

DEPARTMENT OF

# Chemistry News



SPRING/SUMMER 2012 UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN



*Suzhou Street, Summer  
Palace, Beijing, China*

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## Letter from the Department Head

It is with mixed emotions that I write this letter. As many of you already know, after a total of eight years as Head of the Department of Chemistry, I have decided to return to full time teaching and research. It has been an extraordinary honor and privilege to serve this great department. Still, as much as I have enjoyed serving as Head, my true passion is research and classroom teaching. So it is with some excitement that I step out and devote my full effort to my own students and research. In this letter, I look back on my time in 107 Noyes Lab, the Head's office.

The period during which I have served has been one of great economic uncertainty within the University of Illinois, and particularly the Department of Chemistry, facing unparalleled economic challenges. Despite this difficult context, we managed to advance our department on nearly every front. With regard to overall metrics, the most recent US News and World Report rankings (2010), had us rising to sixth place overall and to second for public universities. Both recent NRC rankings placed Chemistry at Illinois in the top six programs in the U.S., one placing us second, tied with Harvard University and behind University of California Berkeley.

How have we remained at the forefront of chemical education, research, and service? There is no question that our loyal and highly accomplished alumni played a major role. Indeed, at the conclusion of the Brilliant Futures campaign we exceeded our goal with over \$53M in gifts, pledges, and bequests. These gifts have allowed the Department to recruit and retain outstanding faculty and students and to support our ground-breaking programs and facilities. On a personal note, I am very proud of having started the Vision 2020 endowment that will provide unrestricted funding for our greatest needs. More than anything else, I will miss working with our extraordinary alumni and friends.

Our faculty and students are also central to our success. They are an innovative and committed group. From our undergraduate program survey last year we learned that nearly a third of our chemistry majors are first-generation college students. That makes the many awards and recognitions that they receive all the more impressive. What's more, we are recruiting many more students into Chemistry, with a striking 60% increase in undergraduate chemistry majors over the past decade. That increase has come with no drop in quality; we are recruiting the nation's best and brightest, just as we have for decades. At the Ph.D. level our numbers have remained stable, but with the endowed graduate fellowship support we have raised, we are competitively recruiting students who hold offers from our private peers on the coasts. Further, these admitted students are receiving an increasing number of external fellowships, including NSF, NIH, HHMI, and NASA Predoctoral Fellowships.

Being a chemistry faculty member today is nothing like what it was when I started in 1985. Today multiple grants are needed to



run a medium sized group and beyond the challenges of securing this level of funding, there are many more demands on our time. Our remarkable faculty have risen to each challenge, with the number of grants and grant dollars per faculty now at an all-time high. Every day they make major advances in research and education. Add to the mix a record five outstanding new faculty hired this year (see pages 3-4) and it is clear that you will be hearing a lot from our faculty in the coming years.

Our international reputation also remains exceptionally strong. Past issues of Chemistry News have focused on our global impact, including our active exchange program with Vietnam. In the past few years we have seen a significant increase in the number of outstanding international undergraduates we are attracting to Chemistry. Currently almost 15% of our chemistry majors are from outside the United States.

On the subject of global impact, pages 16-19 tell the story of five of our graduate students who traveled to Accra Ghana as part of the campus Global Health Initiative. On page 10 is an article on the Illinois-China connection. With help from three of my former students (Zhan-ting Li, Yuguo Ma, and Weiming Wu), I did much of the background research into this article that details the impact of a G. L. Clark Ph.D. and several of Roger Adams' Ph.D. students on the development of modern chemistry in China. I must admit that I had not realized the depth of the influence Illinois had starting in the first half of the last century. That impact continues today with leading Chinese universities actively recruiting our graduates.

Finally, many of you know that the Department of Chemistry has always been blessed by an amazing support staff. Today is no different. I am especially grateful to them and know that this creative and committed group will help our next Head immensely.

Sincerely yours,

Steven C. Zimmerman  
Head and Roger Adams Professor  
Department of Chemistry

## Department News

The Department of Chemistry at the University of Illinois is pleased to announce that **Dr. Sharon Hammes-Schiffer** will join the Department in August 2012. Hammes-Schiffer is currently a Professor of Chemistry and the Eberly Professor of Biotechnology at Penn State University. She is an acknowledged world leader in theoretical and computational chemistry with research interests spanning the fields of chemistry, physics, biology, and computer science.

**In addition, the Department is delighted to welcome four new junior faculty members—Alison Fout, Kami Hull, Richard Perry, Joaquín Rodríguez-López for the 2012-13 academic year.**

Dr. Alison Fout is joining the inorganic area from Harvard University, where she is currently a Mary Fieser and NIH Postdoctoral Fellow in the Betley Lab. Professor Fout received her undergraduate degree in chemistry from Gannon University in 2002 and an M.S. from the University of North Carolina at Charlotte in 2004. In 2009 she received her Ph.D. from Indiana University and was the 2010 recipient

of the American Chemical Society Division of Inorganic Chemistry Young Investigator Award for her research at Indiana.

Dr. Kami Hull will be joining the organic chemistry area as an Assistant Professor. She is currently at Stanford University in the Trost research group as an NIH Postdoctoral Fellow. Professor Hull received her B.A. degree in chemistry from Macalester College in 2003. She obtained her Ph.D. from the University of Michigan in 2009, while there she received an ACS Division of Organic Chemistry Fellowship and the Roche Award for Excellence in Organic Chemistry. Her research group will focus on the development of and mechanistic studies on transition metal catalyzed reactions.

Also from Stanford University, Dr. Richard Perry will be joining the analytical chemistry area as an Assistant Professor. He currently serves a postdoctoral scholar in the Zare Lab. Professor Perry attended Florida Atlantic University where he received his B.S. in Biology in 2001 and his M.S. in Chemistry in 2004. He received his Ph.D. in Chemistry in 2009 from Purdue University.

His research is focused on developing mass spectrometry-based instrumentation and methods to advance current understanding of reaction mechanisms and disease progression.

Coming to the analytical area is Dr. Joaquín Rodríguez-López, currently in the Abruña Lab at Cornell University. Joining Illinois as an Assistant Professor, Dr. Rodríguez-López's research primarily focuses on the study of reactive heterogeneity in electrodes using Scanning Electrochemical Microscopy and methods of electrochemical analysis. A native of Mexico, he received his B.Sc. at the Tecnológico de Monterrey before obtaining a Ph.D. in analytical chemistry at the University of Texas at Austin.

Look for a more in-depth introduction to all five new faculty in the next issue of *Chemistry News*.

Professors **Wilfred van der Donk** and **Christina White** have been elected as fellows of the American Association for the Advancement of Science. Eight faculty total from UIUC were elected to the group this year. The Illinois researchers are among 539 new fellows chosen by their peers for their

• • • • •  
*Professor Martin Gruebele and Ph.D. candidate Eduardo Berrios Rojas work together on a project in the Gruebele lab*



efforts toward advancing science applications that are deemed scientifically or socially distinguished. The new fellows will be honored at the AAAS annual meeting in February. The American Association for the Advancement of Science, the world's largest general scientific society, was founded in 1848. Fellows are chosen for their outstanding contributions to the field, a tradition since 1874.

**Eric Oldfield** was invested as Harriet A. Harlin Professor of

Chemistry on Thursday, May 3, 2012. For more information, see the next issue of *Chemistry News*.

Five students were named recipients of Eastman Travel Grants in December 2011. **Callie Croushore** from the Sweedler group traveled to PittCon 2012; **Jared Kindt** of the Bailey group attended Bioanalytical Sensors—Gordon Research Conference; White group member **Andrew Young** travelled to the 2012 American Chemical Society

National Meeting in San Diego; **Hang Xing** of the Lu group used the Eastman to the 2012 MRS Spring Meeting and Exhibit in San Francisco ; **Claire Knezevic** from the Hergenrother group attended the Bioorganic Chemistry—Gordon Research Conference.

