UCSB University of California, Santa Barbara
CHEMICAL ENGINEERING

ChE News

www.chemengr.ucsb.edu FALL 2010

Inside ...

A Message from the Chair, Michael Doherty

Dear Alumni and Friends,

Last year when I wrote to you I made the case that to flourish in the future, top departments of Chemical Engineering need to attract significant endowment funds to support both undergraduate and graduate research fellowships. The reason is that most external research funding nowadays supports short-term, schedule-driven projects that defy the question "When are you going to schedule your next invention?" Great departments emerge because they can break out of this straight jacket to produce solutions that could not have been anticipated when the research began. Albert Einstein said it best, "if we knew what we were doing they wouldn't call it research would they?" It is precisely this mantra that leads to success and to the creation of great departments like ours.

We attract the very best students at both the undergraduate and graduate levels. They are taught by faculty who are among the best in the world. Other parts of this and previous newsletters provide documentary evidence of these facts (e.g., US News & World Report in 2010 ranked our department in the top 10 in the nation for the 5th year in a row, and the recent National Academy survey ranks us at number 2, just a pip behind Caltech at number 1). We owe it to our students, to the state, and the nation to provide them with an education equal to their ability. And this means we must provide our most creative students with fellowships that give them freedom to find unexpected, game-changing solutions to society's most pressing engineering problems such as new energy sources, climate change, responsive materials design etc.

Within the next three years we are committed to creating 20 Doctoral Discovery Fellowships and 20 Undergraduate Discovery Fellowships to last in perpetuity. Since last year we have completed the planning phase of the Fellowship Campaign and will be ready for the official launch in November 2010. A brochure describing the campaign has been prepared and is now in print. An Honorary Campaign Committee has been assembled with representatives from all our constituencies - many committee members are already major donors to the department, including Warren Schlinger, Duncan Mellichamp, Darryl McCall, and Tomihisa Ikeura (Executive Officer, General Manager, Innovation Center of Mitsubishi Chemical Corporation). In addition, we are fortunate to have the CTO's of four major US chemical companies on the Committee.

In the winter quarter 2011 you will receive a copy of this literature in the hope that you will be able to invest in our students. Recognizing that most of us do not have the resources to fund an entire fellowship on our own, I

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Honors and Awards

Frank Doyle received the ASEE ChE Division Lectureship Award and was named a Fellow of the International Federation of Automatic Control.

The Mitsubishi Chemical Center for Advanced Materials (MC-CAD) has been renewed and will receive $6M over four years. **Glenn Fredrickson** is the Director.

Fredrickson and **Ed Kramer** shared the 2010 Council for Chemical Research Collaboration Research Award with colleagues at Dow Chemical and the University of Minnesota.

Mike Gordon received an NSF CAREER Award "for manipulating near-field optical interactions for nanoscale chemical interrogation and imaging of catalytic and photovoltaic materials." In addition, he received Northrop Grumman 2009 Excellence in Teaching Award. He is the first recipient of this annual industrial award for teaching excellence.

Songi Han received a 2010 Camille Dreyfus Teacher-Scholar Award. This highly competitive award recognizes her outstanding contributions to the chemical sciences.

Duncan Mellichamp received the CACHE Award from the ASEE ChE Division for contributions to computing in chemical engineering, especially real-time computing.

Laboratory Manager **Dr. Alejandro Parra** was awarded an UCSB Staff Citation of Excellence Award for his enthusiasm for learning and teaching.

Baron Peters received an NSF CAREER Award for research to understand the mechanism, kinetics, and polymorph selection in the nucleation of crystals from solution.

Scott Shell received an NSF CAREER Award for research on an integrated multiscale platform for fundamental studies of peptide self-assembly.

Todd Squires received a Camille Dreyfus Teacher-Scholar Award and was a co-recipient of a best paper award from the *Physics of Fluids.* He also was awarded tenure.

