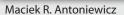
UD Chemical Engineers

WIVERSITY OF PELAWARE. New Faculty







Kelvin H. Lee



E. Terry Papoutsakis

Chemical Engineering

at the University of Delaware

AIChE Reception

Delaware Alumni Reception

Monday, November 5, 2007 7-9 p.m.

Salt Palace Convention Center Salt Lake City, Utah

www.aiche.org/Conferences/AnnualMeeting/index.aspx



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New Leadership Letter from the Incoming Chairman

Norman Wagner

ello and welcome! Please take advantage of this chance to catch up with the activities in our (your) Department, as well as of your classmates and friends from your UD days. A lot can happen in a year, and so, read on and herein we will share with you our achievements (and memories) as well as our plans and hopes for the future.

Family is how I would sum up the Department in a single word, and you, our Alumni, are part of the extended family of Delaware Chemical Engineering. Let me state in no uncertain terms that the direct and indirect support of our alumni is *critical* for continuing our tradition of excellence in education and the creation of knowledge. We are a top-ten Department with international renown and you should take pride in knowing that your commitment to Delaware helps us grow and excel in our mission of education and scholarship.

As the cover shows, new faces abound and Colburn Lab is bursting at the seams with creative activity. **Millie Sullivan** and **Thomas Epps**, whom we introduced last year, are enthusiastically building their new research and teaching programs. Under the leadership of **Mark Barteau**, the department has now grown to 25 (!) full time faculty and two Emeritus Professors. The addition of three new faculty with expertise in the biological sciences and

engineering promotes Delaware as premier institution for biochemical, biomolecular and bioengineering education and research. Terry Papoutsakis, (Eugene DuPont Chair), who moved from Northwestern, and Kevin Lee (Gore Professor), who arrives from Cornell in September, bring with them substantial, established research efforts, people, and laboratories. Maciek Antoniewicz (PhD under Greg Stephanopoulos, MIT) will also be joining us this fall after working at DuPont CR&D for the summer. These new faculty complement and expand our current cadre working in the broad areas of biomolecular, biochemical, and metabolic engineering both within Chemical Engineering as well as the larger efforts across campus. Notably, **Terry** and **Kelvin** are "Delaware Biotechnology Institute (DBI) Faculty Fellows" and have offices in both Colburn Lab and DBI. A brief introduction to their research activities can be found later on in this newsletter as well as on our web

Chemical Engineering at UD is at the forefront of research in many emerging areas, including nanotechnology and what is now labeled "green" engineering, and, with our new hires, is clearly moving to the forefront in biotechnology. As you will gather from reading further, sustainable energy technology is a rising theme on campus for further growth. We as a society look to our Universities not only for the long-term research that will improve our lives, health, and welfare, but also for frank, intellectual discussions of the ethical and societal issues surrounding these emerging and envisioned technologies and their possible implementation. The news media and general public, sometimes lacking (or ignoring) the scientific background required to rationally analyze such technologies, often exploits accidents, technological misuse and futurist's nightmare scenarios, as well as scientific research reports, as sensationalism rather than providing quality, thoughtful reporting. This leads to public distrust, and in more serious cases, fear and bad policies. These issues have a direct economic impact: I'm a cycling fan and was truly disappointed by this summer's Tour de France, fraught with the issue of performance enhancing drug use. Meanwhile baseball and other professional sports similarly suffer from improper use of advances in biotechnology. These are minor examples in comparison to the Orwellian nightmares popularized by Hollywood as consequences of genetic engineering ("frankenfood"), nanotechnology (Crichton's nanorobots), and the ever-popular catastrophe epics wrought by humankind's unbridled use of energy, nonrenewable resources, or environmental tampering. Public fascination, as well as mistrust, of emerging technologies attests to the increasingly important role scientists and engineers must play in our society. Be assured that just as the Department continues to lead fundamental, long-term research that will help define the

future possibilities of these technologies, we are equally committed to providing education, both within the University and for the broader public, about these technologies and their possible effects on humans, our society and the broader environment. Our commitment to life-long learning is one mechanism for keeping up to date and I'm always pleased to see alumni back on campus taking classes or attending technical short courses and seminars.

Thank you **Mark Barteau!** Festivities (including a Hawaiian theme party for the faculty and staff) celebrated **Mark's** leadership and expressed the overwhelming gratitude of the Department for his seven, highly successful years of administration. **Mark** has a noticeable "spring in his step" as he returns to the faculty and embarks on



new endeavors. We are very pleased that the new University President, **Patrick Harker**, requested **Mark** to co-chair the *Strategic Planning Committee* for his new administration.

If that were not enough, **Mark** has also agreed to organize, coordinate, and lead the *Institute for Sustainable* Energy Research. Our strong programs in solar energy and catalysis, as well as emerging efforts in biofuels, provide an exciting opportunity for Chemical Engineering to develop and lead a world-class research effort to solve critical problems in energy supply, utilization, and environmental impact (such as global warming). I am also pleased to report that issues surrounding energy and sustainability are not only major topics for research in the Department, but are also addressed by our evolving undergraduate curriculum. The new college-wide minor in Sustainable Energy Technology, was spearheaded by the efforts of **Raul Lobo**, who is also our undergraduate program coordinator. More information about that minor (as well as our popular Biochemical Engineering minor) appears on our web site and in this newsletter. I'm proud to report that the Delaware tradition of blending education with front-line research and our world-class laboratory and teaching facilities continues to provide excellent opportunities for educating the next generation of engineers with the tools and knowledge required to tackle problems of societal significance.

Since publication of our last newsletter we mourn the

loss of **Ken Bischoff**, who passed away after serious illness. **Ken**, who was the *Unidel Professor of Biomedical and Chemical Engineering*, had retired in 1997 after over 20 years of service to the Department and will be remembered by many students and colleagues who benefited from his great knowledge and insight. **Fraser Russell** has announced a career change after over 45 years of service, to begin in two years (which he reminds me is concurrent with his 75th birthday so prepare the champagne). Also in this issue you will find a report on the *Arthur Metzner Commemorative Symposium*, which brought many alumni back to UD to honor **Art** and his legacy.

A heartfelt thank you goes out to all of you who can and are willing to help us with our mission and who are committed to the Delaware model for engineering teaching and scholarship. Please keep up the good work! This newsletter tries to capture some of the achievements and activities of our alumni, current students, faculty and staff (it is, however, far from encyclopedic). The Department's reputation benefits directly from the positive impact of Delaware educated chemical engineers on society, education, and industry. Please continue to keep us informed about your activities and you are always welcome in Colburn Lab.

P.S. As the new Chairperson, I'll provide this footnote about myself for those of you who may not know me well. I joined the Delaware faculty in 1991 and enjoy research and teaching in colloid and polymer science and engineering, nanotechnology, and numerous other areas. My wife Sabine teaches German at Archmere Academy and we live just outside of Newark in Covered Bridge Farms, strategically situated between my Mass and Heat Transfer textbook coauthors Fraser Russell and Anne Robinson (which I contend helped bring the Mass and Heat Transfer text to completion). I was honored to become the Alvin B. and Julia O. Stiles Professor of Chemical Engineering in 2006 (Al Stiles some may remember – was recognized for his efforts to develop the catalyst for nylon and was a research professional in the Department after retirement from DuPont). Some of you may be aware of my research on STF-Armor ™, a new technology for improving the threat resistance of body armor, with additional use in personal protective materials for sporting and medical applications, while others may be aware of my significant interest in fly-fishing – either way, feel free to drop by and discuss these or other topics if you find yourself in Colburn Lab!

Nam f. Wayme

Passing the torch

Mark Barteau



here did the last 7 years go?!!! I may not be the only one pondering that question, but in my case those years mark my tenure as department chair. They do indeed seem to have flown by. Since 2000 the department has added 12 new faculty members, welcomed more than 500 students, and graduated a similar number. We elevated seven faculty to new named professorships or endowed chairs, we revised our undergraduate and graduate curricula, we created two new degree minors, we nearly doubled research expenditures, we launched a record number of PhD's into faculty careers, and much, much more. It has indeed been an honor and a privilege to lead the department during these very exciting years.

As trite as it may sound, my valedictory to all is a heartfelt "Thank you for your support!" The accomplishments above are not mine, but those of a departmental community – faculty, staff and students – committed to excellence and to continuous improvement. The support of **Dean Eric Kaler** and of the University administration has been unwavering and outstanding. The start-up packages alone for those 12 new faculty mentioned above represent an investment of

Message from the Outgoing Chairman

more than \$10 million in the future of the department! And you, our alumni, have been generous in so many ways, not only financially, but in assisting us through your helpful feedback for our ABET evaluation, recruiting and mentoring our students, helping us to build connections to your companies, and directing prospective students (some of them your children!) to us, to name but a few.

One of the traditions of academia associated with a seven year cycle (from its common etymology with "Sabbath") is the sabbatical. You (and on some days, I!) may wonder why I am not taking one, but am leaping into two new jobs. The simplest explanation is that I cannot do otherwise. Over my 25 years at Delaware (where did those go, as well?), I have tried, sometimes to the consternation of those above, to articulate the need to raise our sights as an institution. To turn away from the opportunity to help set the future trajectory by co-chairing our once-in-a-decadeor-more strategic planning effort is simply inconceivable. As part of this effort, we will engage a variety of constituencies, including our alumni. I invite you to communicate with me directly about any idea that you believe would "significantly enhance" (in **President Harker's** words) the University of Delaware! You've got a direct line to the top!

Norm has mentioned our nascent Institute for Sustainable Energy Research. Actually, this is a working title – we are still trying to come up with a consensus name and harmonious acronym. I believe that sustainable energy is the defining challenge of our society, our time, and our profes-

sion. If we have the ability to make a difference, how can we not choose to do so? The University of Delaware already has a number of leading efforts in the energy field; one of the challenges for the new institute is to pull these together into a more coherent and visible whole. But it should do much more than this! Besides being a "front door" to the university's energy and sustainability efforts, it should be a driver for "greening" UD, and a focal point for education and outreach beyond research.

In launching this Institute, I am reminded of our late colleague, **Roy McCullough's** line about his progress writing a book. When asked how things were going, he replied "Very well! I've numbered the pages and now all I have to do is fill them in!" We are just beginning to fill in the pages, and I welcome any ideas, strategies, connections, inspirations, etc., that you can provide. Not to sound too parochial, but I know that the ones coming from chemical engineers at least take account of the laws of Thermodynamics!



Alumni Coordinator Message



Jon Olson

y comments this year are divided into two sections, *Alumni Awards* and *Students*.

Alumni Awards - Arup K.

Chakraborty, PhD89, and the Robert T. Haslam Professor of Chemical Engineering at MIT, was one of eight winners of the Ernest Orlando Lawrence Award. This award, sponsored by DOE, honors scientists and engineers for exceptional contributions in research and development to advance the national, economic and energy security of the United States. The award consists of a gold medal, a citation signed by the Secretary of Energy and a \$50,000 honorarium. **Professor Chakraborty** received the Lawrence award in the Life Sciences category for applying statistical mechanical methods to illuminate the molecular mechanisms that regulate the activation of the immune system response. His work has had widespread impact on immunology.

Even more impressive, *Arup* received the National Institutes of Health's Pioneer Award, and he is the first engineer to receive the honor. It includes a \$2.5 million grant from NIH for biomedical research. This highly competitive award is a key component of the NIH Roadmap for Medical Research, which supports exceptionally creative scientists who take highly innovative approaches to major challenges in biomedical research. *Professor Chakraborty* will combine the application of theoretical methods rooted in statistical physics and engineering with experiments to determine principles governing the emergence of autoimmune diseases.

Sujata K. Bhatia, B99, M99, received the 2006 University of Delaware Presidential Citation for Outstanding Achievement award presented October 13, 2006. This citation honors graduates of the past 20 years who exhibit great promise in their professional and public service activities. In 2003 she earned both an MD and PhD in four years at the University of Pennsylvania. In 2004 at age 27 **Sujata** was selected to participate in the Frontiers of Engineering symposium, an honor given by the National Academy of Engineering to the nation's top 100 engineers ages 30-45. In the following year she was selected as a director to organize the Frontiers symposium in Japan. On March 15, 2007 she was inducted into The Hall of Fame of Delaware Women. This spring she also was instrumental in reactivating the Delaware section of the AIChE, which had been moribund for several years. She currently is a medical science group leader at DuPont developing glues which can replace staples or stitches ("people glue").

