Dear Alumni and Friends of the Department of Chemical and Biomolecular Engineering:

There is much good news to report regarding this past years activities in the Department. In the Fall we had 114 freshmen enroll in Chemical Engineering, 14 new graduate students arrived, and throughout the year 44 BS degrees and 18 PhD degrees were awarded. This past summer we welcomed two new faculty members, Jessica Winter and Andre Palmer. Jessica received her PhD from the University of Texas and then had a 2 year postdoc at Harvard University before joining us on July 1. Jessica’s research is related to nanobiotechnology as it relates to biosensor technology, cell and tissue engineering, and neural prosthetics. Andre received his PhD from Johns Hopkins and was a professor at Notre Dame for several years before joining us as an associate professor on September 1. Andre’s research interests include hemoglobin-based oxygen carriers for transfusion and cell culture applications and self-assembled therapeutic delivery systems. Andre and Jessica are chemical engineers who have among other attributes the ability to contribute to our teaching and research activities on the biomolecular side of the Department. Their arrival brings our faculty to seventeen individuals not counting the significant contributions made by emeritus professors Jack Zakin and Bob Brodkey.

L. S. Fan was elected recently to the Academia Sinica of the Republic of China. This election for L. S. is at the level of the “National Academy” distinction and complements his election to the National Academy of Engineering several years ago. L. S. also was awarded a $1.6M grant from the Department of Energy for his research on the production of hydrogen from coal. Winston Ho, our second National Academy member received the AIChE Institute Award for Excellence in Industrial Gases Technology. Winston also received a $1M research grant from Shell Oil Company for his research related to fuel cell membranes. Jim Lee continued his success in bringing funding for interdisciplinary research to the university by receiving another multimillion dollar Third Frontier Program grant from the State of Ohio. In recognition of their bioengineering research accomplishments Jim Lee and S. T. Yang were elected to Fellowship in the American Institute of Medical and Biological Engineering.

Finally I should say something about our progress on the new Koffolt building. This year saw completion of both a building feasibility study and a financial feasibility study. Both of these reports provide benchmark information crucial to moving the project forward at the university and both reports have been positively received. The building feasibility study by CO Architects of Los Angeles analyzed 4 sites and three building plans including options to build in stages. It looks like the top site contenders are our current site where old Koffolt would be replaced by a new building as well the site occupied by Boyd, Aviation and Johnston Laboratories which would be torn down to be replaced by our new building. It does not appear to be cost effective to renovate the present Koffolt Laboratories. A final
decision on the site will be made by the university. The architects also estimated costs for either option to be approximately $80M. Part of this cost has to come from non-state sources including alumni, corporations and foundations. In order to have confidence in the fund raising challenge put on the Department, the university asked that we complete a financial feasibility study. This was carried out by Benefactors Counsel, who tested a hypothetical $35M fundraising campaign for Koffolt Laboratories. Many alumni and friends of the Department were interviewed by the consultants. In the consultant’s final report two of their main conclusions were that we should scale our departmental challenge to $20M and that the university should provide us with a full-time fund raising professional. In this coming year we expect a decision on what building option we will aim for and we will be able to hire the fund raising professional. As you may know we have had a “National Committee for the Renovation and Expansion of Koffolt Laboratories” chaired by Bill Lowrie working on behalf of the department for close to three years now. The pace will pick up as soon as the building site is selected and the fund raising professional is on board.

Best wishes from all our faculty, staff and students.

Stuart L. Cooper
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Editor, Sherry D. Stoneman - stoneman.3@osu.edu  
Contemporary photography, brochure Design and historical material by Geoffrey J. Hulse - hulse.1@osu.edu
Faculty and Staff

Professors
- Bhavik R. Bakshi
- Jeffrey J. Chalmers
- Stuart L. Cooper
- Liang-Shih Fan
- Martin Feinberg
- Winston Ho
- Kurt W. Koelling
- L. James Lee
- Umit Ozkan
- Michael E. Paulaitis
- James F. Rathman
- David L. Tomasko
- Barbara Wyslouzil
- Shang-Tian Yang

Emeritus Professors
- Robert S. Brodkey
- Edward R. Haering
- Harry C. Hershey
- H.C. (Slip) Slider
- Edwin E. Smith
- Thomas L. Sweeney
- Jacques L. Zakin

Associate Professor
- Andre Palmer

Assistant Professor
- Isamu Kusaka
- Jessica Winter

Instructor
- John Corn

Post Doctoral and Research Associates
- Anil Baral – Post Doctoral Researcher
- Cheng-yi Chang – Research Associate
- Jun-Ki Choi – Post Doctoral Researcher
- Wei-Cho Huang – Visiting Scholar
- Songgeng Li – Post Doctoral Researcher
- Bishnupada Mandal – Visiting Scholar
- Qussai Marashdeh – Post Doctoral Researcher
- Burcu Mirkelamoglu – Post Doctoral Researcher
- Ah-Hyung (Alisha) Park – Post Doctoral Researcher
- Shahid Rameez – Research Assistant
- Jindal Kirit Kumar Shah – Post Doctoral Researcher
- Katherine Song – Post Doctoral Researcher
- Yangzhong Tang – Post Doctoral Researcher
- Shinobu Tanimura – Post Doctoral Researcher
- Xiaodong Tong – Post Doctoral Researcher
- Liping Wang – Post Doctoral Researcher
- Zachary Yoscovits – Research Assistant
- Yang Zhao – Research Associate
- Zhongkui Zhao – Post Doctoral Researcher
- Arturas Ziemys – Post Doctoral Researcher

Administrative Staff

Academic Advisor
- Mary Hoy

Assistant to the Chair & Alumni Liaison
- Sherry D. Stoneman

Graduate Studies Coordinator
- Angela Jones

Building Coordinator
- David Cade

Design Engineer
- Leigh Evrard

Fiscal & Human Resources Administrator
- Lynn Flanagan

Laboratory Supervisor
- Paul Green

Office Administrative Assistant
- Lois Holliday

Director, ChBE/MSE Joint Computing Lab
- Geoff Hulse

Systems Analyst
- Mike Davis

Systems Engineer
- Dave Jones

Education Dir. and Admin., Nanoscale Science & Engineering Center & Integrative Graduate Education and Research Traineeship Program
- Paula Stevenson

Administrative Associate, Wright Center for Innovation (WCI) and Center for Advanced Polymer and Composite Engineering (CAPCE)
- Martha Leming

Accountant, NSEC and IGERT
- Alice Shi

Assistant Editor, OSU Polymer Nanotechnology
- Stacy Brannan Doepker
Professor L.S. Fan Elected to Academia Sinica

L.S. Fan, Distinguished University Professor and the C. John Easton Professor of Engineering, has been elected as an academician of Academia Sinica, Republic of China by the 27th Convocation of the Academy held in July, 2006, in Taipei, Taiwan. Academia Sinica, founded in 1928, is the most prominent academic institution in the Republic of China. Its major tasks are to undertake in-depth academic research on various subjects in the sciences and humanities, and to provide guidelines, channels of coordination, and incentives with a view to raising academic standards in the country.

Professor L. James Lee Awarded $9.25M in Ohio Third Frontier Funding

The Ohio State University, in partnership with the University of Dayton, will receive $8M in state funding to help develop durable and functional nanocomposite materials and processes. The State of Ohio announced the grants Dec. 15 as part of Ohio’s Third Frontier Engineering and Physical Science Research and Commercialization Program, for the development of next-generation nanomaterials and nanocomposites. The project is an extension of the Center for Multifunctional Nanocomposites and Devices (CMPND), a 2005 Wright Center of Innovation located at Ohio State. L. James Lee, director of CMPND and Helen C. Kurtz Chair of CBE, is the primary investigator for the research project. The newly developed processes will result in more durable and anti-fouling materials and can be applied to wind turbine, jet engines, safety vehicle panels and other uses. Collaborators on the project, which is expected to further advance innovations and apply them to new and expanded commercial ventures, include Ohio companies Owens Corning, WebCore, GE Aviation, Ashland Chemical, National Composite Center, and many more.

Prof. Lee will also receive $1.25M as a collaborator in the Global Cardiovascular Innovation Center, a Wright Mega-Center for Innovation led by the Cleveland Clinic Foundation (CCF). CCF is the number one heart center in the U.S. for the twelfth consecutive year. Together with Prof. John Lannutti in OSU’s Department of Materials Science and Engineering, the latest advances in nanotechnology will be applied toward the treatment of cardiovascular disease using electrospinning and CO₂ bonding technologies to produce affordable nanoscalar constructs that mimic human vascular tissue.
Shell Announces $1 Million in Support for Ohio State Energy Research

Shell has awarded $1 million to Professor Winston Ho for research related to hydrogen as an alternative fuel source. John Hofmeister, President of Shell Oil Company, announced the grant at a press conference on campus.

Ho’s research involves developing new polymer membranes that can withstand high temperatures and separate hydrogen from other gases, such as methane and hydrogen sulfide which are created when coal is converted to a type of synthetic natural gas. The hydrogen then could be used in fuel cells to power vehicles or in other portable devices.

The benefits of Ho’s work could lower the cost of hydrogen production while providing an alternative carbon dioxide and acid gas removal technology for Shell refineries and chemical plants, Hofmeister said. He estimated that while hydrogen has emerged as a key part of the solution for the world’s energy challenge, perfecting hydrogen as a commercially available, alternative fuel source could be a 20- to 50-year process.

OSU Selected For Hydrogen Research Funding

The U.S. Department of Energy has announced funding for an Ohio State project that will promote the production of hydrogen from coal at large-scale facilities. The research project is one of six research and development projects selected by DOE to advance a central approach to combat climate change by allowing for the capture and subsequent sequestering of carbon dioxide generated during hydrogen production. The $1.6 million OSU project, led by Professor L.S. Fan, will develop a process to produce high-purity hydrogen from synthesis gas in a single-stage reactor. Pure hydrogen is a potential energy carrier for the future, and it may be produced from hydrogen-containing materials such as water and fossil fuels. Until other resources are available to produce hydrogen at lower costs, production from coal is the most economical source. Professor Fan and his team
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Old Chemical Engineering building, the “sawtooth” facility formerly behind McPherson Labs

Professor David Tomasko has been appointed as the Director of the Honors Collegium. Beginning October 1, 2006, David combined the directorship, a half-time post, with his faculty position. The Director provides leadership, planning and oversight for the Honors Collegium; represents the Collegium on campus and in national and international contexts; oversees the process for selecting students for membership; supervises Collegium student programming, courses and lectures; manages the development and coordination of a faculty mentoring network; and assists with fund raising efforts for the program. The director also oversees preparation of any students, whether members of the Collegium or not, who are aiming for major fellowships and scholarships such as the Rhodes, Marshall, Goldwater, and Fulbright. He will work with faculty and academic units to identify students for such competitions, and represent the Ohio State University in national and international forums focusing on these awards.

