Message from the Department Head

As we come to the end of another academic year, we would like to congratulate our seniors for completing their B.S. degrees in Chemical Engineering, and to those graduate students who are completing their M.S., MChE and Ph.D. degrees. We are very proud of all our graduating students of the 2002 class and wish them success in their future career.

We would like to reassure the class of 2002 that we and the university will continue providing help after graduation to those students who have not found a job. Unfortunately, the recession and weak economy have made the placement to be very difficult this year. Companies have extended fewer or no offers and in some cases rescinded offers that they had made. This phenomenon has not only occurred in the chemical and process industry but it has affected all sectors, particularly electronics, information technology and consulting. The Career center through Lisa Dickter will be available to you for information on openings or general counseling. The Department will be contacting you if we become aware of any leads that we think you should pursue. In the meantime, we recommend that you do not give up and keep trying. Perseverance should ultimately pay off. Finally, as another alternative you might consider joining the Master of Chemical Engineering degree offered in the department during the academic year 2002-2003. The department will provide $5000 in financial aid to cover the tuition cost. The deadline for applications to this program has been extended until August 12, 2002. Whatever you decide, please keep in touch with us!

On other news, we were very pleased to see Jim Schneider receive the prestigious Beckman Young Investigator Award. We also had Andy Gellman and David Sholl prominently featured in an article on chiral surfaces in Chemical Engineering News. David Sholl and Lynn Walker were promoted to Associate Professors, Todd Przybycien to Full Professor, and Steinar Hauan and Jim Schneider were reappointed as Associate Professors. All these promotions have been approved at the College and University level with high marks, giving a strong testimony of the quality of the Chemical Engineering faculty.

This semester major events have been the Distinguished Research Lecture by Mark Davis from CalTech and the Bayer Lecture in Process Systems Engineering by Rakesh Agrawal from Air Products. Both speakers are leaders in their field and members of the National Academy of Engineering. We also had two of our alumni Rebecca Liebert from Nova Chemicals and Dale Keairns (retired from Westinghouse) give lectures as part of the activities to the AIChE Student Chapter.

Finally, good progress is being made in the renovation project of Doherty Hall. Several companies have submitted proposals for undertaking the project, and we expect that the finalist will be selected in one more month.

Thank you for your hard work and I wish you a pleasant and productive summer!

Ignacio E. Grossmann
Department News

Congratulations to the Safety Committee - Dennis Prieve (chair), Gary Powers, and Neil Donahue - and the Student Lab Managers - Corley Strunk, Tim Raymond, Yenny Cristanti, and Derek Berglund. The CMU Environmental Health and Safety rated Chemical Engineering the highest departmental average score (85%) highest score in the annual CMU safety inspections, plus we had 4 out of the 10 best labs. There is to be a Pizza Party in our future!!

Chemical Car Competition, Monday April 29, 2002 by Gary J. Powers

The first year students in Introduction to Chemical Engineering will be racing their chemical cars on Monday April 29, 2002 from 2:30 to 4:30 PM on the sidewalk between Purnell and the University Center. The student teams will pick the chemistry, build the vehicle and reactor and test their concepts. The race involves being the closest to a finish line (30 to 70 meters from the start line) while carrying a load from 0 to 500 grams. The distance and load are announced 30 minutes prior to the race. The better of two runs is counted. The control of the distance is by controlling the chemical reaction(s) and the propulsion system. No electronic or mechanical brakes that are not controlled by the chemistry are allowed. The teams are matched with a senior chemical engineering consultant to assist in designing a safe and reliable vehicle. The reactions currently under consideration are hydrogen peroxide decomposition, sodium bicarbonate + acid, and an electrochemical cell. A novel airfoil design will be competing with liquid and vapor jet propulsion concepts. Please come out on Monday April 29, 2002 to see the students, cars, posters and race.

