Message from the Department Head

As always, everyone deserves congratulations in the Spring. The most deserving are those of you who are graduating. Congrats!!! The faculty is looking forward to handing you your degrees on May 18th. Some of the faculty are also deserving of congratulations as they have won a number of awards over the past year and had a number of significant scholarly accomplishments. Finally, congratulations go to our winning ChemE car team for taking first place at the AIChE regional competition.

I never thought that we would be able to say this but, we are now in the home stretch of building renovation. Some of the labs were completed earlier in the semester. My group got to move into their new digs on the first floor in early February. Moving is not easy but it is always worth the effort. The new labs are infinitely better than what we had before. I realize that a lot of you are now in temporary space and offices and that we are in the middle of the most disruptive phase of the renovation process but it will be worth it. By the end of the summer, I expect that most of us will be in our permanent locations. Those of you currently working in the PTC building will have moved back and the department will be whole again. As it turns out, there is an inspection tomorrow of the entire project by the administration and I expect that they will be pleased with our use of their funds.

We have lost a few colleagues over the past year and many of you will be graduating; however, the process of replenishment is ongoing. We are currently in the process of negotiating offers to two assistant professors. Those ought to work themselves out over the course of the next few weeks. In addition, we have fairly large classes of students joining our program next Fall. The incoming sophomore class will have 60 students (at last count). The graduate class is huge with 19 PhD students and 29 Masters students. Many thanks to Jim Schneider and Sarah Paez for the great work that they have done in graduate recruiting over the past few years. Jim will be stepping down as chair of the graduate recruiting committee and Lynn Walker will be taking over.

Good luck to those of you who are graduating and moving on to new things. For those of you who are returning next fall, I hope that you have a great summer!!!

Andy
Chemical Engineering Undergraduate AIChE Chemical Car Competition

Scott Epstein wrote: Chem-E-Car team competed in the regional Chem-E-Car competition at the AIChE regional student conference on Saturday, April 12, 2008, in the Bronx, NY at Manhattan College. On our first run, we stopped 5 inches from the 65 foot target distance. Amazingly, Manhattan College also stopped 5 inches from the line, but we both got to share a first place finish among the 11 teams in attendance. This ensures us a spot in the National competition at the Fall AIChE meeting in Philadelphia.

We would like to acknowledge all of the team members who worked really hard to make this happen. At the competition were Denver Faulk, Carlene Ulish, Sudarsan Venkatachalam, Boo Kim, Robert Wiegmann, Tiffany Chan, Joyce Xu, and myself. Melissa Bartel, Carmeline Dsilva, Choi Tend Ho, Rogaite Shafi, Alia Lubers, Lisa Augustyniak and co-advisor Jeff Pierce (the grandfather of ChemE car at CMU and Northeastern) also played critical roles in the team victory.

We would also like to thank Prof. Jim Miller for being an incredible AIChE faculty advisor. In addition, we would like to thank Matt Cline, John Kitchin, Larry Hayhurst and Paul Sides for their support.

The Annual Review Meeting of CAPD took place on March 10-11, 2008 We had a record attendance of 39 participants from industry (ABB, Air Products, Aspen Technology, Bayer, BP, Cargill, Dow Chemical, Eastman Chemical Company, ExxonMobil, Kraft Foods, NETL, NOVA Chemicals, Paragon Decision Technology, PETROBRAS, PPG, Praxair, Pfizer, Simsci-Esscor/Invensys, Total). On the first day we had research overviews of the faculty, six excellent industrial presentations and a poster session. The dinner this year took place at Monterey Bay Fish Grotto Restaurant. On the second day, we had the presentations by last year students as well a special session on Modeling Systems.

We had a special session EWO at the Annual Review Meeting that was well received. Presentations were given by the following:

- Sebastian Engell, University of Dortmund
- Thomas Marlin, McMaster University
- Sridhar Tayur, SmartOps

National Engineers Week at the Carnegie Science Center

The Department celebrated National Engineers’ Week by sponsoring a table at the Carnegie Science Center on February 15 and 16. We provided hands-on polymer activities that included Shrinky Dink® plastics and as well as a new activity, molecular tattoos, that we developed recently in the CPS lab. A sincere thank you to the following 19 people for volunteering your time at our table:
Ben Murphy, Kaytlin Henry, Susana Steppan, Rosemary Frollini, Annette Jacobson, Xuan Shi, Nick Alvarez, Andrew Tsai, Harry An, Siobhan Halloran, Ester Barbuto, Katie Dolan, Teresa Kirschling, Tom Kirschling, Chris Wirth, Kristina Wagstrom, Jen Summerhill, Wingki Lee, Justin Epperley

The event was a wonderful success --- your participation and enthusiasm were greatly appreciated!!