Students - The success of the winter term program in Australia

was reported here last year, and 2007 the program did even better. 24 students attended, four more than in 2006. Stan Sandler again organized the program, including providing working cell phones for the group. This year George Whitmyre participated in the organization and operation of the laboratory course, the winter term version of CHEG 445, the much-loved senior laboratory. The second course was taught by **Peter Scales**, head of the Melbourne Chemical Engineering Department. His course was Product Design and Development, material not available at UD. The students were uniform in their appreciation of the course. **Stan** said that he wished **Peter Scales** had pushed the students harder, but he did take the class to cricket matches and a bit of pub crawling. In the end it is these activities that will be lasting memories. Owing to a lack of interest in the 2008 class, the program will take a vacation next year. Apparently the 2008 students made other winter term plans very early or took the winter term during their junior year. Stan has already described the program to the 2009 class and expects that the program will

The 45 graduating seniors found themselves in the strongest job market in many years. In particular the petroleum industry is seeking chemical engineers broadly, apparently trying to make up for at least ten years of minimal replacements. This will continue for a few years because many of the gray beards are on their way to retirement. The pharmaceutical industry is having problems but remains active at a diminished level in recruiting. Campus recruiting by the chemical industry is mostly by smaller firms with only occasional hires from the old standbys. Of the 45 seniors 24 have industrial employment. Five companies hired two students: ExxonMobil, Hess, ConocoPhillips, Merck, and Invista (at the former DuPont plant in Seaford, DE). 11 seniors are going to graduate school with two continuing in material science, and one in environmental engineering and the other in preparation for high school math-science teaching. The remaining 10 seniors are undecided about their future or will begin job searching this fall. By and large this was a good year for place-

There were 21 PhD degrees granted this year, and of this group 10 have industrial employment, five have post doc positions, two are in academe and information is missing for the remaining four. The department has a strong record of academic placements, but this usually occurs after at least one post doc experience. Employment for PhDs has been soft for several years, but our PhDs are doing quite well.

P.S. The continuing assistance of *Jack Weikart* with alumni news is appreciated greatly!

Richard Emmert, PhD54, gave a moving tribute to **Art Metzner** at the Metzner Symposium. In a private moment, he told of a very special recognition **Art** made when **Dick** was inducted into the National Academy of Engineering in 1985. Art and Betty invited Marilyn and Dick and Vi and **Bill Manogue**, PhD57, to a luncheon in Washington to celebrate **Dick's** induction, and the Metzners made this trip solely to host the luncheon. **Dick** did not describe this in his remarks at the Symposium because he thought they might be misunderstood as selfaggrandizing.

Mort Collins, B58, General Partner, Battelle Venture and member of ChE's Advisory Council, shared his experiences with students who attended the class Entrepreneurship and Risk: Meeting the Challenges of a Startup Enterprise, a course that helps engineering students understand the challenges of launching a new business venture.

Allan Ferguson, B65, recently retired Director of 3iUS and member of ChE's Advisory Council, also provided feedback to student teams who attended class Entrepreneurship and Risk: Meeting the Challenges of a Startup Enterprise, a course that helps engineering students understand the challenges of launching a new business venture.

On July 18th the voice of **Gary Myers**, Esq., B65, appeared briefly on NPR in a story on the court marshals of marines involved in the incident at Haditha. Specifically **Gary** is defending **Lance Cpl. Justin Sharratt**. The presiding officer recommended that the murder charge against **Sharratt** be dropped. **Gary** established that the soldiers followed the rules of

engagement and hence **Sharratt's** actions were permitted.

A press release from IIT announced a "job change" for **John Anderson**, B67: Chicago, May 2 -- The Board of Trustees of Illinois Institute of Technology (IIT), is pleased to announce that Dr. John L. Anderson, currently provost of Case Western Reserve University, will be the eighth president of IIT.

A Wilmington, Delaware native, **Anderson** has served as provost of Case Western Reserve University in Ohio since 2004. Prior to Case, he served for 28 years at Carnegie Mellon University in Pennsylvania, including eight years as dean of the College of Engineering. In addition, **Anderson** chaired the Carnegie Mellon Department of Chemical Engineering and served as director of its Biomedical Engineering program. **Anderson** belongs to the National Academy of Engineering and is a fellow of the American Academy of Arts and Sciences.

Anderson received his bachelor's of chemical engineering degree from the University of Delaware and his master's and Ph.D. in chemical engineering from the University of Illinois at Urbana-Champaign. He served on the faculty of Cornell University in New York for five years before joining the faculty at Carnegie Mellon.

"In his interviews, **Dr. Anderson** was outstanding in his commitment to strengthening the engineering and hard science programs that constitute the historic core of IIT," Rowe said. "His focus upon increasing cooperation among all IIT colleges, his willingness to combine vision and personal attention in fund raising, and his thinking about ways to leverage the university's position in the City of Chicago will help lead IIT to the next level."

Anderson's accomplishments include increasing the number of endowed chairs in engineering at Carnegie Mellon from five to 29 and

substantially improving the diversity of that college with respect to both women and minorities, and founding the Institute for Complex Engineered Systems. While he was dean, Carnegie Mellon was consistently ranked among the Top 10 engineering colleges in the United States. At Case Western Reserve University he led initiatives that resulted in a 25 percent increase in undergraduate enrollment while sustaining the high academic profile of the students. He also started a university-wide Office of Undergraduate Research, added resources to the university's Division III athletic program (two conference championships this year), instituted a funded partner-hiring program for faculty recruitment, and promoted industrial partnerships through the Office of Research and Technology Management.

Howard Gostin, B68, wrote Fraser Russell a life summary letter in October: "I was looking through a UD publication on Chemical Engineering and thought I should drop you a line after all these years. I hope you remember me from the class of 1968. We did see each other in the late 1980s when I visited the university to do recruiting interviews while working for W.R. Grace.

Well, I am retired now and living on Cape Cod, which has long been my dream. I worked 16 years for Diamond Shamrock, mostly in research, and then 11 years at the Grace Washington Research Center. My last job at Grace was Director of Health Care Research. I had a fairly large team of PhDs working for me then, which was not bad for a guy with a BS. I always thought that both my companies treated a BS from Delaware as equivalent to a MS from most other universities.

I got very involved in polymers at DS and Grace, and one of my last projects was development of a high flux, biocompatible kidney dialyser. The key was the development of the hollow

You are a very important part of our history and our future. Jon Olson, our Alumni Coordinator, will be glad to answer any questions or concerns you may have. Please feel free to contact him at 302-831-8472, or send an e-mail to alumni-news@che.udel.edu

fiber, which did all the work. When this product was commercialized, I went to Ireland for two years to scale it up and also acted as Technical Director for both our plants in Ireland.

When Grace sold our health care business to the competition in 1985, I was laid off and started my own business doing executive recruiting in the biotechnology field. I grew the business in Maryland and moved it up here to Cape Cod in 1999. One year ago, I sold it and retired at age 59.

I will always be grateful to you for all the help you gave me when I went through some difficult personal times after my sophomore year, when my fiancé died suddenly. I was a pretty big mess then, and I remember that you helped keep me going in the program, and you refused to let me drop out of chemical engineering. Things worked out both professionally and personally, as I have been happily married for many years and now have two grand-children.

I saw your picture on the UD Chemical Engineering website, and I swear that you look younger than me!"

Richard J. Horvath, B68, of Spring, Texas, has retired from his position as Chief Scientist – Materials with Shell Global Solutions after more than 37 years of service with various Shell companies. Dick received the 2006 Russell A. Brannon Award at the NACE International annual conference in San Diego. This award is given in recognition of contributions at the association level to advance the understanding of corrosion and its prevention through diligent and unique service.

Hayden E. Claisse, M69, announced his new activity as an active advi-

sor and consultant to executives as follows: "My news headline for 2007 is that I have become a Vistage Chair and will be forming my first group of CEOs. I am very excited about the opportunity to work with individuals and groups in this format. You have probably heard of TEC. TEC changed their name last April to Vistage. This is the largest CEO membership organization in the world with over 13,000 members in 15 countries and including over 50,000 alumni My role as a Chair will be to assist a group of 12-16 CEOs (i.e., leaders who run companies, some owners) to be better leaders, make better decisions, and significantly improve their results *In subsequent updates Hayden an*nounced success in forming his group of CEOs and his enjoyment of working with them. His e-mail address is heclaisse@sbcqlobal.net."

This newsletter sometimes motivates alumni to share how some faculty helped them get through the program and then become successful. In October **Ed DeLate**, B80, sent such an e-mail to Mike Paulaitis: "Hello Michael, My name is Ed Delate (ChE80 at U. of Del.). I saw your name in a Chemical Eng. Alumni Newsletter recently. My mind raced back to the Spring semester of '78 (may have been the Fall of '77) when I was a sophomore in the chemical engineering program taking your Thermodynamics class. After so many years, I want to thank you for inspiring me to stay in chemical engineering due to your enthusiasm and ability to teach thermodynamics

In the end, I did graduate in four years as a middle of the class student, but was able to run the marathon and make it through the good and difficult times (in addition to the tough workload, my Dad passed away in spring of

Class Notes



'79). I have loved Engineering ever since and now have been Vice President of Engineering for a \$4.5 billion company, Keystone Foods LLC (one of the largest privately held food companies in the world) for five years. I have traveled the world for four different companies as I moved up in Operations and Engineering. I have lived in five different states. I am back in the Philadelphia area (originally born in north Wilmington, DE). I'll never forget my UD roots and the strength God gave me to get through to where I am today. I, once again, want to especially thank you for what you did that one semester to strengthen me to keep on moving forward. All the best to you and congratulations on your successful career!"

Lorrie Jurman Chalupa, B84, followed Delaware with a MS at Northwestern (1986) and a PhD at Notre Dame (1990) working with Mark McCready, B79. From 1990 to 1998 she worked for Rohm and Haas in the Philadelphia area as a process research engineer. Since then she has been a "domestic engineer" taking care of her husband, Rudy ("an EE hardware guy"), and her children, Matthew (9), Catie (6), and John (3), who is affectionately known as Buster.

Norman Pih, M85, was appointed Councilor on Tau Beta Pi's new Executive Council, and he will serve until 2010. Tau Beta Pi is the world's largest engineering society. **Norman** is employed by W.L. Gore in Flagstaff, AZ.

Kathy Jurman, B86, followed graduation with a two year stint at GE (Knolls Atomic Lab) and then earned a PhD at Purdue (1988-94) working with Nick Delgass ("a wonderful research advisor"). She worked at Union Carbide (Charleston, WV) from 1994 until it dissolved into Dow in 2001. In 2004 she moved with Dow to NJ, where her work is in water soluble polymers, a component of Dow's specialty polymers business unit. She has a blended role of product and market development.

John Markels, B86, moved July 2006 to Madrid, Spain, where he is the Vice President, Europe, Middle East and Africa Operations for Merck. He describes his job as "a wonderful and challenging opportunity personally and professionally. We are changing almost all aspects of how we work, including a big lean initiative among others. Change in execution is a key part of the challenge as we really drive to be the most competitive."

John and Rosalinda have two girls, Michaela 6, and Luna 2. **John** has served on the Advisory Council of the Department for three years.

Amod Ogale, PhD86, is professor of chemical engineering at Clemson. He received funding from Oak Ridge National Laboratory to develop cost-competitive carbon fibers for use in manufacturing automobiles. Carbon fiber composites will yield lighter and more fuel efficient cars. He also has NSF funding as an ERC topic leader for liquid crystalline systems and as a topic leader for advanced engineering fibers and films.

Robert P. Hesketh, PhD87, professor and chair of the Chemical Engineering Department at Rowan University, received the Chester F. Carlson Award in recognition of his efforts in spearheading the integration of experiential education into

the engineering curriculum. This award, sponsored by Xerox Corp., is presented each year to an individual innovator in engineering education who, by motivation and ability to extend beyond the accepted tradition, has made a significant contribution to the profession.

Linda Broadbelt Rekoske, PhD94, is a professor of Chemical Engineering at Northwestern University. She describes her research interests as multiscale modeling of complex reacting systems, design of nanostructured catalysts, discovery of novel biochemical pathways and polymerization and depolymerization kinetics. This past academic year she was a Fulbright Distinguished Scholar and Visiting Researcher at Imperial College London. On November 29, 2006 she was selected Fellow of the American Association for the Advancement of Science in recognition of the broad range and depth of her research.

On June 8th Pearl Chin's (PhD96) new career was announced: Foresight Nanotech Institute has appointed **Dr. Pearl Chin** to the position of President. **Dr. Chin** brings to the organization her extensive experience in business consulting, operations, sales and marketing, and customer service, in diverse industries from small to large companies. Prior to joining Foresight Nanotech Institute, she was a management consultant with Pittiglio Rabin Todd & McGrath, optimizing Supply Chain operations. Before that, she headed domestic **Customer Support under Sales and** Marketing for TA Instruments, Inc.

Dr. Chin is a prolific writer on nanotechnology investing, business, management and social issues. She is actively sought out to speak about and be interviewed on diverse nanotechnology-related topics. She

Seminar Series

www.che.udel.edu/seminars

February 16, 2007

Professor Marc Ostermeier Johns Hopkins University "Protein Switches"

April 20, 2007

Professor Daniel A. Hammer University of Pennsylvania

"The mechano-dynamics of leukocytes: rolling, stopping, and crawling"

September 7, 2007

Dr. Joe Powell Shell Global Solutions US Inc.

"Chemical Engineering Challenges for 2030: Meeting the demand for energy and chemicals in a CO₂-constrained world"

September 14, 2007

Dr. Eric Shusta University of Wisconsin-Madison

"Engineering Strategies for Mimicking the Blood-Brain Barrier In Vitro and Overcoming it In Vivo"

September 28, 2007

Dr. John Pierce
DuPont Bio-Based Technology

"Theory & Empiricism in Metabolic Engineering: A View from the Trenches"

November 12, 2007

Dr. Peter Flynn (Gerster Lecturer) University of Alberta

"Biomass Energy: Cost, Scale and Policy issues"

November 28, 2007

Professor Sangtae Kim (Pigford Lecturer) Purdue University

"Pharmaceutical Informatics and the Pathway to Personalized Medicines in the Petascale Era"

December 7, 2007

Professor Thomas Truskett The University of Texas at Austin

"Clarifying some basic consequences of confinement for fluids"

also has extensive research expertise, having done graduate research at NIST. **Dr. Chin** holds an MBA from Cornell University's Johnson Graduate School of Management, a PhD in Materials Science from University of Delaware's Center for Composite Materials, and a Bachelor's Degree in Chemical Engineering from The Cooper Union in New York City.

