



# GOESSMANN gazette

A Publication of the Chemistry Department  
University of Massachusetts Amherst  
[www.chem.umass.edu](http://www.chem.umass.edu)

Volume 35

WINTER/SPRING 2006

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## UPCOMING EVENTS

Five College Seminar  
March 30, 2006  
Professor F. Sherwood Rowland

Senior Awards Dinner  
May 18, 2006

Alumni Reunion 2006  
June 9-10, 2006  
Honoring Professors Uden  
and the late Siggia

ResearchFest  
September 16, 2006

Stein-Bayer Lecture Series  
November 9, 2006  
Professor Julia Kornfield

## WOMEN IN CHEMISTRY

### *New Voices in Chemistry at UMass Amherst*



Professor Jeanne Hardy

*Professor Jeanne Hardy joined the Department of Chemistry as an assistant professor in September, 2005. She is an X-ray crystallographer by trade with interests in the biochemistry of cancer. She is an outstanding young scholar; we are thrilled to have her as a colleague.*

**Goessmann Gazette (GG):** *Where were you born?*

**Professor Jeanne Hardy (JH):** Logan, UT but I spent most of my growing up years in Lander, WY. I am a western girl at heart, although I would like to become a sophisticated east coaster.

**GG:** *When did you realize you love chemistry?*

**JH:** The summer after I graduated from high school I got a job for college students at the Phosphate Fertilizer Plant where my dad worked. For the first week I was assigned to

*Jocelyn Scheintaub (Class of '06) is a senior majoring in Chemistry and English. She is a member of the Commonwealth Honors College and is a finalist for the 2006 Fulbright Fellowship. She currently works with Prof. D. Venkataraman on Cleavable Diblock Polymers. After graduation, she intends to pursue her graduate studies on the west coast. In this article Jocelyn recounts her experiences as a Chem major at UMass Amherst.*

### **Chemistry, Sweet Chemistry**

Jocelyn Scheintaub (BS '06)

I joined the Department of Chemistry for the food. Seriously, who can pass up free candy from both department offices (compliments of Marie Whalen in Goessmann and the folks on the 7th floor of the Tower)? How about free snacks at Chem Club meetings and the constant pizza sales? And because the graduate students in the department are from all over the world, can you really turn down any of the



Jocelyn Scheintaub (BS '06)

## GOESSMANN 256 IS NOW GEORGE R. RICHASON JR. CHEMISTRY RESEARCH LABORATORY

Last fall during Homecoming Weekend, UMass Amherst Department of Chemistry recognized one of its most ardent lifelong advocates and initiated a new era in chemical research. On October 14, 2005, the university formally named Goessmann 256 the Professor George R. Richason Jr. Chemistry Research Laboratory. This honor recognizes the more than seventy years that **Prof. Richason** '37, '39, '91H has been actively affiliated with the chemistry department as student, teacher, professor, and administrator. **Richason** enrolled at Mass State College in the fall of 1933, and has achieved legendary status on campus. He received his graduate degree from **Richard "Doc" Fessenden** in 1939, directed the general chemistry program for many years, and retired in 1976. During his "retirement" he has directed scheduling, graduation audits, advising, and other duties as assistant department head. **Richason** has been carrying the University Mace at commencement since 1973, and received an honorary doctorate degree from his alma mater in 1991.

## FACULTY LEGACY FUND ESTABLISHED TO HONOR PETER C. UDEN

The Department of Chemistry is pleased to announce the establishment of a Faculty Legacy Fund to honor professors who have recently retired. This year's honoree will be **Professor Emeritus Peter C. Uden**, a towering figure in Separation Science at UMass Amherst. The P.C. Uden Laboratory will be occupied by a tenure-track faculty member with a research program at the frontiers of analytical chemistry. The Faculty Legacy Fund will be used to hire and to support the start-up needs of this faculty member. Thanks to the efforts of **Dr. Ray D'Alonzo** (PhD '77), the Faculty Legacy Fund has already received an initial gift of \$25,000 from Proctor and Gamble Company. Friends and alumni interested in honoring Prof. Uden by contributing to the Faculty Legacy Fund can contact us by email at [development@chem.umass.edu](mailto:development@chem.umass.edu) or by telephone at 413-545-2291.

The George R. Richason Jr. Research Laboratory is located in Goessmann 256, the former biochemistry laboratories on the second floor of the Goessmann Annex, or as it is now called, "new" Goessmann. It is fitting that this laboratory be named in honor of **George**; he represented chemistry on the design team for the building in 1958. The new Richason Laboratory houses the research activities of Assoc. Prof. **Michael D.**



Chancellor John Lombardi, Charles "Bill" Donovan Jr., Senator Stan Rosenberg, Prof. George Richason Jr., Prof. Michael Barnes, Dept. Head Bret Jackson, Provost Charlena Seymour, Dean George Langford

**Barnes**, who joined the faculty in Fall 2004, after moving from Oak Ridge National Laboratory in Tennessee. **Professor Barnes'** research deals with the spectroscopy of nanomaterials for use in the developing field of nanophotonics. This research is paving the way for using photons in communications devices the way electrons are used today. At the laboratory dedication, **Prof. Barnes** described the current and projected research that will occur in the new laboratory.

Also present at the dedication and offering words of praise and recognition for **Prof. Richason** were **Chancellor John V. Lombardi**, **Provost and Senior Vice Chancellor for Academic Affairs Charlena M. Seymour**, **College of Natural Science and Mathematics Dean George M. Langford**, **Department of Chemistry Head Bret E. Jackson**, and **State Senator Stan Rosenberg**. UMass Amherst chemistry alumnus **Charles "Bill" Donovan Jr. '63** was also recognized for his initial major contribution to the establishment of the Richason Laboratory. **Professor Richason** expressed his appreciation for this honor and observed that his success was built on the efforts of others who came before him, principally **"Doc" Fessenden**. After the formal ceremonies **Prof. Barnes** lead a tour of the new Richason Laboratory and offered further explanations of his research and the associated state-of-the-art equipment needed to pursue it.

More than one hundred people attended the dedication in room 252 of new Goessmann. A bronze plaque engraved with the following inscription was unveiled at the dedication: "Celebrating Professor Richason's Lifelong Dedication to Excellence in Teaching and Learning in Chemistry at the University of Massachusetts Amherst." The plaque is now attached to the corridor wall outside of Goessmann 256 - the Richason Research Laboratory. *-D.L. Adams*

# alumniREUNION 2005

The department held a festive mini-symposium and alumni reunion in honor of the many (and continuing) contributions of emeritus Profs. C. Peter Lillya and Marv Rausch on June 3-4, 2005. Professors Lahti and Venkataraman organized the first day Lillya-Rausch Honorary Symposium, with featured research talks by speakers Bob Crabtree (Yale), John Esteb (Butler, Rausch Group-PhD '01), Dave Collard (Georgia Tech, Lillya Group-PhD '89), Art Kluge (Vice President of Drug Discovery at GPC Biotech Inc.-PhD '69), Don Hunt (Virginia-PhD '67). Frank Higbie (MS '69) added a moving retrospective on the times on campus during the turbulent '60s, when Peter and Marv joined the department. A number of alums who could not attend sent best wishes. A large crowd of alumni, spouses, and local scientists attended the symposium and the alumni-organized banquet at the Amherst Monkey Bar afterwards. On the next day, Campus Reunion kicked off with another big crowd of departmental alumni coming to a get-together reception and informal posterfest in the Lederle Graduate Tower "top-of-the-building" conference room. The posterfest featured work by organic and inorganic groups in the department at present. A high point of the reception (other than the fun of many people renewing old acquaintances and making new ones!) was a ceremony at



Professors Scott Auerbach and Peter Lillya



Professors George Richason Jr. and Marv Rausch

which Peter and Marv were honored by members of the campus senior administration, and by the attending alumni and members of the department. Both were saluted (and gently roasted in a few cases!) by colleagues and former students as part of the ceremony. At the end of the formalities, they were presented with bound copies of their published scientific articles, a hefty set of volumes for the two of them, that were promptly augmented with written best wishes from many of the attendees. Copies of these bound works are now part of the departmental memorabilia in the William McEwen Room in the Lederle tower. An online photo album of the events is available at the department's alumni web site, [www.chem.umass.edu/Alumni/reunions.htm](http://www.chem.umass.edu/Alumni/reunions.htm). Check it out and see whom you recognize!

## ALL ALUMNI ARE CORDIALLY INVITED TO CHEMISTRY ALUMNI REUNION 2006 Honoring Professors Peter Uden and the Late Sidney Siggia

**Y**OU are cordially invited to the next Chemistry Reunion on *Friday, June 9 and Saturday, June 10 of 2006*. The Department of Chemistry will hold its annual reunion for the alumni of the research groups of Professors Uden and the late Siggia at the University of Massachusetts Amherst. There will be a research symposium on the afternoon of June 9 and a Departmental reception for all alumni on June 10. Both events will be held from 2-5 p.m. Please mark these dates on your calendar. We hope to see you for Reunion 2006, since it will be an occasion to reconnect with your former lab mates and advisor.

We plan the following schedule of events, open to all students, faculty, staff, alumni and friends:



Professor Peter Uden

### *Friday, June 9, 2006*

2-5 p.m. Research Symposium

### *Saturday, June 10, 2006*

2-3 p.m. Reception for Professor Uden

3-4 p.m. Roasts and Toasts by Alumni and Friends

4-5 p.m. Social Hour

Please RSVP to Ms. Susan Pixley by phone at 413-545-2585, by email at [spixley@chem.umass.edu](mailto:spixley@chem.umass.edu), or on the web at [www.chem.umass.edu/reunion2006.html](http://www.chem.umass.edu/reunion2006.html). For more information about the reunion weekend including lodging information, call Ms. Susan Pixley or visit our reunion 2006 website.



Professor Sidney Siggia

The Reunion will take place in Lederle Tower room 1634. Lederle Tower is just north of Goessmann Laboratory; room 1634 is on the 16th floor. We hope to see you all there in June 2006!



# labNOTES

## *In the Auerbach lab ...*

Professor Auerbach was a finalist for the UMass Amherst Distinguished Teaching Award in 2005. This is the highest teaching award given on the UMass Amherst campus, with nominations by only students. Of the roughly 100 faculty who were nominated for this award in 2005, only about 10 were named finalists for the three annual awards.

Professor Auerbach lectured on his research on microwave-driven zeolites during a speaking tour through India in December, 2004. This tour included lectures at the Indira Gandhi Centre for Atomic Research in Kalpakkam, the Indian Institute of Science in Bangalore, and the National Chemical Laboratory in Pune. Fortunately for Prof. Auerbach, he missed the deadly tsunami by 4 days! The remarkable warmth and generosity experienced by Prof. Auerbach during his trip through India made the tsunami disaster that much more tragic.