**Introduce a Girl to Engineering Day**

The Carnegie Mellon Chapter of SWE sponsored “Introduce a Girl to Engineering Day” for high school girls on campus on February 20. Jim Schneider and Annette Jacobson provided a lab tour of the PPG Industries CPS Laboratory. The focus of the tour and demonstrations included polymers and plastics and showed how plastics are tested in industry for their mechanical and thermal properties. Many applications where plastics are used in products were provided which demonstrated the connection between chemical engineering and product development.

**Educators Engineering Workshop**

The Carnegie Mellon Center for School Outreach sponsored an Engineering Workshop for Science and Mathematics educators on Saturday, April 5 on campus. Nineteen STEM educators worked with Annette Jacobson in the PPG Industries CPS Laboratory on several classroom activities that were designed to help students learn about polymers and plastics. The event included a discussion about the translation of the polymers activities into an Open Learning Initiative (OLI) module.
Faculty News

Lee White and Andy Gellman at the ACS meeting where Lee received the 2008 Colloid and Surface Chemistry Division award.

Congratulations to Lee White who recently was awarded the 2008 Colloid and Surface Chemistry Division award of the American Chemical Society. The award was given for his seminal contributions to the field of electrokinetics. His award was presented at the awards banquet held during the Spring 2008 meeting of the American Chemical Society in New Orleans. In conjunction with the event, a symposium in his honor was organized at the meeting and included distinguished speakers from around the world.
Andy Gellman appointed Research Director of the Three-University Consortium for Fossil Energy Research

A consortium made up of Carnegie Mellon, the University of Pittsburgh, and West Virginia University will receive up to $26 million in funding over the next two years to develop clean and efficient technologies for the use of fossil fuels. The results of its work could reduce regional as well as national dependence on foreign oil.

The partnership, called CWP Inc., will receive the funding through a subcontract with RDS Inc., an onsite contractor at the National Energy Technology Laboratory (NETL). NETL is the U.S. Department of Energy’s Office of Fossil Energy with facilities in five states, including Pennsylvania and West Virginia. More than 75 scientists—at the three universities will work with more than 150 NETL scientists and researchers to address key areas of fossil fuel research.

Congratulations to Andy Gellman for receiving $2M from Gordon Moore foundation for the purchase of equipment for energy research activities.

Ignacio Grossmann taught a short course on MINLP optimization and process synthesis at the University of Antofagasta, Chile, in January 2008. He also gave the talk “Trends in Chemical Engineering Curriculum: A U.S. Perspective” in the Department of Chemical Engineering and Bioprocesses, Catholic University, Santiago de Chile. Ignacio participated in the Symposium on Trends in Chemical Engineering at the Department of Chemical Engineering, Universidad Autonoma Metropolitana-Iztapalapa, Mexico City, where he gave the plenary talk “Research Challenges in Process Systems Engineering and its Potential Impact in the Process Industry.” He also gave the seminar “New Developments in Discrete-Continuous Optimization of Process Systems” in the Department of Chemical and Biological Engineering, RPI in March and in the Department of Chemical Engineering and Biological Engineering, Tufts University in April, 2008. Ignacio also participated in the advisory board meetings of the Department of Chemical Engineering at Penn State, the Institute of Chemical and Engineering Sciences in Singapore, and Engineering Sciences at Dow Chemical.

