbrush Plus (.PCX), Publisher's Paintbrush (.PCX), Windows Paint 1.0 (.MSP), Windows Paint 2.0 (.MSP), MacPaint (.PNT), TIF files (.TIF), and HP Graphics Gallery (.TIF).

Scanned-Type graphics (.TIF): Bit-map graphics (line art), haltone image (halftone), and gray-scale image.

Video images (.TIF): Aldus SnapShot (video camera, videodisk, VCR, or Camcorder).

Draw-Type Graphics: HP-GL plotter format (.PLT), CGM graphics format (.CGM), Videoshow (NAPLPS) graphics format (.PIC), Windows GDI metafile (.WMF), AutoCAD by Autodesk, (.PLT), In A Vision and Windows "Draw!" by Micrographx (.PIC), Mirage by Zenographics (.IMA), and Lotus 123 and Symphony (.PIC).

EPS-format graphics: PostScript code must be "well behaved" in its use of certain PostScript operators, manipulation of the graphics state, and manipulation of the PostScript stacks and global dictionaries. The PostScript must confirm to standard structuring conventions for PostScript files.

Ventura Publisher/Professional Extension page composition supports several industry-standard graphics formats: GEM, CGM, DXF (AutoCAD), HPGL (HP7470 and HP7475), Lotus 123 (.PIC), Macintosh PICT, Macintosh Paint, PC Paintbrush (.PCX), PostScript (EPSF), TIFF files, Videoshow, Microsoft Windows, AutoCAD .SLD files (slide files), and Mentor GR.

On-Line Transmission to IEEE Spectrum

by Donald Christiansen

Authors and reviewers can now communicate with IEEE Spectrum through a computer bulletin board. Manuscripts, reviews, and letters to the editor may be transmitted directly to Spectrum via Macintosh, IBM PC or compatible, or any computer system with access to a modem.

Files sent to Spectrum should be in ASCII format. Most word-processing programs—WordPerfect, Microsoft Word, and XYWrite among them—will create an ASCII file if the text is saved as "text only." Files should not be transmitted in archival format.

To transmit, use telephone number (212) 705-7308. The password is SPECTRUM. The bulletin board is configured as follows: Baud, 1200 or 2400; Terminal emulation, ANSI; Parity, none; Data bits, 8; Stop bits, 1; Protocols supported, ASCII, KERMIT, XMODEM, YMODEM, WXMODEM, COMPUSERVE B. For more information, or to confirm receipt of a transmission, call (212) 705-7305.

A Selection of Electronic Messages

Date: **Wed, 26 Sep 90**

From: **"James N. Petersen" SCEF0003@WSUVM1.CSC.WSU.EDU**

Subject: **Test of Internet mailing**

You should obtain this message via the internet. It should get there much faster. But this is not the real power of the internet. The real power comes from the fact that you can actually log onto other machines on the net. Call me at (509) 335-1003 and I'll walk you through logging onto my account on some machines here at WSU and one at Oak Ridge National Lab. My experience while I was at Oak Ridge was that I could log onto my machines here at WSU and obtain the same response time (time after I hit enter until the response appeared on the screen) that I get when I am sitting at a terminal here on campus. The same is now true when I log onto the machine in Oak Ridge from here. Call me and let me demonstrate. I think this is the future of networking, and we need to inform the rest of the ChE community of these capabilities.

Date: **Thu, 04 Oct 90**

From: **HASSLER@MAINE (John Hassler)**

Subject: **More network stuff**

A new newsgroup called sci.engr has started in USENET. I am sending the "welcome" message below. The initial response has been mostly a bunch of engineering jokes—I have also attached a representative sample. I'll watch this, and see if it turns into anything interesting.

We also got a letter to the department from Martyn S. Ray, from Curtin U. in Perth, Australia. He is trying to start a group specifically for Chem. Eng.; you may already have seen it. He's looking for address lists for ChE, so you might want to contact him. He is TRAYMS@CC.CURTIN.EDU.AU.

Date: **26 Sep 90**

From: **lvron@earth.lerc.nasa.gov (Ronald E. Graham)**

Subject: **Welcome to sci.engr**

Reply-To: lvron@earth.lerc.nasa.gov

Organization: NASA Lewis Research Center

News-Software: VAX/VMS VNEWS 1.3-4

Welcome to sci.engr! Thanks to all who voted for this group. Special thanks to those of you who contributed to the discussion that led up to the group's charter. A few of you made large contributions, which I appreciate. Now, having said that, let's get down to business. I'd like to address the following topics in this post: first, the charter—the fact that it's general, and the fact that it's technical; second, the fact that we're unmoderated; and finally, the

possibility of establishing "keepers" of good information.

I. The Charter

Here's the charter we agreed to in the vote:

(1) To examine engineering problems in academia and industry, and the approaches taken in solving them;

(2) To discuss tools used by the engineer (e.g. software, mechanisms, algorithms, strategies, etc.);

(3) To exchange information relevant to the accomplishment of engineering tasks.

Now, this charter is pretty general. A few folks voted against this group for this reason. The best reason for a general charter is accessibility: all you folks in engineering or related disciplines should be able to find (ultimately) something of interest. The second-best reason is expansion: for all the talk of starting an "engineering hierarchy" in USENET, a lot of folks will still tell us that traffic should be established in any area before a new group to support that area is formed. Here's the place for that traffic to be established.

If it turns out, for instance, that you EEs out there dominate the group, and the volume and signal/noise ratio are pretty high after we've been together for a while, maybe you-all can start a discussion about splitting off from the rest of us (sci.engr.ee, maybe). And if you do, your charter would be that much more specific. And this one would be amended. We can amend the charter as we go along, if anything in it is so general that it should be corrected, or if anything in it is found simply not to belong. I write these things on the fly, just in case you couldn't tell. I propose that a few things (the charter, for instance) should be posted regularly (maybe quarterly, if the traffic seems to be there), for the benefit of new participants.

So, what about the non-technical stuff? The issues that we "started out" with when an engineers' group was first proposed. There are two answers to that question: first, I think there is interest in the establishment of yet another group, for dealing with non-technical issues (education, ethics, PR, societal impacts, etc.) in engineering, but no consensus was reached as to where that group belongs (except that it does NOT belong in sci). I hope to get back to you a bit later about resuming that discussion, but I would like to see how we're doing here first. Second, not very many tasks in engineering can be accomplished "totally apart" from non-technical issues. If you are discussing a task from the overall point of view, some things that are not technical may, at times, come up (management, bean-counting, schedule impacts are a few that come to mind). I say, let them. But PLEASE don't lose sight of the technical problem you start with. This group is here to spotlight the technical side of the profession. Any other group we start later (if we really do) can spotlight the other side.

II. We're an Unmoderated Group

Heaven help us. Here are a few things we should scrupulously try to AVOID:

- Flames: especially those undergraduate flames about which engineers are the best, which schools are the best, etc. That kind of thing rankles me, at least, more than most other types of flames, but I hate flame wars in general.
- Discussions free of technical substance: some of those folks who voted against us felt we just didn't belong in sci. I think we should show them not only that we do, but HOW MUCH.
- Job-hunting and resumes: ther are groups out there for that.
- Jargon specific to a specialty, if that specialty is found elsewher on the net, unless it relates to a more general or disciplinary problem.

And, here are a few things we shoul try to encourage:

- Requests for help: texts, author industrial applications, classroo examples, schools and short courses that can help us on the j
- Research topics: suggestions fo further work, or avoiding re-inventing the wheel.
- Peer review: when we've got enough moxie to expose our wor to the net.

III. Finders of the Keepers

This idea came from Ike Stoddard, IAS2033%ccfvx3.draper.com @RELAY.CS.NET. He suggests a syst of "pseudo-moderation", where individuals serve as "keepers" of various types of data that we encounter in our discussions. A "keeper of the acronyms" would be a wonderful thing. Somebody for discipline-specific or commonly used texts would be all right too. I don't know if we would need one for constants: there are handbooks for that sort of thing. Equations, maybe I'd like to hear suggestions, but I'd REALLY like to hear from volunteers. A volunteer could "catch" references thrown his/her way, and post the list periodically or mail it by request.

Welcome once again to sci.engr! I'm sorry this post was so long, but mayb it'll help you figure out how to get yo own discussion thread rolling. RG

Date: **Sun, 7 Oct 90**

From: **Ray_MS@cc.curtin.edu.au**

Subject: **Chem Eng Newsgroup**

Hi, Thanks for your response. I am setting up a Chem Eng Newsgroup to be called sci.engr.chem; notices have appeared in various newsgroups. At the same time I am establishing a Chem Eng Mailing List to send out a monthly (?) newsletter with items of chem eng interest.

Date: **Thu, 29 Nov 90 09:34 +8:00**

From: **Ray_MS@cc.curtin.edu.au**

Subject: **Chem Eng Digest: Number 1**

Volume 1, Issue Number 1, November 1990

Editor: Dr Martyn S Ray, Senior Lecturer in Chemical Engineering Curtin University of Technology, Perth, Western Australia. Tel. 09-351-7581 Fax. 09-351-2681

E-mail (Internet): trayms@cc.curtin.edu.au, ray_ms@cc.curtin.edu.au, chemeng@cc.curtin.edu.au

Item 1. The chemical engineering newsgroup—sci.engr.chem—is now operational. Thank you to all those people who voted (results posted in news groups). Now our task is to show the sceptics on the net that we have enough items to justify its existence. Please use it—or we may loose it! In future low usage groups may get deregistered! Make sure your colleagues and students know that the group exists and encourage them to use it.

Item 2. As this is the first issue I haven't got any items for inclusion except my own, so Item 2 is mine. If you prefer variety, send in some items (not too long please, interested parties can always correspond direcly via E-mail).

Chemical Engineering Bibliography (1967–1988)

by Martyn S. Ray
Curtin University
Perth, Western Australia
Published by Noyes Publications
Mill Road at Grand Avenue, Park Ridge, New Jersey 07656 (1990)

This single-volume bibliography contains 20 000 references from the 40 most important chemical engineering journals for the period 1967–1988. It is divided into 27 chapters and includes an index of 900 entries.