Professor Auerbach published several articles on his research in 2005, including one in the Journal of the American Chemical Society on "Modeling Spontaneous Formation of Precursor Nanoparticles in Clear-Solution Zeolite Synthesis" with **Dr. Miguel Jorge** and **Prof. Peter Monson**. **Dr. Jorge** has since taken a postdoctoral fellowship in his home country of Portugal.

**Dr. Matt Ford** graduated with a PhD in Chemical Engineering in 2006, and has moved with his wife Risha to begin work at Atmospheric and Environmental Research, Inc. (AER) in Lexington, MA. **Dr. Ford** will apply his expertise in molecular simulations and computer programming to solving AER's problems.

**Ethan Sullivan** graduated with a BS in Chemistry in 2005, and has begun graduate work in physical-inorganic chemistry at UC Santa Barbara.

After postdoctoral work at the University of Minnesota, **Dr. Harikrishnan Ramanan** (ChemE PhD '03) moved to Arizona in Fall 2005 to begin work with Intel Corporation. **Dr. Ramanan** moved to Arizona with his wife Kavita and their 2-year old daughter Shreya.

**Dr. N. Mohankumar**, a visiting scholar in the Auerbach group during 2001, was promoted to Head of the Radiation Transport and Analysis Section in the Indira Gandhi Centre for Atomic Research in Kalpakkam, India.

## *In the Barnes lab ...*

The highlight of the year in the Barnes lab was the naming ceremony in October honoring **Prof. George Richason**. After a series of short presentations to the friends of **George Richason**, we adjourned for a lab tour where everyone got to see some of the instrumentation and colorful lasers. A good time was had by all, and it was a great pleasure and honor to host such an event. The beautiful permanent bronze plaque is now displayed outside the Richason lab in Goessmann 256.

We have a number of exciting collaborative research projects ongoing with **Profs. Paul Lahti** (single-molecule spectroscopy of novel conjugated polymers), **Dhandapani Venkataraman** (probing single-molecule chiro-optical effects in helicenes), **Sankaran "Thai" Thayumanavan** (single molecule antenna properties of light-emitting dendrimers), and **Todd Emrick** from Polymer Science & Engineering (single-molecule photophysics of quantum dot species coordinated with conjugated organic ligands). We expect the coming year will be very fruitful indeed.

In July of this year, **Nathan Hammer** joined the Barnes group as a postdoctoral researcher. **Nathan**, who came to UMass Amherst from **Dr. Mark Johnson's** lab at Yale University, was the recipient of a prestigious Intelligence Community (IC) Postdoctoral Research Fellowship.

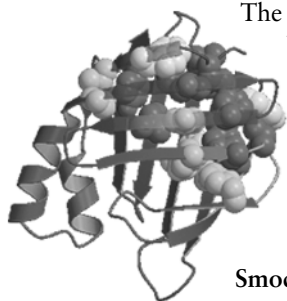
Current graduate students in the group include **Ruthanne Hassey** and **Michael Odoi**, second-year students, and **Kevin Early**, a first-year graduate student from San Diego, CA, who joined the group officially in January 2006. Several undergraduate students, **Emily Richards**, **Ellen Swain**, and **Anthony Spizuoco**, have made important contributions during the past year as well.

## *In the Gierasch lab ...*

This last year was an exciting one in the Gierasch laboratory. Professor Gierasch was selected to receive

Professors **Mike Barnes** and **Todd Emrick**, along with **Nathan Hammer**, received a \$340,000 grant from The Intelligence Community Postdoctoral Research Fellowship Program (September 2005 through August 2008). The focus of this program is on the synthesis and spectroscopy of novel quantum dot composite materials for new sensor and information technologies applications. This program provides funds for salary and support for outstanding postdoctoral researchers in a wide variety of fundamental research areas of interest to the Intelligence Community. **Dr. Hammer**, formerly a postdoctoral fellow with **Prof. Mark Johnson** at Yale University, joined the Barnes group in July of 2005.

the 2006 Francis P. Garvan-John M. Olin award from the American Chemical Society. Additionally, Prof. Gierasch has stepped down as Head of the Biochemistry and Molecular Biology Department after six years in that position. Combining this with her five years as Chemistry Department Head (1994 to 1999), this in fact draws to a close 11 years of service as a department head! Time to focus more on teaching and research. Along those lines, the lab researchers have been busy: **Gizem Dinler** successfully defended her PhD in January 2006 and will pursue post-doctoral studies in her native Turkey in the laboratory of **Prof. Zehra Sayers**. Post-doctoral fellow, **Beena Krishnan**, presented an invited talk at the 'Protein Folding Dynamics' Gordon Research Conference in Ventura, California in January 2006 while graduate student **Annie Marcelino** received first place in the poster competition at the same conference. Professor Gierasch gave several talks and seminars this past year, highlighted by a presentation in Strasbourg, France (in French!), an invited talk at the 'Proteins' Gordon Conference, a plenary talk at the Protein Society Meeting, and the Theo Hoffman lectureship at the University of Toronto. She also continues her duties as Editor-in-Chief of the journal *Biopolymers: Peptide Science*.



The Gierasch lab has been busily publishing papers since January 2005 (*ten!*).

Research Assistant Professor **Joanna Swain** and Post-Doctoral Fellow **Ken Rotondi** each published three, graduate students **Rob Smock** (Molecular and Cellular Biology, MCB) published two, while **Annie Marcelino**, **Robert Chou**

and **Linda F. Rotondi** each were authors of research papers. Additionally, visiting scientist **Zoya Ignatova** of the Max-Planck Institute of Biochemistry in Munich, Germany authored a paper in *Biochemistry*, the first in a new area for the lab: protein aggregation.

Another visiting scientist, **Aneta Szymanska** from Gdansk University in Poland has just completed a two-year stay in the lab and intends to return this coming summer. Aneta and graduate student **Jenny Maki** (MCB) presented their work at the 'Protein Translocation Across Cell Membranes' Gordon Conference in June 2005. **Zoya Ignatova** has become a 'regular' in our lab, visiting each of the past three summers. We are anticipating her return this summer as well. We are delighted to have **Mathias Stotz**, a doctoral student from the University of Tubingen, Germany, in our lab as the result of the Baden-Wurtenburg exchange

## LILA GIERASCH RECEIVES 2006 ACS GARVAN-OLIN MEDAL



Professor Lila Gierasch

American Chemical Society has awarded the 2006 Francis P. Garvan-John M. Olin Medal to **Professor Lila Gierasch** in recognition of her distinguished service to chemistry. She will receive this medal at the ACS Meeting in Atlanta in March 2006. A leading authority on protein chemistry, **Prof. Gierasch** has focused much of her on proteins and the three-dimensional shapes that they spontaneously form within cells. The research has implications for diseases and disorders as seemingly disparate as Alzheimer's disease, cystic fibrosis, bovine encephalitis, an inherited form of emphysema, and even certain cancers. **Prof. Gierasch** holds a joint appointment with the Department of Chemistry and Department of Biochemistry and Molecular Biology. She was the head of the Department of Chemistry from 1994 and 1999, and was the head of the Department of Biochemistry and Molecular Biology from 1999 and 2005.

program. We also extend a warm welcome to our new post-doctoral fellow, **Eugenia Clerico**. We wish the best to **Marc Vogt**, who completed a three year postdoctoral stay in lab and is now working at Lockheed Martin.

The lab continues to be home to several enthusiastic and dedicated undergraduate researchers: This year **Linnea Freeman**, **Rob McLoughlin**, **Jeff Bombardier**, and **Patrick Adcock** are all carrying out research projects.

In additional lab news, the lab received a new grant to support a collaboration with **Professor Noa Noy** of Cornell University to investigate the regulation of keratinocyte fatty acid binding protein. This work will be pursued by **Ken Rotondi**. This work complements ongoing studies in the lab, which happily continue to be supported by two major NIH grants.

Finally, we are all excited about the imminent installation of the new cryoprobe on the Bruker 600MHz NMR spectrometer. This piece of equipment, supported by a supplemental NIH grant to Prof. Gierasch and by generous on-campus matching funds, reduces background noise and dramatically enhances sensitivity by extreme cooling of its electronics. The enhanced performance will allow acquisition of NMR data far faster (up to 16 times!) using samples of lower concentration.

## JEANNE HARDY IS 2005 SMITH FAMILY NEW INVESTIGATOR



Professor Jeanne Hardy

Professor Jeanne Hardy received the 2005 Smith Family New Investigator Award. According to the Richard and Susan Smith Family Foundation, this award recognizes and supports 'promising researchers early in their career as they work to find breakthroughs in AIDS/HIV, cancer, heart disease, diabetes or neuroscience'.

Awardees are provided annual \$200,000 two-year grants.

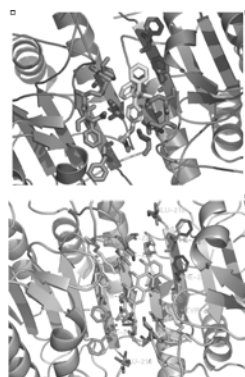
Professor Hardy was one of the seven awardees in 2005!

### *In the Hardy lab ...*

Professor Hardy joined the faculty in Fall 2005 and initiated the transformation of three empty rooms on the tenth floor of the Graduate Research Tower to a fully functional protein chemistry lab. In September the first undergraduate student, **Ruth Boadu** joined the lab and began work to produce protein and solve the x-ray crystal structure of a protease involved cell death and cancer.

In October, Prof. Hardy learned that she had been selected as a recipient of the Smith Family Young Investigator Award from the Medical Foundation for her proposal to engineer allosteric switches in proteases. These switches will act like an on-off toggle so that the activity of a protein can be regulated. Each university in Massachusetts was eligible to nominate two investigators for this award. Professor Hardy was ultimately selected as one of seven investigators to receive the award and the sizable two-year grant. She was then able to recruit the first full-time member of her group, **Kristin Paczkowski**, as a Research Fellow.

During her first semester, Prof. Hardy jumped into her teaching responsibilities by team-teaching the graduate



course, Macromolecular Structure, with resident expert **Prof. Craig Martin**. This graduate level class introduced the structural and functional features of proteins and nucleic acids to chemistry graduate students. She loved introducing topics close to her heart and the research focus was on protein flexibility and x-ray crystallography. One of her

main contributions to the class was to teach students to use PyMol, a state-of-the-art molecular graphics program that specializes in making artfully rendered representations of protein structures solved by x-ray crystallography or NMR.

Five months after its establishment, the Hardy lab is now humming with three first year chemistry graduate students, **Kristen Huber**, **Sravanti Vaidya** and **Witold Witkowski**, doing their January rotations in the lab. Research is going great and it is exciting to see notebook pages start to accumulate!