Professor Bakshi Returns from Sabbatical

Professor Bakshi spent part of the Summer and Fall quarters on a research leave mainly at the Institute of Chemical Technology, University of Mumbai (UICT). He also traveled to conferences in Europe and Brazil. The goals of the leave were to catch up with many pending research articles that his group had been preparing, and to establish research contacts and collaborations in India. He was successful in establishing good contacts with researchers in Green Chemistry at UICT and The Energy and Resources Institute (TERI) in Delhi. TERI is a premiere research and educational institute, and is working on understanding the broader economic and environmental implications of alternate transportation fuels such as biodiesel from Jatropha. This is closely related to Professor Bakshi’s own research on understanding the biocomplexity of transportation fuels and complements his work on corn ethanol and soy biodiesel. He also helped teach courses in Process Control and Material and Energy Balance Computations.
Meet Andre Palmer

Andre F. Palmer is currently Associate Professor of Chemical and Biomolecular Engineering at The Ohio State University. Prior to this appointment, Professor Palmer served as Assistant Professor of Chemical Engineering at the University of Notre Dame, and Assistant Professor of Chemistry at Howard University.

Professor Palmer received his Ph.D. in Chemical Engineering from The Johns Hopkins University in 1998. His research interests encompass the development of novel hemoglobin-based oxygen carriers for a variety of transfusion applications and the use of these oxygen carriers to enhance and target oxygen delivery to mammalian cell cultures. He is author of more than 32 peer reviewed publications. Among others, he received the National Science Foundation Career Award, 2001, and two National Institutes of Health R01 grants in 2006. Professor Palmer is also on the editorial board of the American Society for Artificial Internal Organs Journal, and serves as a member of the Academic Advisory board for the Department of Chemical Engineering at Howard University.

Professor Palmer is married to attorney Allison Lowery Palmer. They have a son, Alexander, and a daughter, Alyssia.

Staff News

The past year has seen several staff changes in the Department. Carl Scott, our Building Coordinator, retired at the end of 2006. He was replaced by David Cade, who has been in apartment maintenance for the last three years and has been in new and remodeling home construction all of his life. He says he looks forward to many years here at The Ohio State University.

Lois Holliday came to the Department from Human Resources at The Ohio State University and will have HR responsibilities. She has been employed at OSU for five years as an Office Associate in Payroll Accounting. She has a strong background in accounting, payroll and office supervision.
Undergraduate Program Updates

Curriculum Updates

In response to assessment measures showing lack of flexibility in scheduling, the Department began to offer trailer sections of courses in the 2005-2006 school year. The trailer section for 764 (Capstone Design) was first offered spring 2005, while trailers for 420 (Transport, Fluids) and 521 (Transport, Heat) will be offered autumn 2005 and winter 2006, respectively. The recent addition of several new faculty members has made it possible to handle the increased teaching load that results from offering trailer sections, since in Chemical Engineering all core courses (and virtually all technical elective courses as well) are taught by full-time faculty. Providing trailer sections will make it significantly easier for students to schedule co-ops and internships.

In order to also offer more flexibility, Unit Operations Lab is now being taught as a pilot for the second year over two quarters during the school year. ChBE 630 offered in Winter/Spring is identical to the Unit Operations Lab offered in the summer. The course enrollment will be limited to a maximum of fifteen students. The lab has been split into two quarters to cover all the material necessary to receive credit without interfering too much with the student’s senior year coursework.

Denman Undergraduate Research Forum

The Denman Undergraduate Research Forum is held annually in the Ohio Union. The Denman Undergraduate Research Forum provides a means for undergraduate students to share their research with members and friends of the OSU community; recognizes the significant contributions to research by OSU undergraduates; and facilitates exchange between students, faculty, and the public. Students enrolled in any undergraduate degree program at The Ohio State University are invited to participate, provided they are engaged in supervised research projects. There are twelve different areas of study represented at Denman. Engineering is one of those categories.

Imogen Pryce took second place in the Engineering category with her presentation, “Development of Carbon Dioxide Sequestration Technique with Emphasis on Utilization of By-products and Life Cycle Analysis.” Imogen’s advisor was Dr. Fan. She is attending Cal Tech pursuing a PhD.

Other projects from Chemical Engineering undergraduates included:

*Engineering Eggshells for Carbon Dioxide Capture, Hydrogen Production, and as a Collagen Source*

Presenter: Theresa Vonder Haar
Advisors: Dr. Liang-Shih Fan & Dr. Mahesh Iyer
Growth and Characterization of Nitrogen-Containing Carbon Nanofibers
Presenter: Eugenia Wang
Advisor: Dr. Umit Ozkan

Nitrogen-containing Carbon Catalyst for Use in PEM Fuel Cell Cathodes.
Presenter: Maria Arias
Advisors: Dr. Umit Ozkan & Dr. Paul Matter

Solubility and Diffusion of Carbon Dioxide near its Critical Point in Poly(methyl methacrylate) (PMMA)
Presenter: Michael Noon
Advisor: Dr. David Tomasko

National Alternate Energy Competition

The Chem-E Car Team did the Department proud at the San Francisco National AIChE Meeting. Out of 31 competitors, our team recorded a 7th place finish (top quartile).

The "traveling squad" for the Chem-E Car Team was:

Adam Peter (Team President)
Chad Bernard
Sandy Abraham
John Daulton
Liz Curry (Safety Coordinator)

The team took the "red-eye" flight back to Columbus on Sunday night so they would not miss any classes on Monday. A special thanks to Dow Chemical for the financial support in covering the air and lodging travel expenses.

Internships & Cooperative Learning Experience Report
Winter 2006 through Autumn 2006

The Engineering Cooperative Education & Internship Program (ECIP) helps undergraduate students to obtain career-related employment of two types: cooperative education (co-op) positions and internships.

A co-op experience provides the best opportunity to apply what is learned in the classroom in career-related positions by alternating quarters of full-time coursework with periods of paid, full-time employment. Internship involves one work period with an employer. A work period may last for one quarter or for two consecutive quarters. Summer internships are the most popular among students and employers.

Engineering Career Services (ECS) welcomes all employers to register, to recruit Ohio State engineering students and graduates. There is no cost to register and no fees for ECS
services. If you, or someone you know, is interested in hiring Ohio State students for co-op experiences, internships or for full time placement, please contact Rosemary Hill, Director of Engineering Career Services at (614) 292-6651. You can read more about the services offered through ECS by visiting their webpage: [http://career.eng.ohio-state.edu](http://career.eng.ohio-state.edu).

The following is a list of companies that hired students for co-ops or internships, the students who accepted the offers and the quarters they were with each company. Forty different companies are on the list for a total of 99 work terms. Summer continues to be the most popular quarter to work and accounts for nearly half the work terms.

Companies Hiring One Student:

- **AEP (American Electric Power)**          Josh Gaudio, Winter
- **Alkermes Inc**                            Jeff MacLean, Summer
- **Argonne National Laboratory**             John Groman, Autumn
- **Ashland Inc**                             Kiran Ahmad, Winter, Autumn
- **Cargill**                                 Chris Potts, Summer, Autumn
- **Chemical Abstracts Service**               Dwight Wiltheiss, Summer
- **Clippard Instrument Lab**                 Craig Buckley, Summer
- **Cytic Industries Inc**                    Amanda Jensen, Summer
- **Deceuninck North America**                Stephanie DePalma, Summer
- **Dow Corning**                             Precious Okoh, Summer
- **Duke University Eye Center**              Erin Stall, Summer
- **DuPont**                                  Todd Myers, Summer
- **ExxonMobil**                              Phillip Deis, Winter
- **General Electric Adv. Materials**          Jiapeng Xu, Winter
- **General Mills**                           Carol Udoh, Summer
- **Givaudan**                                Leanna Assid, Spring, Summer
- **Goodyear Tire & Rubber Co**               Osama Hassen, Autumn
- **Idaho National Laboratory**               Dan Lamone, Summer
- **LMI Custom Mixing Inc.**                  Matt Ehrman, Summer
- **M&G Polymers**                            Serra Elliott, Summer
- **NASA-Kennedy Space Center**               Amanda Bryson, Summer
- **Ohio State University**                   Andrew Williams, Summer
- **OMNOVA Solutions Inc**                    Bushra Birjis, Spring
- **PPG Industries Inc**                      Oray Talu, Summer
- **Rohm & Haas Co**                          Kristen Hendrix, Winter, Summer
- **Shell Oil Company**                       Kim Hoang, Summer
- **Sherwin-Williams Co**                     Brian Chapman, Winter, Spring
- **State Industrial Products**              Samantha Moermond, Summer
- **Wright Patterson Air Force Base**         Paul Gardner, Summer

Companies Hiring Multiple Students:
Battelle Memorial Institute
Carrie Marshall  Summer
Hann Kwok  Winter, Spring

CC Technologies
James Knight  Winter, Summer
Leslie Shumaker  Winter

Dow Chemical
Carol Udoh  Winter
Chad Bernard  Summer
Kim Miller  Spring, Summer

entrotech
Dan Lamone  Winter, Autumn
Dennis Stoltz  Autumn
Donna Jeffers  Autumn
Duance Gotro  Winter, Spring, Summer, Autumn
Jonathan Lui  Summer, Autumn
Mike Owens  Spring, Summer, Autumn
Molly Campell  Summer, Autumn
Shawn Freer  Winter, Spring, Summer, Autumn

General Electric Consumer & Industrial
Anand Patel  Summer
Arup Mallik  Winter
Brian Fraley  Winter
Joe Braucher  Autumn

Honda of America Mfg
Adam Peter  Winter, Spring
Sandy Abraham  Winter, Spring

Honda R&D Americas Inc
Andrew Shives  Winter
Chris Kardassilaris  Winter, Spring

Marathon Petroleum Co LLC
Bushra Birjis  Summer, Autumn
Christopher Lewe  Autumn
Crystal Martin  Summer

MetaMateria
Cole Miller  Winter, Spring, Summer, Autumn
Karl Salva  Spring, Summer
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Kerri Hall   Summer
Tim Muntzinger  Summer
William Kwong  Winter, Spring, Summer

_Omegadyne_
Amanda Jensen  Winter
Pam Daniel  Autumn
Shannon Quinn  Spring, Summer

_Procter & Gamble_
Ally Senefeld-Naber  Summer
Andrea Breitenbach  Summer
Blake Washington  Summer
Chris Anderson  Summer
Katie Reinaker  Summer
Leslie Shumaker  Summer
Matt Simone  Summer, Autumn

_Scotts Company_
Jeff Skinn  Summer
Jeremy Coyne  Winter, Spring
Pat Wilson  Summer
Zack Patterson  Summer

