

Jayhawk Chemist

The Newsletter of The Chemistry Department
at The University of Kansas

A publication for alumni and friends - established 1966

<http://alumni.chem.ku.edu>

January 2005, Issue No. 37

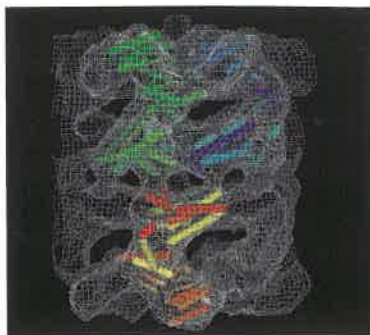
New Structural Biology Center



The Structural Biology Center (SBC) represents a major part of KU's strategy for research success in life sciences in a post-genomics environment. We expect the study of proteins – their expression, structure, function, and inhibition – and the application of this knowledge in discovering new therapeutic drugs will be dominant research themes in the coming years. The SBC houses a collection of cutting-edge analytical instrumentation useful for drug discovery that rivals the holdings of a major pharmaceutical company and is managed by staff scientists in KU's Molecular Structures Group (MSG) with wide expertise in the chemical, pharmaceutical, and life sciences.

Historically, drug discovery has often begun with a fortuitous observation that some natural substance was efficacious in treating a disease, through a mechanism that was unknown. Contemporary drug discovery

starts systematically with identification of a protein as a target for intervention in a disease state. New and novel targets are of particular value; with our knowledge of the genome, and advances in mass spectrometry, identification of target proteins has become much faster. Starting with a target, two broad strategies are in use today for identifying potential therapeutic drugs: structure-based methods which exploit three dimensional computer models of the target in order to design and optimize a drug lead; and diversity-based methods which rely on assembling and automated screening of large, diverse collections of potential drugs ("molecular libraries") against the target.



Computer model of protein structure



800 MHz NMR laboratory, SBC

KU has been acquiring the key enabling technologies for identifying protein targets and both structure- and diversity-based drug discovery with a variety of funding sources: instrumentation grants from federal agencies including NIH (SIG, COBRE, BRIN, INBRE) and NSF (MRI and EPSCoR) and more recently, bond funds provided by the State of Kansas. We made the decision to concentrate (and showcase) these resources, rather than disperse them across the campus. This was done to draw the users out of their individual labs in various departments across the KU campus and the region where they will interact and collaborate with each other as well as the MSG staff. We also believe that structure- and diversity-based drug discovery methods complement each other, and that specific projects will progress more rapidly if both approaches are employed when it is beneficial to do so. KU has two unique resources for pursuing diversity-based methods in its High Throughput Screening Laboratory and NIH-funded Center of Excellence in Chemical Methodology and (Molecular) Library Development (CMLD), whose mission is to develop chemical strategies for making novel compounds not previously accessible in libraries. These capabilities are widely employed in biotech and pharmaceutical companies, but at this point very few universities have set up such facilities. Some of the MSG scientists are actively involved in both protein structure studies and diversity methods, so they are very well positioned to assist faculty investigators in making the transition to using new methods with which the investigators have no previous experience.

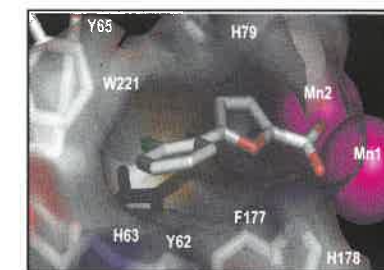
The part of the SBC currently occupied focuses on protein structure determination by X-ray crystallography 5 X-ray crystallographic structure of enzyme active site and by nuclear magnetic resonance spectrometry (NMR), and the computational and computer graphics facilities for solving the structures from X-ray and NMR data. The latter facilities are also closely tied to KU's bioinformatics program. The part of the SBC that is still under construction will include the Analytical Proteomics Laboratory dedicated to mass spectrometric methods for target protein identification and characterization, and a protein expression and purification core facility to produce the quantities of protein needed for NMR and crystallographic studies. The total investment in the SBC is approximately \$10 million for instrumentation (nearly all purchased in 2004) and for the building itself, which was designed around the stringent environmental requirements of the high-end instrumentation.

An addition to the SBC is already being planned, and we have applied for an NIH construction grant to facilitate its construction. This will greatly expand the High Throughput Screening Laboratory and the CMLD, integrate them with the structure-based facilities and streamline the interactions between the various



High Throughput Screening Laboratory

units. In addition to giving the diversity units much increased space, this move will facilitate access to the shared protein production and computational facilities as well as amplify the effectiveness of the scientists involved with both structure- and diversity-based drug discovery efforts. We believe that KU is unique among U.S. academic institutions in creating a fully integrated, interdisciplinary drug discovery unit.



X-ray crystallographic structure of enzyme active site

For more information about the Molecular Structures Group and the Structural Biology Center, please visit our website at <http://www.msg.ku.edu/~msg>.



Notes from the Chair

Dear Chemistry Alumni and Friends:

Greetings from the Chemistry Department. It has been another busy year in Malott Hall. The Chemistry Department continues its growth of the past several years. We continue to add new faculty, expand the number of students in the Department, and renovate space in Malott.

We are excited to have added two new faculty to the Department this year. Professors Minae Mure and Julian Limburg joined the faculty this fall. Professor Mure is a bioorganic chemist studying enzyme cofactor structure and function.

Professor Limburg is a bioinorganic chemist studying the active site chemistry in metalloproteins. In addition, Professors Robert Dunn and Brian Laird were promoted to Full Professors. Unfortunately, Professor Cindy Larive has left the Department to return to California and take up a position at the University of California – Riverside. We will miss Cindy and wish her well.

The Chemistry Department faculty had a very successful funding year. Research expenditures in the Department exceeded \$5.7M. This funding comes from a wide variety of sources: NIH, NSF, DOE, ACS, American Heart Assoc., and private industry, among others. This allows us to engage a large number of graduate and undergraduate students in cutting edge research. It is enjoyable to walk around Malott Hall and hear the exciting research discussions going on.

Unfortunately, there is also sad news to convey this year. Three of our distinguished emeritus faculty passed away last year. We will greatly miss Professors Jake Kleinberg, Paul Gillis, and Bert Reynolds. All three made tremendous contributions to the Department and the University.

Finally, I am happy to announce that Professor Joseph Heppert will be the next Chair of the Department beginning this fall. Joe has been at KU since 1985 and brings experience as the Director of the Center for Science Education to his new challenge.

I would also like to thank all of the donors to the Chemistry Department. We could not provide the programs we do without the outstanding generosity of our alumni. We are extremely grateful for every

donation that we receive. I again extend a warm invitation for you to visit the Department whenever you have the opportunity. On behalf of the faculty, staff, and students, we all look forward to seeing you again.

--Craig E. Lunte

BEHIND THE LINES:

New Biological Science Building	1
Notes from the Chair	3
Notes from the Chair Elect, Joseph Heppert	5
Exchange Study/Research Program with Germany	7
Chemistry Professors in the News	
New Kansas NSF EPSCoR Director	8
Theodore Kuwana Earns ACS Analytical Award	8
Associate Vice Provost for Research	8
Appointment to National Nuclear Review Board	8
Finalist for Hope Award	9
Award to Honor Ralph "Buzz" Adams	9
Progress at CEBC	
Research	9
Web-Delivered Education	10
News from KU Center for Science Education	10
Graduate Student Achievements	12
Facelift for the Departmental Office	13
Transitions	
New Faculty Profiles	13
Cynthia Larive Leaves for California	14
In Memory	15
Student Awards	19
Busch Honored with Symposium	21
Alumni News	22
Chemistry Donors 2003-2004	23
Alumni Information Update Form	
Donation Information	

Notes from the Chair Elect



Greetings to chemistry alumni! The past year has been an incredibly busy one for our department and for the university. We were saddened by the passing of Burt Reynolds, one of the stalwart chemistry faculty who saw the department through the '50s, '60s, '70s and well into the '80s. Burt's quick smile and piercing wit will be missed. We added two new junior faculty members, Mini Mure and Julian Limburg, who have come to us by way of doctoral and postdoctoral studies in California and Japan. Cindy Larive left KU in December to return to her alma mater, the University of California-Riverside, in order to build a program in Bioanalytical Chemistry. Cindy gave a very moving and detailed talk at her farewell reception that alternately had the entire audience crying and laughing. We will all feel her absence among our ranks. As I write this note, we have just concluded interviews for two faculty searches, one for an analytical chemist to fill the vacancy created by Cindy Larive and a second to fill a new position in catalytic chemistry created through the Center for Environmentally Beneficial Catalysis. Next year, I hope to be able to report that enthusiastic young researchers

have occupied these positions.

