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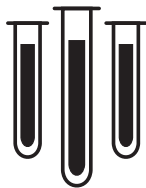
2006



# Badger Chemist

THE NEWSLETTER OF  
THE UNIVERSITY OF WISCONSIN - MADISON

**CHEMISTRY DEPARTMENT**



THE NEWSLETTER OF THE UNIVERSITY OF WISCONSIN-MADISON

# CHEMISTRY DEPARTMENT

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### 2006 BADGER CHEMIST

Matthew Sanders  
Editor

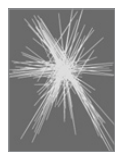
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# 2006



# From the Chair

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**March 2007**

Dear Badger Chemists,

This newsletter, under the exceptional editorship of our Executive Director, Matt Sanders, is a wonderful vehicle for communicating our activities to alumni and friends. This issue of the Badger Chemist highlights our activities of the 2005-06 academic year, and indeed, there were many!

Certainly one of the high points of the year was “Shainfest,” a celebration of the career of Professor Irving Shain, former Chemistry Department Chair and Chancellor of the University of Wisconsin. We named our new research wing the “Shain Research Tower” at a ceremony in May 2006, organized by Bassam Shakhshiri and attended by such dignitaries as Governor Jim Doyle, Provost Patrick Farrell and former Dean Phil Certain. The celebration continued with science and outreach presentations, and a banquet. It was indeed a fitting tribute to a wonderful career and an exceptional man.



Our teaching excellence continues to be recognized, this year with Chancellor's Distinguished Teaching Awards to Helen Blackwell and Gil Nathanson, and the Department's James W. Taylor Award to Ieva Reich. In addition, Judith Burstyn won the Doris Slesinger Award for Excellence in Mentoring. On the research front we are delighted to have hired new faculty members Mahesh Mahanthappa in the area of functional organic materials, and John Berry in the area of transition metal chemistry.

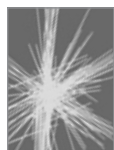
I also want to mention the excellent work of our new Diversity committee, under the able leadership first of Chuck Casey, and then of Mark Ediger. This Committee proposed a new childbirth policy for our female grad students and postdocs, which provides our pregnant colleagues with paid leave. The policy was recently approved by the Department. The Committee has also spearheaded efforts to recruit more underrepresented minorities to our department, and is currently working on a proposal regarding the recruitment of more women faculty.

These are difficult financial times for the University of Wisconsin, and as a result, we as a Department must rely more and more on our own resources. This issue of the Badger Chemist lists various trust funds and departmental accounts set up and maintained by the UW Foundation to which you can contribute if you are so inclined. We are all truly grateful for your past and future generosity.

I am now well into my third year as Department Chair. During the last decade our department has established a culture of rotating chairs, each serving a three-year term. I believe this is a healthy development, as it ensures that the research programs of chairs remain vibrant, and also allows a number of our talented faculty to assume leadership positions. This, therefore, is the last year of my term. Last spring we canvassed the department for the next chair, selecting Bob Hamers. Bob has served exceptionally well as the Associate Chair this year, which also has given him an opportunity to “learn the ropes.” He will begin his term as Chair in July 2007.

In closing, I want to take this opportunity to thank the Department for allowing me to serve as Chair. It has truly been my privilege. The experience has been rewarding and uplifting, as I am continually impressed by the exceptional science, the inspired teaching, and the generosity of the human spirit that I see everyday.

Jim Skinner  
Chair, Department of Chemistry  
[chair@chem.wisc.edu](mailto:chair@chem.wisc.edu)



# Our Awards

UW Chemists continue to garner significant awards.

## STAFF AWARDS

**Helen Blackwell, Lingjun Li** and **Marty Zanni** received Sloan Fellowships. These highly competitive awards are given to younger scientists who have demonstrated extraordinary research ability and impact.

**Helen Blackwell** and **Gil Nathanson** received Distinguished Teaching Awards from the University of Wisconsin.

**Helen Blackwell** was named one of the Top 35 Innovators Under 35 Years of Age by MIT's Technology Review Magazine (<http://www.technologyreview.com/>). Helen was also selected as one of ten Burroughs Wellcome Fund Investigators in the Pathogenesis of Infectious Diseases.

**Jeff Burkett**, a Lab Prep Technician in the Analytical labs, received one of the five Classified Staff Excellence Awards given by the College of Letters & Science for 2005-06. These awards recognize people in the College who demonstrate outstanding performance, service and contributions.



Jeff Burkett

**Judith Burstyn** won the Doris Slesinger Award for Excellence in Mentoring from the UW.

**Chuck Casey** won the 2006 UW-Madison Hilldale Award for the Physical Sciences. This annual award is given to one of the University's most distinguished faculty in recognition of tremendous accomplishments in research, teaching and service.

**Fleming Crim** won the ACS Irving Langmuir Award in Chemical Physics for his pioneering and seminal research in chemical dynamics and spectroscopy.

**Tracy Drier** won the American Society of Glassblower's Wilt Award for the best Technical Workshop Demonstration at the ASG meeting.

**Sam Gellman** won the 2006 Vincent du Vigneaud Award, given by the American Peptide Society for outstanding achievements in peptide research.

**Song Jin** won an NSF CAREER award for his proposal entitled: "Synthesis, Characterization and Physical Properties of One-Dimensional Rare Earth Chalcogenide Nanomaterials." Song also received a Nontenured Faculty Award from the 3M Company.

**Frank Keutsch** won one of eleven Camille and Henry Dreyfus New Faculty Awards for 2005-06.

**Laura Kiessling** was appointed as a Hilldale Professor beginning in July 2006. This is one of the highest honors that a faculty member at UW can achieve, and is recognition for Laura's outstanding contributions to the Department, the College of Letters and Science, and the University, through her seminal research in chemical biology, her spectacular teaching and mentoring, and her many extramural activities including Editor-in-Chief of the ACS journal *Chemical Biology* and service on a number of advisory boards and panels. Laura also won the Harrison-Howe Award from the Rochester Section of the ACS for her "outstanding contributions to chemistry ... and ... great potential for further achievement."

**Cathy Middlecamp** won the ACS Award for Encouraging Women into Careers in the Chemical Sciences. Cathy also



**Betsy Kean** (PhD '74, West), **Cathy Middlecamp** (PhD '76, West), **Anne Bentley** (PhD '05, Ellis), **Maggie Phillips** (Smith), all speakers at the Awards Symposium in honor of Cathy Middlecamp, 2006 ACS Award for Encouraging Women in Careers in the Chemical Sciences  
231st National ACS Meeting, Atlanta, GA



received the 2006 Judith S. Craig Distinguished Service Award, the highest L&S Academic Staff Award, recognizing Cathy “as an individual who has demonstrated outstanding achievement and service, initiative and creativity, and excellence of performance to the college and university.”