Ph.D. student **Su-Mi Hur** has been awarded an IBM Fellowship for the second year in a row. Glenn Fredrickson is her thesis adviser.

Gary Leal was selected to be a Fellow of the American Institute of Chemical Engineers.

Professor Dale Seborg Retires after Thirty Three Years at UCSB

Dale Seborg retired on July 1st after 42 years as a faculty member, including 33 at UCSB. A native of Madison, WI, Dale received his B.S. degree from the Univ. of Wisconsin and his PhD from Princeton. Before joining UCSB, he taught at the Univ. of Alberta in Canada for nine years. At UCSB Dale served as the Department Chair and more recently, as the Vice

Dale with daughters and granddaughter.

Chair for undergraduate activities. In recent years, Dale led a major revision of both the undergraduate curriculum and the Department web site, and initiated this Newsletter. He was active in university activities, chairing major campus committees.

Dale Seborg has published over 200 articles on process control and related topics, and is the co-author of a widely used textbook, *Process Dynamics and Control, 3rd Ed.* (2010), with Tom Edgar (UT-Austin) and UCSB colleagues, Duncan Mellichamp and Frank Doyle. The book has been translated into Japanese, Korean, and Chinese. Dale is the recipient, or co-recipient, of several national teaching and research awards including election to the Process Automation Hall of Fame, the American Automatic Control Council's Education Award, and the American Statistical Association's Statistics in Chemistry Award. Twice he was selected as the Outstanding Faculty Member by graduating seniors.

Dale and Judy at Macchu Pichu in 2003.

Dale and his wife Judy are enjoying retirement in Santa Barbara (of course) and the increased opportunities for travel.

Matt Tirrell Leaves UCSB

In July, 2009 Matt Tirrell left UCSB to accept a new challenge as the chair of the Bioengineering Department at UC Berkeley. During his ten years as Dean of the College of Engineering and as a faculty member in our Department, Dean Tirrell provided vision and leadership that resulted in important successes for the Department and the College. They include the California NanoSystems Institute on our campus, in partnership with UCLA; the completion of the Engineering Science Building and Elings Hall. New centers of excellence have flourished under his leadership, including the Technology Management Program, the Interdepartmental Graduate Program in Biomolecular Science and Engineering, and the Institute for Energy Efficiency.

Tirrell is highly respected by his peers and colleagues around the world not only for his innovative academic leadership, but also for his pioneering research in the areas of polymer surface properties and biomolecular materials. He has received numerous accolades throughout his distinguished career including election to the National Academy of Engineering.

We are grateful to Matt for his leadership, friendship, and collegiality during his ten years at UCSB. We miss Matt and his wife, Pamela, and wish them well in their new endeavors.

Should You Work at a Start-Up?

A Report from the Trenches of Entrepreneurism: An Alumni Seminar entitled, "*Is Working at a Start-Up Right for You?*"

On February 4th at the invitation of the Chemical Engineering faculty several alumni organized a seminar entitled, Is Working At A Start-Up Right For You? It included presentations and panel discussions from UCSB ChE alumni who have worked at start-up companies, or were presently deep in the throes of working for or leading a start-up company. The alumni panelists have been active in Chemical Engineering Department reunions and the initiation of the Robert G. Rinker Laboratory Endowment.

The panelists shared their experiences and expressed the belief that in the current economy there are still many opportunities, including in the world of rapidly morphing organizations with risk and un-defined job descriptions. Such small organizations or companies not yet fully established, often called start-ups, are where many opportunities lie for entry level and experienced professionals. Though start-ups vary greatly from each other, the experience of working in most of them is different from that of working in large corporations. The alumni panelists hoped to address interests from faculty, as well as graduate and undergraduate students about to make forays into the working world, and fellow alumni considering a job change or perhaps those who are already in start-ups looking for shared experiences and tips.

