

UNIVERSITY
OF DELAWARE

CHEMICAL ENGINEERING

Alumni News

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a clear, gelatinous liquid,
the future of body armor
protection...pg. 20

AIChE Reception

Delaware Alumni Reception

Monday, November 8, 2004

7:00-9:00 p.m.

Hilton Hotel - Rm 404
Austin, TEXAS

2004

A LETTER FROM THE CHAIRMAN



Welcome, alumni and friends, to our annual newsletter! The past year has been an outstanding one, not only for our current students and faculty, but also for a number of you, our distinguished alumni. We hope that you will enjoy reading about the accomplishments and recognition across our large department family, and will perhaps share some news of your own for subsequent publications. It is very gratifying to hear from alumni throughout the year how much they enjoy our newsletters. Even more telling have been comments from spouses (often not chemical engineers or UD alums), about how much they enjoy reading our newsletters and wish that their alma maters did something similar. These days when our mailboxes, both actual and electronic, are filled with unsolicited publications of all sorts, that is high praise indeed! For those for whom this annual letter isn't enough, please be sure to check out our department webpage at www.che.udel.edu with its frequently updated bulletin board and links to department news, as well as the College of Engineering's new electronic newsletter, available at www.mis4.udel.edu/deptnews/deptnews.html?3101.

In this election year, it is tempting to mimic the hyperbole often delivered to the faithful from convention rostra, extolling our glorious past and the bright days ahead. Our department is indeed a vibrant one, with many accomplishments of students, alumni and faculty to celebrate, a tradition of excellence and an exciting trajectory for the future. Nevertheless, if there has been one ominous cloud on the horizon during the past year, it has been the employment prospects for chemical engineers, both nationally and locally. Placement rates for our graduating seniors in 2004 were the lowest in three decades, and we have also observed fewer opportunities for summer internships for undergraduates, as well as a greater fraction of our graduate students taking post-doctoral rather than permanent positions. We would like to ask your help. If your company is in the market for chemical engineers at any level, from undergraduate interns to PhDs, please let us know. If your company does not currently recruit at UD, please encourage those responsible to do so, and contact us to facilitate the connection. Finally, even if you are looking for engineers with experience, we can help. We often hear from alumni seeking career changes, and will be happy to assist you with networking and connections.

We do have much to celebrate! Inside you will read about two of our alumni, Rakesh Jain (PhD 1975) and Arup Chakraborty (PhD 1988), who were elected to the National Academy of Engineering this year. Election to the NAE represents the highest honor in the engineering profession. NAE member Bill Friend (MChE 1958) was presented with the University's Medal of Distinction by President Roselle at Commencement in May. Bill was recognized for his numerous contributions to the international engineering and construction industry and for his leadership in the development of new technologies and their application. Bill retired in 1998 as

an executive vice president and director of the Bechtel Group, and currently serves as a member of the NAE's Committee on Diversity of the Engineering Workforce and as a member of the National Research Council's governing board. Most recently Bill and his wife, Mary Kay, established a named professorship in Chemical Engineering. We were delighted by the appointment of our colleague, Babatunde Ogunnaike, as the first holder of that professorship. Tunde will deliver his inaugural lecture as William L. Friend Professor later this year.

2004 graduate Charles Collins-Chase also received one of the University's highest honors at Commencement. Chuck won the Alexander J. Taylor Sr. Award as the outstanding senior man. Chuck's myriad activities while earning an honors degree with distinction included a remarkable range of service, from interning with the Sierra Club to organizing a service trip to South Africa during winter session to volunteer at the Tumelong Haven for orphans who lost families to AIDS and at the Mohau Clinic for children with AIDS. Chuck enrolled this fall in a joint master of philosophy in engineering for sustainable development program at Cambridge University, to study the relationship between science and environmental issues.

The department family continues to grow in many ways. This fall we welcomed more than 90 new freshmen and 24 new graduate students to our degree programs. While Cos Denson plans to retire at the end of this year after 27 years of dedicated service to the University, we are pleased to announce the addition of two new faculty members who will join us in 2006. Dr. Thomas H. Epps, III has just completed his Ph.D. at the University of Minnesota, and will join us as an Assistant Professor after an NRC Post-doctoral Fellowship at NIST. Dr. Millicent Ow Sullivan completed her Ph.D. at Carnegie Mellon University and will also join us as an Assistant Professor after completion of her post-doc at the Hope Heart Institute in Seattle. They will strengthen our activities in the polymers and bioengineering areas, respectively, and we eagerly await their arrivals. Speaking of arrivals, the department family welcomed a record number of new additions this past year! Alejandro Lobo was born to Raul and Michelle in January, Zoe Maria Beris to Antony and Sophia in March, Matthew Furst to Eric and Theresa in June, and Alexander Roberts to Chris and Meghan also in June. All are off to a healthy start and, who knows, there may even turn out to be a future chemical engineer or two among them!

As always, we are extremely grateful to all of the individuals and organizations who help to support our efforts financially and in many other ways. It is clear that our sense of community transcends the boundaries of space and time, and is shared by many whose presence on campus is long past. We hope that this newsletter and all of our interactions with you, the members of our departmental family, will serve to strengthen these ties. We look forward to your letters, e-mails and visits throughout the year!


MARK A. BARREAU

COMMENTS FROM THE ALUMNI COORDINATOR



This year four alumni received special recognition from the University. They are William Friend, '58 MChE; Barry Bentley, '78 BChE; Dr. Tucker Norton, '83 BChE; and Dr. Paul Schipper, '73 BChE.

William L. Friend received his Medal of Distinction award from the University on May 29th. The award is presented to those who have made "...scientific contributions to society, have achieved noteworthy success in their profession or have given significant service to the University ...". After completing his Masters under the direction of Art Metzner, Bill had a distinguished career in international engineering and construction, from which he retired in 1998 as vice president and director of the Bechtel Group. Since then he has taken on many service functions. He now is serving on the Diversity of the Engineering Workforce Committee on the National Academy of Engineering and is on the governing board of the National Research Council. He is also chairperson of U. Cal's Council of the National Laboratories and is a Fellow in the AIChE. At Delaware he is on the Advisory Committee for the Chemical Engineering Department. He and his wife, Mary Kay, recently established the William L. Friend Professorship in the department, for which Babatunde Ogunnaike is the first recipient.

Dr. Barry J. Bentley received the College of Engineering Outstanding Alumni award for 2004. Barry attended UD on a National Merit Scholarship. His career was greatly influenced by Bob Pigford, who was a pioneer in using analog and digital computers in support of engineering. Bob introduced Barry to microprocessors, then very novel devices, in a short course. At Cal Tech he earned his PhD under the direction of Gary Leal. The exciting part of his research was the development of a microprocessor-controlled apparatus to study drop deformation and breakup, a quantitative extension of G.I. Taylor's earlier work. He also did some independent consulting, and with two other graduate students formed a firm to write data acquisition and analysis software. This experience convinced Barry to pursue a career in software development rather than chemical engineering.

After his startup firm was acquired by Waters, he returned east to join his brother, Keith ('80 BEE) to form Bentley Systems, which developed a CAD package to run on the IBM AT. As the product line grew, Barry's three other brothers joined the operation. In 1995, the firm severed its marketing relationship with Intergraph and has enjoyed rapid growth ever since. The firm now offers a wide range of products for infrastructure engineering. With 1400 employees worldwide it is one of the largest privately owned software companies. Now serving as Executive Vice President, Barry's entire career has focused on software development.

Barry, his wife Therese, and their four children live in rural Chester County, PA.

Dr. T. Tucker Norton was given the Presidential Citation for Outstanding Achievement on October 17, 2003. The award is given to graduates of the past 20 years who "...exhibit great promise in their professional and service activities." Tucker did his senior research at Stine Lab on the use of genetically modified bacteria as a sensor for ethyl alcohol. He continued his interest in biochemical engineering in his PhD program at UVa (1997), and then came to DuPont where he contributed to harnessing the power of biology in engineering to produce value-added products economically and with reduced environmental

consequences. In 2000 he was selected to participate in the NAE Frontiers of Engineering Symposium, an honor given to 100 engineers in the 30-45 age group. Subsequently he became a research manager for DuPont's Applied Biotechnology Group and as Six Sigma deployment champion. At the time of his University award, he was moving to a DuPont joint venture, Solae, in St. Louis, where he is Director of Food Product Development. He and his wife, Kelly, '94 BS, '97 MS, have a one-year old daughter.

