Message from the Department Head

The semester is rolling to a close and with the exception of one or two bumps in the road there is nothing in the way of summer’s approach. It has been an interesting semester trying to figure out what it was that Ignacio Grossmann was doing in here for the past eight years. Suffice it to say that it was far too much for me to comprehend in a few short months. Nonetheless my grip on the reins is becoming firmer. By year’s end I will have observed the entire academic cycle from the perspective of department head.

This semester has been a good one for the department in many respects. The work of several of our colleagues has been recognized in one form or another. Art Westerberg won the ASEE’s CACHE award and the Doherty Prize from CMU. Annette Jacobson was honored with CMU’s Advising award. Both of the CMU awards were made in a ceremony on April 9, 2003. Last but not least, Ignacio Grossmann has been awarded a Fullbright Fellowship to support his sabbatical abroad next year. Our students have also done very well. Anjanette Koritnik and Christy White were both awarded NSF fellowships for graduate study and a third was awarded to Travis Crites who will be joining us next Fall from West Virginia University. This represents three of the 35 NSF fellowships awarded nationally in the field of Chemical Engineering. In addition, Jordan Green who will be graduating this year and attending MIT in the fall won a fourth of these fellowships.

The one sad note was the passing away of Professor Emerita Ethel Casassa on March 29th. Ethel founded the CPS program in the department almost 30 years ago, a legacy that is still a strong component of the department.

Next year looks as though it will also be a very good one from the point of student recruitment into the department. We have an excellent class of graduates who will be joining us in the fall. Our thanks go to David Sholl, Lee White, Myung Jhon, and Linda Dorsey for all their efforts as the graduated recruiting committee. In addition we have 54 sophomores joining the chemical engineering program in the fall. The good news is that we seem to be bucking the national trend in enrollments.

In a couple of weeks we will be handing degrees to ~50 seniors, 18 Ph.D. students and 3 Masters degree students. Congratulations to all of you! I hope that everyone will be able to attend the ceremony and recognize all of their achievements. I am sure that a good time will be had by all and there’s no better way to begin the summer. I hope those of you who are headed out to new jobs, or internships have a very good summer. Those of you who will still be here working hard won’t be alone.

Andrew J. Gellman
Department News

The 2003 Jerry Seiner Memorial Lecture
The 2003 Jerry Seiner Memorial Lecture in Colloids, Polymers and Surfaces will be given by Dr. Ian Morrison of Cabot Industries on Thursday, May 15, 2003. The title of the lecture is “Ions and Charged Particles in Nonpolar Media”. It will be held in the MCS auditorium, DH 2302, with a reception immediately following. All are invited to attend.

CAPD Short Course
The CAPD Short Course, “Conceptual Design, Optimization, and Process Operations” will be offered from April 30 to May 6, 2003, 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://capd.cheme.cmu.edu/.

Chemical Car Competition, Monday April 29, 2002
The Introduction to Chemical Engineering class, 06-100, conceived, designed, built, tested and competed Chemical Boats. The concept is similar to the Chemical Car contests of the past few years. The students will decide on the chemistry, propulsion system, boat design, etc. to move their boat from a start line to a finish line (5 to 30 meters) carrying a load from 0 to 500 grams. The distance and load will be given to each team 30 minutes prior to the start of the race. The boat closest to the finish line is the winner.

The purpose of the competition is to let the students try to build a team, synthesize designs, watch some of the designs fail, improve the design using experiments and theory, and hopefully gather enough experience and data to reliably predict the behavior of the boat and be competitive. There will be a new trophy this year that is nearly as large as the America’s Cup! Some of the key issues the students are dealing with are: What reactions should I use? Is it safe? How much drag will the boat create? Is the drag related to the load that the boat is to carry? Does the drag depend on the speed of the boat? Should the propulsion system be a free jet in air, free jet under water, propeller, paddle wheel? etc. We are blessed this year with a group of senior chemical engineers project consultants that will help the first year student teams. This is the first year that seniors are available who participated in the Chemical Car competition as freshmen. We are fortunate to have creative, reliable, safe, efficient, accurate, colorful, aesthetic, sustainable, and otherwise cool designs.

The boat race was held on Monday, April 28 from 2:30 to 4:30PM. It was a great day for chemical boat racing and we were featured on the evening news as Chemical Engineers having fun with chemistry and engineering. The winning boat was within 10 inches of the fifty foot target distance while carrying a 100 gram load. The winners are John Belknap and Aaron Straub. Congratulations! All the teams and their senior consultants are to be congratulated for designing, building and testing boats that were very capable.