Each panelist gave a presentation that addressed often asked questions about start-ups. Below are these questions, title of presentations, the presenters and their summary quotations. Together these presentations paint a picture of a dynamic shared set of experiences that is a window into the world of start-up companies.

- **Why is This Seminar Valuable?**
  Michael Doherty – ChE Department Chair

"The desire to make something happen is an overpowering feeling for an entrepreneur. My experience in 3 or 4 start-ups provided excellent perspective on why they are so different. Issues with working capital, lay-offs, family sacrifice make working for a start-up like no other experience in the corporate world."

- **Why Engage UCSB Chemical Engineering Alumni for this?**
  Kelly Brodbeck – Seminar Co-Chair, M.S. 1986

"This is all about leveraging the power of a large group towards both personal and departmental goals. It's important that we have a framework to stay connected as such relationships benefit the students, the graduates, and the department as we all strive to accomplish our professional goals and maintain friendships."

- **Do your skills, goals and personality fit for working at start-up?**
  Do you have what it takes to work at a start-up?
  Michael Saucier – B.S. 1983, M.S. 1984

"Before you consider a start-up, do some soul-searching. Make sure that you have the necessary personality and skills."

- **How do you assess the opportunity of a start-up?**
  Avoid the Red Flags or this Start-Up Will Eat Your Brain
  John Poulos – Seminar Co-Chair, B.S. 1983

"Assess the start-up company, management, energy and other factors. If you choose to go in, go in totally committed knowing that with the right attitude on your part, no matter what happens to the company, you can emerge with valuable experience."

- **What is it like for a recent graduate at a start-up?**
  I Graduated! Now What? A recent Alum's Experience with Corporations and Start-ups
  Christina Borgese – B.S. 2005

"The first job after college sets the stage for your personal growth through hands-on industrial experience, mentorship, and training. Find a place that invests in you and make the most of the opportunity."

... more on page 5

NRC Ranking of ChE PhD Programs: We are #2

The National Research Council (NRC) has just published its long-awaited report evaluating over 5,000 doctoral programs in 62 fields at 212 universities in the United States. The prestigious NRC reports are prepared every 10-15 years and are widely considered to be the most thorough and rigorous evaluations of U.S. PhD programs.

We are very pleased that the 2010 NRC Report ranks UCSB 2nd among the 106 schools that offer PhD degrees in chemical engineering, and that our College of Engineering is ranked 4th, with 4 of our 5 departments in the top 5, including the #1 ranked Materials Department.

The NRC program evaluations are based on two principal metrics denoted by S and R. The S metric is widely considered to be more significant because the R metric is weighted in favor of large departments. The highest ranked ChE programs are shown in the table below, based on their average S and R metrics.

Top-Ranked ChE PhD Programs

Rank	S metric	R metric	S+R
1	CALTECH	MIT	CALTECH
2	**UCSB**	UT-AUSTIN	**UCSB**
3	UC-BERKELEY	**UCSB ‡**	UC-BERKELEY
4	MIT	UC-BERKELEY ‡	MIT
5	UT-AUSTIN	CALTECH ‡	UT-AUSTIN
6	PRINCETON	MINNESOTA	PRINCETON
7	MINNESOTA	PRINCETON	MINNESOTA
8	STANFORD	STANFORD	STANFORD
9	ILLINOIS	WISCONSIN	WISCONSIN
10	MICHIGAN	MICHIGAN	MICHIGAN
‡ Tie for 3rd place			

It is noteworthy that UCSB was ranked #14 in the 1995 NRC report and was not even ranked in the 1982 report, due to our small number of PhD graduates. Thus our department's meteoric rise from unranked to 2nd place in 28 years is truly extraordinary, and without precedent. The credit for this remarkable achievement belongs to past and present generations of faculty, staff and students. Special credit is due to the faculty members who founded our department in the mid-1960s; to our department chairs and vice chairs for their inspired leadership; and to the campus administrators for their strong support over the past 25 years.

