



University of Delaware

Chemical Engineering

UNIVERSITY OF DELAWARE

FOR

NEWSLETTER

ALUMNI & FRIENDS

2005

AIChE Reception

Delaware Alumni Reception

Monday, October 31, 2005

7:00-9:00 p.m.

Cincinnati Convention Center

Cincinnati, OH

ALUMNI & DEPARTMENT NEWS

INSIDE THIS ISSUE...



Letter from the Chairman	4
Coordinator Message	6
Seminars	9
Alumni Updates	10
Faculty News	20
Student News	26
Contributions	30

ON THE COVER:

*Crystals of catalase grown
by bulk crystallization at
low salt concentration, pH 7*

--Andre Dumetz
Graduate Student
Eric Kaler Research Group

Inside This Issue...

LETTER FROM THE CHAIRMAN

Annual Message..... 4

COORDINATOR MESSAGE

Recruitment Process 6

SEMINARS

Cutting Edge Topics 9

ALUMNI UPDATES

What Have You Been Doing? 10

FACULTY NEWS

Significant Accomplishments..... 20

DEPARTMENT NEWS

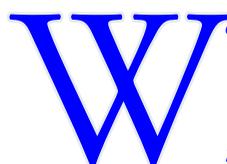
Leading the Way 25

STUDENT NEWS

Recognized at Honors Day..... 26

CONTRIBUTIONS

Acknowledgements 30



A large, stylized blue letter 'W' logo, which is the first letter of the word 'Welcome' in the text below.

Welcome, 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

A LETTER FROM THE CHAIRMAN



Welcome, alumni and friends, to our department newsletter! With the help of outstanding contributions from faculty and staff, I am pleased to report to you about the accomplishments and initiatives of our very dynamic department. I hope that your connection to the department will continue to be a source of pride well into the future. Indeed, we strive to be an organization that you can be proud of, while at the same time attracting new students, faculty, and sponsors to our enterprise.

At the risk of perpetuating a cliché, I can think of no more apt description of the present than the supposed Chinese curse, “May you live in interesting times.” We do, indeed! By the time that you read this, the faculty will have spent a retreat discussing future directions of the department. Some of the motivations for this assessment appear with increasing frequency in the popular and scientific press – the grand challenge of establishing a sustainable energy future for this country, and indeed the world. Others will likely have escaped the notice of those outside of academia. While flat Federal R&D budgets may not seem like a crisis, the devil is in the details. At the **National Science Foundation**, for example, the success rate for proposals submitted to programs most closely associated with chemical engineering has dropped as low as 5%. Many of you in industry will likely have seen a similar erosion of investment in research by your own companies. Each week seems to bring a new article or book with a title like “*Is the U.S. losing its innovation edge?*”, “*The Flight of the Creative Class*”, or “*The Knowledge Economy: Is the U.S. losing its competitive edge?*”

What is our response to these “interesting times?” I am proud to say that it has been to commit, not only to maintaining the initiative to be at the forefront of chemical engineering research and education, but to innovate and adapt our programs to meet the needs and challenges of our students for the future. As an example of the former, we made a conscious decision in the face of a very competitive funding environment to maintain the size of our entering graduate class. We were able to do this because of the past strong support of alumni and friends. At the same time, we are aggressively pursuing new research and funding initiatives for the future. We have reversed the declining trend in industrial research funding in the department both by focused interactions within the U.S. and by building new bridges to European and Asian companies. We are continuing to revise our graduate curriculum and course offerings, while at the same time implementing more multidisciplinary traineeship opportunities for our students.

Those of you who are bachelor’s degree alumni may wonder how all of this affects our current undergraduates. Believe me, it does. Having a vigorous research program is a *sine qua non* of attracting top faculty, top graduate students who serve as TA’s and Teaching Fellows, and industrial recruiters who hire our students, as well as garnering the internal and external resources that have allowed us to offer highly ranked degree programs at all levels for our entire history. The more than half of our undergraduates who carry out research as part of their studies are the most direct beneficiaries of the research strength of the department, but they are by no means the only ones.

This fall our BChE program will undergo an accreditation review by **ABET**. This will be our first review under the EC2000 guidelines, which emphasize assessment and continuous improvement. Many of our recent alumni have provided important feedback to us through on-line surveys, and we are grateful for your thoughtful comments and suggestions. Feedback from a variety of constituencies, including employers, alumni, and students, is an integral part of the assessment and improvement process. While the outcome of our accreditation visit remains to be seen, the department has long embraced the philosophy of continuous improvement and we are proud of the many positive changes that we have made to the program over the past six years. We have had to institute more formalized assessment and documentation of what we do, but the most critical ingredient, the department’s culture of pursuing

excellence, has long been in place. I was pleasantly dismayed by the remark by a colleague from another department that we were too quick to fix problems when we found them – that a more deliberate pace of assessment, discussion and documentation might play better with program evaluators! We shall see who is proven correct. Given the admonition to “lead, follow, or get out of the way,” there is no question which one we choose!

Education is a “people” business, and one of our objectives is to support the development of all members of the department: students, staff and faculty, as much as we can. Two initiatives during the past year illustrate that commitment. We created a new position, Undergraduate Services Coordinator, and recruited *Ms. Sharon Anderson* to fill it, but more importantly to help define and build it. While faculty remain engaged in a variety of programmatic activities outside the classroom, including recruitment and advising, we found that the scope of these plus scheduling, progress monitoring, internship information and coordination, had simply grown beyond the ability of a decentralized network of faculty to stay on top of. Sharon is the central point of contact for undergraduate program-related help for both students and faculty. With her leadership, we look forward to taking a more proactive approach to student recruiting, career development and outreach to potential students, as well as assisting our students in navigating academic programs and opportunities.

A second initiative, made possible through the generous support of *Dick* and *Marilyn Emmert* and of **The Merck Company Foundation**, has been the launch of two new Junior Faculty Fellowships. The rationale for these is really very simple. One of the major perceived negatives of a faculty career is that the critical years leading up to tenure are also the prime time for starting a family. While the University offers parental leave, few faculty, male or female, opt for the career interruption that this entails. The objective of our new faculty fellowships is to boost the careers of outstanding young faculty as they emerge from the initial 1-2 year start up phase. While the use of the fellowship is up to the faculty member, one envisioned use is to support a post-doctoral fellow who can provide some maturity and leadership to a new research group during this critical period, perhaps making the balance between family and career just a little more manageable for the faculty member. Inside you will read about *Chris Roberts*, our Merck Faculty Fellow, *Brian Willis*, the Emmert Faculty Fellow, as well as *Eric Furst*, the recipient of the DuPont Young Faculty Award. Our hope is that by establishing such fellowships over the long term we can have a decisive effect, not only on the quality of life for our young colleagues, but also in continuing the growth of an increasingly diverse faculty. For all of the formal things we do in the classroom, providing role models and relevant life experiences is a crucial part of mentoring the outstanding young women and men who are our reason for being here in the first place.

Several of our outstanding students are highlighted within the pages that follow. For the second year in a row, a chemical engineer has won the University’s Alexander J. Taylor Award as the outstanding senior man. Following in the footsteps of last year’s winner, *Charles Collins-Chase*, *Will Tisdale* was the 2005 recipient of this award. Will earned an Honors Degree with Distinction in Chemical Engineering, with a minor in Economics. He was active as an officer of a variety of student organizations during his years at Delaware, and spent a Winter Session in South Africa working with children who were infected or orphaned by HIV/AIDS. You will also read about *Jessica Penetar*, an honors graduate who will spend the next two years serving as a **Peace Corps** volunteer in Latin America. In many ways Jess prepared for this before and during her years at UD, through extensive community service, Spanish language courses, and Study Abroad in Costa Rica. While we would like to take credit for all of our students’ accomplishments, it is very clear from Jess, Will and many others, that their sense of personal direction was established long before they became part of our community.

We do take pleasure and pride, however undeserved it may be, in the accomplishments of all our students, past and present. We hope that you enjoy reading about the latest developments in the department, and will share your news with us, too. We are most grateful for your support of our endeavors, and look forward to your messages and visits throughout the year!


MARK A. BARTEAU
CHAIRMAN

In my role as alumni news coordinator, it is appropriate to ask (rhetorically) just how are the UD chemical engineering graduates doing these days. Although I don't have enough of the right data for a definitive and accurate answer, I will give my best guess with the hope that you might add your thoughts, corrections, and observations.

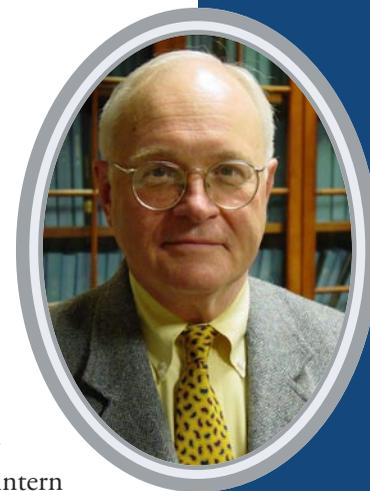
In the last ten years the market for new chemical engineering graduates has shifted dramatically. It wasn't too long ago that nearly every CHEG graduate had a least one job offer, and many had several, and a few, too many. Industrial recruiters typically were former graduates, and they spent quality time trying to reach their employment goals by interacting with our faculty and students. Exceptional students then had multiple job offers for intern positions, then called industrial summer jobs. Students with good grades expected to be courted for employment. Showing up at Career Services for interviews was all one needed to do to obtain a job offer.

While the employment prospects for the 2005 class seemed to be better than the previous year, it was far removed from "*the good old days*". At graduation nearly all of the top half of the class were on their way to graduate school or had accepted employment. Fewer in the lower half had jobs or graduate school placement, but by the end of the year I expect most of the rest will. This year Merck hired four undergrads, Unichema two, and the rest were singletons. Multiple job offers now are rare, and a common mode of job search is to take the first job offer since multiple offers are very hard to obtain.

The placement market for graduate students also is less robust than in the past. Although academic placements are extremely competitive, we have been quite successful in this arena. Our placement of new faculty has averaged 5-6 per year since the late 90's, a remarkable rate. Industrial openings for PhD's have diminished somewhat as the chemical and petroleum industries downsized and relocated their research programs. The pharmaceutical industry has been active in hiring for the last ten years, but recent consolidations and revised economics have slowed these placements. Post-doc positions have become part of the resume building process for an increasing fraction of students, whether their goal is an academic or industrial position.

These issues are part of the agenda for our retreat. The department wants to improve the job prospects for our graduates, and the faculty needs to sort out the changes needed. Many of our undergraduate students are unaware of the arduous path to employment, assuming, as in the past, a trip to an on-campus job fair and a quick draft of a resume for the Career Services center will be enough. In turn Career Services receives mixed reviews from students and faculty, and the department needs to identify the positive services and make suggestions for improving the negative aspects. We need to make certain the students understand the steps in a job search, have in fact made preparations, and have the confidence needed to be comfortable and in control of themselves in interviews.