Dr. Paul H. Schipper endowed a scholarship in chemical engineering this year. Paul currently is manager of the Process Engineering Division of ExxonMobil where he has enjoyed a very productive career. After UD Paul earned his PhD at Northwestern (1977) and has been with Mobil/ExxonMobil ever since. He was given a \$500 award as a junior of which he says, "It was not so much the money but showed that someone recognized I was doing a good job... It was enough to encourage me to go farther. My wife and I don't have any children, and this is one way that I can give to the next generation." This positive experience is reflected in the stipulations of the scholarship: the awardee "must demonstrate initiative and innovativeness," traits which Paul feels are important to society.

The endowment for this scholarship comes from the Schippers with a 3:1 match from the ExxonMobil foundation. Paul notes that, "Without help from alumni and corporations, schools will face budget crunches that could erode the nation's competitiveness."

I would like to add to Mark Barteau's comments on the job market for chemical engineers. The 2004 undergraduate class experienced the weakest job market I have seen in 49 years, and I admire their spunk in continuing to search and in expanding their career horizons. The job market for PhDs was not much better, and post doc positions, while now essential for academe, are only holding action for those seeking industrial employment. Many of our alumni/ae have been forced back into a very thin labor market, often with less than positive outcomes. "It ain't like it used to be, and it ain't getting better!"

Jack Weikart continues to supply news of all of you. He has a sharp eye for the UD chemical engineering connection, and we thank him for these efforts.



Jon H. Olson
JON H. OLSON
ALUMNI COORDINATOR

For UD Alumni Event info:
302-831-2341
www.udel.edu/alumni/events/

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Rakesh Jain - M'74, PhD '76

Alumni Elected to the National Academy Alumni Elected to the National Academy

Rakesh K. Jain and Arup K. Chakraborty, chemical engineering alumni, were among 76 new members and 11 foreign associates elected to the prestigious National Academy of Engineering.

Rakesh Jain, a chemical and biomedical engineer, is director of the Edwin L. Steele Laboratory in the department of radiation oncology at Massachusetts General Hospital in Boston and the Andrew Werk Professor of Tumor Biology at Harvard Medical School. Rakesh received his PhD in '76 and Masters in '74 in chemical engineering at the University of Delaware. He is also a member of the UD 's Wall of Fame.

Jain, has published five books and nearly 300 scientific papers on tumor blood supply and other topics. Rakesh also obtained several patents in areas such as devising a new method for enhancing drug delivery and locating tumors prior to needle biopsy.

He was cited by the National Academy for the integration of bioengineering with tumor biology and imaging gene expression and functions in vivo for drug delivery in tumors.

“Election to the National Academy of Engineering is extraordinarily significant, and the college is exceptionally proud of both Arup and Rakesh.”

— Eric Kaler, Dean of the College of Engineering



Arup Chakraborty - PhD '88



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Arup Chakraborty obtained his PhD in chemical engineering in 1988. Currently, he is the Warren and Katherine Schlinger Distinguished Professor and chair of the department of chemical engineering at the University of California Berkeley.

The National Academy recognized Arup for the application of theoretical chemistry to practical problems, including immune system recognition, polymer interfaces, sensor technology and catalysis.

Chakraborty has been recognized with the Allan P. Colburn Award, given by the American Institute of Chemical Engineers, the National Young Investigator Award and UD's Allan P. Colburn Lectureship. He has delivered more than 100 invited lectures and co-authored over 90 refereed publications.



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



Outstanding Alumni



Barry Bentley is Chief Technology Officer of Bentley Systems, Inc., which he co-founded with his brother, Keith (BSEE, 1980) in 1984. Bentley Systems is an engineering software company specializing in applications for the Building, Civil Engineering, Plant Design, and Geospatial markets. With \$260 million in 2003 revenues and 1400 employees, it is one of the world's largest privately-held software companies. Dr. Bentley has served on the Board of Directors of Bentley Systems since its inception, and as its Chairman from 1984 through 1996. Three other brothers, Scott, Ray, and Greg, are also principals in the company.

Dr. Bentley was awarded a National Merit Scholarship to attend the University of Delaware, and graduated with a Bachelor's of Chemical Engineering with Highest Honors and Distinction in 1978. He continued his academic career as a National Science Foundation Fellow at the California Institute of Technology, receiving a Master's degree in 1980 and a Doctorate in Chemical Engineering in 1984.

While at the University of Delaware, Dr. Bentley's Senior Thesis advisor was Professor Robert L. Pigford, who introduced Dr. Bentley to the then-new world of microcomputers. That introduction played a major role in his career path, as Dr. Bentley has spent his entire working career in software development. While at Caltech, he and two other graduate students co-founded Dynamic Solutions Corporation, a software firm focused on laboratory data acquisition and analysis. When Dynamic Solutions was acquired by the Waters Corporation, Dr. Bentley returned to the East coast to form Bentley Systems, which is headquartered in Exton, Pennsylvania.

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"A lot of what you learn in engineering is how to approach problems, and...what seems complicated can be broken down into smaller problems that can be solved. Apply those lessons and regardless of the career you pursue, good things are bound to happen."

— Barry Bentley,
Bentley Systems



1950's

Marty Wendel, M54, PhD56, retired from DuPont Engineering in 1999. He now is living in a retirement community in Glen Mills, PA. He and his wife, Mary Margaret, are active in music there after two decades with the Serenaders, and Marty volunteers to help with computers at the community and at a Lynnwood, PA elementary school. Three of his four children live in the area and one son is in Maine. Marty is recording the names and short biographies of all the people he can remember, and he now is up to 300.

Lee Brown, M55, PhD 63, reports that he and Monica celebrated his 75th birthday with a skiing vacation in northern Italy and a second skiing adventure at Crested Butte, CO, financed by their children. He has a note in the July 23 CEP correcting the source of the 4'8.5" gauge width of railroad tracks. It is only by coincidence Roman roads had approximately the same width, but instead this gauge was set by the well-respected British engineer, George Stephenson. He also finished the Fredholm integral problem reported last year as *"driving him batty."* He is putting this work into publication format. In anticipation of the potential reviews, his quip is, *"Seldom has it been my misfortune to examine such a third-rate piece of work..."*, surely, a remark generated in a bad dream.

Stephen Whitaker, M56, PhD59, retired from UC Davis a year ago and moved to the Mendocino Coast, about 150 miles north of San Francisco. He is a member of the Board of Directors of the Irish Beach Water District and Chair of the Safety Committee for IBWD. He describes his qualifications: *"Since I spent most of my life working with air, water, and glass, I am not exactly in a strong position to comment on safety, but no one else here is in a better position."* He is still involved in research in transport in porous media and in pedagogical matters, and in particular www.higgins.ucdavis.edu/matbalance.html gives a new perspective on mass balances and stoichiometry, especially the latter.



1960's

Albert ["Bert"] Lavery, B60, is retired from ExxonMobil and living in Kingwood, Texas. He added a note to the Updates form of the newsletter, *"Earlier this year, my daughter, Lynn Lavery Elsenhans, was named President and Chair of Shell Oil (USA). She is a graduate of Rice University and holds a MBA from Harvard Business School. We are very proud of her."*

James L. Throne, M61, PhD64, wrote that he enjoyed reading about the successes of fellow graduates, but finds that his career is a bit different. Specifically he

- Worked in plastics processing for twelve companies and universities, including DuPont, BFGoodrich, Amoco, American Standard, NASA, Ohio University, University of Wisconsin, Akron University.

- Was surplusd from four.

- Became consultant in plastics processing in 1985 after failing to find work in industry or academia. Still trying to find work.

- With abundant spare time since then, have written...two hundred technical papers and presentations...ten patents...ten plastics processing books, one translated into Russian and German...a dozen book chapters...half dozen software programs...three dozen magazine and newsletter articles.

- Helped start at least half-a-dozen companies, one of which survives.

- Local academic institutions dropping plastics programs or replacing processing courses with biomedical courses. Even a gratis course in plastics processing goes begging.

- Believe plastics manufacturing will not recover from current offshore outsourcing (at least in my lifetime).

Gary R. Myers, Esq. B65, began his legal career in the Army in "JAG" and has been associated with military justice ever since. One of his latest cases has been very much in the news as this excerpt from the Washington Post demonstrates:

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Gary R. Myers, a civilian lawyer representing one of seven MP's charged in the alleged abuse (at Abu Ghraib), Staff Sgt. Ivan L. "Chip" Frederick, II, said his client does not claim he was ordered to abuse detainees, just that military intelligence outlined what should be done and then left it up to the MP's.

"My guy is simply saying that these activities were encouraged" by military intelligence, Myers said yesterday. "The story is not necessarily that there was a direct order. Everybody is far too subtle and smart for that. Realistically, there is a description of an activity, a suggestion that it may be helpful and encouragement that this is exactly what we needed."