This bibliography is the most easily accessible, single-volume reference source in chemical engineering that is affordable by the individual. It provides quick, easy access to the journal literature of the last two decades in an "off-the-shelf" format. This bibliography makes initial literature searches easy, without even leaving the office. This book can replace shelves of personal dust-ridden journal holdings. The following subjects are included: Design Data; Physical Property Data; Site Considerations and Project Assessment; Energy Conservation; Environmental Management; Economic Evaluation; Safety and Loss Prevention; Plant Operations; Process Control/Instrumentation; Mathematical Methods; CAD; Engineering Materials; Biotechnology. Chapters are also included for the major unit operations and equipment design, e.g. distillation, absorption, mixing, etc.

This bibliography is an essential purchase for libraries servicing engineering and science departments, it should also occupy a prominent place on the chemical engineer's personal bookshelf.

Date: **Thu, 29 Nov 90 09:00:20 EST**

From: **maser@caen.engin.umich.edu (Steven Michael Maser)**

Subject: **Re: Test question**

Thanks for responding. Your address that *I* see is "rony@vtvm1.cc.vt.edu". If you got all my messages, then it was because I sent them as "rony@vtvm1" from our 3090 and "rony@vtvm1.bitnet" from my Apollo mail server. One of the problems was that "rony@vtvm1" would not send from the Apollo mail server—it expects "vtvm1" to be a local machine and needs the ".cc.vt.edu" suffix. This may (or may not) cause problems for someone who tries to use the database on a system that requires a more specific address than a "one-site" name.

I also received the first edition of the "Chem Engin Gazette" (or whatever it was called). I noticed other "one-site" names also needed the ".bitnet" suffix. This is probably something you should definitely address in a mailing of some sort.

Date: **Fri, 14 Dec 90**

From: **Ray_MS@cc.curtin.edu.au**

Subject: **ChE Electronic Newsletter: Number 2**

Volume 1, Issue Number 2, December 1990

General Points:

1. Welcome. This is the second transmission of the ChE Electronic Newsletter (renamed from Chemical

Engineering Digest, the 1st edition) via my e-mail chemical engineering mailing list.

2. Please publicize the newsletter to colleagues (and students) who may be interested in joining the list.

3. Send items to the editor (trayms) for inclusion in the next issue. These can be requests for information or data, information on meetings and seminars, details of a new book to be published, discussion of a journal article, details of vacant faculty positions, sabatical leave, etc. Please keep items brief—say max 12–15 lines if possible.

4. We now have a chemical engineering newsgroup (sci.engr.chem) on the net for general communications. This digest is for more important and specific items and goes direct to a targetted audience. Also at Curtin items are deleted from newsgroups after 7 days, the newsletter stays in your mailbox until read. Items may be included both in this newsletter and sci.engr.chem.

Index of Items Included:

Date: **Wed, 16 Jan 1991**

From: **Ray_MS@cc.curtin.edu.au**

Subject: **ChE Electronic Newsletter: Number 3**

Volume 1, Issue Number 3, January 1991

Index of Items Included:

Date: **Thu, 31 Jan 1991**

From: **Ray_MS@cc.curtin.edu.au**

Subject: **ChE Electronic Newsletter no.4**

Volume 1, Issue Number 4, 1 February 1991

Index of Items Included:

Date: **Mon, 18 Feb 1991**

From: **Ray_MS@cc.curtin.edu.au**

Subject: **ChE Electronic Newsletter no.5**

Volume 1, Issue Number 5, 18 February 1991

General information about the Newsletter has been moved to the en to make it easier for regular readers who dont want to wade through it eac time. Also I have tried to reduce the line length as some sites were having problems.

ChE Electronic Newsletter back-issue available from ftp archive. To access the archive, ftp to cc.curtin.edu.au ar login with a username of 'anonymous

and a password of your name. If you look in the directory 'chemeng' (by typing cd chemeng) you will find an archive of back issues. Use the 'ls' and 'get' commands to list the files and retrieve them to your computer. Use 'quit' to finish.

Index of Items Included:

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Meetings, Conferences, Short Courses, and Workshops

The following items summarize information in the hands of the Editor by February 2, 1991. The preferred deadlines for the two issues of CAST Communications—called the Summer and Winter issues—will be June 1 and January 1. These revised deadlines will give CAST division members who are active in CAST programming activities sufficient time after AIChE meetings to send last-minute information to both the Publications Board Chairman (Jeff Siirola) and the Editor of the newsletter (Peter Rony). We prefer that all communications with us be done in electronic form, either with MS DOS formatted diskettes or with messages sent electronically over BITNET. An up-to-date listing of proposed sessions and Calls for Papers will be maintained electronically by the Publications Board Chairman. CAST Division members can always request such information by sending a BITNET message to RONY at VTVM1.

To submit a paper for consideration at any event listed below, please contact the corresponding session chairman or vice chairman directly. For further information or details about each of the four CAST Division programming areas, contact the appropriate Area Chairman 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 (Area 10 Programming Chairman), Research Laboratories – B95, Eastman Chemical Company, PO Box 1972, Kingsport, TN 37662, (615) 229-3069.

Authors are reminded that under current AIChE meeting policy, the meeting booklet will contain only titles of the papers presented. However, a book of extended abstracts is distributed to attendees at the meeting. Moreover, authors may bring hard copies of their papers for distribution at their session, and hard copies or microfiche may be ordered at or after the meeting.

Please send CAST Division session information, Calls for Papers, and meeting and short course announcements to me by July 1, 1991 for inclusion in the "Summer 1991" issue of CAST Communications. For those members of the CAST Division who are engaged in the presentation of seminars and short courses, an advance (draft) copy of your announcement brochure would be appreciated.

. . . Peter R. Rony, Editor, CAST Communications

Houston AIChE Meeting

April 7–11, 1991

The CAST Division is sponsoring the following sessions at the Houston National meeting.

Area 10a: Systems and Process Design

1. Applications of Artificial Intelligence in Process and Product Design.
2. Industrial Applications of Optimization.
3. Process Design and Simulation.
4. Retrofit Design Techniques and Applications.

Joint 10a and 16b Session

1. Computer-Aided Engineering/Computer-Aided Design (A Tutorial).

Area 10b: Systems and Process Control

1. Intelligent Control.
2. Industrial Applications of Process Control.

Area 10c: Computers in Operations and Information Processing

1. Plant-wide Management Systems.
2. Computer Integrated Manufacturing.
3. Innovative Uses of Spreadsheets in Engineering Calculations.
4. Applications of Expert Systems.

Area 10d: Applied Mathematics and Numerical Analysis

No Sessions are planned.

Twenty-Second Annual Pittsburgh Conference on Modeling and Simulation

School of Engineering
University of Pittsburgh
Pittsburgh, PA
May 2–3, 1991

Emphasis for the 1991 Modeling and Simulation Conference will be microprocessors, personal computer applications and software, artificial intelligence, expert systems, robotics and all aspects of control theory and applications, as well as social, economic, geography, regional science, and global modeling and simulation. In addition, papers on all of the traditional areas of modeling and simulation are of interest. Special sessions are planned on Microprocessors in Education. Papers in these special sessions will be reviewed for possible publication in a Refereed Journal. Direct all correspondence to: William G. Vogt or Marlin H. Mickle, Modeling and Simulation Conference, 348 Benedum Engineering Hall, University of Pittsburgh, Pittsburgh, PA 15261.

Overview of HYSIM

May 7-8, 1991

Hyprotech invites you to attend its training seminar on HYSIM, an interactive process simulator. The seminar emphasizes hands-on use of HYSIM using 80386-class personal computers. The overview course is for anyone new to HYSIM, or anyone currently using HYSIM who desires to improve his/her proficiency. This course has been developed to provide a broad overview of HYSIM capabilities and special features. The place is Westchase Hilton (Omni Ballroom), 999 Westheimer, Houston, TX 77042-9990. Phone: (713) 974-1000. The fee is $300, the payment deadline is April 29, and the refund deadline is May 3. For additional information, please contact Gloria Chukman, Director, Technical Support and Training, (713) 780-7087 or 1-800-475-0011.

6th Short Course on Applications of Advanced Control in the Chemical Process Industries

University of Maryland
College Park, MD 20742
May 20–24, 1991

Objective: This course is designed to cover the theory and application of advanced control concepts to the chemical process industry in order to make the participant able to evaluate: How can this method/technique help to solve my problems. Emphasis will be placed primarily on those techniques which have already and potentially can help solve real industrial problems. Lecturers will be chosen equally from the leading chemical and petroleum companies, from consultants, and from universities. The course format is such as to encourage a significant amount of interaction and discussion among the participants.

Participants: This course is intended for engineers who have a good working knowledge and background in dynamics and control. It is not intended for the novice. Engineers with one or more years of practical experience will benefit the most from the course. Attendance will be limited to the first 35 qualified applicants.

Lecturers: Kyu-Y Choi, Charlie Cutler, Tom Edgar, Chris Lalka, Tom McAvoy, Julian Morris, Mike Piovoso, Mr. Greg Shinskey, and Ernie Vogel.

Fee: $1595, which includes course notes, daily lunch and picnic on Thursday.

Sponsored by: Chemical Process Systems Laboratory, University of Maryland, College Park, MD 20742. For additional details, contact Professor Tom McAvoy, (301) 405-1939.

Advanced Process Systems Engineering: Concepts and Practice Engineering Design Research Center

Carnegie-Mellon University
Pittsburgh, PA
June 3–7, 1991

This 5-day course stresses the application of recently developed design concepts and optimization-based strategies to practical process problems. Geared to technical managers, industrial researchers and tool developers, this course provides practical information and exposure to

powerful modelling tools for process synthesis, analysis, optimization, and planning. In addition, the course emphasizes systematic solution approaches and provides the necessary background to understand the tools and apply them effectively and efficiently to process problems.

Topics of this course include concepts for process synthesis (heat integration, separation systems, reactor networks), expert systems, modeling environments, flowsheet optimization, mixed-integer optimization models for process synthesis, strategies for retrofit design, differential/algebraic systems, and planning and scheduling of batch processes. Course participants will address these topics through lectures and hand-on workshops making extensive use of powerful computer software. Also, a comprehensive set of lecture notes and handouts will be provided.

The instructors of the course are Professors Larry Biegler, Ignacio Grossmann, and Arthur Westerberg. For information, please call (412) 268-2207, or write to Post College Professional Education, Carnegie Mellon University, Mellon Institute, 4400 Fifth Avenue, Pittsburgh, PA 15213, Attn: Frank E. Nowak, Director.