The 2003 Distinguished Research Lecture was presented on February 6, 2003, at 10:45 AM in Doherty Hall 1112. Professor Alice P. Gast of the Department of Chemical Engineering at
Massachusetts Institute of Technology spoke on “Protein Crystals on Lipids: Ordering in Nature.”

**CAPD Annual Review**

The Annual Review Meeting of the Centre for Advanced Process Decision-making took place on March 24-25, 2003. The meeting was attended by 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 LeMont Restaurant.

**National Engineers' Week at the Carnegie Science Center, February 14-15, 2003**

The College of Engineering was a sponsor of the 2003 Engineers' Week Celebration at the Carnegie Science Center in Pittsburgh. Each of the CIT departments and ICES hosted event tables featuring presentations, demonstrations and activities designed to interest and inspire young people to explore engineering. Over 4700 visitors attended the two-day event. Chemical Engineering featured chemical rockets powered by carbon dioxide from a chemical reaction. Visitors tested the chemical reaction and launched their own rocket. Macromolecules and their unusual shrinking properties were presented including a Shrinky Dink plastics (make and take) activity.

A sincere thank you to all the volunteers who participated: Rebecca Gerard, Adesola Amonsun, Carl Laird, Christy White, Molly Hosier, Corley Strunk, Michael Gerber, Jessica Tucker, Danilo Pozzo, Marvi Matos, Dana Gary, Anjanette J Koritnik, James Tseng, Eva Chu, Raihan Rozlee, David Rampulla, Kienuwa Osayawe, Steinar Hauan, Ana Morfesis, Libby Powers, Gary Powers, Rose Frollini, Annette Jacobson

**Expanding Your Horizons in Science and Mathematics**

The symposium “Expanding Your Horizons in Science and Mathematics” was held at Carlow College on March 1, 2003. Workshops entitled "It's a Macromolecular World" were presented to 30 middle school girls from the tri-state area. The activities included polymer experiments and examples of consumer products that are made from macromolecules. Thanks to Molly Hosier and Becky Gerard for spending the day working with the students in the workshop.

**Faculty News**

Emerita Professor of Chemical Engineering Ethel Z. Casassa died at her home on Saturday, March 29th. Professor Casassa was Director of the CPS Program for 15 years prior to her retirement in 1988. She was instrumental in the founding of the CPS Program and CPS Laboratory 30 years ago. Her influence on the program at both the undergraduate and graduate level is still apparent today. Her lively spirit, wealth of knowledge, and great stories will be missed by all who knew her.

**Congratulations to the following faculty:**

Prof. Art Westerberg was named recipient of the 2003 Robert E. Doherty Award for Sustained Contributions to Excellence in Education. The Doherty Award is intended to recognize contributions to the development, implementation and evaluation of educational
programs at all levels, and to the creation and maintenance of an environment that fosters excellence in education.

Prof. Art Westerberg was also named the recipient of the CACHE award for Excellence in Computing Education (ASEE).

Dr. Annette Jacobson was named recipient of the 2003 Academic Advising Award, which recognizes members of the Carnegie Mellon community who have achieved excellence in providing undergraduate and graduate academic advising and mentoring. The award is intended to recognize outstanding contributions in helping students define and achieve their academic goals.

Prof. Ignacio Grossmann was granted a Fulbright Fellowship for his sabbatical in Spain next year.

Department Head, Andy Gellman’s research was featured in the April edition of Chemical & Engineering News, in an article entitled, “Molecular-Scale Wear and Tear”. The article highlighted research on friction and reactions at lubricated interfaces that was presented at the American Chemical Society national meeting in March. Dr. Gellman’s work cited in the article concerned the influence of crystallographic orientation on friction measured between metal surfaces. Also mentioned in the article for their research work with Dr. Gellman were Chemical Engineering Alumni, Jeffrey S. Ko and current Ph.D. student, Christopher M. Mancinelli.

Staff News

Congratulations to Rosemary Frollini. The Society for Analytical Chemists of Pittsburgh has announced that Rosemary Frollini has received a 2003 MIME Grant. Usually three MIME (Member Initiated, Member Executed) Grants are awarded each year and this is the third MIME grant that Rose has received. This award was for the purchase of the Science and Engineering Interactive software, “Science in a Technical World”, developed by the ACS. The twelve CD’s cover topics ranging from paint, paper, polymers and petroleum technology to the food and drug industries. They will be used during CPS outreach activities with the HP Notebook computer that was received earlier through an Equipment Grant from Hewlett Packard Philanthropy.