### *In the Jackson lab ...*

In the Jackson lab, **Jay Kerwin** successfully defended his Masters Thesis and is now working on his PhD at Yale. **Zuleika Medina** is making excellent progress towards her PhD, and **Joe Quattrucci** needs only to write and defend his PhD thesis. In 2005, Prof. Jackson gave invited talks at several meetings, including the Gordon Conference on Molecular Energy Transfer, the National Meeting of the Materials Research Society, the Theory for Experimentalists symposium at MIT in honor of **Prof. Robert J. Silbey**, the conference on Condensed Phase and Interfacial Molecular Science, the Workshop on High-Dimensional Methods in Quantum Dynamics in Leiden, The Netherlands, and a Chemistry Departmental Seminar at Brown University. Professor Jackson also served as Vice-Chair of the Gordon Conference on Dynamics at Surfaces.

At the NSM Awards Banquet this past spring, Prof. Jackson received the NSM Outstanding Researcher Award. Later that year his \$407,000 DOE grant was renewed for another three-year period. Professor Jackson continues to serve as Head of the Department of Chemistry.

### *In the Kaltashov lab ...*

The Kaltashov lab was very busy in 2005, which included a successful competitive renewal of a major research grant from the National Institutes of Health, publication of five papers in peer-review journals, presentations at numerous scientific meetings and conferences and publication of a monograph "*Mass Spectrometry in Biophysics*." Most importantly, a PhD dissertation was successfully defended by **Wendell P. Griffith**, who is now a post-doctoral fellow at the Johns Hopkins Medical School in Baltimore. This brings the total number of graduate students who completed their PhD work in the Kaltashov lab to four.

### *In the Knapp lab ...*

Research in the Knapp lab is ramping up with the focus on enzymatic oxidation chemistry at two levels:

synthetic models for tyrosine-derived cofactors and the human hypoxia response. Both projects speak to how enzymes interact with molecular oxygen—either for specific chemical reactivity or cellular homeostasis.

The modeling of tyrosine cofactors combines synthesis, reactivity, and spectroscopy to understand how the active site of an enzyme controls the redox chemistry at tyrosine. We have found that redox chemistry is quite slow in tyrosine models, and are now elaborating more complex molecules to probe how the surrounding environment impacts this reactivity. We have also observed that certain metal-coordinated phenolates are capable of photochemical redox chemistry, and are investigating this for potential energy conversion strategies. This project was supported by an ACS-PRF grant.

The hypoxia response is central to angiogenesis, playing roles in normal development as well as diseases such as cancer and stroke. We approach this from an enzymatic perspective, by testing the mechanism of the HIF-hydroxylases, iron-containing enzymes which constitute the primary switch in the hypoxia response. Related to this work is our study of nanomaterials as regulators for protein-protein recognition; this work is a collaboration with the **Rotello** and **Thayumanavan** labs. These projects are supported by the American Cancer Society and by a Healy grant from UMass Amherst.

Most of the group presented their work at two meetings during 2005: the International Conference on Bio-Inorganic Chemistry (ICBIC) and the National ACS meeting. While at ICBIC, we initiated an international collaboration with two Russian scientists: **Prof. Elena Milaeva** of Moscow State, and **Prof. Yan Voloshin** of the Russian Academy of Sciences. This work will explore the reactivity of bifunctional phenoxyl-based catalysts.

Professor Knapp combined teaching and outreach in the UMass Amherst Program for Encouraging Tomorrow's Scientists (UMPETS), directed at high-school students. This program was quite successful in 2005, and we are beginning a new program for the 2006 year.

#### *In the Lahti lab ...*

Professor Lahti was one of the lead writers of a proposal to the National Science Foundation Chemistry Research Instrumentation and Facilities program to replace the aging electron spin resonance spectrometer at UMass Amherst; and other contributors were **Profs. Michael Maroney, Vincent Rotello, Michael Knapp, D. Venkataraman, and S. Thayumanavan**. The proposal was funded, allowing the purchase of a new system

with X-band and Q-band capability between 4.2-420 K. The \$400K system was delivered in early fall 2005 by Bruker Biospin EPR.

In August 2005, Prof. Lahti visited the physics department at Universidade de São Paulo in Brazil and gave three group-meeting style talks that advanced an ongoing and growing collaboration with scientists there who have interest in magnetic materials. In October 2005, Prof. Lahti gave an invited talk at the International Conference of Computational Methods in Sciences and Engineering, at Loutraki, Greece, concerning computational investigations of interactions between unpaired electrons in reactive organic molecules.

Professor Lahti was a contributor to the recently published book “Carbon Based Magnetism: An Overview of the Magnetism of Metal Free Carbon-Based Compounds and Materials,” edited by **T.L. Makarova** and **F. Palacio**; his contribution is entitled, “Magneto-structural Correlations in pi-Conjugated Nitroxide-based Radicals: Hydrogen-bonds and Related Interactions in Molecular Organic Solids.”

In January 2006 **Patrick Taylor** successfully defended his PhD dissertation entitled, “Hydrogen Bonding and Exchange Interactions in Organic-Based Magnetic Materials.” **Hemali Rathnayake** won a best poster award at the Department of Chemistry Posterfest for the second year running this year, showcasing her excellent

## A NEW HOME

The Department of Chemistry Single Crystal X-Ray Diffraction Facility has been significantly upgraded for 2006. Thanks to the long range planning and adept resource management of **Prof. Lahti**, room 253A Goessmann has been renovated to serve as the new, more spacious home of the diffraction facility. **Prof. Venkataraman** has donated a new computing platform, allowing the x-ray lab to upgrade its control software (allowing enhanced crystal indexing) and serve as the departmental host of the Cambridge Crystallographic Database subscription. In addition to running the facility and teaching graduate coursework in crystallography, the new space has allowed **Prof. Khalifah** to set up high temperature facilities for the growth of inorganic crystals in the same room as the diffractometer. The facility is accepting crystals from UMass Amherst alumni—visit the facilities web site at [xray.chem.umass.edu](http://xray.chem.umass.edu) or contact **Prof. Khalifah** at [kpete@chem.umass.edu](mailto:kpete@chem.umass.edu) for details.





work in the area of luminescent organic molecules for LED applications. PhD alumnus **Richard Walton** and family have moved to Monroe, NC, where **Richard** has joined Goulston Technologies Inc. The Waltons are happy to be in North Carolina. PhD alumnus **Burak Esat** has joined the chemistry faculty at Fatih University in Turkey as of September 1, 2005, as an associate professor. Best of luck with your academic career, and all the best to your family. **Cesar Sierra** (PhD '05) is now an assistant professor at the Universidad Nacional en Bogota, teaching organic chemistry and working on building a research group. He visited UMass Amherst for a week in January 2006 during his intersession break. PhD alumna **Yanbing Liu** reports that she is with AstraZeneca in Boston learning “a lot about drug discovery.” After six years at Gillette R&D, PhD alumnus **Ron Gurge** has moved to Collegium Pharmaceutical, a small company in northern RI. He says that “the commute is good, people are nice and the project mix is diverse and interesting.” PhD alumnus **Mark Kearley** moved from Sonoma State University in California, all the way across the country to Florida State University, where he will be a lab coordinator and instructor, and (by his very words) happy to be teaching chemistry and science. PhD alumnus **Paul Serwinski** joined MannKind Biopharmaceuticals in Danbury, CT, during summer 2005, to do chemical and medicinal chemistry R&D. In April 2005, **Dr. Hidenori Murata** joined the group as a postdoctoral research associated working on molecular magnetism, coming to us from the group of **Prof. Hiroyuki Nishide** of Waseda University in Tokyo Japan.

#### *In the Maroney lab ...*

Professor Maroney is enjoying his year as a Samuel F. Conti Faculty Fellow. This campus award given “in recognition of outstanding research and scholarship,” carries a small cash award and a year of release from teaching. The award capped a successful year for the Maroney group (graduate students **Peter Bryngelson**,

## MICHAEL MARONEY IS THE 2005 SAMUEL F. CONTI FELLOW

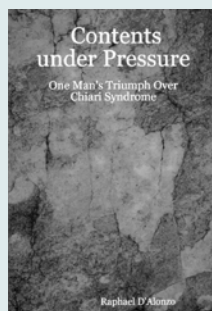
Professor **Michael Maroney** was awarded the 2005 Samuel F. Conti Fellowship by the University of Massachusetts Amherst. This fellowship, which carries an award of \$3,000 and a year's leave of absence to concentrate on their research, was in recognition his outstanding work on understanding the metal sites in metalloproteins and enzymes. His continuing work on understanding the inner workings of the enzyme hydrogenase is crucial in developing catalysts for the production of hydrogen—the fuel of the future.



Professor Michael Maroney

**Sergio Chai, Bob Herbst, Khadine Higgins, Sharon Leitch, Jeff Martin, Kelly Ryan** and postdoc **David Kennedy**) that included a road trip for most of the group to the International Conference on Biological Inorganic Chemistry (ICBIC) that was held in Ann Arbor, MI last summer. At that meeting, group member **Sharon Leitch** received an honorable mention in the poster competition, one of only ten awards from over 300 student-presented posters. She followed by winning the grand prize in the poster competition at the Symposium on the Spectroscopy of Biological Molecules, held in Santa Fe, NM, in September, where Prof. Maroney was a speaker. Trips this fall included lectures at Kansas University and Purdue University, where Prof. Maroney was able to catch up with UMass Amherst graduate and former group member, **Jon Wilker** (BS '91), who recently received tenure and

## WHAT IS CHIARI SYNDROME?



It goes without saying that our alums have big brains. While this is normally an asset, it can also cause a serious but poorly-known medical condition known as Chiari Syndrome. UMass Amherst Chemistry alumnus **Raphael D'Alonzo** (PhD '77) suffered from this debilitating neurological disorder for several years before finally conquering it. Because of the problems that Chiari sufferers have in getting proper diagnoses and treatment, **Dr. D'Alonzo** has written a book chronicling his own odyssey from symptoms to diagnosis to brain surgery to recovery. The book is entitled, “Contents under Pressure: One Man's Triumph Over Chiari Syndrome,” and is self-published through the website [www.lulu.com](http://www.lulu.com). All proceeds from book sales are donated by **Dr. D'Alonzo** to the “Conquer Chiari” organization ([www.conquerchiari.org](http://www.conquerchiari.org)). We wish good health to **Dr. D'Alonzo** and his book sales.



promotion to Associate Professor. This fall, **Dr. Crisjoe Joseph** joined the lab upon completion of his PhD at UC-Santa Barbara.