Bob Anderson, M67, PhD68, **Dave Busselli**, M66, and **Bob Clapp**, M66, spent two days with **Fraser Russell**, PhD64, on September 25 and 26. The "A, B, C" group were some of Fraser's first graduate students, and all of them are retired, somewhat to Fraser's consternation. The feature of the visit was dinner at Vita Nova, the restaurant attached to the hotel school, and a far cry from the Newark restaurants of the sixties.

John L. Anderson, B67, was appointed Provost of Case Western Reserve University. Previously he was at Carnegie-Mellon University where he was Dean of Engineering and earlier Chairman of the Chemical Engineering Department. He is a member of the National Academy of Engineers and his many awards include the Wall of Fame at UD.

Lloyd Goettler, PhD67, is chairman of the Polymer Engineering department at the University of Akron where James L. White, PhD65, is the H.A. Morton Professor.

Alex Shalaway, B67, writes that: *"My UD Chemical Engineering education has served me very well in the 38 years since I entered the 'real world'.* (I actually went to work for Air Products full time in June of 66 and also carried a full course load that next year prior to getting my degree in 67 - an interesting year that I'd not care to repeat). I left Air Products in 1972 as plant manager of a specialty chemicals plant and spent the rest of my career as a manufacturer's representative (for Harrington-Robb), specializing in process equipment design (mostly reactor,

heat transfer and mixing equipment). I am now in the process of selling that business to several other chemical engineers who have been co-workers with me for many years. I continue to do a bit of consulting, but am now starting to wind down and enjoy the fruits of my labors.

He continues: *"I watched with pride as the Department and facilities grew. I spent a reasonable amount of time on campus in the late 80's and early 90's while both of my children attended UD (one a Master's in Physical Therapy and the other a CPA)."*

Hayden E. Claisse, M69, is president of Calmont Wire and Cable, a manufacturer of specialty wire and cable for the medical industry. His goal is to double the sales of the company in the next five years. His wife, Dianne, is recovering from her second course of chemo. This past year she became a construction manager while their house in San Marino, CA went through massive repairs and modifications. They have three grown children.



John Anerousis, B72, has enjoyed an intense and varied career. After three years with Betz Laboratories in Trevoze, PA he was sent to Los Angeles to set up and staff a new office. He returned to Trevoze in 1976-78 as Project Supervisor. In 1978-81 he became Director of Technical Management of Austin based Betz Process Chemicals, a subsidiary providing specialty chemicals for the process and steel industries. This was followed in 1981-83 with a move to Carpinteria, CA where he was Vice President of Betz Energy Chemicals, a unit that emphasized chemicals for enhanced oil recovery. In 1983 John left Betz to become the President of Physichem Technologies, Austin, TX and Vice President of Coastal Flow Measurements, Pasadena, TX, the parent firm. These firms provided a complete line of water and wastewater systems for the process industries.

In 1988 John began the second phase of his career as manager of complex software systems. He was President and CEO of CompuDrug USA, a startup firm based in Austin that featured software in support of drug develop-

ment. In 1989-92 he became president of Symvec. This firm was established to sell the software written by Enzon, the parent company, for drug development. At the end of the year Symvec was reabsorbed into Enzon, and in the 1992-98 period John returned to Austin as a principal in AccuChem Consultants. In 1998 he moved to New Jersey as CIO of Cenlar, a mortgage subservicing firm with \$32B in loans. John's shop supports the IT needs of 300,000 loans and 500 end-users.

John's family joined **Larry Brown**, BEA (1971), last fall to see the triple-overtime, UD 51-UMASS 45, football game. John and his wife, Sally, live in Medford, N.J.

Rick Rocheleau, B73, PhD81, is the Director of the Hawaii Natural Energy Institute, part of the University of Hawaii at Manoa. The Institute is supported in part by seven faculty lines from the State and numerous externally funded projects. The research areas include fuel cells, hydrogen (particularly storage), biocarbons, biomass, ocean resources, battery and vehicle testing, photovoltaics and biotechnology. The details are at the website, www.hnei.hawaii.edu. Rick travels from Hawaii to Washington about every six weeks *"to make meaningful eyeball contact" with funding sources.*

Elizabeth (Murphy) Topp, B79, is professor and interim department chair in the Pharmaceutical Chemistry Department at the University of Kansas. After Delaware she earned a ME at Penn and a PhD at Michigan, and has been at Kansas ever since. Her research areas are listed as, "Mass transport, controlled release, polymers, drug delivery, solid-state, peptide and protein stability", all of which are related to her undergraduate training in chemical engineering. Recently she met UD Prof. **Chris Roberts**, B94, at a technical meeting, "Freeze Drying of Pharmaceuticals and Biologicals", where they discussed their common research interests.



Ronald G. Kander, PhD88, is chairman of Integrated Science and Technology at James Madison University. The department lists 54 faculty and many interesting undergraduate programs. Ron's web page, www.isat.jmu.edu/kander.htm, is a gateway to a complete discussion, and features a picture with Ron on a horse.

Joseph Ritter, PhD89, MS92, is an Associate Professor at Principia College in Elmhurst, Illinois. After a career at Amoco, he started at Principia in 1995 as an assistant professor. He is now associate professor, Director of the Engineering Science program and the leader of the Solar Car Project.

Bruce Robertson, PhD89, has joined the partnership of Toucan Capital in Bethesda, MD. Toucan Capital is a venture capital fund with \$180 million under management. The current fund is \$120 million and began being invested in 2001 and now is 30 percent committed. The focus of the fund is early stage investments in life sciences and other advanced technologies.

Chris Pederson, M92, was recently promoted to Director of Product Development-Americas and Pacific Rim of the Cytec Engineered Materials, Inc. located in Anaheim, CA. Chris resides in Orange, CA with his wife, Jean, and two children, Samantha and Justin.



Anne Roby, PhD93, and **Larry Dodd**, PhD89, married in 1996 and have been living in The Woodlands, Texas, a suburb north of Houston, since 1999. They have three beautiful daughters Ella (6 1/2), Georgie (5), and Leah (1 1/2). Anne is Director of the Pipeline Business Center for Praxair. Larry has taught high school mathematics, physics, and chemistry at The John Cooper School where he is currently Chairman of the Science Department.

Jim Mann, B94, has been promoted to a Supply Chain Analyst for Dow Chemical in Freeport, TX. He earned a PhD at Virginia Tech 1999 working with Y.A. Liu. This work resulted in a jointly authored book, Industrial Water Reuse and Wastewater Minimization. He is married and has two children. He dropped by in July while he was photographing all the places he lived in Newark.

Pamela (Leung) Morrison, B94, works for Seagate Technology (Bloomington, MN) making sliders for hard disc drives. She was promoted in October 2003 to

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Senior Process Engineer and was selected to be one of ~250 people worldwide to participate in Eco-Seagate, a high profile, team-building, adventure racing event held in Queenstown, New Zealand, in February 2004. She completed a MS in Engineering Management through National Technological University in August 2003. She is also involved in SWE, and this year mentored a high school senior bound for engineering at Purdue.

Some quotes from her extensive letter answer some obvious questions. *"Sliders are the actual small black rectangles on the ends of flex circuits/assemblies that read and write to hard drives.... My job in (the Slider Launch department) basically encompasses support of the prepro factory in the US, 'launch' of new ideas and processes to our volume facility in Penang, Malaysia, and interfacing with the R and D folks to get their idea from concept and feasibility into the US and Asian factories. We recently had a reorganization (these past few weeks actually) and...sorry to say, nothing changed with respect to me. Or should I say that's a happy thing because we laid off seven out of 60 people recently and I'm still here!"*

"I did get my M.S. in engineering management almost a year ago now. I am still hoping to put it to good use one of these days! I did my final paper on the 'Success of Women in Engineering Management' and found making that leap to first level management can be a doozy. I guess that's what I'm experiencing now!"

Scott Purnell, PhD94, is now the Marketing Manager of the Davison Catalysts business unit of W.R. Grace and Co. in Columbia, MD.

Surita Bhatia, B95, is an assistant professor in chemical engineering at U. Mass, Amherst. She has earned many impressive awards for her teaching and research: College of Engineering Outstanding Teacher Award, 2004; NSF CAREER Award, 2003; DuPont Young Professor Award, 2002; 3M Nontenured Faculty Award, 2002. She has a very active research program on colloids and complex fluids with an emphasis on biological applications.

Ned Haubein, B97, is married to **Dr. Lisa Siebenson**, also UD97, and they live in Langhorne, PA. Ned earned a Ph.D. at Northwestern, 2002, under the direction of

Linda Broadbelt, PhD94. He is a Senior Product Developer with BIOSoftware Systems in Camden, NJ.

