

Hoya Chimica

Georgetown Chemistry News - Fall 2003

Number 18

Message from the Chair

"It was the best of times; it was the worst of times." Thus begins Charles Dickens' classic *A Tale of Two Cities*. But it seems equally applicable to the Chemistry Department in the last six months. On the bright side we are tremendously delighted to announce that we will have two new ordinary faculty members joining us this Fall, adding to the two new faces who joined us in Fall 2002. On the sad side, we lost one of our long-term faculty members this Spring. Lou Baker had served as Chair from the time he joined us in 1962 until 1984, retired in 1992, and had been an emeritus Professor since. For over twenty years, incoming freshmen with aspirations in science or as pre-medical students had to pass through the portals of Baker Chem. Messages delivered at a memorial service for Lou by Mike Pope and myself can be found elsewhere in this issue of the Hoya Chimica.



Richard D. Bates, Jr.
(circa 1966)
Professor and Chair
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On the bright side we are very fortunate to have two new ordinary faculty members joining us. One is a familiar face to those of us who have been here since 1999. She is Judith F. Rubinson and will be starting a tenure-track position as an assistant professor this Fall. Better known as Faye, she has been an energetic and important member of our family for the past four years as a visiting assistant professor, with primary responsibilities in the areas of analytical chemistry and helping with the freshman course. She received her BS from the University of North Carolina, Chapel Hill and her Ph.D. in analytical chemistry from the University of Cincinnati with Prof. Harry B. Mark, Jr. in 1981. She has maintained an active research program in a variety of venues since then while raising her family, and she will be establishing here a program in bioanalytical chemistry with a special focus on the use of conducting polymer electrodes 1) for cardiac sensing or pacing and for deep brain stimulation and 2) for looking at mechanisms and reaction rates for biological electron transfer; development of new stationary phases for the separation and/or purification of chiral molecules, such as certain drugs or biomolecules.

The second new faculty member will be the inaugural holder of the McGowan Chair in Chemistry. Toshiko Ichiye has most recently been a full professor at Washington State University and will be joining us to continue her efforts involving theoretical and computational studies of biological macromolecules and condensed phase systems. She employs techniques rooted in statistical mechanics to understand the structure and behavior of biomolecules and to model the role water plays as a solvent in biomolecular systems. She received her Ph.D. from Harvard in 1985 with Prof. Martin Karplus after completing her BA at Rice University. She recently spent a sabbatical at NIH and will be moving her lab to Georgetown in late Summer 2003.

The Chemistry Department enjoyed a special moment in the sun at graduation this Spring when 12 Ph.D. recipients were included in the list of those completing their degrees during the past year. This certainly was a high for the recent past, and represented the Department at Georgetown with the largest number of Ph.D.s for last year.

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Undergraduate News

Congratulations to our Graduating Seniors!

Once again the Department graduated many students from the Honors Program in Chemistry and Biochemistry. A reception was held in the spring to honor these hard-working students. Those who completed an honors thesis this spring were: **Jang Cho, Joseph McDermott, Rakesh Patel, Michael Replinger,** and **Cristina Villalobos.** In addition, the following students were recognized for maintaining a GPA of 3.5 or higher with the Department Award for Distinction: **Roya Azadarmaki** (Dec. 2002), **Joseph McDermott,**

Dorothy Fink, Danielle Harvey, Rakesh Patel, Michael Replinger, Ann Marie Ricks, and **Samuel Snyder** (Dec. 2002). Furthermore, Joseph McDermott and Ann Marie Ricks received the American Institute of Chemists Award. This award is given in recognition of potential advancement of the chemical profession, on the basis of the students' demonstrated records of leadership, ability, character, and scholastic achievement. This year's College Chemistry Achievement Award went to Michael Replinger. The Chemical Society of Washington gives this award to a senior majoring in chemistry in recognition of outstanding achievement in college chemistry. Finally, Michael Replinger was also the recipient of the Miljevic Chemistry Award, the Department's highest honor.

Well Done, Dorothy!

The Department and especially **Prof. Jennifer Swift** are proud to share some exciting news! **Dorothy Fink** ('03) has been awarded a prestigious 2003 Graduate Scholarship from the Jack Kent Cooke Foundation. This scholarship provides funding for tuition and room and board for up to six years (50K/yr) of graduate and/or professional study at any school in the U.S. or abroad.

In addition, Dorothy was recently awarded a place on *USA Today's* first-place 2003 College Academic Team. Students chosen for this "best of the best" list are selected as representatives of all outstanding undergraduate students for their grades, awards and activities, leadership roles, and their ability to use their academic skills outside the classroom. Only twenty undergraduate students from across the country are selected for this honor. Furthermore, Dorothy was also awarded the 2003 Chemistry Departmental Outstanding Undergraduate Research Award based on her three years of research on uric acid crystal growth.

Dorothy's time here has been spent in Prof. Swift's lab where she has



Michael Replinger, this year's Miljevic Awardee, and Prof. Metallo



Joseph McDermott and Prof. Warren display Joseph's award

been an enormous asset to her research group. Her research thus far has led to two publications and three conference presentations.

Dorothy has been an active member of the Chemistry Department and was instrumental with helping the Chemistry Club establish and develop its science outreach program with the Lombardi Cancer Center. She is also the recipient of a prestigious Barry Goldwater Scholarship and is Georgetown's only two-time awardee of a Summer GUROP Fellowship. In addition, she has served the university both as a student resident assistant and as the student president of the Honor Council.



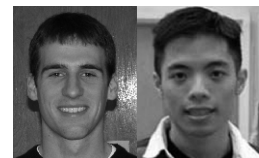
Prof. Swift and Dorothy Fink

Undergraduate Returns from Study Abroad Program

Benzon Dy ('04) recently returned to Georgetown after spending a semester abroad at the University College of London in the UK. During his time there he took several chemistry courses as well as classes in French History and Philosophy. He is excited to report that he also visited several museums, such as the National Gallery in London, The Tate Modern, the Louvre, Musee d'Orsay, the Rijksmuseum, and the Prado to help him as he pursues a minor in Art History. He returned to the States just in time to be inducted into Phi Beta Kappa and is currently working in Dr. Yang's lab.

Adams Fellowship Researchers

The Department would like to recognize our Adams Fellowship students, **Steven Varney, Benzon Dy,** and **Nathan Cox.**



Steve Varney and Benzon Dy, two of this summer's Adams Fellows

Steven is synthesizing a series of thiols with varying functional groups in the Swift lab, which will be used to make self-assembled monolayers(SAMs) on thin gold substrates. The final goal of his research is to attempt the selective growth of certain polar crystals and will be assessed on their usefulness towards polar growth.

Benzon's research currently focuses on the construction of Botulinum neurotoxin serotype A. He has been working on the gene assembly, expression, and analysis of the receptor binding domain of Botulinum type A, which is part of a tripartite toxin that binds irreversibly to cholinergic synapses, preventing the release of acetylcholine neurotransmitters leading to muscle paralysis. His research in the Yang lab will hopefully culminate in novel detection and treatment methods for the neurotoxin.

Nathan Cox has been working with Dr. Rubinson on the characteristics of cytochrome C in different environments with altered pH and temperatures. He hopes to further elucidate the properties of cytochrome C so that it may be incorporated into polymers for further study.

The Department Remembers Dr. Baker

It is with great sadness that the Department announces the passing of one of our most influential colleagues. Dr. Louis Baker passed away in April of this year. A memorial service was held on campus at Dahlgren Chapel where the following remarks were read.

Memorial for Lou Baker by Michael T. Pope

I first met Louis Baker some 45 years ago, when I arrived from England with my new wife and a new PhD into the oppressive heat and humidity of a New England summer. I was to spend two years doing chemistry as a postdoctoral with Lou at Boston University, but my cultural indoctrination began within hours of our arrival at his summer place in Vermont. I learned that, although Boston considered itself to be the hub, the only true center of civilization was ... Philadelphia. There was also something very special about Packard convertibles, of which there were three I recall, in various states of repair/decay. One of these was alleged to be safe on the highway, and it lasted through Lou's first years at Georgetown.

Three years after the Popes had returned to England Lou reappeared in our lives with the news that he was going to be Chair of the Chemistry Department at Georgetown and wouldn't it be a good idea if I were to join him for a couple of years to prepare for an academic career in England. He knew that I was becoming dissatisfied by my position in Industry. Well, here I am forty years later.