**Ieva Reich** received the 2005 James W. Taylor Excellence in Teaching Award. She described her teaching approach, “Interactive Teaching and Learning in Large Classes,” at the symposium in December.

**Bassam Shkhashiri** received the 2005 Chemical Pioneer Award from the American Institute of Chemists (AIC, <http://www.theaic.com>) in recognition of “pioneering scientific work and innovative contributions to science education.” The award ceremony was held at the Chemical Heritage Foundation in Philadelphia. Bassam follows Professors Zimmerman, West, and Dahl in winning this prestigious award. Bassam also received the 2005 ACS Helen M. Free Award for Public Outreach. He was cited for “lifelong accomplishments and for explaining and demonstrating science with charisma and passion to a wide range of audiences.”

**Jim Skinner** was elected to the American Academy of Arts and Sciences. The Academy is the nation’s oldest and most illustrious learned society, and election is an honor that acknowledges the best of all scholarly fields and professions.

**Shannon Stahl** received a Pfizer Michigan Green Chemistry Grant to support undergraduate research in sustainable green chemistry.

**Bob West** was presented with the R&D100 Award, which recognizes the 100 most significant technological developments of the year, for his work on lithium battery powered implantable microstimulators.

**Arun Yethiraj** won one of the highly competitive 2006 Vilas Associate Awards recognizing outstanding research accomplishments from the University of Wisconsin.

**Tehshik Yoon** won a Lilly New Faculty Award in support of his research.

**Marty Zanni** received one of only 16 5-year Packard Fellowships given to scientists and engineers.

**Howard Zimmerman** won the 2006 Porter Medal. The European Photochemistry Association, The Inter-American Photochemistry Society and The Asian Photochemistry Association presented this award for “extraordinary contributions to our understanding of fundamental processes in excited states.”

## STUDENT AWARDS

Student scholarships and research awards are made possible by generous donations from alumni, friends, and companies that recognize the value of awards allowing both graduate and undergraduate students to spend more time on research, one of the strengths of this institution. Gifts like these from alumni, faculty, and friends of the Department allow us to make a difference in the academic and professional lives of our students. Teaching awards come from both Departmental and campus sources, and recognize the Department’s second fundamental mission – exceptional teaching at both the undergraduate and graduate levels. In this section we salute not only the fine students who have worked hard to earn these honors, but also the donors who have made them possible.

The Outstanding TA Awards for 2004-05 were presented in December 2005 at the Excellence in Teaching Symposium. TAs and Faculty Assistants are selected to receive these awards each year on the basis of excellent teaching evaluations from students, faculty and staff. Awardees included **Brian Hong** (Population Health), **Aaron Peoples** (MS ‘06, Gellman), **Caroline Pharr** (McMahon/Moore), **Brandon Shelton** (Water Resources Management) and **Laura Wysocki** (Burke). TA awards for 2005-06 were presented in December 2006 to **Angel Abuña-Rodríguez**, **Kevin Chau** (Hebrew Studies), **Tanya Cordes** (Landis), **Rob Holiday** (PhD ‘06, Crim), **Kristy Kounovsky** (Schwartz), **Yu-Shan Lin** (Skinner), **Amit Nimunkar** (Biomedical Engineering), and **Becca Splain** (Kiessling).

Graduate scholarships and fellowships come from industrial and alumni donors, and also from the Graduate School and outside organizations. Awards and the students who received them during 2005-2006 included: A Merck Fellowship went to **Qiang Fu** (PhD ‘06, Li); **Eric Hansen** (PhD ‘06, Lee) won the Abbott Fellowship; **Jennifer Campbell O’Neill** (Blackwell) won the Novartis Fellowship. **Grant Geske** (Blackwell) and **Emily Dykhuizen** (Kiessling) received ACS Division of Medicinal Chemistry Fellowships for 2005-06. **Katie Alfare** (Kiessling), **George Barnes** (Sibert), **Matt Christianson** (Landis), **Kathy Vanheuvelen** (Brunold), and **Adam Van Wynsberghe** (Weisshaar) received NSF Fellowships. **Jordan Schmidt** (PhD ‘06, Skinner) continued with a Hertz Fellowship. **Laura Wysocki** (Burke) is in the third year of a Lucent Fellowship. **Soo Hyuk Choi** (Gellman) continued with a Fellowship from the Samsung Corporation. **Joe Binder** (Raines) was in the second year of a Department of Homeland Security Fellowship, and **Matt Shoulders** (Raines) received the second year of a National Defense Science and Engineering Graduate Fellowship.

Many of our students are supported by traineeships which come from NIH. These include the Chemistry-Biology Interface, Biotech, Biophysics, Genomic Sciences, and NRSA Traineeships. In 2005-06, **Heidi Behrens** (Li), **Amanda Brooks** (PhD ‘06, Brunold), **Emily English** (Gellman), **Ryan Hilger** (Smith), **Colin Ingram** (Weisshaar), **Kim Kutz** (Li), **Luke Lavis** (Raines), **Josh Mandir** (Smith), **Chris Marvin** (Burke), **David Miller** (MS ‘06, Blackwell), **Kim Peterson** (Gellman), **Josh Price** (Gellman), **Michael Santiago** (Burstyn), **Brian Smith** (Denu), and **Rachel Wezeman** (MS ‘06, Blackwell) benefited from NIH Traineeships.

**Stephanie Dekeyser** (Li) has won a NIH NRSA predoctoral fellowship for next year.

**Qiang Fu** won a Summer Graduate Fellowship, awarded by the Analytical Division of the ACS and sponsored by DuPont’s Corporate Center for Analytical Sciences.



**Kimberly Kutz** (Li) received the 2005 Gary Parr Award, and gave the Memorial Lecture in September. **Stephanie Dekeyser** (Li) won a \$1000 Merck travel award for top beginning students in analytical or physical chemistry. Stephanie was also selected to receive the highly competitive Pfizer ACS Analytical Division Graduate Travel Award to support her travel to the 2007 PittCon meeting next spring. Stephanie will be giving an oral presentation at the conference. **Emily English** was the recipient of the 2005-06 Leah Cohodas Berk Award for Excellence in Chemistry Research. **Kiu-Yuen Tse** (Hamers) won the Best Student Presentation Award from the Nanometer Science and Technology Division at the National Meeting of the American Vacuum Society. **Qiang Fu** received the American Association of Pharmaceutical Scientists (AAPS) Graduate Student Symposium in Analysis and Pharmaceutical Quality Award and presented his research at the AAPS annual conference in San Antonio this past fall. **Matt Bowman** (PhD '06, Blackwell) received the Ralph H. Hirschmann-Daniel H. Rich Fellowship in Organic Chemistry in April 2006.