Fourth World Congress of Chemical Engineering

Karlsruhe, West Germany
(June 16–21, 1991)

This conference, which will directly follow the exposition ACHEMA 91, will be held under the auspices of the European Federation of Chemical Engineering and is being organized by its German Member Societies with participation by AIChE. The main subject of the Congress will be "Strategies 2000" and will stress the interdependence of strategic societal goals, applications in the process industries, and fundamentals and methods of chemical engineering. Of particular interest to members of the CAST Division might be the sessions on Process Synthesis and Analysis, and Process Control, Simulation, and Optimization. Deadline for submission of proposed abstracts was June 15, 1990, but paper selection will not be made until October. For additional information, contact Dr. Verle N. Schrodt, Bureau of Engineering Research, University of Alabama, Box 870201, Tuscaloosa, AL 35487-0201, (205) 348-1591 or (205) 348- 9455 (FAX).

1991 American Control Conference

Boston Park Plaza Hotel
Boston, MA
June 26–28, 1991

The American Automatic Control Council will hold the tenth American Control Conference (ACC) Wednesday through Friday, June 26-28, 1991 at the Park Plaza Hotel in Boston, Massachusetts. This conference will bring together people working in the fields of control, automation, and related areas from the AIAA, AIChE, ASME, AISE, IEEE, ISA, and SCS. Both contributed and invited papers will be included in the program. The ACC will cover a range of topics relevant to theory and practical implementation of control and automation. Topics of interest include linear and nonlinear systems, identification and estimation, signal processing, multivariable systems and control, large-scale systems, robotics and manufacturing systems, guidance and control, sensors, simulation, modeling, adaptive control, optimal control, robust control, expert systems, control education, and control applications.

The Organizing Committee intends to arrange workshops to be held in connection with the 1991 ACC. The 1991 IFAC Advances in Control Education (ACE) Conference and Exhibit has been conveniently scheduled to immediately precede the Boston American Control Conference next summer on June 24-25.

For further information, contact: Christos Georgakis, Center for Chem Process Modeling and Control, 111 Research Drive, Mountaintop Campus, Lehigh University, Bethlehem, PA 18015. (215) 758-4781.

Fourth International Symposium on Process Systems Engineering (PSE '91)

Montebello, Quebec, Canada
August 5–9, 1991

This conference is being sponsored by the Canadian Society for Chemical Engineering (Systems and Control Division), the National Research Council of Canada (NRC), and the American Institute of Chemical Engineers (CAST Division). It is the fourth in a triennial series entitled PSE, and follows highly successful events in Kyoto in 1982, Cambridge in 1985, and Sydney in 1988. Following the tradition of the PSE series, emphasis will be on the presentation of new information on either technology or its application. Papers describing applications will be especially welcomed, particularly where they contain detailed information relating to the value of a study.

Conference topics include process control and optimization, artificial intelligence, batch process design and optimization, industrial applications, failure analysis in design, design of

flowsheets, modeling, and process engineering education.

For additional information, contact Gerry R. Sullivan (Conference Chairman), Department of Chemical Engineering, University of Waterloo, Waterloo, Ontario, N2L 3G1, CANADA, (519) 885-2196.

1991 International Conference on Parallel Processing

Pheasant Run Resort
St. Charles, Illinois
August 12–16, 1991

Submitted papers describe recent advances in all aspects of parallel/distributed processing. These include parallel/distributed logic circuits, impact of VLSI to parallel processor architecture; various concurrent-, parallel-, pipeline-, or multiple-processor architectures; processor-memory interconnections; computer networks; distributed databases; reliability and fault tolerance; modeling and simulation techniques; performance measurements; operating systems; languages; compilers; algorithms; or various application studies.

If you wish to receive announcements, please send a request to Professor T. Feng, The Pennsylvania State University, E. E. East Bldg., University Park, PA 16802

Pittsburgh AIChE Meeting

August 18–21, 1991

Meeting Program Chairman: Dale L. Keairns, Westinghouse Electric Corporation, 1310 Beaulah Road, Pittsburgh, PA 15235, (412) 256- 1954.

The CAST Division is planning the following special sessions at the Pittsburgh Meeting. Deadlines and final call for papers for this meeting appear later in this issue.

Area 10a: Systems and Process Design

1. **Issues in Interdisciplinary Design I. Design Synthesis.** Jeffrey J. Siirola (Chairman), Research Laboratories - B95, Eastman Chemical Company, Kingsport, TN 37662, (615) 229-3069 and Steven Fenves (Vice Chairman), Engineering Design Research Center, Carnegie Mellon University, Pittsburgh, PA 15213, (412) 268-2944.

2. **Issues in Interdisciplinary Design II. Life Cycle Concerns.** Thomas J. Berna (Chairman), Mobay Chemical Corporation, Mobay Road, Pittsburgh, PA 15205, (412) 777-2327 and Daniel Siewiorek (Vice Chairman), Engineering Design Research Center, Carnegie Mellon University, Pittsburgh, PA 15213, (412) 268-2570.

Area 10c: Computers in Operations and Information Processing

1. **Issues in Interdisciplinary Design III. Design Environments.** John Baldwin (Chairman), M. W. Kellogg Company, Three Greenway Plaza, Houston, TX 77046-0395, (713) 960-4042 and Sarosh Taludkar (Vice Chairman), Engineering Design Research Center, Carnegie Mellon University, Pittsburgh, PA 15213, (412) 268-5225.

2. **High Performance Computing in Chemical Engineering.** Gregory J. McRae (Chairman), Engineering Design Research Center, Carnegie Mellon University, Pittsburgh, PA 15213, (412) 268-2254 and Michael Levine (Vice Chairman), Pittsburgh Supercomputing Center, Mellon Institute, Pittsburgh, PA 15213, (412) 268-4960.

Joint 10c and 5d Session:

1. **Robotics in the Chemical Industry.** John C. Jepsen (Chairman), Shuttleworth, Inc., 10 Commercial Road, Huntington, IN 46750, (219) 356-8500 and Michael T. Tayyabkhan (Vice Chairman), Tayyabkhan Consultants, Inc., 62 Erdman Avenue, Princeton, NJ 08540, (609) 924-9174. [Rescheduled from Houston meeting]

Joint 10c and 14 Session:

1. **Computer Technology in the Nuclear Industry.** Chris Dahl (Chairman), Westinghouse Idaho Nuclear Company, PO Box 4000, Idaho Falls, ID 83403-5217, (208) 526-3583.

Los Angeles AIChE Meeting

November 17-22, 1991

Meeting Program Chairman: Dr. Richard L. Bell, Department of Chemical Engineering, University of California, Davis, CA 95616- 5294, (916) 752-8776, FAX: (916) 752-1013.

The CAST Division is planning the following sessions at the Los Angeles Annual Meeting. Deadlines and final call for papers for this meeting appear later in this issue.

Area 10a: Systems and Process Design

1. **Process Design for Waste Minimization.** Rakesh Govind (Chairman), Department of Chemical Engineering, University of Cincinnati, Cincinnati, OH 45221, (513) 556-2666 and Vasilios I. Manousiouthakis (Vice Chairman), Department of Chemical Engineering, University of California, Los Angeles, CA 90024- 1592, (213) 825-9385.

2. **Information Management Systems for Process Design.** Mark A. Kramer (Chairman), Department of Chemical Engineering,

Massachusetts Institute of Technology, Cambridge, MA 02139, (617) 253-6508 and Heinz A. Preisig (Vice Chairman), School of Chemical Engineering and Industrial Chemistry, University of New South Wales, Kensington, NSW 2033, AUSTRALIA, 61-2-697-2222 x4307.

3-4. Design and Analysis I and II. Ross E. Swaney (Cochairman), Department of Chemical Engineering, University of Wisconsin, Madison, WI 53706, (608) 262-3641 and Vivek Julka (Cochairman), Union Carbide Corporation, PO Box 8361, South Charleston, WV 25303, (304) 747-5949.

5. Batch Process Design. David W. T. Rippin (Chairman), Chemical Engineering Department, Swiss Federal Institute of Technology, ETH-Zentrum, CH-8092, Zurich, SWITZERLAND, 01-256- 3112 and Iftekhar A. Karimi (Vice Chairman), Department of Chemical Engineering, Northwestern University, Evanston, IL 60208-3120, (708) 491-3558.

6. Process Synthesis. Daniel L. Martin (Chairman), Eastman Chemical Company, PO Box 1972, Kingsport, TN 37662, (615) 229- 6125 and Robert L. Kirkwood, E. I. DuPont de Nemours & Company, PO Box 1217, Parkersburg, WV 26102, (304) 863-2249.

Joint 10a and 10b Session:

1. Batch Process Synthesis and Control. William L. Luyben (Chairman) Department of Chemical Engineering, Lehigh University, Bethlehem, PA 18015-4791, (215) 758-4256 and Michael F. Doherty (Vice Chairman), Department of Chemical Engineering, University of Massachusetts, Amherst, MA 01003-0011, (413) 545-2359.

Area 10b: Systems and Process Control

1-2. Recent Advances in Process Control. Jeffrey C. Kantor (Chairman), Department of Chemical Engineering, University of Notre Dame, Notre Dame, IN 46556, (219) 239-5797 and Paul Gusciora (Vice Chairman).

3. AI Applications in Process Control. Melinda Golden (Chairman) and George Stephanopoulos (Vice Chairman), Department of Chemical Engineering, Massachusetts Institute of Technology, Cambridge, MA 02139, (617) 253-3904.

4. Nonlinear Control. Dale E. Seborg (Chairman), Department of Chemical and Nuclear Engineering, University of California, Santa Barbara, CA 93106, (805) 893-3352.

5. Robust Control. Evanghelos Zafiiou (Chairman), Department of Chemical Engineering, University of Maryland, College Park, MD 20742-2111, (301) 454-8300 and Ahmet N. Palazoglu (Vice Chairman), Department of Chemical Engineering, University of California, Davis, CA 95616-5294, (916) 752-8774.

6. Statistical Process Control. John F. MacGregor (Chairman), Dept of Chemical Engineering, McMaster University, Hamilton, Ontario L8S 4L7, CANADA, (416) 525-9140 x-4762 and Christos Georgakis (Vice Chairman), Chemical Process Modeling and Control Research Center, Lehigh University, Bethlehem, PA 18015-4781, (215) 758-5432.

7. Control of Discrete Event Processes. B. Erik Ydstie (Chairman), Department of Chemical Engineering, University of Massachusetts, Amherst, MA 01003-0011, (413) 545-2388 and Ed Bristol (Vice Chairman).