It cannot be denied that Lou Baker was influential and skillfully persuasive, a man of strongly held convictions. He devoted his life to university chemistry education, from first-year undergraduates to junior (and not so junior) faculty. Indeed, when an occasion presented itself, he was famously not reluctant to publicly instruct Deans, Vice-Presidents, and Presidents. When he and I arrived on campus in 1962 Georgetown was beginning a push to strengthen science. The Reiss Building had just been completed, and the University President had established the Office of Science Advisor, the first and, as it turned out, only occupant of which was a newly appointed senior chemistry professor. Lou himself was given considerable freedom in the early days and he tackled the reorganization and development of Chemistry with enthusiasm. He completely redesigned the 6th floor of Reiss to accommodate research labs, while the teaching labs remained in White-Gravenor. He negotiated a contract with the Food and Drug Administration, which had Georgetown teaching modern instrumental methods of analysis to large

numbers of FDA scientists from around the country. The FDA program, which ran for several years, provided us with new faculty positions, new graduate fellowships, and major instrumentation - it was an enormous boost to a growing department.

During the '60s the department expanded roughly to its present size with Lou constantly urging high standards of research and teaching. It was a source of great pride for him to be able to say for some years that every faculty member in chemistry had external research funding. He taught the Introductory General Chemistry course more or less continuously during his 22 years as Chairman - a course that became known as "Baker Chem" to generations of students. He was a pioneer in his own field of research - the world of heteropoly electrolytes. Although examples of this class of compounds had been recognized during the latter half of the 19th century, by the middle of the 20th century, when Lou was working on his Ph.D. at the University of Pennsylvania, these molecules were considered by most chemists to be too large and too complicated to be susceptible to investigation by the experimental methods available at that time. Indeed many contemporary publications reported erroneous results or drew fanciful conclusions regarding the composition and structures of these compounds. In 1950 there were only two investigators, Lou Baker in the U.S. and Pierre Souchay in France, whose previous and subsequent research has stood the test of time, and which has laid the groundwork for the development of what has come to be a major area of inorganic chemistry with applications in many scientific disciplines, from medicine to nanotechnology.

There is no doubt that Louis Baker with his friendship, enthusiasm, and unswerving commitment to excellence will be remembered by all of us who came in touch with him.



Dr. Louis C.W. Baker

Michael T. Pope May 2, 2003

continued on page 4

The Department Remembers Dr. Baker *continued from page 4*

Memorial for Lou Baker by Richard D. Bates, Jr.

I am here to speak about a person I considered a colleague, a teacher, a mentor, and a friend

A man who put the Chemistry Department at Georgetown on the map, who put the sciences on the map

A man who always considered the interests of the student

A man who was responsible for building the Chemistry Department at Georgetown to carry out Father Bunn's vision, doing it with the help of many former colleagues many of whom are here today

A man of strong opinions who stood tall in pressing to do what he believed to be the right thing

A man with a continuous commitment to excellence

A man who helped teach the University the right way to do things

A man with a strong commitment to Vi and his family

A man who loved Vermont, sailing, and time with his boys, and I think actually enjoyed having no phone so that a call had to be to a neighbor's house so that they could run down the road to fetch him

A strong man, a physical man, an athletic man, though his abilities as a tennis player did not necessarily lead him to know how to hold the bat in a faculty:student softball game - and you couldn't tell him otherwise

A man who took time out for cultural activities, and who enjoyed attending my son's high school musical theater performances and appreciated his CD

A faculty leader and early member of the Senate, who was not afraid to challenge the Administration

A man of the memo of near infinite length - no detail left unaccounted for

A man who loved teaching, guiding students and doing General Chemistry - and doing it his way

A man whose reputation for Baker Chem seemed to extend round the world, even to whispers overhead in supermarkets in New Jersey

A man whose house on Huntington Street became a focal point for departmental events, with dinners that seemed to begin at midnight (that was early for the Bakers) - from faculty interviews with discussions around the dinner table, to grading sessions for General Chem that became social events as they began in late afternoon and seemed to extend until dawn

A man who appreciated my sense of humor, at least some of the time

A man whose commitment to the Department led to the development under his leadership of the FDA program to train their scientists on modern chemical instruments, leading to

Georgetown getting those instruments and funds to support faculty and graduate students to train the FDA scientists

A man whose foresight led to the development of the Continuing Ed. program for students with bachelors degrees to return to pick up pre-med requirements, which served for decades as a major source of funding for graduate students - a crucial need for Chemistry Departments

A man who brought a sense of fear to the eyes of the faculty member assigned by John Quinn or John Pierce to use the Reiss 103 lecture hall in the hour following Baker Chem where Lou's demonstrations, particularly the chlorine display near the end of the semester would empty the lecture hall and render it uninhabitable for some period of time

A man who was caught in his own game at least once when one demonstration that led to a mini-explosion timed to go off some minutes after the mixture was set down on filter paper caught him by surprise as he lost track of it and leaned over near it - and BANG! . . . he was speechless for minutes

A man for whom the trip back from Vermont to begin the first faculty meeting of the Fall semester was an adventure for all of us, with regular status reports phoned in, detailing where he was, when he might arrive, and when the meeting might actually begin

A man who took to new fangled things slowly, still preferring to record student grades on index cards and adding the scores up to get the grades by hand - even after calculator became wide spread, he'd always double check the calculators by hand

A man who . . . well, he had this thing for cars - no car of today could be as good as the one made yesterday; the juxtaposition of images of him cruising in his Lincoln convertible or scrunched into Vi's Morris Minor lives in the memory of any who knew him; he could fix them himself, though the saga of trying to keep them running involves numerous welding shops, trips to used parts dealers, and travels to Connecticut; even I had the privilege of serving as the horn in the Lincoln when here on my interview visit and being shown about the neighborhood, he advised me to lean out the window and beep if needed as the horn did not work; believe me he needed the horn, for stop signs were things to take note of, not necessarily to heed

I was less generous in my willingness to act as the assistant fuel pump in the Minor when the gasoline for the trip home had to be poured into a funnel connected to a tube than ran out the passenger side window and into the engine compartment

I loved this man, relished his advice, enjoyed his idiosyncrasies; it pained me greatly to see him deteriorate in recent years and months; I shall miss him very, very much.

R.D. Bates, Jr.

Letter from the Graduate Student Organization of Chemists

Congratulations are in order for last year's GSOC president, Kwabena Yiadom. While tirelessly serving as the president, he has also recently completed his PhD degree. The department soccer team and K's many fans need not worry, though, he will still be around as a postdoc sharing his sporting skills and wisdom to all who see him in the halls of Reiss. Just make sure you remind him of the Philadelphia Eagles' crushing defeat at the last NFL playoffs.

I would first like to acknowledge achievements already made by everyone who participated in the recent consultations for the student handbook. A lot of vital input and suggestions were voiced throughout the meetings, some of which are about changes or activities one would like to see beyond the student handbook. This is a good start in making the GSOC a more dynamic organization, and hopefully many expectations will be fulfilled to some degree this year. I hope that many graduate students can help in the activities and issues the GSOC will need to be part of. Aside from the customary and renowned barbeques and parties the chemistry graduate students throw, there are a couple of activities I would like to see come to fruition. Many are already familiar with the planned graduate student sponsored

"Distinguished Speaker Seminar" that can be held this coming 2003-04 school year thanks to a grant provided by alumnus Mukund S. Chorghade. With this financial support and a lot of graduate student help this could be a very chemically enriching and fun event for everyone. Another goal is to have the GSOC a recognized student body within the framework of the Graduate Student Organization (GSO). The financial and logistical support of the GSO would enable chemistry grad students to hold bigger and unique activities. Tyler Bennett is the present GSO representative and has been very devoted to many issues affecting graduate students. We are continually looking after any news and issues that will interest grad students, and from time to time grad students may expect important updates from either of us. If anyone in the department would like the GSOC to raise an issue or participate in an activity or idea one might have, please feel free to contact us. I usually give the standard answer that I am neck deep in research, but I can surely find time to squeeze you in.

Richard Abendan
GSOC President 02-03
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Wedding Bells for Prof. Swift

Just one week after graduation, Prof. Jennifer Swift married David Kelly at St. Columba's Episcopal Church in Northwest Washington. Prof. Swift's students, several faculty, as well as friends and relatives from fifteen different states were



Prof. Jennifer Swift and Mr. David Kelly exchanged wedding vows on May 24, 2003.

in attendance for this special and joyous event. The new bride and groom will travel to Australia this July to spend their honeymoon snorkeling, mountain biking, and sea kayaking along the Great Barrier Reef.