Dr. Chin's dissertation was directed by **Roy McCullough** and was titled "The Characterization of Polymer-Solid Adhesion".

Sarah Bannister, B95, finished Georgetown Law last June, disappeared into a prep course for the NY bar exam, passed that, and officially joined Covington and Burling, LLP. She describes her career as: "Things in DC are surprisingly good. The first month or so of work was a little rockyacclimating to a real work schedule again was harder than I thought. Also, I started off splitting between FDA law and corporate law, but by November, *I moved over to the corporate practice* full-time. It came as a bit of a surprise, but I just didn't like FDA law. It was just too narrow, and for me, too sciencefocused (which everyone finds amusing given my background).

I think I'm a process-focused person, and frankly, corporate work is process-oriented (assessing the health of a company through due diligence, drafting contracts, advising on compliance with the law. I have had a chance to work on some small M&A deals. provide corporate governance compliance guidance for clients, and defend against an SEC investigation. I've also done some interesting pro bono work, including representing an HIV-positive client in negotiations regarding student loan debt, and preparing a memorandum to convince the State Department to espouse our client's *claim for outstanding cost-of-living* adjustments to the pension he receives from his employment in pre-independence Belgian Congo.

I have managed to attach myself to some partners and associates that I like, and I hope to develop some good expertise in the corporate governance/SEC area. I had a chance to help out with some research into insider trading law, and wow, what a crazy area of law. I think the moral of the story is not to be an officer or a director of a company-just too many things can go wrong and leave you on the hook."

Clarissa DuBois Miller, B97, describes her activities as follows: "My current role is application development engineer for Momentive Performance Materials, formerly GE Advanced Materials. I serve the electronics packaging market with a focus on thermally conductive and chemically resistant adhesives, gels and greases. (Small World-Larry Ryan PhD98, leads my business unit.) Larry subsequently has been moved.

I am enrolled in a MBA program at the University at Albany, SUNY. My research thesis is "Open Innovation: Using IT Search Tools to Accelerate Market Research." I will graduate in July, 2007."

Clarissa married **Scott Miller** in 2003, and they live in Clifton Park, NY.

Clarissa attached a press release describing the formation of Momentive Performance Materials. A brief excerpt of the release reads: Momentive Performance Materials, Inc., the new company created by the sale of GE's Advanced Materials business to Apollo Management, L.P. ... The acquisition, completed 12/03/2007 for \$3.8 billion, represents another stellar brand added to Apollo's strong portfolio of chemical business.

"Momentive Performance Materials is a premier specialty materials company, providing high-technology materials solutions to the silicones, quartz and ceramics markets..."

Jeffrey Brake, B98, writes that he and **Tiffany** (AG98) have two children, Nathan (2) and Daniel (2

months). They are living in Newark, DE. Jeff works as an Associate for W.L. Gore at their Appleton North plant in Elkton, MD. His job description is succinct: "Engineer in the industrial products division working on Gore microfiltration media." He earned a PhD in 2003 at Wisconsin working with Nicholas Abbott. His dissertation has the mouth-watering and tonguetwisting title, "Imaging of Interfacial Phenomena at an Aqueous-Liquid Crystal Interface through Changes in the Orientation of Liquid Crystals." Previous to Gore he was a research scientist at Arkema, Inc. in King of Prussia, PA.

Scott Miller, B98, is now working for GE Global Research. He describes his career as: "I officially received my PhD from Princeton in January 2004, though I had actually finished earlier. I worked with Sandra Troian (now Applied Physics at Cal Tech) and Sigurd Wagner (Princeton Electrical Engineering), exploring the use of printing techniques to make large area electronics and investigating hydrodynamic issues that limit the size of structures that can be made by such techniques.

I started work at GE Global Research in January 2004, so I've completed three years here now. In my time at GE, so far I've worked on two projects, both related to micro and nanostructred materials. I've made use of some of my fluid mechanics background working with GE Plastics on a coating process that I had the opportunity to take into the plant and all the way to commercial production. Most recently I've been leading a small team to re-imagine the way we run that same process, with the goal to simultaneously improve capacity, yield, and margin. We're not much for titles at my work, so I usually *just list "Chemical Engineer"; it seems* to suit me."



Class Notes

Dilipkumar Asthagiri, PhD99, dropped by while attending the Colloid conference on campus. He later sent some details about his life after Delaware: "Last year I married Sowyma Sundararajan-Asthagiri, a chemical engineer who is working for *Jacobs Engineering in Houston. "Thank* heavens for Southwest Airlines...After I graduated in 1999 I spent 2^{1/2} years as a postdoc in the Department of Molecular Biology at Scripps Research *Institute studying ion channel behav*ior and later enzymatic mechanism of a tyrosine phosphatase. After that I went to Los Alamos National Laboratory in the Theoretical Chemistry and *Molecular Physics (Group T-12) group.* There I studied chemical reactions in a statistical mechanics framework; my charge was to complement the experimental efforts aimed at understanding the role of beryllium metal in chronic beryllium disease. I was promoted to staff scientist in 2005. Then in 2006 I moved to Johns Hopkins University as an Assistant Professor. (This explains the Southwest Airlines comment.)"

Sujata Bhatia, B99 & M99, is featured elsewhere in this newsletter. Last fall she wrote about a trip to Japan: "Recently I had the opportunity to travel to Japan, and I ran into a fellow UD CHEG alum! November 7-11, 2006, I attended the 2006 Japan-America Frontiers of Engineering Symposium in Tsukuba, Japan. This meeting is co-sponsored by the National Academy of Engineering, the Japan Science and Technology Agency, and the Engineering Academy of Japan. The conference brought together 60 young engineers (30 from the

U.S., 30 from Japan) to discuss current issues and innovations in science and engineering. Attendance is by invitation. Anyway, when I went to the opening reception I ran into none other than Brian Baynes B97. Brian is now running his own company in Boston called Codon Devices, and seems to be doing really well! Isn't it amazing that out of 30 innovative engineers representing the entire U.S., two happened to be UD CHEG alums! The conference itself was a wonderful experience. I met some amazing people and got to see Japan for the first time. It is a great country with very nice people. I think I could live there. I loved the food, especially the vegetables and exotic mushrooms (Japanese mushrooms are supposed to be loaded with anti-cancer agents). It was really a once-in-a-lifetime opportunity."

The April 3rd NYT Science section featured sugar based glasses discovered by **Carlos Co**, PhD00, an assistant professor at U. Cincinnati. The glass is made from a mixture of sugar, oil, and a surfactant which is heated to 250°C without additional mixing, and then allowed to dry while cooling. The resulting glass is an emulsion which is clear and hard like candy, but it contains more than 50% liquid oil. The glass has both continuous solid and liquid zones, similar to a wet sponge. This structure may have applications in optical or sensing devices. It also may have applications in pharmaceuticals because it can be made from food-grade materials. Additionally the solid sugar nanostructures are robust templates which resist rearrangement during reactions but are readily dissolved in water afterward. When the oil is replaced with a polymerizable compound, a nanoscale material may result when the monomer is polymerized and the sugar dissolved. The article is available at **Co's** website,

http://alpha.che.uc.edu/cco.htm

After graduation Brian Eng, B01, began his rabbinical studies at Hebrew Union. The first year was to be spent in Israel to be immersed in the culture and to become fluent in Hebrew. Many of his classmates will recall his frequent e-mails in which he described the scene in Israel and passed on at least one new Hebrew word with each e-mail. (These e-mails were fun.) Unfortunately the frequent incidences of suicide bombers made staying in Israel too dangerous, and the program was cancelled. **Brian** then spent three additional years in Cincinnati at Hebrew Union followed by a year in the chaplain residency program in Wilmington at the Christiana Hospital. Currently he is in Wilmington working to complete his rabbinic studies and serving as a rabbinic intern for a community in the Poconos. He recently married Sharie Diener, also UD 2001, whom he met after returning to Wilmington.

Alumni couple Lisa Dietrich, B01, and Jonathan Davis (JD), B01, were spotted at the Greek amphitheatre in Segesta, Sicily by **Prof. Norman** Wagner while attending the Soft, Complex, and Biological Matter Conference. JD, who is a PhD student in the group of Thanos Panagioto**poulos** at Princeton is working on Monte Carlo simulations of amphiphilic nanoparticle self assembly, which was the topic of his poster. Lisa, who is a research chemical engineer in the Bioprocess R&D group at Merck in Rahway, was taking a well deserved vacation and enjoying the Mediterranean. Both performed senior research projects at UD – look where undergraduate

research can lead you!

Will Medlin, PhD01, answered a request for news with a trifecta: Three former PhD students from Professor Mark Barteau's group have recently moved on to chemical engineering faculty positions at major research universities. Will Medlin (PhD01) joined the University of Colorado in 2003, Suljo Linic (PhD03) started his position at the University of Michigan in 2004, and **John Kitchin** (PhD04, co-advised by **Professor** Jingguang Chen) joined Carnegie-Mellon University in 2006. All three study chemical reactions at surfaces using a combination of experimental and molecular modeling approaches, though they focus on different applications. **Medlin** is a recipient of

the NSF CAREER award, Office of Naval Research Young Investigator Award, and is site director for the recently-formed Colorado Center for Biorefining and Biofuels. **Linic** has also received the NSF CAREER award and a Max-Planck-Gesellschaft fellowship. **Kitchin** recently completed an Alexander von Humboldt research fellowship.

Matt Panzer, B02, finished his dissertation with the announcement: "My final defense will be May 15, with the title 'Polymer Electrolyte-Gated Organic Field-Effect Transistors," and promised that after finishing up ..." will definitely take some time to relax." In his fourth year **Matt** was seriously considering a career in industrial research. This year he announced, "...I have accepted a postdoctoral research position at MIT with Prof. Vladimir Bulovic starting in June after I finish up here at Minnesota." By my accounting, **Matt** took no more than two weeks to relax. He further added, "Looks like industry isn't the path for me just yet; and I don't want to shut the door on the possibility of an academic career after all."

After four years with Hosokawa Micron Powder Systems in Summit, NJ, Eileen Paschik, B02, decided she wanted to work more directly with people, specifically helping people who really need it. She attended Thomas Jefferson University in Philadelphia and graduated with a BSN in May. Her first job as a Registered Nurse is at the Hospital at the University of Pennsylvania in Philadelphia in a surgical intensive care unit. In addition, she is engaged to UD alumnus, Rishi Khan, (BCPE00 & PhD EE07), and a wedding date has been set for July 5, 2008. Fellow UD ChemE's, Mara (Blicharz) Warriner and Alexis **Siery**, will be bridesmaids for the special day!

In May, **Russell Shnitser**, B02, sent a job posting for Axens NA (much appreciated) and a business re-

lated update: "Last April/May I spent two months in Paris (our company's headquarters) learning/working. I was involved in the design of a biodiesel unit that uses Axens' Esterfip-H technology ("solid catalyst") to turn soybean oil into biodiesel and glycerin. The design is in late stages of construction and should be operational in late 2007. This technology looks very promising since it's much simpler than that of the competition."

A more personal note established that he has been married to **Anastasia Grigorieva Shnitser** (UD MS biology 03) for two years. In May they moved to Cherry Hill, NJ. **Anastasia** will start her residency at Jefferson University Hospital in Philadelphia. He adds: "Actually, this is quite and exciting time for us. In the middle of all the craziness that goes along with buying a home, we are also planning our first trip back to Ukraine and Russia. We'll be visiting her family in Kiev, Ukraine and than taking a side trip to St. Petersburg, Russia."

Asked about other ChEG'ers he answered: "I believe **Toon (Portnula Panorchan)** got his PhD from Hopkins and is employed with Merck. **Alexis Siery** is employed with Merck and is moving up the corporate ladder. I believe she is some kind of management. **Souji (Soujanya Tallapragada)** should be finishing her MBA within a year."

After this was drafted **Russell** changed jobs and now is a senior engineer with Middough Consulting Inc. in Cherry Hill. Obviously the move to Cherry Hill was planned carefully.

Michael S. Strano, PhD02, is an assistant professor at the U. Illinois at Urbana-Champaign. In 2006, he received the NSF Presidential Early Career Award, Coblentz Award for Molecular Spectroscopy and the Beckman Young Investigator Award. Michael also received the 2007 Unilever Award for Outstanding Young Investigator in Colloid and Surfactant Science from the Colloid and Surface Science Division of the American Chemical Society presented at the 81st Colloid and Surface Science Symposium held June 24-27, 2007 at the University of Delaware. Later this vear he will move to MIT.



Michael Strano, (center) assistant professor of the University of Illinois at Urbana-Champaign, is the 2007 ACS Unilever Award Recipient and presenting the award is K.P. Ananth, (right) of Unilever R & D Trumbull, CT and Professor Darsh T. Wasan, (left) from the Department of Chemical Engineering, Illinois Institute of Technology, and Editor of Journal of Colloid and Interface Science.