_Undergraduate Courses & Enrollments_

Winter 2006

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Spring 2006

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<td>201</td>
<td>Dr. Jacques Zakin</td>
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#### Annual Report 2006

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<td>750</td>
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</tr>
<tr>
<td>60</td>
<td>624</td>
<td>Michael Elsass</td>
<td>Process Dynamics &amp; Controls</td>
</tr>
<tr>
<td>58</td>
<td>760</td>
<td>Dr. L.S. Fan</td>
<td>Engineering Economics &amp; Strategy</td>
</tr>
<tr>
<td>6</td>
<td>761</td>
<td>Dr. Jacques Zakin</td>
<td>Chemical Process Plants</td>
</tr>
<tr>
<td>32</td>
<td>765</td>
<td>Dr. S.T. Yang</td>
<td>Principles of Biochemical Engineering</td>
</tr>
<tr>
<td>16</td>
<td>773</td>
<td>Dr. Stuart Cooper</td>
<td>Introduction to High Polymer Engineering</td>
</tr>
<tr>
<td>5</td>
<td>693</td>
<td>Various</td>
<td>Undergraduate Research</td>
</tr>
<tr>
<td>4</td>
<td>H783</td>
<td>Various</td>
<td>Undergraduate Honors Research</td>
</tr>
</tbody>
</table>

### Undergraduate Scholarship Awards

The cost per year of an in-state student attending Ohio State approaches $17,000 with about half of that in tuition and still further increases can be expected. Trends in data from financial aid show that the number and amount of both student and, especially, parent loans has been increasing. Another trend is that while tuition has increased every year, so has the scholarship aid to our students. However, since the increase in scholarship support has not been able to keep up with tuition increases, engineering students and their families have had to increase their debt levels to cover the additional costs. In the Chemical & Biomolecular Engineering Department, department scholarships from alumni and corporate donors help defray part of the loan burden for many of our students.
The highest amount a student can receive from the department is about $3000 and the average department scholarship in 2006 was $1400 with about 120 scholarships awarded ($168,000). This is up from a total of about $148,000 in 2005. Department scholarships are determined mainly by merit, however, when a scholarship specifies that a student’s need be considered, both merit and need are taken into account. We thank those of our alumni who have established scholarship endowments for this purpose as well as our corporate donors who provide scholarships on an annual basis.

The following is a listing of scholarships awarded to our undergraduate students for the 2006-2007 school year:

Aldrich Syverson Scholarship Fund
• David Webster           • Joe Groszek           • Molly Campbell

Allan I. Gordon Undergraduate Scholarship for Study in Biochemical Engineering
• Jonathan Lui            • Taimur Shujaat

Dorothy J. & Herbert L. Fenburr Scholarship Fund
• Chris Sammetinger       • Josh Gaudio          • Sandy Abraham
• Cole Miller             • Laura Ensign         • Shannon Quinn
• Duane Gotro             • Lee Martin           • Theresa Vonder Haar
• Dwight Wiltheiss        • Liz Curry            • Thomas Malott
• Erika Houtz             • Malcolm McCauley     • Todd Myers
• Jessica Huber           • Nicole Gerwin        • Zach Patterson
• Jiapeng Xu              • Ryan Lance

George S. Bonn Scholarship Fund
• Adugna Demisse          • Kim Hoang           • Tommy Yang
• Anand Patel             • Mike Corcoran       • Wai-Meng Lei
• Arup Mallik             • Precious Okoh       •
• Hann Kwok               • Thomas Yeh

H. Richard Unkel Chemical Engineering Class of 1941 Fund
• Alana Pevets            • Eric Sacia
• Andrew Mittermiller     • Jen Kirian
• Doug Knapke             • Katie Vermeersch
• Oray Talu

Harry Warner Scholarship Fund
• Beth Johnson

Smith E. Howland and Aristech Chemical Corporation Scholarship Fund
• David Bell

Herb Fenburr, a 1934 graduate, was one of Joe Koffolt’s first students and a featured speaker at his retirement banquet.
### John Hoge Scholarship Fund
- Erin Stall
- Jenny Kovach
- Ryan Bradstreet

### Milton & Karen Hendricks Scholarship Fund
- Charles Valentine

### Raymond D. Hammond Chemical Engineering Scholarship Fund
- Adam Peter
- Carrie Marshall
- Chris Lewe
- Dan Garrison
- Halle Murray
- Heather Fenton
- James Knight
- John Larison
- Justin Goode
- Justin Spitzer
- Justin Vincent
- Karl Salva
- Kian Weaver
- Leslie Shumaker
- Lindsay Volpenhein
- Mandy Jensen
- Sam Bayham
- Shawn Clegg
- Stephen Gronauer
- Steven Woodward

### The Samuel S. and Grace Hook Johnston Memorial Chemical Engineering Scholarship Fund
- Kelly Kalb

### Todd David Harris Memorial Scholarship Fund
- Mike Klohn

### William R. & Doris M. Harris Scholarship Fund in Chemical Engineering
- Alex Brown
- Andrea Breitenbach
- Andrew Shives
- Danny Lundy
- Erik Zibritosky
- Jeffrey Skinn
- Joe Braucher
- John Groman

### Webster B. Kay Scholarship Fund in Chemical Engineering
- Jeanne Skebo
- Steph Lau

### William H. Whirl Scholarship
- Alex Hodge
- Brian Seltzer

### The Michael D. Winfield Chemical Engineering Endowment Fund
- Thomas Czechowski

### Fred J. Winterkamp Memorial Scholarship
- Alex Haas
- Ashley Fotheringham
- Cory Noyes
- Kyle Morrison
- Mike Icardi

### Harold W. Almen Scholarship Fund in Chemical Engineering
- Brittany Valentine
- Chad Bernard
- Chris Potts
- Christine Harrison
- Jason Marcus
- Kerri Hall
• Kristen Hendrix • Richard Keefe • Tony Frost
• Nick Meister • Tim Muntzinger

Paul E. Bates Chemical Engineering Scholarship Fund
• Carol Udoh • Chris Anderson • Tenisha Highsmith
• Nick Meister • Tim Muntzinger

The Howard R. Steele Memorial Fund in Chemical Engineering
• Parth Shah • Jason Porter
• Ryan Silver • Sam Cooler

David H. George Chemical Engineering Scholarship Fund
• Linsday Tisza • Claire Schwing • Chelsea Liao
• Nariman Alkhatib • William Brigode • Katherine Kinstedt
• Sara Mihaloew • Xiao (Mark) Sun • Elise Fergesun
• Amanda Janasov • Kristina Easley

Lubrizol Foundation Scholarship Fund Chemical Engineering
• Jean Wheasler
• Kimberly Miller

Enrollment

![Enrollment Chart]

Number of B.S. Degrees Per Academic Year (Au - Sp)
Shows Total Students, Number Granted to Women and Number Granted to Ethnic Minorities
Undergraduate Enrollment

- Majors
- Pre-Majors
- Total

School Year
(Data Taken In Winter Quarter Each Year; New Majors Begin Au/Wi)
* 2007 is projected enrollment for the 2006-2007 school year

Female and Ethnic Minority Trends in Total Department Enrollment

- Total Students
- Women
- Ethnic Min
Placement Information

The following list of graduates from Autumn 2005 through Summer 2006 shows each graduate, the employer they are currently working with or graduate school they are attending as well as any honors the student received at graduation. Where placement information is unknown, that field has been left blank.

Of the 37 graduates for whom we have placement information, 41% are going to industry while 27% of the students are going on to further education. Most students going the route of further education are pursuing their PhD in Chemical Engineering. Students pursuing an industrial career will be working in the state of Ohio with companies such as Anheuser-Busch, Procter and Gamble, Sunoco and Sherwin-Williams; while the rest will be working outside of the state with companies such as ExxonMobil, the United States Patent Office and Dow Chemical.

A number of our graduates received Latin Honors, With Distinction honors or With Honors in Engineering. Latin Honors are defined as follows: a cumulative grade point average (GPA) of 3.5-3.69 is Cum Laude; 3.70-3.89 is Magna Cum Laude; and 3.90-4.00 is Summa Cum Laude. A student who graduates “With Distinction” is an honors student (greater than a 3.4 GPA) who has completed a senior honors research thesis. A student who graduates “With Honors in Engineering” has completed a three-prong program
consisting of completing a required number of honors courses, participation in community service, leadership and outreach as well participation in “investigational studies” which typically includes completing a research paper or thesis or completing a minor. Forty percent of our students graduated with some level of Latin Honors. In addition, six students graduated with Honors in Engineering and six students graduated With Distinction.

### Autumn 2005 Graduates

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mayra Hernandez Bowers</td>
<td>Owens-Illinois OH</td>
</tr>
<tr>
<td>Miguel Garcia</td>
<td>Barr Laboratories Inc, VA</td>
</tr>
<tr>
<td>Simon Ghosh</td>
<td>No Information</td>
</tr>
<tr>
<td>Michael Klidas</td>
<td>Babcock &amp; Wilcox, OH</td>
</tr>
<tr>
<td>Samuel Koshan</td>
<td>No Information</td>
</tr>
<tr>
<td>Meghan Ward</td>
<td>No Information</td>
</tr>
</tbody>
</table>

### Winter 2006 Graduates

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andrew Michael Carstens</td>
<td>No Information</td>
</tr>
<tr>
<td>Hali Leigh Jackson</td>
<td>No Information</td>
</tr>
<tr>
<td>Dong Wook Kim</td>
<td>No Information</td>
</tr>
<tr>
<td>Sherry L Wunderle</td>
<td>No Information</td>
</tr>
</tbody>
</table>

### Spring 2006 Graduates

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kimberly Ann Ankrom; Cum Laude</td>
<td>OSU School of Veterinary Medicine, Still Looking</td>
</tr>
<tr>
<td>Maria De Lourdes Hutcheson (Arias)</td>
<td>With Distinction in ChBE</td>
</tr>
<tr>
<td>Adam Craig Burley</td>
<td>PhD, ChBE, Ohio State, Sherwin-Williams, OH</td>
</tr>
<tr>
<td>Brian G Chapman; Magna Cum Laude</td>
<td>With Honors in Engineering and Distinction in Chemical Engineering</td>
</tr>
<tr>
<td>Nishil R Dalsania</td>
<td>Further Education, Exxon Mobil, VA</td>
</tr>
<tr>
<td>Phillip Adam Deis; Summa Cum Laude</td>
<td>With Honors in Engineering</td>
</tr>
<tr>
<td>Nicole M Florea</td>
<td>Sunoco Inc, OH</td>
</tr>
<tr>
<td>Laurel Elizabeth French</td>
<td>Schlumberger, WY</td>
</tr>
<tr>
<td>Andrew David Galusha</td>
<td>Ohio Medical University, MD</td>
</tr>
<tr>
<td></td>
<td>With Honors in Engineering and Distinction in Chemical Engineering</td>
</tr>
<tr>
<td>Jessica Marie Givens</td>
<td>Schreiber Foods Inc, A</td>
</tr>
<tr>
<td>Jonathan Paul Halter; Cum Laude</td>
<td>Cargill, NC</td>
</tr>
<tr>
<td>Daniel Robert Hartman</td>
<td>Still Looking</td>
</tr>
<tr>
<td>Emily Ann Jordan</td>
<td>Schreiber Foods Inc, UT</td>
</tr>
<tr>
<td>Stephen Kwun Kwan Ko</td>
<td>LabCorp, Washington, D.C.</td>
</tr>
<tr>
<td>Laura K Kunes; Magna Cum Laude</td>
<td>Procter &amp; Gamble, OH</td>
</tr>
<tr>
<td>Mark Allen Liska</td>
<td>Schreiber Foods Inc, MO</td>
</tr>
</tbody>
</table>
### Summer 2006 Graduates