Prof. Thomas G. Burke

Members of the Department would like to express our deepest condolences to the family and friends of **Prof. Thomas G. Burke**, who passed away on August 6th of last year. Prof. Burke was most recently the director of the University of Kentucky College of Pharmacy's Pharmaceutical Biotechnology Laboratory and director of the Experimental Therapeutics Program at the UK Markey Cancer Center. He was also an associate member at the Advanced Science and Technology Commercialization Center at UK. Prof. Burke received his PhD from American University after receiving his MS at Georgetown University, under the direction of **Prof. Martire** in 1980.

Look for Them!

Chemical Explanation: Characteristics, Development, Autonomy, edited by Dr. Joseph E. Earley, was published in June of this year. The volume, from the series, *Annals of the New York Academy of Sciences*, includes more than 45 papers by chemists, philosophers, and historians. The collection is based on the Sixth Summer Symposium of the International Society for the Philosophy of Chemistry, which was held at Georgetown University in August 2002.

Conducting Polymers and Polymer Electrolytes, a volume based on an *ACS* symposium, which Faye Rubinson organized with Harry B. Mark, Jr., was published this past year. Recently Faye heard from her editor that the book made it to the Best Seller List (#3) of professional books in Chemistry (as reported by Yankee Peddler Books, a book distributor to libraries).

Professor Swift Honored

Kudos to **Prof. Jennifer Swift**, who was named as one of eight University-wide Teaching, Learning, and Technology Fellows for 2003-2004. This competitive University-wide award is administered through CNDLS by a grant from the William & Flora Hewlett Foundation. The fellowship was based on her proposal to design and implement a modular laboratory approach in the undergraduate organic curriculum. The fellowship provides an \$8,000 stipend and a support team from the CNDLS staff.

New Graduate Students

The Department welcomes all of our new graduate students to Georgetown University! The following is a brief introduction to last year's new students.

Linda Amoah is from Ghana in West Africa. She received her Bachelor's degree from the Kwame Nkrumah University of Science and Technology, Kumasi-Ghana. She is pursuing her studies in biochemistry with **Prof. Roepe's** group. Linda says one of the best parts about being here are her fellow graduate students, as they are so nice and helpful they make being far from home bearable.

Prof. Roepe's lab also welcomed **Bojana Gligorijevic** last fall. Bojana, who prefers to be called Boxie, comes from Serbia where she received her BS from Belgrade University. In her spare time Boxie enjoys taking trips to New York City and listening to music.

Ammani Krishnaswamy joins the Department from the Indian Institute of Technology in Chennai, India, where she received her Master's degree. Her interest in inorganic chemistry and organometallics led her to join **Prof. Warren's** lab. When she is not in the lab, you will most likely find her at her favorite hideout, Barnes & Noble.

Originally from China, **Shuanglong Liu** began his studies here last fall after receiving his Master's degree from Jilin University. He joined **Prof. Wolf's** lab to focus his research on organic chemistry. His favorite sport is basketball, and he enjoys touring D.C.'s many museums.

After receiving her Bachelor's degree in forensic chemistry from Ohio University, **Yuka Minoshima** has joined **Prof. Yang's** group. Yuka says she prefers the company of living people so she has taken up her studies in biochemistry. Originally from Japan, Yuka thinks of home often.

Seid Muhie joins us from Ethiopia. He earned his undergraduate degree at Addis Ababa University, and is now pursuing biochemistry in **Prof. Yang's** lab.

Thai Binh Nguyen left the California sunshine to continue her studies at Georgetown University. She joins us from Yorba Linda and is conducting her research in **Prof. Holman's** lab. In her spare time, Binh likes to cook. What she misses most about California is body-boarding in the Pacific Ocean.

Michelle Paguio joined the **Roepe lab** last fall from the Philippines, where she received her BS degree at Ateneo de Manila University. While most of her time is occupied working to unravel the secrets of red blood cell-invading parasites, she says she still finds time to read Neil Gaiman novels, listen to jazz and blues, and sketch.

Also from the Philippines, **Michelle Dela Cruz Regulacio** is working on inorganic chemistry in **Prof. Stoll's** lab. She earned her BS degree from the University of the Philippines Los Baños. Her favorite pastimes include shopping, watching movies, and catching up on much-needed sleep.

Last spring semester brought us two additional students. **Kefeng Ma** joined the Department after receiving both his BS and MS from Nanjing University of Science and Technology in China. Kefeng is now a **Weiss lab** member studying organic chemistry. He says he likes Washington DC very much and appreciates both the bustling atmosphere of the city as well as the quiet natural landscapes of the surrounding areas. In his free time Kefeng likes to travel and go mountain climbing.

Also entering the Department this spring is **Onome Ogheneovbo Ugono** who is from Delta state in midwestern Nigeria. Onome, whose name means 'my own,' received his BS from Obafemi Awolowo University in Ile ife Nigeria. His undergraduate thesis was in nutritional chemistry, and he has taken up his studies here with the **Holman lab**. When not concentrating on science, Onome loves to play soccer, listen to music, and watch movies.

The Department also welcomes this Fall's new graduate students. Look for brief bios of these students in our next issue.



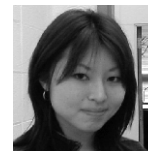
Bojana Gligorijevic



Ammani Krishnaswamy



Shuanglong Liu



Yuka Minoshima



Seid Muhie



Binh Nguyen



Michelle Paguio, Michelle Regulacio, and Linda Amoah



Onome Ugono



Kefeng Ma

Back: Julie Mertzman, Stephen Drake, Christina Capacci, Huiguo Lai, Bingchen Du; Front: Brian Reinhardt, Kekeli Ekoue Kovi, Sayon Kumalah, Mynthia Cabrera, Regina Oridupa, Leah Casabianca (Not pictured: Amanuel Zellelow and Yan Luo)

Group News

The **Holman group** welcomed three new members last year; **Binh Nguyen** and **Onome Ugono**, two new PhD students, and undergraduate **Dan Eyler**. Dan joined the group as a Georgetown Undergraduate Research Opportunities Program fellow. He will be working part-time on determining the kinetics of guest loss from new materials derived from molecular containers. In other news, **Scott Mough** was awarded an ARCS fellowship for AY '03-'04. Congratulations, Scott! Scott also inherited **Sheri Bettis's** role of X-ray technician in the departmental X-ray Scattering Facility.

In September **Hanbang Zhang** of the **Roepe group** delivered the presentation, "Analysis of the Antimalarial Drug Resistance Protein, pfcr, Heterologously Expressed in Yeast" at the *Annual Molecular Parasitology Meeting* in Woods Hole, MA.

In June, undergraduates **Mike Flaherty** and **Danielle Harvey**, of the **Rubinson group**, presented the poster "Biomedical Applications of Conducting Polymers: Fabrication of Leads for Cardiac Sensing" at the *Mid-Atlantic Regional Meeting* in Princeton. Mike had the opportunity not only to meet one of the group's heroes, Alan MacDiarmid, but, along with others who attended Professor MacDiarmid's lecture, was invited to become a "Nobel Prize Holder."



Mike Flaherty with Professor MacDiarmid

Congratulations are in order for **Ryan Sours** of the **Swift group**! Ryan was awarded a \$20,000 Dean's Dissertation Award from the Georgetown Graduate School for AY '03-'04. In just its second year of existence, this is the second time a Chemistry student has been awarded the Dean's Dissertation Award. In addition, Ryan was the recipient of a third year of an ARCS Doctoral Fellowship. He was honored at an awards banquet held last October 17 in the United States Supreme Court, which featured introductory remarks by Justice Anthony Kennedy.



Ryan Sours, recipient of a 3rd year ARCS Doctoral Fellowship

The **Swift group's** research efforts were well received at the April 2003 Georgetown GSO Research Fair. **Crina Frincu** and **Ryan Sours** each won *Innovation Awards* for their posters on "Cholesterol Crystallization from Model Bile Solutions: a Dual Atomic Force Microscopy and Light Scattering Approach" and "Uric Acid Crystal Growth Monitored by in situ Atomic Force Microscopy." **Rositza Petrova** received a *Peer Award* for her poster on the "Kinetic Resolution of Racemic Mixtures in Gel Media." **Rupa Hiremath** also presented a poster on "Self-Assembled Monolayer Templates for Crystal Growth." Ryan also presented his poster at the *225th American Chemical Society National Meeting* in New Orleans, LA, in March. His attendance at the meeting was made possible in part by a Graduate School Student Travel Award. In June **Crina** traveled to Acquafredda di Maratea,

Italy, to attend the *Molecular Crystal Engineering – EuroConference on Design and Preparation of Molecular Materials*. Her poster on "Epitaxial Growth of Cholesterol Monohydrate on Calcite Substrates" was selected for one of only two (out of 60)

CrystEngComm Best Poster Awards.