(Reference: www.graddiv.ucsb.edu/nrc/)

Continued from page 1: Chair's Letter

have created Alumni Discovery Fellowships that will enable us to pool a large number of smaller donations.

Perhaps one of your children, grandchild or great grandchild will receive one! Perpetuity is a long time. In my own alma mater, fellowships that were endowed in the 1500's are still being awarded to bright deserving students who are working on problems that could not have been imagined in Elizabethan times!

Our future is not written for us we must write it ourselves!

Best wishes — Mike Doherty, Chair

Continued from page 4: A Report from the Trenches

- **What is it like for a seasoned corporate engineer to switch to a start-up?**
  Start-Ups, The Good, The Bad, and The Ugly
  Marc Privitera – B.S. 1989

"Some stories and perspectives on some of the greatest start-ups ever: General George Washington and the Boys, Lewis and Clark and The Corps of Discovery, and BioFuelBox: The World's First Supercritical Biofuels System."

- **What about an exit?**
  Should you join a Start-Up? What you need to know about "exit plans"
  Ralph Kappelhoff – M.S. 1986

"During 2006 in the USA 670,058 new companies were formed and 573,293 companies went out of business – your reward on "exit" depends on realistic expectations and what you negotiate at 'entry'."

GARY LEAL's research interests are in the area of mechanics and rheology of complex fluids. They include polymeric liquids; suspensions and colloidal dispersion; emulsions and blends of immiscible liquids; foams, lipids, and liquid crystals. Leal's group is engaged in a combination of experimental, theoretical, and computational studies to understand the relationships between flow, microstructure and material properties:

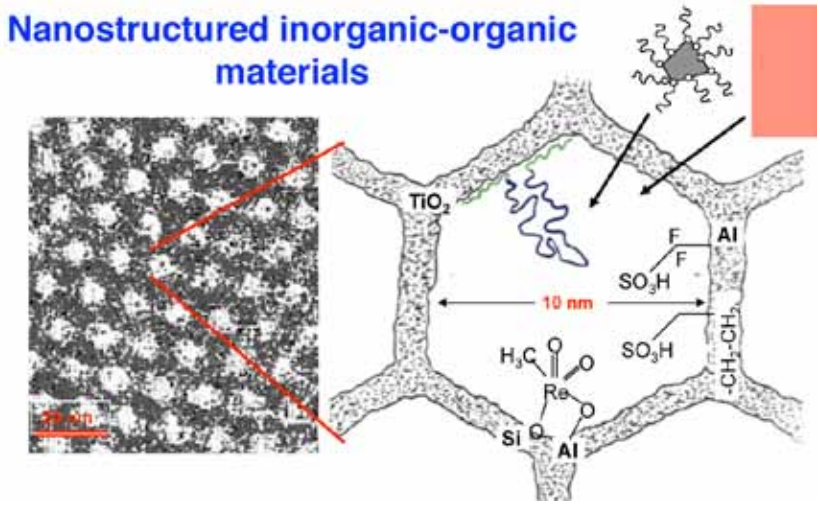
1. One key topic is the stability of vesicles made from lipid bilayers and how stability is related to the properties of the lipid bilayer. They also seek to understand and be able to predict the dynamics of vesicles in flow including shape deformation and the conditions for vesicle rupture.

2. A second subject area of long-standing interest is the formation of emulsions and blends, and specifically how this process can be modified by surface active additives; for example, by nanoparticles that have been surface functionalized to make them amphiphiliic or surface active. Projects range from fundamental theoretical and experimental studies of drop breakup and coalescence, to the development and application of methods for interface characterization (the latter in collaboration with Todd Squires). Another theme for this class of problems is that they are multi-scale, characterized by an enormous range of relevant length scales.

3. A third area of interest in Leal's recent research has been the dynamics and rheology of polymer melts. The most important current problem is to understand the relationship between the polymer architecture (for example, the degree and type of branching) and its behavior in flow.