On May 25, 2007, **Soujanya Tallapragada**, B02, became **Soujanya S. Giambone**. The two of them are living in Lumberton, N.J. from which Soujanya commutes to NYC to work as a Supply Chain Management Associate for Pfizer. Her supervisor is **Bill Burgess**, M81, and they quickly began telling each other UD stories. **Soujanya's** husband, **Alex**, will finish Wharton next year and currently is working as an investment banker intern for Citicorp in NYC.

Brian Tande, PhD02, is now an assistant professor at the University of North Dakota School of Engineering and Mines, Chemical Engineering Department. This fall he will teach Transport Phenomena and Lab IV. His research program will investigate systems such as block copolymers and nanocomposites for applications in hydrogen storage and fuel cell membranes as well as producing polymers and composites from renewable resources such as plant oils and natural fibers. He and his wife, **Desiree**, have three boys and are planning to move to Grand Forks from Fargo.

After clerking for **Judge Robinson** in the district Court of Delaware last year, **Martina Tyreus**, B02, joined Womble Carlyle Sandridge & Rice PLLC as an associate. She is mainly doing Intellectual Property Litigation with some opinion work and patent prosecution. She writes that she is having a great time and enjoying her work.

Katie Whitehead, B02, wrote this update in her usual refreshing way: "Just thought I'd write and keep you updated on this year's happenings, since my life is perhaps more exciting than usual. I am almost done with my work here at UCSB with Samir Mitragotri, and managed to get my committee together for a defense this October. (The title of my dissertation is, "Safe and Effective Chemical Permeation Enhancers for Oral Delivery".)

After I graduate, I'm planning on traveling and relaxing for a bit before I begin a post-doc in **Bob Langer's** lab at MIT at the start of the new year. I'm really looking forward to joining his group and working on some new material. I'm also excited to be 'reunited' with **Matt Panzer** (he's doing a post-doc in the EE department there). We'll enjoy reminiscing about the good old days at UD and maybe about how much we've changed. I was just telling my advisor the other day about the report **Matt** and I submitted for our first

thermo project. We entitled the report 'Thermo Projecto Numero Uno'- a really good title in our opinion, but the grader docked us five or ten points for our attempt at humor. I don't know if either of us is so bold anymore. Whether that is good or bad is anyone's guess.

On a more personal note, I'm getting married this August back home in Allentown, PA. I found myself enamored with a Canadian inorganic chemist, **Eric Deguns**, that I met out here-and our debates about engineers versus scientists are so enjoyable, I couldn't resist the opportunity to tie the knot. So all in all, I am in the midst of a pretty exciting year. I am busy, but I am happy."

Dave Anderson, B03, worked for Washington Group, a large engineering/construction consulting firm after graduating. He then transitioned to Wyeth Pharmaceuticals where he has spent time in both R&D and commercial manufacturing roles. He currently is a Project Manager within a group "...that takes on unique projects that don't have a home in other departments and is responsible for improving quality systems on site". **Dave's** specialty within the group is Quality Risk Management, and he is responsible for implementing QRM throughout the 3,400 employee, Pearl River, NY site. He currently is living in Nanuet, NY, a beautiful old town on the Hudson River. His has stayed in touch with Lauren Dagostino, B04, who gave me his e-mail address.

Sam Blacker, B03, described his final year of med school: "I graduated Medical School (Uniformed Services University of Health Sciences) on May 19th and **Melanie (Evans)** graduated May 12th (West Virginia School of Medicine). So we enjoyed our week of her being the MD and me being a medical student.

We were married May 27th (I have the documents and video to prove it!), so it's been an exciting few weeks. We honeymooned in St. Thomas and St. John, quite a relaxing and fun week. I

would highly recommend Caneel Bay to anyone going to the Virgin Islands.

I will be starting my residency in Anesthesiology at Walter Reed and **Melanie** will be starting hers at Georgetown in Neurology. We were very happy to match together in DC, so after four years of being apart we are finally together in the same city.

Fourth year of medical school was quite fun. Last time I wrote I had just returned from our (Army) field exercise. After that I took step 2 (of 3) for medical licensing, a long day that I have chosen to forget, other than the guy coughing behind me for two hours.

Then my hospital rotations started again. I did Anesthesiology at Walter Reed and a research month at my school. Interviewed for Anesthesiology and submitted my residency applications, a bit stressful. October was my medicine sub-internship, which is when we act as the intern (taking first *call, writing the orders, doing the floor* work, etc). It was tough to get used to at first, but once I adjusted to getting woken up every 30-40 minutes on call nights, it wasn't so bad. November was my neurology rotation, and December was spent at my school. I found out I matched Anesthesiology and Walter Reed, so it was a very happy month.

From January through May, I was coasting. The second half of fourth year for every medical student is the best five months of medical school. In May we moved to our new house in Bethesda, Maryland, graduated, got married and went on our honeymoon. We both start our internships (first year of residency) July first, but June 13th is when we both have to show up and start orientations and in processing.

I hope things are continuing to go well at Delaware. It is nice to see the Chemical Engineering Department is continuing to be at the top and that UD's reputation as a whole is improving."

After earning a MS at Alfred University, **Everton Henriques**, B03, has joined AVX in Virginia Beach, VA. He is a Senior Engineer in Product Development. His duties "range from taking steps to minimizing contamina tion during the chip buildup process (clean-room slip lay-down and screen *printing) to developing new part* designs for capacitance targeting. As you can imagine, there are endless possibilities for chip, active, electrode, etc., dimensions and related issues like stresses and thermal shock tolerance to consider." At Alfred, Ev really enjoyed teaching, "the only 'job' that I ever experienced the 'I really did something major and good today' feeling." He also has a paper accepted by Solid State Ionics recently.

Dana Ungerbuehler Herrigel,

B03, responded to an e-mail which contained: "Dave (Short) told me that your sister, Holly Ann, is a good friend of Craig Schneider, CHEG 2007. As you probably know, Craig is going to Johns Hopkins next year. Dave also said you asked him to change the time for CHEG 432 in spring 2003 so that at last, after seven semesters, you could take ballroom dancing. Unfortunately he couldn't change the class time. Your request was delivered in a very charming way, nonetheless."

Dana replied, "I was surprised to hear that **Dr. Short** remembered me, especially because I can barely remember asking him about ballroom dancing! He has a fantastic memory! :) (Or, maybe I was so stressed out that semester that mine has gone to pieces!) It's nice to hear about all of the stuff going on at Colburn from Craig. I get to relive the endless hours in the computer lab and frustration in the research lab through his stories. I can say that I have many great memories from ChemE, mostly because of the people, but I do not envy him! He's going to do great at Johns Hopkins; he seems like an extremely smart quy!

Today, (May 1) was my last final (at medical school), completing my second year coursework. In case you are curious, here's the short version of how I ended up in med school. At the end of senior year, I still had no idea what I wanted to do. I took **Dr. Russell's** advice: to go out and get as much experience as you can, and then go back to school-and I'm so glad I did. I ended up joining Merck's rotational program and had four positions at three sites in two years. It was an awesome experience, I met so many fantastic people and learned a ton about pharma manufacturing and business, but something was missing. I finally realized that medicine was my true passion, so started fall '05 at Robert Wood Johnson Medical School in NJ, to stay close to my then fiancé. (Dana married John **Herrigel**, AS '01.) So far I absolutely love it! At first four more years of school plus residency training plus taking out massive loans to pay for school seemed like an overwhelming prospect. But now, halfway through, I can't imagine doing anything else! Every day I feel so fortunate to be learning so much and to have this opportunity.

I don't know if many people in my med school class can say that they worked harder in undergrad, but I definitely worked so much harder in chemical engineering. That's not to say that medicine is easy, by any means. The book work is not as challenging as ChemE, but when you integrate extensive volumes of knowledge with the physical diagnosis skills that take years to develop, it's probably the most challenging thing I have done!

Right now, I am really interested in infectious diseases, especially HIV, but who knows - I have lots of time to figure it out. I am indebted to all of the inspirational professors and mentors at UD, especially in the Chemical Engineering Department (Dr. Robinson, Dr. Russell, Dr. Olson); I don't know where I would be without their influence!"

Salman Siddiqui, B04, wrote: "After I graduated I went into the environmental industry, the position was technically a process engineer position in which my primary responsibility was to run pilot plant trials throughout various plants (water treatment, pulp & paper, chemical facilities, plastics manufacturers, etc.), having waste water issues. It was a great first job for me as it allowed me to learn many different skills including consulting, project management and marketing among others. Last year I decided to look for a change and desired to possibly pursue my MBA, so in March 2006 I took a job with a petrochemical consulting firm located in White Plains, NY. Some of the other job offers I was juggling were with a Siemens subsidiary named US Filter as a design engineer, and as a SAP consultant with a company called TechniData in Delaware. The position I accepted is with CMAI Global, and it has turned out to be a great experience for me. Working in the consulting field I am given the opportunity to work on a multitude of tasks from helping to structure buyouts between firms, feasibility studies, M&A's, price forecasting, and the list goes on. Our clients include essentially any petrochemical company, as well as much of the financial community, and many other consulting firms as well. Lately, due to the rise in companies going private, some of our biggest clients include the many private equity and investments banking companies looking to move into chemicals.

In September 2006, I began my MBA at Fordham University in NY, I started out the 1st couple semesters attending part time, but I have now been managing a full time (12 credits) school schedule along with full time work. So far I have been doing great and should be completing the program by August 2008."

John Hrycushko, B05, is living in Hicksville, NY (Long Island) and working as a quality engineer for Park Electrochemical Corp. He writes: "Park Electrochemical Corp. is an advanced materials company which develops and manufactures electronic and RF/microwave printed circuit boards and advanced composite materials for the Aerospace market.

As for what I do. Primarily, I deal with issues relating to the qualification of new and existing materials company wide. I also spend time participating in Material Specification File reviews, audits, and general engineering trouble shooting.

I found an apartment a few months ago in Hicksville, NY (yes, it's called Hicksville!) Local night life on Long Island leaves much to be desired, but now that I am settled in I plan to start heading into the city more often, as well as working on my long term goal of playing on the Senior PGA Tour in 30 years!

As for people in the class, I actually just got back from Chicago this morning at about 3 a.m., visiting Swami (Sumanth Swaminathan), who is going to grad school (in applied mathematics) at Northwestern. Will Rayfield, Scott Neifert, Swami, and I represented the CHEG class on this trip. We took in a Cubs game, a George Carlin show, a local Blues club, and did some local sight-seeing."

Jessica Penetar, B05, maintained communication with Norm Wagner, her thesis director, while she was with the Peace Corp in the Dominican Republic. Thus we have the section with pictures of the water system she designed, built, and financed there. This is very impressive because she also became fluent in the local Spanish, enough so that she could serve as an interpreter when volunteer doctors from Maine came to provide medical assistance. It was natural for me to ask what she plans to do next. Her reply: "I am most

definitely undecided at this moment. I've been most recently thinking about getting into science writing, such as for a popular science magazine or for a newspaper. However, seeing as my only real experience was writing hefty j-lab reports and a journalism class in high school, I'm not sure how to go about that yet. The current plan is to get a job, hopefully using Spanish, until I can get a portfolio together.

For other activities, I am in the process of developing sites for the in-coming volunteers. I went out, scouted the springs to check for technical feasibility then had a meeting with the communities to tell them what is entailed with having a volunteer. I did that for four different villages, three of which will be receiving a volunteer this fall. Sorry I can't be more helpful than that...I really don't know."

When asked about the transition from CHEG at UD to Applied Math at Northwestern, Sumanth Swaminathan, B05, replied: "School is going very well. I am at the top of the class (by far I think), and I'm doing my thesis at Argonne National Laboratory on a DOE grant for the next three years. It's generally a pattern formation study in biological systems (how microtubules self-organize) which manifests itself in mathematics as nasty integro-partial differential equations. As far as the transition to applied math is concerned, it couldn't have been easier. I'm actually finding that the engineers in the program are generally the most successful because they know some science and they know how to problem solve. The math/physics majors don't seem to be as impressive. Granted, I was an exceptional case for the engineers because I took so many extra math courses in college, but I still think the transition would be very straightforward for any chemical engineer highly interested in math.

"Swami" was attending a week-long conference at Delaware in July: "The conference here in Delaware this week is called the MPI (math problems in industry) conference. Essentially, four companies come and present some problems that have been bothering them for a while and faculty/grad students from all over the country come to try and solve their problems. I'm working on a problem presented by *Gore pertaining to predictions of the* retention curves associated with layered and nonlayered filters. Effectively, they want us to give them models that would indicate the effectiveness of their filters when particulates of various sizes enter. The filters themselves have pores of varying sizes also. Filters go bad when all of the small pore are clogged, and particles are free to roam through the larger pores in which they

In January, **Justin Spaeth**, B06, wrote about his first term at Princeton: "I am writing to tell you that my first semester at Princeton is about to come to a close...I thank all of you for preparing me so well. From a "class" standpoint, graduate school hasn't been too bad. I have found that I have already been exposed at Delaware to most of the topics we covered in our core graduate classes, whereas many other students have not. This means that Delaware is doing its job!!!

Also, I have recently chosen and been assigned to my PhD thesis and advisors. I will be co-advised by Drs. Thanos Panagiotopoulos and Yannis **Kevrekidis**...the initial direction of the project is as follows. We will be modeling self-assembling systems using a combination of microscopic simulations and coarse-grain integration. **Dr. Kevrekidis** refers to this as "equationfree", in that the macroscopic properties of the system are modeled without using any constituitive equations. I am very excited and look forward to making the shift from classwork to research."