Her attendance at the meeting was made possible in part by a Graduate School Student Travel Award.

Members of the Swift and Holman groups embarked on their annual June pilgrimage to the Midwest to attend the *Midwest Organic Solid State Symposium XIV*, held this year in Minneapolis, MN. After stops along the way to whitewater raft in West Virginia and to play the obligatory game of mini-golf in Wisconsin, they were put to work presenting talks and posters. On the first day of the meeting, in order of appearance, **Ryan Sours** spoke on his "Investigation of Uric Acid Crystal Growth Using in situ AFM," **Rupa Hiremath** awed the crowd with her "Self-Assembled Monolayer Templates for Crystal Growth: Part I," and **Richard Abendan** updated the group on the latest results on "Static and Dynamic Surfaces of Cholesterol Single Crystals Characterized by Atomic Force Microscopy." On the second day, **Scott Mough** spoke about his hot new results related to "Implosion of Molecular Containers upon Loss of Encapsulated Guests" and **Rositza Petrova** rounded out the day with her talk on "Toward Kinetic Resolution of Racemic Mixtures in Gel Media." First-time attendees to the meeting included **Onome Ugono** and **Binh Nguyen** and undergraduate poster presenter **Steve Varney**. Steve presented a poster on "Self-Assembled Monolayer Templates for Crystal Growth: Part II" at the symposium. Later that month Richard attended the *77th ACS Colloid & Surface Science Symposium* in Atlanta, GA, where he delivered a seminar on "Static and Dynamic Surfaces of Cholesterol Single Crystals Characterized by Atomic Force Microscopy." A Graduate School Student Travel Award made his attendance at the meeting possible.

Also from the Swift group, undergraduate **Dorothy Fink** traveled to the *5th Annual Undergraduate Research symposium in the Chemical and Biological Sciences* in October, held at UMBC where Dorothy was one of a small number of students selected to give a talk on "Uric Acid Growth in the Presence of Molecular Dye Probes."

Last fall the **Tong group** celebrated their first "Day with David on the Chesapeake Bay" on October 14, 2002, courtesy of Mr. David Rathgeber, a friend of Prof. Tong's. The group spent the crisp fall day fishing off Lady Katie, Mr. Rathgeber's speedboat. The trip proved to be a success when the group caught a 36-inch rockfish!



Crina Frincu accepts her award



Cami, Neely, Brian, and Yuka present the day's catch

Well done, Brian! **Brian Zelakiewicz** of the **Tong group** was awarded a grant from the NSF East Asia Summer Institute to spend two months at the University of Tokyo in Japan this summer. Brian worked in Professor Yonezawa's lab to continue the collaborative research between the Yonezawa and Tong groups.

In conference news, Brian attended the *Annual Meeting of the Materials Research Society* last December in Boston, MA, and delivered a presentation called "Advanced ^{13}C Nuclear Magnetic Resonance Investigation of Metal-Ligand Interactions in Monolayer-Protected Gold Nanoparticles: NMR Shifts and Relaxations" for the *Symposium of Spatially Resolved Characterization of Local Phenomena in Materials and Nanostructures*.

Nearly the entire **Warren group** attended the *224th National Meeting of the American Chemical Society* in Boston in late August. Prof. Warren piloted the road trip as the leader of a two-car caravan.

He tested the other driver, Xuliang Dai's, nerves when they got lost in New York City and received a three-horn salute after a U-turn was deemed necessary. After safely arriving at their hotel across the river in Cambridge, a few group members got to see a little more of the surroundings than they desired during a circuitous route back from the rental car return on public transportation at 1 am. But when it came to the poster sessions, the Warren group was in its element. On Sunday night **Simona Puiu** delivered "Influence of Carboxylate Ligation on the Reactivity of d_0 Metal-Oxo Units," while **Sheri Bodolosky-Bettis** presented her poster entitled, "Redox chemistry of Gold Phelylthiolates with Disulfides." During the invited Sci-Mis session Monday evening, **Latasha Amisial** presented "A New Cu(I) Aziridination System," **Xuliang Dai** gave "Low-coordinate Cobalt Imides," **Ela Kogut** presented "Amido and Imido Complexes of Nickel," and undergraduate **Joe McDermott** presented "Synthesis and Reactivity of Neutral Monoalkyl Iron(II) Complexes." Latasha, Xuliang, Ela, and Joe presented their posters again at Tuesday's final inorganic poster session along with postdoctoral associate **Dr. Libei Zhang's** presentation, "Control over Heteroatom Bridging in Later, First Row Complexes," and history masters student **Matt Sargent's** "Tetrahedral Mn(II) Alkyl and Amido Complexes." After all of the presentations, the group enjoyed a well-deserved dinner in Boston's North End, known for its Italian Cuisine.



The Warren group relaxes after the ACS conference. Any guesses on who received the roses?

Best wishes to **Hui Chen**, of the **Weiss group**, and Drake Wauters who were married on January 14, 2003, in McLean, Virginia. In June Hui attended the *Gordon Conference on Liquid Crystals* at Colby-Sawyer College in New London, New

Hampshire, where she showed the poster "A Novel Class of Thermotropic-lyotropic Liquid Crystals." Also in attendance was **Jinqi Xu**, who presented "Enantioselectivity of Singlet Radical-Pair Recombination Processes during Photo-Fries Reactions of 1-Naphthyl (R)-2-Phenylpropanoate" with Prof. Weiss. Jinqi also presented "Photo-Fries Reactions of Aryl Esters in Confining Polymer Media" at Georgetown's *GSO Research Fair* in April. The month of July took **Urbashi Bhattacharjee** to Mount Holyoke College in South Hadley, MA, for the *Gordon Conference on Photochemistry* where she gave the talk "Temperature Dependent Cage Effects From Triplet Radical Pairs Generated Upon Irradiation of 1-(4-methylphenyl)-3-phenyl-2-propanone in Polyethylene Films." The same month, **Caihua Wang** attended the *Gordon Conference on Chemistry of Supramolecules and Assemblies* in Andover, NH, to present "Orientation of Aromatic Solutes in Anisotropic Polymer Matrices." Not to be left out, undergraduate **Samuel Snyder** attended the *Undergraduate Research Symposium* at the University of Maryland at Baltimore County last October where he gave the talk "Perfluoroalkyl Amides as Low Molecular-mass Organogelators."

Lakshmi Pranatharhiaran left the **Wolf group** in October 2002 to pursue a career in the pharmaceutical industry in India. She says she is spending six days a week at work to discover new drugs...and to get rich. Lakshmi is well on her way to finishing her MS thesis. **Shuanglong Liu**, who recently joined the Wolf group, is continuing Lakshmi's work in the area of organocatalysis. Two undergraduate Wolf group members, **Emily Volpe** and **Liz Tanzini**, have decided to take on the honors program. Emily is involved in the development of new chromatographic methods that allow a convenient determination of the absolute configuration of chiral compounds, while Liz studies the use of palladium catalysts in cross-coupling reactions using trialkoxyarylsilanes and aryl halides. Undergrad **Cristina Villalobos** recently graduated with a BS and an Honors thesis, "Structure Elucidation Using Deuterated Mobile Phase LC/MS and Chloride/Iodide Exchange in Hetaryls." The LC/MS study is in collaboration with Mark Olsen at GlaxoSmithKline Pharmaceuticals and will be presented at the ASMS in Montreal, Canada, in July.

Gilbert Tumambac, Rachel Lerebours, and **Xuefeng Mei**

attended the *American Chemical Society MARM* in June where they presented "Synthesis and Stereodynamics of Axially Chiral 1,8-Dihetarylnaphthalenes," "Investigation of Cross-coupling Reactions of Chloroquinolines," and "Development of Conformationally Stable Axially Chiral 1,8-Diacridyl naphthalenes," respectively. Finally, **Pili Hawes** finished with her MS this spring and began an



Members of the Wolf and Rubinson groups at the MARM conference in June.

internship with Pharmaceutical Research and Manufactures of America in DC.

Shuguang Bi and **Tao Wang** both represented the **Yang group** at the *Experimental Biology 2003* meeting in April, which was held in San Diego, California. Shuguang presented the poster “Kinetic Global Gene Expression Pattern Investigation of Lethal Shock and Incapacitation Challenge in Response to Staphylococcal Enterotoxin A and B (SEA and SEB) in Piglets,” while Tao presented “Ubiquitination of poly(ADP-ribose) Polymerase-1.” And best wishes to **Rasa Santockyte** and her new husband, Rimas Vaitauskas, who were married on August 2nd in the Church of Bernardines in Vilnius, Lithuania. Rasa is back at work in the lab after a honeymoon in Kursiu Nerija in the Baltic Sea.