Here are some obvious trends: the first cut in hiring often is based on a one-page resume, and this resume should be adjusted for the specific job opportunity. The prospect is expected to have clear career goals and an understanding of the way each company works; i.e., to have read and understood the informational materials of the company. Since there are fewer companies coming on campus for initial interviews, it is useful to have contacts. Job search after graduation requires persistence and a huge tolerance for frustration. Much



of the initial selection of candidates is done by Human Resources personnel, who may place more weight on personal skills than engineering excellence. HR interviewers may work from a fixed set of questions which an alert candidate should know and be able to answer convincingly. As an example of one of these questions, "Please give an example of a problem which you solved by exhibiting leadership of a group." The question is reasonable and easy to answer if the candidate has thought about it before. Those without preparation need unusual verbal dexterity. All of these items are obvious to those with only several years of experience. The department recognizes the need to improve the job seeking skills of our students, and would welcome your suggestions and experience.

We also need help from alumni. Summer industrial experience is extremely valuable for our students, and these opportunities have diminished of late. Should you be aware of one of these openings or should you be able to create one, please let us know. We will in turn find ways to identify suitable candidates. When the intern experience is over, we would also appreciate an informal and candid evaluation of the individual, first, to pat ourselves on the back when the individual was exceptional, and more importantly, to pass on items which need to be improved for those who were not. Since there are fewer firms visiting the campus for permanent employment interviews, we also would appreciate leads for these opportunities.

The Alumni Notes give two successful examples. **Neal Weisman** was hired in 2001 by Axens NA, a design and construction firm serving the petroleum industry. This placement was unusual because all their previous hires had at least five years of experience. Neal said he was successful in this environment because of all of the problems he had solved here, and this small firm subsequently hired three other undergrads. **Jennifer Martin McNay** is the Director, Purification Development, for Regeneron Pharmaceuticals. She has hired three undergraduates into her division, all of whom did undergraduate research with **Anne Robinson**, and consequently were prepared for work at Regeneron. We seek similar help from alumni in finding employment opportunities.

The continuing assistance of **Jack Weikart** in providing material for the Alumni Notes is appreciated greatly. **Jack** has an uncanny ability to recall alumni while reading notices, obituaries, and the like; he's alert when most of us are not. Thank you again, Jack.



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www.aiche.org/conferences/annual/index.htm



Outstanding Alumni

Matthew Neurock, PhD92, received *The 2005 Paul H. Emmett Award* in Fundamental Catalysis at the 19th North American Catalysis Society Meeting in May for his pioneering contributions to theoretical methods for the analysis and prediction of catalytic rates and selectivities.

After receiving his PhD, working with **Mike Klein**, in 1992, Matt spent a year as a postdoc at the Schuit Institute of Catalysis at the Eindhoven University of Technology in the Netherlands. (The Schuit Institute is named for **George Schuit**, who was also a Research Professor in our department for a number of years after his retirement from Eindhoven.) Matt returned to Delaware as a Visiting Scientist in the Corporate Catalysis Center at the DuPont Chemical Company in Wilmington from September 1993 to December 1994. In 1995, he joined the faculty in Chemical Engineering at the University of Virginia and in April 2005 was appointed the *Alice M. and Guy A. Wilson* Professor of Engineering.

Matt's research has involved the development and application of theory and atomic-scale simulation in concerted and well-constructed efforts directed at the elucidation of catalytic reaction mechanisms on metal and oxide surfaces as well as understanding and designing active sites as they exist in realistic and complex reaction environments. He and his group have integrated ab initio quantum mechanical methods along with kinetic Monte Carlo methods to simulate catalytic performance and the explicit effects of the reaction environment. His studies have brought important insights into the roles of surface structure, surface coverage, crystallite size, condensed media, alloying, and transient intermediates for a range of different catalytic systems.

Matt was chosen as a *Distinguished Catalysis Researcher* by Pacific Northwest Laboratory. He has co-authored over 130 publications and 2 patents. His plenary or keynote lectures at international meetings number 32 and his invited talks to academia and industry 120. He has also co-authored 90 technical meeting presentations. He is the liaison for Southeastern Catalysis Societies to the North American Catalysis Society and he has organized over 27 different scientific sessions and symposia. He has also organized a number of workshops and tutorials on the application of theory and simulation to catalysis and nanotechnology. He currently serves on the Editorial Board for Catalysis Communications and Advisory Board for the Pacific Northwest National Laboratories Institute for Interfacial Catalysis. He also serves on the Advisory Board for the Department of Chemical Engineering and Materials Science at Michigan State University as well as the Board of Directors for the Catalysis and Reaction Engineering Division of AIChE. He was a founding committee member for the American Institute of Chemical Engineers Group 21 Computational Molecular Science and Engineering Forum and their Liaison to the Catalysis and Reaction Engineering.

Professor Neurock has received an NSF Career Development Award, a DuPont Young Faculty Award and Ford Young Faculty Award.

Matt was also one of the co-founders of Catalytica Novotech, a highthroughput catalysis discovery company. Catalytica Novotech merged with Nonlinear Dynamics to become Novodynamics, Inc.

SEMINAR SERIES

February 11, 2005

Johannes Khinast

Rutgers University

“Mass Transfer, Mixing and Chemical Reactions in Deformable Bubble Swarms”

March 4, 2005

Umit Ozkan

Ohio State University

“Oxidative Dehydrogenation of Lower Alkanes”

March 11, 2005

Colburn Lecture

Michael Graham

University of Wisconsin-Madison

“DNA Dynamics in a Microchannel: Theoretical and Multiscale Simulation Studies of Relaxation, Diffusion and Shear-Induced Migration”

April 14, 2005

Pigford Lecture

Adam Heller

University of Texas at Austin

“Drug-Delivering Integrated Therapeutic Systems”

April 29, 2005

Rich Rocheleau

Hawaii Natural Energy Institute

“Hydrogen Fuel Purity: Effect on Fuel Cell Performance”

May 13, 2005

Kookheon Char

Seoul National University

“Interfacial Aspects of Ultrathin Multilayered Films”

September 9, 2005

Christian Lastoskie

University of Michigan

“Stochastic Process Modeling in Biology and the Environment”

September 16, 2005

Eric Stuve

University of Washington

“Direct Oxidation of Hydrocarbon Fuels in Solid Oxide Fuel Cells”

September 23, 2005

Pigford Lecture

Thomas F. Kuech

University of Wisconsin-Madison

“The Chemical Interface in Microelectronics”

September 30, 2005

Wohl Lecture

Alexandra Navrotsky

University of California at Davis

“Drug-Delivering Integrated Therapeutic Systems”

October 7, 2005

Bradley D. Anderson

University of Kentucky

“Drug Stability in Amorphous Solids: Insights from Molecular Dynamics Simulations”

November 11, 2005

James B. Rawlings

University of Wisconsin-Madison

“Process modeling dynamics and control, nonlinear model predictive control, state estimation and process identification, particle technology”

November 18, 2005

Charles M. Roth

Rutgers University

“Molecular Design and Cellular Delivery of Oligonucleotides”

December 2, 2005

Roger T. Bonnecaze

University of Texas at Austin

“The Flow, Aging and Memory of Soft Particle Pastes”

WWW.CHE.UDEL.EDU/SEMINARS-NEWS.JSP

ALUMNI UPDATES

30's R. Laird Harris, B31, wrote that he and his wife, Anne Krauss Harris, have been living in the Presbyterian Retirement Community in Quarryville, PA since 2001. Medical issues have bound both of them to wheel chairs. "However I use a computer and am active in chapel program and Biblical studies. I published an article on "The Beatitudes—Teaching by Climax"...and I have other studies in progress. Strange as it may seem to some, I treasure my U. of D. engineering training as background for my life of theological teaching and ministry." Laird's e-mail address is: laird_harris@msn.com.

50's Girard E. Golden, PhD53, had an interesting engineering and business career with Esso-Exxon and other derivatives. He started as an engineer in the Baton Rouge refinery and finished his career as president of Lago Oil & Transport Co. in 1983. While he has played a lot of golf since then, he remains up-to-date on the global politics associated with oil production. This is a long way from his dissertation, "Fluid Flow Phenomena in Natural Circulation, Vertical Tube Boilers".

L. E. (Skip) Scriven, M54, PhD56, is the Regents Professor of Chemical Engineering at Minnesota. He remains active in research on coatings and teaches the graduate fluid mechanics course each fall at 8 a.m.

60's John L. Anderson, B67, was elected a Fellow in the American Academy of Arts and Sciences. John will be formally inducted into the Academy in October. John currently serves as Provost and Academic Vice President of Case Western Reserve.

In Memoriam:

Harris Theodore (Ted) Shore, 58, died Oct. 18 at his home in McLean, VA. Mr. Shore received a bachelor's degree in chemical engineering from UD in 1967. He earned a master's degree in business from Columbia University in 1969. According to an obituary in The Washington Post, he was an executive with Mobil Oil Co. and then ExxonMobil Corp. for 35 years, most recently managing "supply chain best practices" for its worldwide petroleum refinery system. Mr. Shore is survived by his wife, Deborah Rose Shore, of McLean, and his mother, Mary Shore, of Mount Laurel, N.J.

Dr. Bruce E. Jarrell, B69, (also MD, Jefferson 73) is now the vice dean for academic affairs and professor

of surgery at the University of Maryland School of Medicine. He is a gifted surgeon who specializes in kidney and liver transplantation and hepatobiliary surgery. Dr. Jarrell came to Maryland in 1997 as professor and chair of the Department of Surgery. Previously he was professor and head of surgery at the University of Arizona. While at Maryland, he expanded the surgical programs and developed innovative research studies and clinical trials. His department was ranked 11th nationally in total funding by the National Institute of Health. Dr. Jarrell intends to achieve similar growth of funding in educational research. Dr. Jarrell has written a number of books, including the popular textbook *NMS Surgery* and the new *NMS Surgery Casebook*. He received the teaching award from the student council in 99, 00 and 01, and the "Golden Apple" award for best clinical faculty member in 02.

Isaac C. Sanchez, PhD69, chemical engineering professor at The University of Texas at Austin, received a Five Who Care volunteer service award from Austin TV station KVUE. Professor Sanchez coordinates a program that feeds breakfast to hundreds of homeless in Austin. For almost ten years, he has arrived at the First United Methodist Church in downtown Austin every Tuesday and Thursday. Professor Sanchez was elected to the National Academy of Engineering in 1997. He is credited with key advances in developing plastics. For more information, please see www.engr.utexas.edu/news/articles/20040115625/index.cfm.

70's *In Memoriam:*

Walter Silowka, 57, of Allentown, PA, died August 14, after a 13-year battle with leukemia. Mr. Silowka earned his bachelor's degree in chemical engineering at UD in 1970 and later received his master's degree in chemical engineering from Lehigh University. While a student at UD, he served as president of the Tau Kappa Epsilon fraternity. He received the Engineering Alumni Association's Outstanding Alumnus Award in 1997, and he was a member of the Delaware Diamonds Society. Mr. Silowka worked for Air Products & Chemicals for more than 31 years, including serving as process design engineer, section manager, senior process engineer, director of process technology and corporate engineering, director of process safety and reliability and director of process safety, systems, standards and industrial hygiene. He

retired from the company on June 1. He is survived by his wife, Linda (Reitars) Silowka; daughter, Lara Silowka of Dana Point, Calif.; sons, David Silowka and Jeffrey Colfer, both of Allentown; brother, Peter Wayne, and his wife, Debbie, of Robbinsville, N.J., sister, Dolores, and her husband, John Aniunas, of Bel Air, Md.; and three nephews.