Divisional Awards for Excellence in Research were given in April to **Qiang Fu** (Analytical, PhD '06, Li), **Amanda Brooks** (Inorganic, PhD '06, Brunold), **Sarah Baker** (Materials, PhD '06, Hamers), **Jack Sadowsky** (Organic, PhD '06, Gellman), and **Jordan Schmidt** (Physical, PhD '06, Skinner). **Justin Murray** (PhD '06, Gellman) was the recipient of the 2006 Graduate Award in Bioorganic Chemistry.

**Diane Nutbrown**, a fourth-year graduate student with **Judith Burstyn** and **John Moore**, was named a winner of the K. Patricia Cross Future Leaders Award by the Association of American Colleges & Universities. This national award "recognizes graduate students who are committed to developing academic and civic responsibility in themselves and others, and who show exemplary promise as future leaders of higher education."

**Matt Christianson** and **David Strassfeld** were selected to attend the 56th Meeting of Nobel Laureates in Lindau, Germany. The award is sponsored by DOE, NSF and NIH, and is designed to facilitate interactions between excellent students and scientists from around the world.



**Lemlem Getachew** won an NIH post-Baccalaureate Research Fellowship for young minority scientists to perform one year of research in Protein Folding with the Silvia Cavagnero group.

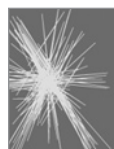
Undergraduate research support was provided during Summer 2006 from the following sources: **Anne Brownson** (Nathanson) received the Don Brouse Memorial Scholarship and Richard Fischer Scholarship. The Eugene and Patricia Kreger Herscher Scholarship was given to **Rachel Butorac** (West). **William Fleming** (Gellman), **Graham Sazama** (Stahl), and **Alex Witek** (Gellman) were awarded Student Support Scholarships. **Carter Abney** (Landis) and **Sean Andrews** (Hamers) won Edwin M. and Kathryn M. Larsen Scholarships. Joyce Er (West) and **Kit-tikhun Wangkanont** (Kiessling) received support from Walter W. and Young-Ja C. Toy Scholarships.

The following undergraduate students are benefiting from scholarships during the 2006-07 academic year: **Mike Dreis** from East High School received the new student Ackerman Scholarship; **Thomas Garvey** and **Alex Witek** are continuing students supported by Ackerman Scholarships. **Joyce Er** received a Mabel Duthey-Reiner Scholarship. **Blake Carlson** received the Kimberly-Clark Undergrad Scholarship. **Amber Janda** received the Martha Gunhild Week Scholarship. **Kristin Jansen** received the Margaret McLean-Bender Scholarship,

with additional support from the Student Support Scholarship. **Robert Edrmann**, **Dennis Fournogerakis** and **Kitti Wangkanont** received National Starch and Chemical Foundation Scholarships. The Edward Panek Memorial Scholarship went to **Graham Sazama**. **Kari Midthun** received the Eugene and Patricia Kreger Herscher Scholarship. **Jacob Henrichs** received the Alfred L. Wilds Scholarship. **William Fleming** (Gellman) was awarded the Wayland Noland Undergraduate Research Fellowship.

Awards from the Wisconsin Section of the American Chemical Society went to **Trevor McKown** (Excellence in Analytical Chemistry); **Anthony Mueller** (Excellence in Inorganic Chemistry); **Li Hao**, **Brian Roth** and **Taya Schairer** (Excellence in Organic Chemistry); and **Thomas Garvey** (Excellence in Physical Chemistry).

Excellence in General Chemistry classes is recognized with several sets of awards. **Philip Fowler**, **Peder Lund**, **Trevor McKown**, **Daniel Morgan** and **Briana Stevenson** received John and Elizabeth Moore Awards. **Dylan Coss**, **Benjamin Engel**, **Aaron Gander**, **Melissa Heim**, **Nina Kelnhofer**, **Shaun West** and **Amy Wiersma** received Krauskopf Chemistry Awards.



# New Badger Chemists

PHD

## AUGUST 2005

### Anne Kathleen Bentley (*Ellis*)

Synthesis and Manipulation of Metallic Nanowires

### Nathan Patrick Bowling (*McMahon*)

Carbenes with Multiple Triple Bonds: Synthetic Design and Spectroscopic Characterization

### David J. Castro (*Nathanson*)

Collisions and Reactions of N-Propanol with Molten NaOH/KOH

### Robert Wallace Clark (*Burstyn*)

Investigating the Roles of the Axial Ligands and Heme Coordination Changes in the Co Sensor, CooA

### Samuel Victor Glass (*Nathanson*)

Gas Transport Through Hexanol Films on Supercooled Sulfuric Acid

### Yiyong He (*Ediger*)

Dynamic Properties in Miscible Polymer Blends and Copolymers

### Kamakshi Jagannathan (*Yethiraj*)

Computer Simulation and Liquid State Theoretical Studies of Simple Models of Complex Fluids

### Yong Seol Kim (*McMahon*)

Structures and Rearrangements of C<sub>4</sub>H<sub>2</sub>S Isomers

### Thomas Robert Lutz (*Ediger*)

Segmental Dynamics of Dilute Polymer Blends

### Scott Gregory Petersen (*Rajski*)

Design and Synthesis of Methyltransferase Substrate Analogs as Probes of Transcriptional Regulation

### Jason Keith Pontrello (*Kiessling*)

New Strategies for Multivalent Ligand Synthesis

### Terra Beth Potocky (*Gellman*)

Design and Study of Cell Permeable Beta-Peptides

### Tami Lynn Raguse (*Gellman*)

Synthesis, Solution Structure, and Biological Activity of 14-Helical Beta-Peptides

### Susan Amy Reslewic (*Schwartz*)

The Optical Mapping of Genomes: Gaining New Insights on Genomic Structure and Variation by Single Deoxyribonucleic Acid Molecule Analysis

### Margaret Alice Schmitt (*Gellman*)

Identification and Characterization of Heterogeneous Backbone Oligomers Containing Alpha- and Beta-Amino Acid Residues

### Alex Shaginian (*Belshaw*)

Solid-Phase Combinatorial Synthesis: Application to Antibiotics and Small Molecule Microarrays

### Nickolaus Alexander Smith (*Ellis*)

Synthetic Approaches to Nanoscale Shape Memory Alloys and Adhesion Properties of Composites Derived from Surface-Modified Shape Memory Alloys

### Bin Yang (*Lagally*)

Self-Assembly and Ordering of Nanocrystals in the Silicon Germanium System

## DECEMBER 2005

### Margaret Marie Biddle (*Reich*)

I. Reaction of Lithiated Nitriles with Enones  
II. Studies on the Reactive Intermediate in Fluoride-Catalyzed Conjugate Additions