Farewell to Elizabeth Schwertfuehrer. Elizabeth will be leaving the department in June. Elizabeth has accepted a position with the Mt. Lebanon Library in the Children’s department. We wish Elizabeth the best of luck as she embarks on her career in Library and Information Science.

Visiting Scholars – Welcome!

Hyun Ju Kim from the Republic of Korea is working with Professor Jhon’s group.
Natasa Irsic Bedenik from the Republic of Slovenia is working with Professor Grossmann’s group.

Cheryl Lau from Hong Kong is working with Professor Schneider’s group.

Undergraduate News

Senior Banquet: The fifth annual senior banquet sponsored by AIChE and the department will be held on May 2nd 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.

COMMENCEMENT 2003!
Carnegie Mellon’s 106th commencement will take place at 11 a.m. on Sunday, May 18th 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 Doctor’s hooding ceremony will take place at 8 p.m. on Saturday, May 17 in the Wiegand Gymnasium of the University Center. Doctor’s candidates, participating faculty and other ceremony participants will robe in Rangos Hall (second floor, University Center) at 7:15 p.m. and begin to process at 7:45 p.m. Doctor’s candidates and faculty members should have confirmed their participation.

Be sure to follow the schedule of events and latest news at the commencement web site http://www.cmu.edu/commencement/.

If you have any questions about the university commencement ceremony, send e-mail to commencement@andrew.cmu.edu. If you have questions about the departmental ceremony, contact Elizabeth at eb2r@andrew.cmu.edu or stop by to see her in DH 1101.

Summer Research Internships

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

Undergraduate Summer Research Internships:
Nicole M. Gartner (Schneider)
Ben Anderson (Pandis)
Wai Yip (Pandis)
James Wertman (Walker)
Kurt Ken Sieber (Sholl)
Congratulations to Jordan Green who was awarded a Whitaker Foundation Graduate Fellowship, a Phi Kappa Phi Graduate Fellowship, and an NSF Fellowship. He will attend graduate school in Biological Engineering at MIT this Fall.

Farewell
Farewell to the exchange students who spent the 2002-03 school year with us!

From RWTH Aachen in Germany: Michael Follmann, Sven Glatthaar & Christian Keysselitz.

From Imperial College in London: Zi En Ooi, Li Bin Sim & Jun Yong Teo.

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 2003-04 academic year:

To RWTH Aachen in Germany – Aaron Beaber

To Imperial College in London – Yan Xi Chan and Brian Leukart.

Congratulations to the following seniors who are expected to receive their degrees on May 18th or this summer, August 12th.

Jennifer L. Airone
Additional Major: Biomedical Engineering

Brian Christopher Baker
Minor: Business Administration (Manufacturing Management and Consulting)

Anthony G. Balducci
Minor: Colloids, Polymers and Surfaces

Paul J. Beauchemin

Alison M. Berliner
Minor: Biomedical Engineering
Minor: Colloids, Polymers and Surfaces

Michael Paul Betler
Additional Major: Biomedical Engineering

Samuel SangHyup Byun
Additional Major: Engineering and Public Policy
Minor: Environmental Engineering
Tak Cheng

Eva Y Chu
Minor: Colloids, Polymers and Surfaces

James H. Chung
Additional Major: Biomedical Engineering

Paul J. Chung
Minor: Business Administration (Manufacturing Management and Consulting)

John Slocum Coleman
Additional Major: Biomedical Engineering
Minor: Colloids, Polymers and Surfaces

***Matthew T. Cook
Minor: Colloids, Polymers and Surfaces

Christopher J. Csider
Minor: Business Administration

George M. Davenport

Clint S. Edelman
Minor: Colloids, Polymers and Surfaces

Richard Fong
Minor: Spanish

Jordan Jamieson Green
Additional Major: Biomedical Engineering

Anastasia Mary Gribik
Minor: Biomedical Engineering
Minor: Business Administration (Manufacturing Management and Consulting)

Charles A. Grimm
Minor: Biomedical Engineering

Margaret Elizabeth Groves
Additional Major: Engineering and Public Policy

David Michael Gutowski
Minor: Colloids, Polymers and Surfaces
Minor: History
Melanie Krystle Harris  
Minor: Business Administration (Manufacturing Management and Consulting)