## Get Connected

### Do you want to...

#### ... get the latest news and updates?

Visit our news page: <http://chemistry.illinois.edu/news/index.html>

#### ...connect with other students and alumni and become a facebook "fan" of Chemistry at Illinois?

"Like" Chemistry at Illinois on Facebook: <http://www.facebook.com/chemistryatillinois>

#### ...make a gift to the department?

Visit our giving page: <http://chemistry.illinois.edu/giving/> or call us at 217-333-5071

#### ...network online with other alumni and friends of the department?

Join the SCS Alumni Networking Group on LinkedIn: [www.linkedin.com/groups?home=&gid=2177109](http://www.linkedin.com/groups?home=&gid=2177109)

#### ...submit an alumni update?

Complete the alumni update form on our website: [http://chemistry.illinois.edu/alumni/chem\\_alum\\_news.html](http://chemistry.illinois.edu/alumni/chem_alum_news.html)

Access the SCS alumni database: <http://www.scs.illinois.edu/alumnolist/>



## Catching Up With Christina Barrera: Illinois Student Senate Teaching Excellence Award Winner

RECENT GRADUATE CHRISTINA BARRERA WAS NAMED WINNER OF THE HIGHLY COMPETITIVE AND PRESTIGIOUS ILLINOIS STUDENT SENATE TEACHING EXCELLENCE AWARD. CHEMISTRY NEWS CAUGHT UP WITH CHRISTINA IN EARLY MAY TO DISCUSS THE AWARD AND HER PLANS FOR AFTER GRADUATION.



Chemistry News: Could you tell us a bit about your background?

**Barrera:** I'm a senior at Illinois. Both my parents are Illinois Alumni but they never pressured me to attend this school. My hometown is Mount Prospect, a northwest suburb of Chicago, and I graduated from Wheeling High School. I learned chemistry from a first year teacher who was still passionate about teaching. He taught me how to think critically and how to problem solve. I think both of these skills have helped make me successful at Illinois. I was a TA for the department of Chemistry for 3 semesters under the supervision of Gretchen Adams and loved every second of it.

Chemistry News: What drew you to studying Teaching of Chemistry?

**Barrera:** Both my high school chemistry teachers in high school instilled a passion for chemistry in me. I've always enjoyed math and science and I thought chemistry was the perfect combination. I also liked that it required a certain extent of problem solving, something that I find to be an enjoyable challenge. In high school I had a friend who struggled with AP Chemistry. I found that I really enjoyed helping her learn the material and that I was also really good at it. So when it was time to decide what I wanted to do in college, I decide to combine two things I had a passion for.

Chemistry News: You recently won the Illinois Student Senate Teaching Excellence Award. What did winning the award mean to you?

**Barrera:** This award means that I had an impact on my students. My whole goal for becoming a teacher is to make a difference in my students' lives. The fact that my students thought of me when making nominations shows me that their learning experience with me was memorable. I made a difference of some kind. I can't express how honored I am to be recognized by my students because I would do whatever it takes to help them and I like to think they know that.

Chemistry News: What are your plans for after graduation?

**Barrera:** After graduation I'm hoping to find a teaching job in the Chicago suburbs. I'll live at home for a little while and keep my parents company while I save some money. I think they'll enjoy it because it means they aren't empty-nesters yet.

Chemistry News: Do you have advice for your fellow or future TA's in the Department of Chemistry?

**Barrera:** You have to go into the job wanting to do it. The students can tell if you want to be there. They feed off your energy. The best part of working for the Chemistry department is that these students WANT to learn the material. They are waiting for you to teach them, and if you can make it fun and entertaining at the same time, they'll learn even more. My other piece of advice is to get to know your students on more than just an academic level. This makes teaching even more rewarding because when they succeed, you have a better idea of how much it means to them. Also, if you show you care, you become more approachable as a teacher so students will ask you for help. Finally, smile and have fun, and don't be afraid to be a little weird.

Chemistry News: What was your favorite aspect of Chemistry at Illinois?

**Barrera:** My favorite aspect of chemistry was the classroom demonstrations. The professors here are amazing at showing a cool demonstration and then connecting it to a chemistry topic we're learning. It made lecture 100% more bearable and left us with memories for the rest of our lives. My friends and I reminisce about a lecture we had with Don DeCoste. He decided to make a giant bubble filled with oxygen and hydrogen and then ignite it. I was sitting in the second row for that one and he plastered me into my seat, blew all the chalk off the blackboard and broke a fluorescent light on the ceiling of 100 Noyes. I have a million more stories like that one and it makes my college experience all the better.

## Chemistry at Illinois and University of Massachusetts Amherst: A Special Connection

All top chemistry departments are linked in some way through their alumni and faculty. As new students are trained and begin their careers and faculty move universities, those connections shift and new ones are formed. Professional organizations such as the American Chemical Society, research collaborations, and multi-university grants also play a key role. In its 110-year history, Chemistry at Illinois has sent Ph.D. graduates to and recruited faculty from nearly every corner of the world and certainly from all the top ranked universities within the United States including Harvard, University of California Berkeley, and MIT.

Although there are countless professional connections, one department with which Chemistry at Illinois shares a special connection is the University of Massachusetts Amherst. Throughout the last century, arguably more chemists from the University of Illinois went on to spend all or part of their careers at UMass Amherst, than any other university in the country. The connections formed are both professional and personal, with many of our graduates feeling a special affinity to Illinois. Below are brief biographical sketches of some members of this special group.

Working under Harold Snyder, **George W. Cannon** earned his Ph.D. at the University of Illinois in 1943. Post-graduation, Cannon went on to teach and carry out research in organic chemistry at UMass-Amherst, where he was the recipient of the University's Distinguished Teaching Award amongst many other honors.

Also in the Department during the early 1940's was J. Harold Smith. Dr. Smith served as an instructor in inorganic chemistry at Illinois from 1942-43 after completing his Ph.D. under Farrington Daniels at the University of Wisconsin- Madison. After leaving Illinois he taught at Amherst until retiring from academia at age 62 to work as a consultant in fuel cell development for United Technologists Corporations.

**Louis Carpino** earned his Ph.D. in organic chemistry under Harold Snyder in 1953. Post-graduation Carpino joined Amherst, where he is currently Professor Emeritus, and spent his career pursuing research interests in solution and solid phase peptide synthesis, and developing new protecting groups and coupling reagents for peptide synthesis.

**John A. Chandler** earned his Ph.D. in inorganic chemistry at the University of Illinois in 1959 working with Russ Drago. Chandler joined the faculty of UMass Amherst immediately following graduation and spent his career there, most of which he spent teaching first year chemistry students. During his tenure he reached over 20,000 students and even taught the children and grandchildren of former students. His efforts were recognized in 1986 when he received the prestigious Distinguished Teaching Award.

Also a 1959 graduate of Chemistry at Illinois, **Ronald D. Archer** worked in the inorganic area under John Bailar. Before joining Amherst in 1966, Archer worked at Tulane University in New Orleans, Louisiana. During his career at Amherst, Archer not only had an active research program but also served as Department Head for a number of years. He is currently Professor Emeritus.

Working under Professor Arnold M. Hartley, **David J. Curran** earned his Ph.D. at the University of Illinois in 1961 in analytical chemistry. After graduation he researched at Seton Hall University for two years before joining the Amherst faculty. Currently Professor

Emeritus, Curran was a contributing author to a number of publications during his career.

**Ramon M. Barnes** earned his Ph.D. in analytical chemistry in 1966 under Howard Malmstadt. He served as a member of the armed forces before joining Amherst, where he spent his career running a lab group and currently holds the title of Professor Emeritus.

**Peter C. Uden**, earned his degree in analytical chemistry at the University of Bristol, and then joined the University of Illinois in 1964 as a postdoctoral researcher in John Bailar group. He left in 1966 and joined Amherst, where he is now Professor Emeritus, in 1969. His groundbreaking work into separation science amongst other things has been honored by a number of professional awards.