### Erin Elizabeth Carlson (*Kiessling*)

Chemical Probes to Explore Carbohydrate Function

### Brian Harlan Clare (*Abbott*)

Surface Anchoring of Liquid Crystals in Contact with Functionalized Organic Thin Films

### Omar Green (*Burstyn*)

Coinage Metal Based Optical Small Molecule Sensors

### Yi He (*Kiessling*)

I. Stereoselective N-Glycosylation By Staudinger Ligation  
II. Activation Of The N-Acylsulfonamide Linker Using PD-Catalyzed Allylation

### Lisa Marie Jungbauer (*Cavagnero*)

Cotranslational Protein Folding: Development of Novel Biophysical Approaches

### John Hudson Phillips (*Kiessling*)

Design, Synthesis and Screening of a 2-Aminothiazole Library for Inhibition of Nucleotide-Diphospho-Sugar Utilizing Enzymes

### Leonid Sheps (*Crim*)

Time -Resolved Spectroscopic Studies of Chlorine Radicals in Solution

### Matthew Bryan Soellner (*Raines*)

Mechanistic Studies, Optimization, and Applications of the Staudinger Ligation

### Bradley A. Steinhoff (*Stahl*)

Mechanistic Studies of Palladium-Catalyzed Aerobic Alcohol Oxidation

### Troy Alexander Stich (*Brunold*)

Spectroscopic and Computational Insights into the Biosynthesis of the B12 Cofactors

### Neil Adham Strotman (*Casey*)

I. Stereochemistry of Cyclopropane Formation Involving Group (IV) Organometallic Complexes  
II. Slower Stoichiometric and Faster Catalytic Reduction of Aldehydes by the Triphenylphosphine Substituted

## MAY 2006

### Sarah Elyse Baker (*Hamers*)

Functionalization of Carbon Nanotube and Nanofiber Electrodes with Biological Macromolecules: Progress Toward a Nanoscale Biosensor

### Jodie Lynn Brice (*Stahl*)

Palladium Catalyzed Animation of Olefins: Method Development and Application

### Namal Indika De Silva (*Dahl*)

Synthesis and Stereochemical Studies of Platinum-Gold Carbonyl Phosphine Clusters

**Katya Maria Delak** (*Sahai*)

The Potential Role of Amines in  
Biological and Biomimetic Silica  
Precipitation

**Whitney Margrethe Erwin** (*Lauhon*)

Bacterial tRNA Thiomodifications:  
4-Thiouridine and 2-Methylthio-N6-  
isopentenyladenosine

**Mark Steven Formanek** (*Cui*)

The Study of Conformational  
Transitions in Proteins Via Molecular  
Dynamics Simulations

**Sarah Elizabeth Lee** (*Stahl*)

Catalytic Transamidation and the Study  
of Poly-Beta-Peptide Materials

**Tingting Liu** (*Weisshaar*)

Fast, Snare-Medicated Single Vesicle  
Membrane Fusion

**Yun Luo** (*Nelsen*)

New Developments in Intramolecular  
Electron Transfer

**Sarah Virginia Maifeld** (*Lee*)

I. Progress Toward the Total Synthesis  
of Guanacastepene A  
II. Silyoxy-Tethered Methodology  
Development: New Applications in  
Enyne Metathesis and Hydrosilylation  
Chemistry

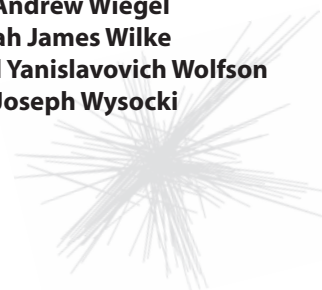
**Beth Marie Nichols** (*Hammers*)

Photochemical Functionalization of  
Diamond Surfaces

MS

**AUGUST 2005****Ngoc Thi Vo****Hilary Leigh Domush****DECEMBER 2005****Kankai Chen****Yuan Li** (*Corn*)**James John O'Donnell** (*Landis*)**Aaron Joseph Peoples** (*Gellman*)**Margaret Faye Phillips** (*Smith*)**Jocelyn Christine Pinkert** (*Burstyn*)**Karen Marie Schmidt** (*Mecozzi*)**Lara Christine Spencer** (*Weisshaar*)**MAY 2006****Brandon Glenn Beyer** (*Kiessling*)**John Robert Hottle** (*Nathanson*)**Andrew J Kolste****Yuan Lin** (*Smith*)**Ryan Drew Linder****Scott Michael Miller****Daniel Burns Paluchowski** (*Burke*)**Christopher Lee Paradise** (*Burke*)**Gregory William Severin****Megan Mercedes Sprague** (*Sibert*)**Rachel June Wezeman** (*Blackwell*)

BS &amp; BA

**AUGUST 2005****David William Allen****Kevin Dean Cunningham****Amanda Catherine Engler****Amy Elaine Huchthausen****Cassandra Alice Jones****Matthew Lang Leathen****Jordan Leigh Lorbecki****Keegan Ralph Moraes****Hiep Trong Nguyen****Andrea Ruth Stransky****Kayla Ann Weigelt****Jesse Phillip Wilkins****DECEMBER 2005****Babak Khodavandi****Melissa Jean King****Manchester Sia Sy****Ian Chen****Brian Norman Schuld****Brandon Michael Kobilka****Christine Marie Bleke****Sara Jean Arfstrom****Cathi Lyn Trunek****Theodore James Turner****Jaime Troy Zwiers****Shelly Kristine Heinzelman****Alexander Tung-Qiang Wong****Ashwanth Vijayan****Pangki Xiong****MAY 2006****Kevin Glen Allen****Andrew John Barragry****Tricia Lynn Behling****Amy Michelle Braegelmann****Kristian Chenoweth Corby****Barrett Kai-Bong Duan****Paul Andrew Ellison****Elissa Magdalene Hobert****Emily Louise Janicek****Timothy R Johnson****Steven Daniel Kehoe****Erik Richard Klobukowski****Benjamin Vocke Kronholm****Bryanna Megan Kunkel****Ryan Patrick Liegel****Pako Michael Major****Sean Michael Moore****Thomas James Mueller****Yukiko Muroi****Matthew John Myers****Vikash Amrit Patel****Krupa Ramasesha****Veena Nagarajan Rao****Carolyn Fitzgerald Rosewall****Dustin M. La Rue****Melisa Michele Shiroda****Lucas Mitchell Sprecher****Laine Kincaid Stewart****Nicole Elizabeth Temple****Peter Allen Throm****Michelle Marian Turco****Justin James Urban****Ryan Joseph Wagner****Martin Hale Selin Weisman****Johanna Elizabeth Wendlandt****Cullen James Werwie****Aaron Andrew Wiegel****Jeremiah James Wilke****Mikhail Yanislavovich Wolfson****Calvin Joseph Wysocki**





# Other Notable News

## DEPARTMENT NEWS

For current news, please visit the Department's website at <http://www.chem.wisc.edu>. In addition to relevant announcements, you will find links to the weekly newsletter, to profiles of faculty research, and much more.