Todd Hochheiser, B95, is working as a Senior Process Engineer at the Valero Refinery (formerly Mobil) in Paulsboro, NJ. He is practicing real chemical engineering in being responsible for the day-to-day operation of the FCC and HF alkylation complex and small upgrade projects. He wrote to **Stan Sandler** for a clarification of "shaft work" as VdP, and was given reference to the right section of Stan's book. He is married to Paige Devich, a UD alumna in English Education. They live in the Trolley Square section of Wilmington, DE.

Jason Quiren, B97, earned his "PhD from Northwestern in 2002 (with using fluorescent molecules to study diffusion in amorphous polymers near the glass transition temperature. *"I also did some work using fluorescence as a tool for monitoring conversion during epoxy resin reactions. Obviously a slight departure from the zeolite synthesis work I did at UD (with Raul Lobo)."*

"Finding a job was pretty difficult, so I had to 'expand my horizons' a bit. Now I'm doing operations research for the Navy at the Center for Naval Analyses in Alexandria, VA. It's been a good place to work so far. Though not set in stone, it looks like I may be moving to Japan for a year to work and deploy with the USS Kitty Hawk battle group."

"That's about all the major items. Nothing in the wife or kids category yet...."

Aaron Scurto, B97, finished his post doc in Berlin and followed it with another at MIT. This fall he will be an assistant professor at the University of Kansas. His research areas continue to focus on thermodynamics.

Paul Kroon, B98, graduated with a JD and Master in Intellectual Property from Franklin Pierce Law, Concord, NH, in 2002, and is admitted to the state and federal bar in NH and MA. He is practicing with Bourque and Associates in Manchester, NH. He is married to **Joanna L. Kemmelman**, UD (1998) in Accounting. She is a CPA with Deloitte and Touche in Boston. On a personal note Paul works on a 1998 Mustang Cobra which he has modified to have 500 hp at the crank. He used some of

his CHEG education in fixing the fuel injection and air intake systems, neither of which ever appeared as an exam question.

Hank Ashbaugh, PhD98, has joined the Department of Chemical and Biomolecular Engineering at Tulane University in New Orleans, LA as a faculty member. He did his doctoral work with **Eric Kaler** and **Michael Paulaitis** studying surfactant interactions in water. Before accepting this new position, Hank was a Director's Fellow in the Theoretical Division at Los Alamos National Laboratory. He has also held post-doctoral positions at Lund University in Sweden and at Princeton University since finishing his dissertation. At Los Alamos and Tulane, Hank's research interests center on the multiscale simulation and theory of self-assembly and hierarchical organization in complex fluids to advance self-assembly as a liable tool for building tailored nanomaterials.

Brian Atkinson, B98, now is working for Emerson Process Management, Royersford, PA. Emerson provides control system programming for a variety of pharmaceutical and biotechnology firms. Brian travels a lot as he is currently working on a large variety of upgrades for Biogen Idec in North Carolina. He is married to **Mary Dugan Atkinson**, UD95, who works in UD Residence Life. They live in Newark.

Leata Damouth, B98, is *"working full-time at Applied Control Engineering, developing DeltaV applications for pharmaceutical manufacturing customers. I'm chairing the paddling section of the Wilmington Trail Club, managing a volleyball team, and spending the rest of my time playing soccer and whitewater kayaking."*

Job Miller, B98, gives the following summary of life after UD: *"After graduating, I spent four years repaying my Air Force commitment on active duty in Dayton, OH. I was assigned the position of a document editor. Since the editing work load was so light, I was left unbothered for the better part of those four years. During those years of do nothing time, I started reading Perl, Java and Oracle documentation and developing Oracle web based applications for the intelligence community I worked with. Upon my exit from the Air Force, I was also an Oracle Certified Professional*

DBA, a Sun Certified Java Programmer, and Sun Certified Web Component Developer, and had completed the first of three levels of the Chartered Financial Analyst program in my "spare" time."

"When the market tanked, and the financial jobs dried up, my tech skills made Oracle an obvious choice. I accepted a position with Oracle as a Senior Consultant, continuing to support some of the same people I did when I was active duty. At the end of my first year at Oracle, I was awarded the 'Rookie of the Year' consulting award for our team of approximately 250 consultants scattered around the US supporting the DoD intelligence community."

"This year I was promoted to 'Principal Consultant' a few months in advance of my second yearly review and more than a year ahead of the usual promotion cycle. It makes the review process much less interesting when the promotion is already in place."

The Millers (**Kathryn R. Miller**, UD AS 97) reside in Dayton, Ohio. Their first child, Norah Ryan Miller, was born February 17, 2004.

Christy Prilutski, B98, visited Delaware this fall while she was recruiting with **Nichole (Scherneck) Bishop**, B97, for Rodel, (now a part of Rohm and Haas.) She began her career as a process engineer for Rohm and Haas in Houston where she had the daily excitement of keeping the plant running smoothly. In Spring 2001 she joined a team that was replacing legacy code with the SAP systems to provide world-wide manufacturing IT. Her specific expertise was as a manufacturing process expert. World-wide included trips to Australia, Argentina, Brazil, Ireland, Germany, Italy and finally Japan this spring. By July 2003 she became the cutover lead (the individual responsible for shutting down the legacy code and starting up SAP). In Fall 2003, she decided to obtain a MBA and was accepted to all four programs to which she applied. This summer she began her studies at MIT where she will earn a MBA from Sloan and an Engineering Masters in the Leaders for Manufacturing [LAM] program. Naturally MIT starts this dual degree program in the summer, just to get everyone's stress level up.

ALUMNI UPDATES

ALUMNI UPDATES

Aaron Sin, B98, finished his PhD in 2002 working with Mike Schuler at Cornell. Since then he has been a fellow [post doc] at Mass General Hospital, "...working on isolation of white blood cell subpopulations using microfluidic devices. I'm finding it rather difficult to balance the demands of a somewhat industry approach to research here at the hospital and my desire to follow the academic career track. Hopefully I will be able to find a faculty job for 2005 fall at the latest."

Kara L. Odom, B99, was awarded her MD degree from Jefferson Medical in June. She also earned a Masters in Public Health from Johns Hopkins in 2003, and she continuing this interest with a three-year residency in family practice and community health at U. California San Francisco. Her major interests are in racial and ethnic health disparities and access to care issues. While at Jefferson she was the student trustee of the National Medical Association (2002-2003) and national president of the Student National Medical Association (2003-2004). She was active in mentoring medical students at Jefferson, continuing the contributions she made to RISE and FAME while at Delaware.

A News Journal article about Kara contains the following quote: "My international health experiences underscore two things: One, we have a lot of resources here and a responsibility as a privileged nation to provide assistance to the world. Two, there are still problems in the U.S. health care system that we also have responsibility for, to make sure underserved patients in the U.S. are taken care of."



2000's

Sandy (Arbogast) Roberts, B00, is now working in Old Bridge, NJ for Primary Systems as a Control Systems Engineer. She is doing system integration for "a wide variety of industries". In March 2004 she married **Richard S. Roberts, Jr., Esq.**, UD AS98. They live in North Brunswick, NJ.

Kiersten Fair, B00, was promoted to Senior Engineer in the Pulp and Paper Division of Hercules. While her business address is for the Hercules Research Center, she has

enjoyed world travel such as two-week trip to the research center in the Netherlands for a pilot scale-up. She stays in touch with **Betsy Ablao** and **Daniela Gagliano**.

Since October, 2003, **Meredith Bronstein**, B01, has been working at Genilogix, a company that does software testing and pharmaceutical systems validation. One of her first customers was Wyeth Pharmaceuticals in Malvern, PA. This is the third firm for Meredith since graduation, but this industry is characterized by rapid change.

Dave Buckingham, B01, is leaving Air Products after three years in favor of the Hastings Law School in San Francisco. The school is located 15 blocks from his apartment. While he currently is leaning toward patent or intellectual property law, the first year is common. In June he attended **Mike Krepps** wedding in Pennsylvania and met with **Meredith Bronstein**, **Ben Cosgrove**, **Mary Garcia**, and **Adam Young**, a substantial fraction of the 2001 CHEG class.

Ben Kibalo, B01, is an associate engineer for Ethicon in Somerville, NJ. He is seriously considering applications to medical school and is hoping for admission in a year. He is currently living in Hillsborough, NJ.

Patrick A. Reilly, B02, is having great success at General Chemical. He describes his first year as follows: "I've been working for a little over a year now and I've already had one major promotion, which has led me to the West Coast. I now live in Washington State and I'm currently holding the position as lead process and project chemical engineer at a large sulfuric regeneration facility. We regenerate spent sulfuric acid for the alkylation catalysis reaction scheme, which is utilized to make gasoline. I've been very fortunate thus far in that I have stumbled onto some real success, and I believe that all my teaching at Delaware has really been paying off. I may not have been a stellar student, but I did learn a tremendous amount of information at Delaware, and more importantly, I learned how to think like an engineer. I've realized just how strong the program at Delaware was now that I can compare it against co-workers' education."