The 2002 Distinguished Research Lecture will be presented on May 2, 2002, at 10:45 AM in Doherty Hall 1112. Professor Mark E. Davis of the Department of Chemical Engineering at California Institute of Technology will speak on “Engineering of Synthetic Gene Delivery Systems.”

CAPD Short Course "Conceptual Design, Optimization, and Process Operations" will be offered June 20-26, 2002 in the department. Featuring Professors Biegler, Grossmann, Hauan and Westerberg, the course will cover applications in analysis, synthesis, and planning. For more information, see the Web site: http://www.cheme.cmu.edu/research/capd/course.html

The Annual Review Meeting of the Centre for Advanced Process Decision-making took place on April 2-3, 2002. The meeting was attended by approximately 30 industrial participants from various chemical and technology companies. Events of the meeting included: presentations by departmental faculty, students, and industrial participants, a poster session, cocktail reception, luncheons, and a superb dinner at the five-star LeMont Restaurant. Very positive feedback was received by the meeting participants on the organization of the meeting, and also on the presentations.

National Engineers' Week at the Carnegie Science Center

The Department of Chemical Engineering participated in the National Engineers' Week celebration at the Carnegie Science Center on February 22 and 23. The program featured over 600 volunteers representing 64 companies, agencies, societies, and universities. Over
7,600 visitors in attendance enjoyed the chance to speak to engineers and to participate in the many hands-on activities. Our department hosted tables that provided chemical car racing and polymer toys (Shrinky Dinks) to represent our profession. This outreach event was a great success! We estimate that about 1000 people visited our table during the two days. Thanks to all the volunteers listed below and to Alex Meyer who recruited many volunteers and represented our department on the college wide CIT Engineers' Week committee. Gary Powers was in charge from the faculty and Annette Jacobson and Rosemary Frollini organized the ChemE participation.

The Chemical Engineering participants were:

Gary Powers
Steinar Hauan
Annette Jacobson
Ana Morfesis
Rosemary Frollini
Corley Strunk
Anton Pfeiffer
Matt Preston
Didi He
Prateek Shah
Eloissa Wells
Alex Meyer
James Leung
Carl Laird
Nitin Kumar
Bruno Marques

Libby Powers
Amanda Jacobson
Rebecca Gerard
Adam Welander
Jim Vernille
Tim Raymond
David Newsome
Lisa Campus
Michelle O' Malley
Allison Muehe
Lance Brown
Laura Vaillancourt
Marvi Matos
Danilo Pozzo
Russell Ball
Soumitra Ghosh

Faculty News

Congratulations to the following faculty:

David Sholl has been selected as recipient of a prestigious Camille Dreyfus Teacher-Scholar Award for 2002. This award is given in recognition to his "commitment to education and an independent body of scholarship that has the promise of continuing outstanding contributions to both research and teaching." The area in question is development and applications of intrinsically chiral solid surfaces based on metals, semiconductors and natural minerals.

David Sholl has been promoted to Associate Professor of Chemical Engineering.

Lynn Walker has been promoted to Associate Professor of Chemical Engineering.

Todd Przybycien has been promoted to Full Professor.

Steinar Hauan and Jim Schneider have been re-appointed as Assistant Professors.
Jim Schneider has been awarded a Beckman Young Investigator Award. This is for his proposal on "Novel Nucleic Acid Separations for Microchip Analysis and Plasmid Purification." The award is for $240,000 over three years. The Beckman Young Investigators (BYI) Program is intended to provide research support to the most promising young faculty members in the early stages of academic careers in the chemical and life sciences.

Michael Domach, is one of three invited lecturers from the U.S., Germany and Japan who will present a talk on metabolic engineering in Korea at the Biochemical Engineering in 21st Century conference organized by the Korean Institute of Chemical Engineering on April 26.