Adam Ryan Hibshman

Betty S. Huang

Kevin James Hughes  
Minor: Colloids, Polymers and Surfaces

Justin Han-Che Hwang  
Minor: Biological Sciences

Hanyong Lim  
Additional Major: Economics

Rebecca Ann Long  
Additional Major: Biomedical Engineering

Susan Michelle Luf  
Additional Major: Biomedical Engineering

Robert Paul Milloy

Elizabeth Lynn Newton  
Additional Major: Biomedical Engineering

Barbara Nightingale  
Additional Major: Biomedical Engineering

Queenelle T. Ogirri  
Minor: Business Administration (Manufacturing Management and Consulting)

Alexander Scott Perry

Christopher Richard Pierce  
Additional Major: Biomedical Engineering  
Minor: Colloids, Polymers and Surfaces

Patricia Marie Plan  
Additional Major: Biomedical Engineering

Sara Marie Royce  
Additional Major: Biomedical Engineering  
Minor: Colloids, Polymers and Surfaces
Hiroshi Shirakawa
**Alexander Barton Smith**
Minor: Business Administration (Manufacturing Management and Consulting)

Earl Osman P. Solis
Minor: Biomedical Engineering
Minor: Business Administration (Manufacturing Management and Consulting)

*** Morris Lee Tharps, Jr.

Amy Elizabeth Timko
Minor: Business Administration (Manufacturing Management and Consulting)

James Chien-Yu Tseng
Additional Major: Biomedical Engineering

Arun K. Wahi
Minor: Environmental Engineering
Minor: Jazz Performance

James Thomas Wertman

Elizabeth J. Williams
Minor: Engineering Design
Additional Degree: German

Andrew Y. Yen
Minor: Colloids, Polymers and Surfaces
Minor: Japanese

Wai Fan Yip
Additional Major: Engineering and Public Policy

Diana Meeae Yoon
Additional Major: Biomedical Engineering
Class of 2006

Welcome to the following first-year students who have chosen to join the chemical engineering department.

<table>
<thead>
<tr>
<th>Name</th>
<th>Advisor</th>
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<tr>
<td>Aric Anderson</td>
<td>Jennifer Plank</td>
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<td>Elizabeth Arnade</td>
<td>Alyse Prince</td>
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<td>Danielle Block</td>
<td>Sunil Raman</td>
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<td>Alan Cacciamani</td>
<td>Stanley Revers</td>
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<td>Derrick Chan</td>
<td>Thomas Sabram</td>
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<td>Nora Chen</td>
<td>Muhammad Zeid Saigol</td>
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<td>Hanish Dayal</td>
<td>Jennifer Sandidge</td>
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<td>Morgan Dileo</td>
<td>Nicholas Scocozzo</td>
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<td>Laura Gabby</td>
<td>Amol Shah</td>
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<td>Jin Wee Gho</td>
<td>Ann Shchelokova</td>
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<td>Eva Goellner</td>
<td>David Shin</td>
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<td>Aashish Goswami</td>
<td>Anita Shukla</td>
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<td>Stephen Hersman</td>
<td>Akil Simon</td>
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<td>Kate Hollabaugh</td>
<td>Shailendra Singh</td>
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<td>Kenneth Hu</td>
<td>Kathryn Smith</td>
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<td>Jasmine Hung</td>
<td>Brandon Smith</td>
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<td>Brian Hunter</td>
<td>John Snyder Jr</td>
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<td>Andrew Kiang</td>
<td>Patricia Stallings</td>
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<td>Yea Na Kim</td>
<td>Aaron Straub</td>
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<td>Hannuri Kwon</td>
<td>Daniel Sunday</td>
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<td>Nicolette Louissaint</td>
<td>Mitchell Tai</td>
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<td>Mary Mack</td>
<td>Alexandra Tsarenko</td>
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<td>Nabil Mansouri</td>
<td>Jordan Umeda</td>
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<td>Shawn Marsh</td>
<td>Sebastian Vega-Fuentes</td>
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<td>Joseph McDermott</td>
<td>Lateoya Williams</td>
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<td>Aaron Ngo</td>
<td>Ray Wong</td>
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<td>Nigel Offor</td>
<td>Lu Yang</td>
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<td>Reema Patel</td>
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Graduate News

The Chemical Engineering Graduate Student Open House was held the weekend of March 8-10, 2003. We thank all the graduate students for their help in recruiting new students.