After graduating with a Ph.D. under Professor Jeffery Moore in 1996, **Dhandapani Venkataraman** joined Amherst faculty and is currently Associate Professor. His current research interests are catalysis, nanoscale segregated semiconductor morphologies in organic and hybrid photovoltaic cells, chiroptical properties of helical electroactive molecules, proton transport in rigid scaffolds, hydrogen production through photoelectrocatalysis.

**Sankaran Thayumanavan** also graduated in 1996, with a PhD in organic and polymer chemistry under Professor Peter Beak. After serving as a postdoctoral fellow at Cal Tech he joined Amherst faculty in 1999 and currently serves as Professor of Chemistry. An award winning researcher, he has been recognized with the Cottrell Scholar Award and National Science Foundation Career Award. His research includes interests in the design and syntheses of macromolecules.

*We want to hear from you! Submit your alumni story and update to [klang2@illinois.edu](mailto:klang2@illinois.edu) or call 217-244-0234.*

## How China and Chemistry at Illinois are Forever Linked

IT IS NO SECRET THAT CHINA HAS EMERGED AS AN ECONOMIC SUPERPOWER IN THE PAST DECADE OR SO. AT THE SAME TIME THERE HAS BEEN A STRONG PUSH TO IMPROVE THE STATURE OF ITS UNIVERSITY'S ACADEMIC PROGRAMS. NOT SURPRISINGLY A NUMBER OF RECENT UNIVERSITY OF ILLINOIS DEPARTMENT OF CHEMISTRY ALUMNI HAVE BEEN RECRUITED INTO PROMINENT POSITIONS IN CHINESE UNIVERSITIES. AS IS WRITTEN ABOUT IN MORE DETAIL BELOW, THERE IS A LONG HISTORY OF ILLINOIS CHEMISTRY GRADUATES TAKING POSITIONS AT PEKING UNIVERSITY, ONE OF THE TOP UNIVERSITIES IN CHINA.

In recent times the UIUC-PKU pipeline is well in evidence. For example, in the past decade Yuguo Ma - 马玉国 (Ph.D., '02, Zimmerman), Shufeng Wang - 王树峰 (Postdoc, '04, Dlott), Yangming Wang - 汪阳明 (Ph.D., '06, Silverman), Junlong Zhang (Postdoc, '08, Yi Lu), and Dahui Zhao (Ph.D., '03, Moore) have all developed highly successful research efforts at "Beida" (北大) as Peking University is colloquially known in Chinese.

Beyond PKU, other Illinois graduate and postdoctoral students have taken academic positions at other key institutions. A comprehensive list would require more space than possible, but they include: Weiliang Duan 段伟良 (Postdoc, '08, Denmark) at the Shanghai Institute of Organic Chemistry, Liang Feng 冯亮 (Postdoc, Suslick) at the Dalian Institute of Chemical Physics, Hongxiang Li - 李洪祥 (Postdoc, '02, Rauchfuss) at the Shanghai Institute of Organic Chemistry, Zhan-ting Li - 黎占亭 (Postdoc, '02, Zimmerman) who recently moved from Shanghai Institute of Organic Chemistry to Fudan University, Shifang Ren - 任士芳 (Postdoc, '09, Sweedler) Shanghai Medical School at Fudan University, Qilong Shen - 沈其龙 (Postdoc, '10, Hartwig and Moore) at the Shanghai Institute of Organic Chemistry, Jiangyun Wang (Ph.D., '03, Suslick) who is on the faculty of the Academia Sinica in Beijing, Qingzheng Yang 杨清正 (Postdoc, '09, Boulatov) at the Technical Institute

of Physics and Chemistry, Chinese Academy of Sciences, Beijing, and Xingang Zhang 张新刚 (Postdoc, '08, van der Donk) also at the Shanghai Institute of Organic Chemistry.

Because of the long period during the Mao Era (1949-1976) where Chinese students did not study in the U.S., there is the occasional misperception that the first Chinese scholars to come to the U.S. for study arrived in the late 1970s and early 1980s following the Cultural Revolution. In fact, the Department of Chemistry at Illinois was host to outstanding Chinese students many decades earlier, particularly in the 1920s, 30s, and 40s. Many faculty trained these students, including Reynold Fuson, G. L. Clark, Carl Shipp (Speed) Marvel, and several others. But it was Roger Adams who had far and away the largest number of these international students who upon their return home to academic positions, most at what is now known as Peking University, had a major impact on the development of modern chemistry in China. A select few of these students are listed below, with their name shown three ways: first, the mainland Chinese translation commonly used today, second, in Chinese characters, and, finally, the name translated into English as it appears in the University of Illinois records.

Shih-Liang Chien - 钱思亮 - Shi Liang Chien (1908-1983) was from Hangzhou, Zhejiang Province. He did his undergraduate work at Tsinghua University in Beijing obtaining his first degree in 1927. He received the Boxer Rebellion Indemnity Scholarship in 1931 and went to

*Mutianyu, a section of the Great Wall of China*

the U.S. where he worked with Roger Adams. In 1934 he was elected to membership in Phi Beta Kappa and Sigma Xi. The same year he obtained his Ph.D. and joined the Peking University faculty as a professor of organic chemistry, ultimately becoming Department Head. In 1949 Chien went to Tapei, Taiwan where he joined the faculty of the National Taiwan University (NTU). He served as President of NTU from 1951 to 1970. In 1970 he left NTU to assume the Presidency of Academia Sinica. He was an inspirational teacher and greatly advanced chemistry both on the mainland and in Taiwan. A remembrance of Shih-Liang by his son, Shu Chien, can be found later in this article.

Hong Gao - 高鸿 - Hung Kao was born in JingYang Xian of Shaanxi Province on June 26th, 1918. He is an analytical chemist, pioneer in polarographic analysis, analytical chemistry educator, and widely considered the founder of the Chinese instrumental analysis. He obtained his Ph.D. with G. L. Clark in 1947 and returned to China the following year. He served on the faculty of Nanjing University and Northwestern University (Xi'an) in China. In 1997 he founded the Institute of Analytical Science at Northwest University and served as its first director. He was elected to Chinese Academy of Sciences (academician) in 1980.

Mingqian Jiang - 蒋明谦 - Ming-chien Chiang (1910-1995) obtained his Ph.D. with Adams in 1944. He was a faculty member at Peking University and in the Institute of Chemistry (Beijing), Chinese Academy of Sciences. He was a pioneer in the field of physical organic chemistry in China and was elected a member of Chinese Academy of Sciences (academician) in 1980.

Qiyi Xing - 邢其毅 - Hsing Chi-yi (1911-2002) obtained his Ph.D. with Roger Adams in 1936 after graduating cum laude from the Fu Jen Catholic University in Beijing. After a postdoctoral stay at the University of Munich, he served on the faculty of Peking University from 1949 until his death. He is known today by nearly all students of organic chemistry because of his widely used textbook "Fundamental Organic Chemistry." Indeed, on a recent lecture tour through China, Steve Zimmerman showed

the names of Roger Adams' Chinese students in each of his lectures and Qiyi was the one name known to all the students. He is further recognized for his work on natural product synthesis and bioorganic chemistry. Qiyi was involved in the chemical synthesis of crystalline bovine insulin, a notable achievement for Chinese chemists. He was elected to Chinese Academy of Sciences (academician) in 1980.

Hanqing Yuan - 袁翰青 - Han Ching Yuan (1905-1994) obtained his Ph.D. with Roger Adams in 1932. He was born in Nantong City, Jiansu Province and graduated from the Department of Chemistry, Tsinghua University in 1929. From 1933 to 1949 he served on the faculties of the National Central University, Peking University, and Beijing Normal University. He was a founder and Director of the Chinese Institute of Scientific Information. He is recognized in China for his research on stereochemistry, his achievement in spreading and popularizing science and for his research into the history of chemistry in China. He was appointed as member of Chinese Academy of Sciences (academician) in 1955.