Joint 10b and 10c Session:

1. Statistics and Quality Control. Mohinder K. Sood (Cochairman), Mobil R&D Corporation, PO Box 1026, Princeton, NJ 08543-1026, (609) 737-4960, Richard S. H. Mah (Cochairman), Department of Chemical Engineering, Northwestern University, Evanston, IL 60208-3120, (708) 491-5357, and Michael C. Wellons (Cochairman), Mobil R&D Corporation, PO Box 1026, Princeton, NJ 08543-1026, (609) 737-4454.

Area 10c: Computers in Operations and Information Processing

1-2. Scheduling and Planning of Process Operations I and II. Iftekhar A. Karimi (Chairman), Department of Chemical Engineering, Northwestern University, Evanston, IL 60208-3120, (708) 491-3558 and Richard S. H. Mah (Vice Chairman), Department of Chemical Engineering, Northwestern University, Evanston, IL 60208-3120, (708) 491-5357.

3. Personal Computers in Plant Operations. Michael T. Tayyabkhan (Chairman), Tayyabkhan Consultants, Inc., 62 Erdman Avenue, Princeton, NJ 08540, (609) 924-9174.

4. Advanced Computer Architectures. Gary D. Cera (Chairman), Mobil R&D Corporation, PO Box 1026, Princeton, NJ 08543-1026, (609) 737-5299 and Stephen E. Zitney (Vice Chairman), Cray Research Inc., 655E Lone Oak Drive, Eagan, MN 55121, (612) 683- 3690.

5. Artificial Intelligence in Process Engineering. Venkat Venkatasubramanian (Chairman), School of Chemical Engineering, Purdue University, West Lafayette, IN 47907, (317) 494-0734 and Lyle H. Ungar (Vice Chairman), Department of Chemical Engineering, University of Pennsylvania, Philadelphia, PA 19104- 6393, (215) 898-7449.

6. Integrated Approaches to Computer-Aided Process Operations. Ignacio E. Grossmann (Chairman), Department of Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA 15213, (415) 268-2228 and Tomio Umeda (Vice Chairman), Graduate School of Systems Management, University of Tsukuba, 3-29-1 Otsuka, Bunkyo-ku, Tokyo 112 JAPAN, 81-33-942-6873. [Cosponsored by the Society of Chemical Engineers (Japan)]

Area 10d: Applied Mathematics and Numerical Analysis

1-2. Complex Chemical Engineering Systems: Chaos, Fractals, and Neural Networks I and II. Julio M. Ottino (Cochairman), Department of Chemical Engineering, University of Massachusetts, Amherst, MA 01003-0011, (413) 545-0593 and B. Erik Ydstie (Cochairman), Department of Chemical Engineering, University of Massachusetts, Amherst, MA 01003-0011, (413) 545-2388.

3. Instabilities and Bifurcations in Chemical Engineering Applications. Yannis G. Kevrekides (Chairman), Department of Chemical Engineering, Princeton University, Princeton, NJ 08544, (609) 258-2818 and Hseuh-Chia Chang (Vice Chairman), Department of Chemical Engineering, University of Notre Dame, Notre Dame, IN 46556, (219) 239-5697.

4. PDE Simulations in Chemical Engineering. Antony N. Beris (Chairman), Department of Chemical Engineering, University of Delaware, Newark, DE 19716, (302) 451-8018 and Lyle H. Unger (Vice Chairman), Department of Chemical Engineering, University of Pennsylvania, Philadelphia, PA 19104-6393, (215) 898-7449.

5. Numerical Methods in Ordinary Differential Equations. Sankaran Sundaresan (Chairman), Department of Chemical Engineering, Princeton University, Princeton, NJ 08544, (609) 258-4583 and Joseph F. Pekny (Vice Chairman), School of Chemical Engineering, Purdue University, West Lafayette, IN 47907, (317) 494-7901.

6. Stochastic Models. Kyriacos Zygourakes (Chairman), Department of Chemical Engineering, Rice University, Houston, TX 77251-1892, (713) 527-3509 and Robert M. Ziff (Vice Chairman), Department of Chemical Engineering, University of Michigan, Ann Arbor, MI 48109-2136, (313) 764-5498.

Instructional Software Demonstrations at the Los Angeles Annual AIChE Meeting

November 1991

Academics wanting to demonstrate instructional software they have developed are invited to write to the organizer of this activity:

Professor Alan S. Foss
Dept of Chemical Engineering
University of California
Berkeley, CA 94720
Tel: (415) 642-4526
Fax: (415) 642-4778

Several PCs and MacIntosh computers (and possibly more capable machines) will be available in a central location both for scheduled demonstrations and impromptu showings. Those interested in scheduling a demonstration should write briefly describing your software and stating the computer equipment needed. The CAST Division will provide the equipment.

Our intention is to publish the titles and schedule for the demonstrations in the meeting program booklet. Demonstrations would be scheduled nominally for 2 hours.

New Orleans AIChE Meeting

March 29–April 2, 1992

Meeting Program Chairman: Peter R. Pujado, UOP, 25 E. Algonquin Rd., PO Box 5017, Des Plaines, IL 60017-5017, (708) 391-2673, FAX: (708) 391-2253.

The CAST Division is planning the following tentative program at the New Orleans National Meeting. AIChE and the Meeting Program Chairman will finalize the sessions at the 1991 Programming Retreat in February, and any corrections will appear in the next issue of CAST Communications. Tentative deadlines and first call for papers for this meeting appear later in this issue.

Area 10a: Systems and Process Design

1. Integration of Process Design, Optimization, and Control. Henry Chien (Chairman), Monsanto Company, 800 N. Lindbergh Blvd., St. Louis, MO 63167, (314) 694-8274.

2 Training Simulators. Robert J. Farrell (Chairman), Department of Chemical Engineering, Polytechnic University, Brooklyn, NY 11201, (718) 260-3628.

3-4. Process Modeling and Simulation I and II. Babu Joseph (Cochairman), Department of Chemical Engineering, Washington University, St. Louis, MO 63130- 4899, (314) 889-6076 and Rodolphe L. Motard (Cochairman), Department of Chemical Engineering, Washington University, St. Louis, MO 63130-4899, (314) 889-6072.

Joint 10a and 10c Session:

1. Optimization of Batch Unit Operations. Lorenz T. Biegler (Chairman), Department of Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA 15213, (412) 268-2232 and S. Macchietto (Vice Chairman).

Area 10b: Systems and Process Control

1. Plant Wide Control. Irven H. Rinard (Chairman), Department of Chemical Engineering, City College, City University of New York, New York, NY 10031, (212) 690-6624 and James J. Downs, Tennessee Eastman Company, PO Box 511, Kingsport, TN 37662, (615) 229-5318.

2. Industrial Applications of Process Control. David Dalle Molle (Chairman), Amoco and Kenneth A. Bishop (Vice Chairman), Dept of Chemical and Petroleum Engineering, University of Kansas, Lawrence, KS 66045-2223, (913) 864-4965.

Area 10c: Computers in Operations and Information Processing

1. Hazard and Operability Analysis. Randy A. Freeman (Chairman), Monsanto Company - F2WG, 800 N. Lindgergh Blvd., St. Louis, MO 63167, (314) 694-6068.

2. Process Data Management and Reconciliation. Mohinder K. Sood (Chairman), Mobil R&D Corporation, PO Box 1026, Princeton, NJ 08543-1026, (609) 737-4960 and Granville E. Paules IV (Vice Chairman), Mobil R&D Corporation, PO Box 1026, Princeton, NJ 08543-1026, (609) 737-4593.

3. Promise of Integration (Panel Discussion). Jerry Robertson (Chairman) and C. E. Bodington (Vice Chairman), Chesapeake Decision Sciences, PO Box 275, San Anselmo, CA 94960, (414) 453- 4906.

4. New Environments for Engineering Computations. Gary D. Cera (Chairman), Mobil R&D Corporation, PO Box 1026, Princeton, NJ 08543-1026, (609) 737-5299 and Alan B. Coon (Vice Chairman), Union Carbide Corp., PO Box 8361, South Charleston, WV 25303, (304) 747-5470.

5. Software Engineering Tools and Techniques. Stephen J. Zilora (Chairman), Creative Software Solutions, PO Box 192, Flanders, NJ 07836, (201) 927-8233 and Joseph A. Camisa (Vice Chairman), Exxon Company USA, PO Box 222, Linden, NJ 07036, (201) 474-7340.

6. Technical Desktop Publishing. Peter R. Rony (Chairman), Department of Chemical Engineering, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061-6496, (703) 231-7658 and Richard S. H. Mah (Vice Chairman), Department of Chemical Engineering, Northwestern University, Evanston, IL 60208-3120, (708) 491-5357.

Area 10d: Applied Mathematics and Numerical Analysis

No Sessions are planned.

On-Line Fault Detection and Supervision in the Chemical Process Industries

April 22–24, 1992

Incentives for on-line fault detection and supervision of process operations include human safety, environmental safeguards, equipment protection, and economic considerations such as improvements in product quality, increased production, etc. These incentives, together with development and evaluation of methodologies for on-line fault detection and supervision from the focus of this Symposium. This Symposium will deal with theory, application, validation, performance, and cost evaluation of methodologies. The methodologies may include knowledge-based systems, neural nets, statistical techniques, fault trees and trend analysis, etc., as used for fault detection and supervision of process operations.

The Symposium will also deal with identification of process information required for implementation and validation of these methodologies. Such information may be derived from design specifications, first principles, simulation, and on-line sensors. Temporal requirements for fault detection and supervision of process operations, as expressed in data sampling rates and information processing rates are also issues of concern in this Symposium.

Contributions to the design of on-line human machine interface systems through which appropriate personnel are advised of fault conditions and through which supervisor responses are transmitted may also be included in the Symposium. Sponsored by the International Federation of Automatic Control Technical Committee on Applications (IFAC), the Symposium will be held at the University of Delaware, which is located midway between Washington and New York and about 40 miles driving distance from the Philadelphia International Airport.

Submission Deadlines:

June 1, 1991 – Submission of abstracts (400-600 words)

August 1, 1991 – Notification of conditional acceptance

November 1, 1991 – Submission of papers in camera-ready form

January 1, 1992 – Notification of final acceptance

Please send all abstracts and correspondence to:

Professor Prasad Dhurjati
Department of Chemical Engineering
University of Delaware
Newark, DE 19716
Phone: (302) 451-2879
FAX: (302) 451-1048

Dynamics and Control of Chemical Reactors, Distillation Columns and Batch Processes (DYCORD + '92)

April 27–29, 1992

The Symposium will focus on three important areas of process dynamics and control: chemical reactors, distillation processes, and batch processes.