Andrew Gellman and David Sholl, were featured in a cover story titled "Chiral Surface Chemistry" in the March 25th issue of Chemical and Engineering News. Gellman and Sholl are part of a team within CMU's Materials Research Science and Engineering Center (MRSEC) working to develop solid materials that can separate pharmaceutical compounds. You can also read the article and their picture with Greg Rohrer in: http://pubs.acs.org/cen/coverstory/8012/8012chiralsurface.html

Ignacio Grossmann delivered the 18th Annual Aston Cary Lecture at the Georgia Institute of Technology on March 20 & 21. Professor Grossmann's lectures were "Modeling and Computational Challenges in the Planning and Scheduling of Process Systems" and "Logic-Based Modeling and Solution for Discrete/Continuous Problems in Process Systems Engineering."

Ignacio Grossmann, and Ph.D.student Sangbum Lee have been selected for the Best Paper Award of 2000 by the journal Computers & Chemical Engineering for their article, "New Algorithms for nonlinear generalized disjunctive programming," Vol. 24, No. 9-10, pp. 2125-2141.

Congratulations to Michael Domach, Annette Jacobson, Steinar Hauan, and Neil Donahue! Michael Domach, received a Berkman Faculty Development Grant for the research project entitled “Completion of a Microscope Imaging System for Research and Classroom Demonstration.” Annette Jacobson received a Berkman Faculty Development Grant for a research project entitled "Noninvasive Backscattering and Electrophoresis Techniques to Probe the Structure and Size of Self-Assembled Colloidal Dispersions.” Steinar Hauan received a Berkman Faculty Development Grant for the research project entitled "Database Server for Distributed Process Design.” Neil Donahue received a Berkman Faculty Development award for the research project entitled “Developing a Prototype Cavity Ringdown Chemical Amplifier for Atmospheric Peroxy Radical Measurements.”

Alumni News

Sebastian Catana will sing the title role in the Baltimore Opera Studio's production of Don Giovanni. Performance dates are Thursday, May 30 at 7:30 PM and Sunday, June 2 at 4 PM. Because the performances will be held at the MacManus Theatre on the campus of Loyola College, a smaller venue than usually used, demand for tickets is high. If you plan to attend, you should call the box office to arrange to purchase tickets ASAP.
Graduate News

Congratulations to Corley Strunk who is the winner of an IBM PhD Fellowship for the 2002-2003 academic year. Recipients were chosen based on "technical excellence and a strong interest of a participating IBM development laboratory in the nominee's desired research area." The fellowship covers tuition and stipend, as well as providing for an internship at IBM's San Jose facility this summer. She will also receive an IBM Thinkpad upon beginning her internship.

Congratulations to Raymond Dagastine who was awarded an NSF Postdoctoral International Research Fellowship for two years to work at the Particulate Fluids Processing Centre in Melbourne, Australia. Ray will begin his Aussie experience in August of this year.

Undergraduate News

Graduation 2002

Carnegie Mellon's 105th commencement will take place at 11 a.m. on Sunday, May 19th in Gesling Stadium (rain or shine). The procession of candidates across campus will begin at 10:30 a.m. The ceremony will last about one hour.

The Chemical Engineering department ceremony will begin immediately following the university ceremony at The Carnegie Lecture Hall in The Carnegie Museum. After the ceremony a special reception will be held in The Hall of Architecture for graduates and their guests.

The Ph.D. hooding ceremony will be Saturday, May 18th at 8 p.m. Wiegand Gymnasium, University Center.

For detailed information about all of the events for graduation and specific information about the ceremonies see: http://www.cmu.edu/commencement/

ALL expected graduates should have logged into the commencement web site by now to verify their commencement information. If you have not, log onto http://www.cmu.edu:8001/hub/gol.html immediately.
Summer Research Internships

The following students have been selected to work in Faculty and Graduate research groups for the summer:

Undergraduate Summer Research Internships:
Jordan Green – Przybycien Group
Naser Abukhdeir – Ydstie Group
Kurt Sieber – Sholl Group Steven
Clifford – Walker Group Eva Chu
– Tilton & Prieve Group

SURG
Adam Welander – Walker Group

REU
Diana Yoon – Schneider Group

Farewell
Farewell to the exchange students who spent the 2001-02 school year with us!