Jay J. Williams, B71, dropped in to talk with *Fraser Russell* and *Stanley Sandler*. He is now in private practice (MD, anesthesiology) in Dover, DE and lives in Wilmington. He pointed out that the 31 students in this class in the sophomore year all stayed on to graduate together. The class particularly disliked Saturday classes; “certain members” would sit in the last row and rest their heads against the chalk boards on the movable partition and doze off. Jay was proud of his ability to dose with his eyes open and be able to answer questions when called upon. After UD Jay earned his MD and PhD degrees at Penn and recently (2004) a MA from the UD’s Lerner College of Business and Economics.

John Orfe, B72, is serving at the Army Civil Affairs Directorate at the U.S. Embassy in Baghdad. He is working with the Ministry of Electricity to restore power in Iraq.

R. Craig Matthiessen, B73, was on campus April 26 to give an informational talk about the EPA to undergraduates. He is the Associate Director, Regulation and Policy Division of EPA. He and his wife, **Susan** (AS 73), live in Burke, VA and have three children, Melissa, Peter and Scott.

Richard Rocheleau, B73, PhD 81, gave a department seminar April 29 titled, “*Hydrogen Fuel Purity: Effect on Fuel Cell Performance*”. Rich is the director of the Hawaii Natural Energy Institute where one of eight major areas is testing fuel cells. Commercial hydrogen contains some residual CO, a poison for the platinum catalyst, and the response of a commercial fuel cell to H₂ containing low levels of CO was explored and analyzed. Under some conditions the cell output voltage was found to undergo substantial fluctuations with a period of about one second. The goals of his program are to develop rational specifications for hydrogen purity for fuel cells and to model the dynamics of cell operation, including loss of cell performance from permanent poisoning and catalyst deactivation.

Dennis Prieve, M72, PhD74, is the Gulf Professor of Chemical Engineering at Carnegie Mellon. In 2004 he became a Fellow in the *AIChE*.

Patrick J. Moore, B75, has been in Houston, TX, for nearly thirty years. He has been with Thermo Electron since 1983 and currently serves as the manufacturing manager. Thermo Electron produces analytical and process instruments. Patrick’s publication list includes multiple papers on the analysis of sulfur in process fluids. On a personal side, Patrick is the devoted uncle to seven nieces and nephews, active in singing (in a Celtic Chorus) and stage presentations, an accomplished artist and in love with hitting the golf ball consistently and well. He enjoys travel and is able to find something of unique beauty in every place he visits, i.e., he won’t choose any favorites.

When I asked **David Schechter**, B77, to comment on the future of the chemical, petroleum and pharmaceutical industries he replied: “Thank you for your note and the opportunity to share some observations...You may remember that I retired from managing other people’s money in 1997 when I was 42 and my kids were 1 and 3. I have persisted in that course despite the temptation that managing a ‘hedge fund’ offers. I don’t particularly follow chemical, petroleum or pharmaceutical companies because they tend to be larger companies where I have a harder time convincing myself I might know more than other investors.”

“Instead, I look at smaller companies whose fortunes in the stock market are generally tied to defined product lifecycles. Those kinds of stocks have a higher than average volatility, both up and down, and therefore present both more opportunity for profit and a larger potential payoff to diligent research.”

The Schechter Foundation supports an Honors Day Prize for a junior chemical engineering student...“who has the greatest interest and scholarship in challenging, non-engineering curricula.” It is awarded...“for distinction in arts, humanities and/or social sciences.”

This year **Terence Rensi**, M77, received two major awards from DuPont. The first was for Sustainable Growth Excellence with the title “*Reduced Footprint due to Operational Excellence*” and the second Engineering Excellence titled “*In-House VYDATE Manufacture*”. Both awards are related to a safer and more efficient way of

ALUMNI UPDATES

using methyl isocyanate. The sustainable growth citation reads in part: The project focused on dramatic step change for the overall process capability and reliability of the methyl isocyanate (MIC) unit at the LaPorte Plant. MIC is used to make Lannate and Vydate insecticides. The project, which involved more than 10 subprojects, increased production and reliability, eliminated tons of toxic waste, reduced energy consumption, and increased yields thereby reducing consumption of tons of raw materials. This project was one of 12 winners selected from among 58 nominations.

James C. Seferis, PhD77, Boeing/Steiner Professor of Polymeric Composite Materials and Professor of



Chemical Engineering, University of Washington, assembled a team of students from chemical engineering, business, management, psychology and law departments to work on a project called “*ContainerAir*”, building containers for airlines that weight only half as much as conventional material. After a development period of only eight

weeks they presented a smart container equipped with a microchip that allows it to be tracked and located at any time. The frame is made of recycled aluminum and it has carbon composite walls. The concept is that airlines will lease the containers and the *ContainerAir* project is now being tested in Korea in cooperation with Toray, a Japanese company specializing in the manufacture of carbon fibers, and Korean Air.

Karen A. Fletcher, B78, M82, was promoted in March to Global Marketing Director for DuPont Titanium Technologies. She is also a Six Sigma Top Line Growth Champion, and some of these skills are apparent in the lecture she gave in CHEG 432 *Chemical Process Analysis* on Six Sigma analysis. This is the second year Karen has given this lecture. Karen won a Harry S. Truman Scholarship in 1979 and was the first Delaware student to do so.

In June, **J. Gary McDaniel**, B78, was named chief executive officer of NanoEner, Inc. Gary has over 25 years of senior management and operations experience, most recently as president and CEO of Nanox, Inc. NanoEner is developing advanced nanomaterials for use in lithium batteries and other high-energy storage devices. The

company produces nanostructured electrodes that yields batteries with extremely high discharge rates and extended lifecycles when compared to existing technologies.

John Mosko, B78, is vice president of global marketing for Garlock Sealing Technologies, which deals in oil and mechanical seals, gaskets and air and compression packing.

R. Bertrum Diemer, M80, PhD99 was awarded a DuPont Engineering Excellence Award for his work on the “*In-House VYDATE® Manufacture*”. This project developed a vapor phase process for production and purification of methyl-isocyanate, which justified the in-house production of the insecticide, VYDATE®. Bert also was promoted to a Principal Division Consultant in November. He has been active in teaching CHEG 432, *Chemical Process Analysis*, with Dr. David Short for the last three years.

In October, **Darrel Stickler**, B80, wrote a thoughtful response to the 2004 newsletter: “Several entries in your intro and the Alumni section of the recent Alumni News had special meaning for me. First, the drop in job opportunities. I’ve had a varied career and it might illustrate perhaps non-traditional career paths for graduates.”

“I went to work for GE in San Jose, California out of school doing nuclear power plant design. This was right after Three Mile Island. I eventually became engineering manager on GE’s latest plant designs, working with Japanese partners as well as Bechtel and other companies around the world. I mention Bechtel specifically as I always took pride that *Bill Friend* and I shared the U. of D. connection (as well as *Dr. Metzner* as an adviser). After many years, I easily made the jump to high tech, moving to Applied Materials in Santa Clara, California, as operations engineering manager in the metal deposition division. It’s unfortunate the U. S. is losing its expertise in commercial nuclear power as the last gray beards retire. A serious opportunity lost.”

“The systems thinking that is part of the ChemE curriculum was invaluable as I took on responsibilities for all disciplines at GE (civil, mechanical, electrical and control) as well as applied materials. Like *Barry Bentley*, I gravitated to software development, writing project management software at GE and implementing advanced

engineering design systems, both as sidelines to my “day job.” At Applied I had a team of programmers on my staff to manage the custom engineering design systems we used, again as a side line, to the core job to design and ship customized wafer fab equipment.”

“To broaden my experience, I left engineering when I went to Apple Computer—also in the Bay Area—to work in supplier management, then moving to Cisco Systems in a similar capacity. And finally I made the jump to try software development as a “real” job, and am now managing business process and software development. What a long, strange trip it’s been.”

“I’m grateful for the education and training I received from the university. The breadth of subject matter and the business sophistication of the faculty still stand out after 25 years. There are many opportunities for U. of D. ChemE’s!”

Joseph Elad, M82, PhD Computer Science (Lamb & Dhurjati, advisors) received national press coverage



for the success his company, Quantum Leap, had in obtaining a contract from the U.S. Air Force Research Laboratory to create, develop, demonstrate and evaluate an intelligence-sharing system designed to better anticipate and preempt potential terrorist threats. See www.udel.edu/PR/UDaily/2005/mar/quantum071305.html for more information.

Scott Sackenger, B85, has been the product development manager at ENTEK for about a year and a half. ENTEK, located in Lebanon, OR is a small company with \$125 million/year revenue and 500 employees. While working in the porous polymer area, they have found a new way to support zeolite crystals that increases the effective reaction rate by 60x in comparison to beads. He and his wife, Denise, were expecting their third child in August.

Robert Tullman, B83, came to *Fraser Russell's* birthday celebration last summer. After chatting with him, I asked for some comments on his days at UD and afterwards. He replied: “I do not see too many of my former classmates... *Blair Souder* works for GE at Plastics and I see him every once in a while. As you know, I was not exactly Mr. Academics at that very interesting time in my life... If it weren't for *Rocheleau* and *TWFR* taking the troubled child in, well, anything could have happened... I have pretty warm feelings toward U. of D., but I also wonder how to really make some sort of impact, (or maybe that is better left for others... I don't know). I also struggle as my own DNA comes back to haunt me (and thrill me) in the form of my two young daughters... Life is pretty busy.”

“I am also a bit attached to Duke University where I completed a global executive MBA in December of 2002. Fabulous program...One of the smarter things I have done. I have matured a bit academically and really enjoyed redeeming myself at Duke and really ate up the global economics material. My wife and I are attending a retreat with the MBA/Law school in Prague this summer which is mostly boondoggle, but mixed with some interesting academic updates.”

Anthony Tillman, B86, is a supervisor with Verizon Communications.

David W. Drew, M87, was awarded a *DuPont Engineering Excellence Award* for his efforts on the project, “Increased Capacity and Uptime of Aniline and Nitrobenzene”. He and his wife, Catherine, live in Newark, DE.

Christian Lastoskie, B89, is now an associate professor at the University of Michigan with joint appointments in Civil and Environmental Engineering and Biomedical Engineering. He earned his PhD at Cornell, a year post doc at Sandia Lab, appointment at Michigan State and now at Michigan. He writes: “I still do work in the nanoporous adsorbents area, and have new research interests in computational biology (protein simulations) and environmental modeling (chemical fate and transport).”

“My wife, *Ann Marie Sastry*, was just promoted to the rank of full professor in mechanical engineering, biomedical engineering, and materials science and engineering. We have two children; our daughter, Katie,

ALUMNI UPDATES

who just turned 8, and our son, Peter, age 4. Christian will present a seminar here early this fall.”