From Left: Shu Chien holding May, Mrs. K.C. Chien holding Ann, Dr. Shih-liang Chien, Mrs. S.L. Chien, in Shu-KC's home in New York, 1961

## Shih-Liang Chien (钱思亮) A Remarkable Man, a Remarkable Family Legacy



The general academic career of Shih-Liang Chien described above does not give a full picture of this remarkable individual and his extraordinary life. He was remembered as an intelligent and studious

if somewhat quiet grade school student who rose to great heights. Throughout his academic career, Shih-Liang was known as an extraordinary scholar, a lecturer who filled large halls to capacity and still had people standing outside to hear him. He was a leader who modernized chemical education in China and Taiwan and always put the advancement of science above politics.

Shih-Liang Chien also was proud of his connection to the Department of Chemistry at Illinois. As a longtime and loyal supporter, he was able to return to campus in 1983 to receive an honorary degree shortly before his death. In 1988 his youngest son, Frederick Foo Chien (钱复) honored him by donating to the University of Illinois a 500- volume facsimile of the eighteenth-

century Chih-Tsao Hall Edition of the Digest of the Great Encyclopedia, a compendium of classics, history, philosophy, and literature compiled for Emperor Ch'ien-lung between 1774 and 1778. The younger Chien noted "It's a very sentimental journey. When I was a kid, the first song I heard was Illinois, We Are Loyal to You. There never was a time my father failed to tell me about his great sense of loyalty to his alma mater."

Shih-Liang Chien's three sons all rose to prominence. Frederick Chien, mentioned above, has had a highly successful career as a politician in Taiwan, holding a number of positions including the equivalent of an Ambassador from the Republic of China. His oldest son, Robert Chien (钱纯) was former Minister of Finance of Taiwan and his middle son, Shu Chien (钱煦) a world renowned Professor of Bioengineering at the University of California San Diego. Shu is one of a handful of individuals elected to membership in all three major U.S. academies: National Academy of Science, National Academy of Engineering, and the Institute of Medicine.

Steve Zimmerman contacted Shu Chien who provided the following wonderful remembrance of his father.

*Dear Steve,*

*Thank you for your message regarding my father. Yes, father obtained his Ph.D. with Roger Adams in 1934 and returned to China to become a Professor of Chemistry at PKU. After the outbreak of the Sino-Japanese War in 1937, PKU moved with Tsinghua University and Nankai University to form the Southwestern Union University (SWUU) in Kun-ming in the Province of Yunan in Southwestern China. Father went to Kun-Ming to become Professor of Chemistry in SWUU. After the end of WWII, he returned to Beijing to become Professor and Chair of Chemistry at PKU. In December When the Communist Army was about to take over Beijing in December 1948, my parents and their three sons (I am the middle one) took the last flight out to Nanjing.*

*In January 1949, father went to Taiwan to be Provost and Professor of Chemistry at National Taiwan University (NTU). In 1950, father became President of NTU, which was the only university in Taiwan and still is the leading university there, at the age of 42. After serving as NTU President for 19 years, during which he recruited outstanding faculty, educated superb students, established new colleges and departments, and protected the University's freedom from political influences, father became President of the highest academic institution, Academia Sinica (analogous to our National Academy of Sciences plus the other national academies, but with intramural research institutes) in 1969 until his passing in 1983.*



*Father greatly enhanced the research institutes and established new ones. He was admired for his protection of academic freedom and independence from political influence. At that time, the Nationalist government in Taiwan was in strong conflict with the Communist China on the Mainland and wanted to remove those Academicians that visited Mainland China. Father insisted that the Academicians were elected for life and should not be affected by such factors; he prevailed under difficulty circumstances. As a result, outstanding Academicians such as Nobel laureate C.N. Yang continue to be recognized by Academia Sinica and invited to attend its biennial convocations. Although they did not attend the convocations for some years, but eventually returned when the relationship across the Taiwan Strait improved. This is one aspect of father's insistence on principle.*

*Father was a man of great principle. My brothers and I are very fortunate to have his genetic background and his wonderful upbringing. He was a man of few words. He rarely told us what to do, but we learned from the way he behaved, i.e., teaching by example. He had the highest level of integrity and separated with great care official and private matters, especially when money is involved. An example was that, when we lived in the President's Residence, he would not allow us to turn on the air conditioners until the temperature rose above 86°F, because the electrical bill was paid by the University. Two years ago, the three of us edited a book "Eternal Remembrance" in memory of his 100th Birthday; I wrote an article (in Chinese) that is entitled "Dad, You Are a Perfect Person!", in which I expressed my greatest admiration for him. Father was indeed an extraordinary scholar, a lecturer who filled large lecture halls to capacity and still had people standing outside to hear him, and a leader who modernized education in chemistry and beyond in China and in Taiwan. I had the fortune of being in his class when I was a premed student at PKU taking his class on Qualitative Analysis. I learned a great deal from the way he taught, and what I learned from him was critical in my receiving many teaching awards in Columbia and UCSD.*

*Father had a very strong affection to UIUC. He told us about the wonderful times he had there. His marvelous advisor Roger Adams. His student colleagues William (Butch) Hanford, Chi-Ye Xing, and many others. How they drove to New Jersey to walk across the George Washington Bridge when it was completed. How he enjoyed the football games in which Red Grange was a superstar. Sometimes, he would lead his sons to march around in the living room, moving a baton up and down like a cheer leading marching band. Therefore, we had UIUC clearly inscribed in our mind as our father's beloved Alma Mater.*

*In 1983, fifty years after his reception of his Ph.D. from UIUC, father was extremely happy (and of course the whole family) to be conferred an honorary degree by his Alma Mater. My wife KC and I went to Urbana-Champaign with him for this marvelous occasion.*

*Father took two-month trip in 1983 starting with a visit to Germany to discuss cooperation with the Max Planck Institutes. This was followed by his visits to many cities in the US to meet with Academia Sinica members in various cities, including New York, Boston, Chicago, San Francisco and Los Angeles, with the UIUC commencement as the highlight. He had diabetes and had strict control of his diet at home, but the long trip threw that off. The large swing in blood sugar finally caught up with him when he returned to Taiwan, and he passed away on August 15, 1983. The memorial service in Taipei was attended by numerous friends, colleagues and students. Another service was held in Columbia University, which was attended by friends and former students, including the Chemistry Nobel Laureate Yuan T. Lee.*

*Thank you very much and best regards,  
Shu*

Garden in  
Hangzhou, China



## Global Health Initiative Takes Graduate Student to Ghana

THE UNIVERSITY OF ILLINOIS STRIVES CONTINUOUSLY TO PROVIDE NEW AND CHALLENGING OPPORTUNITIES FOR ITS STUDENTS. NUMEROUS OPPORTUNITIES ARE AVAILABLE AT THE CAMPUS AND DEPARTMENTAL LEVEL FOR GRADUATE STUDENTS LOOKING TO EXPAND THEIR RESEARCH EXPERIENCES. ONE OF THESE PROGRAMS, THE GLOBAL HEALTH INITIATIVE, TOOK FIVE CHEMISTRY GRADUATE STUDENTS ON A TWO-WEEK TRIP TO GHANA IN WEST AFRICA DURING THE 2011-12 WINTER BREAK.

The Global Health Initiative at the University of Illinois aims to create a research community centered on global health issues involving students, faculty, and researcher staff on the Urbana-Champaign campus. The initiative provides the unique experience of first-hand exposure to global health issues for graduate students and faculty. Additionally they provide on-campus events and resources such as a global health

seminar series and symposium. As each student comes from a different background both personally and research-wise, the 14 day experience over winter break offered a variety of experiences that resonated individually. *Chemistry News* asked some of the students to reflect on their trip and what they learned.

### **Rachel Botham (Hergenrother Group):**

From a medicinal chemistry standpoint, the trip to Ghana was fantastic. Because of the limited resources for scientific research, the focus is on the diseases currently creating the greatest burden on the health care system; namely malaria, HIV and tuberculosis. At the

• • • • •  
*GHI students pose for a picture on their trip to Ghana*





*The GHI group posing with locals in Ghana.*

University of Cape Coast I was extremely impressed with both the students' and faculty's dedication to maximizing the resources they had available to them (ie primary patient samples) and attempting to negotiate around resources not available via collaborations.