Newlyweds Rimas and Rasa

Congratulations to our recent Ph.D.s! The **Roepe group** bid farewell to **Ellen Howard** in October when she successfully defended her thesis entitled, “Characterization of Transport Proteins That Confer Drug Resistance Phenomena.” Ellen is now a postdoctoral associate in David Gadsby’s lab at the Rockefeller University in New York where she is conducting research on the protein that is mutated in cystic fibrosis patients, CFTR. Ellen reports she is pleased to be back in New York and very excited to work in such a strong scientific community. The **Yang group** said goodbye to two of its members in November when both **Kwabena Yidom** and **Atabak Royae** successfully defended their theses. Kwabena’s was, “Modulatory Roles of the Amino-Terminal Extension in Human Lysyl tRNA-Synthetase in Recognition and Catalysis,” while Atabak’s was entitled, “The Analysis of Gene Expression Alterations of Human Lymphoid Cells in Response to Cholera Toxin.” Kwabena is now a postdoc in Prof. Yang’s group developing inhibitors against botulinum toxin, a bioterror agent. Atabak is working for the Immunology and Disease Resistance branch of the USDA in Beltsville, MD, as a postdoc. More specifically, Atabak says he is applying his Georgetown experience in functional genomics toward understanding swine immunology in response to various vaccines and pathogens. **Oliver Schurr** departed the **Weiss group** in December after successfully defending his thesis, “Investigation of the Micro-morphology of Polyethylene and Polypropylene Films. The Type and Distribution of Sites as Assessed by Accessibility of Small Organic Molecules.” He has since joined the Department of Physics at the University of Potsdam in Germany, where he is putting his experience in photochemistry and photophysics to use. You can check out Oliver’s latest updates at: <http://www.uni-potsdam.de/u/physik/exphy/gruppe/oliver.htm>. In February **Caihua Wang**, of the **Weiss group**, successfully defended her thesis called, “Part 1: Study of the Orientation and Isomerization of Probe

Groups in Unstretched Polyolefinic Films Via a Selective Film Derivatization Method. Part 2: ‘Latent’ Trialkylphosphine and Trialkylphosphine Oxide Organogelators Activated by Brønsted and Lewis Acids.” She is now a postdoc at Purdue University, working in Prof. David Thompson’s lab. Her work involves developing bolalipid-based P-glycoprotein (P-gp) supported membrane sensor arrays. P-gp is the major culprit for multidrug resistance in cancer chemotherapies, and her work will help facilitate drug discovery. Caihua says she is excited to use her knowledge in chemistry toward solving problems in biology. April proved to be a busy month with four PhD students finishing up their studies. **Lyann Ursos**, of the **Roepe lab**, defended her thesis “Acidification of the Digestive Vacuole in *Plasmodium Falciparum* Malarial Parasites is Linked to Chloroquine Resistance.” She is now working in Chicago at the Argonne National Laboratories. Next, **Gerry Brown** finished his work with the **Weiss group** when he defended “Chemical and Photophysical Analyses of Energy Deposition By eV Range Photons and MeV Range Particles in Polymer Films Doped with Pyrene and Other Aromatic Molecules.” Gerry has relocated to St. Louis, MO, where he is a postdoc with Prof. Karen L. Wooley at Washington University. He is currently working on two projects; the first involves studying the bulk and surface properties of novel hyperbranched fluoropolymer networks, while the second has to do with the use of unique shell cross-linked polymer nanoparticles as novel materials for molecular imprinting. **Prof. Martire’s** final student, **Connie Knauer**, finished her PhD studies with the defense of her thesis “Behavior of Dipolar Monolayers Adsorbed on Polar Surfaces: A Comparison of Statistical Mechanical Approaches for Predicting Net Polarization and a Description of Phase Behavior.” She is now a Senior Scientist for Geneva Pharmaceuticals in New Jersey. Soon after Connie’s defense, **Marlon Manalo**, of the **de Dios lab**, successfully completed his PhD with his thesis “Solvent Effects on Chemical Shielding: CSGT-DFT Studies Using the Polarizable Continuum Model.” And last but not least, **Tao Wang** of the **Yang group** successfully completed her PhD studies in June, defending her thesis called “Biotin-Ubiquitin Tagging of Proteins and Ubiquitination of Poly(ADP-ribose) Polymerase-1.” She is now conducting research as a postdoc in the Howard Hughes Medical Institute at Johns Hopkins School of Medicine.



Prof. deDios leads some of our recent PhD graduates to commencement exercises.

New Professors Join the Faculty

Professor Sarah L. Stoll joined the department last year as Assistant Professor of Inorganic chemistry. She is a graduate of Smith College, and earned her Ph.D. from U. C. Berkeley where she studied cuprate superconductors with Professor Angelica Stacy. After one year as a visiting faculty at Oberlin College, she went to Harvard University to work with Professor Andrew R. Barron synthesizing precursors for Chemical Vapor Deposition. This work was continued for an additional year in Texas, at Rice University where Professor Barron moved to the new Nanotechnology Center. Sarah then returned to Oberlin College, joining a strong, research active undergraduate faculty. Oberlin has had a long tradition of scientific discovery, starting with Charles Martin Hall who discovered how to refine aluminum from alumina and went on to found ALCOA, the Aluminum Company of America. Before moving to Georgetown University, Sarah spent four months working with Professor Lauri Niinisto, at the Helsinki University of Technology supported by a Fulbright. This lab was the first to develop the technique of Atomic Layer Deposition, which is recently under development for integration in the semiconductor industry.



Prof. Stoll

At Georgetown, Professor Stoll's research will involve the synthesis of new magnetic materials. In general, she has identified several self-organizing organic frameworks, which can be used to structure magnetic inorganic clusters or nanoparticles. One project utilizes organic templates to organize on a nanoscale length an unusual manganese oxo-cluster known as Mn-12. This cluster acts like a tiny bar magnet and has been actively studied for the unusual magnetic properties. Another project involves exploring magnetic materials for unusual properties as a result of quantum confinement. While electronic and optical properties have been well studied in quantum dots of semiconductors, far less is known about the evolution of long-range cooperative magnetic phenomena from molecules to bulk solids. The first system will use europium dithiocarbamates to prepare EuS nanoparticles. These magnetic semiconductors ought to exhibit tunable properties with particle size. Currently her research group consists of graduate student Michelle Regulacio, and undergraduates, Rachael Pachero, Caitlin McMullen, Louise Wong, and Jessica Cataldi.

Professor Stoll lives in Georgetown, enjoying the neighborhood parks with her dog. She hopes to continue to play the piano and to take any opportunities to travel.

After a year in the department as a visiting faculty member, **Professor K. Travis Holman** decided to remain with us at Georgetown as a tenure-track Assistant



Prof. Holman

Professor of Organic Chemistry. We all know Georgetown to be the nation's oldest Catholic university. Coincidentally, Professor Holman earned his undergraduate degree, with Honors in Chemistry and Mathematics & Computing Sciences, at Canada's oldest Catholic university, Saint Mary's University in Halifax, Nova Scotia. There he gained an early appreciation for chemistry research and research-oriented educational practices while working toward his undergraduate thesis with Professor Michael J. Zaworotko, currently the Chair of the Chemistry Department at the University of South Florida. He thus decided to come to the U.S. in 1994 to pursue his Ph.D. in Chemistry under the tutelage of Professor Jerry L. Atwood at the University of Missouri-Columbia. His work there involved the synthesis of new molecules for anion recognition, in particular for sensing and/or sequestering pertechnetate ions. Upon graduating, and with the receipt of a NSERC of Canada postdoctoral fellowship, his research pursuits switched gears slightly and he joined the group of Professor Michael D. Ward in the Department of Chemical Engineering and Materials Science at the University of Minnesota, one of the nation's top chemical engineering departments. There he worked on the design and synthesis of new materials for technological applications ranging from tailored separations to second harmonic generation. Professor Holman has coauthored over twenty-five peer-reviewed articles.