Nick Sahinidis gave a plenary talk titled “Global Optimization with Branch-and-Reduce” at the 5th International Conference on Computational Management Science at Imperial College, London, UK in March 2008. Nick was elected as the chair-elect of the INFORMS Optimization Society in March and will become chair of the Society in 2009. In April 2008, Nick gave a talk “Optimization in the New Biology” as part of the “Distinguished Lecture Series in Systems Biology” at Georgia Institute of Technology where he was invited by the Center for the Study of Systems Biology and the School of Industrial and Systems Engineering. He subsequently gave the same talk in three other seminars: in the Department of Computational Biology at the University of Pittsburgh School of Medicine, in Carnegie Mellon’s Tepper School of Business, and in the Department of Chemical and Biological Engineering at the University of Wisconsin, Madison.
Congratulations to John Kitchin who is one of the 2008 Wimmer Faculty Fellows. Five junior faculty members have received 2008 Wimmer Fellowships from The Eberly Center for Teaching Excellence. The program, supported by the Wimmer Family Foundation, is designed for junior faculty members interested in enhancing their teaching through concentrated work designing or re-designing a course, innovating new materials, or exploring a new pedagogical approach.

Jim Schneider was invited to give one of two lectures at the 2nd Annual Herbert D. Doan Endowed Nanotechnology Symposium at the University of Michigan. The symposium was hosted on March 31st by the Michigan Nanotechnology Institute for Medicine and Biological Sciences (M-NIMBS), an interdisciplinary group of medical, scientific, and engineering researchers working to apply analytical science, synthetic materials science, and biological systems engineering to medical research. The focus of the symposium was on nanotechnology approaches to genetic diagnostics and the lecture was titled “Rapid Electrophoretic Analysis of DNA Sequencing Products using Transiently Attached Micelles.”

Jim Schneider was recently elected 2008 Vice-Chair of AIChE’s Division 15 (Food, Pharmaceutical, and Bioengineering). He will serve as Chair of Division 15 in 2009.

Undergraduate News

Congratulations to the following awardees:

Carmeline Dsilva received an Honorable mention for the Barry M. Goldwater scholarship.
Melissa Bartel received a National Science Foundation graduate fellowship.
Ruci Desai Junior, Chemical Engineering/Biomedical Engineering Merck Engineering & Technology Fellowship Program
Matthew Woodling, Junior, Chemical Engineering/Biomedical Engineering Merck Engineering & Technology Fellowship Program

Congratulations to CMU’s new AIChE Board for the 2008-2009 school year!

- President: Alexa Beaver
- Vice President: Anna Lukasiak
- Treasurer: Carmeline Dsilva
- Secretary: Kushal Doshi
- Social Chair: Sarah Prozeller
- University Liaison: Tanim Abedin
- Industrial Liason: Young-Hye Song
- Lecture Chair: Joyce Xu
- Webmaster: David Ryoo
The All University Orchestra performed their annual spring concert on April 29, 2008 in the Carnegie Music Hall for the first time in the history of the organization. Monica Pheifer (ChemE, 2008) is the current president of the AUO. She was instrumental in getting funding from the University to allow the spring concert to be performed in this beautiful location. The varied repertoire featured music by Copland, Tchaikovsky, Britten and many others. The performance of Prokofiev's Romeo and Juliet by the full orchestra was wonderful. It was fast paced and energetic - BRAVO! No less than four chemical engineering students participated in this year's spring concert performance. Seniors Monica Pheifer (principal chair) and Richard Cook both played the bass. Juniors Sarah Sukal and Catherine Dorsi played violin and clarinet respectively. It is worth noting that Richard in fact switched instruments and played bass clarinet for while.

FAREWELL
Farewell to the exchange students who spent the 2007-08 school year with us!

From RWTH Aachen in Germany: **Carsten Bertram, Marc Deppermann, and Sumit Mitra**.

From Imperial College in London: **Saliudeen Bakare, Syed Jafri, Deepti Sewraz, and Mahmoud Usman**.

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 2008-09 academic year:

To Imperial College in London – **Nakul Agarwal, Dana Evert-Parise, Kelly Phouyaphone, and Robert Wiegmann**.

To Aachen RWTH in Aachen, Germany – **Mallory Foster**

COMMENCEMENT 2008!
Carnegie Mellon's 111th 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 10:15 a.m. The ceremony will last about one hour and 15 minutes.

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 17th in the Wiegand Gymnasium in the University Center. Doctor's candidates, participating faculty, and other ceremony participants will robe in Rangos Hall (second floor, University Center) at 7:00 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 an e-mail to commencement@andrew.cmu.edu. If you have questions about the departmental ceremony, contact Cindy at cp32@andrew.cmu.edu or stop by to see her in DH 1101.