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree and Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charles Russell Benore</td>
<td>Magna Cum Laude; Dow Chemical, TX</td>
</tr>
<tr>
<td>Nathan Kyle Ford</td>
<td>Magna Cum Laude; Still Looking</td>
</tr>
<tr>
<td>Robert R Harman</td>
<td>Magna Cum Laude; Halliburton, TX</td>
</tr>
</tbody>
</table>

### Engineering Career Services

During the 2005-2006 year, 170 employers sought to hire BS-level chemical engineering students using one or more of the services provided by Engineering Career Services (on-campus recruiting, resume referrals for active candidates, on-line job postings, and access to the active candidates’ resume database). This represented a solid increase from the prior year’s total of 145 employers.

Although on-campus recruiting activity declined from the very strong prior year, job postings increased by 116% and career fair attendance increased 30%. Reported co-op/intern work terms increased 16%, a welcome improvement, since relevant experience is a key factor in hiring decisions.

In spite of a generally positive employment climate, a higher percentage of 2005-2006 BS graduates chose to pursue further education: 29% this year, vs. 13% in the prior year. By graduation, 43% of the BS graduates had reported career employment.
Thirty percent of the employed BS graduates stayed in Ohio; 57% left the state, and the remainder did not report a location. Employers who hired more than one graduate include Schreiber Foods (3), Procter & Gamble (2), Schlumberger (2), and Sunoco (2). Other successful employers included: Anheuser Busch, Babcock & Wilcox, Barr Laboratories, Cargill, DuPont, ExxonMobil, General Mills, the Knolls Atomic Power Laboratory, Owens-Illinois, Sherwin Williams, and the US Patent & Trademark Office.

Of those reporting further education, 1 is pursuing veterinary medicine, 2 enrolled in medical school, 4 are pursuing ChE master’s degrees, and 6 ChE PhDs. 57% are staying at Ohio State; other institutions listed included Penn State, UC Santa Barbara, UT Austin, UW Madison, California Institute of Technology, and the Medical University of Ohio.
Graduate Program

Graduate Degrees Granted

Winter Quarter 2006 – March 2006

Doctor of Philosophy
Pankaj Arvind Apte  Advisor
Mahesh Venkataraman Iyer  Isamu Kusaka
Syed Basha Mohiddin  Liang-Shih Fan
Mei Shao  James Rathman

Master of Science
Biobele Michael Braide  Kurt Koelling

Spring Quarter 2006 – June 2006

Doctor of Philosophy
Yunling Bai  Advisor
Nan-Rong Chiou  Shang-Tian Yang
Puneet Gupta  L. James Lee
Hongyan He  Liang-Shih Fan
Dehua Liu  L. James Lee
Paul Harry Matter  David Tomasko
Bhavya C. Mehta  Jeffrey Chalmers
Anli Ouyang  Shang-Tian Yang
Shengnian Wang  L. James Lee

Master of Science
None

Summer Quarter 2006 – August 2006

Doctor of Philosophy
Erik M Holmgreen  Advisor
Ying Jing  Umit Ozkan
Jiong Shen  Jeffrey Chalmers

Master of Science
Russell Adam Baird  Advisor
Justin Aubry Nellett  David Tomasko
Abdullahi Yusuf  Liang-Shih Fan
Robert S. Brodkey  L. James Lee
Autumn Quarter 2006 – December 2006

Doctor of Philosophy
Chunmeng Lu   L. James Lee
Poonam Nigam   James Rathman

Master of Science
Gang Zhou   L. James Lee

Graduate Program Seminar Series
Winter 2006

01/19  Jhih-Wei Chu, Center for Biophysical Modeling and Simulation and Department of Chemistry, University of Utah, “Allostery of Actin Filaments: Atomistic Simulations and Coarse-Grained Modeling”

01/26  Mark Stevens, Sandia National Laboratories, “Simulation of Biomembranes: Fusion & Domain Dynamics”

02/02  Yufang Hu, Department of Chemistry and Biochemistry, University of California, Los Angeles, “What Determines the Size of a Viral Capsid? Packaging of a Linear Polyelectrolyte by Viral Proteins”

02/09  Inchan Kwon, Division of Chemistry and Chemical Engineering, California Institute of Technology, “Protein Engineering Via Incorporation of Nonnatural Amino Acids”

02/16  Mark Burns, Professor, University of Michigan, “Biochemical Analysis in Integrated Microfluidic Devices”

02/23  Brian Prevo, Department of Chemical & Biomolecular Engineering, North Carolina State University, “Engineered Deposition of Functional Coatings from Micro- and Nanoparticles”

03/02  Michael Dickey, The University of Texas at Austin, “Alternative Patterning Strategies: Imprint Lithography and Electric Field Assisted Assembly”

03/9  Buddy D. Ratner, University of Washington Engineered Biomaterials (UWEB), “The Science and Technology of Rebuilding People: Tissue Engineering, Biocompatibility and UWEB”

Spring 2006
03/30 Lynn Russel, Scripps Institution of Oceanography, University of California, San Diego, “Water Uptake by Atmospheric Aerosol Particles”

04/06 Matt Yung, Graduate Student, Department of Chemical and Biomolecular Engineering, Ohio State University, “NSF GK-12 Program: Collaboration Between Teachers and Graduate Students to Enhance Science Education”

04/13 Jeffrey Tolan, Iogen Corporation, “Iogen’s Process for the Production of Fuel Ethanol from Wheat Straw”

04/20 Bhavki Bakshi, Professor, Department of Chemical & Biomolecular Engineering, Ohio State University, “Can Technology Lead to Sustainability? A Thermodynamic View”

04/27 Alice Gast, Lowrie Seminar, Lecture I, Robert T. Haslam Professor, Vice President for Research and Associate Provost, Department of Chemical Engineering, Massachusetts Institute of Technology, “Proteins and Enzymes at Membrane Interfaces”

04/28 Alice Gast, Lowrie Seminar, Lecture II, Robert T. Haslam Professor, Vice President for Research and Associate Provost, Department of Chemical Engineering, Massachusetts Institute of Technology, “Chemical Engineering: Evolution and Innovation”

05/04 Mark Barteau, Robert L. Pigford Chair and Chairperson, Department of Chemical Engineering, University of Delaware, “Moving Catalysis from Analysis to Design: Progress in Olefin Epoxidation”

05/11 Elizabeth Marshall, Worldwide Publications Manager, Fluent Inc., "The Ups and Downs of Solid Suspensions"

05/18 Ignacio Grossmann, Department of Chemical Engineering, Carnegie Mellon University, “Computational Methods for Enterprise-wide Optimization of Process Industries”

06/01 Richard Spontak, Professor, Departments of Chemical & Biomolecular Engineering and Materials Science & Engineering, North Carolina State University “Modification of Polymer/Polymer Interfaces Using Block Copolymers and Microgel Particles”

*Autumn 2006*

09/21 Arijit Bose, Professor and Chair, Department of Chemical Engineering, University of Rhode Island, “Microstructure Evolution and Materials Synthesis in Mixed-surfactant Systems”
10/05 Joel Bader, Assistant Professor, Department of Biomedical Engineering, Johns Hopkins University, “Decoding Networks from Genome Sequence”

10/12 Thomas A. Zawodzinski, Director, Case Advanced Power Institute Director, Wright Fuel Cell Group, “Fuel Cells from the Viewpoint of a Skeptical Optimist”

10/19 David Rumschitzki, Herbert G. Kayser Professor, Department of Chemical Engineering, City College, City University of New York, “Transport in Vessel Walls: Why Some Vessels get Atherosclerosis and Others Don’t”

10/26 Jennie Leach, Clare Boothe Luce Assistant Professor, Department of Chemical & Biochemical Engineering, University of Maryland, “Challenging Assumptions in 3D Culture: Impact of Matrix Properties on Cell and Tissue Function”

11/02 Judy Raper, Division Director of Chemical, Bioengineering, Environmental and Transport Systems, NSF; Department Chair, Chemical & Biological Engineering, Missouri-Rolla, “Flocs, Fractals and Fly Ash. How Does This Fit into the PMP Program at NSF?”

11/9 GRIP:
He Bai, “Novel Sulfonated Polyimide Copolymers for High Temperature Proton-Exchange Membrane Fuel Cells”
Matthew Yung: “Selective Oxidation of CO to CO₂ over Cobalt-based Supported Catalysts for Hydrogen Clean-up in PEM Fuel Cells”
John Kuhn: “Characterization of Ni-olivine Catalysts for Gas Clean-up Following Biomass Gasification”

11/30 Eric Haseltine, Postdoctoral Fellow, California Institute of Technology, “Synthetic Gene Circuits: Design with Directed Evolution”

Graduate Student Awards

He Bai: Best Poster Paper Award at the Annual Meeting of the North American Membrane Society

Yunling Bai: Outstanding Graduate Award for Academic Achievement at the Lowrie Banquet

Wu Ge: Outstanding Graduate Award for Academic Achievement at the Lowrie Banquet

Jin Huang: 2006 Ray Travel Award from the Council of Graduate Students, Outstanding Graduate Award for Academic Achievement at the Lowrie Banquet

John Kuhn: 2006 Ray Travel Award from the Council of Graduate Students
Paul Matter: Received 2nd place award at the 2006 Edward F. Hayes Graduate Research Forum

Robin Ng: Presidential Fellowship from Graduate School at OSU, American Institute of Chemists Foundation Award for Outstanding Graduate Student Work at the Lowrie Banquet

Anli Ouyang: Outstanding Graduate Award for Academic Achievement at the Lowrie Banquet

Jiong Shen: Presidential Fellowship from Graduate School at OSU

Somnath Sinha: Travel Award from the American Association for Aerosol Research to attend the International Aerosol Conference in St. Paul, MN

Yuan Wen: Travel Award from American Electrophoresis Society to attend annual meeting

Matthew Woods: Outstanding Graduate Award for Academic Achievement at the Lowrie Banquet

Matthew Yung: Outstanding Graduate Award for Academic Achievement at the Lowrie Banquet, 2006 Ray Travel Award from the Council of Graduate Students

Lingzhi Zhang: Outstanding Graduate Award for Academic Achievement at the Lowrie Banquet

Jian Zou: 2006 Ray Travel Award from the Council of Graduate Students

**Graduate Student Fellowships**

Aarti Arumugam: Distinguished University Fellowship
Adam Burley: Distinguished University Fellowship
Megan Cavanaugh: Distinguished University Fellowship
Guo Chen: University Fellowship
Yongjia Fan: University Fellowship
Robin Ng: Presidential Fellowship
Anthony Sherer: National Science Foundation GK-12 Fellowship
Faculty Activities

Research Areas


**Cooper, Stuart L.**, University Scholar Professor and Department Chair, Ph.D., Princeton University, 1967. Polymer Science and Engineering, Properties of Polyurethanes and Ionomers, Blood-Materials Interactions, Tissue Engineering.