Associate Chair for 2006-07 is **Bob Hamers**. Division Chairs are **Lloyd Smith** (Analytical), **John Moore** (General), **Judith Burstyn** (Inorganic), **Sam Gellman** (Organic), and **Gil Nathanson** (Physical).

## DEPARTMENT LECTURE SERIES

Look for announcements of Departmental seminars on the web at <http://www.chem.wisc.edu/news/newsletters.php>. We have highlighted below some of the named and special seminars held at the Department in the preceding year, but many other stellar talks are given each week by faculty, students and guests of the Department.

The first Department Colloquium was given in September by **Professor Robert Wolke** of the University of Pittsburgh. The October speaker was **Elaine A. Cohen Hubal** of the EPA. **Dr. James E. Butler** of Naval Research laboratories spoke in November. February's speaker was **Dean Gary Sandefur** of the College of Letters & Science. In March the Meloche Lecturer, **Stephen Lippard** from MIT, also presented the colloquium.

Professor **Dieter Seebach** presented the Novartis Lectures in September 2005. The Inorganic Meloche Lecture was presented in March 2006 by Professor **Stephen Lippard** of MIT. Professor Richard Saykally (PhD '77, Woods) from University of California-Berkeley presented the Willard Lectures in February 2006. Professor **Christopher Dobson** (Cambridge University, UK) was the Ferry Lecturer in March 2006. Professor **Steven Ley** (Cambridge University, UK) was the Merck lecturer in April 2006.

## MCELVAIN SEMINAR SERIES

The McElvain seminar series continued to sponsor talks from a variety of speakers across industry and academia. **Dr. Jothan Coe** (Organic) from Pfizer presented a talk in October. Professor **Tom Meade** from Northwestern was the Inorganic Chemistry speaker in December. Purdue's Professor **Timothy Zwier** (Physical) spoke on "Laser Probes of Potential Energy Surfaces" in January 2006. Professor **John Yates** (Analytical) from Scripps Research Institute and **Allison Campbell** (Inorganic) from Pacific Northwest Labs spoke in February. Professor **Suzanne Walker** (Organic) from Harvard spoke in May.

## LINCOLN SEMINAR SERIES

This student presented seminar series continued in 2005-06, with talks from senior students in a variety of organic research groups. The seminars are named after **Azariah Thomas Lincoln**, the first person to be awarded a chemistry Ph.D. at the University of Wisconsin-Madison. All gave talks. In addition, **Dr. Rob Zambias** (Fisher Scientific/ACROS) spoke to the group in May. Talks were presented by **Grant Geske** (Blackwell), **Sharon Beetner** (Casey), **Sarah Maifeld** (Lee), **Emily Payne English** (Gellman), **Dr. Roger Newton** (Director of Science-Maybridge), **Michelle Monnens Rogers** (Stahl), **Yi Jin Kim** (Lee), **Chris Marvin** (Burke), **Robin Chi** (Gellman), **Dr. Robert Zambias** (Fisher/Acros), and **Emily Dykhuizen** (Kiessling).

## ABBOTT ORGANIC SYMPOSIUM

Professor **Dan Yang** of Hong Kong University was the speaker at this year's Abbott Symposium, sponsored by the Abbott Laboratories Process Chemistry Group. His topic was "Catalytic Asymmetric Cyclization Reactions for Natural Product Synthesis." Recipient of this year's Abbott Laboratories Organic Synthesis Award was **Mansuk Kim** (Lee group).

## TCI ACTIVITIES

We had an active TCI seminar program, including Professor Claudio Margulis (University of Iowa), Professor Jin Wang (SUNY-Stony Brook), Professor Anatoly Kolomeisky (Rice University), Professor Michael Feig (Michigan State University), Professor Aaron Dinner (University of Chicago), and Professor Adrian Elcock (University of Iowa). TCI also gave a number of "Hirschfelder Prize Fellowships" to incoming theory grad students.

## HIRSCHFELDER PRIZE

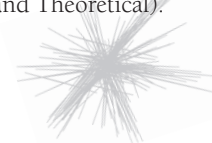
**Henry F. Schaefer** (University of Georgia) gave the 2005-06 Hirschfelder Prize Lectures in October 2005. Titles were "Thermochemistry and Spectroscopy of Soot Formation Intermediates," "The Third Age of Quantum Chemistry," and "Lesions in DNA Subunits: Foundational Studies of Structures and Energetics." Professor **Hans Andersen** (Stanford University) will give the 2006-07 lectures in October 2006.

## "ONCE UPON A CHRISTMAS CHEERY"

**Bassam Shkhashiri's** 36th annual Christmas presentation played to packed houses on the weekend of Dec. 3 and 4, 2005. As usual, it was later broadcast on Public Television stations. The 2006 shows will be Dec. 2 and 3.

## US NEWS & WORLD REPORT DEPARTMENT RANKINGS

The Chemistry Department ranked tied for 7th in the nation in this year's rankings of graduate schools. We were the only university ranked in the top ten in all six specialties (Analytical, Biochem, Inorganic, Organic, Physical, and Theoretical).





## DEPARTMENT RECEPTION AT ACS MEETINGS

At the March 2007 ACS Meeting in Chicago, the Department sponsored a reception for alumni and friends. Special recognition went to Sam Gellman and Laura Kiessling for their ACS awards this year, as well as to our student ACS Fellowship winners, Sarah Fowler (Blackwell), Luke Lavis (Raines) and Chris Scarborough (Stahl). But mostly it was a time to reconnect with alumni. We plan to repeat this event at the ACS Meeting in Boston August 19-23, 2007.

Because this event was planned fairly close to the meeting time, and because The Badger Chemist came out so late this year, we contacted people by email. We expect to use email to announce plans for the next event in August. If you would like to receive emails from the Department announcing such events, please make sure that your information is up to date with the University of Wisconsin Alumni Association (see the inside back cover for more information).



## FACULTY AND STAFF NEWS

(continued from page 12)

Bob's international travels during 2005-2006 include:

- Mexico, where he spent a week lecturing at the University of Guanajuato.
- Canada, where he gave a seminar at Simon Fraser University in Vancouver.
- Israel, where he has a joint research program with scientists at the Technion, Israel's institute of technology in Haifa.
- Japan for a series of 8 lectures on various topics in silicon chemistry at different universities and research institutes.