Chemical reactors usually function as the heart of processing plants. They pose specific problems in start-up, run-

away, stabilization, and hot-spot avoidance. Moreover, modelling is often difficult due to complicated reaction kinetics and uncertain catalyst activity. Although well known, distillation processes are still difficult to control, particularly in view of today's stricter product purity requirements.

The trend towards knowledge-intensive products has resulted in a re-examination of batch processes. Fortunately, modern distributed control systems offer an infrastructure for advanced automation and flexible operations. Specific topics are: flexibility, scheduling interlocking, and recipe handling. Apart from batch reactors and distillation processes, other batch operations also fall within the scope of the Symposium.

Papers highlighting industrial experience and/or comparisons between theory and experiment are particularly welcome. Interactions between plant design and control system development deserve special attention. Themes for all areas: dynamic modelling; model verification and calibration; simulation; new control methods; applicability of control methods; experiments with control systems; experience with distributed control systems; (multivariable) quality control; optimization methods; minimization of feed and utility costs; computer-aided process and plant design.

The Symposium program will include plenary survey papers, round table discussions, and technical sessions in the three fields. A social program is being prepared. English will be the official language throughout the Symposium. Sponsored by IFAC, the Symposium will be held in the Adult Education Center of the University of Maryland. The University is located approximately 12 miles from Washington, D.C.

Submission Deadlines:

June 1, 1991 – Submission of abstracts (400–600 words)

August 1, 1991 – Notification of conditional acceptance

November 1, 1991 – Submission of papers in camera-ready form

January 1, 1992 – Notification of final acceptance

Please send abstracts (five copies) to:

DYCORD+ '92
Chemical Engineering Department
University of Maryland
College Park, MD 20742-2111

Foundations of Computer-Aided Plant Operations
(FOCAPO '92)

Salishan Lodge
Gleneden Beach, OR
June 28–July 3, 1992

Cosponsored by CAST Division and CACHE Corporation.

The second Foundations of Computer-Aided Process Operations conference is tentatively scheduled for early summer on the Oregon coast. The technical program is expected to include sessions on Optimal Scheduling and Planning, Computer Integrated Manufacturing, Interface with Process Design and Control, Data Management, Knowledge Representation, Impact of High Performance Computing, Human Factors in Process Operations, and other topics. The dates and location are tentative. For more information, contact Mark A. Stadtherr (Conference Chairman), Department of Chemical Engineering, University of Illinois, Urbana, IL 61801, (217) 333-0275, E-mail MARKST@UIUCVMD, or John C. Hale (Conference Vice Chairman), E. I. DuPont de Nemours & Company, PO Box 6090, Newark, DE 19714-6090, (302) 366-3041.

Miami Beach AIChE Meeting
November 1–6, 1992

Meeting Program Chairman: James Hill

The CAST Division is planning the following tentative program at the Miami Beach Annual Meeting. AIChE and the Meeting Program Chairman will finalize the sessions at the 1991 Programming Retreat in February, and any corrections will appear in the next issue of CAST Communications.

Area 10a: Systems and Process Design

1. Process Systems Integration. Babu Joseph (Chairman), Department of Chemical Engineering, Washington University, St. Louis, MO 63130-4899, (314) 889-6076.

2-3. Design and Analysis I and II. Joseph F. Pekny (Cochairman), School of Chemical Engineering, Purdue University, West Lafayette, IN 47907, (317) 494-7901 and Amy R. Ciric (Cochairman), Department of Chemical and Nuclear Engineering, University of Cincinnati, Cincinnati, OH 45221, (513) 556- 2763.

4. Batch Process Engineering. Heinz A. Preisig (Chairman), School of Chemical Engineering and Industrial Chemistry, University of New South Wales, Kensington, NSW 2033, AUSTRALIA, 61-2-697-2222 x4307 and Michael F. Malone, Department of Chemical Engineering, University of Massachusetts, Amherst, MA 01003-0011, (413) 545-0838.

5-6. Process Synthesis I and II. Rakesh Govind (Cochairman), Department of Chemical Engineering, University of Cincinnati, OH 45221,

(513) 566-2666 and Lionel O'Young (Cochairman).

Joint 10a and 10b Session:

1. Design and Control. Christodoulos A. Floudas (Chairman), Department of Chemical Engineering, Princeton University, Princeton, NJ 08544, (609) 258-4595 and William L. Luyben (Vice Chairman), Department of Chemical Engineering, Lehigh University, Bethlehem, PA 18015-4791, (215) 758-4256.

Joint 10a and 10c Sessions:

1-2. Knowledge Based Systems I and II. Lyle H. Ungar (Cochairman), Department of Chemical Engineering, University of Pennsylvania, Philadelphia, PA 19104- 6393, (215) 898-7449 and James F. Davis (Cochairman), Department of Chemical Engineering, Ohio State University, Columbus, OH 43210-1180, (614) 292-0090.

Joint 10a, 10b, and 10c Session:

1. Educational Issues in Process Systems Engineering: Design, Operation, and Control. George Stephanopoulos (Chairman), Department of Chemical Engineering, Massachusetts Institute of Technonogy, Cambridge, MA 02139, (617) 253-3904 and Christos Georgakis (Vice Chairman), Chemical Process Modeling and Control Research Center, Lehigh University, Bethelehem, PA 18015-4781, (215) 758-5432.

Area 10b: Systems and Process Control

1. Nonlinear Control. Vasilios I. Manousiouthakis (Chairman), Department of Chemical Engineering, University of California, Los Angeles, CA 90024-1592, (213) 825-9385 and B. Wayne Bequette (Vice Chairman), Department of Chemical and Environmental Engineering, Rensselear Polytechnic Institute, Troy, NY 12180- 3590, (518) 276-6683.

2. Model Predictive Control. James Rawlings (Chairman), Department of Chemical Engineering, University of Texas, Austin, TX 78712-1062, (512) 471-4417 and Michael Nikolaou (Vice Chairman), Department of Chemical Engineering. Texas A&M University, College Station, TX 77843-3122, (409) 845-0406.

3-5. Advances in Process Control I, II, and III. Evanghelos Zafiriou (Cochairman), Department of Chemical Engineering, University of Maryland, College Park, MD 20742-2111, (301) 454-8300, Richard Chylla (Cochairman), S. C. Johnson & Son, Inc., and Tunde Ogunnaike (Cochairman), E. I. DuPont de Nemours & Co.

6. Modeling and Identification Issues for Control. Dan Rivera (Chairman), Chemical, Bio and Materials Engineering Department, Arizona State University, Tempe, AZ 85287-6006 and Dominique Bonvin (Vice Chairman).

7. Process Monitoring and Control. Ali Cinar (Chairman), Department of Chemical Engineering, Illinois Institute of Technology, Chicago, IL 60616, (312) 567-3042 and Venkat Venkatasubramanian (Vice Chairman), School of Chemical Engineering, Purdue University, West Lafayette, IN 47907, (317) 494-0734.

Joint 10b and 10c Sessions:

1-2. Applications of Neural Networks I and II. Venkat Venkatasubramian (Cochairman) School of Chemical Engineering, Purdue University, West Lafayette, IN 47907, (317) 494-0734 and Sanjeev Katti (Cochairman).

Joint 10b and 15c Session:

1. Bioprocess Modeling, Optimization, and Control. Janice A. Phillips (Chairman), Department of Chemical Engineering, Legigh University, Bethlehem, PA 18015-4791, (215) 758-4258 and Tse-Wei Wang (Vice Chairman), Department of Chemical Engineering, University of Tennessee, Knoxville, TN 37996-2200, (615) 974- 6769.

Area 10c: Computers in Operations and Information Processing

1-2. Advances in Optimization I and II. Ignacio E. Grossmann (Cochairman), Department of Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA 15213, (412) 268-2228 and Angelo Lucia (Cochairman), Department of Chemical Engineering, Clarkson University, Potsdam, NY 13699-5705, (315) 268-6674.

3-4. Parallel Computing I and II. Stephen E. Zitney (Cochairman), Cray Research Inc., 655E Lone Oak Drive, Eagan, MN 55121, (612) 683-3690 and Anthony Skjellum (Cochairman), Computing and Mathematics Research Division, Lawrence Livermore National Laboratory, PO Box 808, Livermore, CA 94551, (415) 422- 1161.

Area 10d: Applied Mathematics and Numerical Analysis

1. Nonlinear Time Series. B. Erik Ydstie (Chairman), Department of Chemical Engineering, University of Massachusetts, Amherst, MA 01003-0011, (413) 545- 2388 and Julio M. Ottino (Vice Chairman), Department of Chemical Engineering, University of Massachusetts, Amherst, MA 01003-0011, (413) 545-0593.

2. Analysis of Complex Systems. Yannis G. Kevrekidis (Chairman), Department of Chemical Engineering, Princeton University, Princeton, NJ 08544, (609) 258-2818 and Hseuh-Chia Chang (Vice Chairman), Department of Chemical Engineering, University of Notre Dame, Notre Dame, IN 46556, (219) 239-5697.

3. Optimization Analysis and Theory. Joseph F. Pekny (Chairman), School of Chemical Engineering, Purdue University,

West Lafayette, IN 47907, (317) 494-7901 and Ross E. Swaney (Vice Chairman), Department of Chemical Engineering, University of Wisconsin, Madison, WI 53706, (608) 262-3641.

4. Geometric and Similarity Methods for Nonlinear Analysis in Engineering. Jeffrey C. Kantor (Chairman), Department of Chemical Engineering, University of Notre Dame, Notre Dame, IN 46556, (219) 239-5797 and Michael F. Doherty (Vice Chairman), Department of Chemical Engineering, University of Massachusetts, Amherst, MA 01003-0011, (413) 545-2359.

5. Applied Mathematics and Computer Methods. George D. Byrne (Chairman), Exxon Research and Engineering Company, Annandale, NJ 08801, (201) 730-3115 and Bruce A. Finlayson (Vice Chairman), Department of Chemical Engineering, University of Washington, Seattle, WA 98195, (206) 543-2250.

6. Probabilistic Methods. Doraiswami Ramkrishna (Chairman), School of Chemical Engineering, Purdue University, West Lafayette, IN 47907, (317) 494-4066 and Robert M. Ziff (Vice Chairman), Department of Chemical Engineering, University of Michigan, Ann Arbor, MI 48109-2136, (313) 764-5498.