#### *In the Martin lab ...*

During spring and summer of last year, Prof. Craig Martin returned to his alma mater for a sabbatical in the laboratory of **Prof. Rich Roberts** at Caltech. In the Roberts lab, Prof. Martin learned about a powerful in vitro selection method for isolating short proteins with new binding specificities. This approach, developed by **Prof. Roberts**, selects the tightest binding proteins from a combinatorial library of RNAs encoding up to 1,013 different protein sequences. The approach uses in vitro translation, a process not unlike the in vitro transcription studied in the Martin lab. In addition to providing a powerful tool, the system is providing insights into the mechanism of the ribosome in translation.

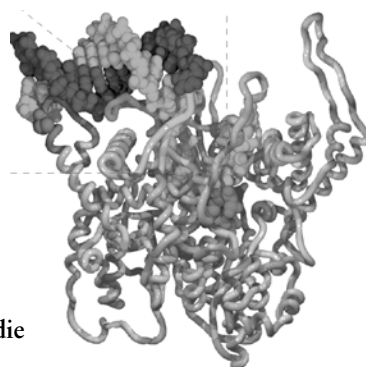
Since the Fall of 2003, Prof. Martin has taken on the role of Graduate Program Director (GPD) in Chemistry. The recent departure of Graduate Program Manager **Kathy Tobiassen** (see story on pg. 15) has created new challenges for the GPD, but our new Graduate Program Manager, **jms**, is learning the ropes quickly.

Research in the Martin lab has been phenomenal. Studies carried out by graduate students **Eddie Esposito** and **Peng Gong** have provided new insight into how RNA polymerase coordinates release of DNA contacts, collapse of the bubble, and displacement of the “tail” of the nascent RNA. Together with key structural insights developed with **Adjunct Professor Karsten Theis**, they have a very detailed model of a key transition as the polymerase steps away from its initial binding site. Eddie successfully defended his PhD dissertation in December, with Peng following closely in February.

**Yi Zhou** (MCB) is poised to make similarly big splashes with his recent demonstration that RNA polymerases, lined up like trains on a track, can collide with each other. More specifically, a polymerase coming up from behind can efficiently displace a polymerase “stalled on the tracks.” He has also developed a model for how an RNA polymerase that is topologically “locked” onto the (double) helical train track can fall off the track—it must first slide forward, dethreading the lock, before the RNA can be released. Younger group members, **Xiaoqing Liu** and **Selase Enameh** are providing still more insights into the energetic contributions to the stability of the “train on the tracks.” **Xiaoqing** is making progress on a combinatorial selection approach, while **Selase** is using novel nucleotide analogs to test theories of sequence-dependent stability.

Following in their illustrious footprints, graduate student **Rosemary Turingan** has been using fluorescence resonance energy transfer (FRET) to measure distances both in the statically bound initial complex and as that complex steps away from the promoter. She has nicely mapped distances in the initial complex, supporting a model for bent and open DNA bubble, first proposed by **Andrea Újvári** (PhD '99) in the Martin lab. Her preliminary results also provide strong support for the structural/dynamic model developed by Peng and **Prof. Theis**. Most recently, Rosemary is following up on some work begun by undergraduate **Shannon Reilly**, using a photocleavable affinity approach to deliver a fluorophore to a unique site in the protein. After cleaning up in Chemistry senior awards in 2005, **Shannon** is now a graduate student in Nutritional Biochemistry at Harvard University.

Finally, a collaboration begun by **Eddie Esposito** and **Catherine Goodman** (PhD '03, Rotello group) is now being carried forward by **Han Gang**, a graduate student jointly advised by Profs. Martin and **Rotello**. His hard work has already generated two papers in press and another is on the way.



Recently graduated, **Eddie Esposito** hasn't left the Valley, he is teaming up with **Tony Shrout** (PhD '05, Weis group) and **Prof. Bob Weis**, to form a startup company to develop new bioanalytical tools, based on fundamental studies carried out by **Tony** and others in the **Weis** lab.

The recent surge in productivity within the lab suggests that Prof. Martin should perhaps go on sabbatical more often!

#### *In the Metz lab ...*

The Metz lab has moved into the infrared—we're doing vibrational spectroscopy of ions, complementing our work on their electronic spectroscopy. **Murat Citir** has been heading our work on how binding to the metal affects the OCO antisymmetric stretch in  $V^+(OCO)$ . Because one IR photon doesn't have enough energy to dissociate the ion, we've applied a technique previously used to study neutral molecules: vibrationally mediated photodissociation (VMP). An IR photon vibrationally excites some molecules; these molecules then selectively absorb a second photon (in the visible) and dissociate. This has also allowed us to show that the OCO

## VINCENT ROTELLO IS GOESSMANN PROFESSOR



Professor Vincent Rotello

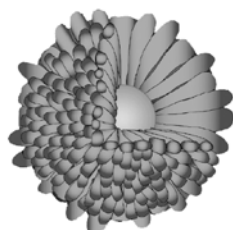
Professor Vincent Rotello was named to the Charles A. Goessmann Chair in Chemistry in Fall 2005 by the Board of Trustees. He was recommended for the honor by Chancellor John V. Lombardi and Provost Charlena Seymour in recognition for his contributions to the fields of molecular recognition, supramolecular chemistry and the design and synthesis of nanoscale systems. Rotello's research is highly interdisciplinary and is

expected to lead to advances in catalysis, medical therapy, drug delivery and nanoscale electronics. Established in 1911, the Charles A. Goessmann Chair in Chemistry is the oldest named professorship at UMass Amherst. The chair is named for the legendary founder of the Department of Chemistry at Massachusetts Agricultural College.

antisymmetric stretch enhances dissociation via the reactive  $\text{VO}^{++}\text{CO}$  channel rather than the non-reactive  $\text{V}^{++}\text{CO}_2$ . Murat presented this work in a poster at the Gordon Conference on Gaseous Ions, where Prof. Metz gave an invited talk. Gokhan Altinay is taking the lead on our studies of the vibrations of intermediates of methane to methanol conversion by  $\text{FeO}^+$ . Spectra of the key insertion intermediate  $[\text{HO-Fe-CH}_3]^+$  are obtained by "argon tagging." IR absorption is detected by loss of an argon atom from ions with one or two attached Ar atoms. Manori Gunawardhana is studying singly charged ions such as  $\text{CO}^+(\text{CH}_4)$ , complementing her work on solvated, doubly charged ions. Chris Thompson (PhD '03) was married in the fall; he and his wife Camila live in the Boston area, where he works for Bruker Daltonics. Kay Stringer (PhD '04) and Mark Gray (PhD '03, Rotello group) married in August and now live in England.

### *In the Rotello lab ...*

In 2005, Prof. Rotello was appointed to the Charles A. Goessmann Chair of Chemistry, the oldest chaired position on campus. He also was a visiting professor at Ecole Normale Supérieure de Cachan, outside of Paris. He and Prof. Thayumanavan co-organized a symposium at the ACS, Molecular Recognition using Polymeric Materials, and a symposium at the MRS,



Nanomaterials in the Environment. He was also appointed to the editorial board of Chemical Biology & Drug Design.

In group news, Roy Shenhar has been appointed as an assistant professor at the Hebrew University of Jerusalem while Amitav Sanyal has been appointed as an assistant professor at Bogazici University in Turkey. Mark Gray finished up his post-doc at Texas, and is now a senior lecturer at the University of Sunderland (UK). Tyler Norsten is a staff scientist at Xerox Research Center in Canada. Ben Frankamp, Ray Thibault, Nick Fischer (MCB) and Joe Carroll all received their PhDs in 2005. Ben is off to Sandia National Labs, Ray is in Santa Barbara with Prof. Craig Hawker, Nick is at Lawrence Livermore, and Joe is at Clemson with Steve Foulger. Joe Worrall received his MS, and is working in Boston.

### *In the Stidham lab ...*

Professor Stidham remains active in teaching and research in the Department of Chemistry, nearing the end of his 50th year at UMass Amherst. He is still the director of the Physical Chemistry Laboratory. Research in the Stidham group has been focusing on the use of vibrational spectroscopy and electronic structure calculations to investigate the conformational behavior of halo-alkanes.

### *In the Thayumanavan lab ...*

The Thayumanavan group enjoyed another productive year at UMass Amherst. Thai got tenure and was promoted to associate professor! The group graduated its first PhD, Krys Bronk who came back to defend her thesis.

Dr. Dharmarao Vutukuri finished his postdoctoral tenure in the group to accept a position at Organics in Boston, Dr. Jing Jiang finished his postdoctoral time to move next door to the Department of Polymer Science & Engineering, and Dr. K. Jayakumar moved to Georgetown University. Dr. Suhrit Ghosh and Dr. K. Krishnamoorthy joined the group as postdoctoral associates. Dr. Bharathi Pandi continues to do well at Scynexis, Inc. in North Carolina.

Yangbin Chen, Akamol Klaikherd, and Naresh Theddu joined the group as graduate students in February. There are currently several graduate students rotating in the group for the 2006 entering class. Students have not officially joined groups yet. K. 'Velu' Sivanandan was one of the four award winners in the Research Symposium in the department. He will soon join Prof. Craig Hawker as a postdoctoral associate at UC-Santa Barbara.

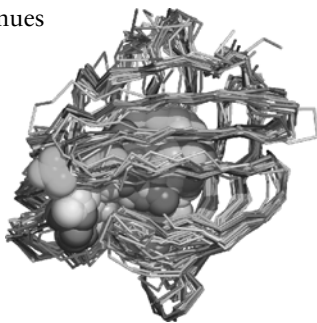
Among the undergraduates, all of them seem to be doing well in their medical school or graduate school career. **Derek van der Poll** is applying for graduate school this year.

In research productivity, the group had the most productive year so far in terms of publications. Everybody in the group wants this to ramp up even more. We are working hard for continuing this trend. Thai co-organized an ACS symposium on Molecular Recognition in Polymeric Materials. Thai also gave several invited lectures in various academic institutions around the country. Thai gave invited lectures in PacificChem in Hawaii, International Dendrimers Symposium in Michigan, and Organic Chemistry–Today and Tomorrow symposium in India. Finally, our web page is reasonably updated (at least as of now!). Please visit, [www.umass.edu/thaigroup](http://www.umass.edu/thaigroup), to see our research highlights.

#### *In the Thompson lab ...*

Professor Thompson spent January to July 2005 on sabbatical at Caltech working with **Doug Rees** and coworkers, to learn about crystallography of membrane proteins. This was her first sabbatical away from UMass Amherst and she found it to be a great opportunity for learning about new approaches and proteins, this will help the Thompson lab expand their studies of membrane proteins into a new area—studies of stability and mechanisms of ABC transporters.