**Congratulations** to the following seniors who are expected to receive their degrees on May 18th.

- **Pouja Ahuja**
  Additional Major: Biomedical Engineering

- **Samuel Aigen**
  Minor: Materials Science and Engineering

- **Krishnan Aiyer**

- **Harry An**
  Additional Major: Biomedical Engineering

- **Keith Aziz**
  Additional Major: Biomedical Engineering

- **Ester Marie Barbuto**
  Minor: Business Administration
  Minor: German

- **Melissa Bartel**
  Additional Major: Biomedical Engineering

- **Alana Bereck**
  Additional Major: Biomedical Engineering

- **Robert Bethea**
  Minor: Business Administration
  Minor: Colloids, Polymers, and Surfaces

- **Benjamin Chang**
  Additional Major: Biomedical Engineering
  Minor: Colloids, Polymers, and Surfaces

- **Siwei Chang**
  Minor: Biomedical Engineering

- **Hyun Hee Cho**

- **Bur Chu**
  Additional Major: Biomedical Engineering

- **Yena Chung**

- **Rachel Clair**
  Minor: Colloids, Polymers, and Surfaces

- **Richard Cook**

- **Nathan Diorio-Toth**
  Additional Major: Engineering and Public Policy
Katie Dolan
Minor: Biomedical Engineering

Paras Doshi
Minor: Economics
Minor: Biomedical Engineering

Denver Faulk
Additional Major: Biomedical Engineering

Candice Gesecki
Minor: Biomedical Engineering

Simsimran Grover
Additional Major: Biomedical Engineering

Siobhan Halloran
Minor: Colloids, Polymers, and Surfaces

Julian Hoang
Minor: Biomedical Engineering

Hsiao-Wen Huang
Additional Major: Chinese
Minor: Biomedical Engineering

Alok Khetan
Minor: Colloids, Polymers, and Surfaces

Rohan Kilachand
Minor: Colloids, Polymers, and Surfaces

Sunhoo Kim
Additional Major: Biomedical Engineering

Ka Wai Ko
Additional Major: Biomedical Engineering

Kelly Lacey
Additional Major: Biomedical Engineering

Hua-Xing Lee

Ivan Lee
Additional Major: Biomedical Engineering

Simon Markowski

Sarah Mitchell
Minor: Biomedical Engineering

Stephen Nagy

Calvin Ng
Additional Major: Japanese

Mi Hyun Park
Minor: Business Administration

Monica Pheifer
Minor: Creative Writing

Chad Pugh
Minor: Economics

Meagan Robles
Additional Major: Biomedical Engineering

Natasha Sachdeva
Additional Major: Biomedical Engineering

Thomas Saiget
Additional Major: Biomedical Engineering

Karl Scott
Minor: Business Administration
Minor: Philosophy

Anubhav Shankar
Minor: Manufacturing Engineering

Amy Staloch
Jennifer Summerhill  
Minor: Colloids, Polymers, and Surfaces  

Jessica Tsang  
Additional Major: Biomedical Engineering  

Jason Tchao  
Additional Major: Biomedical Engineering  
Minor: Chinese  

Carlene Ulish  

Alice Wang  
Minor: Biomedical Engineering  

Rebecca Wei  
Minor: Chinese  

### Class of 2011  
Welcome to the following first-year students who have chosen to join the chemical engineering department.  