Richard Fickelscherer, M85, PhD91, has continued his dissertation work on fault analysis and detection as a career. The fault analysis system has been upgraded to make it more versatile and easier to use. Rich’s small firm (Falconeer Technologies, www.falconeertech.com) has made a number of commercial placements. Prof. *Daniel Chester* (Computer and Information Sciences) and *Prasad Dhurjati* jointly directed Rich’s dissertation.

Jennifer Martin McNay, B93, is the Director of Purification Development for Regeneron Pharmaceuticals in Terrytown, NY. She has recruited three recent UD graduates for her group: **John Mattila**, B01 (who was recently promoted), **Jessica Prentice**, B02, and **Tess Beinke**, B04.

On November 17, 2004, Prof. **Chris Williams**, B93, of U. South Carolina, presented a Department seminar, “Bridging the Liquid Gap: In-Situ Vibrational Spectroscopy of Solid-Liquid Catalytic Interfaces”, in which he described a unique (i.e., tricky) way of following catalytic kinetics. After he finished his Ph.D. at Purdue in 1997, he held a NSF-NATO post doc fellowship 1997-1998 and has been at SC ever since. He has won an excellence in teaching and an excellence in research awards there.

Sarah Bannister, B95, PhD Illinois, will enter her third year of law school, and describes her status as follows: “...I’m beginning my summer associate position with Covington & Burling in DC, and I’m looking forward to a summer of interesting work and paychecks...”

“I’ve been selected as a Notes Editor for The George Washington Law Review for 2005-06. This means I get a group of 2Ls to shepherd through the case note and note writing process. I’m looking forward to it, as most of my Law Review experience to date has been pretty disappointing. Unfortunately, my graduate school experiences have left me with high expectations for the quality of academic research, and I have been singularly unimpressed with most of the professorial articles that have been submitted for publication. Of course, the beauty of the legal academic publishing world is that you can submit a lousy first draft to a journal and a bunch of 2L law students essentially rewrite it and do all your cite checking and substantiation for you.”

“Two other good things have come out of Law Review—my case note is being published, and I’ve had a chance to write my Note on a personal subject. Now, don’t laugh, but I’m writing about why it’s unfair that graduate students in the sciences and engineering are not considered “employees” for the purposes of the National Labor Relations Act and other federal workplace protections. It’s been a nice bit of therapeutic writing, and I’ll see if I can get it published here or in a labor law journal.”

Surita Bhatia, B95, gave a department seminar October 29 titled, “*Block Polyelectrolyte Gels: Fundamental Studies and Applications to Soft Biomaterials*”. The seminar presented the rheology and structure of two different block polyelectrolyte gels where one block copolymer is highly charged. The first copolymer, polystyrene: poly acrylic acid forms spherical micelles that organize into a glass. The second copolymer, poly lactic acid: poly ethylene oxide : poly lactic acid forms a network junction gel with tunable rheological parameters. This work also resulted in a patent application for “*Designing Stiff Hydrogels from Biodegradable and Biocompatible Polymers*”. At U. Mass. Amherst she is a joint principal investigator of a project titled, “*Optimizing Energy Metabolism for Diabetes Treatment*”. Besides this research she also won the College Outstanding Teaching Award. On a personal note she married *Dr. Peter Khalitah*, who is an assistant professor in the U Mass chemistry department.

Heather Heinrich, B95, MBA 2005, describes her ten-year career since UD as follows: “After graduating from the U. of D., with a B.S. in ChemE in 1995, I took a job with the Star Enterprise petroleum refinery in Delaware City, DE (later called Motiva, and currently Premcor). I worked as a Process Engineer on various refinery units for about four years. I dealt with a lot of catalyst sales people and began to get the sales bug. This is also when I took up golf, which proved to be a very addicting habit, and one I have been quite successful with.”

“To pursue my interest in technical sales, I took a position as Sales Engineer, later Regional Sales Manager, with Ametek in their Chemical Products Division, Wilmington, DE. I had technical and outside sales responsibilities for the Teflon heat exchanger and fluoropolymer tubing product lines. During my tenure at Ametek, I obtained my PE license (2002). In 2004, I

joined Degussa Corporation as their Account Manager in the Exclusive Synthesis and Catalysts business for the North East. I primarily work with the sales of precious metal powder catalysts and activated base metal catalysts for use in the pharmaceutical and specialty chemistry industries. I just completed the Executive MBA program at the University of Delaware (March 2005)."

"As for my golf career, I have won five out of the last eight club championships at my golf course and compete in the Delaware women's golf amateur championship, where I hold two top five finishes. I currently reside in the Wilmington, DE area. I work from home and the new job does require travel, mainly the north east, but I have a handful of accounts in the south east - which I don't mind traveling too because I love the warmer weather and the golf down there."

Christine Goldschneider Hirsch, B95, earned a MBA in finance from Clark University in Worcester, MA while working full time at Abbott Bioresearch. She was inducted into the business honor society, Beta Gamma Sigma. She writes: "...*Scott* (PhD, Mechanical) and I are doing great. We have a 2 1/2 year old son named Aidan. Keeping up with him is our fun! It has been a good year in Massachusetts with the Red Sox and the Patriots winning their respective championships. Truth be told we were still rooting for the Eagles! Scott is still with the Mathworks® (makers of Matlab® and Simulink® software), truly a dream job for him. He is an Application Engineering Manager."

"I am extremely happy in my new position at Cambrex. It is a very fast paced challenging position. I work closely with the client to ensure the project is delivered to their specifications by providing continuous communication, project metrics, and relationship management. I am excited to have a position that allows me to stay technical in the Biopharma industry, while getting to utilize my MBA. The projects I am currently working on are developing vaccines against potential bioterror agents."

Tom Tarka, B96, wrote the following to update his career: "Just over two years ago I started my first Chemical Engineering position at a company named Energetics in Washington, DC. About three months into the job I began work performing high level systems analysis work on CO₂ capture technologies being developed at the National Energy Technology Laboratory (NETL) in Pittsburgh. These technologies are being developed

for CO₂ capture from coal-based power plants in conjunction with DOE's Carbon Sequestration Program."

"The work has been going well and after a brief gap where I was working on some other projects, the client has requested that I move to Pittsburgh to work on-site at NETL and work full time developing and assessing CO₂ capture systems. Over the last two years the work has progressed from basic mass and energy balances to more detailed modeling and analysis. In short, it's gotten a lot more technical and I'm loving it."

Kathlyn Card Beckles, B97, worked a year for Frito-Lay before going to George Washington law school. She now is an Assistant general Council for J.P. Morgan Chase and lives on Madison Avenue in NYC. She credits *Al Uebler's* patent law course for getting her excited about law and a legal career. When asked by Mark Barreau which she had found to be the more challenging program, Chem E or Law, she answered without hesitation "Chemical Engineering". She said that when her former law school classmates complained about the difficulty, she told them that they didn't know what difficult was!

Mark B. Shiflett, M97, PhD02 was awarded the Bolton/Carothers Award from DuPont. This is a major award and was one of five given. Dr. Mark B. Shiflett, P.E., received this award for his work developing non-ozone depleting refrigerant mixtures for use in air-conditioning and refrigeration systems. Dr. Shiflett, along with others, patented several refrigerant mixture compositions in the early 1990's that were later commercialized in the mid 1990's as R-404A, R-407C, and R-410A. The HFC mixtures were designed to closely match the thermophysical properties of the existing CFCs, which made transition in existing equipment simpler than using a single HFC refrigerant. These mixtures have been adopted by the air-conditioning and refrigeration industry worldwide.

Craig Bennett, B98, finished a MS degree in chemical engineering at Rutgers while doing information technology, "IT", for Dean **Michael T. Klein**, B77. His biggest project was the creation of a financial "shadow" system that allows for easy management of grants, contracts, and State accounts. He is continuing on a PhD project with Dean Klein "...on a user friendly software system that will automatically generate a kinetic

ALUMNI UPDATES

reaction network based on available reaction types and feed molecules. This along with taking said network, building a computer model complete with intuitive interface and design.”

He has also purchased a town house, a Mazda car, and is engaged to a wonderful woman he met at Rutgers.

William Chirdon, B98, finished his PhD at Michigan last year. He is now a post-doc at Cornell University, working on heat generation and transfer in concrete. Surprisingly, this work is funded by the CIA. He also notes that this research topic is “...going to get my money’s worth out of my Heat and Mass Transfer coursework at U. of D.”

Scott Gross, B98, became the east coast project manager for Shell Hydrogen. His primary responsibilities are to build new integrated hydrogen fueling facilities (both gasoline and hydrogen) in the North East, and in coordinating efforts between Shell, GM, government affairs folks, and the media at the Benning Road site in Washington. Benning Road is the first operating fueling site in the world where both gasoline and hydrogen are sold under the same canopy. It also will have a center for visitors to learn the potential of hydrogen as an alternative fuel and to see a fuel cell vehicle being filled with either compressed H₂ or liquid H₂. As time progresses, Scott will also be working with various organizations on developing and adopting practical construction/fire codes and standards for use in hydrogen fueling applications.

Heather Hudson, B98, describes her current life as: “**Jerry (H. G. Sparks)**, B92) and I are living on the West Coast now, have been in Southern California for the past four years. We are both working for Amgen, a biotech company in Thousand Oaks. We have been married for two years now and have a daughter, Mallory, who is just about to turn one year old. It is very wonderful living out here, but we definitely miss the East Coast!”

Christy Prilutski, B98, finished her first year at MIT Sloan in the Leaders for Manufacturing Program, (24 month, dual MBA, MSE) and writes in part: “I’m getting ready for moving to Cincinnati and a two week plant tour through China before that. In the meantime, my MBA team won the “*First Year Challenge*” which is a strategy competition that all first year MIT-Sloan MBA students

participate in. So now my team gets to go present to *Ken Chenault*, the CEO of American Express.”

“On a more personal note, the (MIT LMP) students are involved in various committees which really direct the activities of the program – from planning the plant tours, to evaluating the long-term strategy of the program, to organizing the open house or running the internship allocation process. The students are incredibly active and involved in a wide sort of intramural teams (softball, ice hockey, Frisbee, water polo, dodge ball, volleyball) and fun activities like sailing, camping, hiking and mountain biking. One of my favorite activities was the Global-Entrepreneurship-Lab where over half of our class went to other countries in teams of 3-5 students for two-week consulting projects. My team evaluated a new technology in New Zealand and developed and evaluated business models for the best route to market.”

“On a postcard from China she visited a manufacturing site where 2000 women were jammed together assembling cell phones. This firm is hiring 5000 engineers this year. She is surprised that there are jobs left for us.”

Aaron Sin, B98, has been a post doc at Harvard Medical School since he finished his PhD at Cornell. In July he joined Protein Forest, a small start-up company in Watertown, MA. This company (www.proteinforest.com) focuses on miniaturizing and speeding up 2D gel electrophoresis protein separation. Aaron is looking forward to the challenge of debugging their technology and bridging the gap between the engineers and scientists in the company. Aaron and Ash (his partner for several years) will move into a nice three bedroom apartment in a three family home in Belmont MA, along with a five year old French bulldog (Cabot) and a one year old canary (Lando).