Professor Thompson continues to direct the Chemistry-Biology Interface Training Program (CBI), which now involves over 50 students (the majority from Chemistry) and 27 faculty from multiple departments (primarily Chemistry, BMB, PSE, and ChemE). The UMass Amherst CBI Program has had NIH funding for graduate student training since 1995. This is one of very few NIH Training grants on campus, and one of only about 20 CBI Programs nationwide. Efforts to renew NIH funding for the program for another five years included coordinating an NIH site visit in Fall 2005. The CBI students and faculty did a fabulous job showcasing the strengths of the program, helping to earn a great priority score which should hopefully lead to renewal of the Training grant. (This funding decision will be announced shortly.)



Professor Richard Stein

## RICHARD STEIN IS PMSE FELLOW

Professor Emeritus Richard Stein has been named as a PMSE Fellow by the ACS Division of Polymeric Materials Science and Engineering in recognition for his significant contributions to the science and engineering of polymeric materials.

Professor Thompson began her service on the Council of the Biophysical Society and presented invited seminars at University of North Carolina at Chapel Hill, Cal State LA, Occidental College, Rhode Island College, University of Pittsburgh, the New England Structure Symposium at University of Connecticut, and PacificChem in Hawaii.

**Dan Fowler** and **Fe Consolacion**, current graduate students in the lab, continue projects using NMR and biochemical approaches to investigate mechanisms of transmembrane signaling by bacterial chemotaxis receptors. **Antonio Americo**, a first year graduate student in the MCB program, did a rotation project in the lab September to January 2005, and will now do his second rotation before choosing which group to join. **Greg Gallagher** completed and defended his PhD, and became an assistant professor at American International College (AIC) in Springfield, where he works with **Sue Swanker** (PhD '97, Prof. Curran) and **Jack Barocas** (PhD '76, Prof. Ragle)—the AIC Chemistry department consists entirely of UMass Amherst alumni! Chemistry major **Patrick Cushing** graduated in May, and is now pursuing graduate studies in Biochemistry at Dartmouth. Undergraduate **Naima Sharaf** is now starting research in the lab.

This spring Prof. Thompson is excited to be putting together the new one-semester course, “Biochemistry for Chemists” with **Prof. Gierasch**, which aims to introduce Chemistry and Chemical Engineering majors to the exciting science and opportunities in this dynamic field.

#### *In the Tyson lab ...*

**Wiharat Chuachuad (Jum)** completed her PhD studies in August 2005 and returned to Thailand to take up a faculty position at Naresuan University. **James Kearns** made the transition from successful master's student to PhD candidate in the group, and **Kay**



**Callahan** made the transition from undergraduate researcher to master's candidate. Undergraduate researchers **Emily Butterfield** and **Pat Cahill** enjoyed the experience so much in Fall 2005, that they plan to stay on for the spring. Undergraduate **Sunyoung Bang** worked with graduate student **Elena Dodova** in the spring on a spectrophotometric procedure for total selenium. Graduate students **Princess Hernandez** and **Fumin Pan** have developed new methods for hydride-forming elements in which atomic emission is the measurement technique (thanks to our continued support by PerkinElmer) and **Princess** has helped consolidate our collaboration with **Prof. David Reckhow** in the Department Civil and Environmental Engineering by setting up the new plasma-source mass spectrometer in the **Reckhow** lab, where graduate student **Hans Mentzen** has been developing methods for the determination of undesirable organic compounds in water by GC with TOF-MS detection. **Princess** also announced her engagement to **Dr. Jon Wilson** (a recent graduate from the Vachet group). **James** and **Maura Mahar** both finished their academic year NSF fellowships in the Graduate Student in K-12 Education program (check out <http://k12s.phast.umass.edu/connections/>), in which graduate student **Richmond Ampiah-Bonney** also participated through other NSF funding. **Richmond** and **Bobbie Coleman** took students from Chestnut Middle School in Springfield to the science fair at the annual conference of the National Organization of Black Chemists and Chemical Engineers, where they won a first and third place prize. A poster describing our activities with middle schools was selected for inclusion in a special NSF-sponsored session at the ACS National Meeting in Washington in August (and can be seen at <http://chemistry.clemson.edu/NSF-broaderimpactsposters/>). **Prince Amoako** has got a second GC-AED system operational while looking for selenium in saliva. **Yustina Rodriguez** has extended the hydride generation work with immobilized borohydride to the determination of Sb, while **Jum** showed that mercury vapor could be generated from immobilized chlorostannate. **Khalid Alassaf** devised a separation and preconcentration procedure, based on anion-exchangers, for the four main arsenic species. The undergraduate component of the arsenic project continues to grow: in the fall everyone pitched in and we had 11 groups and a total of 68 undergraduate researchers. More details of this work in progress can be seen at <http://courses.umass.edu/chemh01/>. Collaborations on phytoremediation topics, already in place with **Prof. Guy Lanza** in Environmental Studies, continue to grow as we start work with **Prof. Om Parkash** in Plant Soil and Insect Sciences.

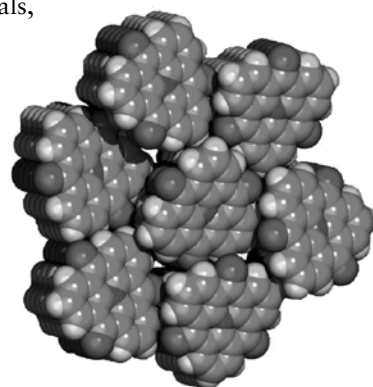
#### *In the Vachet lab ...*

2005 was a good year in the Vachet lab. Prof. Vachet received two new grants during 2005. The first is a collaborative effort with **Profs. Rotello** and **Thayumanavan** and is funded by the Office of Naval Research. The goal of this work is to develop new analytical measurement approaches based upon nanoparticles and mass spectrometry to selectively and sensitively detect microcystins and endocrine disrupting chemicals. The second grant is from the National Institutes of Health. This project focuses on the development of new analytical methods to study the molecular-level details of a protein whose misfolding and aggregation leads to an amyloid disease in a manner similar to Alzheimer's or Parkinson's disease.

**Jonathan Wilson** and **Matt Miller** both successfully defended their PhD dissertations in the summer. **Jon** is currently an Applications Chemist at Bruker Daltonics in Billerica, MA, while **Matt** works as an Associate Research Scientist at Forest Laboratories in Commack, NY. Even more exciting for **Jon** was that he became engaged to **Princess Hernandez** during the Fall. **Jason Numbers** also graduated (BS) with honors in 2005, and he is now in medical school.

#### *In the Venkataraman lab ...*

Professor Venkataraman's research focus has now shifted to organic materials, with particular focus on photovoltaic cells. The group has also begun a collaboration with **Prof. Mike Barnes** on single molecule spectroscopy of helical molecules. Last year, **Shanti Kalikotla** joined the group. She will be working with **Travis Benanti** on using fluorocarbon-hydrocarbon interactions for phase segregation of charge carrier conductors in photovoltaic cells. **Uche Anyanwu** (PhD '05) graduated last year and is now working for GE Advanced Materials Silicones in Tarrytown, NY. **Travis Benanti** was an intern at GE Plastics in Indiana from June 2005 until September 2005. **Michael Doherty** (BS '05) graduated in May and is now a graduate student at the University of North Carolina at Chapel Hill joining the research group of **Michel R. Gagné**, an organometallic chemist. **Jocelyn Scheintaub** (BS '06) and **Dan Burke** (BS '06) received NSF-REU fellowships. **Jocelyn** spent her summer in Germany working at



the Max Planck Institute and **Dan** worked with **Todd Emrick** in the PSE Department at UMass Amherst. **Jocelyn** also served on the search committees for the Dean of Natural Sciences and Mathematics and for the Dean of Commonwealth College. She was nominated by the University for Goldwater, Rhodes, Fulbright, Marshall and Hertz fellowships. In fall 2005, the Venkataraman group welcomed **Gordon Smith** (BS '07) and **Andy Kalaydjian** (BS '07).

From the undergraduate alumni side, **Jaclyn Murphy** (BS '04) is moving to Prof. Venkataraman's alma mater, University of Illinois at Urbana-Champaign along with her advisor **Prof. John Hartwig**. **Tom Hill** (BS '02) is still a graduate student at Boston College and works with **Prof. Larry Scott**. **Noah Tremblay** (BS '04) is now a graduate student at Columbia University working with **Prof. Colin Nuckolls**. **Janice Chin** (BS '00) is now working with ArQule, a biotech firm in Woburn, MA, and is planning to go to nursing school this fall.

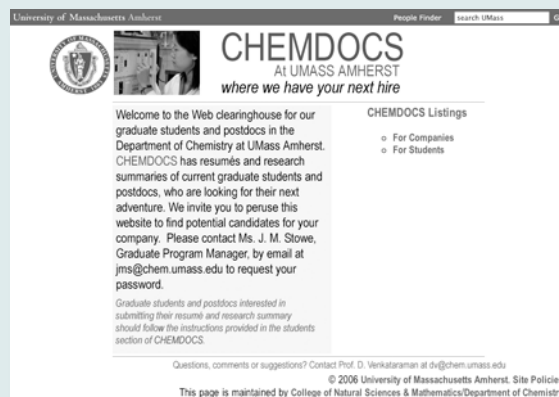
From the graduate alumni, the most exciting news of 2006 is that **Uche Anyanwu** (PhD '05) proposed to his girlfriend, **Uche**, in January 2006. **Jason Field** (PhD '03) is a senior research scientist in Alphora Research Inc., in Mississauga, Ontario, Canada. **Jay** and **Lora** recently bought a house in Mississauga. **Rattan Gujadhur** (PhD '03) is now Manager-API Manufacturing and Development at CV Therapeutics in San Jose, CA. **Derek Van Allen** (PhD '04) has now moved to the Naval Research Labs. His move triggered the 'Feds' to spend half day with with the Venkataraman's group for Derek's security clearance.

### *In the Voigtman lab ...*

Things have been hectic this past year. During academic year 2004-05, Prof. Ed Voigtman was chair of the departmental personnel committee, which had a very full plate, including the successful tenure and promotion cases for **Igor Kaltashov** and **Sankaran "Thai" Thayumanavan**, and the successful 4.2 review for **Mike Knapp**. Ed also served as Interim Graduate Program Director, from December 16 to mid-August, while **Craig Martin** was on sabbatical leave. Then this past September, Ed became associate head. Of course, there was teaching: CHEM 111 last Spring, then CHEM 515 and CHEM 121H (co-taught with **Justin Fermann**) this past fall.