Houston AIChE Meeting

Spring 1993

Area 10a: Systems and Process Design

1. Design for Flexibility, S. Machietto and Stratos Piskiapoulos
2. Retrofit Design, V. Julka
3. New Advances in Process Synthesis
4. Industrial Applications of CAD–Large Scale Simulators

Joint Area 10a and Area 10c

1. Design for Lifecycle Operations

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Call For Papers

Final Call for CAST Sessions Pittsburgh AIChE Meeting
August 18–21, 1991

The names, addresses, and telephone numbers of the session chairmen 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 following deadlines, which however, may be changed at any time by the Meeting Program Chairman:

February 1, 1991: Submit an abstract of the proposed presentation to the session chairman.

February 15, 1991: Authors informed of selection and session content finalized.

May 1, 1991: Submit an extended abstract to be published for distribution at the meeting.

July 1, 1991: Final manuscript submitted to the session chairman.

Area 10a: Systems and Process Design

1. Issues in Interdisciplinary Design I. Design Synthesis.

Papers are solicited describing methodologies, computer tools, and applications for the synthesis of integrated systems in different engineering domains. Topics of interest include approaches based on AI and/or optimization, synthesis applications where layout and geometry play a major role, automated learning, search techniques for large combinatorial problems, computer prototypes for automated and interactive synthesis, and application of synthesis techniques across different engineering disciplines.

Chairman

Jeffrey J. Siirola
Research Laboratories–B95
Eastman Chemical Co.
Kingsport, TN 37662
(615) 229-3069
(615) 229-4558 (FAX)

Vice Chairman

Steven Fenves
Eng. Design Research Center
Carnegie Mellon University
Pittsburgh, PA 15213
(412) 268-2944
(412) 268-5229 (FAX)

2. Issues in Interdisciplinary Design II. Life Cycle Concerns.

This session explores strategies for guiding decisions taken at the design stage in order to handle different phases of an engineering project. In process engineering, these issues include startup, normal operation, process expansions and downturns, and eventually decommissioning of a process. The focus of this session is to encourage papers from various engineering disciplines in order to focus on different aspects of engineering problems and to identify common approaches and methodologies.

Chairman

Thomas J. Berna
Mobay Chemical Corp.
Mobay Road
Pittsburgh, PA 15205
(412) 777-2327
(412) 268-5229 (FAX)

Vice Chairman

Daniel Siewiorek
Eng. Design Research Center
Carnegie Mellon University
Pittsburgh, PA 15213
(412) 268-2570

Area 10c: Computers in Operations and Information Processing

1. Issues in Interdisciplinary Design III. Design Environments.

Papers are solicited on human and/or computer environments created specifically to support the practice of designing, be it individual or team based. The papers can emphasize such issues as how to organize tools, how to couple them together, how to support geographically dispersed participants in design, experiments in which interesting new hardware has been tried to improve the creativity of a group, and environments that support concurrent design.

Chairman

John Baldwin
M. W. Kellogg Co.
Three Greenway Plaza
Houston, TX 77046-0395
(713) 960-4042

Vice Chairman

Sarosh Taludkar
Eng. Design Research Center
Carnegie Mellon University
Pittsburgh, PA 15213
(412) 268-5225
(412) 268-5229 (FAX)

2. High Performance Computing in Chemical Engineering.

Papers are solicited describing the use of high performance parallel machines, supercomputers, heterogeneous systems or networks of workstations in solving chemistry and chemical engineering problems. Topic areas of particular interest include large scale data assimilation for process control and optimization, dynamic simulation, software

design issues, new algorithms, visualization, and distributed computing.

Chairman
Gregory J. McRae
Eng. Design Research Center
Carnegie Mellon University
Pittsburgh, PA 15213
(412) 268-2254
(412) 268-7139 (FAX)

Vice Chairman
Michael Levine
Pittsburgh Supercomputing Center
Mellon Institute
Pittsburgh, PA 15213
(412) 268-4960

Joint 10c and 5d Session

1. Robotics in the Chemical Industry

This session will consist of presentations on the use of automatic storage and retrieval systems, automated guided vehicle systems, robots integrated and optimization programs in the chemical industry. A panel discussion will follow the presentations.

Chairman
John C. Jepsen
Shuttleworth, Inc.
10 Commercial Road
Huntington, IN 46750
(219) 356-8500
(219) 356-1315 (FAX)

Vice Chairman
Michael T. Tayyabkhan
Tayyabkhan Consultants Inc.
62 Erdman Avenue
Princeton, NJ 08540
(609) 924-9174

Joint 10c and 14 Session

1. Computer Technology in the Nuclear Industry.

Chairman
Chris Dahl
Westinghouse Idaho Nuclear Co.
PO Box 4000
Idaho Falls, ID 83403-5217
(208) 526-3583
(208) 526-3505 (FAX)

Final Call for CAST Sessions Los Angeles AIChE Meeting
November 17-22, 1991

The names, addresses, and telephone numbers of the session chairmen 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 following deadlines, which however, may be changed at any time by the Meeting Program Chairman:

April 1, 1991: Submit an abstract of the proposed presentation to the session chairman.

May 1, 1991: Authors informed of selection and session content finalized.

August 1, 1991: Submit an extended abstract to be published for distribution at the meeting.

October 1, 1991: Final manuscript submitted to the session chairman.

Area 10a: Systems and Process Design

1. Process Design for Waste Minimization.

Topics of interest include, but are not limited to waste minimization through the design of mass exchanger networks, design of distillation processes and networks, synthesis of reaction pathways and reactor networks, modifications in process conditions and design, industrial case studies, prediction and minimization of waste by-products, and effective recycle strategies for waste streams. Papers will be considered for inclusion in an AIChE Symposium Series Publication.

Chairman
Rakesh Govind
Dept of Chemical Eng.
University of Cincinnati
Cincinnati, OH 45221
(513) 556-2666
(513) 556-3473 (FAX)

Vice Chairman
Vasilios I. Manousiouthakis
Dept of Chemical Eng.
University of California
Los Angeles, CA 90024-1592
(213) 825-9385
(213) 206-4107 (FAX)

2. Information Management Systems for Process Design.

Computing has entered a new era where the computer is no longer just a numerical calculation tool, but a medium for management and manipulation of diverse types of information. This session attempts to assess the effects that these developments have had (or will have) on information processing in chemical engineering, specifically to the

information processing related to the design process of chemical manufacturing facilities. This may include data structures, data models and languages for process modelling, project management, and specific design tasks. This may also include information structures and strategies for cooperative or team design. Emphasis is placed on new developments which go beyond the traditional computer-aided design of the 70's and 80's, but relate to the expected developments of the coming decade.

Chairman
Mark A. Kramer
Dept of Chemical Eng.
Massachusetts Institute of Technology
Cambridge, MA 02139
(617) 253-6508
(617) 253-9695 (FAX)

Vice Chairman
Heinz A. Preisig
School of Chemical Eng. and Industrial Chemistry
Univ. of New South Wales
Kensington, NSW 2033
AUSTRALIA
61-2-697-2222 x4307
61-2-662-1587 (FAX)

3-4. Design and Analysis I and II.

Papers presenting new developments in the general area of process design and analysis are invited. Topics of interest include new methods for process and flowsheet modeling, analysis, and design, and new design tools. Priority will be given to topics not covered in the other systems and process design sessions on synthesis, batch design, information management systems, and waste minimization.

Cochairman
Ross E. Swaney
Dept of Chemical Eng.
University of Wisconsin
Madison, WI 53706
(608) 262-3641
(608) 262-5434 (FAX)

Cochairman
Vivek Julka
Union Carbide Corporation
PO Box 8361
South Charleston, WV 25303
(304) 747-5949
(304) 747-5448 (FAX)

5. Batch Process Design.

This session will focus mainly on issues related to the design of noncontinuous or batch plants such as synthesis and sizing of multiproduct and multipurpose plants, design for flexibility, design under uncertainty, scheduling and planning in design, intelligent tools and/or knowledge base for design, task synthesis, retrofit design, flexibility and/or uncertainty analysis of designs, design of intermediate storage, etc.

Chairman
David W. T. Rippin
Chemical Eng. Dept
Swiss Federal Inst of Tech
ETH-Zentrum, CH-8092
Zurich, SWITZERLAND
01-256-3112
01-251-4633 (FAX)

Vice Chairman
Iftekhar A. Karimi
Dept of Chemical Eng.
Northwestern University
Evanston, IL 60208-3120
(708) 491-3558
(708) 491-3728 (FAX)

6. Process Synthesis.

Papers are solicited in all areas of process synthesis. This session is intended to provide a broad forum for advances in design theory and methodology for grassroots and retrofit design situations. The papers are not restricted to whole plant design. Contributions on reaction path synthesis, reactor network synthesis, separation sequence synthesis (sharp and non-sharp, liquid-vapor, liquid-liquid-vapor, liquid-solid, etc.), heat integration, etc. are all welcome.

Chairman
Daniel L. Martin
Eastman Chemical Co.
PO Box 1972
Kingsport, TN 37662
(615) 229-6125
(615) 229-4558 (FAX)

Vice Chairman
Robert L. Kirkwood
E. I. DuPont de Nemours & Company
PO Box 1217
Parkersburg, WV 26102
(304) 863-2249

Joint 10a and 10b Session:

1. Batch Process Synthesis and Control.

Chairman
William L. Luyben
Dept of Chemical Eng.
Lehigh University
Bethlehem, PA 18015-4791
(215) 758-4256
(215) 758-5057 (FAX)

Vice Chairman
Michael F. Doherty
Dept of Chemical Eng.
University of Massachusetts
Amherst, MA 01003-0011
(413) 545-2359
(413) 545-1647 (FAX)

Area 10b: Systems and Process Control

1-2. Recent Advances in Process Control.

Papers are sought in all areas of process control research and applications. Priority will be given to papers that emphasize recent developments, novel applications, or the definition of new problem areas. Contributions from industrial contributors are especially welcome. Queries may be directed to any of the session chairs. To have a paper considered for the sessions, please submit a 500 word abstract either by mail or electronically to one of the session chairs before March 15, 1991.