**Corn, John**, Instructor, M.S., Union University (Schenectady, NY), 1976. Undergraduate Engineering Education with an Emphasis on the Unit Operations Laboratory Experience.


Koelling, Kurt W., Professor, Ph.D., Princeton University, 1992. Advanced Polymer Processing, Microfluidics, Bubble and Drop Dynamics, Rheology of Complex Fluids, Biocompatible Polymers, Nanocomposite Foams, Gas-assisted and Thin-wall Injection Molding, Two-phase and Interfacial Flows of Viscoelastic Fluids.

Kusaka, Isamu, Assistant Professor, Ph.D., Caltech, 1998. Nucleation, Solid Phase Equilibria, Polymers.

Lee, L. James, Professor, Ph.D., University of Minnesota, 1979. Polymer and Composite Processing, Nanotechnology, BioMEMS, Micro/Nano-fluidics.


Palmer, Andre, Associate Professor, Ph.D., Johns Hopkins University, 1998. Hemoglobin-based Oxygen Carriers for Transfusion and Cell Culture Applications; Self-Assembled Therapeutic Delivery Systems; Protein and Tissue Engineering.
Paulaitis, Michael E., Professor, Ph.D., Illinois. 1976. Molecular Simulations and Modeling of Weak Protein-Protein Interactions; Role Of Hydration in Biological March 5-9, 2007.

Rathman, James F., Professor, Ph.D., University of Oklahoma, 1987. Colloids and Interfaces, Molecular Self-Assembly, Chemical and Biological Informatics.

Tomasko, David L., Professor, Ph.D., UIUC, 1992. Molecular Thermodynamics, Separations, Supercritical Fluid Processing.

Winter, Jessica, Assistant Professor, Ph.D., University of Texas at Austin, 2004. Bionanotechnology, Drug Delivery, Tissue Engineering, Neural Prostheses.

Wyslouzil, Barbara, Professor, Ph.D., Caltech, 1992. Aerosol Science, Nucleation, Nanoparticle Structure, Biomedical Applications of Aerosols.

Yang, Shang-Tian, Professor, Ph.D., Purdue, 1984. Bioprocess Engineering, Biochemical Engineering, Tissue Engineering, Metabolic Engineering.

Awards and Honors

**Bakshi, Bhavik**

Kothari Visiting Professor, Institute of Chemical Technology, University of Mumbai, India, Jun - Dec 2006.


**Cooper, Stuart L.**

Award Symposia at the AIChE Meeting in Honor of Stuart L. Cooper’s 65th birthday. “Multiphase Polymers” and “Implantable Biomaterials”.

**Fan, Liang-Shih**


E.V. Murphree Symposium, 231st American Chemical Society National Meeting, Atlanta, Georgia, March 27, 2006.


Invited Lecture at the American Physical Society National Meeting, Denver, Colorado, November, 2006: Invited lecture at AIChE Meeting in Honor of Neal Amundson’s 90th
birthday. The only speakers not connected with the Universities of Minnesota or Houston were John Seinfeld (Caltech), James Wei (Princeton), Reuel Shinnar (City University of New York) and Martin Feinberg (Ohio State University).

**Ho, W.S. Winston**

Institute Award for Excellence in Industrial Gases Technology, American Institute of Chemical Engineers, 2006.


Chairman of the Board, Chinese-American Chemical Society, 2005.

**Lee, L. James**

Elected a Fellow of the American Institute for Medical and Biological Engineering (2006).

**Ozkan, Umit S.**

2006 Fulbright Scholar Award.

**Palmer, Andre**

National Science Foundation Career Award 2001-2006.

**Yang, Shang-Tian**

Fellow, American Institute of Medical and Biological Engineering. Editorial Advisory Board, Recent Patents on Biotechnology (2006 – present).
Zakin, Jacques L.

ABET Accreditation Visitor.
Special Activities

Lowrie Lectures

The 2006 Lowrie Lecturer was Dr. Alice P. Gast, Robert T. Haslam Professor of Chemical Engineering and the Vice President for Research and Associate Provost at Massachusetts Institute of Technology. In her research she studies surface and interfacial phenomena, in particular the behavior of complex fluids. Some of her areas of research include colloidal aggregation and ordering, protein lipid interactions and enzymes reactions at surfaces. In 1997 she co-authored the sixth edition of “Physical Chemistry of Surfaces” with Arthur Adamson. She was elected to the National Academy of Engineering in 2001 and to the American Academy of Arts and Sciences in 2002. Dr. Gast was recently named President of Lehigh University. Her lectures were as follows:

LECTURE I: Proteins and Enzymes at Membrane Interfaces

Organization in colloidal, macromolecular and biological systems is driven by intermolecular interactions that can be mediated by the solution conditions. An understanding of the intermolecular forces governing protein assembly on and within model membranes will help elucidate the physical processes governing cell membranes. The ordering of proteins in two-dimensions is of particular interest as a fundamental model of phase transitions and self-assembly. It is also a phenomenon found in nature on the surface of some bacteria and phages.

We are studying the structure, morphology and dynamics of two-dimensional streptavidin crystals bound to lipid membranes. We show how changing the solution composition can alter the crystal structure and morphology. Producing these crystals on the surface of vesicles mimics the protein coats on cell surfaces. We see the influence of an ordered layer of proteins on the mechanical properties, permeability and shape of vesicles.

LECTURE II: Chemical Engineering: Evolution and Innovation

Chemical engineering has been a versatile discipline that has prepared its graduates for a wide variety of careers. Our core values in fundamental physics, chemistry and mathematics have served us well for decades. The recent surge in activity in interdisciplinary work has been very beneficial to chemical engineers who have excelled in many broad fields of research.

In this seminar the opportunities and challenges facing chemical engineering departments in the coming decades will be discussed. The need to balance a strong core discipline while embracing interdisciplinary activities is also important and some developments in the chemical engineering research that can aid us in evolving our curriculum will be described. Finally to be mentioned is the growing context of the global workplace and the need to offer international opportunities to our students.
2006 Advisory Board Meeting

The Advisory Board Meeting was held March 16, 2006. Participants included Rich Brandon, Ron Harris, Scott Joublanc, Bruce Martin, Karen Murphy, Nancy Dawes, Jack Hammond, Stuart Cooper, L.S. Fan, Barbara Wyslouzil, Jack Zakin, Michael Paulaitis, Winston Ho, Umit Ozkan, Jeff Chalmers, Bob Brodkey, John Corn, Marty Feinberg, and Mary Hoy.

The meeting began with a Continental Breakfast at 8:30 and a welcome by Stuart Cooper at 9:00. Stuart discussed the undergraduate program and provided graduation and enrollment statistics. He then summarized the ABET visit which took place in October, 2005. Discussion then turned to the graduate program and Stuart said that enrollment was holding up reasonably well. The last item discussed was the feasibility study being carried out by CO Architects.

Stuart passed out Rosemary Hill’s material (Rosemary had to miss the meeting) and a brief discussion followed. Regarding employment, this year is turning out better than the past two years. Mary Hoy then spoke to the group about financial aid for our students. After a short break, Mary Hoy (filling in for Jim Rathman) spoke to the group about the first year program in the Department. She stated that approximately 1/3 of the current pre-major population and just under 1/3 of the upper class population are interested in pursuing the biomolecular option. Stuart then discussed
the ABET process (filling in for Jim Rathman) and stated that the emphasis of the process is on defining and assessing outcomes. L.S. Fan discussed the Provost’s Strategic Initiative relating to energy and nuclear energy is a theme of the proposal. Departmental participation in the energy proposal includes Professors Bakshi, Ozkan and Ho as well as Fan. The proposal is entitled “Energy Sustainability and the Environment.” Mike Paulaitis spoke to the Board about the Provost’s Strategic Initiative for the creation of a “Center for Cell Engineering.” Jeff Chalmers then spoke about the Biomolecular Option.

The closing discussion centered on the need to maintain a strong balance between research and teaching. It was noted that the Department has a tradition of nurturing undergraduates and a tradition of teaching excellence, both of which need be maintained. The Committee suggested that perhaps the Board could review some of the survey data in order to provide feedback at future meetings. Stuart stated that he would make this an agenda item for the next meeting. The Committee felt that the basic CBE education serves industry well and that it is a quality education. It was also mentioned that the Department should continue with developing its strategic plan.

The date for next year’s meeting will be Thursday, March 15, 2007.

National Committee Meeting for the Renovation and Expansion of Koffolt Laboratories

The meeting was held October 27, 2006. Participants included David Tomasko, Barbara Wyslouzil, Jessica Winter, Mike Paulaitis, Bob Brodkey, Stuart Cooper, Isamu Kuska, Jim Lee, Umit Ozkan, John Corn, Winston Ho, Jim Rathman, Jacques Zakin, Dean Baeslack, John Meyer, Richard Morse, Gary Woodward, Bill Lowrie, Mike Winfield, Larry Woodward, Paul Kienholz, David McCarthy, Laura McDonald, and Sharon Ferguson.

Dean Baeslack provided greetings from the College and stated that the Koffolt renovation
is the COE’s number one priority. Richard Morse described the building feasibility study’s goals and findings. The study concluded that it would not be wise to try to remodel Koffolt and that various choices can be made considering sites, design possibilities and the option of a staged building process. The Capital Request process was next described. Draft requests were presented in July 2006 and finalized in late October. The requests will undergo a campus review and priority setting for about a 6 month period. The selected requests ultimately go to the Board of Trustees in September, 2007.

The Benefactors Counsel carried out a fund raising feasibility study and shared its preliminary findings and recommendations. During their study they conducted 41 confidential interviews; 35 were OSU alumni and 29 were ChE alumni. They tested a goal of raising $35M toward the cost of the building and came away with a conclusion that it is more feasible to have a goal of $20M. They recommended that the department be assigned a full time development professional, that the National Committee continue its campaign oversight and that the Department and our committee continue to strive to build up our volunteer base.