Furthermore, Ghana's current commitment towards improving the scientific knowledge surrounding herbal medicines was extremely exciting. The government realizes that much of its population still prefers herbal medicines, but they are

dedicated towards improving the safety and efficacy. In this way traditional herbal specialists can submit their formulations and government funded scientists then test the safety and efficacy of the formulations in appropriate animal models. As someone interested in bioactive small molecules with therapeutic potential, it's extremely exciting to see a concerted national effort towards elucidating the therapeutic potential of these traditional herbal remedies.

Finally I was left with a sense of optimism for the future of

scientific research and health care in Ghana. The enthusiasm was contagious and I returned to Illinois with a sense of urgency to capitalize on all of the resources available to me here at the University of Illinois.

**Callie Croushore (Sweedler Group):** When the department first announced it would sponsor one student (and then later five students) to go on a trip to Ghana, I was beyond excited. What an opportunity. I love to travel and global health and education is something that I find very

interesting, as it is one of the critical challenges facing our world today. So, I applied and went to Cape Coast, Ghana for two weeks.

The trip was fantastic. Our main goal was to observe healthcare in a resource-limited setting and form collaborative partners at the hospitals and the local universities. During our trip, we fully immersed ourselves in the Ghanaian healthcare system- in hospitals, community health centers, and clinics. We encountered some of the biggest challenges facing the Ghanaian healthcare system including malaria, HIV, and tuberculosis. Many of us had the opportunity to observe personnel in the diagnostic laboratories and watch them make the most of the limited resources that were available. We met with university faculty and health care professionals to discuss the exchange of ideas, resources, and students. I even had the opportunity to visit a primary school and interact with the children there. We also spent two weeks eating Ghanaian food, learning how to barter for goods, and visiting the beautiful sites around the country.

The entire trip was invaluable and I cannot say enough positive things about our time in Ghana. I don't think it would have been possible to fully understand the healthcare

system without going to Ghana and actually experiencing it. Currently, members from the

tuberculosis, I was able to see how important accessible treatments for common diseases

**“ Our main goal was to observe healthcare in a resource-limited setting and form collaborative partners at the hospitals and the local universities. ”**

trip are working hard on writing grants and creating programs to continue those partnerships that we formed while in Ghana. Finally, I would like to thank the chemistry department for providing the funding for this experience.

**Claire Knezevic (Hergenrother Group):** The Global Health Initiative trip to Ghana was an incredibly unique experience as we were able to see their entire health system, from top to bottom, and talk with individuals along the way about their personal perspectives on healthcare in the country. I applied to go on the trip because my graduate research in medicinal chemistry, specifically anti-cancer compounds, sparked my interest in treatments for infectious and neglected diseases. Traveling to Ghana, where the biggest healthcare burdens are maternal/ infant care and infectious diseases such as malaria and

are and how they can positively impact lives.

In general the trip helped me gain an understanding of the challenges developing countries face when delivering healthcare and how Ghana has successfully allocated its resources to provide care for as many of its citizens as possible.

I would like to thank the Department of Chemistry and my advisor for supporting me on this trip, as I think this experience will serve to be very valuable as I progress through my career.

## A Moment with Doug Mitchell 2011 NIH Director's New Innovator Award

LAST FALL, ASSISTANT PROFESSOR DOUG MITCHELL WAS CHOSEN AS THE RECIPIENT OF THE NATIONAL INSTITUTES OF HEALTH DIRECTOR'S NEW INNOVATOR AWARD. THE \$1.5 MILLION AWARD, RECEIVED OVER FIVE YEARS, IS GIVEN TO THE NATION'S MOST PROMISING NEW SCIENTISTS WHO DEMONSTRATE RESEARCH CREATIVITY AND HIGH POTENTIAL TO PRODUCE IMPORTANT MEDICAL ADVANCES.

MITCHELL, WHO JOINED UI FACULTY IN 2009 AFTER RECEIVING HIS PH.D. IN 2006 FROM UNIVERSITY OF CALIFORNIA BERKELEY, USES CHEMICAL METHODS TO STUDY THE MECHANISMS THAT CONTRIBUTE TO BACTERIAL VIRULENCE AND ANTIBIOTIC RESISTANCE. CHEMISTRY NEWS RECENTLY ASKED PROFESSOR MITCHELL TO DISCUSS THE NIH AWARD AND HIS RESEARCH.

• • • • •  
*Mitchell  
supervises a  
student in his  
lab.*



Chemistry News: Congratulations on receiving the NIH Director's New Innovator award! What does winning the award mean to you?

**Prof. Doug Mitchell:** Thank you. I was elated to receive the award because we now have the financial resources to carry out some work we are passionate about. Equally important, receiving the NIA (New Innovator Award) validates that others view our work as an important endeavor, which is always gratifying.

Chemistry News: Briefly, what is the general concept that the award was given for?

**Mitchell:** As I am sure most readers are well aware, our antibiotic arsenal is becoming obsolete. Bacteria are clever organisms, especially pathogenic ones. It seems the more we use antibiotics, the more that bacteria become resistant to them. The paradigm we are challenging with the NIA funds is the notion that antibiotics must kill bacteria. After all, it is the suppression of their growth that selects for resistance. Instead of targeting essential life processes, why not target the pathogenic mechanism

directly? This strategy would disarm the pathogen, rendering them incapable of causing disease. Leaving bacteria alive inside our bodies could be dangerous, according to opponents of this strategy. However, we have to remember that the human body harbors 10 times more bacterial cells than human cells. Such bacteria live in harmony with us, contribute to normal human physiology, and are routinely disposed of by a number of innate mechanisms. Importantly, drugs targeting pathogenesis would be theoretically resistant to resistance, thus extending their pharmacologically useful shelf life. Our proposal outlines several approaches to achieve progress in this area.

has made the most progress with is a compound named plantazolicin, which has a remarkable antibiotic selectivity for *Bacillus anthracis*, the causative agent of anthrax. While the mode of action is currently unknown, we are intrigued by the possibility that an antibiotic with an exceptionally narrow spectrum of activity might also be "resistant to resistance". This is because bacteria pass gene cassettes amongst each other by a process called horizontal gene transfer. That means in a large population with many species of bacteria, any species that develops resistance will pass that gene to others (not only its own progeny but other species as well) in the local environment. The broader the antibiotic spectrum, the greater the number of targeted species, all of which are pressured to work on a "solution" to the antibiotic. The narrower the spectrum, the longer the process will theoretically take. Given that *B. anthracis* is a biological warfare agent and many strains are resistant to the first-line treatments (fluoroquinolones, like Cipro) new therapies are needed.

Chemistry News: How will the award impact your research?

**Mitchell:** The NIA is specifically given to young faculty who propose "high-risk/high-reward" health-related research. In other words, you have a potentially transformational idea but little supportive data. This funding mechanism was a response to earlier criticism that NIH had become risk averse. Indeed, this project was quite unlikely to be competitive for a traditional R01 (basic research grant). Thus, receiving the award will allow my group to lay the foundation for a longer-term project that could be supported by traditional funding mechanisms. After all, once you have proof-of-principle, any associated risk with a project should be significantly mitigated.

Chemistry News: What's your favorite aspect of working at Illinois?

**Mitchell:** The U of I is an academically fertile place. While there's always things we can do as faculty to improve our respective departments, we have excellent students and research infrastructure, especially in the chemical sciences. Also, I find my senior colleagues to be very supportive, which for a young group like mine is essential.

Chemistry News: Tell us a little bit about your other current research interests.