<table>
<thead>
<tr>
<th>Jean-Pierre Allera</th>
<th>Patrice Jack</th>
<th>Miriam Pinkava</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lenny An</td>
<td>Sneha Joshi</td>
<td>Helen Piper</td>
</tr>
<tr>
<td>Courtney Baker</td>
<td>Seung Hwan Jwa</td>
<td>Nickhil Rokkam</td>
</tr>
<tr>
<td>Georgiy Baramidze</td>
<td>Ashhad Khan</td>
<td>Brian Ross</td>
</tr>
<tr>
<td>Gabrielle Batton</td>
<td>Nikunja Kolluri</td>
<td>Eric Roudabush</td>
</tr>
<tr>
<td>Rachel Bradley</td>
<td>Madison Krensky</td>
<td>David Ryoo</td>
</tr>
<tr>
<td>Natalie Brandell</td>
<td>Mitchell Lawless</td>
<td>Kristen Severson</td>
</tr>
<tr>
<td>Nathan Bussiere</td>
<td>Arina Lee</td>
<td>Youngsup Shin</td>
</tr>
<tr>
<td>Cory Campbell</td>
<td>Sojung Lee</td>
<td>Stephanie Silliman</td>
</tr>
<tr>
<td>Elliot Carnevale</td>
<td>Jonathan Leung</td>
<td>Chandrasekar</td>
</tr>
<tr>
<td>Sarah Carpio</td>
<td>Jacob Loiterstein</td>
<td>Sivakumar</td>
</tr>
<tr>
<td>Thomas Caruso</td>
<td>Joshua Mathews</td>
<td>Joshua Taylor</td>
</tr>
<tr>
<td>Ting Yu Chang</td>
<td>Aislinn McCloskey</td>
<td>Henry Waldron</td>
</tr>
<tr>
<td>Gurmukh Chhabra</td>
<td>Laura McKee</td>
<td>Briana Wallace</td>
</tr>
<tr>
<td>Si Won Choi</td>
<td>Greta Michalczuk</td>
<td>Tiana Warren</td>
</tr>
<tr>
<td>Heather Dolan</td>
<td>Gerard Miller</td>
<td>Chin Shu Watt</td>
</tr>
<tr>
<td>Jonathan Elm</td>
<td>Pallavi Nair</td>
<td>Daniel Wetzel</td>
</tr>
<tr>
<td>Modoluwamu Fatukasi</td>
<td>Nicole Navolio</td>
<td>Jincao Xu</td>
</tr>
<tr>
<td>Alexandra Grande</td>
<td>Jungup Park</td>
<td>Kenneth Yan</td>
</tr>
<tr>
<td>Yvette Han</td>
<td>Richard Pattison</td>
<td>Seung Ho Yang</td>
</tr>
<tr>
<td>Chia-ju Hung</td>
<td>Sebastien Persaud</td>
<td>Wesley Yiu</td>
</tr>
</tbody>
</table>
Graduate News

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

**Ph.D.**

**Eduardo Dozal Mejorada**
Title: *Adaptive Control with Supervision*  
Advisor: Prof. B. Erik Ydstie

**James Hoggard**
Title: *Electrolyte Dependent Particle Aggregation Driven by Low Frequency Alternating Electric Fields*  
Advisors: Prof. Dennis Prieve and Prof. Paul Sides

**JaeGun Jung**
Title: *Regional Air Quality – Atmospheric Nucleation Interactions*  
Advisor: Prof. Spyros Pandis

**Kendell Jillson**
Title: *Chemical Process Networks: Stability and Optimality*  
Advisor: Prof. B. Erik Ydstie

**Daniel Kuntz**
Title: *Dilute and Concentrated Phase Behavior of Water-soluble Rodlike Polyelectrolyte-surfactant Aggregates*  
Advisor: Prof. Lynn Walker

**Andy Kusumo**
Title: *High Capacity Polyelectrolyte Brushes for Tuning Protein Adsorption*  
Advisors: Prof. James Schneider and Prof. Robert Tilton

**Abigail Humphrey Laurent**
Title: *Understanding Protein Structural Change in Hydrophobic Chromatography*  
Advisor: Prof. Todd Przybycien

**Jeffrey Pierce**
Title: *Ultrafine Atmospheric Aerosols, Clouds and Climate*  
Advisors: Prof. Peter Adams and Prof. Spyros Pandis

**Jeffrey Savard**
Title: *Micellar and Chromatographic Media for Surfactant-based DNA Analysis and Purification Processes*  
Advisor: Prof. James Schneider

**Yuan Xu**
Title: *Analysis and Control of Multi-phase Reactors*  
Advisor: Prof. B. Erik Ydstie
Master of Science

Sarthak Jain
Title: Development of Chiral Stationary Phase for Chromatography: Lysine on Polycrystalline Copper
Advisor: Prof. Andrew Gellman

Adam Malacina
Title: A Reduced Order Model for an Entrained-flow Gasifier using a PCA-based Approach
Advisors: Prof. Lorenz Biegler and Prof. Ignacio Grossmann

Master of Chemical Engineering & Colloids, Polymers, and Surfaces
Faraz Khan

Master of Chemical Engineering
Jason Cook
Gregory Lapp
Ray Wong

We wish all of our graduates the best of luck!