Laura McDonald and Sharon Ferguson, representatives of the Benefactor’s Counsel, present the results of their fund raising survey.
# Alumni Donors in 2006

<table>
<thead>
<tr>
<th>Year</th>
<th>Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>1934</td>
<td>Edward E. Slowter</td>
</tr>
<tr>
<td>1936</td>
<td>Joseph G. Mravec</td>
</tr>
<tr>
<td>1937</td>
<td>Nicholas Fatica</td>
</tr>
<tr>
<td>1939</td>
<td>Dillard W. Kuhlman</td>
</tr>
<tr>
<td>1940</td>
<td>Charles Boardman III&lt;br&gt; Loren F. Grandey</td>
</tr>
<tr>
<td>1941</td>
<td>George L. Meyers, Jr.</td>
</tr>
<tr>
<td>1942</td>
<td>Donald S. Arnold&lt;br&gt; Randal E. Bailey&lt;br&gt; Richard R. Whiston</td>
</tr>
<tr>
<td>1943</td>
<td>Halvor S. Christianson&lt;br&gt; Dalton F. Drake&lt;br&gt; R. Richard Midlam&lt;br&gt; James R. Randall&lt;br&gt; Roy E. Schneider&lt;br&gt; Carlyle E. Shoemaker&lt;br&gt; James C. Wynd&lt;br&gt; Hong Ton Yee</td>
</tr>
<tr>
<td>1944</td>
<td>Wallace L. Bostwick&lt;br&gt; Clarence A. Haverly, Jr.&lt;br&gt; Edward W. Powell&lt;br&gt; Grover C. Strickler, Jr.</td>
</tr>
<tr>
<td>1947</td>
<td>William K. Fell&lt;br&gt; Lewis C. Hullinger&lt;br&gt; John M. Kolbas&lt;br&gt; J. Bruce Martin&lt;br&gt; Bryce H. McMullen&lt;br&gt; Donald F. Stauffer</td>
</tr>
<tr>
<td>1949</td>
<td>Paul E. Bates&lt;br&gt; Gordon G. Cross&lt;br&gt; Bruce E. Hill&lt;br&gt; Theodore M. Jenney&lt;br&gt; Frederick A.&lt;br&gt; MacDougall&lt;br&gt; Glen D. Schaaf&lt;br&gt; Roland I. Spencer</td>
</tr>
<tr>
<td>1950</td>
<td>Walter E. Donham&lt;br&gt; Walter T. George&lt;br&gt; Jean Maurer&lt;br&gt; Scharenberg&lt;br&gt; Richard L. Scott&lt;br&gt; Ralph E. Sieber&lt;br&gt; Robert E. Thompson&lt;br&gt; David W. Wilson</td>
</tr>
<tr>
<td>1951</td>
<td>Charles E. Breithaupt</td>
</tr>
<tr>
<td>1952</td>
<td>Richard N. Eilerman&lt;br&gt; Rob R. MacGregor, Jr.&lt;br&gt; John R. Parkinson&lt;br&gt; David B. Speed&lt;br&gt; David A. Strang&lt;br&gt; Bruce W. Wilkinson&lt;br&gt; Robert M. Yarrington</td>
</tr>
<tr>
<td>1953</td>
<td>James F. Froning&lt;br&gt; Donald E. Haupt&lt;br&gt; M. Frank Rummel&lt;br&gt; Charles J. Schmitz&lt;br&gt; David G. Stephan&lt;br&gt; Frederic F. Zind</td>
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<tr>
<td>1954</td>
<td>Robert A. Bates&lt;br&gt; Graydon C. Bazell&lt;br&gt; Roger L. Briggs&lt;br&gt; Louis O. Elsaesser&lt;br&gt; Donald E. Findlay&lt;br&gt; Robert T. Hewitt&lt;br&gt; Wilfred C. Ling&lt;br&gt; Harold L. Stelzer, Jr.&lt;br&gt; Kenneth E. Whitehead&lt;br&gt; James L. Wilson</td>
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<tr>
<td>1955</td>
<td>Norval P. Davis&lt;br&gt; Peter A. Minderman</td>
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<tr>
<td>1956</td>
<td>W.B. Hammond, Jr.&lt;br&gt; Phillip J. McAteer</td>
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<tr>
<td>1957</td>
<td>Robert A. Cody&lt;br&gt; Herbert H. Fanning</td>
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<table>
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<tr>
<th>Year</th>
<th>Graduates</th>
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</thead>
<tbody>
<tr>
<td>1961</td>
<td>Paul R. Bigley, Richard B. Cooper, Edward R. Corino, Ron Follmer, Jack A. Hammond, Ted Hanson, Ronald D. Harris, James H. McMicking, Larry E. Woodworth</td>
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<tr>
<td>1963</td>
<td>Nelson W. Barnhill, Gary L. Beeler, Myers G. Hammond, Robert P. Kasper, Fred A. Shaffstall, Kay Logan Snider</td>
</tr>
<tr>
<td>1968</td>
<td>John M. Salladay</td>
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<tr>
<td>1970</td>
<td>David R. Grove, Rosa Uy, Harry Heh Nien Yieh</td>
</tr>
<tr>
<td>1971</td>
<td>Wayne R. Fontaine, Kerry G. Hertenstein, Jeffrey L. Kosch, William E. Pritchard</td>
</tr>
<tr>
<td>1972</td>
<td>Michael J. Clark</td>
</tr>
<tr>
<td>1973</td>
<td>John C. Bost, David A. Dargan, Norman F. Lucas, Jr., Johnny O. Wright</td>
</tr>
<tr>
<td>1974</td>
<td>Steve Irwin, George L. Ott, Michael A. Patterson, Michael J. Pederson</td>
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<tr>
<td>Year</td>
<td>Names</td>
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<tr>
<td>------</td>
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<tr>
<td>1975</td>
<td>John T. Erikson</td>
</tr>
<tr>
<td>1976</td>
<td>Donald Buchanan, Jr.</td>
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<tr>
<td>1979</td>
<td>Darice Ann Davis, John F. Kreinbrink, David J. Wasela, Tad K. Williams</td>
</tr>
<tr>
<td>1980</td>
<td>Carol Bur Ehrman, Fred D. Ehrman, Matthew J. Galosi, Mark A. George, Gary R. Prok, Tim Strickler, David G. Vutetakis</td>
</tr>
<tr>
<td>1981</td>
<td>Nancy Coultrip Dawes, James A. Telljohann, H. Charlie Wolf</td>
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<tr>
<td>1982</td>
<td>Steven D. Alley, Debra Denio Funderberg</td>
</tr>
<tr>
<td>1983</td>
<td>Cheryl Kennedy Alfieri, Michael B. Begland, Tracy Flora Begland, Thomas D. Burns, Mark D. Dieringer, Edward Flinn, Carolyn Marie Lin, Jeffrey W. Patterson, Clark B. Wade</td>
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<tr>
<td>1984</td>
<td>John A. Bohlmann, Randall Lonsbrough, Gregory M. Masica, George W. Miller, Jagannadh V. Satyavolu</td>
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<td>1985</td>
<td>Roger G. Facer, Timothy A. Johnson, David J. Moonay</td>
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<td>1986</td>
<td>Rajeev Gorowara, Bipender S. Jindal</td>
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<tr>
<td>1988</td>
<td>Amy Schmitt Doty, M. Alison Jabbour, Craig L. Shoemaker</td>
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<tr>
<td>1989</td>
<td>Stuart F. Doty</td>
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<tr>
<td>1990</td>
<td>Ping Cai, Craig M. Kehres, Frank J. Kizlik, James V. Lombardi, Kara Bernadette Long, Timothy F. Matheis</td>
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<tr>
<td>1991</td>
<td>Greg E. Grote, Kristan Kissell Latham</td>
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<tr>
<td>1992</td>
<td>Christina Marie Ellis</td>
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<tr>
<td>1993</td>
<td>Clement Opoku, Frank E. Seipel</td>
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<td>1994</td>
<td>Denise Cromes Curry</td>
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<td>1995</td>
<td>Beth Gibson, Liping Zhang</td>
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<td>1997</td>
<td>Theresa Ann, Dziewatkoski</td>
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<tr>
<td>1998</td>
<td>Michael T. Timko</td>
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<tr>
<td>2000</td>
<td>Regis P. Geisler III, Justin Mackender</td>
</tr>
<tr>
<td>2001</td>
<td>Christopher A. Marshall, Jason R. Vititoe</td>
</tr>
<tr>
<td>2002</td>
<td>Ningning Ma</td>
</tr>
</tbody>
</table>
2003
Derrick A. Butler  Elwood E. Foye  Gail L. Reardon
Eunice Gray Andrews  Laura C. Foye  Karla S. Ritter
Robert S. Brodkey  Marilyn Elizabeth  Jean Campbell Spencer
Suzanne May Brooks  George  Donna Schrock Steele
Susan Buchanan  Timothy G. Grasel  Martin J. Telko
Nellie Christianson  Doris Whitman Harris  Betty French Unkel
Stuart L. Cooper  Beverly Doty Hauschildt  Marlene Hoy Wilcox
Mark E. Dawes  Kathleen Anne Jones  Cynthia Medford Wilt
Jeanne L. Eastman  Lois Osborne Kienholz  Christine Winterkamp
Liang-Shih Fan  Diane Powers Lau  Shang-Tian Yang

Donations: Cash and Non-cash

Fiscal Year

2002 2003 2004 2005 2006
Appendix A – Publications and Patents

Bakshi, Bhavik R.

Books and Book Chapters


Refereed Papers


Chalmers, Jeffrey J.

Books and Book Chapters


Refereed Papers


Cooper, Stuart L.

Books and Book Chapters

Fan, Liang-Shih

Books and Book Chapters


Refereed Papers


Patents


Feinberg, Martin

Refereed Papers


Ho, W.S. Winston

Books and Book Chapters


Refereed Papers


Patents


Koelling, Kurt

Books and Book Chapters


Refereed Papers


Kusaka, Isamu

Refereed Papers


Lee, L. James

Books and Book Chapters


Refereed Papers

47


Patents


Ozkan, Umit S.

Refereed Papers


**Palmer, Andre**

**Publications**


Paulaitis, Michael

Books and Book Chapters


Refereed Papers


Rathman, James F.

Refereed Papers


Tomasko, David L.

Books and Book Chapters


Refereed Papers


Patents


Winter, Jessica

Books and Book Chapters


Refereed Papers

Wyslouzil, Barbara E.