For more information, see his website at:
www.chemengr.ucsb.edu/~ceweb/ce/people/faculty/leal

BRAD CHMELKA's research is aimed at developing and understanding new heterogeneous materials principally for energy applications. Current projects seek to develop or improve mesostructured inorganic-organic or porous carbon membranes for fuel cells, electrocatalysts, or photovoltaic devices, heterogeneous organometallic catalysts for conversion of biomolecules (with Profs. Susannah Scott and Baron Peters), nanoscale semiconducting or catalytic metal clusters (with Prof. Mike Gordon), nanoporous zeolite catalysts for hydrocarbon processing, deep-water oilwell cements, and photo-responsive surfactants (with Prof. Jacob Israelachvili). These diverse materials share many common features at the molecular level, including dissimilar inorganic-organic, fluid-solid, or gas-solid interfaces, that Prof. Chmelka and his group probe by using by using powerful methods of magnetic resonance spectroscopy. They use the resulting molecular information to guide the design and preparation of novel materials with unusual combinations of macroscopic properties. Examples include the development of solution-processing strategies that combine the self-assembly and processability properties of soft organic surfactants or block copolymers with diverse inorganic compounds that impart desirable catalytic, structural, and/or semiconducting behaviors. The resulting materials combine elements of the different organic, inorganic, and/or solution components present, which are further influenced by their respective interactions over typically huge surface areas.



For more information, see his website at:
www.chemengr.ucsb.edu/people/faculty_d.php?id=16

The Rinker Laboratory Endowment: Making an Impact

In Spring of 2007, a dedicated group of ChE and NucE alumni led an effort to honor a distinguished faculty member through the creation of a special endowment for the undergraduate teaching laboratory, the Robert G. Rinker Chemical Engineering Laboratory Endowment.

Bob Rinker, the department's first faculty member, provided excellent leadership in the department's formative years as Department Chair and as Associate Dean of Engineering for Undergraduate Studies. Through his efforts, example, and leadership, the foundations of excellence now taken for granted were established. In a department of fine teachers, Bob Rinker won the annual undergraduate teaching award so often that, in essence, "the trophy was retired." Students will fondly recall his enthusiastic lectures, gruff manner and near impossible exams, but also his passion for educating future chemical engineers. Bob challenged students to do their very best.

The Rinker Laboratory Endowment was established through approximately 70 generous gifts. The endowment reflects the efforts and leadership of the Department's 40th Anniversary Executive Committee, honoring the department's achievements, faculty, staff, students, and friends on the occasion of the 40th Anniversary of the first graduating class, in 2007. To date, the fundraising effort has generated $300,000 of much-needed financial support.

UCSB Chemical Engineering 40th Anniversary Celebration Committee

Darryl McCall, Co-Chair, '78
John Poulos, Co-Chair, '83
Dominique Bonvin, '80
Barbara Bridwell, '79
Kelly Brodbeck, '86
Justin Butler, '07
Leroy Chiao, '87
Rudy Lisa, '68
Ed MacNeel, '75
Melanie McNeil, '86, '90
Richard Myers, '77
Michael Oye, '99, '00
Marc Privitera, '86
Amber Roberts, '03
Michael Saucier, '83, '84
Robert Young, '88
L. Gary Leal, Department Chair
Dale Seborg, Department Vice Chair
Duncan Mellichamp, Prof. Emeritus

The undergraduate Chemical Engineering Laboratory is located in prime first-floor space in Engineering II. The lab courses have been a key component of every Chemical Engineering undergraduate's experience since the program was founded in 1966. The department is committed to continue to improve this important laboratory into a state-of-the-art teaching facility and to maintain it at a very high level, in perpetuity.

Lab supervisor, Dr. Alejandro Parra, and the bioreactor experiment.