Currently, Professor Holman's research group consists of graduate students Scott Mough, Onome Ugono, and Binh Nguyen and undergraduates Brian Smith and Dan Eyler. Research in the Holman group is multidisciplinary, at the interface of organic chemistry, inorganic/organometallic chemistry, and solid state chemistry. Much of their work, however, is concerned with so-called structure-property relationships and is rooted in the idea that if one is able to precisely design or engineer the structure of a material, one can synthesize new materials with prescribed physical properties. One project, for example, involves the synthesis of nanometer sized "molecular containers" and the use of these container molecules in designing materials for the storage of important volatiles such as methane. Another project is aimed at the synthesis of chiral solids with well-defined cavities that can be exploited for chiral separations. The Holman group has also recently developed a new method for regiospecific aromatic sulfonations and hopes to be able to develop a catalytic process based upon this chemistry.

On a personal note, Professor Holman avidly enjoys his weekly games of golf and roller hockey. His roller hockey team, the *Bladerunners*, recently took first place in the Alexandria In-line Hockey League's Wednesday night winter/spring league, though, according to him, his golf game leaves much room for improvement. He and his wife, Sarah, recently became condo

owners in the Falls Church area. They're both looking forward to living next to the O&D trail and perhaps getting away for the occasional camping trip.

Professor Faye Rubinson has made the transition from Visiting Assistant Professor to Assistant Professor of Analytical Chemistry. She is a graduate of University of North Carolina, and earned her Ph.D. from the University of Cincinnati where she studied the intrinsic inorganic polymeric conductor (SN)_x with Harry B. Mark, Jr. After a postdoctoral stint at the Charles F. Kettering Research Laboratory investigating the structure and electron kinetics of nitrogenase, she took a brief break before beginning her teaching career at Wright State University. Following that appointment, she taught at colleges in the Cincinnati area before coming to Georgetown in the fall of 1999, and over the years combined her interest in biological electron transfer with her interest in conducting polymers. Her current research interests include several areas in which conducting polymers can be applied to bioanalytical problems and biomedical implant technology. In addition, she has recently begun a project involving development of stationary phases for biochemical and environmental applications. This fall her research group consists of senior Nate Cox and junior Sarah Choy as well as two sophomores, Ali Jamshidi and Cami Nichols.



Prof. Rubinson

Professor Toshiko Ichiye joins the department as a Professor of Physical Chemistry. She earned her undergraduate degree in Physics at Rice University, where she did undergraduate research on the statistical mechanics of collagen with Professor Huey Huang. She obtained her PhD in Biophysics at Harvard University, where she worked on molecular dynamics computer simulations of proteins with Professor Martin Karplus. Afterwards, she did postdoctoral work at University of California, Berkeley on the statistical mechanics of hydrophobic solvation with Professor David Chandler and on the statistical mechanics of water and ionic solutions with Professor Anthony D. J. Haymet. For the past 14 years, she has been on the faculty at Washington State University, where she was a Professor of Biochemistry/Biophysics.



Prof. Ichiye and her daughters

Professor Ichiye's research is on theory and computer simulation of proteins and condensed matter system. One area of research focuses on the electron transfer properties of iron-sulfur proteins, which are a class of proteins involved in respiration, photosynthesis, nitrogen fixation, and other cellular processes. The goals are to understand how biological electron transfer occurs over long distances with such amazing efficiency

and also how to tune this electron transfer for bioengineering applications. These studies include computer simulations and bioinformatic analyses of the effects of protein sequence and structure as well as quantum mechanical calculations of the electronic properties of the metal sites. Another area of research focuses on water, including both the intrinsic properties that make water such a unique liquid and the solvation properties that help determine the structure and properties of biological macromolecules. These studies include development of a new potential energy model for computer simulations as well as understanding water under unusual conditions such as super cooled water and water inside proteins. Currently, her research group consists of two research scientists, Drs. Shuqiang Niu and Mingliang Tan, and one graduate student, Michael Fajardo.

Dr. Ichiye lives in Bethesda, MD. She has two daughters, Monica, who is 12 years old, and Marina, who is 10 years old. They all take ballet at the Maryland Youth Ballet Academy and also all enjoy going to see ballets at the Kennedy Center.

Visitors to the Department

Prof. Tetsu Yonezawa spent two weeks last year conducting research in the **Tong lab**. Prof. Yonezawa visited from the Applied Chemistry Department of Nagoya University Japan, which was the first step of a long-term international collaboration between the two groups. Prof. Yonezawa is now at the University of Tokyo and hosted Brian Zelakiewicz when he was there this summer on his NSF grant.

Recently, **Dr. Kwang-Ming Lee** spent four months with the **Weiss group**. Dr. Lee is from Fu-Jen Catholic University in Taipei, Taiwan, and he worked on a project dealing with new ionic liquid crystals. His specialties are metal-containing liquid crystals, bioinorganic chemistry, and organometallic chemistry.

Prof. Carlos Chesta, an expert in physical photochemical methods, is also working with the Weiss group. He joins the lab from the University of Rio Cuarto in Argentina, and he will be with the group for a year. **Dr. Tadashi Mori**, an Assistant Professor at Osaka University, is currently visiting the Weiss group from Japan. During his time here he is performing experiments on photodecarboxylation reactions in polymer films. Also visiting is **Tatiana Martins**, a graduate student from the University of Campinas in Brazil where she is working toward a PhD. Her research here includes the preparation and characterization of highly cross-linked polyethylene and poly(methyl methacrylate) films containing covalently-attached luminescent groups. The Weiss group also recently hosted **Dr. Zuzana Hlouskova** from the Polymer Institute of the Slovak Academy of Sciences as part of an ACS sponsored trip.

Seminars, Talks, and Travels

As usual, our professors have kept busy giving presentations across the country and all over the world.

Prof. K. Travis Holman has kept busy giving invited talks on his group's recent research results at Drexel University in Philadelphia, PA, and at Howard University here in Washington, DC.

In October **Prof. Miklos Kertesz** gave the talk "Modeling and Design Rules Ab initio Calculations" at the *DARPA Multifunctional Carbon Nanotube Composites* meeting in Dallas, Texas. In early November he was invited to participate in *Challenges for the Chemical Sciences in the 21st Century: Information and Communication*, a workshop presented by the National Academy of Sciences in Washington, DC. In April Prof. Kertesz gave the talk "Electronic Origin of Carbon Nanotube Actuation" at Drexel University in Philadelphia; and in July he traveled to Budapest, Hungary, where he presented "Structural and Electronic Properties of Carbon Nanotubes and Organic Crystals" at Budapest Technical University.

Prof. Paul Roepe traveled to Ohio in October to give the lecture "Biochemistry of the Malarial Parasite Digestive Vacuole: Connection to the Genetics of Antimalarial Drug Resistance" at Case Western Reserve University. He also presented "Progress in Elucidating Quinoline Antimalarial Drug Resistance" at Johns Hopkins University School of Medicine in November, and then at the Oregon Health Sciences University in Portland at the end of February.

Early this year, **Prof. Faye Rubinson** attended the *Gordon Conference on Electrochemistry* in Ventura, CA, where she presented the poster, "Physical Characterization of Conducting Polymer Electrodes for Use in Cardiac Pacing."

Prof. Jennifer Swift delivered invited talks on "A Chemical Approach to Crystal Deposition Diseases" at eight institutions this past year: Clemson University (SC), The University of the South (TN), CUNY Hunter College (NY), Towson University (MD), Muhlenberg College (PA), Swarthmore College (PA), Hood College (MD), and Bowdoin College (ME). She also presented seminars on "An AFM Study of Cholesterol Crystallization from Model Bile Solutions" and "Biased Crystal Nucleation and Growth in Chiral Gel Media" at the 225th *American Chemical Society National Meeting*, held in March in New Orleans, LA.

Prof. YuYe Tong attended the *ACS Annual Meeting* in New Orleans, LA, in March where he gave a presentation entitled, "A Combined Nuclear Magnetic Resonance and Electrochemical Investigation of Octanethiol-Protected Gold Nanoparticles."

The month of August took **Prof. Timothy Warren** and his

group on a road trip to Boston, MA, to attend the 224th *National Meeting of the American Chemical Society*. There Prof. Warren gave the talk "Metal-Ligand Multiple Bonds in Later, First Row Complexes." Prof. Warren also visited Indiana University and the University of Maryland in October and December respectively, to give the lecture "Reactive Later, First Row Metal-Ligand Multiple Bonds." In a brief break from chemistry, Prof. Warren spent the Thanksgiving holiday "upside down" in Buenos Aires, Argentina.