After this letter, **Justin** learned that he had testicular cancer. He described his illness in a most positive way: "Fortunately, I am not too upset about my condition...I have even surprised myself with how well I have taken it! I did plenty of research from the onset, and knew that the cure rates approach 100% for early stages. I am borderline Stage 2A/2B...The cancer spread to my retroperitoneal lymph nodes (4 of them, and the largest was 2.3 cm)... I underwent major surgery on Feb. 14th to remove all of the lymph nodes in the abdominal cavity, etc. ... Recovery is going well...I went off morphine four days after surgery and haven't even taken a Tylenol since! I am a little sore internally, but it's not too bad.

I have been doing work from home to keep up...fortunately, this semester's classes are fluids and heat and mass transfer, which I was taught very well by **Dr. Beris** at the graduate level.

I will have two cycles of chemo...Barring any metastasis, this will be the end of my treatment.

Feel free to let everyone at Delaware know my situation, but be certain to tell them that I am doing just fine!"

Justin completed his chemo treatments and now is going full bore on his research.

Reunion Row

Homecoming is October 12-14, 2007. Plan to be on campus Homecoming Weekend to catch up with friends, celebrate a reunion, or simply watch the Blue Hens Football team in action.

Homecoming 2007 will cover the campus with class reunions and receptions, alumni honors and citations and tailgating football fans at Delaware Stadium.

New Location, Live Music, entertainment for kids, food and much more!

www.udel.edu/alumni/events/ homecoming.html

AIChE Reception Delaware Alumni Reception

Monday, November 5, 2007

7-9 p.m.

Salt Palace Convention Center Salt Lake City, Utah

www.aiche.org/Conferences/AnnualMeeting/index.aspx



Alumni Spotlight

Jess Penetar B05

left in September 2005 after graduating in May for the Dominican Republic with the Peace Corps' Water and Sanitation program for engineers. For those unfamiliar with the Peace Corps, it's funded by the government and sends volunteers to over 80 developing countries for two years. The governments of these countries have requested the presence of volunteers to work in various areas of development such as youth, health, business, and education, among others. There are three months of incountry training of language, culture, history and technical aspects before the two years of service begins.

(gravel) road, but most off on paths only accessible by motorcycle or foot. There is no electricity, no running water, or no cell phone service (except on

hills). The most reliable transport is to hire a motorcycle driver to take you out to the main highway leading to Cotuí or the capital. Women and children must carry water in buckets or gallons from wells for drinking, cooking, bathing and washing clothes. Some houses are close to streams that have water clean enough for bathing and washing.

My project started with a visit to all the houses to perform a census. I met the people, explained the project and learned who was interested. Next we surveyed the land from the spring source to the tank site and then to all the houses. Knowing the flow rate of the spring, I designed the

There ended the engineering. Next was the budget and fundraising from local organizations and governments of 272,000 pesos, or about \$9,000 dollars. A former volunteer had left me 56,000 pesos from her project, so the total cost was almost \$11,000 dollars. This part was quite challenging and took a lot of persistence and phone calls. By August 2006, I had more than half and we were ready to begin. The construction was quite fun. I had four brigades of six to eight men working for me. I directed them in the work and trained leaders in each brigade to organize and supervise if I was not there. Every house that wanted a tapstand outside of their home was required to send one worker a week. If they did not complete the same number of days as everyone, they would have to pay to make up those days or not receive a tapstand.



PCDR is a large program and I arrived here with a training group of 51, seven of us in the wat/san sector. We soon learned that our project was to construct a gravity-fed aqueduct to provide clean water to the houses in small rural villages. In late November, I moved to Los Jobos (pronounces hobos) southeast of Cotuí, the capital city of the small province Sanchez Ramirez. There are about 160 people in 37 houses, some on the main

pipeline using friction factors and head loss (thanks fluid mechanics) to the tank. The tank I designed to hold half the daily demand of water, giving each person 20 gallons of water per day, which is one of the world-wide standards. Using that demand, I designed the distribution line through the community, about 3 km of tubes, plus the kilometer from the tank to the spring.

It was hard work! The majority was trench digging for the tubes, two to 2.5 feet deep and only as wide as the shovel. We made a spring box to keep the water from becoming dirty with rain and we constructed two suspended crossings to pass over streams in deep gulleys. The project was deemed a success once the villagers saw water at the tank site which is on a hill, but still lower than the source. With no understanding of

basic physics, my villagers were quite amazed that the water could climb the hill to reach the tank.

After 22 days of work for each man (682 in total) the project was completed. Of course, there were problems. For a while, water was not arriving in the tank. I discovered it was because trapped pockets of air were blocking the water flow and I fixed that with respirators. Then a storm passed and knocked down one of the crossings along with many trees. We got a team of men to clean the tube line and repair the tubes. This time we dug farther down the gulley so it was no longer a hanging bridge but one exposed tube anchored with concrete on both sides. Just a little bit of disaster mitigation for the next hurricane.

However, the largest problem has been one I can't fix. It was an extremely dry year and my source is producing very little water. It used to have 4 gallons per minute, then it dried to 1 gallon per minute which is still enough to provide 10 gallons of water per person per day. Now though, it is producing a mere 3 gallons per hour. My villagers did not inform me that it would dry up so severely. I asked many times and they assured me there was always water. It is raining much more this year, but it takes time for the water to filter through and recharge the ground water. Still, that's enough water for drinking and hand washing.

The other problem is that many people do not understand how the system works. In this country, residents of cities do not always have running water in their houses. This meaning the government cannot supply for the demand and will turn the water on for a certain neighborhood for a few hours everyday, or for a day at a time and not at all the next day. All those houses have to fill up tanks to have water when it is not running.

So it seems to me that people in my village think their aqueduct is the same. I have opened the tank three times and every time, half the community has taken far more than their daily share of water, leaving others without. It is a long slow educational process, but I think the people are finally beginning to understand, at least I tell myself that. The aqueduct works!

This aqueduct is designed to function for at least 20 years and with proper maintenance, it can last for longer. Every house must pay a quota of 30 pesos, or one dollar, a month to pay a plumber and to buy new materials in the future as needed. I plan to come back and visit in a few years and still find running water at the houses.

a skill I've further developed. Life goes much slower here, especially since meeting times are merely a suggestion. Anything up to an hour late is no cause to apologize because everyone else shows up about that time too.

My overall experience has been augmented by the support network of the other 150 volunteers in the country, time at the beautiful beaches and the generosity of all those in my village. Dominicans are wonderfully hospitable and sometimes not-so-wonderfully loud. I recommend it as a true paradise for vacation. I know I'll be back."



Demonstration - woman using a tapstand.

My job ends here in mid-November, and even though I consider these people my family, I will be ready to leave. I am currently working on funding for a latrine project and training health promoters to teach things we do as second nature, like washing our hands with soap.

I have learned so much from life here. Besides the construction of the aqueduct, I have learned how to mix good concrete, to use a machete, to carry a 5 gallon bucket of water on my head using one hand, to kill spiders and to speak Spanish. Along with that, patience has been

In Memoriam

Remembering Kenneth B. Bischoff by Jon H. Olson



Ken Bischoff died on August 27, 2006, a date too late to post his obituary in the 2006 Newsletter. Ken was born in Chicago on February 29,

1936, obviously a leap year baby. **Ken** was proud of this accidental distinction, and when a leap year day occurred, a special birthday celebration was held. **Ken** also described himself in his leap year age; at the time of his death he was 17.373 (70 in conventional terms).

This reminiscence is divided into three parts: **Ken's** career as a distinguished chemical engineer, his influence as a research leader, and his delightful personal characteristics.

Ken's career: he earned his BS in chemical engineering in 1957 at I.I.T. and remained there for his PhD (1961) under the direction of **Octave Levenspiel**. His dissertation was on backmixing in chemical reactors, which at the time was an active research area in chemical engineering. His 1960-61 postdoctoral research was with **Gilbert Froment** at Ghent and was the beginnings of a long collaboration and friendship. He was an assistant and associate professor at U. Texas Austin from 1961 to 1967 where he was mentored by and collaborated with **David** Himmelblau. This collaboration produced a textbook, Process Analysis and Simulation (1968). Ken then was an associate and full professor at Maryland from 1967 to 1970. There he enjoyed a very productive collaboration with **Bob Dedrick** of NIH, and these two founded the topical area of pharmacokinetics. At age 34 he became the Walter R. Read Professor of Chemical Engineering at Cornell (1970-1976). There he also was the Director of the School of Chemical Engineering (1970-1975). In 1976, **Art Metzner** brought **Ken** to Delaware as the Unidel Professor of Biomedical and Chemical Engineering. He remained at Delaware until, owing to health issues, he retired in 1997. He was department chairman 1978-1982 and the acting director of the Center for Catalytic Science and Technology 1983-1884.

Ken's scholarly productivity was recognized with many awards including the I.I.T. Distinguished Alumni Award (1996) and several AIChE awards: Fellow (1987), Professional Progress (1976), the Institute Lecture (1982), and Wilhelm (1987). He received the Ebert Prize from the Academy of Pharmaceutical Sciences (1972), became a Fellow AAAS (1980), and was elected to the National Academy of Engineering (1988). **Ken** also was active in professional service work: for the AIChE he was elected Director (1972-74), selected as Program Committee Chairman (1978), and was session chairman for many sessions. For the ACS he was on the Awards Committee, the editorial board of the IEC Annual Research Review, and as associate editor of the Advances in Chemistry series. He also was associate editor of Advances in Chemical Engineering,

volumes 12 (1982) through 23 (1996). He was chairman of the First and co-chairman of the Nineth International Symposium on Reactor Engineering. He also served on the Council for Chemical Research and several National Research Council committees.

Ken's skills in mathematical model building led to significant and enduring consulting collaborations, particularly with **Bob Dedrick** at NIH and with many individuals at Exxon. His consulting with Exxon was unique: each summer he would stay at Exxon Research and Engineering for one month. At the beginning of this month he was given a loosely defined topic. He then read and mastered an assembly of open literature and related company reports. By the end of the month he had this material cogently organized and broken into problems to be solved in collaboration with engineers at Exxon. At Ken's retirement Exxon honored his many consulting contributions with plaque placed in the lobby of the Research and Engineering Center. He also had conventional consulting contracts with many other firms.

Ken's research neatly divided into two general areas, pharmacokinetics and reaction engineering. Pharmacokinetics is exemplified by "Application of a Model for Drug Distribution in Mammals" (1966), "Pharmacokinetics of Artificial Kidney Therapy for Poisons" (1967), "Methotrexate Pharmacokinetics" (1971), "Species Similarities in Pharmacokinetics" (1980), "Application of Pharmacokinetic Models to Predict Target Dose" (1993) and many other specialized papers. This list of representative titles shows

how **Ken's** efforts spanned the topic of pharmacokinetics; indeed, founded the topic and defined its scope.

Similarly his work in reaction

engineering was very broad. He began writing the book, *Chemical* Reactor Analysis and Design in 1961; the first edition appeared in 1979 and the second in 1989. Ken's first publication modeled axial dispersion in reactors, and he continued writing about this topic through much of his career. He was concerned with the difficult topic of parameter identification in reacting systems and later with the implications of lumping the kinetics of systems with a large number of species into more easily understood blocks. He developed a generalized model for estimating the catalyst effectiveness factor in complex systems and on coke formation with catalyst deactivation. He contributed to many of the PhD studies of catalytic reactions in the department by developing appropriate kinetic models. His list of collaborators is extensive: Pam Coxson and Ivar Stakgold from math, Ted Koch, Jan Lerou and Bill Manogue from DuPont, and Gianni Astarita, Jim Katzer, Hank Foley, Mike Klein and George Schuit from the department. **Ken** owned nearly all the topics of reaction engineering. His success came from his skills in applied math.

Ken Bischoff was a remarkable individual. He was extremely good at networking; he knew everybody in his fields and could recall nearly everyone he met. He was fascinated by ideas, and when excited by something would pop into your office and give a lecture that began with: "Do you know that" The lecture sometimes ended with you knowing a bit more than you wanted.

His love of history was a gift to the department, for **Ken** became the archivist, and he found many treasures previously ignored. For example he found the original graph for the Chilton-Colburn correlation, and this graph would appear when the Colburn lectures were given. He also found pictures of the construction of the commercial-size distillation tower used to develop the AIChE tray efficiency correlations. (The tower was taken down to make way for Drake hall.) In **Ken's** hands the archive grew in size, but only he could find specific items in it.

Ken had a great sense of humor. When he became chair he was issued a flashlight by the Safety group, apparently so he could lead the occupants of the building away in an emergency. **Ken** renamed this flashlight "the torch of power" which he passed on to the next chair with considerable mock ceremony.

Joyce and **Ken Bischoff** had a large house in Hockessin where they gave great parties.

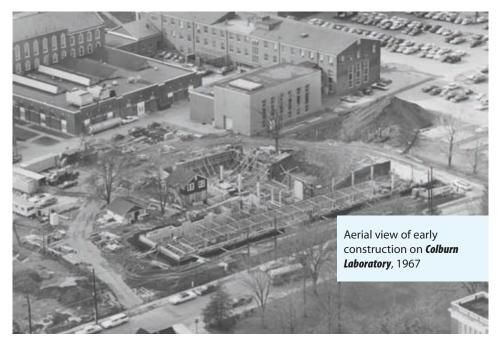
The food and drink were superb, the guests from several university departments and industry, and there was lots of interesting conversation.