During the past year, there were several notable activities pertaining to laboratory development. Four new experiments were introduced concerning both new and traditional areas chemical engineering activities. An exciting new automation project was initiated to allow student laboratory data to be accessed remotely over the internet (e.g., via cell phones). This enhanced access will greatly facilitate communication, the preparation of student lab reports, and the monitoring of experimental results by faculty and teaching assistants.

Thanks to the efforts of alumnus Michael Saucier, fund raising for this project was initiated with a software donation of $157,000 from his Transpara Corporation. Michael also helped secure two related software gifts of $289,000 from OSIsoft (Patrick Kennedy) and $35,000 from Emerson Process Management (Mark Nixon).

The department greatly appreciates the generous support of our many alumni and friends.

Congratulations to our Fifteen 2008-09 PhD Graduates

Badriprasad Ananthanarayanan
Advisor: Matthew Tirrell
Dissertation: Self-assembled Peptide Architectures for Cell Adhesion and Drug Delivery

Andrea Browning
Advisors: Michael Doherty & Glenn Fredrickson
Dissertation: Molecular Dynamics Study of Nucleation and Polymorphism

Kevin Cash
Advisors: Kevin Plaxco and Patrick Daugherty
Dissertation: Platforms for the Detection of Small Molecules, Proteins and Nucleic Acids

Tanya Chantawansri
Advisor: Glenn Fredrickson
Dissertation: Self-Consistent Field Theory Simulations of Polymers on the Surface of a Sphere

Daniel Finan
Advisor: Dale Seborg
Dissertation: Modeling and Monitoring Strategies for Type 1 Diabetes

Derek Griffin
Advisors: Michael Doherty and Duncan Mellichamp
Dissertation: Optimal Design and Operation of Chemical Processes with Recycle

Miyako Hisamoto
Advisor: Susannah Scott
Dissertation: Understanding the Interaction of imethyl(acetylacetonato) gold (III) with Silica and its Transformation to Gold Nanoparticles

Adam Hsu
Advisor: Gary Leal
Dissertation: The Drop Deformation, Breakup and Coalesence in Planar Extensional Flows

Mark Kastantin
Advisor: Matthew Tirrell
Dissertation: Micelles from Peptide-Amphiphiles with Multiple Biologically Relevant Functionalities

Sukhvinder Kaur
Advisor: Gary Leal
Dissertation: Microscale Dynamics in Emulsions: The Effect of Concentration and Non-axisymmetry

Erin Lennon
Advisor: Glenn Fredrickson
Dissertation: Field Theoretic Simulations of Polymers with Complex Langevin Sampling

Jason Shoemaker
Advisor: Frank Doyle
Dissertation: Design Principles in Biological Networks: Balancing Efficacy with Robustness

Ryan Snyder
Advisor: Michael Doherty
Dissertation: Engineering Crystal Shape

Patrick Stenger
Advisor: Joseph Zasadzinski
Dissertation: Competitive Adsorption at Air-Liquid Interfaces: A Model for Acute Respiratory Distress Syndrome

Welcome Incoming Graduate Students, Fall 2009

Kathryn Barteau
Advisor: Glenn Fredrickson
Undergraduate Institution: Princeton University

Scott Carmichael
Advisor: Scott Shell
Undergraduate Institution: UT Austin

Alexander Conway
Advisor: Scott Shell
Undergraduate Institution: University of Iowa

Preshit Dandekar
Advisor: Michael Doherty
Undergraduate Institution: IIT Bombay

Saurabh Das
Advisor: Jacob Israelachvili
Undergraduate Institution: University of Mumbai (UICT)

Alan Derk
Advisors: Eric McFarland nd Horia Metiu
Undergraduate Institution: University of Colorado

Serra Elliott
Advisor: Patrick Daugherty
Undergraduate Institution: Ohio State University

Anthony Fong
Advisor: Baron Peters
Undergraduate Institution: UC Berkeley

Nathan George
Advisors: Brad Chmelka and Ram Seshadri
Undergraduate Institution: Colorado School of Mines