"To give you a brief synopsis...General Chemical hired me while still in college as a process engineer at a specialty chemical facility outside Philadelphia. I was given my first

major project about four months into the job, and it was to optimize a packaging process for a fluorinated acid we were selling to cell phone manufacturers. I was fortunate enough to work with some helpful outside vendors, and in the end my system worked at more than 30 times faster than the old system, was cheaper and was fully automated. This success along with some others led to my superiors to allow me a promotion to a senior design engineer at my currently location (Anacortes, WA)."

Everton Henriques, B03, writes..."The transition to Alfred University's ceramic and materials engineering program, I will admit, was quite difficult. My solids chemistry and electrical properties knowledge was not nearly that of the other graduate students (all of which had some form of ceramics/materials undergraduate education), but I was able to catch up with some additional undergrad courses in my first semester. ...I am doing research for the summer in a group focused on fuel cell development. At the moment, we are looking at Aurivillius phases (synthesis and characterization) as good ceramic conductors within the fuel cell...My advisor is Dr. Scott Mixture who is well recognized within the X-ray community for his work with diffraction and the many other characterization tools."

Kristel Orben, B03, is a graduate student in applied mathematics at UD. Asked about the transition from CHEG to MATH she replied: "The transition from CHEG to math was quite an interesting one. Our "Real Analysis" class where we did proofs was completely different from any of the math classes that I had taken in undergrad. That was the hardest part about the transition. The other classes, one of which was called "Intro to Applied Math" discussed a few of the topics that we had covered in CHEG and chemistry including the heat equation, conservation of energy, and even the hydrogen atom. It is interesting to see the "math perspective" on some of these topics". She continued: "I am really looking forward to TA'ing in the fall. It will be my first attempt, since I had a fellowship and did research this past year with Prof. Schleiniger".

Melanie Webb, B03, has finished her first year at Princeton. Her dissertation advisor is George Scherer, who has a primary appointment in Civil Engineering, and she is to be working on "the behavior of confined liquids in

cementitious materials". She was active in grad student recruiting with very successful results: **Tom Lombardo** and **R. Johnny Lunt**, both B04, are entering there in the fall. She was awarded a NSF fellowship for 2004-2005. She also noted that **J.R. Davis**, B01, is in her class after two years at Merck, and **Jack Tinsley**, B98, will be his third year in the fall. Thus there are five UD CHEG's in the graduate program at "Tiger Tech" in 2004-2005.

Lauren Dagostino, B04, graduated in January and accepted a position with Honeywell Specialty Materials in Claymont in their environmental, health, and safety department. She writes: "At our plant we manufacture boron trifluoride gas (mainly used in the production of hydrocarbon resins), HOCAL (an agriculture intermediate), and silanes (used in the production of caulk and other products). We are in the process of building a new fluosulfonic acid plant, which is a raw material for the BF₃ plant. General Chemical used to supply the raw, until they shut down their plant last summer. There are nasty chemicals such as, HF and SO₃, used to make Fluosulfonic Acid, so there is a lot to do in order to ensure a safe startup."

ChEStats: 2003-04

DOHS (Department of Occupational Health and Safety) recognized the Department of Chemical Engineering once again for maintaining our high standards of safety.

A special thanks to the Safety Committee members:

Kim Correll
Dave Cowgill
Jeremy Edwards
Dion Vlachos
George Whitmyre

William E. Covey

William E. Covey, 73, died January 30, 2004 after a three-year battle with multiple myeloma. He received his bachelor's degree in chemical engineering at UD in 1952 and went on to earn his professional engineering license. Mr. Covey was founder and chairperson of the board of Hair Systems Inc., Englishtown, NJ.

He is survived by his wife, Marjorie, their four children and nine grandchildren.

Thaddeus J. "Ted" Grabowski, Sr.

Ted Grabowski, Sr., age 78 of Strasburg, PA, died October 11, 2003 at Lancaster General Hospital following a short illness.

He graduated from the University of Delaware with honors and a bachelor's degree in chemical engineering in 1947.

He was an Army corporal during World War II from 1944-46.

From 1952 to 1968, he was a marketing manager for Armstrong World Industries Inc. He was a co-inventor of Armstrong's Armaflex, a closed-cell elastomeric foam insulation. He later retired from RCA Corp./GE of Lancaster.

He is survived by his wife of 56 years, Frances DeVilbiss Grabowski and their nine children, 19 grandchildren and four great-grandchildren.

**George A. "Alex" Mills**

Alex Mills, age 90 of Hockessin, DE, passed away April 28, 2004 at Christiana Hospital in Newark.

He was born on March 20, 1914 in Saskatoon, Saskatchewan, CN. He became a US citizen in 1942.

Dr. Mills was a chemist for over 40 years. He was executive director of the Center for Catalytic Science and Technology until 1984; chief of the Coal Division Bureau of Mines; director of the Office of International Cooperation Fossil Energy at the Department of Energy in Washington; and director of research at Houdry Process Corporation in Marcus Hook, PA.

He received the Henry H. Storch and E.V. Murphree Awards from the American Chemical Society and the Pioneer Award from the American Institute of Chemists.

He was elected to the National Academy of Engineering. He authored and co-authored 143 articles and held 60 U.S. patents. His BS and MS were from the University of Saskatchewan and his PhD was from Columbia. There he studied with Nobel Prize winner Harold Urey.

He is survived by his wife of 64 years, Roberta Walker Mills and their four children, and also 10 grandchildren and nine great-grandchildren.

A memorial service was held on May 8th.

William J. Mooney

William J. Mooney, 76, died June 18, 2003. He received his bachelor's degree in chemical engineering at UD in 1950. He worked for DuPont Co. for 36 years and retired as project engineer in 1986.

He is survived by his wife of nearly 50 years, Marie McGarry Mooney, his three children and three grandchildren.

Adam Osborne

Adam Osborne, computing pioneer, died after a lingering brain disease on March 18, 2003 in India at the age of 64. He received his master's and doctoral degrees in chemical engineering at UD in 1966 and 1968, respectively. He is credited with introducing the first portable computer, the Osborne 1, at the West Coast Computer Faire in June 1981. This 24 pound computer came with a 5 inch display screen and software that included a word processor, spreadsheet, database and programming languages.

He is survived by his three children.

Louis Mario Sala

Louis Mario Sala, 79, died October 7, 2003 in Santa Margherita Ligure, Italy. He received his bachelor's degree in chemical engineering from UD in 1950. He received his master's degree from Yale in 1952. He worked for DuPont in Wilmington, Louisville, KY and Londonderry, North Ireland.

Chaplin Tyler

Chaplin Tyler, University friend and benefactor, died February 29, 2004. He was 105 years old.

Mr. Tyler donated \$3 million to UD's Alfred Lerner College of Business and Economics. Mr. Tyler said, when announcing one of his gifts in 1999, "I was prompted to offer these gifts because of my great confidence in the people at the University of Delaware. Some people talk about 'giving until it hurts.' I think you should give until it feels good, and it makes me feel very good indeed to support business students at the University of Delaware. I see it as an investment in the future of this country."

The University published two books written by Mr. Tyler; one was written when he was 99 years of age and the other when he was 103. In addition to the two books published by UD, Mr. Tyler was the author of "Chemical Engineering Economics, Managing Innovation," with Edwin A. Gee.

Mr. Tyler is survived by his wife, Elizabeth, two children, eight grandchildren and 10 great-grandchildren, two stepchildren, eight step-grandchildren and one step-great-grandchild.

Margaret Gerhard Schmeisser Weikart

Margaret ("Peggy") Weikart, wife of **John "Jack" Weikart**, died on September 14, 2004 at Cokesbury Villiage. She was raised in Baltimore and graduated from Smith in 1944 with a degree in zoology. She married Jack in 1945. She was employed as a camp counselor and as a lab technician at Johns Hopkins Hospital. She and Jack had two sons, J. Martin Weikart, UD BSAG 1971, and David F. Weikart, UD BChE & AB MATH 1975, and three grandchildren. The Weikarts moved to Cokesbury from Fairlee, MD in 2000 to provide better care for Peggy's declining health. The department extends condolences to the entire Weikart family.

FACULTY UPDATES

Jingguang Chen was chosen as the 2004 recipient of the Catalysis Club of Philadelphia Award which recognizes an outstanding member of the catalysis community for contributions to the advancement of the field of Catalysis.