Tom English, B99, finished his PhD at Penn and in April joined National Starch as a project supervisor in the process technology group. His beginning assignments involved hands-on experience running lab and pilot plant scale equipment. “Other times I get to write batch sheets and status reports. I even get to do some engineering calculations and work on design problems.”

A note in CEN announced that **Andrew Full**, PhD98, has been promoted to senior research scientist at Adhesives Research. He has served on several successful product

development teams for commercialized pharmaceutical products.

Last year **Bryan Sauer**, B99, left Pfizer where he was working on process control, and he is now in his second year in the MBA program at Notre Dame. When asked what he was doing this summer, he replied: "I've ended up working for Ford this summer in Dearborn, Michigan, which has proven to be an interesting place to be. Ford Finance is rich in history, tradition, and excellence – and offers a great program for interns and full-timers alike. However, the automotive industry is challenging, and Ford as a whole, is taking a hit right now..." "So, my internship is within Internal Controls. The assignment was a surprise to me, but being at the heart of the Sarbanes-Oxley drama right now it has a lot of visibility. This group is rolling out the policies, procedures, and practices necessary to meet the S-Ox requirements and maintain financial control."

Main project: implementing a Six Sigma project around several processes critical to S-Ox compliance. Identifying root causal factors for unauthorized commitments, developing solutions, and implementing solutions across the 40+ plants in NA. (Trying to get 40+ plants moving in the right direction brings new meaning to 'herding cats'...)

2000s **Jason Baxter**, B00, finished his PhD at Santa Barbara and will begin a two-year post doc with *Prof. Charles Schmuttenmaer* (Yale, Chemistry) in July. After an intensive round of interviews he has also accepted a position as assistant professor at Drexel to begin in Fall 2007.

Kiersten Fair, B00, announced her job change in April as follows: "After almost 5 years, I decided to leave Hercules for a position at the FBI Engineering Research Facility in Quantico. My division, called Operational Technology Division, works to develop and deploy new, technology-oriented tools and provides operational support for field investigations. I have only been here for a few months but so far I am really enjoying it and it seems to be a great fit."

The description above needed to be cleared with her supervisor. "Loose lips sink ships" as was said in WWII. After an extensive search she bought a townhouse in Fredericksburg, VA.

Erin Finehout, B00, defended her PhD dissertation at Cornell in late August. Her dissertation advisor was *Kelvin H. Lee*, a very highly respected bioscientist. She then will move to General Electric Global Research and Development (Bioscience Division), located in Niskayuna, NY.

Jennifer Serek Vitale, B00, writes: "A quick update on me: I spent 3 1/2 years in the Technical Operations department at Merck in Rahway. There I had some great opportunities, including supporting the manufacture of Arcoxia®, Primaxin®, Cozaar™/Hyzaar®, and Maxalt®. I also completed a lot of process development and optimization work to eliminate a step in the Arcoxia process and to optimize the Primaxin® hydrogenation to minimize colloidal catalyst losses, as well as many other development projects. I enjoyed my engineering work and did well there, but there was a little voice in me that kept telling me to try out sales. "I ignored it for a while, but finally decided to give it a try. I casually applied to some positions within Merck and ended up getting my current job. It was an opportunity I couldn't turn down! Now I am a Cardiovascular Specialist for Merck Schering Plough. I work for the newly formed joint venture that was formed between the two companies to market Vytorin™ and Zetia®. As a CV Specialist, I see cardiologists and endocrinologists and act as the scientific expert for my products in the Livingston, NJ area."

"On a more personal note, I got married on a very snowy day in December 2003 to *Chris Vitale* (and I did say goodbye to Serek and adopt Vitale). We just bought a house in West Caldwell, NJ and we will be moving there in December."

Ed Gatzke, PhD00, is as Assistant Professor in the Department of Chemical Engineering at the University of South Carolina. He currently has five PhD students (including **Andy Stamps**, B01) working on various topics related to process control and optimization, including parallel computing, global optimization, hydrogen production for fuel cells and biochemical reaction pathway modeling. In 2003, Dr. Gatzke was awarded an NSF Early Career Development award. In a far less formal way he notes: "The biggest update is that I have a 9 month old son. www.geocities.com/ed_and_andi/baby/."

Lisa Dietrich, B01, and **Jonathan ("JD") Davis**, B01, were married in late August in York, PA. Lisa is continuing to work in biopurifications at Merck's Rahway facility

and JD is a graduate student at Princeton. The couple is living in West Windsor, NJ.

Kim Dunham, B01, has been with ExxonMobil Research and Engineering in Fairfax, VA since graduation. She is: "...in our Automation and Optimization division, in the Process and Planning Optimization section. My group works on maintaining, troubleshooting, and updating optimizable refinery models (ORMs), using Aspen PIMS, for all of our worldwide affiliates. The end users of these models run them on a regular basis to make crude purchasing decisions and develop run plans for the refinery. ...hopefully you're happy to hear I am still a Chemical Engineer!" Indeed so, Kim.

Soujanya Tallapragada, B01, has been at Aberdeen Proving Ground since graduation. She's moving on and writes: "Things are going well here. It'll be 3 years on the job this July, but I am actually quitting on July 22 to go back to grad school to get an MBA from the George Washington University in DC. I can't wait!! I want to go into marketing/advertising in either the pharmaceutical or cosmetic industry. The full time MBA program is 2 years long, and classes start this August. Work has been going well - I've had the opportunity to travel to a lot of nice places this past year. I'm ready to get back to school though. I will be moving down to the DC area (probably Arlington or Alexandria) in July."

Neal Weisman, B01, wrote to *Norm Wagner*: "I just wanted to write you to let you know that I am still doing fine after four years out of the undergraduate Chemical Engineering program at the University of Delaware. ... because of the problems that I had to solve at UD, I was able to make a major impact at my current job (Axens North America in Princeton - one of the largest licensors of Petroleum/Petrochemical units). I was the first one they hired in the U.S. without any experience or a M.S. degree. They hired someone with several years' experience and a M.S. right before me. Afterwards they hired 3 B.S. from Delaware (**Russel Shnitser (2002)**, **Geoffrey Dubin (2002)**, and **David Schwatje (2004)**). It doesn't seem like a lot, but in the process department there are only about nine other permanent employees who average more than 15 years of experience. In many cases I have been the "lead engineer" (under only the project manager) giving presentations to clients and doing 80-99% of the design work. This year they were looking to diversify,

and I think they were looking at candidates from other schools."

Michael Strano, PhD02, was recognized in MIT's Magazine of Innovation Technology, issue, October 2004, in the 100 Innovators Under 35 section. He is an assistant professor at the University of Illinois, Urbana-Champaign. It states that he has arrived at a new understanding of carbon nanotube surface chemistry that allows carbon nanotubes to be sorted according to their semiconducting, metallic, or insulating properties. This breaks the major roadblock that has prevented nanotubes' use in devices.

Matt Panzer, B02, writes (in part): "Things are going very well so far at Minnesota for me...it's hard to believe that I've been a Ph.D. student for almost 3 years now! It seems like only yesterday that I was still taking classes at UD, working on J-Lab reports and the Senior Design project... My advisor here at Minnesota is *Dan Frisbie* and our group is working in the exciting field of organic electronics. The idea is that organic materials, including semiconductors, insulators, and even plastic substrates can be used in flexible, cheap, large-area electronics applications --- to accomplish things that are too hard or expensive to do with traditional silicon/inorganic technology. Most of our group's work focuses on organic semiconductor materials, which consist of both small molecules (oligomers) as well as polymers. Charge carrier mobility (a key parameter for semiconductor performance) in certain organic semiconductors has now reached a level close to or even above that of amorphous hydrogenated silicon ($\sim 1 \text{ cm}^2/\text{V}\cdot\text{s}$), enabling many possible applications such as transistor backplane arrays for LCD displays, radio frequency identification (RFID) tags, and chemical sensors. It's a bit of a change from the traditional ChemE problems I worked on during undergrad, but with a collaborative and interdisciplinary department here at Minnesota (CEMS) I've had the opportunity to really choose from a great variety of scientific and engineering challenges. So research is going well, grad school is just as fun as I thought it would be, and living in the Twin Cities has been terrific. When I'm not working in the lab, I play tennis for two amateur teams about 3 times a week at locations around the metro area. I also try to work in some quality time with friends."

Anna Martina Tyreus, B02, graduated from Washington University of Law in May. She is returning to the Wilmington area first to take the bar exam in July, then to begin a clerkship with Chief Justice Robinson in August, and will join Connolly, Bove, Lodge and Hutz in their Intellectual Property group following her clerkship. Martina concentrated on patent law throughout her legal training and remains excited by it. She is looking forward to combining her technical background with her newly acquired legal knowledge.

Russell Shnitser, B02, is a process engineer for Axens NA, a petroleum licensing company in Princeton, NJ.

Chang-Ching Chan, B03, is currently a part-time graduate student at Rutgers University while working full time for Bristol Myers Squibb. One of the drug products he is supporting (Baraclude – for Hepatitis B) was recently approved by FDA. In March 2005 he was promoted to Associate Research Scientist.

Everton Henriques, B03, defended his Master's thesis in material science at Alfred this spring. The title of his work is "*Solubility Limits and Conduction Mechanisms in Aurivillius Ceramics*". Of his oral defense Ev wrote, "My parents were happy to see my presentation, but sorry they were forced to miss the private grilling session from my committee and chair. You guys really enjoy making us earn these things don't you?!"

This summer he is writing two papers based on his thesis, preparing for the PhD qualifiers in the fall, and beginning work on his PhD research project.

Beth Schubert, PhD03, is now with Unilever HPC-NA in the Rolling Meadows, IL research lab. She describes her new job as follows: "My position involves using colloid and surface science techniques (mainly rheology and microscopy) to understand the microstructures and flow behavior for hair care and anti-perspirant/deodorant products. We mainly support product development, trying to understand how new product formulations relate to changes in rheology/microstructure, which can then be correlated to data from the consumer end (both product performance and sensory perception) to design the optimum product attributes. It's basically my thesis project as an industrial job, with a few trips to the hair salon added in for good measure (for research purposes, of course). Granted it's only been a month, but so far the job has been interesting AND fun, which is definitely a

good (and sometimes rare) combination to have. Thus far I've even utilized my skills as a lab tour guide when some of the executives from one of our largest customers visited our lab, so all those years of doing *MathCounts* certainly came in handy! [added note -Beth always accepted an "invitation" to entertain middle school groups for the annual *MathCounts* program.]

Belgin Baser, PhD04, dropped by to tell about her first year with Schlumberger in Sugarland, TX. She has been working on the formulation of viscous facturing fluids used in enhanced recovery of oil. While she was appropriately silent on the specifics of these fluids, she did discuss getting field experience with these products from a ship in the Gulf of Mexico and from a fleet of trucks in Angola and Cameroun. The African experience placed Belgin in extremely rough and poor country, far, far different from life in Europe or the US.