Ming-Feng Hsieh
Advisor: Brad Chmelka
Undergraduate Institution: National Taiwan University

Joo-Hyun Jeon
Advisor: Scott Shell
Undergraduate Institution: KAIST

Martin Keh
Advisors: Gary Leal and Todd Squires
Undergraduate Institution: National Taiwan University

Jang Suh Lee
Advisor: Frank Doyle
Undergraduate Institution: UT Austin

Ryan Mullen
Advisors: Baron Peters and Joan-Emma Shea
Undergraduate Institution: Brigham Young University

Rodrigo Nery Azevedo
Advisor: Todd Squires
Undergraduate Institution: UC Irvine

Trenton Tovar
Advisors: Susannah Scott and Brad Chmelka
Undergraduate Institution: North Carolina State University

Shamon Walker
Advisor: Song-i Han
Undergraduate Institution: Oregon State University

AIChE Student Chapter Update

Dear Alumni, Friends, and Family,

Our UCSB American Institute of Chemical Engineers (AIChE) student chapter promotes academic and social networking among students, faculty, and alumni. This year, the UCSB AIChE student chapter has expanded its membership significantly. With an impressive record number of freshman and sophomores enrolled, we are expanding our Mentor Program to help underclassman transition into the best major, Chemical Engineering! Our Mentor Program has successfully launched its quarterly dinners. The Mentor Program offers advice and Q&A discussions for topics regarding which classes to take, the most interesting GE's, the best professors, the cheapest books, and any concerns. We understand how important the transition is and want to help the underclassmen interact with the upperclassmen.

UCSB AIChE provides helpful info-sessions and workshops for those interested in industry, graduate school, research, and internships. We have held info sessions with WorleyParsons, Chevron, Schlumberger, Oxy Petroleum, and Chlorox. We have also held info sessions on 'How to Succeed at a Career Fair' with Akshay Nair of Schlumberger, 'How to Succeed in an Interview' with UCSB Alumni, Marc Privitera and Christina Borgese from BioFuelBox, as well as a beer sanitation info session with Thonhauser. The UCSB ChE Department Alumni Organization recently hosted a 'Is Working at a Start-Up Right for You?' Event where five alumni spoke on the good, the bad, and the ugly of Start-Ups. AIChE members and faculty continue the annual wine tasting and fermentation seminar given by UCSB Alumni John Poulos, Class of 1983, from Sunstone Winery.

AIChE also takes plant tours to major industrial companies including Amgen, P&G, Chevron, and Raytheon. This fall, we toured at Venneco, with future plant tours lined up for the rest of the year including Clorox, Frito-Lay, Catalytic Solutions, and Firestone Brewery.

Our professional activities are accompanied by social events and community service. This year, AIChE members and officers volunteers at MESA's Science and Technology Day 2010 where 1000 middle school and high school students spend a day at UCSB to learn about science and engineering. We hosted workshops on the science behind silly putty, chemical reactions elephant toothpaste, and liquid nitrogen ice cream during lunch.

We maintain the Chem-E motto 'Work hard, Play hard'. AIChE promotes social and academic growth for our members. We have fun at pizza socials at Giovanni's Pizza, bowling night at Zodo's, and even ChE themed parties. We are also starting the tradition of Lunch with the Faculty once a month. In addition to our socials, two AIChE officers now are members of the Undergraduate Affairs Committee (UGAC) to encourage communication between the ChE department and the student body.

External Vice President Andrew Gasperini networked at the 2009 AICHE Annual Meeting. in Nashville. Also, ChE car is now a class taught by Professor Baron Peters along with Junior Matt Luger as team leader. There are three teams of five each working on one car to have it up and running by the end of the quarter. The best car completed at the ChE Car competition at the Regional conference at UC Berkeley in early April.

Our Public Relations, Omid Borjian, has created a new website design layout for members to keep posted on upcoming events and plant tours. Please check out our exciting new website at www.ucsbaiche.com and support the chapter!