Prasad Dhurjati was elected a Fellow of the American Institute of Medical and Biological Engineering in February 2004.

Abraham Lenhoff has been named Gore Professor of Chemical Engineering. He presented his inaugural lecture, "Measuring, Modeling and Manipulating Protein Interactions" on March 2, 2004. A member of the UD faculty since 1984, Bramie received his Master's and Ph.D. degrees from the University of Wisconsin. He conducts research in the areas of applied protein biophysics, separation processes, and colloid and interface science, and is currently serving as director of the National Institutes of Health-funded Center of Biomedical Research Excellence in Structural and Functional Genomics. He has authored more than 80 articles and serves on the editorial boards of the Journal of Colloid and Interface Science and Biotechnology and Bioengineering.

Professor Lenhoff was elected a Fellow of the American Association for the Advancement of Science.

Raul Lobo received the Ipatieff Prize at the American Chemical Society 2004 Awards Program for his many significant contributions to the fields of molecular sieve synthesis, discovery, structure resolution; and for his seminal work in elucidation of zeolite structure-property relationships.

James Lyons received the E.V. Murphree Award in Industrial and Engineering Chemistry, for work done at Sunoco, Inc., at the American Chemical Society 2004 Awards Program. This award was for his leadership in

the discovery of correlations between the molecular structures of catalysts and the rates and regioselectivities of hydrocarbon transformations to oxygenates and other products of industrial significance. Jim is an adjunct faculty member collaborating with Mark Barreau.

Babatunde Ogunnaike has been named to the newly endowed William L. Friend Professorship. Mark A. Barreau, Robert L. Pigford Professor of Chemical Engineering and department chair, in nominating him said, "Tunde would be near or at the top of the list of faculty in our department whom other institutions would most like to have." Eric Kaler, Elizabeth Inez Kelley Professor of Chemical Engineering and dean of the College of Engineering, endorsing Ogunnaike's nomination said, "Tunde is a remarkable scientist and a remarkable individual. He has a substantial record of exceptional scholarship. His teaching skills are phenomenal, and he is a wonderful mentor and colleague." After completing his doctorate at the University of Wisconsin at Madison, he joined the DuPont Co. He became a research fellow at DuPont and also worked as an adjunct professor at the University where he also collaborated on faculty research. In September 2002, he joined the University as a full-time professor. Ogunnaike is coauthor of "Process Dynamics, Modeling and Control", the dominant textbook in process control. He has authored or coauthored four chemical engineering textbooks and has written or cowritten 40 articles. The named professorship recognizes William L. Friend, who earned his master's degree in chemical engineering from UD in 1958 and serves on the Advisory Board of the Chemical Engineering Department.

Professor Ogunnaike also received the 2004 Faculty of Engineering Excellence in Teaching Award. This is a \$4,000 award for professional development.



Babatunde Ogunnaike



Christopher Roberts

Christopher Roberts is this year's recipient of the Ebert Prize for the best report of original investigation of a medicinal substance published in the Journal of Pharmaceutical Sciences in 2003. The article is, "Irreversible Aggregation of Recombinant Bovine Granulocyte Stimulating Factor and Implications for Predicting Protein Shelf Life". This APHA Academy of Pharmaceutical Research and Science award is given for extraordinary achievement in the pharmaceutical sciences.

T.W. Fraser Russell, Allan P. Colburn Professor and Vice Provost for Research, will be on a yearlong sabbatical beginning January 1, 2005. Carolyn A. Thoroughgood, dean of the College of Marine Studies, will be the acting vice provost for research during that time.



Fraser Russell

Stanley I. Sandler, Henry Belin du Pont Professor, received the 2004 American Institute of Chemical Engineers (AIChE) Founders Award. This award is given to an AIChE member who has made a major impact on chemical engineering and who has advanced this profession. Stan is especially pleased to have received this award because it was spearheaded by his former students.

Stan was bestowed with the Hikal Chemcon Distinguished Speaker Award for 2004. He will give an award lecture at the First Joint Conference of IChE and AIChE at the 57th Annual Chemical Engineering Congress of IChE, Bombay, at which time he will receive his award.

Stan was also elected Fellow of the Institution of Chemical Engineers, Britain; became Chartered Engineering (European Community); became Chartered Scientist (European Community); and was awarded Honorary Professional Fellow, University of Melbourne, Australia.



Stanley Sandler

FACULTY UPDATES

So what is that bottle of "goo" on the cover?...

THE FUTURE OF BODY ARMOR PROTECTION!

For the past three years, Professor Norman Wagner has been leading a research team, working in collaboration with military scientists, on the development of "liquid armor". While this may sound like something out of the "Terminator" or another science fiction movie, it is becoming very close to reality!

Currently, arms and legs go unprotected because materials like Kevlar are used to protect the torso. So the Army Research Laboratory at Aberdeen Proving Ground in Maryland enlisted the help of UD researchers to come up with alternatives to Kevlar. This collaboration has resulted in the development of lightweight armor that may be able to shield the whole body.

Norm and his students have long studied a variety of complex fluids, many of which exhibit viscosity decreases when stirred or shaken. Latex paint is a good example of these liquids. From this foundation, Norm and his group began to study other liquids that become more resistant when disturbed. These materials, known as shear-thickening fluids, stiffen on impact and are the key to flexible liquid armor.

Norm and his students created shear-thickening fluids that add strength to Kevlar and other fabrics by mixing superfine particles of silica glass into polymer liquids.

When Kevlar or other fabrics are dipped into this fluid, the fabric stays flexible. But as soon as the fabric is struck by a knife or sharp object, it immediately becomes rigid and impenetrable. This liquid armor can also stop an ice

pick puncture, making it useful for prison guards who may be stabbed with handmade sharp instruments.



Norm has a number of samples of Kevlar fabric in his lab. One way he demonstrates the liquid armor technology is to wrap the fabric around blocks of foam. One sample is wrapped with Kevlar alone, and when stabbed, the point goes through the fabric into the foam. Another sample is wrapped with Kevlar treated with the shear-thickening fluid, and when stabbed there is no damage to the fabric or the foam underneath. Norm is now working on making these materials bullet proof, and within a year hopes his liquid armor will be used in paratrooper boots and bomb blankets, to reinforce combat uniforms, tents, and even extra protection in sports outfits. In addition to the testing at UD mentioned above, the Army is performing ballistics testing. The treated fabric must also pass environmental testing, performing at extreme temperatures and situations.



Kevlar fabric with shear thickening fluid, after impact by a fragment simulating projectile.



FACULTY UPDATES



Liquid body armor research team (from left to right): Young Sil Lee, Phil Matthews, Keith Kirkwood, Norman Wagner, Ron Egres and John Kirkwood.

This collaboration received the Army's highest award for scientific achievement, the 2002 Paul A. Siple Award. Eric Wetzel, who leads the military research team at Aberdeen Proving Ground, is a 1995 UD mechanical engineering graduate. Norm's research team working in the Center for Composite Materials includes Young Sil Lee, Ron Egres, and Phil Matthews. 2004 BS graduates John and Keith Kirkwood were also key contributors before leaving for graduate study on the West Coast. The UD and Army collaborators have coauthored several papers and have applied jointly for a patent.

As you might imagine, this work has received attention from the press at home and around the world. If you would like to read more about this new technology, please see:

- The News Journal, Wilmington, Del., June 7, 2004, Focus section, page B3
- www.udel.edu/PR/UDaily/2004/armor052404.html
- www.discover.com/issues/aug-04/rd/bulletproof-fatigues/
- www.nationaldefensemagazine.org/article.cfm?Id=1552

STUDENT ACTIVITIES AND AWARDS

Honors Day Award Recipients 2004

GRADUATE STUDENTS

Aldo Acevedo received the Robert L. Pigford Teaching Assistant Award which is presented to graduate teaching assistants who have made an exceptional impact on the undergraduate teaching program.

Gaurav Arora won an award in the graduate category at the "Fourth Annual DE Section American Chemical Society Student-Industry Poster Session Meeting" on work on nitrogen adsorption and diffusion in SWCNs.

Carolina Bianco received the IGERT NSF Fellowship.

Vikram Daga received the best poster award at Tiger-Hen Rheology Day held at Princeton for his poster "Rheology and Electrospinning of PEO – water and PEO – water – laponite systems".

Ronald G. Egres, Jr., was awarded the PerkinElmer Scholarship presented by the Composites Division of the Society of Plastics Engineers.

Joseph Fedeyko received the Robert L. Pigford Teaching Assistant Award which is presented to graduate teaching assistants who have made an exceptional impact on the undergraduate teaching program.