Chairman

Jeffrey C. Kantor
Dept of Chemical Eng.
University of Notre Dame
Notre Dame, IN 46556
(219) 239-5797
(219) 239 8366 (FAX)
jeff @ ndcheg.cheg.nd.edu
(E-mail)

Co-Chairman

Paul Gusciora
Chevron Research and
Technology Co.
100 Chevron Way
Richmond, CA 94802-0627
(415) 620 2972
(415) 620 4066 (FAX)

Co-Chairman

James B. Rawlings
Dept of Chemical Eng.
University of Texas
Austin, TX 78712-1062
(512) 471 4417
(512) 471 7060 (FAX)
jbraw @ emx.utexas.edu
(E-mail)

3. AI Applications in Process Control.

The purpose of this session is to project the recent developments on the use of artificial intelligence and neural networks in the area of process control, including the following problems: nonlinear modeling of controlled processes, adaptive controllers, diagnosis of control systems, extraction and recognition of operating trends, supervisory control and decision-making, scheduling of discrete control actions, pattern based control.

Chairman

Melinda Golden
Simulation Sciences, Inc.
601 South Valencia Ave
Suite 250
Brea, CA 92621
(714) 579-0417
(714) 579-7468 (FAX)
goldenm@cerf.net (E-mail)

Vice Chairman

George Stephanopoulos
Dept of Chemical Eng.
Massachusetts Institute
of Technology
Room 66-444
Cambridge, MA 02139
(617) 253-3904
(617) 253-9695 (FAX)

4. Nonlinear Control.

Co-Chairman

Dale E. Seborg
Department of Chemical
and Nuclear Engineering
University of California
Santa Barbara, CA 93106
(805) 893-3352
(805) 893-4731 (FAX)
seborg @ engrhub.ucsb.
edu (E-mail)

Co-Chairman

Susan F. Phillips
Simulation Sciences Inc.
1051 W. Bastanchury Road
Fullerton, CA 92633
(714) 879-9180
(714) 774-4107 (FAX)
phillips @ cerf.net (E-mail)

5. Robust Control.

Papers on theoretical developments and applications are sought in the area of Robust Process Control. Papers dealing with the identification of models and related error bounds for use in robust controller design are also welcome.

Chairman

Evanghelos Zafiriou
Dept of Chemical Eng.
University of Maryland
College Park, MD
20742-2111
(301) 454-8300
(301) 454-0855 (FAX)
zafiriou @ src.umd.edu
(E-mail)

Vice Chairman

Ahmet N. Palazoglu
Dept of Chemical Eng.
University of California
Davis, CA 95616-5294
(916) 752-8774
(916) 752-1013 (FAX)
anpalazoglu @ ucdavis.edu
(E-mail)

6. Statistical Process Control.

Chairman

John F. MacGregor
Dept of Chemical Eng.
McMaster University
Hamilton, Ontario L8S 4L7
CANADA
(416) 525-9140 x-4762
(416) 521-1350 (FAX)

Vice Chairman

Christos Georgakis
Chemical Process Modeling
and Control Research Center
Lehigh University
Bethlehem, PA 18015-4781
(215) 758-5432
(215) 758-5423 (FAX)

7. Control of Discrete Event Processes.

Chairman

B. Erik Ydstie
Dept of Chemical Eng.
University of Massachusetts
Amherst, MA 01003-0011
(413) 545-2388
(413) 545-1647 (FAX)

Vice Chairman

Ed Bristol

Joint 10b and 10c Session:

1. Statistics and Quality Control.

Increasingly tighter environmental regulations will require the process industries to significantly reduce the emission of toxic and pollutant waste products. Statistical and quality control can play a big role in limiting waste product emissions while simultaneously improving product quality. This session will include papers describing both fundamental techniques and industrial applications of statistical and quality control. Papers describing new statistical tools and techniques, applications to new areas, time series models, real-time applications, data reconciliation, multivariate analysis, and interface with data acquisition and data bases are welcome.

Cochairman
Mohinder K. Sood
Mobil R&D Corporation
PO Box 1026
Princeton, NJ 08543-1026
(609) 737-4960

Cochairman
Richard S. H. Mah
Dept of Chemical Eng.
Northwestern University
Evanston, IL 60208-3120
(708) 491-5357
(708) 491-3728 (FAX)

Cochairman
Michael C. Wellons
Mobil R&D Corporation
PO Box 1026
Princeton, NJ 08543-1026
(609) 737-4454

Area 10c: Computers in Operations and Information Processing

1-2. Scheduling and Planning of Process Operations I and II.

These two sessions will focus on the operations of both continuous as well as batch processes. The main topics include, but are not restricted to, sequencing and scheduling in batch plants, resource-constrained scheduling, production planning in batch plants, scheduling/planning in the face of uncertainty, scheduling and planning of multiproduct continuous plants, scheduling in continuous plants, maintenance scheduling, planning/scheduling in refineries, artificial intelligence tools for scheduling and planning, etc.

Chairman
Iftekhar A. Karimi
Dept of Chemical Eng.
Northwestern University
Evanston, IL 60208-3120
(708) 491-3558
(708) 491-3728 (FAX)

Vice Chairman
Richard S. H. Mah
Dept of Chemical Eng.
Northwestern University
Evanston, IL 60208-3120
(708) 491-5357
(708) 491-3728 (FAX)

3. Personal Computers in Plant Operations.

Chairman
Michael T. Tayyabkhan
Tayyabkhan Consultants, Inc.
62 Erdman Avenue
Princeton, NJ 08540
(609) 924-9174

4. Advanced Computer Architectures.

Advanced computer architectures today are found to play an ever increasing role in the advancement of science and modern industrial technology. This session will highlight existing and emerging architectural directions in relation to the requirements of the diverse range of chemical engineering applications now being developed for implementation on advanced computer architectures. Papers are sought which describe novel applications of advanced computer architectures to solve chemical engineering problems, new algorithms or codes for exploiting architectural innovations, and general reviews of recent technological developments in advanced computer architectures. The architectures of interest include massively parallel architectures, vector and parallel processing systems, distributed processing systems, and RISC architectures.

Chairman
Gary D. Cera
Mobil R&D Corporation
PO Box 1026
Princeton, NJ 08543-1026
(609) 737-5299
(609) 737-5325 (FAX)

Vice Chairman
Stephen E. Zitney
Cray Research Inc.
655E Lone Oak Drive
Eagan, MN 55121
(612) 683-3690
(612) 683-3099 (FAX)

5. Artificial Intelligence in Process Engineering.

Papers studying the use of Artificial Intelligence in chemical engineering are solicited. Applications of AI to problems of process operations, including fault detection, diagnosis, and control are sought, as are methodological contributions such as novel knowledge representation or reasoning techniques.

Chairman
Venkat
Venkatasubramanian
School of Chemical Eng.
Purdue University
West Lafayette, IN 47907
(317) 494-0734
(317) 494-0805 (FAX)

Vice Chairman
Lyle H. Ungar
Dept of Chemical Eng.
University of Pennsylvania
Philadelphia, PA 19104-6393
(215) 898-7449
(215) 898-1130 (FAX)

6. Integrated Approaches to Computer-Aided Process Operations

The goal of this session is to examine the potential benefits and the various approaches to solving process operations problems. In particular, this session will focus on the combination of various methodologies such as AI, mathematical programming, and other techniques. Applications to computer-integrated manufacturing, scheduling and planning, on-line optimization, fault diagnosis, and other related areas will be considered. [Co-sponsored by the Society of Chemical Engineers (Japan)]

Chairman

Ignacio E. Grossmann
Dept of Chemical Eng.
Carnegie Mellon University
Pittsburgh, PA 15213
(415) 268-2228
(412) 268-7139 (FAX)

Vice Chairman

Tomio Umeda
Graduate School of Systems Management
University of Tsukuba
3-29-1 Otsuka, Bunkyo-ku,
Tokyo 112 JAPAN
81-33-942-6873
81-33-942-6829 (FAX)

Area 10d: Applied Mathematics and Numerical Analysis

1-2. Complex Chemical Engineering Systems: Chaos, Fractals, and Neural Networks I and II.

A large number of recent developments in a variety of areas ranging from mathematics to computer science to theoretical physics indicate that the behavior of many systems that on first viewing appear quite complex can in fact be understood, modelled, and predicted in terms of simple fundamental rules. Papers are sought on applications of some of these developments, for example neural networks, lattice models, chaos, and fractals to systems of interest in chemical engineering.

Chairman

Julio M. Ottino
Dept of Chemical Eng.
University of Massachusetts
Goessmann Laboratory
Amherst, MA 01003-0011
(413) 545-0593
(413) 545-1647 (FAX)

Vice Chairman

B. Erik Ydstie
Dept of Chemical Eng.
University of Massachusetts
Goessmann Laboratory
Amherst, MA 01003-0011
(413) 545-2388
(413) 545-1647 (FAX)
ydstie@ecs.umass.edu

3. Instabilities and Bifurcations in Chemical Engineering Applications.

Analytical and numerical studies of stability and bifurcation of nonlinear systems allow us to decipher the underlying chemistry, physics, and geometric symmetries of reaction and transport processes. Successful implementations of these techniques are becoming available, and large scale computing extends their applicability to more realistic models. We solicit papers on the application of these methods to models of chemical engineering processes, with emphasis on pattern formation and selection in distributed systems.

Chairman

Yannis G. Kevrekides
Dept of Chemical Eng.
Princeton University
Princeton, NJ 08544
(609) 258-2818
(609) 258-6744 (FAX)
yannis@marilyn.
princeton.edu (E-mail)

Vice Chairman

Hseuh-Chia Chang
Dept of Chemical Eng.
University of Notre Dame
Notre Dame, IN 46556
(219) 239-5697
(219) 239-8366 (FAX)

4. PDE Simulations in Chemical Engineering.

As chemical engineering computing is coming of age, the use of multidimensional simulations of systems of partial differential equations is becoming more widespread covering a large variety of applications ranging from free surface flows encountered in coating applications, to non-Newtonian flows and solidification problems encountered in materials processing.

Chairman

Antony N. Beris
Dept of Chemical Eng.
University of Delaware
Newark, DE 19716
(302) 451-8018
(302) 451-1048 (FAX)

Vice Chairman

Lyle H. Ungar
Dept of Chemical Eng.
University of Pennsylvania
Philadelphia, PA 19104-6393
(215) 898-7449
(215) 898-1130 (FAX)

5. Numerical Methods in Ordinary Differential Equations.

Papers are sought on novel mathematical concepts and algorithmic approaches in the solution of ordinary differential equations; advanced numerical techniques for continuation, bifurcation analysis, and tracking singularities such as homoclinic and heteroclinic connections; and solution of stiff differential equations. Emphasis will be more on novel numerical methods as opposed to description of examples where known numerical techniques are applied.