Books and Book Chapters


Refereed Papers


Yang, Shang-Tian

Books and Book Chapters


Refereed Papers


**Zakin, Jacques L.**

**Books and Book Chapters**


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### Appendix B – Current Projects and Grants

#### Current Projects and Grants

<table>
<thead>
<tr>
<th>Amount</th>
<th>Investigator</th>
<th>Period</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$90,000</td>
<td>Bakshi, Bhavik R.</td>
<td>2004-2007</td>
<td>Life Cycle Assessment of Ionic Liquids versus Other Solvents, Environmental Protection Agency</td>
</tr>
<tr>
<td>$34,641</td>
<td>Bakshi, Bhavik R.</td>
<td>2005-2006</td>
<td>CANPBD: Evaluating the environmental impacts of nanomanufacturing via thermodynamic and life cycle analysis, subcontract from Nano Science and Engineering Center grant from National Science Foundation</td>
</tr>
<tr>
<td>$175,000</td>
<td>Bakshi, Bhavik R.</td>
<td>2005-2010</td>
<td>Matching funds from OSU Transportation Research Endowment Program (TREP)</td>
</tr>
<tr>
<td>$12,000</td>
<td>Bakshi, Bhavik R.</td>
<td>2006-2007</td>
<td>Supplementary funds from NSF Research Experience for Undergraduate Program.</td>
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<tr>
<td>$375,000</td>
<td>Bakshi, Bhavik R.</td>
<td>2006-2009</td>
<td>Evaluating the Impacts of Nanomanufacturing via Thermodynamic and Life Cycle Analysis, (co-PI: Prof. L. James Lee), Environmental Protection Agency</td>
</tr>
<tr>
<td>$25,000</td>
<td>Fiksel, Joseph</td>
<td>2006-2009</td>
<td>Resilient Enterprise Consortium, Center for Resilience (co-PI: Bhavik R. Bakshi)</td>
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<tr>
<td>Amount</td>
<td>Name</td>
<td>Project Description</td>
<td>Year(s)</td>
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<td>----------</td>
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<td>--------------------------------------------------------------------------------------</td>
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<tr>
<td>$3,500,000</td>
<td><strong>Chalmers, Jeffrey J.</strong></td>
<td>Advanced Biomedical Devices for Disease Diagnosis and Therapy. State of Ohio Third Frontier Commission.</td>
<td>2005-2007</td>
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<tr>
<td>$37,000</td>
<td><strong>Chalmers, Jeffrey J.</strong></td>
<td>Magnetic nanobeads for cancer cell separation, Awarded to Columbus Nanoworks, NCI SBIR, 1R43CA116048-01, 7/1/05-12/31/05. to OSU.</td>
<td>2005-2007</td>
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<tr>
<td>$40,000</td>
<td><strong>Chalmers, Jeffrey J.</strong></td>
<td>Magnetic Sorter Channels for Stem Cells, NHLBI-SBIR Phase II (1 R43 DK072647-01), (SHOT/Paul Todd, P.I.; Chalmers P.I. of sub-contract).</td>
<td>2005-2007</td>
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<tr>
<td>$308,000</td>
<td><strong>Chalmers, Jeffrey J.</strong></td>
<td>Algal Shear Sensitivity, Martek Biosciences Corp.</td>
<td>2005-2007</td>
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<tr>
<td>$12,900,000</td>
<td><strong>Chalmers, Jeffrey J.</strong></td>
<td>NSEC Proposal for a Center for Affordable Nanoengineering of Polymer Biomedical Devices, NSF EEC-0425626; (P.I. Jim Lee; Chalmers, Co-P.I.).</td>
<td>2005-2009</td>
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<tr>
<td>$308,000</td>
<td><strong>Chalmers, Jeffrey J.</strong></td>
<td>An Integrated Magnetic Cell Identification System, DOD, subcontract from Cleveland Clinic Foundation.</td>
<td>2004-2007</td>
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<tr>
<td>$209,838</td>
<td><strong>Chalmers, Jeffrey J.</strong></td>
<td>Magnetic Separation of Liberated Islets During Isolation, 1R01DK068757-01.</td>
<td>2004-2006</td>
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<tr>
<td>$300,000</td>
<td><strong>Chalmers, Jeffrey J.</strong></td>
<td>Cell Selection by Magnetic Flow Sorting, NIH-NCI, RO1 CA62349 (P.I. Zborowski, Chalmers P.I. of sub-contract to OSU).</td>
<td>2004-2008</td>
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<tr>
<td>$3,200,000</td>
<td><strong>Chalmers, Jeffrey J.</strong></td>
<td>QMS Technology to Deplete T Cell Alloreactivity, NIH-NIAID, 1 R01 AI056318-01 (P.I. Farag, S., Chalmers, Co-P.I.).</td>
<td>2004-2009</td>
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<td>$46,375</td>
<td>Cooper, Stuart L.</td>
<td>Center for Affordable Nanoengineering of Polymer Biomedical Devices, National Science Foundation, Sponsorship of 1 Ph.D. Student, PI James Lee.</td>
<td>2005-2008</td>
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<tr>
<td>$80,000</td>
<td>Fan, L.S.</td>
<td>Droplet-Particle Collision Mechanism, Petroleum Research Funds.</td>
<td>2006-2009</td>
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<tr>
<td>$2,100,000</td>
<td><strong>Fan, L.S.</strong></td>
<td>Pilot-Demonstration for Carbon Dioxide Separation Process Using</td>
<td>2006-2008</td>
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<tr>
<td>Project Description</td>
<td>Funding</td>
<td>Years</td>
<td></td>
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<tr>
<td>-------------------------------------------------------------------------------------</td>
<td>---------</td>
<td>---------------</td>
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<td>Calcination – Carbonation Cycling, Ohio Coal Development Office, Bobcox-Wilcox, AEP, Mineral Technology Inc., and Airpool.</td>
<td>$1,600,000</td>
<td>2007-2009</td>
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<td>Calcium Looping from Coal to Hydrogen, U.S. Department of Energy.</td>
<td>Fan, L.S.</td>
<td></td>
<td></td>
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<td>Wright Capital Funds for Fuel Cells, Ohio Department of Development.</td>
<td>Ho, W.S. Winston</td>
<td>2004-2008</td>
<td></td>
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<tr>
<td>CO₂-Selective Membranes for Purification of Natural and Synthesis Gases, Shell Hydrogen LLC.</td>
<td>Ho, W.S. Winston</td>
<td>2005-2006</td>
<td></td>
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<tr>
<td>Selective Membrane Purification, Office of Naval Research via DJW Technology, LLC.</td>
<td>Ho, W.S. Winston</td>
<td>2006-2007</td>
<td></td>
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<tr>
<td>Carbon Dioxide-Selective Membranes, National Science Foundation.</td>
<td>Ho, W.S. Winston</td>
<td>2006-2009</td>
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<tr>
<td>CO₂-Selective Membranes for Purification of Natural and Synthesis Gases, Shell Hydrogen LLC.</td>
<td>Ho, W.S. Winston</td>
<td>2006-2008</td>
<td></td>
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<tr>
<td>Molecular Engineering of Microdevices, IGERT Project to sponsor 1 Ph.D. Student, with L. James Lee (PI), National Science Foundation.</td>
<td>Ho, W.S. Winston</td>
<td>2002-2007</td>
<td></td>
</tr>
<tr>
<td>Center for Affordable Nanoengineering of Polymer Biomedical Devices, NSEC Project to sponsor 1 Ph.D. Student, with L. James Lee (PI), National Science Foundation.</td>
<td>Ho, W.S. Winston</td>
<td>2004-2009</td>
<td></td>
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<tr>
<td>Industry/University Cooperative Research Center (I/UCRC) for Advanced Technology Research</td>
<td>Koelling, Kurt</td>
<td>2002-2007</td>
<td></td>
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</table>
Polymer and Composite Engineering (CAPCE), Phase II Operating Grant, National Science Foundation.

$40,000  **Koelling, Kurt**  
Polymer Nanocomposite Foams, NSF SBIR.  
2005-2006

$1,000,000  **Koelling, Kurt**  
Ohio Bioproducts Innovation Center, State of Ohio – ODOD – Wright Center of Innovation.  
2005-2008

$25,000  **Koelling, Kurt**  
Design and Control of a Paint Coating Circulation System, Honda of America.  
2005-2006

$380,000  **Koelling, Kurt**  
Polymer Nanocomposite Foams (CAPCE Membership), National Science Foundation.  
2006-2009

$50,000  **Kusaka, Isamu**  
Towards a Theory of Bubble Nucleation in Viscous and Viscoelastic Fluids, National Science Foundation.  
2006-2007

$400,000  **Kusaka, Isamu**  
Scalable Nanomanufacturing of High Performance Polymer Foams, National Science Foundation.  
2006-2009

$103,000  **Kusaka, Isamu**  
Exergy Analysis in Coal to Jet Fuel Plant Design, Department of Defense through University of Dayton.  
2006-2007

$102,199  **Kusaka, Isamu**  
CAMPBD: Molecular Theory of CO2-based Nanoscale Polymer Processing, Subaward for Nanoscale Science and Engineering Center at OSU.  
2005-2009

$365,000  **Lee, L.J., Koelling, K.W., Castro, J., Luscher, A.**  
Operating Grant for an Industry/University Cooperative Research Center for Advanced Polymer Engineering (CAPCE), Phase II, National Science Foundation.  
2002-2007

$150,000  **Lee, L.J.**  
Industrial Membership Fees for CAPCE- Ashland Chemical, Bell Helicopter, BioLOC, Cook Composites and Polymers, and Owens Corning.  
2006

$3,500,000  **Lee, L.J., Verweij, H., Rizzoni, G. and Ferrari, M.**  
Integrated Graduate Education and Research Training: Molecular Engineering of Micro-Devices, National Science Foundation.  
2002-2007