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

**Tim Gaydos**
Advisor: Spyros Pandis
Title: *Mass Transfer to Atmospheric Aerosols: Model Development and Application*

**Matt Preston**
Advisor: Lee White
Title: *Electrokinetics of Low Dielectric Colloidal Systems*

**John Siirola**
Advisors: Art Westerberg & Steinar Hauan
Title: *Methods for Large-Scale Process Design Using Collaborative Algorithmic Agents*

**David Rampulla**
Advisor: Andy Gellman
Title: *Ultra High Vacuum Studies of the Surface Structure and Enantioselective Chemistry of Naturally Chiral Metal Surfaces*

Congratulations to the following students who are scheduled to graduate on May 18th:

**Ph.D.**

**Nikhil Arora**
Title: *Nonlinear Programming for Data Reconciliation and Parameter Estimation*
Advisor: Lorenz T. Biegler

**Aravind Asthagiri**
Title: *Theoretical Studies of Naturally Chiral Surfaces*
Advisor: David S. Sholl

**Jayanth Balasubramanian**
Title: *Optimization Models and Algorithms for Batch Process Scheduling under Uncertainty*
Advisor: Ignacio E. Grossmann

**Lifei Cheng**
Title: *Multi-Objective Decision Processes under Uncertainty: Applications, Problem Formulations, and Solution Strategies*
Advisors: Arthur W. Westerberg, Eswaran Subrahmanian

**Kathleen Marie Fahey**
Title: *Cloud and Fog Processing of Aerosols: Modeling the Evolution of Atmospheric Species in the Aqueous Phase*
Advisor: Spyros N. Pandis

**Vianey Garcia-Osorio**
Title: *Modeling of Distributed Simulation of Carbothermic Aluminum Process using Recording Controllers*
Advisor: B. Erik Ydstie

**Joshua David Horvath**
Title: *Enantiospecific Adsorption on Naturally Chiral Copper Surfaces*
Advisor: Andrew J. Gellman

**Gregory C. Itle**
Title: *Large Scale PDE-Constrained Optimization applied to CFD Applications*
Advisor: Lorenz T. Biegler
Jennifer Renee Jackson  
Title: *Optimization Strategies for Reactive Distillation, Retrofit Synthesis, and Production and Distribution Planning*  
Advisor: Ignacio E. Grossmann

Bonyoung Koo  
Title: *Atmospheric Aerosol Dynamics: Mathematical Models and Their Evaluation*  
Advisor: Spyros N. Pandis

Christopher M. Mancinelli  
Title: *Tribological Properties of Crystalline and Quasicrystalline Surfaces*  
Advisors: Andrew J. Gellman, Myung S. Jhon

Daniel P. Margolis  
Title: *A Methodology for Synthesizing Logic Models of Operating Procedures for Process Verification*  
Advisor: Gary J. Powers

Daniel E. Milam  
Title: *Synthesizing Modular Logic Models of Chemical Engineering Process Equipment and Control Systems for Verification*  
Advisor: Gary J. Powers

David Michael Phillips  
Title: *Nanoscale Modeling for Ultra-Thin Liquid Films: Spreading and Coupled Layering*  
Advisor: Myung S. Jhon

Martin G. Ruszkowski  
Title: *Passivity-Based Control Of Transport-Reaction Systems: Application to Silicon Production*  
Advisor: B. Erik Ydstie

Anastasios Ioannis Skoulidas  
Title: *Modeling of Zeolite Membranes from Atomistic Principles*  
Advisor: David S. Sholl

Corley Walker Strunk  
Title: *Measurement of Linear Nanometric Distances Using Scattered Evanescent Radiation*  
Advisors: Paul J. Sides, Myung S. Jhon

Millicent Marlene Ow Sullivan  
Title: *Colloidal Gold/Polyethylenimine Formulations for Gene Delivery*  
Advisor: Todd M. Przybycien

M.S.  
Michael Aboagye  
Title: *Water Adsorption on Hard Disk Media*
Advisor: Andrew J. Gellman

Luiz Felipe Tavares
Title: Considerations on Thermodynamics and Stability
Advisor: B. Erik Ydstie

Cong Xu
Title: Modeling and Optimization of PEM Fuel Cells
Advisors: Myung S. Jhon & Lorenz T. Biegler