Finally, since this was Craig Lunte's fifth year as department chair, we held an election to choose a new chair. Both of the chair candidates seemed willing to strongly campaign on behalf of Cindy Larive, who had already announced her intention to return to UC Riverside. In the end, however, I was chosen by the department to be the next chair. In all seriousness, being elected chair is a great honor. KU has a wonderfully talented and innovative faculty, a hardworking and dedicated staff, and a delightful enthusiastic student body. I look forward to working with all of them. Brian Laird, my worthy opponent, has been a key contributor and leader in the department over many years, and will persist as a driving force in innovation in our undergraduate and graduate programs in his continued role as associate chair. I have been asked to provide a brief statement about my aspirations for the department's future.

I have only one overarching goal for the department: We should strive to be ranked among the top 25 chemistry departments in the nation within the next 10 years. I believe that this is a key goal for our program not because numerical rankings are intrinsically important, but because the growth implied in achieving top 25 ranking will allow the department's faculty and our graduate and undergraduate students to attain their personal objectives for professional growth. The department is positioned to be a strong contributor to science and technology at the university, greatly increasing the international stature of KU in the sciences. In order to achieve this vision, we need to continue to expand the size of our faculty, gain additional professional recognition for the accomplishments of our faculty and students, expand the size of our incoming graduate classes, and increase the numbers of our undergraduate majors.

I think that the last three chairs have identified many key objectives necessary to clear a path toward a top 25 ranking and have worked very hard and very effectively to accomplish them. Over the next five years, the department needs to identify innovative opportunities to realize these objectives. I believe that the following represent our primary challenges over the next five years:

Increase the availability and quality of research space. The continual re-renovation of Malott Hall cannot support the expanded research activity and the added faculty needed to achieve our goals, nor will it support the interdisciplinary research efforts that will continue to build the stature of science, engineering and technology research at KU. We lend our strong support to Dean Wilcox's efforts to build a new science teaching facility through the College-specific tuition initiative, and to KUCR's development of new space for our department's world-class bioanalytical researchers through the development of the "Mr. B" Multidisciplinary Research Building on West Campus.

Address barriers to graduate recruitment. The department will once again examine how we can more effectively attract a larger pool of applications from highly qualified domestic students. We also intend to pursue targeted recruiting initiatives in Latin America, though contacts developed by Mario Rivera and other faculty members.

Continue the alignment of chemistry programs with university initiatives. Chemistry has greatly benefited from the existing parallels between our research efforts and those of the Kansas Life Sciences Initiative. Because of our strength in life sciences research, the department will continue to contribute to the growth of this initiative through new faculty additions and the development of new grant initiatives.

Foster departmental leadership in major initiatives. Chemistry faculty are centrally involved in many interdisciplinary research efforts at KU. It is fair to say that the research experience and resources brought by our faculty helped make many of these programs nationally competitive. The chemistry department has individuals who can lead new initiatives in the biosciences, materials and education fields. The department needs to encourage these endeavors and support faculty who chose to adopt such leadership roles.

Continue streamlining of departmental support functions. The primary objective of departmental staff is to support faculty, professional staff and students in the execution of the research and teaching missions of the department. Our staff works extremely hard and has shown great dedication to achieving our mission. Continued improvements in communication, information gathering and archiving, and administration functions in the front office will help us by streamlining departmental operations.

Examine and improve undergraduate curriculum and services to undergraduate majors. Finally, the department has an excellent history of continual improvement of undergraduate course offerings, instrumentation for teaching laboratories, and research experiences for undergraduate students. We need to maintain this trend, and use it as part of a campaign to attract a larger pool of undergraduate majors.

In articulating these goals, I want to acknowledge that the department is the dynamic scientific force that it is today because of the commitments that you alumni, and our predecessors on the faculty and staff have made to its growth. Your time, your study, your research and your support for this institution have all contributed to its stature: We wouldn't be anywhere today without the foundation that you laid. I look forward to working with each of you to continue to build our programs and to keeping you updated on our progress over the next five years.

--Joseph A. Heppert

CHEMISTRY STUDENTS STUDY IN GERMANY

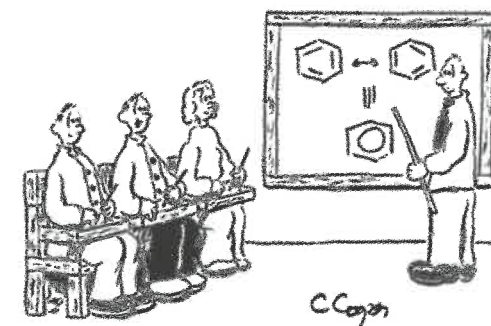
The DAAD (German Academic Exchange Service) has sponsored programs for the exchange of graduate students and faculty between KU and the University of Regensburg, Germany. This program provides for scientifically stimulating and culturally enriching exchanges for highly qualified chemistry and pharmacy students. The program includes opportunities for research collaborations as well as the development of common curricula between the two institutions. The DAAD has been committed to advancing academic relations between Germany and other countries for more than 75 years, as well as promoting the fields of education, science, culture and research.

A number of KU students have participated in the program by pursuing studies at Regensburg. One of them, a graduate student in chemistry, tells us of his experience:

"My name is Abraham Yousef, a graduate student in the Department of Chemistry at the University of Kansas. Last year I had the opportunity to participate in the International Quality Network for Medicinal Chemistry, a program that sponsors students wishing to gain research experience abroad. For a two month period I stayed in Regensburg, Germany where I worked in the laboratory of Professor Burkhard König at Universität Regensburg. My research there was largely focused in the area of physical organic chemistry. In particular, Professor König's research group is interested in the design of molecular receptors for ammonium ion-containing residues (e.g. lysine) in peptides. My role in this project was to study the fluorescence properties of organic compounds used in the construction of these receptors.

During my stay in Regensburg, I had the wonderful opportunity to visit neighboring cities and countries in Europe, including Munich, Berlin, Paris, Vienna, Switzerland and Denmark. Even in Regensburg, where I stayed, there was so much to see and experience, not only in terms of history, but also the culture and natural beauty of the old city. It was also a great chance to get to know some of the other graduate students that I worked with from the university. While my knowledge of German was sparse, I was, with a little effort, and a few rough starts, able to pick up enough of the language so that I could reasonably communicate with most people I encountered during my day-to-day routine. Overall, I very much enjoyed the experience and would recommend it to anyone interested in gaining research experience and at the same time broadening their world perspective."

The KU faculty and their German colleagues look forward to continuing this exchange as the program has been renewed for three additional years beginning in 2006.



"Define 'resonance'? Sure, that's where you live."

EXPERIENCED RESEARCHER TO LEAD STATEWIDE RESEARCH PROGRAM

Kristin Bowman-James, professor of chemistry at The University of Kansas, will assume leadership for the Kansas National Science Foundation Experimental Program to Stimulate Competitive Research beginning Jan 1. Sponsored jointly by the NSF and the Kansas Technology Enterprise Corporation, EPSCoR enables the state's research universities to develop research programs that are more competitive for federal research funds. Established in 1992, the program is directly responsible for bringing more than \$20 million of federal research funding to Kansas.



--Oread, 12/10/04

EMERITUS PROFESSOR TED THEODORE KUWANA HONORED

Congratulations to Ted Kuwana on being the recipient of the 2004 ACS Division of Analytical Chemistry J. Calvin Giddings Award for Excellence in Education. The award was presented at the Fall 2004 ACS meeting in Philadelphia. This award is given to professors who have enhanced the personal and professional development of students in the study of analytical chemistry in one or more of the following ways:



- Authorship of an influential textbook for an analytical chemistry course.
- Design and implementation of a successful new approach to teaching analytical chemistry.
- Stimulation through teaching or research mentorship a significant number of students to become analytical chemists.
- Development and publication of innovative experiments.
- Design of improved equipment for teaching labs.
- Publication of widely quoted articles on teaching analytical chemistry.

Professor Kuwana was a notable member of the Department's teaching faculty for 18 years.

WILSON TAKES ASSOCIATE VICE PROVOST POST PERMANENTLY

George S. Wilson, an analytical chemist, has been named associate vice provost for research. Wilson has served in the interim role since the 2003-04 academic year. He also is vice president of the Center for Research. In addition to overseeing Lawrence campus research centers and institutes, research space and investments in research, Wilson will play a major role in crafting KU's response to the new Kansas Economic Growth Act. Wilson, the Higuchi distinguished professor of chemistry and pharmaceutical chemistry, joined the KU faculty in 1987.



--Oread, 7/16/04

BUSH APPOINTS KU CHEMISTRY PROFESSOR TO NUCLEAR REVIEW BOARD

Daryle Busch, distinguished professor of chemistry, was one of seven new members appointed by President Bush to the Nuclear Waste Technical Review Board in August. The 11-member NWTRB was created by Congress in 1987 to review the Department of Energy's technical and scientific activities related to disposing of the nation's commercially spent nuclear fuel and high-level radioactive waste – including the review of the plan to develop the Yucca Mountain site in Nevada as a repository – and packing and transporting the waste.