John Kitchin received the Alexander von Humboldt Postdoctoral Fellowship to work at the Fritz Haber Institute in Berlin, Germany. He's also accepted a faculty position at Carnegie Mellon University in the Chemical Engineering Department beginning January 2006.

J. J. Langford received the Robert L. Pigford Teaching Assistant Award which is presented to graduate teaching assistants who have made an exceptional impact on the undergraduate teaching program.

Liza Lopez received the Robert L. Pigford Teaching Assistant Award which is presented to graduate teaching assistants who have made an exceptional impact on the undergraduate teaching program.

Jeffrey Ludwig received the Garrett Reed Cantwell Graduate Scholarship. This monetary award is presented to a second-year graduate student in chemical engineer-

ing who the faculty say is an outstanding student in both the classroom and research. This award is sponsored by Garrett W. and Nancy E. Cantwell.

Ashish Mhadeshwar received the AIChE Catalysis and Reaction Engineering (CRE) Division Student Travel Award.

Ron Niebauer received the 2nd place oral presentation award at the Mid-Atlantic Bioengineering Consortium (MABEC). This conference was held at the University of Maryland, Baltimore County.

Daniel Norton received the Bernard Lewis Fellowship to attend the 30th International Symposium on Combustion in Chicago, IL. Dan also received an NSF travel award to attend the Computational Fluid Dynamics in Chemical Reaction Engineering III conference in Davos, Switzerland.

Mark Snyder received The Fraser and Shirley Russell Teaching Fellowship which is awarded to a senior graduate student interested in a teaching career. It gives the recipient a supervised teaching experience in the undergraduate program or, under special circumstances the graduate program.

Wim Thielemans received the Center for Composite Materials Achievement Award. This monetary award recognizes outstanding personal growth demonstrated by a Center-affiliated student.

Honors Day Award Recipients 2004

STUDENT ACTIVITIES AND AWARDS

UNDERGRADUATE STUDENTS

Technology, given annually to two students majoring in math, science, or engineering.

Elizabeth Bell received the American Institute of Chemical Engineers Junior Award. This monetary award is presented by the Wilmington Section of the AIChE to the outstanding junior student based on academic strength and involvement in student organizations. Elizabeth also received the Barry M. Goldwater Scholarship and Excellence in Education Foundation Award. Goldwater scholars are selected on the basis of academic merit from a field of 1,113 mathematics, science and engineering students nominated by faculty members nationwide.

Erde Can received the Center for Composite Materials Progress Award. This monetary award goes to the student author of a CCM research report in recognition of research contributions by students to the research goals of the Center.

Christine Cardinal received the National Starch and Chemical Company Scholarship. This award is given to one sophomore and two juniors and is based on academic merit. Christine also received the Robert L. Pigford Undergraduate Award which is given to a junior student who has demonstrated high academic performance in chemical engineering courses as well as in other sciences and the humanities.

Charles Collins-Chase received the Chemical Engineering Industrial Sponsors Senior Student Award. This award is presented to a senior student for exceptional scholarship and effective contribution to extracurricular student activities. Charles, a Eugene du Pont Scholar, also received the Alexander J. Taylor Sr. Award, given by the Alumni Association, to honor leadership, academic success and community service.

Jonathan Edwards was selected for science and engineering scholar summer research.

Nikki Ennis received the Chemical Engineering Class of 1953 Scholarship and is awarded based on academic merit.

Rachel Adams received the Steven R. and Linda Justice Myrick Award. This award provides assistance to a full time undergraduate student matriculated within the Chemical Engineering Department and is assigned on the basis of academic merit with preference given to a female student.

Michael Alexitch, III was selected as the Merck Engineering and Technology Scholar. This award goes to a junior student based on academic record, service and other activities, and upon extensive interviews by a representative of Merck. Michael also received the Latin Student of Distinction Award.

Ivan Baldytchev and **Dustin Ferretti** received the Mr. and Mrs. James F. Kearns Scholarship in Chemical Engineering. This scholarship is awarded to students based on academic merit.

Amanda Barker received the Stanley Jacob Schechter Award, which was established by David G. Schechter, Class of '77, in honor of his father, given to a junior student who has demonstrated the greatest interest and scholarship in challenging, non-engineering curricula. It's based on academic merit with a preference for distinction in arts, humanities and/or social sciences. Amanda also received the Howard Hughes Medical Institute Scholarship for summer research.

Jonathan Bartel and **Erin O'Dea** received the Chemical Engineering Class of 1952 Scholarship which is based on academic merit.

Elizabeth Bell, **Sean Maloney**, **Huyen Nguyen** and **William Tisdale, III**, received the Amerada Hess Corporation Award, which is a monetary award to junior chemical engineering students who have demonstrated outstanding scholastic achievement and who have expressed an interest in pursuing a career in the petroleum or related industries.

Elizabeth Bell and **William Tisdale, III**, received the Delaware Section of the AAAS 2004 Award in Science and

STUDENT ACTIVITIES AND AWARDS

Honors Day Award Recipients 2004

Liang Gwee received the Robert L. Pigford Undergraduate Award which is given to a junior student who has demonstrated high academic performance in chemical engineering courses as well as in other sciences and the humanities.

John Kirkwood and **Keith Kirkwood** received the Chemical Engineering Industrial Sponsors Undergraduate Research Award. This award is presented to seniors for exceptional performance in their senior thesis research projects.

John Kirkwood won the American Chemical Society poster session, undergraduate division, titled "Rheology of shear thickening suspoemulsions".

John Kirkwood and **Keith Kirkwood** received third place at the AIChE National Meeting Posters Session of the Materials Engineering and Sciences division in San Francisco for "Ballistic Performance of Kevlar/Shear Thickening Fluid Composites".

John Kirkwood and **Keith Kirkwood** were named two of the five University Harvard Fellows. These awards are presented to senior Honors Degree with Distinction candidates with outstanding academic and research accomplishments for full-time research in the Winter Session of the senior year.

Aimee Knauss, **Huyen Nguyen** and **Alison Wedekind** received the Chemical Engineering Class of 1950 Scholarship which is based on academic merit.

Caroline Lochner received a UD Scholar Award.

Thomas Lombardo and **Kristin Stoeber** received the Chemical Engineering Alumni Laboratory Award which goes to senior students for excellent scholarship and exceptional performance in the junior and senior-level laboratory.

Sean Maloney was awarded the John Allan Thoroughgood Legacy Scholarship. This scholarship is awarded to a child or grandchild of a University of Delaware alumni based on academic merit.

Philip Matthews received the Center for Composite Materials Undergraduate Research Award. This award is given to candidates who have demonstrated excellence in their research activity on polymer-matrix composite materials.

Phuong-Anh Nguyen received the Center for Composite Materials Outstanding Senior Award. This monetary award goes to the outstanding senior in the Undergraduate Research Program for cumulative service and research contributions to Center activities.

Elizabeth Oeffinger received the American Institute of Chemical Engineers Sophomore Award. This award is presented by the Wilmington Section of the AIChE to the outstanding sophomore student, based on academic strength and involvement in student organizations. Elizabeth also received the Merck Engineering and Technology Scholar Award, which is based on academic record, service and other activities, and upon extensive interviews by Merck.

Geoffrey Oxberry received the Chemical Engineering Industrial Sponsors Scholarship Award for exceptional scholarship by a student in the freshman and sophomore year.

Andrew Peiffer and **Michael Rasch** received the Charles S. Joanedis Scholarship which is based on academic merit.

Justin Pollio was selected for the National Society of Collegiate Scholars.

Justin Quon received the Merck Outstanding First-Year Student Award for demonstrating exceptional technical skills and the potential for management and leadership responsibilities.

Michael Rasch received the Miles Powell Jr. Scholarship and the Charles S. Joanedis Scholarship.

Will Rayfield was named a 2003-2004 Science and Engineering Scholar and received the General Honors Award

Honors Day Award Recipients 2004

W. Benjamin Rogers received the National Starch and Chemical Company Scholarship. This award is given to one sophomore and two juniors and is based on academic merit. Ben also received the Robert L. Pigford Undergraduate Award which is given to a junior student who has demonstrated high academic performance in chemical engineering courses, as well as in other sciences and the humanities.

Patrick Schilling received the American Institute of Chemical Engineers Senior Award which is a monetary award presented by the Wilmington Section of the AIChE. This is given to the outstanding senior student based on academic strength and involvement in student organizations.

Justin Spaeth received the National Starch and Chemical Company Scholarship. This award is given to one sophomore and two juniors and is based on academic merit.

William A. Tisdale, III, received the American Chemical Society Award. This award is given by the ACS Delaware Section to a junior for outstanding scholarship and academic achievement. Will also received the Tau Beta Pi Record Scholarship. The competition was open to members of Tau Beta Pi across the country entering their final year of undergraduate study. Out of 653 applicants, 40 received the scholarship.