Sincerely,
Jackie Nguyen
AIChE President, 2009-2010

AIChE Officers (2009-2010): Left to Right
Top Row: Tyler Manley (SNR, Social Chair), Jonathon Cook (FRSH Rep, Mentor Chair), Martin Bryant (SOPH, Mentor Chair), Dom Erdozaincy (SOPH, Outreach Chair), Omid Borjian (JNR, Public Relations), Second Row: Brittney Hellner (SNR Rep), Andrew Gasperini (SNR, External Vice President), Brittany Hall (FRSH Rep, Outreach Chair), Erik Zinn (SNR Rep), Joey Li (JNR Rep), Third Row: AJ Grande (JNR, Fundraising Chair), Vianna Vigneau (JNR, Professional Development Chair), Fernanda Wolf (JNR, Secretary), Kate Fountaine (SNR, Internal Vice President), Jackie Nguyen (SNR, President), Ben Brian (SOPH, Historian), Andrew Nguyen (JNR, Treasurer), Not Pictured: Matt Luger (JNR Rep, ChE Car Chair) Faculty Advisor: Baron Peters

Discover Engineering Weekend

In November 2009, the Department offered its first Discover Engineering Weekend (DEW). The DEW program is an outreach event whose purpose is to expose a group of local 9th graders to the basic concepts and ideas of chemical engineering. The 20 local students were selected from Santa Barbara and San Marcos High Schools by their high school science teachers. The DEW program was organized by Professor Michael Gordon and Laboratory Manager, Dr. Alejandro Parra.

Students were involved in team-based experimentation and problem-solving in a highly interactive and hands-on setting that connects students with mentors, UCSB graduate students, faculty, and professional engineers in the community. The core activity of the program was to construct self-propelled cars based on compressed air, thermo-electrical generators, solar cells, potential energy, home-made batteries, and water jets that demonstrate how engineers use energy conversion principles.

Three prototype cars designed and built by the high school students (left to right): Carbon Menace (baking soda+ vinegar = CO_2); Pipe Dream (potential energy); Red Balloon (compressed air)

We wish to acknowledge and thank these special friends to the Department of Chemical Engineering: Fiscal Year 2009-10 through 04/30/2010

Individuals

Dr. and Mrs. Jaime Ampaya
Mr. Bill D. Boyer
Mr. Kelly Brodbeck
Mr. Thomas P. Chard
Mr. and Mrs. Alain Erdozaincy
Mr. and Mrs. Christopher J. Gallo
Mr. James E. Hildebrand
Mr. and Mrs. Mark Huebsch
Ms. Amy J. Kaiser
Dr. L. Gary Leal
Mr. and Mrs. Darryl McCall
Dr. and Mrs. Duncan A. Mellichamp
Mr. and Mrs. Arnold S. Miyamoto
Ms. Janet L. Oppio
Mr. and Mrs Charles Orella
Mr. and Mrs. John Poulos
Mr. Michael Saucier
Warren G. & Katharine S. Schlinger
Dr. Dale and Judy Seborg
Mr. James B. Seruto
Mr. and Mrs. Edward Ticken
Dr. Ravishankar Viswanathan
Mr. Raymond S. Wong
Julie and Jay Zeilenga

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Would you like to help the Department of Chemical Engineering?

With the generous support of our parents and friends, we can continue supporting the cutting edge research programs, and education of our deserving students.

- **Scholarships**
- **Fellowships**
- **Laboratory Equipment and Needs,**
- **Special Seminars**
- **Research Program Support**

For more information on how you can help, please contact:

Michael Doherty, Chair
Chemical Engineering
(805) 893-5309
mfd@engineering.ucsb.edu

Or **Dan Oh**
Assistant Dean of Development,
Engineering and the Sciences
(805) 893-7223
dan.oh@ia.ucsb.edu

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Robert G. Rinker Endowment

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