--Oread, 10-22-04

H.O.P.E. AWARD FINALIST

The KU Board of Class Officers selected eight faculty members as finalists for the annual H.O.P.E. Award – Honor for an Outstanding Progressive Educator. This award is the only KU honor bestowed exclusively by students for teaching excellence. The KU class of 1959 established the award to recognize outstanding teaching and concern for students. To date, 46 awards have been given. This year organic professor of chemistry, Robert Carlson, was chosen as one of the eight finalists.



--Oread, 11/5/04

AWARD TO HONOR BELOVED PROF

Two years after the death of a nationally renowned and beloved Ku distinguished professor of chemistry, his former students and colleagues are finding ways to keep his memory alive.

The inaugural Ralph N. Adams Award in Bioanalytical Chemistry will be presented to Iowa State University Professor Edward S. Yeung Feb. 28 during the Pittsburgh Conference, an analytical sciences and instrumentation conference in Orlando, FL. Former students, family, colleagues and friends of the late professor are endowing the annual international award, which will include a plaque, a \$2,500 honorarium and a symposium.



--Oread 1/21/2005

RESEARCH PROGRESSING IN THE CENTER FOR ENVIRONMENTALLY BENEFICIAL CATALYSIS

Collaborative research activity aimed at reducing the environmental impact of chemical processing is well underway at KU, the University of Iowa (UI), and Washington University in St. Louis (WUSTL), the three initial core partner universities of the NSF-funded Center for Environmentally Beneficial Catalysis (CEBC). Professor Bala Subramaniam (KU Chemical and Petroleum Engineering) and Professor Daryle Busch (KU Chemistry) are the respective director and deputy director of the Center. The \$30M project involves over 35 faculty members spread among the partner universities in diverse fields, including Chemistry, Biochemistry, Pharmaceutical Chemistry, Environmental Engineering and Chemical Engineering. Professor Dan Quinn at Iowa, former UI department chair and KU alumnus (Ph.D. with Dick Schowen in 1978), is part of the Center's leadership team. Prairie View A&M University (PVAMU), a historically black college that is part of the Texas A&M system, has also recently become a core research partner in CEBC.

CEBC's research mission is focused on catalysis—the acceleration of a chemical reaction through the involvement of a material or compound (a catalyst) that is chemically unchanged by the reaction. The challenge is to develop environmentally beneficial processes that either provide an economic benefit compared to current technology or produce new technologies that will reduce the future environmental footprint of chemical processing. A powerful system for catalyst discovery is being developed that takes into account such factors as benign media, mechanism-based molecular catalyst selection and design, catalyst support, and atom-economical transformation of reactants to desired products. CEBC projects envision the development of new and redesigned catalysts, solvents, reactors and process cycles.

Each of the participating core partner universities brings specific expertise in catalysis to the Center. KU is focusing on catalyst synthesis, studies of reaction mechanisms and the use of alternative solvent systems in catalysis. UI has a

long history of research in biocatalysis, including the use of enzymes in in-vitro catalysis systems and in-vivo catalytic processes. WUSTL has achieved national recognition for their work in catalyst reactor design and process chemistry. PVAMU has an established program in environmental engineering.

Industrial partners play an important role in the mission of the CEBC. Currently, five corporations have committed to partner with CEBC. The Center has the goal of enlisting an additional 20 industrial partners during the next two years. Recently, the Industrial Advisory Board reviewed a first round of research proposals intended to provide a seed bed for new projects and involve additional investigators in CEBC research. Chemistry Professors Barybin (Inorganic), Tunge (Organic), Rivera (Analytical), Givens (Organic) and Borovik (Inorganic) received resources to begin new projects in catalysis. For more information on CEBC's objectives and research programs, visit the Center web site at <http://www.ku.edu/~cebc/>.

--Joe Heppert and Gary Webber

WEB-DELIVERED EDUCATION PROGRAM FOR CATALYSIS CENTER MOVING FORWARD

In high-tech classrooms in Strong Hall at KU and Lopata Hall at Washington University in St. Louis (WUSTL), Chemistry doctoral students are studying Chemical Engineering, and ChemE students are studying Chemistry. Their instructors are in another state, but the students are receiving credit at their home university. Instructors may vary from one class session to the next, and the class might originate at either of the two universities. What's going on here?

Multidisciplinary research and collaborative distance learning are going on, as the Center for Environmentally Beneficial Catalysis (CEBC) enters its second year, and implements its graduate education program. Three courses were offered this fall semester, and enrollment included

students on three of the four core partner campuses, KU, WUSTL, and the University of Iowa (UI). Next year three more courses will be added to the core curriculum, and enrollment will expand to include the fourth and newest partner, Prairie View A&M University (PVAMU). All of the classes are offered to all four partners via Internet Protocol (IP) videoconferencing, and graduate students enroll for credit at their home universities. The individual courses, focused on engineering and chemistry aspects of "green catalysis", are developed by CEBC faculty and are based on research currently underway at the NSF Engineering Research Center, headquartered at KU. Joe Heppert from Chemistry developed and delivered a semester-long course on the environmentally beneficial applications of homogeneous and heterogeneous catalysis.

Doctoral students enrolled at the four campuses will each participate in up to five core courses during the course of their study, and upon completion will receive a certificate recognizing special emphasis in environmentally friendly catalysis. In addition to these core classes, some of the students will participate in industry internships with CEBC Industry Partners.

As part of the CEBC Education Program, Chemistry and Chemical Engineering Graduate Teaching Fellows at KU are also developing K-12 outreach programs with Science City in Kansas City, and on the Web with Pathfinder Science, an international online collaborative research initiative (<http://pathfinderscience.net/>). For more information, visit the CEBC Web site at <http://www.ku.edu/~cebc/>.

--Gary Webber and Joe Heppert

DEVELOPMENTS AT THE KU CENTER FOR SCIENCE EDUCATION

MIDDLE SCHOOL SCIENCE ACADEMY The University of Kansas Center for Science Education (Center), the School of Education and the College of Liberal Arts and Sciences has joined with Topeka Public Schools USD 501 to create a Middle School Science Academy. Funding is provided by a Kansas Board of

Regents' "No Child Left Behind Improving Teacher Quality Grant." A primary objective of the academy is to increase the science proficiency of middle-school pupils by improving the science content knowledge and teaching strategies of their teachers.

Beginning in 2005, the academy will offer three intensive summer courses for teachers that will foster a deep understanding of the basic concepts presented in the Topeka middle-school integrated science curriculum. One course on physical science was successfully implemented with Blue Valley Public Schools USD 229 in Johnson County in June 2003, Case said. This course will be revised and new courses on earth science and life science will be developed to align with the Topeka school district's curriculum for grades six, seven and eight.

Courses will be taught using the "Peer Instruction" model developed by Eric Mazur, a Harvard University physics professor, Case said. They will use an electronic student-response system provided during the first year to all participating middle schools. The academy also will study the effectiveness of university-level science courses that are organized around middle-school curricula and standards as vehicles for teaching advanced science to teachers. The extent to which the courses promote the use of research-based teaching practice, including peer mentoring and inquiry-based instruction, will be evaluated, as will the impact of the techniques on pupil understanding of science concepts.

Principal researchers are Steve Case, research assistant professor at the Center for Research on Learning (CRL) and assistant director for the Center; Philip S. Baringer, professor of physics and astronomy; Gloria Fish, Topeka Public Schools curriculum coordinator; Christopher Haufler, professor and director of the Division of Biological Sciences; Joseph A. Heppert, professor of chemistry and director for the Center; Douglas Huffman, associate professor in teaching and leadership; P. Allen Macfarlane, assistant scientist with KU's Kansas Geological Survey; and Susan K. Rogers, Topeka Public Schools.

CENTER FOR ENVIRONMENTALLY BENEFICIAL CATALYSIS

The Center has been very active in the development and implementation of the education program of the Center for Environmentally Beneficial Catalysis (CEBC). Joseph Heppert, a co-PI on the CEBC grant, and Gary Webber, former coordinator at the Center and currently education coordinator at the CEBC, have adopted lead roles in this effort. The development and implementation of a CEBC curriculum that will provide both chemists and chemical engineers with interdisciplinary experiences in catalysis, modeling, reactor design, process development and economic analysis is currently a major activity of the project. The CEBC is also engaged in a very aggressive recruiting and retention program to increase the diversity of the graduate student population participating in research. Dr. Ted Kuwana (KU Chemistry Emeritus) is acting chair of the CEBC's Diversity Advisory Board, which includes representatives from the four partner campuses, historically black colleges and universities, and national programs that promote diversity in sciences and engineering.

--Billie Archer and Joe Heppert

A Bit of Chemistry Department Trivia

100 years ago, from the Lawrence Daily World for March 17, 1905: "Junior chemistry classes at the university composed of about 80 engineering students refused yesterday to attend the recitation under Hamilton P. Cady, assistant professor of chemistry. They say they will not return until grading reforms promised by Mr. Cady are in place. Failures in his classes far exceed those in any other classes at the university and the students are up in arms."