**Mitchell:** Besides the project described earlier, my group is pursuing studies on an emerging natural product family that we call the TOMMs (for thiazole/oxazole-modified microcins). These are architecturally complex compounds that contain numerousazole and azoline heterocycles and can exhibit many different biological activities. We are quite interested in the enzymology of heterocycle biogenesis and the chemo- and regioselectivity of heterocycle installation. Beyond the characterization of key biosynthetic enzymes, the TOMM our group



## Faculty Retirements and Staffing Changes

IT IS THE END OF AN ERA IN THE DEPARTMENT OF CHEMISTRY. AFTER EIGHT TOTAL YEARS AS DEPARTMENT HEAD, STEVE ZIMMERMAN IS RETURNING TO FULL TIME RESEARCH AND TEACHING (PG. X) AND SIX LONG TIME FACULTY HAVE RECENTLY RETIRED OR WILL BE RETIRING DURING BEFORE THE START OF THE 2012-13 ACADEMIC YEAR. READ SHORT PROFILES OF EACH FACULTY MEMBER HERE AND FOR MORE IN-DEPTH INFORMATION VISIT THE FACULTY TAB AT CHEMISTRY.ILLINOIS.EDU.

### J. Douglas McDonald

Professor J. Douglas McDonald retired in 2011 after 40 years of service to the Department of Chemistry at Illinois, which he joined after receiving his Ph.D. from



Harvard in 1971. He also attended Rice University, graduating with a B.A. in 1966.

McDonald's research interests lie in the fields of physical chemistry and chemical physics. In addition to numerous articles published in journals such as *Journal of Chemical Physics*, the first observation of vibrational-electronic quantum beats was in his laboratory.

Beyond research, he has been a major supporter of the Department of Chemistry, providing a lead gift to the Willis Flygare Memorial Fund towards the purchase of a sculpture created for auction by Flygare alumni Terry Balle. The gifts by physical chemistry faculty led by McDonald allowed for the sculpture to stay in Noyes Laboratory, commemorating Professor Flygare's legacy while helping to secure the future of the Flygare Memorial Lecture.

### Andrzej Wieckowski

Professor Andrzej Wieckowski retired this year after serving the University of Illinois since 1985. Before Illinois, he received his Ph.D. in 1981 from University of Warsaw in Poland and worked as a visiting scientist at the University of California at Santa Barbara.

Wieckowski's research into electrode surface structure and other components of electrochemistry has been



recognized internationally with numerous awards including a Department of Energy prize, induction into the International Society of Electrochemistry, and the Grahame Award of as well as reported in over 300 publications and chapters.

In addition to his work in the Department of Chemistry, he is the North American Editor of *Electrochimica Acta* as well as the editor of several electrochemistry books and has previously served on the editorial boards for a number of chemistry journals.

### Alexander Scheeline

Professor Alexander Scheeline retired in summer 2012 after thirty one years in the Department of Chemistry. He joined the faculty in 1981 after receiving his B.S. from Michigan State and Ph.D. from the University of Wisconsin in 1978.



In addition to his research into nonlinear dynamics, oscillating reactions, oxidative stress and atomic spectroscopy, Scheeline has been incredibly active in university service. He has served on numerous department, college, and campus level committees, instructed a number of research seminars

for students, and served as Departmental Ethics Officer and Undergraduate Scholarships and Awards Chair. He was also enthusiastically involved in the Department's partnership with Vietnam National University / Hanoi University of Science.

His years of dedication to research and his role as mentor and scientific community member have been recognized by many awards and honors including the ACS Newsmaker Award, Society for Applied Spectroscopy William F. Meggars Award, Alpha Chi Sigma Outstanding Faculty Award, and a Camille and Henry Dreyfus Foundation Special Grant in the Chemical Sciences.

### Patricia Shapley

Professor Patricia Shapley received her B.A. from Boston University in 1977 and her Ph.D. from M.I.T. in 1981.



She was a postdoctoral fellow at the Institut Louis Pasteur de Strasbourg, France from 1981-2 and joined the Department of Chemistry of UI Chicago in 1982. In 1996, she moved to the Department of Chemistry at UIUC.

Her research was centered around the promotion of "greener" chemical synthesis by creating highly selective and active catalysts for the oxidation of organic substrates with molecular oxygen. Professor Shapley's research examined the mechanisms of reactions between the organometallic species and oxidizable organic molecules.

Professor Shapley developed courses in Chemistry of the Environment and Green Chemistry and began the undergraduate option in Environmental Chemistry. She taught the first online course in chemistry at UIUC and promoted active, cooperative learning in other courses.

Professor Patricia Shapley was also very involved with University services including UIUC Conflict Review Committee Chair, LAS Curriculum Committee Chair, serving as the SCS Affirmative Action Officer, the Department of Chemistry Courses and Curriculum Committee Chair, the -Department of Chemistry

Admissions and Fellowship Committee, SERDP Scientific Advisory Board and WUN Green Chemistry Group.

### John Katzenellenbogen

Professor John A. Katzenellenbogen joined the University of Illinois in 1969 after attending Harvard



University where he received his B.A. in 1966 and his Ph.D. in 1969.

He retired in 2011 after 42 years of service to the department and university. Although technically retired, he currently holds a research

position within the department and maintains an active and well-funded program. Professor Katzenellenbogen was also the Swanlund Chair and Affiliate of the Beckman Institute and Department of Bioengineering during his time as professor in the Department.

Professor Katzenellenbogen's research interests involve organic and inorganic chemistry, biochemistry, molecular biology, and radiochemistry. His research has been recognized through a number of named fellowships, including the Guggenheim, the Sloan, the Dreyfus, and the Cope Scholar Award. Additionally he has been honored with a number of professional awards including the Leading Edge in Basic Science Award from the Society for Toxicology and the 2010 Philip S. Portoghese Medicinal Lectureship Awardee.

### James Liszy

Professor James M. Liszy received his B.S. degree from Iowa State University in 1974 and his Ph.D. from Harvard University in 1979. He joined the faculty at



Illinois in 1981, retiring in 2011 after 30 years. He has also served as a visiting scientist at a number of institutions—the Max Planck Institut für Strömungsforschung in Göttingen, Germany in 1989, Purdue University

(1998), and University of Tokyo (2009).

His research interests are in the areas of molecular interactions pertaining to solution, biological, atmospheric, environmental and materials chemistry. His research includes studies of hydration of ion-biomolecule complexes, ion size-selectivity, dynamics-spectroscopy in ion clusters, and cluster ion synthesis and he is the author of over 80 scientific papers and book chapters.

In 2011, Professor Lisy won the Alexander von Humboldt Research Award, allowing him the opportunity to once again research in Germany. Additionally, he has been named a Fellow of the American Association for the Advancement of Science, the American Physical Society, Japan Society for the Promotion of Science, and the UIUC Center for Advanced Study. Additionally, he has won the UIUC School of Chemical Sciences teaching award five times, most recently in 2008.

#### Also retiring: Chris Yerkes

Dr. Chris Yerkes, Director of General Chemistry, is leaving the University of Illinois after more than twenty years of inspiring undergraduate students within the general chemistry curriculum as well as guiding the area administratively for the last four years.



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 Research  
 Professor John  
 Katzenellenbogen  
 supervises a  
 student in the lab

## Alumni Notes

**Marinda Wu (Ph.D. '76)**, who has been named president-elect of the American Chemical Society. Her three-year succession includes being president of the society in 2013 and immediate past-president in 2014. In addition to her service to the ACS, Wu is founder and president of Science is Fun! in Orinda, Calif. She holds seven U.S. patents, worked in Dow Chemical's Central Research Laboratory from 1976 to 1992 and founded Science is Fun! the following year.

Wu has considerable prior experience with ACS, including service as a counselor and as a member of the board and numerous ACS committees. She has been a member of the society since 1971 and was head of the California Section in 2001.

She also served as the 2012 Chemistry Convocation keynote speaker. Look for an article about the ceremony in the next issue of *Chemistry News*.