Jeff Cassel, B04, is a technical operations engineer for Merck in Albany, GA. The plant makes a large variety of intermediates which has given Jeff exposure to the factory floor, experience with batch process operations and some lab experience related to process optimization. In July 2004 he married **Erin Desfosse Cassel**, CHEP03, who also has a certificate in special education. Jeff is considering an MBA as his first option and then an MS in CHEG as a second.

Bob Groff, B04, accepted a job offer from the Pall Corporation to work as a Chemical Engineer. "Pall Corp. is a fairly large business that specializes in making filters for a wide range of applications. My job will involve traveling to clients' plants and recommending the correct equipment to satisfy their filtering needs. I currently live in Fredericksburg, VA, and I will mostly be traveling between the Baltimore/Washington area to work."

Janine Jelks-Seale, B04, is a research and development engineer for General Mills in Minneapolis.

Kristin Stoeber, B04 writes: "I am doing well - I'm with Merck in PA working on a therapeutic protein production process. I'm really enjoying it and learning an awful lot (including that some of the stuff we went over in class is actually important!) I work with **Ken Zak** (B04) and I see **Mike Lowinger** (B04) and **Pat Schilling** (B04) - who also work at the West Point site - often."

FACULTY UPDATES

Mark A. Barteau, Robert L. Pigford professor, was appointed January 1 as the *Robert L. Pigford Chair of Chemical Engineering*. This was made possible by a generous gift from the UNIDEL Foundation.

Mark A. Barteau, Robert L. Pigford Chair and department chairperson, was the 2004 recipient of the *Francis Alison Award*, the University's highest faculty honor. He delivered the 2005 Francis Alison Inaugural Lecture, "*Connections and Missing Links in the Catalysis of Everyday Molecules*", on May 18 and highlighted his current research on the formation of model catalytic materials.

The University's Board of Trustees established this award in 1978 to recognize the scholarship, professional achievements and dedication of UD faculty. **Professor Barteau** is a native of St. Louis. He earned his bachelor's degree from Washington University and both his master's and doctoral degrees from Stanford University. He came to UD because of the strength of the chemical engineering department and the creation of the Center for Catalytic Science and Technology (CCST) which conducts research in his area of interest. He was named director of the center in 1996 and was named department chairperson in 2000. For more information on **Professor Barteau** and this award, please see www.udel.edu/PR/UDaily/2005/oct/barteau111704.html.

The University has established an on-line video series entitled *Windows on the Green* that features some of its accomplished faculty. The video (www.udel.edu/PR/windows/) highlights the teaching and research of Dr. Barteau.

Douglas J. Buttrey was promoted to full professor in 2005. **Doug** received his bachelor's from Wayne State University and his Masters and PhD from Purdue University. His research is directed toward determination of relationships between composition, structure, and physical properties of complex oxide materials with the ultimate goal of producing new technologically useful materials by design. In particular his research group is interested in materials which impact on applications in superconductivity, fast ion transport, and catalysis.

Eric W. Kaler, College of Engineering Dean and Elizabeth Inez Kelley Professor, was this year's recipient of the *E. Arthur Trabant Award for Women's Equity*. **Dr. Kaler** was chosen by UD administrators, students and faculty from the University for his ongoing efforts to boost the number of female faculty members in the College

of Engineering and for his initiation of UD's Women in Engineering (WIE) program and satellite mentoring program. In addition to spearheading the WIE program, which fosters an equal-gendered atmosphere in the College of Engineering, he also instituted and nurtured the WIE mentoring program, where female engineering undergraduates are paired with female engineers from local companies.

Dr. Kaler was instrumental in hiring five female faculty members in the past year, and has been very involved in the partnership between the university and the Chesapeake Bay Girl Scouts Council. He received an engraved plaque at the honorary luncheon on May 26.



Please see www.udel.edu/PR/UDaily/2005/mar/kaler0607051.html for more information.

Dr. Kaler was also named one of two recipients of the Chemical Society of Japan (CSJ) *Division of Colloid and Surface Chemistry's 2005 Lectureship Award* and has been invited to lecture at its annual meeting in

Utsunomiya, Japan in September. **Eric's** research focuses on microemulsions, micelles and vesicular dispersions, and concentrated colloidal suspensions. He received his bachelor's from the California Institute of Technology and his doctorate from the University of Minnesota. **Eric** joined the Department of Chemical Engineering in 1989 and was named *Elizabeth Inez Kelly Professor* in 1998. He was appointed dean of the college in 2000. Please see www.udel.edu/PR/UDaily/2005/mar/kaler030705.html for more information.

Jochen A. Lauterbach, associate professor in chemical engineering, was interviewed for an article in The News Journal published on March 12, 2005 entitled "*UD team develops a converter, now they're looking for converts*". In this article, he talks about his fascination with catalytic converters, which began while racing cars in Germany. When the German government in the 70's ordered race cars to have these anti-pollution devices, **Jochen** decided to learn how they work, sparking his interest in catalytic converters. Today, that interest is paying off. **Jochen** is part of a university team that has found a way to use cheaper alternatives to the precious metals currently used. This technique which relies on cobalt is currently in the process of being patented. This is a bargain since cobalt is \$16 a pound. The precious metals currently



used in the manufacture of these devices—platinum and rhodium, are \$870 an ounce and \$1,600 an ounce respectively. Jochen and several students wrote a paper on the process and it was published in *Catalysis Communications*. The process was also highlighted in *Chemical and Engineering News* (“*Cheaper Auto Exhaust Catalysts: High-throughput screening reveals promising low-cost Co-Ba catalyst*”, Volume **83**, Number 5, January 31, 2005). He was also interviewed for a February 21, 2005 UDaily article, “*Research shows potential for auto emissions control*”. To read the complete article, please see www.udel.edu/PR/UDaily/2005/feb/auto022105.html.

Abraham M. Lenhoff, Gore Professor, is a co-director of The Institute for Multi-Scale Modeling of Biological Interactions, which is supported by a three-year, \$2.7 million grant from the U.S. Department of Energy (DOE). This new advanced institute dedicated to computational biology research and education, has been established by the University of Delaware and Los Alamos National Laboratory, in partnership with Johns Hopkins University.

The institute, directed by **Michael Paulaitis**, Johns Hopkins professor and former UD faculty member, will draw on a variety of scientific disciplines to study biological systems across multiple scales of time and length, ranging from protein interactions at the molecular level to the behavior of complex biochemical networks in entire organisms.

Participants will be drawn from such diverse disciplines as biophysics, chemistry, physiology, chemical and biomolecular engineering, biomedical engineering, mechanical engineering, and electrical and computer engineering.

The DOE grant will allow the new institute to support doctoral students and postdoctoral fellows. Approximately 10 graduate students and postdoctoral fellows are expected to participate in the training program at any one time. **Dr. Lenhoff** said UD hopes to add two graduate students and one postdoctoral fellow to the program each of the first two years. **Dr. Lenhoff** also said that the institute is primarily a training program for the students and also will serve as a means to foster collaborations, both internally and with the researchers at Johns Hopkins and Los Alamos.

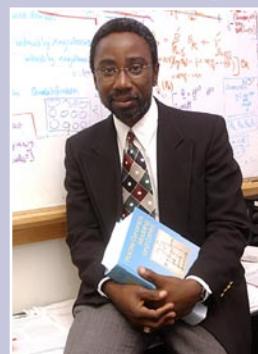
Dr. Lenhoff said UD was selected as a partner in the project because it has strengths in the emerging field of systems biology that complement strengths at Johns

Hopkins in biophysics and bioengineering. **Professor Lenhoff** stated that systems biology is a “*very important emerging research area*” and one that is designed to “*provide insight on how very complex biological systems work*.” Please visit www.udel.edu/PR/UDaily/2005/dec/hopkins011705.html for the complete UDaily article.

Jan Mewis, visiting professor from Katholieke Universiteit Leuven, Belgium, won the *2005 Bingham Medal of the Society of Rheology*. More information on this award can be found in the *Rheology Bulletin*, Volume **74**, Number 2, July 2005. He was also awarded the Gold Medal of the British Society of Rheology.

Babatunde Ogunnaike, William L. Friend Professor, gave his Named Professorship Lecture entitled “*Understanding and Controlling Complex Process: A Journey from Engineering to Biology and Back*” on November 15, 2004. Professor Ogunnaike joined our department in September 2002. He has authored or coauthored four textbooks, including *Process Dynamics, Modeling and Control*, the dominant textbook in process control.

He’s also published 40 articles in refereed journals. The named professorship recognizes **William L. Friend**, who earned his master’s degree in chemical engineering from UD in 1958. He retired as executive vice president and director of Bechtel Group Inc. in 1998. He currently serves on our Advisory Council and received the *University’s Medal of Distinction in 2004* for his significant contributions to the international engineering and construction industry and the engineering profession. More information is provided at www.engr.udel.edu/newsletter/jan2005/named-professorship.html.



Babatunde Ogunnaike also received the *College of Engineering’s Slocomb Excellence in Teaching Award*. Students and recent graduates nominate a faculty member who demonstrates true excellence in teaching. This award is given to a full-time faculty member who exhibits a caring attitude toward students in the college, and demonstrates an exemplary commitment to public service, community involvement, and innovative activity. It carries a cash prize for professional development during the next academic year. Although he won the *College of Engineering Excellence in Teaching Award* in 2004, he was still surprised to learn that he had been

FACULTY UPDATES

selected for the *Slocomb Award* this year. Tunde joined the department in the fall of 2002 after 13 years with DuPont Central Research and Development.

T.W. Fraser Russell, Allan P. Colburn Professor and Vice Provost for Research, was one of three individuals honored by the Board of Trustees at its semiannual meeting December 14, 2004 for their service and commitment to the University. **Dr. Russell** was recognized for his leadership in bringing “*a new spirit of effective communications and cooperation*” between the Office of Vice Provost for Research and the university’s research community. In addition, he was recognized for great improvements to the processing of sponsored research accounts and dramatically increasing sponsored research funding. He also was cited for obtaining increased research funding for young faculty and for starting the new summer undergraduate research program through the UD Research Foundation (UDRF). The board noted that UD has significantly increased its technology-transfer activities under Dr. Russell’s leadership. This has resulted in the formation of start-up companies based on UD technologies and the new licensing of UD technology to industry. He was also recognized for his efforts in moving UD technologies into the private sector with increased returns to UD through the creation of the UD Technology Corp.

Dr. Russell, a UD alumnus with four decades of faculty service, was recognized by the Board for serving with distinction as director of the Institute for Energy Conversion, Department of Chemical Engineering chairperson and acting dean of the College of Engineering. **Dr. Russell**, who served as Vice Provost for Research for the past five years, has returned to teaching. Please see www.udel.edu/PR/UDaily/2005/dec/specialres121704.html for the complete UDaily article.

Professor Russell, who was also recognized for his achievements as an outstanding teacher, researcher and academic leader, is a recipient of the *Excellence in Teaching Award* and the *Francis Alison Award*. He is a member of the National Academy of Engineering and a fellow of the American Institute of Chemical Engineers.