GRADUATE STUDENTS EARN NIH POSTDOCTORALS AND ACS SUPPORT

In February of 2005 Andrew M. Harned will be receiving an NIH postdoctoral fellowship. He received his B.S. in biochemistry from Virginia Tech in 1995. He then joined the research group of Prof. Paul Hanson here at KU and defended his Ph.D. thesis, entitled "Norbornenyl-Tagged Reagents and Soluble ROM Polymers as Tools for Organic Synthesis", on September 10, 2004. While at KU he received support from the NIH Dynamic Aspects of Chemical Biology training grant, and was awarded an ACS Division of Organic Chemistry "Nelson J. Leonard Fellowship", sponsored by Organic Syntheses, Inc. He is currently serving as a postdoctoral associate in the laboratory of Prof. Brian Stoltz at the California Institute of Technology, where he is working on new Pd-catalyzed methods for the asymmetric construction of quaternary carbon centers.



In 2003, Joel Moore was awarded a Ruth L. Kirschstein NIH post-doctoral fellowship. Joel graduated from the Department of Chemistry in May 2004 under Professor Paul R. Hanson. In November of 2003, he successfully defended his dissertation research entitled "Novel Methods to Constrained Phosphorus Compounds and Functional Oligomers." He is currently working for Professor Andrew G. Myers at Harvard University in the area of high-throughput, natural product analogue synthesis.



FROZEN FLAMES UNIVERSITY

The KU ACS Student Affiliates chemistry show "Frozen Flames University", was awarded an ACS Local Section Innovative Project Grant from the Local Sections Activities Committee. The purpose of *Frozen Flames University* is to serve as a community and university outreach program that encourages viewers to become more interested in the world of chemistry that is around them. The show brings together a group of ACSSA members that perform an interactive, active learning, multimedia enhanced chemistry show for different audiences. This show intends to broaden the interest and thrill of chemistry and hopes to reduce the "fear" that most people have of chemistry itself. The group brings in grade schools, visiting students and adults, and other youth organizations in the Lawrence area to perform chemistry magic shows. For this new show, *Frozen Flames University*, the audience members take a program and answer sheet and become seated. The show begins similar in style to the movie theaters – interesting chemical facts, safety precautions, and sponsors of the show are shown. As the "previews" end, the show begins pitting Dr. Pyro against Dr. Cool for who can do the better chemistry with their love of the different regions of the thermometer. The contest between the two begins and each one does a chemistry demo trying to outdo the last one's demo. Hal6000, the computer voiced multimedia entity keeps score of the contest and offers commentary with Dr. Cool and Dr. Pyro. As the chemistry demonstrations are being done, Hal6000 gives chemical facts about the demonstration itself. After the demo is over, Hal6000 proceeds to ask multiple choice questions to the audience members which they answer on their grade sheet. All of the demos are done to music with video running at the same time, making it a full multimedia experience!

NEW LOOK FOR CHEMISTRY'S MAIN OFFICE

It has been two years since the Main Chemistry Office and the Chemistry Business Office merged together to form one unit. This has been an exciting and challenging time for all of us. Combining the two offices has increased the efficiency of the staff and services we provide. This year we have added a new reception area made by Richard Fritts. The area is made of solid oak lumber and was completely designed by Richard. We asked Jack Rose, the former Business Manager, to make three brass Jayhawks for the center display to finish out the design. As you can see from the picture our office entrance is one of a kind. Everyone who walks through our door has nothing but good to say about how the area looks. Next time you are in Lawrence, stop by and tell us what you think.



–Susan Teague

Transitions

Two new faculty members join the Department!



Assistant Professor Julian Limburg came to KU in August 2004 from the University of California, San Francisco. Julian earned his B.S. degree from the University of East Anglia, UK, and his Ph.D. from Yale University. Julian's research interests focus on the chemistry and biochemistry of metalloenzymes. His group is particularly interested in metalloproteins that catalyze oxidation reactions, especially those that use iron as a cofactor. Such enzymes are capable of activating O_2 into highly reactive intermediates, and then carefully directing the chemistry of these species. These intermediates are highly unstable, and for this reason they are difficult to study. We will develop artificial ways of producing reactive intermediates under conditions where they are long-lived and open to spectroscopic and structural characterization. This will open the door to understanding how enzymes have evolved specific structures to control these oxidation reactions. We are also interested in exploiting the reactivity, selectivity and specificity of metalloenzymes to develop biocatalysts. Directed evolution can be used to extend the capability of an enzyme towards reactivity with non-natural substrates. This allows an enzyme to be customized for a specific application, and we will use this methodology to produce environmentally benign catalysts.

Assistant Professor Minae Mure also came to KU in August 2004 from the University of California, Berkeley, where she had been a research associate specialist for two years. She was awarded her B.S. and her Ph.D. at Osaka University. Her research



interests lie in understanding the chemistry and biological functions of enzymes. Quinones are highly reactive in solution and are used as catalysts and electron-transfer mediators. However, this reactivity also means that some are very toxic. Nature has found ways to control and take advantage of the chemical potential of quinones by encapsulating them inside of proteins to provide the optimal environment for catalysis. There is a family of enzymes that contain quinones as their organic cofactors that catalyze the oxidation of biogenic amines, alcohols and sugars. These enzymes are called quinoproteins and they are ubiquitous. Humans have at least two types of quinoproteins that are crucial for cellular integrity and development, biological signal transduction, neurotransmitter metabolism, and connective tissue formation. Aberrant expression levels of these proteins are linked to health problems and diseases such as cancer, fibrosis and diabetes. We are interested in understanding the mechanism of these enzymes at the chemistry/biology interface. A combination of techniques (organic synthesis, biochemistry, spectroscopy, electrochemistry, molecular cell biology, developmental biology) will be applied. An understanding of the mechanism will lead to the development of specific inhibitors that will have a high chance of producing therapeutic agents.

Professor Cynthia Larive departs for the University of California at Riverside.



Best wishes to Dr. Cynthia Larive. She assumed her new position as Professor of Chemistry at The University of California at Riverside (UCR) on January 1, 2005. She has returned to familiar grounds since UCR is her Ph.D. granting alma mater. It is always difficult to bid fond farewell to a colleague who has been such an asset and contributor to the KU Chemistry Department and University since 1992. She always went an extra mile in everything she did for the Department – and, as the record shows, integrated seamlessly her activities in teaching and research – both at the local and national scene. Her research specialty was in NMR and its applications to bioanalytical problems, both at the fundamental and practical level. Her research areas are focused in understanding ligand-protein interactions, tissue-targeted metabonomics (i.e., changes in metabolic states), and effects of bio-contaminants in aquatic ecosystems. In the quest to improve mass sensitivity in NMR measurements, she innovated a microcoil probe that is now capable of doing NMR with as little as 25 nL of sample and has applied it to online NMR structure elucidation with capillary isotachopheresis of biological and environmental samples.

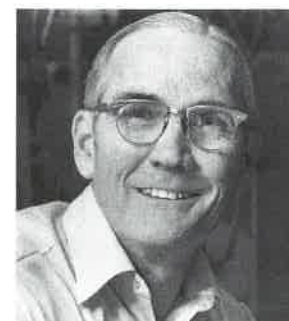
Cindy has often engaged individuals from other disciplines and institutions in collaborations to solve complex problems, and has also helped others in the application of specialized NMR techniques. This is evident if you look through her 80+ publications in peer-reviewed journals – but more indicative of her overall contribution are publications and grants, of which there are many, that are oriented to education and training. She has been a major player in the implementation of the NSF supported summer research for college teachers in bioanalytical and environmental chemistry (1994-99), the summer undergraduate research experience program (2000-02), and the Analytical Sciences Digital Library (ASDL, 2001-04). The latter will move with Cindy, as Editor and PI, to UCR under a new 3-year NSF grant. The digital library is a forefront venture to catalog websites, of which there are millions available via Internet, that have meritorious content and pedagogical value for students, faculty and practitioners engaged in chemical measurements and instrumentation [www.asdlib.org].

While a graduate student at UCR, she was the recipient of the Nat'l ACS Analytical Chemistry Fellowship and the UCR Chancellor's Distinguished Fellow. After coming to KU, she received the NSF CAREER Award, the Eli Lilly New Faculty Award and was named an IUPAC Fellow in 2004. The award she values the most is the chemistry undergraduates selecting her for the Teaching Excellence Award in 2002.

Asked what she is looking forward to at UCR, she replied, 'moving to a newly built laboratory and office (which she helped design), using the state-of-art NMR facility for research/training, looking to hire 2-3 new faculty during 2005-06 and developing a bioanalytical program. The latter is an opportunity to engage the burgeoning biotechnology & biomedical industry in California, from San Francisco to San Diego. We send her and her family best wishes and remind them not to forget their KU colleagues and friends.