Chairman

Sankaran Sundaresan
Dept of Chemical Eng.
Princeton University
Princeton, NJ 08544
(609) 258-4583
(609) 258-6744 (FAX)

Vice Chairman

Joseph F. Pekny
School of Chemical Eng.
Purdue University
West Lafayette, IN 47907
(317) 494-7901
(317) 494-0805 (FAX)
pekny@ecn.purdue.edu
(E-mail)

6. Stochastic Models.

This session 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, population balance models, turbulence, stochastic control, etc.

Chairman

Kyriacos Zygourakes
Dept of Chemical Eng.
Rice University
Houston, TX 77251-1892
(713) 527-3509
(713) 524-5237 (FAX)

Vice Chairman

Robert M. Ziff
Dept of Chemical Eng.
University of Michigan
Ann Arbor, MI 48109-2136
(313) 764-5498
(313) 763-0459 (FAX)

First Call for CAST Sessions New Orleans AIChE Meeting
March 22-April 2, 1992

The names, addresses, and telephone numbers of the session chairmen 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 following deadlines which have been established by the Meeting Program Chairman:

August 1, 1991: Submit an abstract and Proposal-to-Present Form to the session chairman.

August 30, 1991: Authors informed of selection and session content finalized.

November 29, 1991: Submit an extended abstract to be published for distribution at the meeting.

January 31, 1992: Final manuscript submitted to the session chairman.

Area 10a: Systems and Process Design

1. Integration of Process Design, Optimization, and Control.

Chairman

Henry Chien
Monsanto Company
800 N. Lindbergh Blvd.
St. Louis, MO 63167
(314) 694-8274

2. Training Simulators.

Chairman

Robert J. Farrell
Dept of Chemical Eng.
Polytechnic University
Brooklyn, NY 11201
(718) 260-3628
(718) 260-3136 (FAX)

Vice Chairman

S. Machietto

3-4. Process Modeling and Simulation I and II.

Papers are sought in all areas of chemical process modeling and simulation. Contributions on applications to industrial processes are particularly welcome. Priority will be given to papers that present novel applications and results.

Cochairman

Babu Joseph
Dept of Chemical Eng.
Washington University
St. Louis, MO 63130-4899
(314) 889-6076
(314) 726-4434 (FAX)

Cochairman

Rodolphe L. Motard
Dept of Chemical Eng.
Washington University
St. Louis, MO 63130-4899
(314) 889-6072
(314) 726-4434 (FAX)

Joint 10a and 10c Session:

1. Optimization of Batch Unit Operations.

Contributions are welcomed in the following areas: Optimal design of specific batch equipment (e.g. reactors, and distillation); Planning and scheduling of batch process operations; Integration of design and scheduling aspects; Synthesis strategies for batch process design; Dynamic optimization of batch process operations; Integration of off-line scheduling and on-line operations.

Chairman

Sandro Macchietto
Dept of Chemical Eng. and
Chemical Technology
Imperial College
London SW7 2AZ
England
011-44-71-584-1170 (FAX)

Vice Chairman

Lorenz T. Biegler
Dept of Chemical Eng.
Carnegie Mellon University
Pittsburgh, PA 15213
(412) 268-2232
(412) 268-7139 (FAX)
biegler @ antares.mcs.anl.
gov (E-mail)

Area 10b: Systems and Process Control

1. Plant Wide Control.

Of interest are papers emphasizing the development, design, and implementation of plant-wide control strategies. Plant-wide control can be considered as the control of two or more processing units generally with one or more recycle loops. Relevant topics include: Identification of measurement and manipulated variable requirements; Coordination of local control strategies to achieve overall operational goals for the plant; Coordination of inventory control strategy including the location and sizing of tankage; Strategies for pairing SISO loops plant-wide; Techniques for identifying the need for decentralized MIMO controllers; and Strategies for minimizing disturbance propagation through the plant.

Chairman

Irven H. Rinard
Dept of Chemical Eng.
City College of CUNY
138th Str. @ Convent Ave.
New York, NY 10031
(212) 690-4135
(212) 690-4193 (FAX)

Vice Chairman

James J. Downs
Tennessee Eastman Company
PO Box 511
Kingsport, TN 37662
(615) 229-5318
(615) 229-6099 (FAX)

2. Industrial Applications of Process Control.

Chairman

David Dalle Molle

Vice Chairman

Kenneth A. Bishop
Dept of Chemical and
Petroleum Engineering
University of Kansas
Lawrence, KS 66045-2223
(913) 864-4965
(913) 864-3199 (FAX)

Area 10c: Computers in Operations and Information Processing.

1. Hazard and Operability Analysis

Chairman

Randy A. Freeman
Monsanto Company – F2WG
800 N. Lindbergh Blvd.
St. Louis, MO 63167
(314) 694-6068

2. Process Data Management and Reconciliation.

Effective modeling, control, and optimization of process plants relies heavily on the quality of measured data and data derived from measurements. Distributed control systems provide enormous quantities of data at a high rate of sampling. Screening of erroneous or inconsistent data is crucial for its use in any of the above applications. This session will focus upon the management and reconciliation of process data through statistical techniques and model-based approaches that integrate the process simulation and/or optimization model with the reconciliation step.

Chairman

Mohinder K. Sood
Mobil R&D Corporation
PO Box 1026
Princeton, NJ 08543-1026
(609) 737-4960

Vice Chairman

Granville E. Paules IV
Mobil R&D Corporation
PO Box 1026
Princeton, NJ 08543-1026
(609) 737-4593

3. Promise of Integration (Panel Discussion).

Chairman

Jerry Robertson

Vice Chairman

C. E. Bodington
Chesapeake Decision
Sciences
PO Box 275
San Anselmo, CA 94960
(414) 453-4906

4. New Environments for Engineering Computations.

Hardware and software advances in the past few years have produced a number of new environments for engineering computations. This session addresses issues arising from the implementation of chemical engineering computations in nontraditional computing environments. Such issues include, but are not limited to, interoperability, software design and maintenance, portability, computational efficiency, and user interfaces. Applications or descriptions of new environments are sought in programming environments as UNIX, Smalltalk, etc., distributed computing environments including applications using remote servers, applications executing across heterogeneous networks, etc., and user interfaces and visualization tools.

Chairman
Gary D. Cera
Mobil R&D Corporation
PO Box 1026
Princeton, NJ 08543-1026
(609) 737-5299
(609) 737-5325 (FAX)

Vice Chairman
Alan B. Coon
Union Carbide Corp.
PO Box 8361
South Charleston, WV 25303
(304) 747-5470
(304) 747-5448 (FAX)

5. Software Engineering Tools and Techniques.

Software Engineering involves the application of sound engineering principles to the development and management of software applications. This session will present an overview of several of those principles. We are requesting papers which present case studies of software/management efforts with emphasis on some particular aspect of software engineering. The topics may include requirements analysis, prototyping, system design, development environments, quality assurance, delivery, maintenance, version control, metrics, or cost estimation.

Chairman
Stephen J. Zilora
Creative Software Solutions
PO Box 192
Flanders, NJ 07836
(201) 927-8233

Vice Chairman
Joseph A. Camisa
Exxon Company USA
PO Box 222
Linden, NJ 07036
(201) 474-7340
(201) 474-7713 (FAX)

6. Technical Desktop Publishing.

Papers are solicited that provide practical information concerning near term issues associated with the use of "technical desktop publishing"—namely, the desktop publishing of technical documents that include equations, graphs, tables, and text—in industry, government, and academia. The session seeks to address the following issues: (1) What hardware and software are available? (2) What do publishers think about when they lay out a manuscript for a book? (3) Layout issues (how to lay out a manuscript from the point of graphical design, etc.); (4) Distribution and marketing; and (5) Document structure and retrieval.

Of special interest are: publishing issues (from a major publisher such as McGraw-Hill, Wiley, Addison-Wesley, etc.); on-line textbooks; individuals who have used electronic technical publishing (ETP) to publish a book; industrial, in-house publications, for example, pharmaceutical companies who must submit considerable information for FDA approvals; editing issues; document structure; capturing information; a look at the present and future, i.e., what is and will be available.

Chairman
Peter R. Rony
Dept of Chemical Eng.
Virginia Polytechnic
Institute & State University
Blacksburg, VA 24061-6496
(703) 231-7658
(703) 231-7826 (FAX)

Vice Chairman
Richard S. H. Mah
Dept of Chemical Eng.
Northwestern University
Evanston, IL 60208-3120
(708) 491-5357
(708) 491-3728 (FAX)

AMERICAN INSTITUTE OF CHEMICAL ENGINEERS

1991 AWARD NOMINATION FORM*

A. BACKGROUND DATA

1. Name of the Award _____ Today's Date _____

2. Name of Nominee _____ Date of Birth _____

3. Present Position (exact title)

_____

4. Education:

Institution	Degree Received	Year Received	Field
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

5. Positions Held:

Company or Institution	Position or Title	Dates
_____	_____	_____
_____	_____	_____
_____	_____	_____

6. Academic and Professional Honours (include awards, memberships in honorary societies and fraternities, prizes) and date the honor was received.

7. Technical and Professional Society Memberships and Offices

8. Sponsor's Name and Address

_____

_____

_____

_____ Sponsor's Signature

* A person may be nominated for only one award in a given year.

B. CITATION

1. A brief statement, not to exceed 250 words, of why the candidate should receive this award. (Use separate sheet of paper.)

2. Proposed citation (not more than 25 carefully edited words that reflect specific accomplishments).

C. QUALIFICATIONS

Each award has a different set of qualifications. These are described in the awards brochure. After reading them, please fill in the following information on the nominee where appropriate. Use a separate sheet for each item if necessary.

1. Selected bibliography (include books, patents, and major papers published.)

2. Specific identification and evaluation of the accomplishments on which the nomination is based.

3. If the nominee has previously received any award from AIChE or one of its Divisions, an explicit statement of new accomplishments or work over and above those cited for the earlier awards(s) must be included.

4. Other pertinent information.

D. SUPPORTING LETTERS AND DOCUMENTS

List of no more than five individuals whose letters are attached.

	Name	Affiliation
1.		
2.		
3.		
4.		
5.		

Please send the completed form and supplemental sheets at any time to the CAST Division 2nd Vice Chairman, Professor Michael F. Doherty, Chemical Engineering Department, University of Massachusetts, Amherst, MA 01003. Phone: (413) 545-2359, Fax: (413) 545-1647.