Stanley I. Sandler, Henry Belin duPont Chair, received the *AIChE Founders Award*, November 2004, Austin, Texas. This award recognizes outstanding contributions in chemical engineering and is presented to an AIChE member who has had an important impact on the field and whose achievements have advanced the profession.

Stan said that he attributes receiving this award to the opportunity he has had to work in one of the best chemical engineering departments in the country, his long research career, his long teaching career, and being active in AIChE for many years, most recently as the editor of the AIChE Journal.

Professor Sandler also received the *Hikal Distinguished Speaker Award*, Chemcom 2004, December 2004, Bombay (Mumbai) India. He was Plenary Lecturer, EMPOMER 2005, August 2005, Rio de Janeiro, Brazil, the L. T. Fan Distinguished Lecturer, Kansas State, Manhattan, Kansas, October 2005, the Amundson Distinguished Lecturer, University of Guadalajara, Mexico, dates to be determined, and the Tis Lahari memorial Lecturer, Vanderbilt University, dates to be determined.

Norman J. Wagner, who has attracted international attention for his work with the Army Research Laboratory on liquid armor, has been named the Alvin B. and Julia O. Stiles Professor of Chemical Engineering effective September 1.



Norm is very pleased with this appointment, especially since he knew Prof. Stiles, the late UD chemical engineering professor and benefactor for whom the professorship is named.

Norm has been a faculty member for 14 years and is working in several key areas of research, including shear thickening fluid that is best known for its use as body armor.

Professor Wagner also studies pancreatic cancer with researchers at Thomas Jefferson University Hospital, molecular transport in plants, directed self-assembly and rheology.

“The liquid body armor project is a really good example of why I have remained at UD,” **Norm** said. He explained that while working on shear thickening fluid, he attended several forums at UD’s Center for Composite Materials where he met representatives of industry and the Department of Defense and learned of

“It is truly an honor to receive this named professorship, particularly given the name it is associated with,”

--Norman Wagner

the need for a more flexible and stronger material for use in protective clothing.

“If we had not heard about the need, it might not have occurred to us to make the connection that Kevlar® coated with shear thickening fluid can provide a higher level of protection,” **Norm** said. “That is an important paradigm for UD. With its proximity to industry and government laboratories, we are able to apply basic science by finding novel applications.”

The liquid body armor has applications for soldiers and civilian authorities, making materials virtually impenetrable, and also in the medical field with regard to accidental needle sticks.

Norm is studying the molecular structure of cells, and specifically, the modeling of the transport of pharmaceuticals through the human body, with researchers at Thomas Jefferson University Hospital. He is developing molecular simulations to engineer polymers for potential pancreatic cancer therapy, applying the principles of chemical engineering to the human body.

In addition, **Norm** is working to understand transport in plant cells to better understand how plants grow and how they respond to drought, as part of a National Science Foundation Nanotechnology and Interdisciplinary Research Initiative (NIRT) team studying directed self-assembly of nano-scale structures and is heavily involved in rheology, and efforts to develop an international-class laboratory on the UD campus.

“We are trying to make the world a better place through science and engineering,” **Norm** said. “In chemical engineering, this is a very exciting time with many new opportunities in biotechnology.”

Norm received a bachelor’s degree from Carnegie Mellon University and a doctorate from Princeton University, and has spent his entire academic career at UD.

“I have benefited from a good administration, both at UD and in the College of Engineering, and good mentors in the department who have created an environment in which young faculty members can develop their careers and are encouraged to stay here,” **Wagner** said.

Richard P. Wool was featured in a February 22 *Wired* magazine on-line story about the use of chicken feathers to make circuit boards for personal computers. “*Chicken-*

*feather-based printed circuit boards will bring new meaning to ‘farmer in the Dell’,” Wool told *Wired*. **Professor Wool** wants to recycle discarded chicken feathers and use them for circuit boards. Circuit boards are usually made of an epoxy-fiberglass composite that is printed with wires and circuits. **Richard** hopes to use soybean oil to replace the epoxy and chicken feathers to replace the fiberglass. He said that quills are not used, just the hair on the feathers. They contain about 50% air which, would lighten the weight of the composite and create an environment conducive to high speed circuits. Five billion pounds of chicken feather are generated in the United States each year. **Richard** receives feathers for his research after the feather fibers have been converted into keratin mats that look like paper towels. The mats are put in a mold, layered on top of each other and hardened with a soybean resin. The final step is to put the hardened composite through the circuit-printing process and producing a circuit board. For more on the article: <http://wired-vig.wired.com/news/technology/0,1282,66361,00.html>.*

Composite materials made from waste chicken feathers and soy resins have been accepted to the prestigious library of the Materials ConneXion of New York and Milan. **Richard P. Wool**, director of UD’s Affordable Composites from Renewable Sources (ACRES) program, said that the chicken feather and soy resin composites can be used to create a wide variety of products, including a new generation of computer microchips, “*woodless*” construction materials, automobile parts and biodegradable packaging. **Richard** believes this research will result in improved materials that are environmentally friendly and will hopefully reduce dependence on petroleum. Please visit www.udel.edu/PR/UDaily/2003/connexion042403.html for more information. **Richard Wool’s** research group was awarded \$500,000 bio-based grant from the U.S. Department of Agriculture for working to develop advanced materials from chicken feathers and soybean oil. **Richard** said the grant will fund two main projects: using soy resins and chicken feathers in the development of computer circuit boards and using chicken feathers to create high performance, low cost carbon fibers. The article is available at www.udel.edu/PR/UDaily/2005/mar/rwool080405.html.



Fellowships for Young Faculty



ERIC M. FURST received the 2004 DuPont Young Investigator Award. This grant is given to a non-tenured faculty member who has held a full-time appointment for less than five years and its purpose is to encourage highly original research of value to DuPont while helping the faculty member begin his academic research career.

Eric earned his undergraduate degree at Carnegie Mellon University and completed his PhD at Stanford in 2000. He served as a postdoc at the Institut Curie in France for a year and joined the faculty here in 2001. Eric is using the DuPont funding primarily to fund a graduate student. His research focuses on the physics and chemistry underlying the behavior of a wide variety of materials found in products such as lubricants, paints, coating, and biopolymers used in tissue engineering. His group is using advanced experimental techniques, including optical tweezers, microrheology and confocal microscopy to understand the fundamental nano- and micro-scale properties that govern how these materials flow, structure, and respond to external forces, like magnetic and electrical fields.

CHRISTOPHER J. ROBERTS has been appointed the Merck Faculty Fellow. This fellowship recognizes a young faculty member who displays exceptional promise and will enhance the faculty fellow's research and professional development. This support can assist in attracting and supporting graduate students, or in attracting students to research programs which may not be fully funded. It may also be used to provide opportunities for participation in educational and networking programs and experiences within the engineering community that would assist in gaining exposure and support for Chris's research.



Chris earned his Chemical Engineering undergraduate degree from UD and his doctoral degree from Princeton. He spent three years as a research scientist with Pfizer before joining the faculty here. While at Pfizer, Chris did some internal teaching which led to his decision to come to UD. The research focus of his group is on modeling, predicting, and controlling protein degradation. Chris's long term goal is the development of a molecular modeling framework to permit more accurate protein stability predictions that will reduce the risk, cost and time for development of biopharmaceuticals.

BRIAN G. WILLIS has been appointed the Emmert Faculty Fellow. This fellowship provides financial support to a young faculty member who displays exceptional promise. The purpose of this fellowship is to enhance Brian's research by attracting students to research programs which may not be fully funded.



Brian received his bachelor's degree from Northwestern University and his doctoral degree from MIT. He spent three years as a research scientist at Lucent Technologies where he worked in the silicon electronic devices laboratory. Brian's UD research program is in the area of molecular electronics using molecules as building blocks for computing, sensing, and/or memory devices. Brian is applying reaction engineering principles to fabricate reliable electrical contacts to individual or small groups of molecules.

Department News

Winter Session 2006

A unique feature of the University of Delaware educational program is its Winter session, in which intensive courses are taught in the month of January in a Summer session format. Many of these courses are taught abroad, providing students with the bonus of an international experience, in addition their usual coursework. The first such international winter session program in chemical engineering will take place this January in Melbourne, Australia. Twenty-one senior students will accompany Professor **Stanley Sandler**, who will teach CHEG 445, the Senior Laboratory, and Adjunct Professor **David Short** who will teach an experimental course, CHEG 467, an Aspen®-based process simulation course at the University of Melbourne. Students will also hear lectures by Australian chemical engineering faculty, and participate in local social events and cultural activities. It won't all be work, as the students will also spend several days in the beautiful city of Sydney, and have the opportunity to visit the Great Barrier Reef.

The Department of Occupational Health and Safety recognized **George Whitmyre, Ron Egres** and the Department of Chemical Engineering for their efforts in standardizing the hydrofluoric acid



George Whitmyre

(HF) spill kits in the department. This project was led by **George** and **Ron** and increases the level of safety by ensuring easy recognition of the kits by HF users in the event of an emergency. This

facilitates a quicker response. It also helps with the periodic inventory of each kit in order to monitor and/or exchange items that may have been removed, used or expired.



Ron Egres

Dr. Adam Heller, Department of Chemical Engineering, University of Texas at Austin presented the Robert L. Pigford Memorial Lecture, "Drug-Delivering Integrated Therapeutic Systems" on April 14, 2005.

STUDENTSTATS: 2004-05

267 undergraduates enrolled

39 BChE graduates

STUDENT ACTIVITIES & AWARDS

GRADUATE STUDENTS:

Carolina Bianco received the AMGEN Biotechnology Minority Fellowship Award.

Abhijit Chatterjee received the University Graduate Fellows Award.

Ron Egres won a scholarship from the Industrial Fabrics Foundation for research that focuses on the energy dissipating properties of fabrics impregnated with shear-thickening fluids. The scholarship is for one year and is applied toward tuition and research expenses. The research is a collaborative effort—UD's Department of Chemical Engineering, led by **Professor Norman Wagner**, UD's Center for Composite Materials and the Army Research Laboratory at the Aberdeen Proving Ground in Maryland. Visit www.udel.edu/PR/UDaily/2005/dec/lba120804.html for more information. Ron also received the Center for Composite Materials R. L. McCullough Scholars Award.

Michael Enever received the Kokes Travel Award to attend the 19th North American Catalysis Society Meeting.

Javier A. Gomez received the Robert L. Pigford Teaching Assistant Award.

Yakov Lapitsky received the Fraser & Shirley Russell Teaching Fellowship for 2004-2005.

Kapil Mayawala received the Best Poster Presentation Award at the 18th Annual Mid-Atlantic Biochemical Engineering Consortium (MABEC) 2005 held at Rutgers University.

Kapil also received a travel award for the American Society for Cell Biology 2005 Summer Meeting on Engineering Cell Biology – The Cell in Context held at the University of Washington.

Caroline Nam won a 1st Place Overall Poster Award at the National American Chemical Society Colloids and Surface Symposium. Her title was “*The rheology and shear-induced microstructure of nanoaggregate, fumed silica dispersions*”.

Nicole E. Richardson, Jeffrey D. Rimer and **Prateek P. Shah** received Robert L. Pigford Teaching Assistant Awards.