–Ted Kuwana

IN MEMORY



Friends of **Paul W. Gilles**, a native Kansan who became an internationally renowned scientist, will remember not only his scientific talents but also his practical skills and intelligence. Dr. Gilles died February 12, 2004 at the age of 83. He was an emeritus chemistry professor, who specialized in high-temperature chemistry, and was one of the first four distinguished professors at KU, where his career spanned more than 50 years. He received a Bachelor of Arts degree in chemistry from KU in 1943. From there, he moved to the University of California at Berkeley, where he earned a doctorate in 1947. While at Berkeley, Gilles worked on the Manhattan Project, which contributed to producing the atomic bomb. His part of the project was to make containers for holding molten plutonium, as he explained in a 1995 interview with the Journal-World. Gilles said in the interview that he had been excited about the project's research benefits.

"Almost immediately in Berkeley, as well as in Chicago, scientists began to work for peaceful uses of atomic energy, as in medicine, electricity generation, process monitoring and environmental surveillance," he said.

But while Dr. Gilles' research might benefit the world, it did him harm. His wife, Helen Gilles, said her husband worked with beryllium on the project, which gave him berylliosis. The exposure caused lung damage, which led to his death.

Dr. Gilles returned to KU after the project, where he continued work in high-temperature chemistry. One of his colleagues in the chemistry department, Richard Schowen, said Paul examined how chemicals reacted to very high temperatures, which had applications in space travel as well as manufacturing. Dr. Schowen said Paul was one of the top scientists in this branch of chemistry and worked hard to pass his knowledge to graduate students.

"His was a tremendously rigorous education program," he said. "He had a clear idea of what it took to be a high-temperature chemist."

Dr. Schowen said Paul expected his students to be adept at math and physics and conducting difficult experiments. He said Paul's students often took up to two years longer to complete their degrees, but they came out the best in their fields and held high posts in academia and manufacturing. Dr. Gilles also used his abilities to help his community.

"Paul was a person who was not only effective at the most difficult and abstract mathematics, but he had a great practical bend," Schowen said. "He could repair and fix things."

Schowen said Paul often helped repair the building of the Lawrence Unitarian Fellowship, where he was an active member.

Another retired KU professor, Calder Pickett, got to know Gilles through the fellowship and said his logical mind made him an excellent problem-solver for the organization.

"He was one of the most intelligent men I have ever known," Pickett said.



Jacob Kleinberg, Ph.D., emeritus professor of chemistry, left us January 12, 2004, at the age of 89. Memorial services were held February 15, 2004 at the Dole Institute of Politics on Kansas University's west campus.

He was born Feb. 14, 1914, in Passaic, N.J., the son of William Kleinberg and Rebecca Sirota. He graduated from Randolph-Macon College in Ashland, Va., with a degree in chemistry and earned his master's and doctorate in chemistry from the University of Illinois. Dr. Kleinberg was a distinguished inorganic chemist and professor at Kansas University from 1946 until he retired in 1984. He served as department chairman from 1963 to 1970 and taught summer institutes for high school chemistry teachers for the National Science Foundation. He was co-author of several chemistry textbooks and published 95 papers in his field. The Midwest Award from the American Chemical Society and the Amoco Foundation Award for Distinguished Teaching were among awards he won. He led two committees at KU

that selected two chancellors, was president of Phi Beta Kappa and served on the Faculty/University Council and the College Promotion and Tenure Committee.

Before his career at KU, Mr. Kleinberg taught at James Millikin University, Decatur, Ill., and University of Illinois school of pharmacy in Chicago. He also was a consultant at Los Alamos Scientific Laboratory in New Mexico. His wife, Jane Crawford, died March 21, 1994.

Survivors include two daughters, Judith Kleinberg Harmony, Cincinnati, and Mary Jill Kleinberg, Lawrence. The family suggested memorials to the KU chemistry department, sent in care of the KU Endowment Association, P.O. Box 928, Lawrence 66044; or to the Lawrence Jewish Community Center, 917 Highland Drive, Lawrence 66044.

Lawrence, Kansas

March 18, 2004

Remembering Bert Reynolds

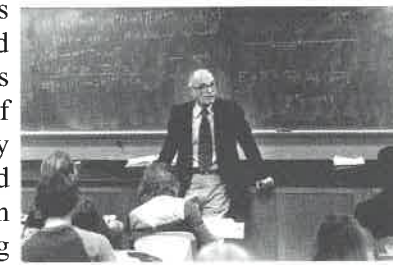
We are here this morning to celebrate the life of Charles A. "Bert" Reynolds and to honor his memory. In one sense this is a pleasant and easy thing to do, for Bert was one of the great celebrators of life himself, and he taught us all a good deal about how to get the most out of life. And, in another sense, it is very difficult, because we have lost this vital man, this grand guy, and although our world is better for having had him in it, it is also going to be difficult to live in a world without him.

Bert was born on April first, which doesn't altogether explain his spontaneous and contagious good humor. His family was of modest means, but they encouraged him. "Make something of yourself," his grandfather told him, and the boy took it to heart. He made quite a "something" of himself over a long time and in many ways, and he always asked his own children to "be the best that you can be." And they were, and are. So we are here today for the Reynolds family, Priscilla, that great lady, the love of his life—he found her in Maryland and he had to go back there to get her and he brought her to Lawrence where they made their life together. And we're here for the whole Reynolds roster, for Marcia Reynolds Farley and for Randy and Laura and Matt, for Vickie Reynolds Quillin and Warren, and for Tim, Mike, and Eileen, for Tom Reynolds, for Amy Reynolds Daub and Ed, and for Katie, Julie, and Teddy, for John Reynolds and Belinda and for Ryan, Robby, John Michael, and Sarah, for Joe Reynolds and Sandra, and for Alex and Jake and Karina, the smallest of all. And that's the whole Reynolds roster, the whole team.

Bert knew adversity early, and for all of his life, and he taught us all how to deal with it. An early injury resulted in damaged hip cartilage. It cost him dearly; he was in a cast for a year and half and he had to take a year out of school, in bed. Thus began his life-long fight against his diminished but

extraordinary physical capacity. "It made a man out of me," he said. He walked, he ran, he played golf, he shot a mean game of pool, he played catch with his sons, and he caught trout when nobody else was catching any. He refused to be crippled, he refused to be handicapped, he refused to be disabled. He didn't complain and he didn't brag.

He was an outstanding student, and outstanding scholar, with Bachelor's, Master's, and Ph.D. in Chemistry from Stanford, where he supported himself with scholarships and his own employment. Bert came to K.U. in 1947 and established himself as a teacher, scholar, and colleague. Bert was proud of his profession, proud of his association with the K.U. Department of Chemistry, proud of the accomplishments of his colleagues, and especially of his students. Even in these tough last months he was pleased and amazed to encounter his former students who were involved in his own care. Bert had a work ethic, and he taught it to all those who were willing to learn.



And he also had a play ethic. Nobody enjoyed things more than Bert. He loved opera (Puccini), jazz (Duke Ellington), art (the Impressionist painters, especially Monet and Renoir). He was an accomplished piano player, and memories of his "Traumeri" can still bring tears to those who heard it. He was, as Tom says, "enthusiastic," and he communicated his enthusiasms to everyone. He was a romantic who loved trains, riding them, hearing them whistle in the night, playing computer games involving them, and listening to a CD of the last train to go over the Tennessee Pass. The young family would walk to Dairy Queen on a Sunday, get a cone or Dilly Bar or sundae, and then walk to the train station. He loved his native state of Colorado, and there were so many good trips there, in a variety of improvised vehicles. One time, they arrived in Crested Butte and found the doors of the camper/pickup wouldn't open. Undaunted (the Reynolds family motto should be whatever the Latin is for "undaunted") all of them but Bert crawled out through the window and wandered off in search of dinner. Looking back through the window, they saw Bert pour himself a drink and settle down to wait for the rest of them to finish dinner and find a locksmith.

He was always building things. He built his first stereo from a Heath kit, and he built his first computer (and one of the first in Lawrence) from a Heath Zenith Z-100 kit. "I have had many computers since," John says, "but I think that one was the best." There was the radio, the siren, the rain detector, the burglar alarm with the wires attached to the doors. There were erector sets, train sets, walkie-talkies, and, of course, chemistry sets.

Bert's pride in all these things should be explained. It was not a haughty, puffed-up, arrogant, self-congratulatory pride; it was rather his expression of deep pleasure at the gifts of this world, and at his own wonderful luck in being here to enjoy them. Of course, he made his own luck. He was constantly questioning, asking questions at dinner, sometimes covering general knowledge, sometimes what others (not Bert) might think of as trivia.