From RWTH Aachen in Germany: Clemens Fritzman & Korbinian Krämer

From Imperial College in London: Sunil Patel, Jiun Tan and Eng Dih Teo

From Chile: Rodolfo Perez

We have enjoyed meeting all of them and bid a fond farewell.

Good Luck
We also send our best wishes with the following students who will be studying abroad in the departmental exchange program for the 2002-03 school year:

To RWTH Aachen in Germany – Bri-Mathias Hodge

To Imperial College in London –Jarett Feldman, Mark Goldman, Janice Hou and Adam Welander

Congratulations to the following seniors who are expected to receive degrees on May 19th or this summer, August 16th**.

Joyce M. Boss

Lance Robert Brown

Stacey Lynn Carothers
Minor: Biomedical and Health Engineering
Sarah Kristen Dence
Nathan Harry Dushman
Minor: Automation and Control Engineering
Minor: Computer Science

*** David Justin Flowers
Chaitra Roshan Hakkal
Additional Major: Engineering and Public Policy

Di He
Thomas Edward Hewitt III
Minor: Business Administration (Manufacturing Management and Consulting)

Sini Ann Jacob
Additional Major: Engineering and Public Policy
Minor: Business Administration (Manufacturing Management and Consulting)

Meaghan Marie Kelly
Seth Pemberton Knaebel
CPS Option

Hsu-Feng Ko
Additional Major: Biomedical and Health Engineering

Christian Daniel Koschil
Minor: Business Administration (Manufacturing Management and Consulting)

Heather D. Leifeste
Minor: Art

James Hok-Lin Leung
Additional Major: Biomedical and Health Engineering

Jason Liu

Steven Jian Mahalec
Additional Degree: Master of Information Systems Management

Alexander Meyer
CPS Option

Eric David Miller
Welcome to the following first year students who have chosen to join the chemical engineering department. We all look forward to meeting them next semester:

Steven Back
David Chan
Yan Xi Chan
Yi Chen
Matthew Dalka
Michael Divens
The Chemical Engineering Graduate Student Open House was held the weekend of March 8-10, 2002. We thank all the graduate students for their help in recruiting new students.

Congratulations to the following students who recently presented their research proposals:

Dimitrios Gerogiorgis
Advisor: Erik Ydstie. Title: Multiscale Modeling of A Novel Aluminium Production Process

Junhyung Kim
Advisor: John Anderson & Steve Garoff. Title: Particle Dynamics in Spatially and Temporally Varying Electric Fields near Electrodes

Ijeoma Nnebe
Advisor: Jim Schneider. Title: Dynamic AFM Measurements on Biological and Heterogeneous Surfaces

Jim Vernille
Advisor: Jim Schneider. Title: Peptide Nucleic Acid Amphiphiles for sequence-specific DNA Purification

Congratulations to the following graduate students, who have recently had their final oral exam or will have it shortly, and who are scheduled to graduate on May 19th:
Ph.D
Yenny Christanti
Advisor: Lynn M. Walker
Title: The Effect of Viscoelasticity on the Atomization of Polymer Solutions

Raymond Riley Dagastine
Advisor: Dennis C. Prieve and Lee R. White
Title: Colloidal Force Measurement Using Atomic Force Microscopy and Total Internal Reflection Microscopy

Jennifer Hsu Hill
Advisor: B. Erik Ydstie
Title: Adaptive Control and Optimization with Unknown Disturbances

Sangbum Lee
Advisor: Ignacio E. Grossmann
Title: Global Optimization Algorithm for Nonlinear Generalized Disjunctive Programming and Applications to Process Systems

Ryan Zhi Lei
Advisor: Andrew Gellman
Title: Fundamental Studies of Molecular Interactions of Lubricants and Contaminants on Amorphous Carbon Overcoats

Edgar Perea López
Advisor: Ignacio E. Grossmann & B. Erik Ydstie
Title: Supply Chain Management based on Dynamic Optimization and Control