Justin R. Spaeth received the Amerada Hess Corporation Award.

Rohit Vijay received the Garrett Reed Cantwell Graduate Scholarship.

Eric S. Welf won the top prize in a competition to develop problem-based learning units for use in teaching ethics. Eric presented a learning unit, “*Development of an optimum policy for regulating industrial-environmental interactions*”. For more info, please visit www.udel.edu/PR/UDaily/2005/oct/sigmaxi111904.html.

UNDERGRADUATE STUDENTS:

Rachel M. Adams received the National Starch and Chemical Company Undergraduate Scholarship.

Natasha A. Adnan received the Steven R. & Linda Justice Myrick Scholarship.

Michael Alexitch, Victor Carrio-Vazquez, Kristie Grammatikos, Celeste McCain,

Rubin Rosario and **Javier Velasquez** were honored as Latino/Latina Students of Distinction at a special ceremony hosted by President Roselle on May 13. Students must have a GPA of 3.0 or higher to be recognized. Victor also received the John R. Raymond RISE Book Award.

Alex J. Alfrey was awarded the Chemical Engineering Class of 1952 Scholarship.

Ivan Baldytchev received the Chemical Engineering Class of 1950 Scholarship.

Jordan L. Ballard was honored as an African-American Student of Distinction at a special ceremony hosted by President Roselle on May 7.

Matthew J. Decker received the Center for Composite Materials Undergraduate Research Award.

Matthew A. DeSieno received the Amerada Hess Corporation Award.

Nikki L. Ennis received the Bunnell Family Scholarship which recognizes outstanding students majoring in any discipline with an emphasis on technical studies. Selection is based upon academic performance. Nikki also received the Chemical Engineering Industrial Sponsors Scholarship Award and the Charles S. Joanedis Scholarship.

Scott Epstein presented a poster at the third annual undergraduate research conference of the Colonial Academic Alliance at Hofstra University in April, 2005.

Dustin R. Ferretti received the Robert L. Pigford Undergraduate Award and the Schipper Undergraduate Chemical Engineering Scholarship.

Joseph M. Houghton received the John Allan Thoroughgood Legacy Scholarship.

Stacy Huntoon received the Mae Carter Award. This award recognizes a returning adult woman student who has demonstrated strong commitment to scholarship and service to women. Stacy also received the Chemical Engineering Alumni Laboratory Award.

John B. Hrycushko received the Center for Composite Materials Outstanding Senior Award.

Jisha M. John received the Chemical Engineering Class of 1953 Scholarship.

Adrienne E. Klotz received the Merck Engineering and Technology Scholar Award.

Andrew W. Korinda received the Mr. & Mrs. James F. Kearns Scholarship in Chemical Engineering.

Caroline Lochner received the UD Scholar Award and a National Science Foundation Computer Science, Engineering and Math Scholarship.

Kevin Maggitti received a National Merit Scholar, University Honors Program Scholarship and UD Scholar Awards.

Zachary Mellinger received the Computer Science, Engineering and Math Scholarship and was accepted into the McNair Scholars Program.

Elizabeth J. Oeffinger received the American Institute of Chemical Engineers Junior Award and the Merck Engineering and Technology Scholar.

Geoffrey Oxberry was awarded the



2005-06 academic year scholarship by the Barry M. Goldwater Scholarship and Excellence in Education Foundation. This scholarship program encourages outstanding students to pursue careers in the fields of mathematics, natural sciences and engineering and is the premier undergraduate award of its type in these fields. It covers tuition, fees, books and room and board up to \$7500 per year. Please see www.udel.edu/PR/UDaily/2005/mar/goldwater040805.html for more details.

Geoffrey Oxberry also received the Amerada Hess Corporation Award.

Andrew T. Peiffer received the Robert L. Pigford Undergraduate Award, the George Fish Scholarship, the American Chemical Society Award in Chemical Engineering and the NSF Computer Science, Engineering and Math Scholarship.

Jessica Penetar, who has been involved in volunteer work for over ten years, joined the Peace Corps to work for social improvement in an underdeveloped region of Latin America. Her two-year three-month term with the Peace Corps will involve water sanitation/environmental engineering projects. This summer she had an internship with Hydroqual, a small environmental engineering consulting firm in Mahwah, NJ, as preparation. Her enjoyment of volunteer work is what led her to join when she graduated. Jessica was involved with the Girl Scouts



for ten years and was active with Circle K, the student division of the Kiwanis Club, throughout college. But the decision was made to join the Peace Corps after one winter session in Costa Rica.

STUDENT ACTIVITIES & AWARDS

Emily Peng received The Stanley Jacob Schechter Award. This award recognizes a junior student majoring in chemical engineering who has demonstrated the greatest interest and scholarship in challenging, non-engineering curricula. The award is based on academic merit with a preference for distinction in arts, humanities and/or social sciences.

Melissa L. Pittman received the Chemical Engineering Alumni Laboratory Award.

Christopher Pizarro was honored as a Latino/Latina Student of Distinction at a special ceremony hosted by President Roselle on May 13. They must have a GPA of 3.0 or higher to be recognized.

Justin L. Quon received the American Institute of Chemical Engineers Sophomore Award and the National Starch and Chemical Company Undergraduate Scholarship.

Michael R. Rasch received the Chemical Engineering Class of 1950 Scholarship and the Robert L. Pigford Undergraduate Award.

William B. (Ben) Rogers received the Chemical Engineering Industrial Sponsors Undergraduate Research Award. Ben also received 2nd place in the Green Engineering 2004 Student Poster Presentation Contest at the 2004 AIChE Annual Meeting in Austin Texas. The post title was “*Structure and Catalytic Properties of Alumina Supported Pt/Rh Bimetallic Nanoparticles Synthesized in Reverse Micelles*”.

Matthew G. Rosborough received the Chemical Engineering Industrial Sponsors Scholarship Award and the Charles S. Joanedis Scholarship.

Daniel D. Roth received the George Fish Scholarship.

Holly Schaeffer received the 2004 Bill N. Baron Fellowship Undergraduate Award. Holly is currently studying the effects of cobalt doping on the optoelectronic and photocatalytic properties of TiO₂ nanoparticles. Along with other students, she has written a proposal for a program offered by the United Nations Organization and the Chrysler Corporation that involves their interactions with students from a developing nation to solve an environmental problem.

Craig S. Schneider received the Mr. & Mrs. James F. Kearns Scholarship in Chemical Engineering.

Joshua A. Selekman received the George Fish Scholarship and the Honors Program Scholarship.

Justin R. Speth received the Amerada Hess Corporation Award.

Megan M. Stadler received the Chemical Engineering Alumni Laboratory Award.

Bryan E. Steuer received the Chemical Engineering Class of 1950 Scholarship Award and the CFIS Starr Scholarship.

Katelyn M. Thompson received the National Starch and Chemical Company Undergraduate Scholarship.

William A. Tisdale received the Alexander J. Taylor Award as the outstanding senior man. This \$2,000 award given by the UD Alumni Association recognizes honor leadership, academic success and community service. Recipients must have a cumulative grade point index of 3.0 or better at the end

of the first semester of their senior year. Will was first academically in his class. He minored in economics. Will was involved in scientific research with the Undergraduate Honors Thesis Program and worked on design and operation of a solid-source vaporizer for the chemical vapor deposition and atomic-layer deposition of strontium metal-organic compounds. Will presented his work at the AIChE meeting last fall. Will also served as the president of the UD chapter of the Tau Beta Pi engineering honor society and was an officer of the AIChE student chapter. This past winter session, Will traveled to South Africa and worked with children infected with or orphaned by HIV/AIDS. This trip was organized by the Battle for Life committee of the Alpha Lambda Delta honors service society. Will is going to the University of Minnesota to pursue a doctorate in chemical engineering. Please see www.udel.edu/PR/UDaily/2005/mar/warnertaylor050605.html for more information.

Will also received the Panel of Distinguished Seniors monetary award in recognition of outstanding scholarship to a panel comprised of one senior in each college.

Will Tisdale also received the American Institute of Chemical Engineers Senior Award and the Chemical Engineering Industrial Sponsors Senior Student Award.

Brian D. Walck received the Merck Outstanding First Year Chemical Engineering Student Award.

Christopher J. Walker received the Chemical Engineering Class of 1952 Scholarship.

Maureen A. Wanjare received the RISE Corporate Friends Award. This monetary award is given to a returning undergraduate student in engineering who has demonstrated outstanding scholarship and promise for success in the profession, provided by industry contributions to the RISE program. She was also honored as an African-American Student of Distinction at a special ceremony hosted by President Roselle on May 7.

Alison M. Wedekind received the Chemical Engineering Industrial Sponsors Undergraduate Research Award.

Robert J. Werner received the Amerada Hess Corporation Award.

Mark A. Yocum, II received the Robert L. Pigford Undergraduate Award.

Danny Bilbao	University of Utah
Brian Bowes	University of Virginia
Rebecca Brummitt	Tennessee Technological University
Edgar Caro Gonzalez	University of Puerto Rico
Seung-Wook Chung	Seoul National University Korea
Dustin Fickel	University of Maryland
Ashay Javadekar	University of Mumbai India
David Johnson	University of Connecticut
Adam Kristopeit	University of Wisconsin
Pushkar Lele	University of Mumbai India
Racheal Lewus	University of Virginia
Yi Li	North Carolina State University
Jason McMullan	Lehigh University
Melissa Miller	Drexel University
Peter Millili	Drexel University
Manish Mittal	Indian Institute Tech-Bombay
Bum Jun Park	Hanyang University Korea
Kathy Phillips	University of Melbourne Australia
Meghan Reilly	University of Massachusetts, Amherst
Christina Russo	New Jersey Institute of Technology
Gaurab Samanta	Indian Institute Tech-Kharagpur
Alan Stottlemyer	University of Florida
Mingjiang Zhan	Tsinghua University China



2005 Chemical Engineering **NEW** Graduate Students

Contributions From You

The Department of Chemical Engineering gratefully acknowledges the generosity of its Alumni and Friends. 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: alumni-news@che.udel.edu so that we may correct the error. (Gifts received from July 1, 2004 through June 30, 2005.)

Mr. and Mrs. Joseph M. Abrardo
Dr. Carolyn M. Acheson &
Dr. Leland M. Vane
Mr. and Mrs. Benjamin F. Adams, Jr.
Dr. Jitendra P. Agrawal
Air Products and Chemicals, Inc.
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Mr. and Mrs. Brian J. Bockrath
Mr. Richard E. Bockrath
Ms. Joan V. Boegel & Mr. Phillip M. Werth
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Mr. and Mrs. Dixon E. Brandt
Mr. and Mrs. Daniel D. Brengle
Dr. Loretto Brickfield & Mr.
Kevin M. McCoy
Bristol-Myers Squibb Company
Mr. Douglas F. Brown & Ms.
Agatha H. Hagepanos
Dr. and Mrs. George A. Brown
Mr. and Mrs. Lawrence A. Brown
Dr. and Mrs. Lee F. Brown
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2005

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Monday, October 31, 2005

7:00-9:00 p.m.

Cincinnati Convention Center

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