In October **Prof. Richard Weiss** presented "Structures and Properties of Thermally and Chemically Reversible Organogels" at the University of Colorado in Boulder. In November he presented "Comparison of Energy Deposition Modes in Polyethylene Films by MeV Range Neutrons, Electrons, Protons, and Alpha Particles and eV range Photons as Monitored by Covalent Attachment of Doped Pyrene Molecules" at the VII ELAFOT in Chile. February took Prof. Weiss to Spartanburg, South Carolina, where he presented "Designing Low Molecular Mass Organogelators" to Milliken Chemical, Milliken & Co. Later that month he presented "Designing Organogels. From the Complex to the Simple...and Back Again?" to the Halliburton Corporation in Duncan, Oklahoma. He gave the same talk in June at NIST in Gaithersburg, MD. In addition, Prof. Weiss was a plenary lecturer and session chair at the VII ELAFOT. In other news, Prof. Weiss was co-guest Editor of special issue #19 of *Langmuir* (2002). The issue was devoted to self-assembling fibrillar systems and included articles based on presentations at the SAFIN meeting in Autrans, France (Nov 2001). Furthermore, Prof. Weiss is one of the initial participants in the "Global Instruments Partners Program – Latin America," which has been initiated by the American Chemical Society. The objective of the program is to make sophisticated equipment available to scientists in labs that lack same but need analyses for specific projects. Recently, Prof. Weiss was named to the international organizing committee for the 14th *IUPAC Conference on Photochemistry*, which will be held in Valencia, Spain, in July 2004.

Prof. Christian Wolf delivered the lecture "A High-throughput Screening Protocol for Fast Evaluation of Enantioselective Catalysts" at the *ACS National Meeting* in Boston, MA, last August. He gave the same presentation in September at the 14th *International Symposium on Chirality* in Hamburg, Germany. In February he presented "Enantioselective Hetero-Diels-Alder Reactions Using Chiral Lewis Acids" at Old Dominion University in Norfolk, VA. In March Prof. Wolf presented "Optimization Strategies for Asymmetric Catalysis" at Virginia Commonwealth University, and in June he delivered "High-throughput Screening of Chiral Catalysts Based on Enantioselective Chromatography" at the *ACS Middle Atlantic Regional Meeting*.

Monumental Milestone for Professor Emeritus Horak

The Department would like to congratulate **Prof. Vaclav (Vaci) Horak** on celebrating his 80th birthday last December! Prof. Horak joined the Chemistry Department 35 years ago. We thank him for his many dedicated years to the Department and commend him for his unbroken commitment, as he continues to conduct research twice a week in his lab. We asked Prof. Horak to present a reflection of his life and career for this issue. What follows are Prof. Horak's own words:

Prof. Horak admits that he has two great loves: chemistry and Zdena, his wife. His love for chemistry is ten years older and began in high school with a loose translation from German of a synthetic book by Conrad Weygand, "Organisch Chemische Experimentierkunst." By the time he graduated from high school, SS-general Reinhard Heidrich, the master-mind behind the system of concentration camps, was assassinated by a Czech commando. This resulted in a brutal persecution, mainly of Czech elite who were randomly selected and executed without trial. Whole villages were torn down; the men were shot and the women and children taken to concentration camps. Not surprisingly, Prof. Horak's graduation ball never materialized.

Another consequence of the assassination was the closing of the Czech Universities. With no chance to continue his education, Prof. Horak welcomed an offer for a laboratory assistant position in a pharmaceutical research lab. Unfortunately, his stay in the lab was cut short when, in January 1943, he was sent for forced labor to Germany, as many Czechs, both men and women, born between the years of 1922 and 1924, were. There, Prof. Horak worked in a locomotive plant located just outside Berlin. At this time the heavy bombardment of the city had just begun and the battles, as well as the burning city, could be observed from the roof of the barracks. After one year in Germany he left for a two-week vacation but refused to return. Since this was illegal, the German police took him in for interrogation. By sheer chance, the plant and the labor camp were bombed down and he was allowed to take a laboratory assistant job in a small pharmaceutical plant in Prague.

The legacy of the Four Horsemen of the Apocalypse outlasted the war for many years. The food rationing continued for another four years, a reason for no food wasting at Prof. Horak's. In addition, people were deprived of their savings when their bank accounts were frozen.

Not long after the war ended, the Charles University in Prague opened its gates and Prof. Horak began studying chemistry at the Faculty of Natural Sciences. Here he also served as a lab assistant in the Department of Organic

Chemistry. After graduation, in the year the University was 600 years old, he became Assistant Professor and later a docent. Early on, it was very difficult because there were no chemicals, no equipment, and no books. Teachers provided the first scripts, and Vaci published the laboratory textbook for his organic synthesis lecture.

It was during a lecture given by the professor he assisted when he saw a pretty blond girl. After a year and a half they were married, and four years ago they celebrated their 50th wedding anniversary. Zdena is not only a dedicated and caring wife, but also a scientist with more than 100 papers and degrees in pharmacy, zoology and pharmacology. In Prague she worked in an industrial pharmaceutical research institute. After immigrating to the USA, she worked at NIH as a pharmacologist and later in the Department of Agriculture as a toxicologist. The Horaks have a son David, who has a PhD in physical chemistry from Berkeley, and two teenage grandsons.

Prof. Horak likes sports but like many first generation immigrants, he does not appreciate baseball. As a teenager he was quite successful in 100 and 200 m sprints and was a member of a record 4 by 100 m dash team. For many years in Czechoslovakia he played basketball on a team with Prof. Petr Zuman, currently at Clarkson University. Up until just a short time ago, Prof. Horak's favorite sport was downhill skiing.

His interest in antique cultures originates from lectures of an illustrious Latin teacher. He holds special interests in the brilliant minds of Pre-Socrates philosophers, classical music, Rachmaninov and Janacek in particular, and drawing. Originally, nudes were his favorite subject, but since this topic is not as appreciated in this country, he switched to humorous cartoons.

Prof. Horak considers himself a very lucky person, particularly for being married to the greatest life long partner as well as for having the opportunity to immigrate to this country. He especially appreciates the friendship of the many wonderful people of the Chemistry Department and for the encouragement he received recently after heart surgery. He also appreciates the support by the Department because he has no intention to quit his professional hobby. Lastly, Vaci has one great wish: "No more wars – please."



Prof. Horak and his wife Zdena at his 80th birthday celebration

New Equipment to the Department

The **Wolf group** has received a generous donation of an HP electrophoresis system that can be used for capillary electrophoresis and electrochromatography from Prof. William H. Pirkle of the University of Illinois.

Zhengyin Yan (PhD '97 **Yang**) of Johnson & Johnson Pharmaceutical Research and Development, donated two instruments to the **Yang lab**: a Perkin Elmer Luminescence Spectrometer (Model LS50B) and a Microtiter Plate Luminometer (Dynatech Laboratories).

New Grants

Prof. K. Travis Holman was awarded a 2003 Georgetown Summer Academic Grant of \$8,500 from the Graduate School of Arts and Sciences to support summer research on *Designer Materials for Chemical Separations and the Binding of Volatile Organic Compounds*.

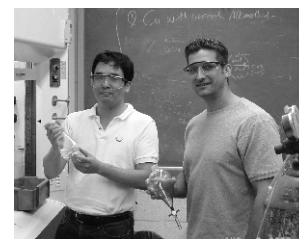
Prof. Michael Pope received \$80,000 in funding from ACS-PRF to support "Asymmetric and Functionalized Polyoxometalates."

Prof. Paul Roepe has received renewal funding from NIH/NIAID for a collaborative project with Drs. P. Zimmerman (Case Western Reserve University, Cleveland, OH), A. Cowman (Walter & Eliza Hall Institute, Australia), and D. Kyle (Walter Reed Army Hospital, Washington, DC) entitled *Papua New Guinea Chloroquine Resistance*. The total award is \$2,899,553 to the consortium over five years, of which approximately \$350,000 will be used at Georgetown. Renewal funding of \$195,000 for one year was also obtained for an existing RO1 entitled *The Physiology of Drug Resistant Malaria*. Prof. Roepe was also awarded a new RO1 from the NIH entitled *The Function of Antimalarial Drug Resistance Proteins* valued at \$1,248,000 over four years.

Prof. Sarah Stoll received a \$100,000 award from the NSF for Nanoscale Exploratory Research. The title of her proposal is "Nanostructures from Magnetic Centers and Liquid Crystal Linkers".