**Sue Bober (B.S., '90)** teaches chemistry at Schaumburg High School in Schaumburg, Illinois. She was the recipient of the Davidson Award for High School Teaching for the Chemical Industry Council of Illinois last May. She serves on the board of directors of the National Mole Day Foundation and serves as secretary of this organization. She has been an instructor for the Fermilab Summer Institute for Chemistry Teachers for the last three summers.

Since departing from Pfizer in 2009, Bober has been teaching general and organic chemistry courses at U. Missouri-St. Louis (UMSL) and St. Louis Community College as an Adjunct and will be accepting a full time appointment at UMSL as Teaching Professor of Chemistry.

**Elaine Fuchs (B.S., '72)** was named one of three recipients of the 2012 March of Dimes Prize in Developmental Biology Individuals who receive the March of Dimes Prize are leaders in the field of developmental biology. Their pioneering research offers hope for prevention and treatments for some of the most serious birth defects and other human diseases.

Fuchs uncovered the genetic basis of blistering skin diseases and deciphered the characteristics of skin stem cells that allow them to develop into distinct tissues and organs. She also pioneered the use of reverse genetics, which studies protein functions and then determines what diseases occur when the proteins malfunction.

**Richard Lampo (M.S., '79)**, Recently won the R&D 100 Award, which each year selects the top 100 innovations worldwide. He was part of a team that developed an all-thermoplastic composite bridge made of waste plastic and automotive bumper scraps which includes a novel I-beam design. The first bridge, installed at Fort Bragg, N.C., can support loads of more than 70 tons, including the Abrams tank. The team also was presented the Editor's Choice Award by R&D Magazine as one of the top three innovations. Lampo accepted the awards at a ceremony in Orlando, Fla.

**Jared Lewis (B.S., '02)** was chosen as a 2011 Recipient of the David and Lucille Packard Foundation Fellowship. Lewis, assistant professor in chemistry at the University of Chicago, was among 16 scientific researchers nationwide to receive a 2011 Packard Fellowship for Science and Engineering from the David and Lucille Packard Foundation. Each Packard fellow will receive an unrestricted research grant of \$875,000 over five years. Lewis was selected a 2011 Searle Scholar earlier this year. He is creating artificial metallic enzymes to improve the biosynthetic capabilities of organisms for chemical production.

**Andrew Nieuwkoop (Ph.D., '11)** has been awarded a Fulbright Fellowship to pursue postdoctoral studies in Berlin, Germany, at the Leibniz-Institute für Molekulare Pharmakologie (FMP). Andy's research project, entitled "Structural biology of heterogeneous, native-like systems by solid-state NMR", will be carried out in the laboratory of Prof. Hartmut Oschkinat. The project will combine novel dynamic nuclear polarization techniques in order to examine protein structures in cellular environments.

# Supporting the Department of Chemistry

THE GENEROSITY OF ALUMNI IS ONE OF THE KEYS TO THE CONTINUED SUCCESS OF THE DEPARTMENT. GIFT FUNDS SUPPORT CRITICAL NEEDS—PROVIDING FINANCIAL SUPPORT TO A STUDENT WHO MAY OTHERWISE HAVE TO DROP OUT, AN IMPORTANT UPGRADE FOR BUILDING SAFETY, A FACULTY MEMBER WHOSE RESEARCH IS CHANGING THE WORLD WE LIVE IN. BY SUPPORTING THE DEPARTMENT, YOU SUPPORT OUR STUDENTS, OUR FACULTY, AND OUR FUTURE.

Every gift makes an impact, and the Department of Chemistry is dedicated to recognizing every gift. Donors are recognized annually in *Chemistry News*\* with additional recognition for major donors. See below for more information, and please contact us by phone (217-333-5071) or email (chemweb@scs.illinois.edu) with any questions.

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Your gift can be directed in a number of ways. To provide maximum flexibility to the department to meet our most critical needs, please consider a gift to the Vision 2020 Fund. An endowment created in 2008, Vision 2020 allows the department to save every gift in a fund that then produces income that supports departmental programs and initiatives.

Other funds are targeted towards specific areas and programs within the department, including graduate fellowships, professorships, and building funds. For more information on specific funds, please visit our website or contact us.

Major gifts, which offer naming opportunities, allow for a lasting legacy as well providing vital support. Named opportunities are available for areas such as scholarships, classrooms, and faculty chairs. If you are interested in making a major gift to the Department, please contact Associate Director of Advancement Nick Jaeger at 217-244-9418.

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## In Memoriam

**CHEMISTRY AT ILLINOIS IS SADDENED TO ANNOUNCE THE DEATH OF LONGTIME FRIEND AND SUPPORTER OF THE DEPARTMENT, DR. SEEMON PINES, WHO PASSED AWAY IN MAY 2012. A FULL MEMORIAL PIECE WILL APPEAR IN THE NEXT ISSUE OF CHEMISTRY NEWS.**

### **Eleanor Clayton Cogan**

died December 27, 2011. Born Sept. 22, 1909 in Chicago, IL to Thomas and Nora Clayton, Eleanor grew up in Dixon, in northern Illinois. She attended the University of Illinois where she earned an MS in Chemistry and was honored Phi Beta Kappa in math. She also met fellow chemistry student Howard Cogan whom she married in 1934.

Mrs. Cogan lived an active life, raising two children, breeding Dalmatians, and becoming an elder in the Presbyterian church. Post-retirement she enrolled in a number of college activities and courses, volunteered in her community and church, and travelled internationally.

### **George R. Coraor, Ph.D.**

died October 24, 2011. He was the husband of Martha G. (Wells) Coraor. The couple celebrated their 64th wedding anniversary last June 15th.

Born in Jacksonville, Illinois, May 10, 1924, George was the son of the late George L. and Margaret M. (Fernandes) Coraor. He faithfully and honorably served his country in the U.S. Navy during World War II. In 1947, George received his A.B. in Chemistry from Illinois College and earned his Ph.D. in Chemistry from the University of Illinois in 1950. He did a Post Doctoral Study at MIT. A member of the American Chemical Society, Dr. Coraor was employed at DuPont, in Wilmington, Delaware, as a Research Chemist from 1951 until his retirement in 1985. Dr. Coraor was a member of the First Presbyterian Church of Allentown; he was a volunteer for the Habitat for Humanity and a local food bank; he enjoyed working on genealogy, gardening and working on cars; he especially enjoyed his family.

### **Paden Fasold Dismore**

died on September 29, 2011. Mr. Dismore was a chemist who retired from DuPont after 30 years of service at the Seaford Nylon Plant and at Chambers Works. After retirement he worked part time in the Chemical

Engineering Department of the University of Delaware. Following this he consulted for the International Center for Diffraction Data in Newtown Square, PA.

He received a bachelor's degree in chemistry from the University of Illinois in 1943 and a doctorate in organic chemistry from Indiana University in 1948. He was a 50 year member of the American Chemical Society. He was also a 50 year 32nd degree Mason and received the Silver Beaver award from the DelMarVa Council of the Boy Scouts of America.

**Ralph Elmer Kelley** passed away December 3, 2011.

Ralph Elmer Kelley was born in Hillsboro, IL on November 6, 1924 to Florence A. Sipes and Henry E. Kelly. Dr. Kelly was raised and attended public schools in Champaign, IL. He entered the University of Illinois in 1941, was a member of both the Alpha Kappa Lambda social fraternity and the Sigma Xi honors fraternity, and graduated with a BS in Chemistry with high honors in 1947. He served as a radar technician in the US Navy (South Pacific) from 1943 to 1945. Dr. Kelly received a PhD in Organic Chemistry from the University of Minnesota in 1951. He was hired by Hercules Chemical Company in Wilmington,

DE in 1951 and worked on various assignments through 1985. At retirement, he was Director of Research and Development for Hercules Europe, based in London, England.

Dr. Kelly served in various positions in the community. At Hanover Presbyterian Church in Wilmington, DE, he was Deacon, Elder, and Clerk of Session. In Unionville, PA, Dr. Kelly was Cub and Scoutmaster for Pack 22 and Troop 22, Boy Scouts of America. In Wilmington, DE, he served as a member of the Board of Kentmere Nursing Home. He also was a member of the Delaware Ornithological Society and a member of the Delaware Genealogy Association. After moving to Cokesbury Village Retirement Community in 1996, Dr. Kelly joined several Cokesbury committees, including the Resident's Council.