This March, Ed has been invited to give one of four talks on the occasion of the University of Florida's departmental symposium honoring the impending retirement of Ed's post-doctoral advisor, **Prof. James D. Winefordner**. Many of **Jim's** 160+ PhD students are

## WE HAVE YOUR NEXT HIRE AT UMASS AMHERST



If you or your company is looking to hire creative, hardworking and intelligent scientists, visit the website CHEMDOCS at URL <http://www.chem.umass.edu/chemdocs>. The Department of Chemistry is pleased to announce the creation of this website which will act as a web clearing house for graduate students and postdocs in the department. Current resumes and research summaries of graduate students and postdocs will be posted on CHEMDOCS. The listings are sorted by graduation year, division, advisors and last names. Your next hire is now just a click away. To request a login and a password please send an email to [Ms. J. M. Stowe](mailto:Ms.J.M.Stowe), our graduate program manager; at [jms@chem.umass.edu](mailto:jms@chem.umass.edu).

expected to be there, along with many former post-docs, and others, so it will be a grand time. Of course, it means getting some substitute teaching in Ed's two courses this spring semester: CHE 112 (162 students or so) and CHEM 519!

In January, Ed's graduate student **Dan Montville** gave a poster at **Ray Barnes'** 2006 Winter Conference on Plasma Spectrochemistry, held at the Hilton El Conquistador Hotel and Conference Center in Tucson, AZ. The poster entitled "Comparison of Limits of Detection and Associated Statistics," included our current work, which focuses on the distribution of quotients of instrumental detection limits, including theoretical, empirical (via Monte Carlo simulations), and real measurement approaches. As **Dan** said, "I was completely full of 'customers' the entire time. At times I had as many as 10 at a time during 'delivery.' The conference as a whole was a success." **Dan** will

## UMASS AMHERST SCIENTISTS COME TOGETHER TO HARNESS RENEWABLE SOURCES OF ENERGY



A new research center has been initiated at the University of Massachusetts Amherst to develop practical solutions to the energy demand problem. Massachusetts

Center for Renewable Energy Science and Technology (MassCREST) will bring together complementary expertise in molecular design and synthesis, physical characterizations, device fabrication, and theoretical modeling from at least five different departments within UMass Amherst, including several research groups from the Department of Chemistry. MassCREST researchers are focusing on developing efficient solar cells and fuel cells, producing hydrogen from water using enzymes, and developing catalyst for the conversion of biomass to hydrocarbon fuels. MassCREST is co-directed by [Professor Thayumanavan](#) in Chemistry, along with [Professor Coughlin](#) in Polymer Science and Engineering (also an adjunct faculty member in Chemistry). For more information on the activities of MassCREST, please visit URL [www.chem.umass.edu/masscrest](http://www.chem.umass.edu/masscrest).

be finishing up his doctoral studies by the end of this academic year.

That's all for now. Best wishes to all and come back and see us sometime!

### *In the Weis lab ...*

In the past year, four PhD advisees of Prof. Weis have completed their studies and moved to new positions. **Frances Antommattei** is employed as a staff scientist at Procter and Gamble in Stamford, CT. **Li Zhi** (MCB) is now a postdoctoral fellow in the National Heart Lung and Blood Institute at the NIH in Bethesda, Maryland. **Anthony Shrout** is the cofounder of P. A. Technologies located in Amherst, Massachusetts. **Tatiana Besschetnova** is a postdoctoral fellow in Saint Petersburg, Russia.

*Frank Higbie* (Chem MS '69) and his wife Lois Egan (Math MS '69) visited Seattle for the first time and enjoyed the trip very much. Unlike winter, their summer has many clear days, which makes the Puget Sound even more attractive. In New Orleans we took a swamp boat ride in a privately owned backwater and the boat guide brought along a bucket of chicken parts. They did a "Steve Irwin" off the side of the boat when he fed the numerous alligators that followed the boat. It was very interesting. We also went overseas to Helsinki, Finland with a side trip to Estonia. Finland was well worth the trip. It's not an overwhelming city such as NY, London or Paris. It's easy to get around on their tram system and they have many fine restaurants and museums. English is widely spoken. At one restaurant the menu had only reindeer and elk. They love their sidewalk cafes.

## inMEMORIAM

### *Clarence W. Powers (1918-2006)*

When Clarence Powers died on January 2, 2006, the UMass Amherst chemistry community lost a respected and valued member. Many of you who were here during the 60s and 70s will remember Clarence at the stockroom window. His assistance was invaluable.

Clarence was first employed at UMass Amherst in 1947 as a custodian in "old" Goessmann and became the stockroom storekeeper around 1960. He retired, after 36 years of service, in 1983. Living his entire life in Amherst, Clarence had a full life outside the campus that chemistry students never saw. He and Professor George Oberlander (general chemistry) had sons of the same age, participating in Boy Scout Troop 503. Together, Clarence and George served as supervisors of a summer week at Camp Chesterfield in the hills west of Northampton. Clarence also served the town of Amherst as an auxiliary policeman, and he was an avid Red Sox fan.

The funeral mass was at St. Brigid's in Amherst. George Richason presented two of the readings, and George Oberlander conveyed the chalice to the altar. Clarence Powers leaves Eleanor, his wife of 58 years, a daughter, three sons, two grandchildren, and a grateful chemistry department community.



# staffCHANGES

## MAIN OFFICE:

**J.M.Stowe (jms)** has served us wonderfully over the past decade as Assistant to the Head, and we welcome her as the new Graduate Program Manager. The job is not entirely new to her, as she served in an equivalent graduate program oversight position in the Department of Art on campus (a program only half our size). The expertise and connections gained there, together with Kathy's remote assistance, have made for a smooth transition.

**Margaret MacDonald**, our new Assistant to the Head, joined our staff in January. She comes to us from the Department of Physics, so while Margaret may be new to Chemistry, she is familiar with the College of Natural Science and Mathematics. During her 18 years in Physics she wore many hats, and made many friends—they will certainly miss her. We are pleased to have her as a member of our team, as her experience and warmth are a welcome addition to our chemistry family.



Margaret MacDonald

## FOND FAREWELL

The Department of Chemistry bids a fond farewell to **Kathy Tobiasen**, Graduate Program Manager, and her husband **Prof. Bill Vining**, Director of General Chemistry. Kathy and Bill left Amherst in Summer 2005 to move to Oneonta, NY; Bill began teaching in the Chemistry Department of SUNY Oneonta in Fall 2005. Hundreds of our Chemistry graduate students have benefitted from Kathy's attention to and caring for their graduate careers, while hundreds of our Chemistry undergraduate students have been inculcated with Bill's passion for and commitment to Chemistry. We will miss them both very much. We wish them much happiness and prosperity in this next chapter of their lives.

## DON TAYLOR, ORGANIC CHEMISTRY LABORATORY TECHNICIAN, WINS CHANCELLOR'S CITATION AWARD

The Department of Chemistry's excellent support staff was once again recognized; **Don Taylor**, the organic chemistry teaching laboratory technician, received one of this year's Chancellor's Citation Awards. It is given to recognize outstanding and exemplary service to the University of Massachusetts Amherst. **Don** now joins previous chemistry department recipients of this honor, **Kathy Tobiasen**, Graduate Program Manager, and **Marvin Ellin**, Director of Operations.

**Don** joined the general chemistry teaching labs in 1988 as an hourly (03) employee, and since then has worked in both the general and organic chemistry programs. His dedication goes well beyond preparing samples and solutions and getting experiments ready on time, to the successful operation of summer and outreach programs. The Summer Enrichment Program offered during the 90s to high-school sophomores is one of many programs that have succeeded, in no small part, to his exemplary service.

We are fortunate to have excellent departmental members like **Don Taylor**. We are all proud that he is one of us!



Chancellor John Lombardi, Donald Taylor, Chemistry Department Head Bret Jackson, and Deputy Provost John Cunningham

# ZEN & THE ART OF MADELEINE JACOBS

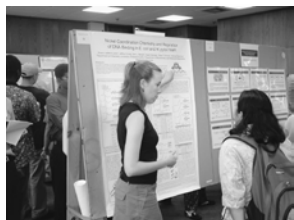
*Dr. Madeleine Jacobs*, the Executive Director and CEO of the American Chemical Society, gave our annual *William E. Mahoney Seminar* on October 20, 2005. The Mahoney seminar series is made possible by the generous contributions of Chemistry alumnus **William E. Mahoney** and features a person who has made a major contribution to the scientific understanding of the public at-large. Dr. Jacobs is a much-honored science journalist and an internationally sought after public speaker. Before becoming the Executive Director of the ACS in 2004, Dr. Jacobs served as Editor-in-Chief of Chemical and Engineering News from 1993 to 2004. Dr. Jacobs has received dozens of honors and awards in her career as a writer and editor, including the ACS Award for Encouraging Women into Careers in the Chemical Sciences and the New York Academy of Sciences Women's History Month Award. During her lecture entitled, "The Two Cultures, Zen, and the Art of Motorcycle Maintenance," Dr. Jacobs detailed the growing communication gap between those in the sciences and those in the humanities. She made the case that this increasing inability to communicate effectively threatens the scientific enterprise, and she encouraged us to work hard at being better advocates for science in general and chemistry in particular. We also were treated to the following two seminars:



*Procter & Gamble Lecture Series* on September 29, 2005 by *Professor Joseph Caruso* from the University of Cincinnati, who spoke on "Elemental Speciation of Selenium: from Small to Large Molecules," and *Stein-Bayer Lecture in Polymer Chemistry* on October 3, 2005 by *Prof. Jean Fréchet*, Henry Rapoport Chair of Organic Chemistry, from the University of California, Berkeley, who spoke on "Design, Synthesis, and Applications of Functional Polymers."

## research SYMPOSIUM 2005

This past September was the beginning of a completely restructured ResearchFest, formerly known as PosterFest. The event featured four talk and about thirty posters. This year, the members of the faculty were asked to nominate a student from their group for the talks. The nomination packet consisted of a nomination letter, a CV of the student and a research summary. The packet was evaluated by five faculty members and four students were chosen to give the talks. Each of the four students was recognized as outstanding graduate students with the following awards:



Sharon LaMont Leitch

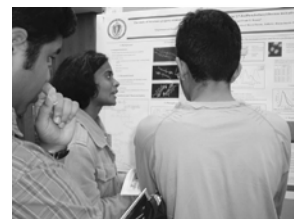
William E. McEwen Fellowship: *Pranorm Saejueng* (DV group), William E. McEwen Outstanding Chemistry Graduate Student: *Rui Hong* (Rotello group), Procter & Gamble Outstanding Chemistry Graduate Student: *Kulandaivelu Sivanandan* (Thai group), Rohm & Haas Outstanding Chemistry Graduate Student: *Peng Gong* (Martin group). In addition to the four students, *Joshua Hoerner* (Kaltashov group) received the Charles E. Goessmann Outstanding Chemistry Graduate Student.



Nestor Chevere-Trinidad

From the poster session the following awards were presented to the students:

Peter C. Uden Outstanding Poster Award Sponsored by Procter & Gamble: *Anne Marcelini* (Gierach group), C. Peter Lillya Outstanding Poster Award Sponsored by Rohm & Haas: *Hao Xu* (Rotello group), George R. Richason Outstanding Poster Award Sponsored by Rohm & Haas: *Lubna Al-Challah* (Weis group), Marvin Rausch Outstanding Poster Award Sponsored by Fisher Scientific: *Hemali Rathnayake* (Lahti group), Honorable Mentions: *Agya Frimpong* (Kaltashov group), *Meaghan Germain* (Knapp group), *Ruthanne Hassey* (Barnes group).