After **Ken** retired he and **Joyce** divorced, and **Ken** moved to an apartment in Rehoboth Beach. His

health always was an issue, but he kept a very positive attitude. Those who visited him saw him decline by inches. His car disappeared, his walks to the beach or to the post office became less frequent, and he began using weekly installments of prepared food. His daughter, **Kathy Scott**, lived nearby and checked on him frequently. He was transferred to a nursing home and then to a hospital as his medical complications increased.

In celebration of **Ken's** life, I note that: he brought scholarship and visibility to the department and the university, he built a strong network with other scholars and engineering practitioners, he was blessed with a quick mind in developing kinetic models, his life was full and productive.

He and **Joyce** raised two devoted and caring children, **Kathy Scott** and **James Bischoff**.



Faculty News

Mark A. Barteau, Robert L. Pigford Chair, was the recipient of the 2007 Katz Lectureship at the University of Michigan April 19 and 20, 2007. His lecture on April 19 was "Confessions of a Youth Misspent in Catalysis or Where Should We Focus for the Future?" and his lecture on April 20 was "Moving Catalysis from Analysis to Design: Progress in Olefin Epoxidation". Mark has completed a very successful tenure as chair of the department and has been named the director of the new Institute for Sustainable Energy Research (SER) at UD. He has also been tapped by the new UD President, Patrick Harker, to co-chair the Strategic Planning Committee.

During the fall semester of 2006 Antony Beris was on Sabbatical Leave at the University of Patras Greece, assisting in research and seminars with the research group of **Professor Vlasis Mavrantzas** of the Department of Chemical Engineering (a UD alumnus) in the field of Non-Equilibrium Thermodynamics, Multiscale Modeling and Polymer Rheology. While in Greece, Professor Beris also helped in the organization and participated at the 4th International Workshop on *Non-Equilibrium Thermodynamics* and Complex Fluids that took place in Rhodes, Greece in September 4-7, 2006 and attracted more than 50 researchers from all over the world. He also gave seminars in other Universities of Greece, at the University of Crete in Heraklion (Department of Materials Science & Technology; November 2006) and at the Aegean University in Samos (Department of Mathematics, December 2006). In addition, during the last year Professor Beris co-organized (with Eric **Furst**) the 78th Annual Meeting of the Society of Rheology, that took place

in Portland, Maine, October 8-12, 2006, and served in the Organizing Committee and participated in both a graduate student tutorial and an international workshop on "Multiscale Modeling and Simulation of Complex Fluids", which was jointly sponsored by the Center for Scientific Computation and Mathematical Modeling at the University of Maryland, and the School of Mathematical Sciences at Peking University and which took place at the University of Maryland, April 13-20, 2007.

Jingguang Chen, professor and

Director of the Center for Catalytic Science and Technology, and Brian Willis, assistant professor, are part of a research team that has been awarded a \$4.6 million research grant by the U.S. Department of Energy to find ways in which hydrogen fuel cells can be made less costly and more stable by using materials such as tungsten carbide modified with low concentrations of platinum instead of pure platinum. They will work in conjunction with Pacific Northwest National Laboratory (PNNL), Oak Ridge National Laboratory (ORNL) and Ballard Power Systems, a fuel cell manufacturer. The UD research team aims to find less expensive and more stable alternatives to replace pure platinum catalysts. The proposed research is based primarily on promising results from a decade of UD research on the activity and stability of tungsten carbide and the use of platinum with tungsten carbide as an electrocatalyst. The UD team will work with PNNL and ORNL researchers on the development of larger scales of the catalytic materials and researchers from Ballard Power Systems will perform tests for the commercial feasibility of the new electrocatalysts. Based on the promising preliminary results of platinum supported on tungsten carbides, the UD team will make model systems on thin films of about one centimeter-square, put them through an electrochemical

fuel cell environment and then use spectroscopies to measure the electrochemical activity and stability of tungsten carbide and platinum after mimicking the operating conditions of fuel cells. This was also reported in an article by *Eric Ruth* in the March 8, 2007 issue of *The News Journal*.

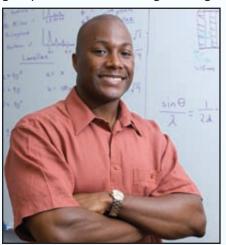
The Delaware Experimental Program

to Stimulate Competitive Research

(EPSCoR) has awarded more than \$460,000 in seed grants to support 11 studies over the next year at UD and Delaware State. Thomas H. **Epps, III**, assistant professor, and Thomas Hanson, assistant professor of marine biology-biochemistry, will examine block copolymer network membranes as a means of crating novel nanomaterials for small molecule capture and enrichment. This research will advance the study of environmental proteomics and metabolomics, where sensing organism responses to environmental stresses requires new technologies to selectively capture and analyze metabolites and peptides at nanomolar concentrations.

Thomas H. Epps, III, assistant professor, is the recipient of a prestigious Faculty Early Career Development Award from the National Science Foundation (NSF). This award, which is highly competitive, is bestowed on those scientists deemed most likely to become the academic leaders of the 21st century. Fewer than 20 percent of the proposals submitted to the annual competition are funding, according to NSF. The five-year, \$460,000 grant will support Epps' research and education program on block copolymers. These self-assembling, nanoscale materials are formed by combining two or more distinct polymer chains. They are advancing the development of the next-generation of high-performance materials, from more efficient fuel cells to chemical-resistant, yet breathable clothing. The materials that **Epps** is developing contain structures that

are a thousand times smaller than the diameter of a human hair and represent the "best of both worlds" because they combine the properties of two or more different polymers. **Epps** and his students are working to understand the nano-sized features of the block copolymers by controlling their structure and orientation—a process that requires a knowledge of chemistry, chemical engineering, polymer science and materials science. A component of **Epps**' NSF award is devoted to increasing the participation of under-represented groups in science and engineering.



Also, **Thomas H. Epps, III** is the recipient of the 2007 Lloyd Ferguson Young Scientist Award from the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBC-ChE). Established in 1997, this award is presented annually to a recipient who has demonstrated early promise and accomplishments and has the potential to sustain a productive scientific career. **Epps** received the award in a ceremony held April 5 at the organization's national conference in Orlando.

Thomas Epps also received an NAE Seed Grant Award; he was featured in an article in the 2006 American Chemical Society Annual Report; he was featured in the February 12, 2007 article in C&E News "Black History Month Spotlights"; and he was featured in the March 26, 2007 article in

C&E News "Chemists of Color".

Eric M. Furst, associate professor, received the 2007 Outstanding Junior Faculty in Engineering award by the College of Engineering. Eric, along with Eric Kaler and Norm Wagner, co-organized the 81st American Chemical Society Colloid and Interface Society Symposium held at Clayton Hall in June 2007, with over 500 attendees. Eric has been successfully promoted to the rank of associate professor with tenure effective September 1.

Eric W. Kaler, Elizabeth Inez Kelley Professor of Chemical Engineering and Dean, College of Engineering, received the Kash Mittal Lectureship Award from the Surfactants in Solution Symposium in 2006. Kaler was also cited in a March 29 Chemical and Engineering News story about chemistry and chemical engineering challenges facing the U.S.

Jochen Lauterbach, professor and Chris Snively, Research Associate in Materials Science, have discovered a new class of ultra-thin polymer films with potential applications ranging from coating tiny microelectronic devices to plastic solar cells. They said it couldn't be done. The discovery was reported as a "communication to the editor" in the November 28 edition of Macromolecules published by ACS. The research, which also involved doctoral student Seth **Washburn**, focused on formerly nonpolymerizable ethylenes. Among them are several compounds that are derived from natural sources, such as cinnamon, and are FDA-approved for use in fragrances and foods. One of the compounds is found in milkshakes. Since the late 1990s, Professor Lauterbach and Snively have been developing a method to make extremely thin polymer layers on surfaces. These nanofilms—at least 1,000 times thinner than a human hair—are becoming increasingly important as coatings for optics, solar cells, electrical insulators, advanced

sensors and numerous other applications. The process is fairly green in that not only are no solvents used, but there also is very low energy consumption using this method. While their polymerization technique was reported a few years ago, the class of materials they have applied it to lately is new and unique. In addition to UDaily, this information was reported in the January 4, 2007 issue of *The News Journal* and appeared on several online science news services, including *Nanotechwire*, *Innovations Report and Engineer Online*.

Jochen Lauterbach talked to kindergartners at UD's Laboratory Preschool about important safety rules before leading a demonstration involving liquid nitrogen.

Babatunde Ogunnaike, William L. Friend professor, has been selected to receive the prestigious Donald P. Eckman Education Award and the citation reads: "For outstanding contributions to education and training in the science, engineering and technology of instrumentation, systems, and automation." This award will be presented on October 1, 2007 at the Annual ISA Honors & Awards Banquet.

E. Terry Papoutsakis, Eugene Du-Pont Chair received the James M. Van Lanen Distinguished Service Award from the ACS Biochemical Technology Division (BIOT). This award will be presented during the 234th ACS National Meeting in August in Boston.



Faculty News

Anne S. Robinson will be on sabbatical September 1, 2007 – August 31, 2008 at the University of California Santa Barbara with her family. Anne just completed her term as Division Chair of the BIOT division of ACS.



T. W. Fraser Russell, the Allan P Colburn Professor of Chemical Engineering was recognized this spring for 45 years service to the University of Delaware. And as he says he had a "real job" for five years before coming to the University. During his tenure he has served as Chemical Engineering Department Chair, Associate Dean and Dean of the College of Engineering, Director of IEC and Vice-Provost for Research. He is now devoting two years before retiring in August of 2009 to developing interactive educational material to expand upon the material in his latest text; "Mass and Heat Transfer-Analysis of Mass Contactors and Heat Exchangers" coauthored with Anne S. Robinson and Norman **J. Wagner**. (We actually do not think he will really retire.)

Stanley I. Sandler, Henry Belin du Pont Chair, will be working in three different academic jobs on three continents this year. In addition to serving on the UD faculty and as Honorary Professorial Fellow at the

where he was the Miegunyah Fellow during his 2003 sabbatical, Sandler recently received another honor as newly appointed ExxonMobil Professor of Chemical and Biomolecular Engineering at the National University of Singapore (NUS). Sandler's expertise is in thermodynamics, the purification and separation of chemicals and pharmaceuticals and supercomputer simulation. According to the announcement of the appointment from NUS, **Sandler** will work in "the area of molecular engineering of transport and thermodynamics in nanostructured materials," enhancing NUS's program in "the synthesis of nanostructured, functionalized materials and process engineering modeling." Following a three-week stay at NUS, **Sandler** said he was impressed by the faculty and facilities there, the research and instructional laboratories, the extent of government funding, the teaching and research infrastructure the university provides and the computational facilities and virtual learning environment for students. "One of my goals is to encourage ties between Delaware and Singapore," he said. "I also would like to bring some of the innovations used at NUS to the University of Delaware." NUS has been ranked as ninth in the world in engineering and IT by The Times of London and 10th in terms of technical publications by the Institute for Scientific Engineering in 2005.

University of Melbourne in Australia

Pont Chair, was quoted in the June 21 Global Security Newswire in the article "U.S. Hits Chemical Agent Disposal Mark" with regard to the U.S. having disposed of 45% of its chemical warfare agents. The Global Security Newswire provides daily news on nuclear, biological and chemical weapons, terrorism and related issues.

During her sabbatical leave, **Prof. Annette Shine** visited Nottingham, England, at the University of Nottingham and at Critical Pharmaceuticals,

a drug delivery start-up company. At the University, she collaborated with chemists Steve Howdle and Martyn **Poliakoff**, under the auspices of the British DICE program (Driving Innovation in Chemistry and Chemical Engineering). Their collaboration centered on the use of supercritical CO₂ to encapsulate pharmaceuticals in biodegradable polymers. A delightful by-product of the Nottingham sabbatical was the opportunity to visit with UD alum Wim Thielemans (Ph.D. 2004) and his family. Wim began his appointment as a faculty member at Nottingham in Fall 2006.



Professors **Dionisios Vlachos**. Jochen Lauterbach, and Douglas **Buttrey**, have received a \$960,000 grant from the Department of Energy to identify low-cost, nano-sized catalysts—tiny amounts of metal compounds—that can spur the chemical conversion of liquid fuels into hydrogen for powering cars to heating homes. This project is part of DOE's effort to develop advanced technologies that can supply future energy and transportation systems with affordable hydrogen, with significantly reduced or near-zero emissions, and is to be completed over the next three years. This team will be the first to demonstrate new "high throughput" methods of screening potentially hundreds to thousands of metal compounds at the nanoscale—particles as small as a few atoms in size—to reveal the most promising triggers for converting liquid fuels to hydrogen. They will use ammonia as the fuel in their proof-of-concept research. In practice, a car or stationary power generator would be fueled with ammonia, which would get chemically converted to hydrogen, thanks to the tiny catalysts. The hydrogen would then be supplied to a fuel cell resulting in electricity. This project also involves collaborators from Brookhaven National Laboratory. In addition to UDaily, this was reported in the February 6, 2007 issue of *The News Journal*.