### **Marvin Hart Mahan**

died Oct. 30, 2011. Born in Carlinville, IL, Mr. Mahan lived and worked in New Jersey before retiring to Florida 25 years ago. He was orphaned by age 12, and taken in by extended family before putting himself through Blackburn College and graduated from the University of Illinois with a BS in Chemistry. He was ultimately acknowledged

with an Honorary PhD in Chemistry for his many contributions in the field of Chemistry and the Bio-Sciences.

He began his working career at Standard Oil, now Exxon. He was the truest of entrepreneurs. With his vision towards the re-use of chemical bi-products, he was at least 20 plus years ahead of the times with what is known today as recycling and the green movement, starting with development of synthetic rubber products for the WWII effort, non-stick Teflon coating applications, to recycled plastic wood (ie: Trex), paint products, and numerous stone aggregate businesses.

### **Donald Gabriel Miller**

died on February 3, 2012 in Livermore California. Dr. Miller was born and raised in Oakland, CA, the son of Nathan Harry Miller, the chief deputy District Attorney to Earl Warren in Alameda County, and Edith Levy Miller Balaban. He graduated with a B.S. in Chemistry from U.C. Berkeley in 1949, and received his Ph.D. from the University of Illinois, Urbana-Champaign in 1952.

The author of 174 published papers in the fields of physical chemistry, history of science and ballistics, he was the recipient of a Fulbright Fellowship to France in

1960. Much of his scientific work related to the chemical characteristics of solutions; one of his papers was noted by Nobel Prize winner Lars Onsager in his prize acceptance speech.

Dr. Miller was active in community affairs in his town of Livermore, eventually serving as mayor. He was an amateur musician, representative to the local Cultural Arts Council and a founding member of Congregation Beth Emek.

**Cal Meyers** passed away peacefully on Friday, March 16, 2012. Born and raised in Utica, New York, he earned his B.A. in Chemistry as a LaVerne Noyes Scholar at Cornell University in 1948 and he received his Ph.D. in Chemistry from the University of Illinois in 1951. He was a post-doctoral scholar at Princeton University and then worked for seven years at Union Carbide. He taught at the University of Bologna and U.C.L.A. before coming to Southern Illinois University in 1964.

For almost half a century Cal spent virtually every day at his extraordinarily successful and prolific SIU lab, where he authored hundreds of articles and received many patents. He presented invited papers in most states as well as in Italy, Japan, Hungary, the Czech

Republic, England, France, Switzerland, Poland, China, Serbia, Sweden, Norway, Canada and elsewhere. He refereed manuscripts for a dozen academic chemistry publications, regularly reviewed grant applications for the National Science Foundation and others, and was invited by the Royal Swedish Academy of Sciences to submit proposals for the Nobel Prize in Chemistry on at least three occasions.

In 2000 Cal established the Meyers Institute for Interdisciplinary Research in Organic and Medicinal Chemistry, and his endowment of the Institute, which Cal directed until his death, will enable it to do significant truly interdisciplinary scientific work for generations to come.

### **Ernest D. Nicolaidis**

passed away October 21, 2011 at his home in Longmont, Colo. He was 87 years old. Dr. Nicolaidis was born on September 11, 1924, in Monmouth, the third child of Tom Nicolaidis and Charlotte Sedwick Nicolaidis. He graduated from Monmouth High School and Monmouth College before receiving his Ph.D. in Organic Chemistry from the University of Illinois at Champaign-Urbana in 1952. He was a veteran of WW II.

Ernie married Rita Kresge on September 12, 1951, and shortly thereafter accepted a position at Parke-Davis in Ann Arbor, Mich. where he served as a pharmaceutical research chemist for 34 years. He established several dozen patents in peptide chemistry before retiring in 1985.

### **Harry Jacob Neumiller**

Jr. died Saturday, Feb. 18, 2012. He was born Dec. 25, 1929, in Peoria, Ill., the son of Harry Jacob and Grace Lucille Gridley Neumiller Sr. He graduated from Peoria Central High School in Illinois in 1947. He then graduated summa cum laude from Knox College in Illinois in 1951 with his bachelor's degree and later graduated from the University of Illinois in Champaign with his master's degree in 1952 and his Ph.D. in chemistry in 1956 and married Joan Christine Dilts on Sept. 14, 1957.

Dr. Neumiller was a professor emeritus at Knox College and was an organic chemistry professor there from 1959 until 1997, and registrar from 1976 until 1997, when he retired. He previously worked at Eastman Kodak Research Laboratory in Rochester, N.Y., from 1956 to 1959.

He was a longtime member of First Presbyterian Church in Galesburg and served as an elder and in many other

roles there. He was a longtime volunteer with Cub Scouts. He was also a member of Phi Beta Kappa and Phi Lambda Upsilon honor societies; a member, board member and faculty adviser of Phi Gamma Delta fraternity (Knox); a 50-year member of the American Chemical Society (ACS); a member of the Midwestern Association of Chemistry Teachers in Liberal Arts Colleges (MACTLAC); a 50-year member of the Illinois State Academy of Science (ISAS); a member of the Knox College Fifty Year Club; and a member of the Republican Party of Knox County.

#### **John C. Robinson Jr.**

“Robby” passed away on February 15, 2012. Mr. Robinson received his B.S. degree from Boston University in 1939 and his Ph.D in Chemistry from the University of Illinois in 1943. He was a member of Phi Beta Kappa at both universities. He was employed with Hercules from 1946 until his retirement in 1984. He was a member of the Hercules Men’s Club, was past president of the Brandywiners and was very active with the Boy Scouts of America.

#### **Edward Martin Schulze**

died on October 29, 2011 in Conroe, Texas, at the age of 91 years. He was born July 6, 1920 in St. Louis, Missouri. He graduated from

the University of Illinois in 1942 with a Bachelor of Science degree in Chemistry, and soon after graduation, he moved to Texas to work in the petrochemical industry. Except for military service, he spent his entire career in that industry, employed in supervisory positions by subsidiaries of Standard Oil of Indiana, including American Oil Company and Amoco Chemical Company. Ed served in World War II on naval vessels operating in the South Pacific, including ships supporting the invasion of Okinawa in 1945. After the war, he remained in the Naval Reserve and was recalled in 1951 to serve during the Korean War.

Ed and his wife Wanda resided in Dickinson, Texas, for over 30 years and raised their three sons to adulthood in that community. They were faithful members of Howell Memorial Methodist Church while residing in Dickinson. Ed participated in various civic organizations and served as a trustee of the Dickinson Independent School District. During retirement, Ed enjoyed playing golf and serving Habitat for Humanity.

#### **Katherine Louise Junnila**

**Sholtz (“Katie”)** passed away on February 3, 2012. She was born to Finnish immigrants Eino Albin

Junnila and Helmi Salmi on July 14, 1931 in Waukegan, Illinois. Katherine earned a Bachelor of Science degree in chemistry in 1952, and a Master of Science degree in biochemistry in 1953, both from the University of Illinois, and a Master of Library Science degree from the State University of New York in 1967. She worked as a research associate at Harvard Medical School and at Iowa State University, a librarian at the IBM Laboratory in Rochester, Minnesota, and Computer Applications librarian and later Associate Director of the Mayo Clinic Medical Library. From 1980 to 1991, she served as Director of Library Services at Western Connecticut State University in Danbury, Connecticut.

Katherine was active in community service, serving as President of the League of Women Voters local chapter in Rochester, Minnesota, and Chairman of the Housing and Redevelopment Agency in Rochester. She was devoted to her family and to her church, as a church council member, bible study teacher and student, and assisting minister. She was an avid traveler and bird-watcher, having visited seven continents, over 70 countries, and amassing a life bird list of over 1800 species.

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