Timothy Michael Raymond
Advisor: Spyros N. Pandis
Title: Cloud-Aerosol Interactions in the Atmosphere

My Hang Thuy Truong
Advisor: Lynn M. Walker
Title: Controlling Cylindrical Micellar Rheology Through Intelligent Formulation

Andreas Wächter
Advisor: Lorenz T. Biegler
Title: An Interior Point Algorithm for Large-Scale Nonlinear Optimization with Applications in Process Engineering

Angela M. Wilcox
Advisor: Todd M. Przybycien
Title: The development of screening techniques for conditions that inhibit protein Self-association

M.S.
David Blanco Maceiras
Advisor: David S. Sholl
Title: Lattice Gas Models of Single- and Binary-Diffusivities in Zeolites

M.S.CPS
Mildred R. Anderson

M.Ch.E
Timothy Daniel Brennan
Jonathan Roderick Davis
Robert U. Mmerole
Jason Andrew Stieg
Premin Suchato

M.ChE.CPS
Alicia D. Byers

We wish all of our graduates the best of luck!

Senior Banquet: The fifth annual senior banquet sponsored by AIChE and the department will be held on May 3rd at the Engineers Society for all graduating seniors, faculty and staff. This event is always a lot of fun and a great chance for one last goodbye to friends. E-mail your RSVP to Sini Jacob at sjacob@andrew.cmu.edu.
Faculty Profile
Getting to Know the Faculty and Staff

Annette Moff Jacobson

I am a native of Latrobe, PA, which is located about 40 miles east of Pittsburgh. Latrobe is well known as the home of Arnold Palmer and Fred Rodgers (Mister Rodgers); it is also where Rolling Rock beer is made and where the banana split was invented (this was before my time). I am the oldest of four children; two of my siblings are also Carnegie Mellon alumni. My parents are recently retired owners of a flooring/carpeting business in Latrobe.

After graduating from Latrobe High School, I came to Carnegie Mellon as an undergraduate, planning to major in either business or computer science. While taking the Intro to Chemical Engineering course, I was convinced (by whom, I won’t say, but a hint—it was before the creation of the chemical car competition) that Chemical Engineering was the path for me! I met my (later to be) husband, Don, in freshman history class; he was majoring in Psychology and business. After my junior year, I was offered an industrial internship with PPG Industries, Chemical Division in Ohio. I worked in an industrial chemical plant that made many chemicals including chlorine, sodium hydroxide, herbicides, peroxides and fine silica particles (my first contact with industrial colloids!). My job was to monitor and test a wastewater stream from a pilot plant that manufactured herbicides; it was an environmental engineering job in general. I graduated with a BS in Chemical Engineering (and yes, with the CPS option.... we even had it back then!).

I joined PPG Industries as a chemical engineer, this time in Pittsburgh at their Glass Research facility. At PPG, I worked on projects to develop glass products, in particular inorganic sealants and coatings for double pane windows used in residential and commercial construction. This was a new experience for me, as most of my colleagues were materials scientists and ceramists (the one materials science course I had taken was very useful here). During my employment at PPG, I took evening courses to work on an MS in Chemical Engineering, again at Carnegie Mellon. Also during this time, Don and I were married, after he finished an MBA at the University of Michigan and joined Mellon Bank.

After a few years at night school, I took a leave of absence from PPG, as I was accepted as a full-time student in the PhD program in our department. My thesis work on surfactant micelles and solubilization was done with my advisor, Emerita Professor Ethel Casassa, who was at that time CPS Program Director. Our eldest daughter Jennifer was born while I was a graduate student. After receiving a PhD in Chemical Engineering, I had to make the academia/industry decision-- between taking a job in industry or an academic position as CPS Director (as Professor Casassa had announced her retirement). I chose an academic career, because I enjoy teaching. Our second daughter, Amanda was born 3 years later. In my spare time these days, I attend the girls’ soccer games and dance and school events and I enjoy herb gardening and quilting.