Which brings us, somehow, to baseball, the great romantic sport for the great romantic man. He loved the game. He played it as long and as well as he could, he watched it with intelligence and hope, and he translated that passion in an amazing variety of ways. He was one of the first to realize the potential and pleasure in a game invented by his friend and colleague Chuck Sidman. And in the mid-1960's he invested his hope and time and money and energy in an enterprise called Ball Park Baseball. It was a table game, and a good one, the forerunner of games like APBA and Strat-O-Matic and the myriad of contemporary video baseball games. There was a bar, with sandwiches, built around the game, in the Hillcrest Shopping Center, opened in 1971, where an impressive array of baseball fans congregated to play the game and tell stories. The bar closed after a few years, but the game is going on. Ball Park Baseball was, and is, a wonderful game, with the possibilities of bridge and chess augmented by myth, folklore, and legend. Ball Park attracted and influenced so many at K.U., not just including the present practitioners, Will, David, Lloyd, Dana, John, and Tom, but also Bob Cobb, Ron Calgaard, Del Shankel, Clark Bricker, Peter Fast, Tom Peters, Del Brinkman,

Tom Beisecker, Mike Carothers, Ray Moore, the late John Clark, and too many others to remember. For going on forty years they have gathered, every Monday night to play “this strange game” (John Dardess), “while our wives think we are out having fun” (Lloyd Sponholtz). One of the direct consequences of this game is the baseball revolution instigated by Bill James, who got his start at the Ball Park.

In Ball Park, Bert was one of the Founding Fathers. In the group that gathered every Monday night of the academic year for going on forty years, Bert was the Commissioner, and the source of its basic materials. He labored for hours and days and weeks—a labor of love, not for profit—to turn out the complex and mysterious cards that govern the result of the game. Bert was a fierce competitor, a reluctant but sometimes gracious loser, and a masterful student of his own game. He was, above all, its most frequent champion. He won more pennants than anybody, he brought champagne to celebrate his victories, and he enjoyed it.

Like a lot of baseball people, he liked hitters and he loved home runs, the absolute domination of the game by a particular player at a particular moment. Bert looked for players who hit home runs, and he wanted them on his team and he had them, from Babe Ruth to Al Simmons and Jimmie Foxx and Unser Joe Hauser to Mickey Mantle. He had an extraordinary ability, an almost mystical talent, to call up the home run numbers when he needed them. An enduring part of the Babe Ruth legend is that the mighty Bambino “called his shot” in the 1932 World Series, pointing to the centerfield fence and hitting the next pitch where he had pointed. It’s a lovely story, but if you’ve studied the subject you’ve probably concluded that Babe made another gesture for another reason and the radio and the newspapers contributed to the myth. But Bert Reynolds called his shot dozens of times, asking for home run numbers, and getting them. And, like Babe Ruth, he had more fun than anybody. In our Monday night Field of Dreams, he was a Hall of Famer.

Bert made something of himself. He found the best that was in him, he made himself the best that he could be, he found the best that was in others, and he helped them to see it too, so they, too, could be the best that they could be. So, whether we are family, or friends, or colleagues, or students, we are better for having known him. We are lucky to have had the times with him that we’ve had.

In the generation of my grandparents, our family used a ritual farewell and benediction: “The Lord watch between me and thee, while we are absent one from another.” That still works, and I say it now to Bert, and I hear his own benediction, “Be good now.”

—James B. Carothers

Charles Albert “Bert” Reynolds, died March 14, 2004, at the age of 80. He came to KU as an assistant professor of chemistry in 1947, and was associate chair of chemistry from 1961 to 1967, and 1980 to 1987.

James Rouviere, the Chemistry Department’s Electronics Technologist, passed away on July 13, 2004. Jim began working for the Department in March of 1991 and he was responsible for the repairs made to equipment both in the graduate and undergraduate laboratories. As the demand for specialized equipment in the labs grew, Jim was able to adapt and find solutions for problems. He was the first person to be called on by the Department with the hope that the equipment could be repaired in house to help save money. He was able to learn how to operate and repair much of the equipment used by the research labs. His passing was a great loss.

—Susan Teague

49TH CHEMISTRY HONORS RECEPTION

The Frank B. Dains Award

outstanding first-year teaching assistant

James P. McParland Elliott Shane Price Kristin E. Price

The H. P. Cady Scholarship

excellent performance by first-year graduate student

James P. McParland Kristin E. Price Sang-kil Son

The Ray Q. Brewster Award

advanced graduate teaching award

Stephen R. Sieck

The Reynold T. Iwamoto Scholarship

award based on academic performance

Thomas C. Holovics

The Snyder Award

graduate student of considerable promise

Olivia L. Mooren

McCullum Research Fellowship

Bridget A. Becker Elizabeth S. Erickson Shelli R. Mellegaard

The Ernest and Marvel Griswold Award in Inorganic Chemistry

*superior academic performance and research accomplishments
by an advanced doctoral student*

Peter L. Larsen

The Frank B. Dains Scholarship in Organic Chemistry
*superior academic performance and research accomplishments
by an advanced doctoral student*

Andrew M. Harned

The Paul and Helen Gilles Award in Physical Chemistry
*superior academic performance and research accomplishments
by an advanced doctoral student*

Brian D. Slaughter

The Higuchi Doctoral Progress Scholarship
superior post-comprehensive student(s) in his or her final year

Abraham L. Yousef

SPECIAL RECOGNITION

Matthew D. McReynolds--received the Ruth L. Kirschstein National Research Service Award (NRSA), an NIH postdoctoral fellowship.

Joel D. Moore--received the Ruth L. Kirschstein National Research Service Award (NRSA), an NIH postdoctoral fellowship

Kristin E. Price--received an ACS Division of Analytical Chemistry travel award sponsored by Pfizer to fund her attendance at the ACS meeting in August

David B. Spry--won an NSF Graduate Fellowship

DEGREES GRANTED

Bachelor of Arts

Elaine J. Ahillen	Amy R. Lindsey
Christian P. Conderman	David R. L. Mayans
Elizabeth A. Gaydess	Andrew J. Neukirch
Ezra A. Hallam	Ian T. Scheutz
Lindsay L. Hertzig	Zachary K. Shafer
Jaron J. Hill	Tighe H. Staed
Caitlin N. Kirkland	Kenneth P. Unruh

Bachelor of Science

Aditya C. Burman	Scott A. Poettker
Lindsay E. Edwards	Tara J. Salmon
Son B. Phung	Jason L. Sanders
David B. Spry	

Doctorate of Philosophy

Michael W. Allen	Sarah F. McDonald
Allyson T. Charbonnet	Matthew D. McReynolds
Joseph M. Dougherty	Joel D. Moore
Giridharan Gokulrangan	Kenneth D. Osborn
Jeremy T. Koch	Damon M. Osbourn
Ryan M. Krisko	Donald A. Probst
Laura H. Lucas	Samadhi N. Vitharana

ChemScholars

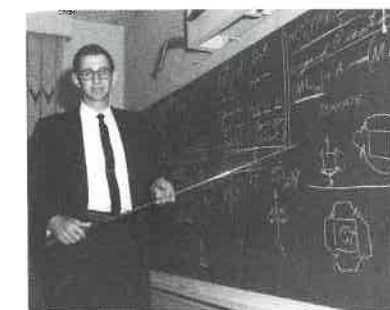
Hillary C. Compton	Christopher D. Janish
Rebecca Evanhoe	Christopher G. Lee
Parul J. Gor	Jonathan W. Lamb
Jennifer M. Guerra	Josh A. Sebree
Jennifer L. Thomas	

50 Years of Busch

The 228th American Chemical Society Meeting in Philadelphia in the Fall of 2004 provided the ideal site for celebration of Daryle Busch's stellar career. The title of the symposium was "From the Template Effect to Spontaneous Intermolecular Organization. A Celebration of Daryle Busch's First Fifty Years of Leadership, Teaching, Research, and Service" and it was organized by Elena Rybak-Akimova (Tufts University), Rebecca Roesner, and Kristin Bowman-James (KU).

The event was held in the Inorganic Division sessions and lasted an unprecedented four days from Sunday through Wednesday, August 22-25, with talks and posters provided by former students, associates, colleagues, and noted researchers. Madeleine Jacobs, Executive Director of the ACS Board of Directors, provided opening remarks for the Sunday afternoon session. In all 42 invited speakers presented talks during the eight sessions with an additional 14 poster presentations. Daryle presented the highlight keynote address for the event, "From Templates and Molecular Organization to Catalysis," which gave an excellent perspective view of the gigantic strides in the field of synthetic macrocycles over the last fifty years.

Former Busch group participants included students and postdoctoral associates who had the honor of working with Daryle at some point during the last fifty years. There was also a big turnout of Daryle's students and postdocs from his years at KU, including two of the organizers, Becky and Elena, Thomas Clifford, Andrew Danby, Delong Zhang, Ghezai Musie, Steve Archibald, Hyun-Jin Lee, Bhuma Rajagopalan, and Guochuan Yin. Noted international researchers traveled to Philadelphia for the event, including Rudi van Eldik (Germany), Martin Schroder (UK), Myunghyun Paik Suh (Korea), Luigi Fabbri (Italy), and Leonard Lindoy (Australia). Past (The Ohio State) and present colleagues (KU) also actively participated. Included in the KU contingent were Andy Borovik, Joe Heppert, Rich Givens, Misha Barybin, Bala Subramaniam, and Kristin Bowman-James. A highlight of the symposium was a reception and dinner, held Monday evening. There were approximately 70 attendees at the reception, and several of Daryle's scientific "family" shared their memories about their time in the Busch group. The accompanying photos depict some of the highlights of the symposium and include a photo of Daryle in the classroom early in his career at The Ohio State University. In all it was a wonderful event, full of excellent science, renewing old and making new friendships, and celebrating the achievements of the man known to many as the Father of Synthetic Macrocyclic Chemistry.