Alison Wedekind was the recipient of the National Science Foundation Computer Science, Engineering and Mathematics Scholarship (NSF-CSEMS). Alison was also awarded the Howard Hughes Medical Institute Scholarship for summer research.

STUDENTSTATS: 2003-04

246 undergraduates enrolled

53 BChE graduates

10 to graduate & professional schooling

NEW GRADUATE STUDENTS

Baylor University.....	Goerke, Aaron Rudy
Carnegie Mellon University	O'Malley, Michelle Ann
Carnegie Mellon University	Helgeson, Matthew E.
Carnegie Mellon University	Britton, Zachary Thomas
Cooper Union.....	Kearns, Kelley
Cornell University New York.....	Gopal, Indira
East China Univ Science & Tech.....	Huo, Hongguang
Georgia Institute Technology	Young, Carissa L.
Georgia Institute Technology	Kalman, Dennis Philip
Indian Institute Tech-Kharagpur.....	Rawat, Ravindra Singh
Johns Hopkins University.....	McDonald, Mary Kathleen
Lafayette College.....	Pyrz, William David
Lafayette College.....	Quarcoo, Naa L.
Lehigh University	Siddons, Cory
Lehigh University	Federici, Justin A.
Mississippi State University	Woods, Charles E., Jr.
Ohio State University	Simpson, Thomas A.
Pennsylvania State University	Schilthuis, Anne M.
Purdue University	Dellamorte, Joseph C.
Rensselaer Polytechnic Institute.....	Humbert, Michael
Rensselaer Polytechnic Institute.....	Spinelli, Frances Josephine
University of Minnesota	Menning, Carl A.
University of Mumbai India	Samant, Asawari
Villanova University.....	Branco, Monica C.

CHEG STAFF DIRECTORY

Byrnes, James, Manager, ChE Computing Services
 Caldwell, David, CITA III
 Correll, Kim, Records Analyst/Coordinator
 Farmer, Kristine, Administrative Coordinator
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SEMINAR SERIES - 2004

<i>April 9</i> "Using Multi-Scale, Systems Modeling to Bridge Signal Transduction, Cell Biology and Physiology in Immunologic Diseases"	Cindy Stokes Entelos, Inc.
<i>April 16</i> "Protein Adsorption at Fluid/Fluid Interfaces: Birth and Death"	Clayton J. Radke University of California at Berkeley
<i>April 23</i> "Colburn Memorial Lecture Bottom-up self-assembly for nanofabrication: Bio-inspired design rules from molecular simulation"	Sharon C. Glotzer University of Michigan
<i>April 30</i> "Functional Genomics-Based Studies of the Biochemistry, Physiology, Ecology, and Biotechnology of Hyperthermophilic Microorganisms"	Robert M. Kelly North Carolina State University
<i>May 7</i> "Adsorbed Polyelectrolytes: Fundamental Physics and Colloidal Adhesion"	Maria Santore UMass Polymer Science and Engineering
<i>May 14</i> (Schuit Memorial Lecture) "Polymer Selective"	Michael Tsapatsis University of Minnesota
<i>September 10</i> "Why are proteins charged molecules?"	Jeffrey D. Carbeck Princeton University
<i>September 17</i> "Complex Fluid Manipulation with Applied Fields in Microfluidic Geometries"	David W.M. Marr Colorado School of Mines
<i>September 24</i> Gerster Invited Lecture - "Invention and Innovation in a Product-Centered Chemical Industry"	George Stephanopoulos Mass. Institute of Technology
<i>October 1</i> "Oxidative Dehydrogenation of Lower Alkanes"	Umit Ozkan Ohio State University
<i>October 8</i> "Structure and Rheology of Random Foam"	Andrew Kraynik Sandia National Laboratories
<i>October 15</i> "Organic Thin Film Electronics: A Materials Engineering Perspective"	Daniel Frisbie University of Minnesota
<i>October 29</i> "Block Polyelectrolyte Gels: Fundamental Studies and Applications to Soft Biomaterials"	Surita Bhatia University of Massachusetts
<i>November 19</i> Bridging the Liquid Gap: In-Situ Vibrational Spectroscopy of Solid-Liquid Catalytic Interfaces	Christopher T. Williams University of South Carolina
<i>December 3</i>	Jacob N. Israelachvili University of California

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The Delaware Diamonds, the generous and loyal alumni and friends who contribute \$1,000 or more annually to the University, were honored at a reception before the Performing Arts Series concert by the Turtle Island String Quartet on April 30. The event was held in the rotunda of Gore Hall with 158 Delaware Diamonds and Legacy Society members in attendance. The Legacy Society includes individuals who have included UD in their estate plans. Currently there are more than 2,000 active Delaware Diamonds, 226 of whom are also UD employees.

AIChE Reception Delaware Alumni Reception

Monday, November 8, 2004
7:00-9:00 p.m.
Hilton Hotel - Rm 404
Austin, TEXAS

<http://www.aiche.org/conferences/annual/index.htm>

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Would you like your name added to the Department Seminar mailing list? ☐ Yes ☐ No
(there is no charge for alumni to attend seminars presented by distinguished leaders in the Chemical Engineering profession.)

Please use the other side of this form to give additional information about yourself, your career and family.
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[HTTP://WWW.UDEL.EDU/ANNUALGIVING/
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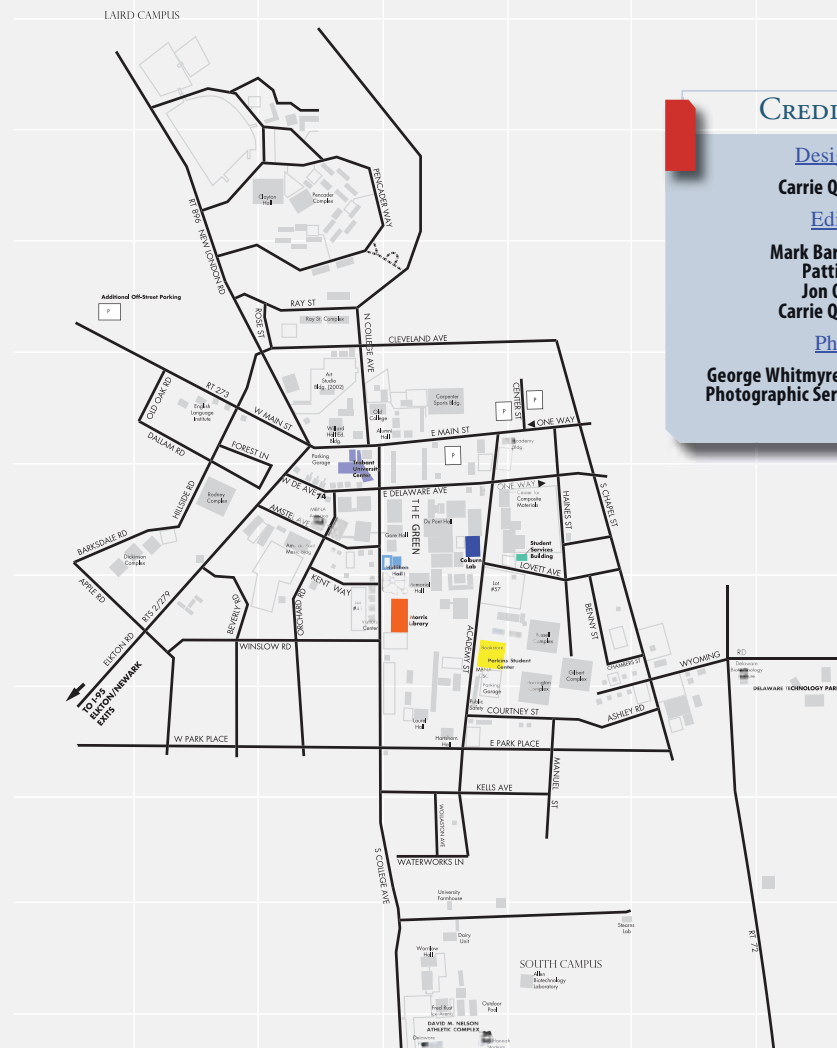
Does your company match educational gifts? ☐ Yes ☐ No (Please check with your Personnel/HR office for details.)

Please make checks payable to the University of Delaware, and note on your check to which fund you wish to contribute.

Return form and check to: Office of the Chairman, Chemical Engineering, University of Delaware, Newark, DE 19716

WHAT'S NEW WITH YOU?

Please use this page to update the Department's records. If you have events happen during the year, please share them with us to be included in the next issue of the newsletter: alumni-news@che.udel.edu



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