Prof. Jennifer Swift received an \$8,500 Summer Academic Grant for her proposal, which seeks to establish a better mechanistic understanding of crystal growth processes on the molecular scale. She was also awarded \$46,681 from the NSF for her proposal "Crystal Growth: A Research Module for the Undergraduate Organic Laboratory." This award is funded through the Course, Curriculum, and Laboratory Improvement program in the Division of Undergraduate Education. In addition, **Profs. Swift, Stoll, and Metallo** along with Physics **Profs. Paranjape and van Keuren** were awarded \$10,000 for their joint proposal to the Georgetown Infrastructure Grant program titled *Acquisition of an Ellipsometer*.

Prof. YuYe Tong's proposal to upgrade the departmental Bruker 300 NMR spectrometer obtained a \$35,000 award from the Graduate School's Infrastructural Grant last fall. This was a record high for this type of grant in the history of Georgetown. The grant will provide renewed vitality to the spectrometer, which will soon have both solid and liquid NMR and triple-resonance capability. Prof. Tong also received an \$8,500 Summer Research grant for his proposal *Nuclear Magnetic Resonance (NMR) Characterization of Monolayer-Protected Ag and Cu Nanoparticles* for the coming summer. In addition, the International Initiatives Collaborative Research Program under the Provost's Office of Georgetown University awarded Prof. Tong a \$3,000 grant, which enabled Prof. Tetsu Yonezawa to visit Georgetown from Japan for two weeks last summer.



Prof. Yonezawa and Brian begin work on collaborative efforts

Prof. Richard Weiss received a grant of \$4,390 from Georgetown University for the collaborative research program *Structural Studies by Nuclear Magnetic Resonance in Liquid Crystals and Organogels* with Prof. C.L. Khetrappal of the Sanjay Ghandi Postgraduate Institute of Medical Sciences in Lucknow, India. The grant will fund Prof. Weiss' trips to India for experimentation and local expenses of Indian scientists who come to Georgetown. Prof. Weiss also received an \$86,252 grant from Halliburton Energy Services for a project entitled *Approaches to Gelatin for Enhanced Oil Recovery. New Materials and Better Understanding*.

Prof. Wolf received a Research Pilot Project Grant of \$10,000 and a Junior Faculty Research Fellowship from Georgetown University.

The National Institutes of Health awarded **Prof. David Yang** \$460,000 in funding for two years. Prof. Yang also received \$252,000 from the Department of Defense for a year and a half.

The Graduate School awarded a small infrastructure grant to a group of faculty toward the purchase of a new Silicon Graphics workstation for the purpose of molecular modeling and theoretical chemistry. The following faculty participated in the proposal: **Profs. Holman, Kertesz, Warren, Weiss, and Yang** from the Chemistry Department, and **Profs. Papadopoulos and Pittabiraman** and **Dr. Shah** from the Medical School. Prof. Kertesz submitted the proposal with the help of the abovementioned faculty members. The workstation arrived in early February and will be used for both packaged modeling software as well as software development.

Catching Up

The Department recently received an update from **Patricia (Opper) Hannon** (MS '79). She and her husband are both in their 21st year of teaching at Regis High School in New York City. She is also excited to report she is active with the Science Research Program at Regis, which helps students design and carry out original research projects. Patti would love to hear from her former classmates (1976-1980). If you would like to get in touch with her, please contact Elizabeth Thompson in the Department Office at et59@georgetown.edu.

Andrew Gaunt, who spent the fall semester of 2001 working in the **Pope lab**, has been awarded his Ph.D. degree from the University of Manchester, and he will be taking up a postdoctoral appointment at Los Alamos National Laboratory. The first paper incorporating some of Andrew's contributions at Georgetown has appeared and at least two more are due to be submitted shortly.

Congratulations to **David Abdallah** (PhD '00 **Weiss**) and his wife Houda, who recently became the proud parents of baby girl Hanaa Fatima, born on January 4th of this year.

Frederick Villamena (PhD '97 **Crist**) updates us that he is back to his "first love," working on spin trapping. He followed Prof. Jay L. Zweier in August from Johns Hopkins to the Ohio State University Heart and Lung Research Institute. Frederick holds an Institutional National Research Service Award from NIH where he is developing new spin traps and spin probes for the investigation of free radicals in biological systems as well as for EPR imaging applications.

John Afshar (BS '82), who also did his MD and residency in neurosurgery at Georgetown, and spent some time conducting research at NIH for his work on strokes, nitric oxide, and brain aneurysms, is a neurosurgeon in Stuart, FL, where he lives with his wife and three daughters. John reports that **Dave Harris** (BS '82) is an anesthesiologist in the same area of Florida.

The Department recently heard from **Sarah Schafer** (BS '99) who finished medical school this spring and next heads to Vanderbilt University in Nashville, TN. She also gave us the update on other '99 graduates who are also finishing medical school. **Justin Cheesman** will next go to UCONN in Storrs, CT, for ER, while **Maureen Tedesco** will move to California this fall to continue her medical studies at Stanford University in general surgery; and **Esther Sun** is headed for the University of Tulsa for family practice.

Congratulations to **Emiliano Carretti**, a visitor to the **Weiss** group last year, who recently received his PhD from the University of Florence. Best wishes, Emiliano!

Kurt Fritz (BS '88) stopped by the department while attending his 15th class reunion this spring. He reports that he is a lawyer in Los Angeles, and he enjoys his work.

Jon Baldvins (PhD '96 **Weiss**) recently joined CIMA Labs in Minneapolis, MN, where he is working on drug analysis and release agents.

Jim Kirby (PhD '93 **Baker**), who was already an Associate Professor at Quinnipiac University, recently made tenure at the Hamden, Connecticut school.

Jeanette T. Kassir (PhD '64 **Kumar**) is teaching organic chemistry in the Department of Chemistry, College of Science, The University of Baghdad in Iraq. She reports that she, her two children, and her two grandchildren are well and happy.

Longtime visiting research professor with the **Weiss** group, **Dr. George Hammond**, was awarded the Othmer Gold Medal by The Chemical Heritage Foundation in June. The Medal is awarded each year to recognize enduring contributions to chemical and scientific heritage through exceptional activity in such areas as research, innovation, legislation, or philanthropy.

Ruthindra N. Bose (PhD '82 **Earley**) was recently appointed Vice President for Research and Dean of the Graduate School at the University of Northern Illinois in DeKalb. He formerly held a similar position at Kent State University in Kent, OH.

Justin Dumouchel (BS '99) just finished medical school at the University of Pittsburgh and is now beginning a surgical internship with Dartmouth-Hitchcock Medical Center in Lebanon, NH.

Katie Mar (BS '02) was recently awarded an NSF Pre-doctoral Fellowship. She is currently a second year graduate student at the University of California, Berkeley, where she is doing her Ph.D. in physical chemistry with Prof. Kristie Boering. More specifically, Katie is studying atmospheric chemistry. Her project is approximately half modeling and half experimental, about oxygen isotope effects in the stratosphere. This semester she will be joined at Berkeley by **Kateri DuBay** (BS '02) who spent last year at Cambridge University in England on a Gates Fellowship.

Babies!

Congratulations to the many members of the Department who have welcomed new babies in recent months. Prof. Steve Metallo and his wife Karen welcomed Tyler Thomas on September 6, 2002. Pooja Kapoor and her husband Vishal welcomed a baby girl, Simran, on March 23 of this year. Kwabena Yiadom and his wife Barbara welcomed twin boys on April 15, Nana Kuba and Olu-Banke. And Rositza Petrova and her husband Petre are the proud new parents of baby Michelle, who was born on August 22.

Chemistry Club News

The Chemistry Club initiated a peer tutoring program last fall, which allows students from general and organic chemistry to get free help with understanding the material. The tutors are available on Sundays from 2-4pm and Wednesday evenings from 8-10pm.

In addition, the Chemistry Club continues to dazzle the Lombardi Cancer Center pediatric patients with their fun, hands-on experiments. Recent themes have included *The Science of Soda* and the annual *Harry Potter Wizardry Day*. The children experiment with “reagents” they use on a regular basis such as M&Ms, radishes, lemons, soda, and milk. Interested in joining the Chem Club? Ideas for additional Chem Club activities? Contact Prof. Metallo at sjm24@georgetown.edu or Prof. Rubinson at jfr@georgetown.edu.



Cristina Villalobos (COL '03) helps a patient add some food coloring to her slime

Address Change? News to Share?

Hoya Chimica is our way of keeping in touch with former associates, alumni, and friends – but we can't share the news if we don't have a correct mailing address. Please let us know if your address has changed. We also look forward to hearing about your recent activities and achievements. So drop us a line at the address below or by email to et59@georgetown.edu. Prof. Bates also maintains a list of email addresses of former students. To be added to that list, please email Prof. Bates at bates@georgetown.edu.

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