Hemali Rathnayake

We are thankful to Rohm & Haas, Procter & Gamble, Fisher Scientific, and the William E. McEwen Endowment Fund for their financial support of this event.

# undergraduate SENIOR & AWARDS DINNER

At its annual Senior and Awards Dinner, held at the UMass Amherst Lincoln Campus Center on Thursday, May 12, 2005, the Department of Chemistry recognized those undergraduates who have distinguished themselves in their pursuit of academic excellence. More than seventy-five students, parents, faculty and staff attended the event, the seventh since its inception in 1999.

The attendees were treated to stunning spring views of the campus from the eleventh floor and a sumptuous buffet followed by the presentation of 35 awards to 30 deserving undergraduates.

Professor David L. Adams was master of ceremonies, and Marie Whalen, Undergraduate Program Coordinator, organized the evening's activities. Lisa Korpiewski, the departmental graphics designer, provided the creative talents, making the certificates awarded to individual students, and the favors including Department of Chemistry keyholders and bookmarks. Additional information about our undergraduate awards is available at the departmental web site: [www.chem.umass.edu/Undergraduate/scholarshipAwards.htm](http://www.chem.umass.edu/Undergraduate/scholarshipAwards.htm).

The following students received awards:

## *Shannon M. Reilly*

- Connecticut Valley Section of the ACS (CVS/ACS) Student Award

## *Matthew J. Kade*

- Outstanding Undergraduate Award

## *Leanna K. Toy*

- American Institute of Chemists Award

## *Michael Q. Doherty, Michelle K. Ritchea*

- Richard W. Fessenden Award

## *Jason W. Numbers, Ethan T. Sullivan, Beth Szymanski*

- Merck Index Award

## *Leanna K. Toy*

- Hypercube Scholar Award

## *Olga E. Rosado*

- Departmental Recognition Award

## *Patrick R. Cushing, Michael Q. Doherty*

- Senior Class Award

## *Todd J. Ratajczak*

- Analytical Chemistry Award from the American Chemical Society



Professor David Adams, Michael Doherty and Michelle Ritchea

## *Culver Cheung, Nathaniel Clark, Jonah Soolman*

- Robert Maxwell Williams Memorial Scholarship

## *Daniella Pizzurro*

- Jay A. Pirog Scholarship

## *Nathan Akey, Erald Bushi, Eunjin Kim, Paal*

## *Lawrence, Jimmy Tran, Derek van der Poll,*

## *Thomas Vargo*

- Edward Shapiro Scholarship

## *Julia Kumpf, Daniel G. Terk*

- CRC Freshman Chemistry Award

## *Fei Huang*

- William F. Field Alumni Scholarship (from NSM Scholarship Committee)

## *Jocelyn Scheintaub*

- Nominated for Barry Goldwater Scholarship (from NSM Scholarship Committee)

## *Leanna K. Toy, Thomas R. Vargo*

- ARIAD Scholarship

## *Matthew J. Kade*

- Nominated for Leaders of the 21st Century Award

## *Shannon M. Reilly*

- Nominated for 2005 Alumni Association Senior Leadership Award

## *Derek van der Poll*

- Bradspies Research Fellowship (Summer, 2005)

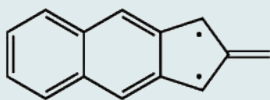
## *Kevin R. Anderson*

- Bates Research Fellowship (Summer, 2005)



## CONGRATULATIONS!

After two years spent working with **Prof. Gary Snyder** on the preparation of photochemical precursors to a hydrocarbon “Kekulé biradical”—a compound predicted to leave two pi-electrons unpaired and exist as a ground-state triplet biradical—**David Connors** was recognized for his outstanding work with the top prize at the undergraduate poster session last Spring. Dave is currently working toward his PhD with **Prof. Scott Silverman** at the University of Illinois.



## undergraduate research POSTER SESSION 2004-2005

The first annual Undergraduate Research Poster Session was held on the afternoon of April 5, 2005. There was a high level of participation in the event with over ten chemistry majors presenting their research work. The participants were kept busy throughout the afternoon as much of the chemistry faculty, graduate student and fellow undergraduate students came by to view the posters and ask questions about the research. The posters were judged by a panel of three chemistry faculty: **Professors Venkataraman, Barnes and Fermann**. The top prize went to **David Connors** for his work on Kekule biradicals with **Prof. Snyder**. The second place prize went to **Shannon Reilly** for her research involving T7 RNA polymerase with **Prof. Gierasch**. There was a tie for third place between **Todd Ratajczak** for his research on gas phase Fe(IV) complexes with **Profs. Knapp and Vachet**, and **Leanna Toy** for her research on the computational modeling of catalysis in nanopores with **Prof. Auerbach**.

## degrees AWARDED

### BA/BS Degrees

Mark E. Abbott	02/2005
Daniel E. Boisvert	02/2005
Marissa Kathryn Callahan	05/2005
David M. Connors	05/2005
Patrick R. Cushing	05/2005
Michael Q. Doherty	05/2005
Tiffany A. Hammond	05/2005
Jared Handel	05/2005
Matthew Joseph Kade	05/2005
Nicholas L. LaPointe	05/2005
Pauline Wairimu Mungai	02/2005
Phithi Nguyen	05/2005
Jason Numbers	05/2005
Shannon Marie Reilly	05/2005
Michelle Krystal Ritchea	05/2005
Olga Estela Rosado	05/2005
Ethan T. Sullivan	05/2005
Beth Szymanski	02/2005

### MS Degrees

Abdalin Asinas	02/2005
Nandini Sampath Chari	09/2004
Zeynep Delen	05/2005
Arlicia Grant	05/2005
James Kalman Kearnes	05/2005
Fumin Pan	05/2005
Syed Peeran	09/2004
Jennifer Lynne Simeone	02/2005

### PhD Degrees

Uche K. Anyanwu	05/2005
Craig Gordon Bates	05/2005
Ebru Cataltarla	05/2005
Anas Chalah	02/2005
Amanda Lucia Chaparro	09/2004
Wendell Peter Griffith	05/2005
Chethaka L. Kahakachchi	09/2004
Yunsub Lee	09/2004
Jihyeon Lim	09/2004
Cesar Sierra	05/2005
Kay Leslie Stringer	09/2004
Raymond J. Thibault	09/2004
Harriet Totoe Boakye	09/2004
Hui Xiao	02/2005

*Jeanne Hardy ... continued from page 1*

kill weeds (ironically with a competing firm's product, Roundup), the next week I learned to drive the JLG which is a huge piece of heavy equipment—a lift that you might see men using to work on telephone lines. That was awesome and I got a sticker on my hard hat indicating my training, which was a big source of pride. During the third week I got to work in the quality control lab. That was awesome. We measured particle size, Ammonia content, color, density etc. It seemed like a good fit, so I got to stay there (much to the chagrin of the other parents who thought that their children should get to be in the air conditioned lab). By the end of the summer I got to develop a few new analytical methods. So in the fall when I went off to college I enrolled in chemistry, even though I was a journalism major at the time.

I found chemistry stimulating, so I found a lab to work in and then in the second semester I went to change my major. We had to have changes of major approved by the associate dean. I waited in a long line of students and he took my paper and was about to sign without ever so much as making eye contact with me. Then he looked at the code for the major and immediately recognized that it was not one he ever dealt with. He looked up the code and said “03 is chemistry. What do you actually want?” I confirmed that I wanted chemistry. Then his head shot upward and he made eye contact with me for the first time. “You want chemistry?” I insisted that I did and he shook his head, looked down and stage whispered exasperatedly to himself “You’ll be back in six months to ask me to sign this again.” I think I should send that guy an email with my new signature, shouldn’t I?

**GG:** *What did you study for your PhD?*

**JH:** I worked on a protein called heat shock transcription factor. This protein is involved in response to stress. It has a kinked helix that we were interested in. I tried to unkink the helix and figured out why it was kinked in the first place.

**GG:** *Why did you go into industry?*

**JH:** I really wanted to work with **Jim Wells**. Given that he was one of the only industrial members of the National Academy of Science, a long time adjunct member of the faculty at UC-San Francisco, on the editorial boards of several journals and an avid publisher and proponent of turning basic science discoveries from his lab into products, I knew he would be an unparalleled mentor. During grad school I had followed his amazing work on development of phage display, mimization of proteins such as human growth

hormone, and conversion of subtilin to subtiligase. I knew working for him would be the opportunity of a lifetime so I was excited to join him at the new company he had co-founded in 1998 called Sunesis Pharmaceuticals, Inc.

**GG:** *What was that experience like?*

**JH:** It was great to experience very well-funded science and to see how much could be accomplished by very small teams. What I was surprised about was the size of the groups working on different projects. I always imagined that in industry there were literally armies of people working on one project, but most projects were staffed similarly to what you could find in an academic lab. Most projects had 1-3 biochemists and 1-4 organic chemists and some support from the biologists who did animal studies, yet they accomplished a lot quickly because people were or became experts at their part of the project. I also liked the way that everything was just one step away from a meaningful outcome like a drug. It was always inspiring to think “What I do today could actually help somebody, like my dad, who had colon cancer.” What I missed the most were all of the seminars and thinking about problems that were much different from what I was working on. I love the seminars we have in academia.

**GG:** *Why did you decide to pursue academia?*

**JH:** I had always wanted to teach and run my own lab. I remember when I applied for a NIH postdoctoral fellowship they asked what I wanted to do afterward and I said I wanted to be a faculty member. They wrote back and said “**Dr. Wells** has mentored 19 postdocs and 18 have joined industry. What makes you think you will be any different?” Luckily I was able to convince them I was serious about my quest, so I guess I should write to them too. Actually I’m sure I will be writing to them very soon!

**GG:** *What has that change been like?*

**JH:** The science has changed little. There was great science in industry and that is also true here. Interacting with students, faculty, seminar speakers has been awesome. We have great undergraduates and graduates and it has been fantastic to share their optimism. I also felt welcomed right away and I really appreciate that!

**GG:** *Assuming your research is wildly successful, how will it impact society?*

**JH:** We are developing a system that will let us selectively disrupt the function of just one protein

from a family of related proteins. This allows us to ask whether that protein is the best molecular target for treating a certain disease. This is called target validation, and is a pool of information that is severely lacking in pharmaceutical science. If my research is wildly successful, proteins that are not now targeted by drugs will be and there will be better, more specific drugs with fewer side effects.