ALUMNI NEWS

Farhana Afroz, M.S., 2000, is currently a research assistant at AFFYMETRIX, Inc., Santa Clara, CA. The business website is www.affymetrix.com.

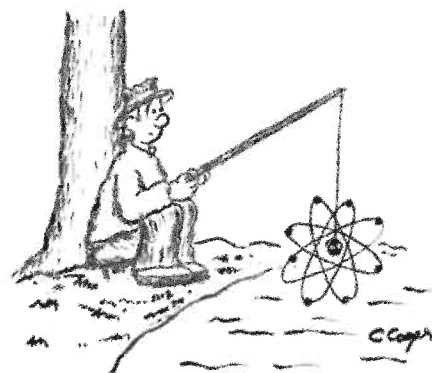
James W. Gillett, B.S., 1955, is semi-retired but still employed by the Department of Natural Resources at Cornell. He is teaching still and continuing as founder and president of the Esophageal Cancer Awareness Assn, and the Director of Graduate Studies in Risk Analysis, Communication and Policy. His website is jgillett@caware.org.

Judith A. Kleinberg Harmony, Ph.D., 1971, retired as a professor of pharmacology, University of Cincinnati College of Medicine on May 1, 2000. She is currently kept very busy as the director of the Harmony Project. The Harmony Project serves as an incubator for new and emerging nonprofit organizations that provide programs and resources to encourage girls to develop into well-adjusted, healthy women. The incubator (1) identifies areas for nonprofits as well as new start-up nonprofits that have great potential to impact positively on girls in the community, (2) nurtures the development of nonprofits based on these concepts, and (3) serves as a link between the nonprofits and sources of recurring funding for the future.

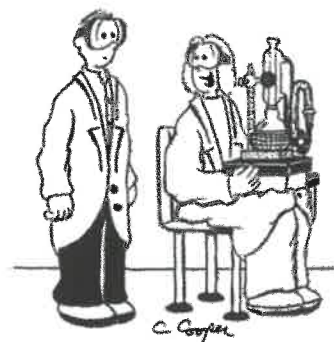
John M. Marx, Ph.D., 1965, retired from the Department of Chemistry and Biochemistry, Texas Tech University, in July, 2004. As a hobby he has amassed a very large private collection of science fiction and fantasy books (over 40,000 volumes). His website is www.marxbooks.com.

Merle Nunemaker, B.A., 1973, DDS at UMKC, 1977, is practicing in Kansas City, Missouri and raising two kids that both want to be Jayhawks. He states they are all very active in recycling programs.

Lauren (Larry) Wilson, Ph.D., 1963, following a long career as faculty member, Dean and Provost at Ohio Wesleyan University, went to the University of North Carolina at Asheville as academic vice chancellor, then to Marietta College as President. Currently Dr. Wilson is Provost and Deputy Vice resident at Zayed University, a new (6 years old) university of Emirati women, built on the American model of higher education, located in Dubai, United Arab Emirates.



Nuclear Fishin'



"It's great having your own personal labtop."

Chemistry Donors

1 July 2003 - 30 June 2004

3M Company

Earl A. Abrahamson Jr., PhD & Dorothy B. Abrahamson

Erma Achterberg

Anton Frederick Ahrens

Loren D. Albin, PhD & Pamela J. Albin

Betty Alderson

John T. Alexander & Maria K. Alexander

Alliance for Epilepsy Research, Inc.

David A. Ambler & Mary Kate Ambler

Bijan Amini, PhD & Mary Alice Taylor Amini, PhD

Dorothy Smith Anderson

Robert J. Ardis, MD & Pamela R.K. Ardis

Marjorie Hayes Argersinger

Gretchen Day Atwater, PhD & Beauford W. Atwater III, PhD

Esther Weik Badgley & Dr. Ralph E. Badgley

Christine Ligush Bailey

Bill G. Barr & Martha Bell Barr

Deborah D. Barr

Howard J. Baumgartel, PhD & Marguerite K. Baumgartel, EdD

Judith F. Becker

David R. Benson Jr.

Kyle A. Beran, PhD

Cindy L. Berrie & Ward H. Thompson

Aliene C. Bieber

David H. Bieber

Rodney L. Bishop, MD & Audrey C. Bishop, JD

Ronald G. Blecke, PhD & Carol Horseman Blecke

Randall J. Blue & Nancy Stinson Blue

Michael L. Boman & Elizabeth Ervin Boman

Ronald T. Borchardt, PhD & Pamela K. Borchardt

Troy G. Bothwell

Vernon L. Branson, MD & Jessie M. Branson

Larry A. Brey

Anna W. Bricker

John S. Brushwood & Carolyn Brushwood

Helen Duckett Campbell

Lelon R. Capps, PhD & Lois Plank Capps

Gene Rae Carls

Robert G. Carlson & Beatrice Carlson

E. David Cater, PhD

Marcus K. Chao, PhD

Irene M. Christofferson

Michael F. Clement

Carol D. Clifford

Sheldon H. Cohen, PhD

Bob Cole, PhD & Lynn Weyrick Cole

John J. Conard Sr., PhD & Virginia Powell Conard

Carolyn C. Conboy

James C. Conti, PhD & Elaine R. Strobe, PhD

Virgil W. Cope, PhD

Margot A. Cortese

Cristy Creitz Cox & Jeffrey A. Cox, PhD

Barbara Ewing Crews & Raymond E. Crews Jr.

Criticare Home Health Services, Inc.

Sidney Hahn Culver, PhD

Constance M. Cushon

Muriel G. Dahlgard, PhD

Gerald E. Davis, PhD & Marilyn L. Davis

Donald D. Deford, PhD & Leora Adams DeFord

Fernande M. DeGeorge, PhD & Richard T. DeGeorge, PhD

Marvin L. Dettloff, PhD & Mary Eastwold Dettloff

Robert V. Dilts

Beth H. Duffy

Robert L. Dufield

Karen S. Dufresne

Robert C. Dunn, PhD

Harold E. Dyck, PhD

John L. Eberhardt

Harry A. Eick & Sara Jane Eick

Brent D. Eilerts & Nancy Winchester Eilerts, PhD

James P. Elrod, MD
Jacob Enoch & Hilda Cohen Enoch
Paul Enos & Carol Curt Enos
George K. Evans
Frederick P. Ewald Jr., PhD & Jayne Seymour Ewald
J. Robert Fluker
Robert J. Friauf, PhD
Bonny Leslie Fugett
Alfred F. Gallup & Winifred Hill Gallup
Craig Garrison
Kent S. Gates & Christina E. Wells
Helen Martin Gilles, MD & Paul W. Gilles, PhD
L. H. Gilles
William F. Gilles
Richard S. Givens, PhD & Susan M. Givens
James E. Godwin, MD & Elizabeth A. Campbell, MD
Elizabeth M. Goetz, PhD
Patricia Golfis
Timothy P. Griffin, PhD
Norman E. Griswold, PhD & Ruth E. Griswold
Prof. Gary L. Grunewald
Martha R. Hagan
William W. Hambleton, PhD & Nancy Schnell Hambleton
Paul R. Hanson, PhD
Judith A. Harmony, PhD
Marlin D. Harmony & Nancy M. Harmony
Francis H. Heller
Conrad M. Henderson & Judith M. Henderson
Howard P. Hendrickson & Tina L. Hendrickson, PhD
Jon R. Hendrickson, MD & Denise Hendrickson, MD
Frank A. Hicks
Joan Hicks
Karen Hicks
Matthew Hicks
Aya Higuchi
Richard H. Himes, PhD & Susan V. Himes
Marion Miller Hitt & Richard B. Hitt

George L.K. Hoh, PhD
Jinyang Hong, PhD & Qifang Li Hong
John Y. K. Huang, PhD
Joe D. Hudman, PhD & Karen Simpson Hudman
Dr. Paul E. Hund
Su-Er Wu Huskey, PhD & William P. Huskey, PhD
Earl S. Huysen & Barbara Huysen
Dorothy Hwang, PhD & Emilian S. Hwang
Reynold T. Iwamoto, PhD & Kuniye Iwamoto
Richard Jackson
James R. January III
John Jimenez & Naida J. Jimenez
COL David H. Johnson Jr., USAF, Retired & Mary Gilles Johnson
Mary Ann Jones
Maurice Joy & Betsy Joy
Allan A. Kahl & Monica T. Kahl
Arlen D. Kaufman, PhD & Karla L. Steele
L. D. Kershner, PhD & Marilyn A. Kershner
Lesley T. Ketzal
Jill Kleinberg, PhD
Friends of Jacob Kleinberg
Dr. Barbara D. Kobayashi
Alexander G. Kolchinskii, PhD
Paul E. Krieger, PhD & Barbara J. Krieger
Charles P. Kulier Jr., PhD & Beatrice Marquis Kulier
Ellen Yoshino Kuwana & Lucas R. Hoffman
Eric A. Kuwana & Karen E. Miller-Kuwana
Theodore Kuwana, PhD & Jane M. Kuwana
Karina Kwok, PhD
Betty A. Laird
Brian B. Laird, PhD
Arthur W. Lamb & Marjorie G. Lamb
Dr. B. B. Lampert & Helen Jean Lampert
Carolyn Thomson Landgrebe & John A. Landgrebe, PhD
Dr. W.C. Lanning
Cynthia K. Larive, PhD & James A. Larive
Kenyon S. Latham Jr., PhD