Norman Wagner co-organized the 10th Annual "Tiger-Hen-Hawk" Rheology Symposium, with **Prof. Bob Prud'homme** of Princeton University, held at Princeton in January 2007. Norm Wagner also co-organized the ACS Symposium honoring William Russel (his doctoral thesis advisor) who was awarded the ACS Colloids Division Colloid Award. He also gave numerous invited, keynote and plenary lectures on his research at places such as University of Pennsylvania, Georgia Tech, UT Austin, University of Erlangen, Germany, the 12th International Conference on Surface and Colloid Science in Beijing, China, the Society of Plastics Engineers, and the 8th International Symposium on Applied Rheology, Korea. The visit to Korea University was special as he was able to meet with many former students and colleagues of the late **Prof. Art Metzner** directly following the *Metzner Commemorative* Symposium at Delaware.

As reported in The New York Times, Science section on June 19, 2007, professor **Richard Wool** and his grad students designed a composite made from soybeans and chicken feather down for a state fair exhibition. A Tyson Foods engineer, after seeing the composite, offered **Professor Wool** two billion pounds of chicken feathers and a partnership was formed. **Professor Wool** uses the material to design circuit boards that are lighter, stronger, cheaper to produce with high-speed electronic properties. The feathers allow extra air flow and don't expand when heated like plastic, so hotter temperatures that come with higher speeds are less problematic. **Professor Wool** is also working with olive oil and other high-oleic oils to create rubber, paint and biocompatible adhesives. He hopes this will help make bandages that would work more like skin. His prototypes have been shown at the London Science Museum, and the Department of Agriculture has awarded him \$500,000 to support his research. Recently his company, Cara Plastics, started working with DynaChem to mass produce his soy-based resin.

Department News

New Sustainable Energy Technology Minor Available at the College of Engineering

The College of Engineering has developed a new minor in recognition of the increasingly important role of energy production and use on the environment, and its relation to the long-term economic success and sustainability of human societies. We need individuals capable of making good decisions about the technologies we choose to produce and use energy in the chemical industry. The objective of this minor is to provide students with the basic knowledge and skills necessary to make effective engineering decisions based on up-to-date information and also recognizing the positive and negative aspects of the many technological options available. In this minor students will have the opportunity to:

Study modern technologies for, and recent advances in energy production, energy storage and energy use within the context of engineering analysis.

Recognize the advantages and disadvantages (technical, economic and environmental) of important technologies for energy production.

Compare and select optimal technologies for energy production based on engineering, economic and local and global environmental criteria.

Recognize the multiple market and societal forces that impact the widespread use of certain energy producing technologies, and recognize the long-term environmental consequences of such socio-political processes.

The minor consist of three courses related to energy use and production to be taken in the College of Engineering. In addition, it requires students to take two courses in energy policy, economics of natural resources and conservation. The faculty member responsible for administration of this minor is Prof. Raul Lobo.

Daniel A. Hammer, the Ennis Professor of Bioengineering from the University of Pennsylvania, is joining us for a sabbatical during the 2007 calendar year. A Chemical Engineer by training, **Dan** is an expert in cell adhesion, cell motility and membrane biophysics. He is interacting with the **Robinson** lab (on molecular biology techniques) and the **Epps** and **Sullivan** laboratories on making particles from polymers for drug delivery. He has also been collaborating with faculty in Materials Science. **Dan** taught *ChE* 667 Cellular Engineering during the Fall 2006 semester to an enrollment of over 40 seniors and graduate students.

The University of Delaware graduate program in chemical engineering remains among the nation's elite, according to new rankings published in the 2007 *U.S. News & World Report* newsstand book "America's Best Graduate Schools." The chemical engineering graduate program is ranked tenth in the nation, tied with the University of Illinois Urbana-Champaign. The Massachusetts Institute of Technology program was at the top of the list, followed by the California Institute of Technology, the University of Minnesota, the University of California Berkeley, the University of Wisconsin, Stanford University, Princeton University, the University of Texas, the University of California Santa Barbara, UD and Illinois.

Vinay Prasad, Assistant Professor, Department of Chemical Engineering, IIT Bombay, when asked about his sabbatical here stated: The purpose of my visit here is to interact with the faculty, to learn new skills and to be exposed to new areas of research. In particular, I have been collaborating with Prof. Vlachos on developing systems analysis tools for investigating multiscale catalytic systems. I also greatly enjoyed teaching a part of the Biological Control Systems course with Prof. Ogunnaike, and have learned a lot from him.

The dates of **Vinjay Prasad's** sabbatical are 1/3/07 – 12/31/07.

Sir John Meurig Thomas, one of the world's leading scholars who was knighted by Queen Elizabeth in 1991 for "services to chemistry and the popularization of science". presented a university-wide lecture on the accomplishments and lives of Benjamin Franklin and Michael Faraday on October 13th to an audience of approximately 500 people in Memorial Hall. Sir John Thomas is an honorary professor of solid state chemistry in the Department of Materials Science at Cambridge University and emeritus professor of chemistry at the Davy Faraday Research Laboratory of the Royal Institution of Great Britain in London. He served as postdoctoral advisor for **Professor Doug Buttrey** in the mid '80's in Cambridge and previously visited UD Chemical Engineering to give the G. C. A. Schuit Lecture in 1987. Professor Thomas is widely recognized for his work in heterogeneous catalysis and for major advances in the application of transmission electron microscopy in the characterization of catalytic materials; he has coauthored over 900 papers and 100 review articles, and he holds 19 honorary doctorates. This event was jointly sponsored by 10 university departments, the College of Engineering, the College of Arts and Sciences, the Office of the Provost, and the University of Delaware Honors Program. This lecture provides a model for a forthcoming series of university-wide lectures dealing with the interplay between science and society, which will be designated as the *Edward G. Jefferson Lecture Series*. This Series honors the former chairman and chief executive officer of the DuPont Company and member of the UD Board of Trustees who died in February 2006.

The Chemical Engineering Department hosted the 81st Colloid & Surface Science Symposium June 24-27, 2007. This meeting was co-organized by Eric Kaler, Eric Furst and Norman Wagner and consisted of technical sessions organized around 10 broad topics, including Colloidal Glasses and Gels, Scattering, Chemistry of Colloidal Materials, Physics of Colloids, Rheology, Catalysis and Surface Science, Self-Assembly, Wetting and Interfacial Phenomena, Proteins, and Colloid and Interfacial Phenomena in Pharmaceuticals. A short course on "Directed Self-Assembly of Colloids" was offered following the symposium on June 28th. A special thank you goes to the Conference Secretary, Sheila Boulden. Her dedication and hard work made this a very successful meeting.

Norman Wagner, Alvin B. and Julia O. Stiles Professor of Chemical Engineering and as of July 1, 2007, Department Chairperson, was featured in an Aug. 7, 2006 *Business Week* story about his liquid body armor discovery, which is being marketed by Armor Holdings Inc. The story also quoted **Eric Wetzel**, a UD alumnus who worked on the project as a scientist at the Army Research Laboratory in Aberdeen, Maryland.

"Liquid Body Armor: Rheologists Apply Shear-Thickening Fluids to Protective Gear" is the title of an article that appeared August 1, 2006 on Discoveries and Breakthroughs Inside Science (DBIS), a syndicated science and engineering news service for local television newscasts.

An article entitled "How Liquid Body Armor Works" by Tracy V. Wilson can be accessed at: http://science.how-stuffworks.com/liquid-body-armor1.htm.

STF-Armor™ materials are now commercially available under license to UD from Barrday, Inc. More information can be found at www.ccm.udel.edu/STF.

Metzner Commemorative Symposium Shortly after Art Metzner's death, the department

decided to hold a memorial service for him on May 14, 2007. The memorial service morphed into a symposium to recognize his significant contributions to chemical engineering through technical talks and from shorter reminiscences. A organizing committee included **Prasad Dhurjati**, **Antony Beris** and **Norm Wagner** with some assistance from others. **Prasad** led this committee effectively, and by far, put in the most time and effort. **Betty Metzner** helped **Prasad** by sharing some of Art's records, Christmas card lists, and other notes. The Metzner offspring, **Elisabeth**, **Arthur**, and **Rebecca** also contributed; **Becky** particularly so, since she could remember nearly all the people the Metzners met while traveling abroad or on sabbaticals.

While the technical talks were carefully prepared and excellently delivered, the emotional impact of the symposium came from the reminiscences. For example, one of **Jeff Lieto's** (Phd79) slides stated, "Mr. Lieto, could you help me with this problem, please?" The audience laughed with recognition of this remark; it was Art's standard way of calling on a class member to present a homework problem solution. It also required everyone in the class to prepare the homework diligently and kept alert in class. Art set very high standards for his courses, and his teaching methods forced students to give their maximum.

Tony McHugh, M70, PhD72, recalled that in his days the problem review sessions were held on Saturday mornings, 9 to 12. After one bad experience, Tony stayed away from the bars on Friday evenings. **Dady Dadyburjor**, M82, PhD86, said that Saturday classes had disappeared in his student days, and his class developed a way to get hints on how the problems were to be solved. Students would be at their desks working on Saturday mornings, and Art would circulate through the building "checking up". When he did so, one could ask for a hint on one of the problems, and Art would oblige with just enough information to put the solution in motion. When he was reached in his office during regular office hours, he was far less forthcoming. **Dady** also said that Art assigned a research paper based on an extension of a journal article. **Dady** presented a viscoelastic flow problem using a dumbbell molecular model for the fluid. In his conclusions he said - the success of his effort implied that it would no longer be necessary to conduct experiments.

This admittedly brash statement from a first-year grad student earned the comment, "I don't think so!"

Art was unfailing in his kindness to students. **Rakesh Jain**, M74 PhD75, wrote that he arrived in Newark in August with \$50, and Art then arranged for his first stipend check to be paid early. When **Dadyburjor's** mother came to visit in 1971 Art spent 30 minutes discussing with her places she might wish to visit during her stay, and she remembered this when **Dady** made a mother's day call to her the day before the Symposium.

Jack Weikart recalled that Art said he personally knew about 85% of all the living bachelors, masters and PhDs of the department. He kept in communication with them with notes and postcards; longer letters came with promotions or condolences for the death of family members.



Three generations of Korean academic rheologists in the Metzer academic tree were photographed together at the Int. Symp. on Applied Rheology at Korea University in May of '07. They are: Prof. Seung Jong Lee of Seoul National University's Laboratory for Rheology and Processing of Microstructured Materials http://rheopro.snu.ac.kr/ and President of the Korean Society of Rheology (PhD82, under Art Metzner) (center) and his former student (Prof. Kyung Hyun Ahn (right, also at Seoul National) and his former student (Art's academic great granddaughter) Dr. Joung Sook Hong, (left, Korea University).

For example **Bob Wynn**, B54, was one of Art's first undergraduate thesis students. **Bob** worked with Art because he was impressed by Art's intelligence ("Art had a PhD and three years of industrial experience and was only six years older than me.") **Bob** described himself as a struggling student who did manage to complete his thesis work successfully. **Bob Otto**, PhD57, was in Art's first group of PhD students and worked on the mixing power requirements for non Newtonian fluids. **Bob** went to Monsanto where he had a very successful technical career in process control. At the Symposium he found that the Otto-Metzner paper was Art's most cited work. "I wish someone told me earlier. I surely would have helped my CV."

24



As an academic advisor Art pushed his students to excel. After a successful first term, **John Anderson**, B67, was advised to take 23 credits in the second, six credits above the listed maximum. He did so with the understanding that he could drop a course should this prove to be too much. Six weeks into the second term he asked Art to let him drop a history course because he had only attended three lectures and was swamped with work and pledging a fraternity. Art refused with the comment, "How hard can a history course be?" Defeated, and with the help of course notes, **John** earned a B.

Jim Tilton, B81, M82, also was an exceptional student. After his second term, Art sent him a note congratulating him on his grades and said that it was time for Jim to think about graduate school. He also got Jim to take a graduate inorganic chemistry course without having the undergraduate version, and similarly for a graduate economics course.

Linda Myrick, B77, recalled lessons she learned from Art that have proved valuable in life: 1) Nobody is too busy to send a thank you note, 2) Prepare contingency plans (as when she gave a multimedia presentation at the Metzner celebration in 1993), and 3) Since it is impossible to get everything done, the goal should be reasonable but not perfect (Better is the Enemy of Good).

When **Steve Threefoot**, PhD91, was frustrated while finishing his dissertation, Art observed: "You don't have to be right; you just have to be good enough that for ten years they can't prove you wrong."

Arup Chakraborty, PhD89, wrote his first technical paper with Art and observed that Art had tough technical standards and was a warm individual. Art was the first person to give him the courage to take on hard problems, a critical boost in self-confidence.

Repeatedly the speakers noted that Art and Betty were a team. They gave magnificent dinner parties, particularly for foreign visitors. When friends were sick, one or both of the Metzners would call. When a graduate student couple arrived without cooking utensils, sheets or towels, Betty asked the faculty for help. The Metzners exhibited a genuine concern for others.

The collection of these remembrances shows the high respect Art had from all who came in contact with him. He had very high standards; technical, ethical and personal. He worked hard and expected no less from others. He was a good listener and provided excellent advice by letting the advice seeker solve his own problem: "What thinkest thee?" He was an excellent administrator and markedly improved the image of the department. He had a sense of humor which he used effectively. But finally he was an excellent and enduring friend, encouraging many with his notes, giving unexpected favors in his own unique way, and having impeccable integrity. As Jimmy Wei stated in his remarks, he is one of the giants in chemical engineering.