Of historical note, the year 2006 is the 25th anniversary of the discovery of multiple bonds to silicon, which took place in 1971 simultaneously in Bob's group and Adrian Brook's group at the University of Toronto. These were the findings which caused a paradigm shift and led to a great flowering of multiple-bond chemistry of the heavier elements. To mark this anniversary a special symposium on multiply-bonded silicon was held at the 39th Organosilicon Symposium in Frankenmuth Michigan

## EIGHTH ANNUAL SYMPOSIUM ON CARBANION CHEMISTRY

The Eighth International Symposium on Carbanion Chemistry (ISCC-8) will be held in Madison June 6-10, 2007. The Organizing Committee consists of Hans Reich and Ieva Reich from the University of Wisconsin-Madison, and Kevin Jantzi from Valparaiso University. We extend a warm welcome to those who are interested in attending the conference to discuss current results. A personal invitation will be sent to any scientist requiring one in order to obtain a visa or funding to attend the meeting.

ISCC-8 will consist of plenary lectures (50 min), invited lectures (25 min), oral presentations (15 min) and posters. All aspects of carbanion chemistry (synthetic, mechanistic, structural and theoretical) as well as the chemistry of alkali and alkali earth metals, and other main group organometallic compounds are of interest. Posters on these subjects will be accepted until the capacity is reached.

in May. Mark Fink (PhD '85, West), who actually synthesized the first Si=Si compound, chaired the symposium; Bob and Adrian were both featured speakers.

Recent research findings in Bob's group include:

- Synthesis of the first chiral divalent silicon compound, obtained as a racemic mixture. Resolution of this compound into its enantiomers may lead to a chiral chemistry of low-valent silicon.
- Studies of silicon-containing drug molecules. One such compound, now being studied in mice implanted with human cancer cells, shows promising activity against pancreatic cancer.

And yes, Bob still flies his single-engine Cessna as often as possible, and, yes, last summer, once again with ice-axe, crampons, and rope, Bob joined a group of climbers from the Canadian Alpine Club in the ice-covered mountains of British Columbia.

Those interested in the conference should pre-register at the ISCC-8 web site located at: <http://www.chem.wisc.edu/iscc8/>

The registration fees will increase after April 1, 2007. Correspondence should be addressed to:

Professor Hans J. Reich, Chair ISCC-8  
Department of Chemistry  
University of Wisconsin-Madison  
Madison, WI 53706, USA

TELEPHONE: (608) 262-5794  
FAX: (608) 265-4534  
EMAIL: [iscc8@chem.wisc.edu](mailto:iscc8@chem.wisc.edu)



**Howard Zimmerman** recently received the 2006 Porter Medal at the XXI IUPAC Symposium for Photochemistry. This was awarded by the InterAmerican Photochemistry Society, the European Photochemistry Association and the Japanese Photochemical Society. Several former students were at the Kyoto Symposium – **Prof. Andrei Kutateladze** (Postdoc '92-'95, Zimmerman), now Professor at the University of Denver; **David Schuster** (Postdoc '60-'62, Zimmerman), now Professor at NYU; **Marie-Laure Viriot** (Postdoc '71-'72, Zimmerman), now Director, Dept De Chimie Physique des Reactions at ENSIC-INPL and Universite Nancy, France.

Last December just before Christmas Zimmerman ran the Organic Photochemistry Symposium at Pacificchem2005. There were 42 speakers from the U.S., Canada, Japan, England, Germany, Italy and Spain. Many were former "Z-group members".



# Current Chemistry News

## DEPARTURES

**Chuck Casey**, a professor in the Chemistry Department since 1968, and Chair from 1998 through 2001, became emeritus in August 2006. He continues to run a small research program.

**Nayith Pedroza**, Organic Divisional Secretary from 2000-2006, left us for another job in early 2006.

**Dan Rich**, Professor of Pharmacy and Chemistry, retired to emeritus status in June 2006. A reception in the Department honored Dan and Chuck Casey for their many accomplishments during their illustrious careers.

**Dave Suminski**, the Chair's Secretary since 1999, left us in early 2006 to pursue other opportunities, including seeking political office.

**Andrew Tseng** (PhD '02, Burstyn), Assistant Organic Lab Director from 2002-2006, left in August to start an MBA program at the University of Michigan.

**Mike Wilson**, who worked in the loading dock and stockroom from 1998-2005, took a job with the Primate Lab on campus.

## ARRIVALS

**John Berry** is an accomplished musician (violin, viola and piano) who composes in his spare time. He received his BS from Virginia Tech and his PhD from Texas A&M University. More recently, he was a postdoc in Germany. Research in the Berry group focuses in the coordination chemistry and reactivity of transition metals



John Berry

in high oxidation states. Synthesis and structural characterization, complemented by spectroscopic and theoretical studies will be used to harness the reactivity of highly oxidized transition metal complexes to promote useful types of reactions. Specifically, we are interested in oxidation of water to oxygen as it relates to the development of solar energy and fueling the hydrogen economy.

**Robert Duessler** married in 1977 to Francine and has two children Ryan and Simone. He has one granddaughter Anika who is 3 years old and the apple of Grandpa's eyes. He has been in the accounting field since 1979, first at Good Samaritan Medical Center in Milwaukee. Following a merger Bob continued his education and relocated to northeast Wisconsin, where he worked as an accountant in Iron Mountain, MI. He joined the University in 1999 after moving to Madison, working in the Center for South Asia, African Studies Program, and CREECA as a Financial Specialist. Bob moved to the Chemistry Department in April 2006.



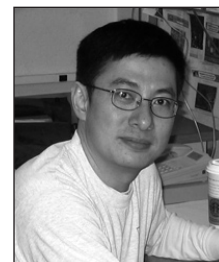
Robert Duessler

**Betty Harwood** joined the Department in the fall of 2005. She comes to us with eight years of Payroll and Benefits experience here at UW-Madison. She is committed to helping the Department be more efficient and effective and believes in service at all levels.