$830,000  **Lee, L.J., Menq, C-H, Rathman, J.F., Hansford, D. J., and Fan, L.S.**  
Robust Manufacturing Protocol for Particulate-like Nanoporous Micro-Devices (NMDs) for Biomedical and Biochemical Applications, National Science Foundation.  
2003-2006
<table>
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<tr>
<th>Project Description</th>
<th>Funding</th>
<th>Principal Investigator(s)</th>
<th>Co-PIs</th>
<th>Start Date</th>
<th>End Date</th>
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<tr>
<td>Center for Multifunctional Polymer Nanomaterials and Devices, Ohio Department of Development Third Frontier Program.</td>
<td>$22,489,845</td>
<td>Lee, L.J. with 42 co-PIs</td>
<td>42 co-PIs</td>
<td>2005-2008</td>
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<tr>
<td>Scalable Nanomanufacturing of High Performance Polymer Foams, National Science Foundation</td>
<td>$400,000</td>
<td>Tomasko, D.L., Kusaka, I., Koelling, K.W. and L.J. Lee</td>
<td>42 co-PIs</td>
<td>2006-2009</td>
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<td>Wright Center of Innovation for Fuel Cells, Ohio Department of Development.</td>
<td>$4,950,000</td>
<td>Ozkan, Umit with 5 co-PIs</td>
<td>5 co-PIs</td>
<td>2003-2009</td>
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<td>IGERT Fellowship for Engineering of Nano-Scale Systems, NSF.</td>
<td>$2,500,000</td>
<td>Ozkan, Umit (support for one IGERT fellow)</td>
<td>1 IGERT fellow</td>
<td>2003-2006</td>
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<tr>
<td>Investigation of Reaction Networks and Active Sites in Bio-ethanol Steam Reforming Over Co-based Catalysts, Department of Energy.</td>
<td>$1,145,624</td>
<td>Ozkan, Umit</td>
<td>5 co-PIs</td>
<td>2005-2009</td>
<td></td>
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<tr>
<td>Engineering New Catalysts for In-process Elimination of Tars, Department of Energy/Gas Technology Institute.</td>
<td>$150,000</td>
<td>Ozkan, Umit</td>
<td>5 co-PIs</td>
<td>2005-2007</td>
<td></td>
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<td>Hydrogen Production via Water Gas Shift Reaction, Ohio Coal Development Office.</td>
<td>$80,000</td>
<td>Ozkan, Umit</td>
<td>5 co-PIs</td>
<td>2005-2006</td>
<td></td>
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<tr>
<td>Novel Electrode Catalysts for Enhanced Coke and Sulfur Resistance in Reduced Temperature Coal Gas-fed SOFC Systems, Ohio Coal Development Office.</td>
<td>$80,000</td>
<td>Ozkan, Umit</td>
<td>5 co-PIs</td>
<td>2005-2006</td>
<td></td>
</tr>
<tr>
<td>Hydrogen Production via Water Gas Shift Reaction, Ohio Coal Development Office.</td>
<td>$180,000</td>
<td>Ozkan, Umit</td>
<td>5 co-PIs</td>
<td>2006-2008</td>
<td></td>
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<tr>
<td>Novel Electrode Catalysts for Enhanced Coke and Sulfur Resistance in Reduced Temperature Coal Gas-fed SOFC Systems, Ohio Coal Development Office.</td>
<td>$180,000</td>
<td>Ozkan, Umit</td>
<td>5 co-PIs</td>
<td>2006-2008</td>
<td></td>
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<tr>
<td>Low-temperature Catalytic Preferential Oxidation of CO, Ohio Coal Development Office.</td>
<td>$80,000</td>
<td>Ozkan, Umit</td>
<td>5 co-PIs</td>
<td>2006-2007</td>
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Coal Development Office.

$1,875,000  Palmer, Andre  2006-2011
Mechanically Stable Blood Substitutes, National Institutes of Health.

$598,500  Palmer, Andre  2006-2009
Enhanced O$_2$ Delivery to C3A Hepatocytes, National Institutes of Health.

$287,763  Paulaitis, Michael  2005-2009
Collaborative Research: The Thermodynamics of Protein Separations, National Science Foundation.

$2,500,000  Paulaitis, Michael  1999-2007
Interactions between Physical, Chemical, Computational Sciences and Biological Sciences, Burroughs Wellcome Fund.

$1,100,069  Paulaitis, Michael  2002-2007
NIRT: Nanoscale Engineering of Bilaterally Accessible Biomembrane Mimics, National Science Foundation.

$2,652,017  Paulaitis, Michael  2004-2007
Institute for Multiscale Modeling and Analysis of Complex Interactions in Biology, Department of Energy.

$830,000  Rathman, James (PI: L. James Lee)  2003-2006
NIRT: Robust Manufacturing Protocol for Particulate-like Nanoporous Micro-devices (NMDs) for Biomedical and Biochemical Applications (Manufacturing Processes at the Nanoscale), NSF.

$400,000  Tomasko, David (PI)  2006-2009
Scalable Nanomanufacturing of High Performance Polymer Foams, National Science Foundation; Co-PIs: I. Kusaka, L.J. Lee, K.W. Koelling.

$240,000  Tomasko, David (PI)  2002-2006
Polymer Nanocomposite Foams Prepared By Environmentally Benign Supercritical Fluids, National Science Foundation; Co-PIs: L.J. Lee, K.W. Koelling.

$308,000  Tomasko, David (PI)  2000-2006
Application of Supercritical or Subcritical CO$_2$ in Pharmaceutical Polymer Processing, Johnson & Johnson Pharmaceutical Research and Development (Janssen Pharmaceutica).

$1,982,000  Tomasko, David (Co-PI)  2004-2009
Track 2, GK-12, Optimization and Institutionalization of the Science Fellows Supporting Teachers (SFST) Program, National Science Foundation, PI: S. Olesik, Co-PIs: G. McKenzie, K. Irving.

$2,000,000  Tomasko, David (Co-PI)  2003-2006
<table>
<thead>
<tr>
<th>Amount</th>
<th>Investigator</th>
<th>Project Description</th>
<th>Start - End</th>
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<tr>
<td>$2,670,000</td>
<td>Wyslouzil, Barbara E.</td>
<td>Fundamental Studies of Nanoparticle Formation in Air Pollution, National Science Foundation.</td>
<td>2000-2007</td>
</tr>
<tr>
<td>$519,000</td>
<td>Wyslouzil, Barbara E.</td>
<td>The Formation Rates and Structure of Nanodroplets, National Science Foundation.</td>
<td>2005-2009</td>
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<tr>
<td>$45,000</td>
<td>Yang, S.T.</td>
<td>CANPBD: Application Of Nanomaterials In Tissue-Engineered Cell-Based Biosensors for Cytoxicity And Drug Screening And Implantable Microdevices for Gene Therapy, NSF Division of Engineering, Education &amp; Centers.</td>
<td>2004-2009</td>
</tr>
<tr>
<td>$239,900</td>
<td>Yang, S.T.</td>
<td>Production of Galacto-oligosaccarides (GOS) from Whey Lactose, Dairy Management Inc.</td>
<td>2005-2007</td>
</tr>
<tr>
<td>$80,000</td>
<td>Yang, S.T.</td>
<td>An Integrated Fermentation-Ultrafiltration Process for the Production of Xanthan Gum from Whey Lactose, USDA SBIR Phase I subcontract, $80,000 ($26,600 OSU subcontract, with Bioprocessing Innovative Company, Inc., I-Ching Tang).</td>
<td>2006-2007</td>
</tr>
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</table>
$50,000  Yang, S.T.  2006-2007
A fermentation-ultrafiltration Process for Xanthan Gum Production
From Waste Sugars, Midwest Advanced Food Manufacturing Alliances.

$200,000  Yang, S.T.  2006-2007
Production of Butanol from Sugar Wastes in a Fibrous Bed Bioreactor,
EnerGenetics International, Inc.

$45,000  Yang, S.T.  2006-2007
Production of Fumaric Acid from Sugars by Filamentous Fungal Cells
Immobilized in a Rotating Fibrous Bed Bioreactor, Ashland Chemical Co.

$490,000  Yang, S.T.  2006-2008
Microfluidic CD Biochips for Enzyme-Linked Immunosorbent Assays,
National Science Foundation, STTR Phase II, $490,000 ($138,000 OSU
subcontract, with BioLOC., Wei-Cho Huang).

$110,878  Yang, S.T.  2003-2006
Production of L(+)-Lactic Acid from Plant Biomass by Filamentous Fungi
Immobilized in Fibrous Bed Bioreactor, The Consortium for Plant
Biototechnology Research, Inc. (DOE).

$296,000  Yang, S.T.  2003-2006
Extractive Fermentation for Production of Lactic Acid from Corn Starch
by Filamentous Fungi Immobilized in Fibrous Bed Bioreactor,
U.S. Department of Agriculture, SBIR Phase II, $296,000 ($145,000

$975,881  Yang, S.T.  2004-2006
Low Cost Biochips and Sensors for Medical Diagnostics and
Chem/Bioweapon Detection, Ohio Department of Development, Ohio
Third Frontier Action Fund, $975,881; (PI: I-Ching Tang, BIC; OSU
subcontract $169,681, PI: James Lee).

$100,000  Yang, S.T.  2005-2006
Production and Separation of Galacto-Oligosaccharides from Lactose
for Prebiotic Food Applications” NSF SBIR Phase I, $100,000 ($33,000
OSU subcontract, with Bioprocessing Innovative Company, Inc.,
I-Ching Tang).

NSF Travel Grant for 3rd Chemical Engineering Conference for
Collaborative Research in Eastern Mediterranean.

$20,000  Zakin, Jacques L.  2001-2007
Dreyfus Foundation Proposal for Undergraduate Research Studies.

$3,100  Zakin, Jacques L.  2006-2007
Ohio State Office of International Affairs Travel Grant.
1907 Chemical Engineering Grad was a Leader in the Domestic Products Industry

Harry R. Drackett (B.Sc.Ch.E. 1907) helped to build one of the most successful American chemical manufacturing companies in the twentieth century. His father, Phillip Drackett, (a lifelong dabbler in chemistry) founded the company in 1910 as a brokerage of soda ash, caustic soda, chlorinated lime and denatured alcohol. Sons Harry (who had gained valuable experience with Proctor and Gamble) and Phillip Jr. joined the Cincinnati based firm in 1915, whereupon it was renamed P.W. Drackett and Sons. Phillip Drackett is best known as the inventor of Drano, a household name that was coined by his wife Sallie.

Amongst his many achievements, Harry Drackett is credited with the invention of Windex in 1933. Originally a 100% solvent, it was flammable enough to require packaging in metal cans. After World War II, Windex was reformulated using modern surfactants and became the product we know today. Under his leadership, the company diversified into other areas, including soybean processing, with sales increasing steadily, rising to $27.7 million in 1948. A major part of this work was overseen by his son, Harry R. (Roger) Drackett Jr., who assumed the Presidency, following the death of his father. Bristol-Myers acquired the firm from the Drackett family in 1965 and sold it to S.C. Johnson in 1992 for $1.15 billion, which continues to market Windex to this day.

During his undergraduate period, Harry Drackett helped to found Sphinx, the senior men’s honorary society. An avid sportsman, he earned a place on the track team for three years and was a member of Varsity “O”. In the years following his graduation, he continued to serve his alma mater in numerous ways. As board chairman of the development fund, he helped to arrange funding for Baker and Canfield dormitories, the first residences built on campus since the 1920’s. He also served as chairman of the Alumni Board of Visitors, predecessor to the Alumni Advisory Board. President Howard Bevis appointed him to a committee charged with surveying the University’s organization program in 1941. The University acknowledged his lifelong contributions with an honorary Doctor of Science degree in 1943.

Harry Drackett died in 1948. The University Board of Trustees named “Drackett Tower” in honor of his memory in 1962.