The College and Department wish to create an endowed chair in honor and memory of Art Metzner and his legacy. This would be only the *fifth* endowed chair in the entire College, and as such will require substantial fundraising. We are happy to report that such efforts are currently underway. Friends, colleagues, associates, students, and others interested in supporting this named Chair in Art's honor can contact the Chair of Chemical Engineering directly, (Prof. Norman Wagner, wagnernj@udel.edu, 302-831-8079). We greatly appreciate any support you can provide.

Grad Student Awards

Marc Birtwistle received the Fraser and Shirley Russell Teaching Fellowship in Chemical Engineering presented at Honors Day held May 4, 2007.

Abhijit Chatterjee received a first place Poster Award in the *Nanoscale Science and Engineering Forum (NSEF)* at the *AIChE* annual national meeting held in November 2006.

Justin Federici received a CRE Travel Award to attend the *AIChE* national annual meeting in November 2006.

Matthew E. Helgeson was one of two UD graduate students selected to make presentations during the Excellence in Graduate Polymer Research Symposium held as part of the 233rd ACS meeting held March 25-29 in Chicago. Matt also won the best poster award for his work on electrospinning at the 10th Annual "Tiger-Hen-Hawk" Rheology Symposium.

David Johnson received the Robert L. Pigford Teaching Assistant Award presented at *Honors Day* held May 4, 2007.

Mary McDonald received the Robert L. Pigford Teaching Assistant Award presented at *Honors Day* held May 4, 2007.

Ashish Mhadeshwar received the Allan P. Colburn Prize in Engineering and Mathematical Sciences for best PhD Dissertation.

Kapil Mukati was the winner of the 10th Annual CAST Directors' Award for the 2006 *AlChE* annual meeting in Cincinnati. This award is given for the best poster presentation and first place consists of a plaque with citation and an honorarium of \$500. The poster was "Source Scale-up for Physical Vapor Deposition of Cu(Inga)Se2 on Flexible Substrates" and the winners along with Kapil were Babatunde

Ogunnaike, Erten Ester, Shannon Fields and Robert W. Birkmire.

Michelle O'Malley received a Leadership Development Award from the *American Chemical Society*.

William Pryz received the Robert L. Pigford Teaching Assistant Award presented at *Honors Day* held May 4, 2007.

Frances Spinelli received the Robert L. Pigford Teaching Assistant Award presented at *Honors Day* held May 4, 2007.

Xuankuo Xu received the Joyce and Robert Richards Endowed Fellowship.

New Grad Students Accepted 2007-08 John Elliott Bedenbaugh U of South Carolina Venkata Bharat Ram Boppana Anna U, India Erik Christopher Brewer **Drexel University** Rebecca Ann Chmielowski Lafayette (BS), Rutgers (MS) Jungik Choi Hanyang U Yogesh Kumar Choudhary IIT - Madras (arrives '07S) John David Larsen U of Wisconsin, Madison **Robert Woodrow Leighty** Rowan Matthew Steven Mettler **UCSB** Andrea Natalia Naranjo North Carolina State University Sergios Andreas Nicolaou Northwestern University Michael Salciccioli U of Michigan Johns Hopkins University **Jeffrey Charles Swanberg** Kristin Nicole Valente MIT Sonia A. Velez University of PR, Mayaguez Wen-Shiue Young Suny State University at Buffalo

Undergrad Student

Awards

Marcus Adams received the Chemical Engineering Industrial Sponsors Scholarship Award and the Merck Engineering and Technology Scholar Award. Both were presented to Marcus at *Honors Day* held May 4, 2007.

Michael Albani received the Chemical Engineering Industrial Sponsors Scholarship Award presented at *Honors Day* held May 4, 2007.

Michael Allerton received a scholarship to study German at Fluda, Germany this summer.

Chondra Almeida was honored at the African-American Students of distinction special ceremony held May 6, 2007 for her academic achievements during the 2006-07 academic year. **Chondra** also the Merck Engineering and Technology Scholar Award presented at *Honors Day* held May 4, 2007.

Anshu Arya received the Sylvia and Charles Joanedis Chemical Engineering Scholarship presented at *Honors Day* held May 4, 2007.

Michelle Betty received the Mr. and Mrs. James F. Kearns Scholarship in Chemical Engineering presented at *Honors Day* held May 4, 2007.

Aaron Chockla received the Chemical Engineering Alumni Laboratory Award presented at *Honors Day* held May 4, 2007.

Michael Dignan received the American Institute of Chemical Engineers Junior Award and the Stanley Jacob Schechter Award. Both were presented to **Michael** at *Honors Day* held May 6, 2007.

Ankur Doshi received the Mr. and Mrs. James F. Kearns Scholarship in Chemical Engineering presented at *Honors Day* held May 4, 2007.

Chelsea Dougherty received the George Fish Scholarship and the Sylvia and Charles Joanedis Chemical Engineering Scholarship. Both were presented to **Chelsea** at *Honors Day* held May 4, 2007.

Aliaksandr Druz received the Chemical Engineering Class of 1950 Scholarship presented at *Honors Day* held May 4, 2007.

Nikki Ennis received the Chemical Engineering Industrial Sponsors Senior Student Award presented at *Honors Day* held May 4, 2007.

Justin Federici received the Center for Composite Materials Progress Award presented at *Honors Day* held May 4, 2007.

Matthew Gibson received the National Starch and Chemical Company Undergraduate Scholarship presented at **Honors Day** held May 4, 2007.

Kristie Grammatikos received the Chemical Engineering Industrial Sponsors Undergraduate Research Award presented at *Honors Day* held May 4, 2007.

Elias Greene received the National Starch and Chemical Company Undergraduate Scholarship presented at *Honors Day* held May 4, 2007.

Jeffrey Hanft received the Chemical Engineering Class of 1950 Scholarship presented at *Honors Day* held May 4, 2007.

Kyle Hoffmann received the Merck Outstanding Chemical Engineering Student Award presented at *Honors Day* held May 4, 2007.

Joseph Houghton received the Chemical Engineering Alumni Laboratory Award presented at *Honors Day* held May 4, 2007.

Jisha John received the Chemical Engineering Class of 1952 Scholarship presented at *Honors Day* held May 4, 2007.

Brian Levy received the National Starch and Chemical Company Undergraduate Scholarship presented at *Honors Day* held May 4, 2007.

Caroline Lochner received the Chemical Engineering Class of 1953 Scholarship presented at *Honors Day* held May 4, 2007.

Kevin Maggitti received the Hess Corporation Award presented at *Honors Day* held May 4, 2007.

J. Dominic Mancini received the John Allan Thoroughgood Legacy Scholarship in Chemical Engineering presented at *Honors Day* held May 4, 2007.

Daniel Miller received the American Institute of Chemical Engineers Sophomore Award presented at *Honors Day* held May 4, 2007.

Marielle A. Newman presented her research at the 5th Annual Undergraduate Research Conference of the Colonial Academic Alliance in April at the University of North Carolina.

Kyle Niblo was honored at the Latino/Latina Students of distinction reception held May 5, 2006 for his academic achievements during the 2006-07 academic year.

Rebecca Pagels received the Merck Outstanding Chemical Engineering Student Award presented at *Honors Day* held May 4, 2007.

Gina Palladino received the Hess Corporation Award presented at *Honors Day* held May 4, 2007.

Justin Quon received the American Institute of Chemical Engineers Senior Award presented at *Honors Day* held May 4, 2007.

Matthew Reichert received the Chemical Engineering Class of 1950 Scholarship and the Robert L. Pigford Undergraduate Award. Both awards were presented to Matt at Honors Day held May 4, 2007. Matt worked at Sandia National Labs as a summer research intern this past summer.

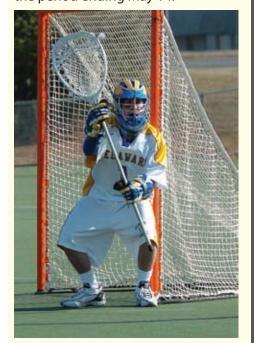
Reza Rock received the Robert L. Pigford Undergraduate Award presented at *Honors Day* held May 4, 2007.

Matthew Rosborough received the Chemical Engineering Alumni Laboratory Award presented at *Honors Day* held May 4, 2007. Matt also received the Chemical Engineering Industrial Sponsors Undergraduate Research Award presented at *Honors Day* held May 4, 2007.

Brian Rosen won 2nd place at the Accelerating Innovation 2006 Conference's Young Innovators of Student Poster Session at the National Academies in September 2006. Brian also received the Center for Composite Materials Undergraduate Research Award and the Schipper Undergraduate Chemical Engineering Scholarship. Both were presented to Brian at Honors Day held May 4, 2007. He was a summer research intern at the Technical University of Aachen in Germany this past summer.

Daniel Roth received the Robert L. Pigford Undergraduate Award presented at *Honors Day* held May 4, 2007.

Tommy Scherr, UD's junior men's lacrosse goalkeeper helped the Blue Hens knock off defending national champion University of Virginia in the first round of the NCAA Tournament and was Wilmington Trust's Best of the Blue Hens Athlete of the Week for the period ending May 14.



Tommy Scherr, ChEG '08, Lacrosse Goalie, 2007 NCAA Final Four Photo courtesy of Dan Cook

Benjamin Schiffman received the Walter Silowka Chemical Engineering Scholarship presented at *Honors Day* held May 4, 2007.

Lindsay Schmiedel received the Chemical Engineering Class of 1952 Scholarship presented at *Honors Day* held May 4, 2007.

Craig Schneider received the Chemi cal Engineering Industrial Sponsors Undergraduate Research Award presented at *Honors Day* held May 4, 2007.

Joshua Selekman received the George Fish Scholarship and the Robert L. Pigford Undergraduate Award. Josh also received the Bangalore T. Lakshman Scholarship, a College of Engineering award. These awards were presented to Josh at Honors Day held May 4, 2007.

Lindsay Stephenson received the Steven R. and Linda Justice Myrick Award presented at *Honors Day* held May 4, 2007.

Brian Walck received the American Chemical Society Award in Chemical Engineering, the Donald F. Othmer Sophomore Academic Excellence Award, and the Robert L. Pigford Undergraduate Award. These awards were presented to Brian at Honors Day held May 4, 2007.

Daniel Walls received the Chemical Engineering Industrial Sponsors Scholarship Award presented at *Honors Day* held May 4, 2007.

Maureen Wanjare received the Chemical Engineering Industrial Sponsors Undergraduate Research Award presented at *Honors Day* held May 4, 2007.

Candice Yee was honored at the African-American Students of distinction special ceremony held May 6, 2007 for her academic achievements during the 2006-07 academic year.

Megan Zagrobelny received the Chemical Engineering Industrial Sponsors Scholarship Award. Megan also received the George Fish Scholarship. Both awards were presented at *Honors Day* held May 4, 2007.

Student Stats: 2006-07

250 Undergraduates enrolled

48 BChE graduates

1 Graduate & professional schooling

Contributions

 $The Department of Chemical Engineering \, gratefully \, acknowledges \, the \, generosity \, of its \, Alumni \, and \, Friends. \, The Department of Chemical Engineering \, gratefully \, acknowledges \, the \, generosity \, of its \, Alumni \, and \, Friends. \, The Department of Chemical Engineering \, gratefully \, acknowledges \, the \, generosity \, of its \, Alumni \, and \, Friends. \, The Department of Chemical Engineering \, gratefully \, acknowledges \, the \, generosity \, of its \, Alumni \, and \, Friends. \, The Department \, of \, Chemical Engineering \, gratefully \, acknowledges \, the \, generosity \, of its \, Alumni \, and \, Friends. \, The \, Chemical Engineering \, gratefully \, acknowledges \, the \, generosity \, of its \, Alumni \, and \, Friends. \, The \, Chemical Engineering \, gratefully \, acknowledges \, the \, Gratefully \, acknowledges \,$ We have made every effort to include the names of those who have contributed. If we have omitted anyone, our apologies. Please let us know at: <u>alumni-news@che.udel.edu</u> so that we may correct the error. (Gifts received from July 1, 2006 through June 30, 2007.)

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ALUMNI NEWSLETTER

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Please fill out this form and return it to update the Department's records. If you have events happen during the year, please share them with us to be included in the next Newsletter: alumni-news@che.udel.edu

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pouse's Name		Spouse UD Alumni?				
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mployer Address		City	State			
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Would you like your name added to the Department Seminar mailing list? Yes No (There is no fee for alumni to attend seminars presented by distinguished leaders in the Chemical Engineering profession.)

Please use the other side of this form to give additional information about yourself, your career and family. Do you have any questions or requests? Please let us know and return this form to:

Office of the Chairman, Chemical Engineering, University of Delaware, Newark, DE 19716.

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e would love to include any pictures you have as well in the next Newsletter, complete this page and mail to fice of the Chairman, Chemical Engineering, University of Delaware, Newark, DE 19716, or drop us an e-mail umni-news@che.udel.edu							

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Biochemica	Catalian Co	in Ener	"gv/c	En.	Poly	There is the	SVc+	Thomas	DOM (2	
Biochemical/Bio	Catalysis/Rea Innedical	Olloids/Inter	"gy/Sustaina Maces	Environn ability	nental Mal	ess Control mers/Comp erials	Posites A	Thermody, halysis	Sport/Separa	ations.
Maciek Antoniewicz										
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