Thomas P. Layloff Jr., PhD
Lecompton Elementary School
Jean Y. Lee, PhD
Donald W. Leedy, PhD
Dana A. Leibengood & Judith L. Leibengood
Yola Yueh-O Liang, PhD & Ming-Biann Liu, PhD
Lorraine H. Lindenbaum
Lindley- Upham Family Fund
Wilmer A. Linkugel & Helen M. Linkugel
Robert R. Lohse Jr., DDS & Kathy J. Lohse
Dr. Kathryn Erwin Luker
Dr. Craig E. Lunte & Dr. Susan M. Lunte
Deborah Mackson-Hicks
W. L. Magnuson, PhD
Paul A. Malachesky, PhD
Dennis J. Malfer, PhD
James O. Maloney
Gaylord E. Manahan, MD
Charles R. Manning, PhD
Kenneth L. Marsi, PhD & G. Irene Marsi
David K. Martin & E. Renee Martin
Keith U. Martin & Hulda Martin
John N. Marx, PhD & Patricia C. Marx
Patricia A. McGrew & Cornelis Vangemeren
R.W. McKinney, PhD
Francis T. McNamara & Connie S. McNamara
Ann S. McNeish
Ivan N. Mefford, PhD, MD
Sally A. Meyer, PhD & Mark A. Morgenstern, PhD
Mary L. Michaelis, PhD & Elias K. Michaelis, MD
Terry A. Miller PhD & Barbara Hoffmann Miller
Bill Mody, PhD & Janet Isbell Mody
Annemarie Molen
Patti Morgan
Dennis G. Morrell, PhD
Jane A. Mullen
Douglas C. Neckers, PhD & Suzanne E. Neckers
Margaret Ives Needels
New Oread Group. LC

JoAnn C. Nissen
Paul C. Nordine, PhD & Gloria Soronen Nordine
Janet Will Nuse
Rudy J. Oberzan
Lucien M. Papouchado, PhD
Nisha V. Patel
Vishal K. Patel
Jeff S. Pitzer
Dr. Roy D. Pointer
Barbara E. Porto & Richard V. Porto
Kathleen A. Powell & Stephen L. Griswold, MD
Carol R. Powers, PhD & Larry J. Powers, PhD
Patrick K. Price, MD & Cyndy K. Price
Procter & Gamble Fund
Procter & Gamble Company
ProQuest Pharmaceuticals, Inc.
The Reed Medical Group, Chartered
Jesse G. Reinstein, PhD
Ralph E. Reschke & Mary A. Reschke
Dr. Charles A. Reynolds, Jr. & Priscilla A. Reynolds
Rebecca A. Roesner, PhD
Stanley T. Rolfe, PhD & Phyllis Williams Rolfe
Mark W. Roll
G. M. Rosenblatt
Colleen Poorman Roth & Alexander Roth, MD
Sharon S. Ruble
M. Colleen Ryan, PhD & Ted H. Ryan
Diane U. Saftic
Michael A. Sancho, PhD
Phyllis M. Sapp & Richard C. Sapp
Christopher L. Saricks
Richard L. Schowen, PhD & K. Barbara Schowen, PhD
Dr. Eddie Tatsu Seo & Alice Yoshiko Seo
Sessler Family Charitable Trust
Carol J. Shankel & Delbert M. Shankel, PhD
Wave Shaver
Susanne M. Shaw
Michael T. Shay

David E. Shulenburger
 Felix Shutt
 Marion Shutt
 Clifford H. Smith
 Lucille Johnson Smith
 Drew V. Speer, PhD & Nanci Speer
 Lloyd L. Sponholtz & Charlotte Sponholtz
 Richard J. Steichen, PhD
 Edwin R. Stellmacher & Hazel Stanley Stellmacher
 Frank R. Storm
 Laurence W. Strattan, PhD
 Georgia E. Suoja
 Morgan J. Tamsky, PhD & Marilyn Tamsky
 Susan M. Teague
 Unified School District #343
 University Women's Club Daytime Book Discussion Group
 W. Randall Van Schmus & Edna J. Van Schmus
 Andrew L. Vance, PhD & Yolanda Fintschenko, PhD
 Richard M. VanScoy, PhD
 Kunisi S. Venkatasubban, PhD
 Dr. Victor E. Viola Jr.

Richard H.S. Wang, PhD
 Marian E. Warriner
 Woodrow F. Wedge
 Arnold H. Weiss
 Jacquelyn Rachel Weiss
 Jennifer M. Weiss
 Duane E. Weisshaar
 W. Clarke Wescoe, MD
 The Wescoe Family
 Quentin D. Wheatley, PhD & Audrey A. Wheatley
 Wesley R. White, PhD & Ruth E. White
 Rosamond L. Wilen
 Robert C. Williams, PhD & Emily C. Williams
 Dr. Keith D. Wilner
 Billie Joe Wisdom Jr.
 Mary L. Morris Wolsey, PhD & Wayne C. Wolsey, PhD
 Charles R. Worley
 Erma L. Worley
 John K. Young Jr.
 Lee F. Young
 John F. Zimmerman, PhD & Margaret Edwards Zimmerman

ALUMNI INFORMATION UPDATE FORM

We'd like to know where life has taken you since you left Old KU. Please complete the following form and return to:

**Chemistry Alumni
 Department of Chemistry
 1251 Wescoe Hall Dr., Room 2010
 University of Kansas
 Lawrence KS 66045**

We look forward to hearing from you!

Name: _____

Degree & date: _____

Address: _____

Employment information: _____

Email: _____

Personal or business website: _____

News, updates, comments or suggestions (feel free to enclose photos, news clippings, etc.):

May we include this information on the alumni website? Yes _____ No _____

Yes, but please omit the following information: _____

The University of Kansas
Department of Chemistry
1251 Wescoe Hall Dr., Room 2010
Lawrence KS 66045

Non Profit Org.
US Postage
PAID
Permit #181
Parsons KS

To: 8*6*****ALL FOR ADC 150
JAMES A. BARTER, PHD
520 MIRANDA DR
PITTSBURGH PA 15241-2040



The chemistry department deeply appreciates the generous financial support of our friends and alumni. Every gift will be used in its entirety, as designated by the donor, to benefit the Department of Chemistry. Gifts are tax-deductible to the extent allowed by law. The KU Endowment Association maintains the following funds, fellowships and scholarships on behalf of Chemistry:

General Funds

Chemistry - Unrestricted
Chemistry Development Fund
Chemistry Fellowship Fund
Chemistry Research Fund
Scientific Equipment Fund

Specific Funds

Ralph N. Adams Fund+
Ralph and Ester Badgley Scholarship
George Corbin Bailey Memorial Scholarship
B. Mack Barlow Memorial Award
Emily V. Berger Research Fund
Clark E. Bricker Scholarship
H.P. Cady Fellowship
Walter and Roy Cross Memorial Fund
Dains Memorial
Arthur W. Davidson, Phi Lambda Upsilon
Ted Gardiner Award, Undergraduate Research
Paul and Helen Gilles Award
Ernest and Marvel Griswold Scholarship
Walter Gubar Memorial, Undergraduate
Higuchi Chemistry Scholarship
Reynold T. Iwamoto Scholarship
Jacob Kleinberg Award
Theodore Kuwana Graduate Opportunity Fund
J. K. Lee Memorial Scholarship
Owen W. Maloney Scholarship
Cornelius and Martha McCollum Fellowship
Elmer V. McCollum Fellowship
K. Barbara Schowen Undergraduate Chemistry Fund
Schowen Opportunity Fund
Susan and Stephen Snyder Chemistry Award
Leonard V. Sorg Scholarship
Franklin Strains Fellowship
Ambrose E. White Lectureship Series

For more information:

Chemistry Department
1251 Wescoe Hall Dr., Room 2010
The University of Kansas
Lawrence KS 66045
PH: 785.864.4670
www.chem.ku.edu

KU Endowment Association
Terri Knoll Johnson, Development Director
PO Box 928
Lawrence KS 66044
PH: 785.832.7340
tjohnson@kuendowment.org
www.kuendowment.org

KU Alumni Association
1266 Oread Avenue
Lawrence KS 66045
PH: 785.864.4760
kualumni@kualumni.org
www.kualumni.org

The Chemistry Department wishes to thank the KU Alumni Association and the KU Endowment Association for their many efforts on behalf of KU Chemistry and the university.