Betty Harwood

**Richard P. Hsung** was born in China in 1966. After growing up in Boston, he enrolled at Calvin College in Grand Rapids, MI, and obtained his B.S. in Chemistry and Mathematics in 1988, having worked on electro- and photochemistry in Professors Ron Blankespoor and Ken Piers' laboratories. He



Richard P. Hsung

then attended The University of Chicago and received his M.S. and Ph.D. degrees in Organic Chemistry in 1990 and 1994, respectively, under supervisions of Professors Jeff Winkler [intramolecular photochemical [2 + 2] cycloadditions] and Bill Wulff [asymmetric benzenulations]. After pursuing a post-doctoral stay at Chicago with Professor Larry Sita in 1995 working on self-assembled monolayers, he was an NIH post-doctoral fellow pursuing total synthesis of taxol in Professor Gilbert Stork's laboratory at Columbia University. In 1997, he moved to University of Minnesota as an Assistant Professor, and was promoted to Associate Professor in 2002. He moved to the Division of Pharmaceutical Sciences at UW-Madison in 2006 as a Full Professor, with an affiliate appointment in the Chemistry Department. He is a recipient of Camille Dreyfus Teacher-Scholar Award and National Science Foundation Career Award, and has co-authored over 150 publications. His current research focuses on developing strategies for natural product syntheses employing amides and cyclic ketals. The year 2004 was his best year because his first love - the Boston Red Sox - finally won a World Series after being a suffering fan for 25 years.

**Mahesh Mahanthappa** joined the Chemistry faculty in August 2006 as a part of the Chancellor's Cluster Hire Initiative in Functional Organic Materials. Born and raised in Boulder, Colorado, Mahesh received his undergraduate degrees in Mathematics and Chemistry at the University of Colorado-Boulder in 1997. As a Fannie and John Hertz Foundation Graduate Fellow, he conducted doctoral studies in mechanistic investigations of early transition metal-catalyzed olefin polymerization for the production of commodity polymers at Stanford University with Professor Robert M. Waymouth. For the last three years, Mahesh was a postdoctoral research associate in the Departments of Chemical Engineering and Materials Science and Chemistry at the University of Minnesota working with Professor Frank S. Bates and Marc A. Hillmyer on the synthesis and characterization of new block copolymer soft materials. One of the materials developed as part of his postdoctoral work is under evaluation for use in new biomedical devices.



**Mahesh Mahanthappa**

Mahesh's research program at UW-Madison broadly seeks to synthesize and to characterize novel functional organic and inorganic materials. Potential applications range from large volume, commodity polymers to value-added, specialty materials. Successful development of new functional materials necessarily requires two complementary skills sets: (i) the ability to develop and to exploit new synthetic methods to achieve precise control over molecular architectures of materials, and (ii) the ability to physically characterize molecular, supramolecular, and bulk materials properties. Initial research focus areas include the development of new block copolymer amphiphiles and the development of catalytic reactions to facilitate the synthesis of new commodity polymers of heretofore unknown compositions. The unique coupling of synthetic methods development with thorough characterization of the resultant materials should facilitate rapid identification of novel synthetic targets and enable swift optimization of flexible and scalable materials syntheses

## NEWS FROM THE GLASS SHOP

The Midwest section of the American Scientific Glassblowers Society held their spring meeting in Madison at the UW art glass lab. The meeting was co-hosted by **Tracy Drier** (UW chemistry department glass shop) and **Steve Feren** (UW art department). There was a full day of demonstrations and information exchange between scientific and artistic glassblowers.

**Kalavi Karpinen**, the scientific glassblower from the University of Helsinki, spent a week in the glass shop in June. Tracy and Kalavi spent time working together, exchanging ideas and comparing techniques. This was Kalavi's first visit to the U.S. and he went home well stocked with Badger gear, including hockey jerseys and cheerleading outfits for his grandchildren.

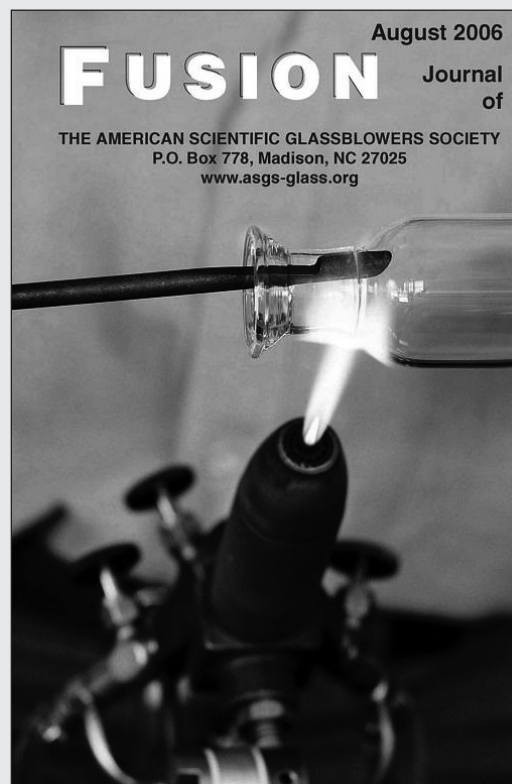
The American Scientific Glassblowers Society held their national symposium in Manhattan Beach California. Tracy was the seminars chairman again this year, helping to organize 2 days of technical seminars. He also did a hands-on demonstration of a Wisconsin Schlenk Line valve assembly. At the final banquet Tracy was given the William A. Wilt Sr. Award for the best workshop demonstration at last year's 50th ASGS Symposium.

Tracy took the Wisconsin Firewagon to local schools around the state for science outreach. He also did a day of demonstrations at the Wisconsin State Fair. The public is always fascinated to see examples of research glass-

ware and hear background stories that highlight the university and chemistry department's advanced research.

In August, 2006, a paper on the Firewagon concept was published in the ASGS national journal, *Fusion*. It highlights the Wisconsin Firewagon and the unique and exciting opportunity that scientific glassblowers have for public dialogue regarding glass, glassblowing, science and scientific research. The journal cover photograph was taken during a demonstration.

Artistically, Tracy continues to work with the UW art department glass lab, demonstrating during their open house events. He also spends a week each year in New York at the Corning Museum of Glass, teaching a class on flame working with his brother Tim.





**Kathleen 'Kat' Myhre** joined Chemistry as the Organic Division Office Coordinator in February 2006, transferring from the Art Dept and before that with Chemical Engineering. A native of Madison, she formerly worked in Oregon as a nurse and enjoyed living in Alaska. Kat has enjoyed working with students on campus since 1988 and biking to work every day she can.