**GG:** *What are the biggest barriers towards your research being wildly successful?*

**JH:** Like everything, time and money!

**GG:** *Is it hard in the year 2006 to be a woman scientist?*

**JH:** I think it is much better than ever! Now I am in a department where I have four great senior female colleagues (I'm sure none of them had that luxury), we have the sequence of not just the human genome but lots of other organisms too, DNA sequencing is automated, the number of protein and nucleic acid crystal structures has increased exponentially since I started graduate school, and computers are so fast that we hardly ever have to talk about how long it took to solve our crystal structure! This is obviously the best time to be a woman scientist ever!

**GG:** *What message do you have for future generations of women scientists?*

**JH:** This is something my post-doc advisor told me and I'll pass along: There are so many (scientific projects that are) diamonds out there. There is no reason to dig around in the coal. Go pick the diamond! He learned from **Dan Koshland**, "No matter what you are trying to prove, work on the most important system you can, and you will have a bigger impact and more funding."

**GG:** *What does your husband do?*

**JH:** He is a professor of Japanese Culture and Theater in the Department of Languages, Literatures and Cultures. He studies 1960s avant garde dance and theater.

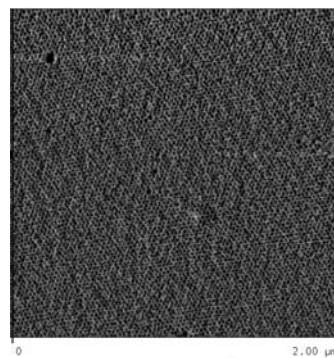
**GG:** *Do you talk science with him?*

**JH:** We speak more Japanese in common than science;). But I count it as a success that after a decade together he now can explain the central dogma flawlessly. I'm sure he wishes he could say the same thing about my grasp of the categorical imperative! Luckily he's really interested in science and is constantly telling me what the Science section of the New York Times said.

tasty tidbits they hide in their desks? The generosity of this supportive department has kept me going every time I find myself unable to find the time to go to the Blue Wall for a "real" meal.

Initially undeclared as a freshman, I finally decided to become a chemistry major when I was elected to become the president of the Chem Club for the following year (I had primarily joined the club for the people, not just the snacks). I also declared english as a secondary major, but they only have Hershey Kisses in their office, not the variety that **Marie** offers. Chem Club quickly became essential to my growth as a chemist. I met peers who had been taught by the same professors, I learned of opportunities to observe chemistry outside of the academic setting, and most importantly, I discovered research. Chemistry truly became my passion once I started working in **Prof. DV's** lab. That is what convinced me to surrender my life to research; the hands on experiences solidified everything I was learning on in class and I was ready to make a difference in the world.

When I first approached **DV** to work in his group, I didn't know what to expect being an inexperienced undergrad. Would they make me clean glassware, hold the explosive reactions, or bring them coffee? What happened was this: I was invited to be an active member of a group with a real project to do real research. I got my own hood, my own lab bench, and my own desk. And the project. If you could see me talking about this research you would observe an immense amount of movement, my hands punctuating my words and the expressions on my face full of enthusiasm. I am working on creating a more efficient photovoltaic cell from organic materials (as opposed to the currently used silicon). For the past few months, as I become more involved in the lab, I have grown with the task. The project includes synthesizing a diblock copolymer of polyethylene glycol (PEG) and polystyrene (PS) with an easily cleavable linking molecule between the blocks. From the beginning of my junior year I have learned how to comfortably synthesize everything from the starting materials to the final diblock copolymer.



An Atomic Force Microscopic image of a thin film of polystyrene-polyethylene oxide diblock polymer synthesized by Jocelyn Scheintaub and Serkan Yurt. This work is done in collaboration with Prof. Tom Russell and Prof. Bryan Coughlin in PSE.



My senior thesis research is to experiment with linkers that were slightly altered by added functional groups. But there is more to research than synthesis. We are creating these polymers because, with the right proportions of both blocks, when we spin a thin film of the solution, we get columns of PEG within a PS base, and the linker is conveniently placed between them. I'm sure you guessed what we can do next, cleavage! The linkers cleave as soon as they are introduced to acid vapor, even a weak acid like tri-fluoro acetic acid. We then have been able to wash out the water-soluble PEG columns and are left with evenly distributed nanopores. The idea is that we will fill these pores with semiconductor and form more efficient photovoltaic cells than the silicon based ones that exist now. Not only is the project I am working on incredibly exciting, I am also being trained on instruments that were only briefly mentioned in class (SEM, AFM, GPC and TEM) and I use techniques that are not taught in any lab class. With the purpose, a goal that in the past few weeks is appearing to be truly possible, I know that I have truly been a part of something special. Research is as addictive a free food; I love what I do.

Other than candy raids and chemistry (and a bit of English) I have had some incredible opportunities to discover the way the Department of Chemistry works from an administrative point of view. The original occasion occurred at the recommendation of a Department of Chemistry faculty member, and somehow I was invited to be the undergraduate representative on a search committee to hire a new dean for the College of Natural Sciences and Mathematics—**Dean George Langford**. Now, at the Provost's request, I am on another committee. This time we are looking for a replacement for retiring **Dean Linda Slakey** of Commonwealth Honors College. By actively participating on these committees I have had the unique chance to learn about the inner workings of the campus, and I can't say that I am ecstatic with all I see. Being an undergraduate on a committee with professors and deans, I realized that my input is essential, and communicating my opinions and ideas is the only way to change anything I feel strongly about. The most important thing I learned was not what a dean actually does (I had no idea until I awkwardly asked at the first committee meeting), where funds come from, how they are allotted, the process of hiring, what is involved in writing and receiving a grant, and even the choice restaurants to take possible future employees. The most valuable piece of knowledge I acquired was how to speak my mind. Having this kind of knowledge only brings me closer to the Department of Chemistry because professors and I can discuss a whole new level of issues (and money is a very big issue). On a personal

level, the realization of what receiving the MRSEC seed grant meant our research project inspired me to spend even more time in the lab.

In general, my experiences at UMass Amherst have included: trekking across the campus between Bartlett and Lederle, doing homework until the sun comes up, going through a 9 am-9 pm day on only a light breakfast, bonding with fellow Chem Clubbers with a rowdy game of indoor batting practice, philosophical talks with DV, running three reactions at the same time to meet a deadline, and so much more. Ultimately, it is the Department of Chemistry that has pulled me through these four years. Within the department, I know a range of people, and there is always someone who can help me with any dilemma that I may face. I have a couch to sleep on if I need to finish a reaction at 4 am in the morning, and there are always opportunities to learn about interesting things going on beyond the campus—and of course, the free candy.

So my next step is into the world of graduate school, hopefully working on another materials chemistry project. I have been spoiled here at UMass Amherst, but I am looking forward to starting new and using all that I have learned. I know how to push myself and I understand the benefits. I am hoping for a position somewhere out west with a group that is as motivated and diverse as the DV group.

To be fair, I am a unique case; ambition and drive are overabundant attributes of mine. Within the large number of activities I pursue with vigor, I'm sure that for anyone who has been involved with the Department of Chemistry can relate to at least one thing I have mentioned. (Just for good measure, remember P-Chem, scheduling dilemmas, the feeling of being done with physics, the winters in Amherst, elevator rides in Lederle that stop at every floor, liquid nitrogen, going in to a lab while it is light out and not leaving until after it is pitch black out, cleaning glassware, eating with friends (mooching), and pausing one day to reflect on the past few years and how far you have come.) I've certainly grown since freshman year, mainly thanks to the bonds I've made within the Department of Chemistry. Because of the incredible attraction of free food, my experiences over the past four years have filled me, not only with pounds of sugar, but ultimately with the means necessary to further chemistry.



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Dear Alumni and Friends of the Department of Chemistry,

As you will have seen from the pages of this issue of the Goessmann Gazette, the Department of Chemistry has plenty of good news to bring you. We continue our program of faculty renewal with the hiring of [Jeanne Hardy](#), who is one of our front-page stories. [Jeanne](#) has got off to a great start with the award of a \$200,000 grant from the Richard and Susan Smith Family Foundation. [Jeanne](#) joins our growing cluster of faculty with interests in the chemical basis of disease, an emerging research theme for the Department. I am also pleased to announce that three of our junior faculty, [DV, Thai](#), and [Igor Kaltashov](#) have been awarded tenure and promoted to associate professor. Our faculty and staff continue to be recognized by awards both on and off the campus. Of particular note is the award of the Garvan-Olin Medal of the ACS to [Lila Gierasch](#) in recognition of her distinguished services to chemistry. The ACS also recognized [Dick Stein](#) with Fellowship of the Division of Polymeric Materials Science and Engineering. [Mike Maroney](#) and [Vince Rotello](#) were recognized, on campus, for their distinguished contributions by the award of a Conte Fellowship, and the Goessmann Professorship, respectively, and [Bret Jackson](#), who normally does not get a mention in this letter, was recognized by the College of Natural Sciences and Mathematics as an Outstanding Researcher. I am proud to say that our excellence in research is matched by our excellence in (a) teaching ([Scott Auerbach](#) was a finalist for a UMass Amherst Distinguished Teaching Award, and graduate student [Dan Montville](#) was nominated for a Distinguished Teaching Assistant Award), in (b) service ([Don Taylor](#) received a Chancellor's Citation Award for his outstanding and exemplary service to the campus), and in (c) outreach ([Mike Knapp](#) and [Thai](#) are responsible for the highly successful UMass Program for Encouraging Tomorrow's Scientists, UMPETS, directed at talented high-school students).

[George Richason's](#) more than 70 year's association with the Department was celebrated in a special ceremony featuring all of the campus's senior management from the Chancellor on down when Goessmann 256 was formally named The George R. Richason Research Laboratory. The lab is currently occupied by [Mike Barnes](#) and his research group. This recognition would not have been possible without the extremely generous support of many alumni and friends, and the Department expresses its deep gratitude for this help. You may be interested to know that a similar fund has been started, with considerable help from Procter and Gamble, to recognize [Peter Uden](#), who is also featured in the Chemistry Reunion celebrations later this year. Another long-serving member of the Department, [Howard Stidham](#), celebrated his 80th birthday and his 50th year as a faculty member.

Another project in which Chemistry alumni and friends have been active participants is the Integrated Science Building. There are now signs (literally) indicating that construction is about to begin. Scheduled for occupancy in spring of 2009, this building will house all of the Chemistry undergraduate laboratory instruction. We are already in the process of specifying the equipment needed for the labs. Again, we are grateful for the support that has helped make this happen.

We are extremely grateful to all of you who have contributed so generously to the Department over the years. Your gifts help us in many ways: to improve our teaching and research facilities, to provide scholarships for students, to support our seminar program, and to hire excellent new faculty.

I thank you again for your generous support,

Sincerely,



Julian Tyson, Interim Department Head



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