M.S. CPS.
Christopher M. Mancinelli

M.Ch.E.
Charles A. Grimm
Madhavi A. Kulkarni
Hanyong Lim
Katrina Leanne Miller
Angel E. Morales
Prabhath Kiran Nanisetty
Humberto Nava

We wish all of our graduates the best of luck!
Now that I am more relaxed having stepped down as Head, it is a pleasure to write a few lines about my life as I get ready to recharge my batteries next academic year during my sabbatical leave to Spain and Switzerland. I consider myself to be very fortunate to have been exposed to a number of different cultures and languages. I was born in Mexico City from Swiss parents. My first mother tongue was in fact Swiss German since my grandmother lived with us at home. I first went to the German School in Mexico until my third grade when I switched to a school that had English as the second language. By that time my Spanish had become my major language (I still count my money in Spanish). I also decided that soccer would become my favorite sport. After studying Chemical Engineering at the Universidad Iberoamericana, I was fortunate to have three choices for going to graduate school, University of Wisconsin, McMaster University and Imperial College. I decided for the latter and went to England because I thought it would be a good thing if I could spend part of my life in Europe (it turned out one of my best decisions in my life). In London I met my wife Blanca who is from Spain, and we got married few days after my final Ph.D. exam. We then went to Mexico to work for the Mexican Petroleum Institute, and shortly after that I got invited to Carnegie Mellon for an interview. Luckily, I was offered the position to come here, and decided to accept thinking I we would be coming for only three years to get the U.S. experience. Well, time has gone by and we have already been here in Pittsburgh for 24 years!

So what has my international experience taught me? On the one hand, it has helped me to broaden my mind (I actually used to be a nerd). More importantly, it has helped me to better understand differences between people and accept them more readily as they are. Has there been a downside? Perhaps the only one in that you do not get a strong sense of belonging to a particular place. However, you also learn to like different things from different countries. For example I enjoy music and friendship in Mexico, food and wine in Spain, classical music and the BBC in England, cheese and chocolates in Switzerland, my professional career and hot dogs in the U.S. From the above it is perhaps no surprise that when I became Head one of my pet projects was to start exchange programs with Imperial College and RWTH Aachen. I am very pleased to see that we continue these programs after eight years, and hope that many of you take advantage of them, including the new Summer Program at Dortmund.

One of the most important things I have done in my life is to have three beautiful children with my wife Blanca. I have a daughter Claudia who is doing a Ph.D. in biomedical sciences at UCSF. Next comes my son Andrew who is graduating this year from the Design Department. Finally Thomas is a freshman at Wisconsin where he is studying Industrial Engineering. One of the things I enjoyed the most was coaching soccer in my children's teams. My wife and I tried to teach our children good values and respect for other people. I added my personal touch by emphasizing to them the importance of mathematics and strongly discouraged them from becoming lawyers (at least they listened to me on this advice!). Incidentally, my lack of enthusiasm for lawyers is not bigotry. It is simply a strong allergy!

I have also been very fortunate to have my academic career at Carnegie Mellon. Perhaps the most important thing was to find a good acronym for my research: MINLP. Probably you will be bored if I tell you all the niceties about this area (which are in fact quite interesting). Let me only say that MINLP deals with the study of mathematical optimization with discrete and continuous variables, and that it can be applied to many engineering problems such as process synthesis, and planning and scheduling. These are interesting and relevant problems in process systems engineering in which a key challenge is how to develop useful optimization models for decision-making (e.g. deciding how to integrate a process flowsheet or how to put together a production plan for a multiproduct plant). One of the best experiences in this research has been to work with very bright graduate students who have done very well in academia and in industry. Our world-class efforts in design, OR and process systems engineering at Carnegie Mellon have also been a great plus and have provided me with a stimulating environment. I should also add that I have also enjoyed my teaching, since this is why I decided for an academic career in the first place.

The one thing I never expected was to one day become Department Head. When the position was offered to me I had behind my back Professor Jim Douglas' advice: "It is like earning a free trip to the dentist every day!" Nevertheless, I could not ignore the strong support from the faculty and decided to take the plunge. As it turns out, I was once again lucky as it was on balance a good decision (I actually learned to enjoy thinking on how to achieve world dominance of our department). The position was an interesting challenge to see how we could do better as a department, improve the education for our students, and be recognized as a top-ranking department in the country. I would like to thank the faculty, students and staff for your help and support for a great experience. I am sure Andy Gellman will find the same help and support as I did.

I wish you all a happy graduation and a happy summer and see you in the fall of 2004!