Kathleen Myhre

## FACULTY AND STAFF NEWS

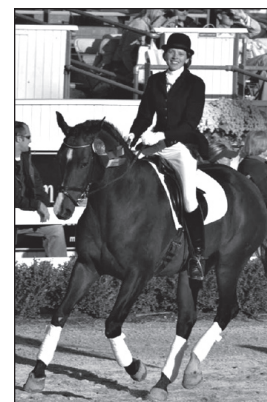
**Larry Dahl** has not yet retired!! He enjoys both teaching and research too much, and (health permitting) plans to continue for another five years. Fortunately, his Hilldale Chair Professorship has been renewed for another five years. At the national ACS meeting last spring (Atlanta), Larry gave a talk at the Inorganic Metal-Metal Bonding Symposium on "Nanosized Homo/Hetero-Palladium Carbonyl Phosphine Clusters", during which he revealed the creation by **Dr. Evgueni Mednikov** (Assistant Scientist) of a variable stoichiometric 165-atom icosahedral four-shell metal-core cluster,  $\text{Pt}_x\text{Pd}_{165-x}(\text{CO})_{72}(\text{PPh}_3)_{20}$  ( $x \sim 8$ ). As part of the same symposium Dr. Mednikov presented a poster entitled "Large-to-Giant Homo/Hetero-Palladium Clusters Generated from Deca/Tetra-Palladium Carbonyl

Phosphine Precursors". The remarkable 165-atom Pt-centered Pd-Pt cluster replaces the geometrically related 145-atom Pd-centered capped three-shell icosahedral cluster,  $\text{Pd}_{145}(\text{CO})_x(\text{PEt}_3)_{30}$  ( $x \sim 60$ ), created by **Dr. Nguyen Tran** (PhD '98, Dahl; now at P.P.D. Pharmaceutical Co., Madison) as the currently largest discrete transition-metal cluster with direct metal-metal bonding. This necessitates that Larry must replace his current auto-license plate, Pd145CO. Side and top views of the  $\text{Pt}_x\text{Pd}_{165-x}\text{P}_{20}$  framework of this extraordinary cluster of crystallographic The site symmetry is given, with the latter view showing the four-shell geometry along one of the six non-crystallographic fivefold icosahedral axes passing through the central 12-coordinated Pt-atom. Noteworthy is that the X-ray estimated  $x$  value of  $8 \pm 3$  is consistent with the  $x$  value of  $7.6$  estimated experimentally from SEM measurements on single crystals. Recent publications from the Dahl group may be found on the <http://www.chem.wisc.edu/people/profiles/Dahl.php>.

Particularly notable recent trips include: (1) the previous national spring ACS meeting (San Diego), where Larry participated in a Symposium honoring Professor Bill Evans (Univ. California, Irvine) as the 2005 ACS Inorganic Chemistry award winner; (2) the retirement celebration (Oct. 28, 2005) of Professor **Heinrich Vahrenkamp** (Postdoc '68) at the University of Freiburg (Germany); and (3) the inauguration ceremony (Sept. 29, 2006) of **Dr. Milton Glick** (PhD '65), former Provost at Arizona State University for 14 years, as President

of the University of Nevada, Reno. Larry's wife, June (Professor of Pharmacology, UW-Medical School), accompanied him on the latter two trips.

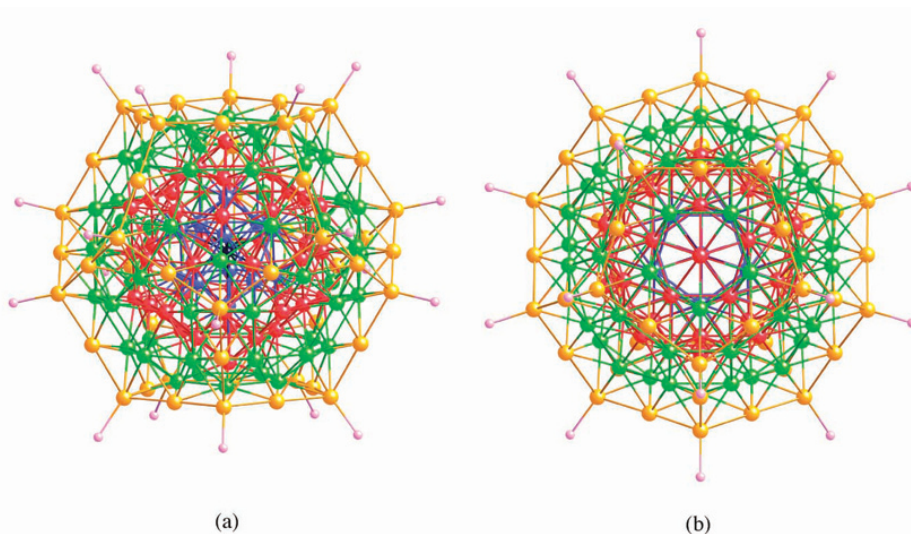
Analytical laboratory director **Dr. Pamela Doolittle** enjoyed success this summer showing her 6 year old hanoverian gelding, Cobra, on the local and national horse show circuit in dressage. Pam and "Coby" had a tremendous run at the FEI US Markel National Championship Finals in Lexington, Kentucky, with a third place. She showed up as an amateur out of nowhere competing against horses from 21 states ridden by professional trainers and olympic competitors. They crowned their season at Dressage at Devon by winning the FEI 6 year old



North American Breeders Futurity Championship Final. This competition is recognized as the most prestigious dressage competition outside of Europe.

Only two years earlier, Coby had suffered terrible injuries from a trailer accident that nearly ended his life. The amazing story detailing Coby's comeback was printed in several equine publications in November and December 2006. Congratulations Pam and Coby!

**Mark Ediger** was a Visiting Professor at the University of Sydney, Australia, for four months in early 2006. This was a part of Mark's sabbatical and enabled him to explore some new research directions. He also had the opportunity to travel to meetings in Spain, France, Colorado, and Hawaii. Mark is the principal investigator of a new multi-university NSF grant to study polymer glasses. He was recently honored by NSF's Division of Materials Research with a Special Creativity Award for his group's work on polymer blend dynamics. Mark was elected Vice-Chair of the Division of Polymer Physics of the American Physical Society. He and his group have been busy the last three summers organizing an outreach program for high school students through UW-Madison's PEOPLE program.



**Bob Hamers** made several overseas trips this year, giving plenary talks at the 2006 International Diamond Conference in Estoril, Portugal and the International Workshop on Nanoscale Analysis in Zurich. He also traveled to Japan twice, giving invited talks at the International Symposium on Nanoscience at Surfaces in January and the Tenth International Symposium on Nanoscience at Surfaces, in September, both in Tokyo. Bob has also been very active in collaborative research activities on campus, as a member of the executive committee for both the UW Nanometer Science and Engineering Center (NSEC) and the UW Materials Research Science and Engineering Center (MRSEC). He is also one of the four program co-chairs for the 2008 National Spring Meeting of the Materials Research Society. In addition to his research activities and responsibilities as Associate Chair, Bob and his group members have conducted a number of outreach activities this year, including a Reporter's Workshop on Nanotechnology, hosting a number of school groups, and taping a segment for a television program, "In Wisconsin", to be broadcast on Wisconsin Public Television.

**Lingjun Li** received a highly competitive Alfred P. Sloan Research Fellowship this

year. These two-year awards are intended to enhance the careers of the very best young faculty members in specified fields of science. As indicated in the letter of award notification, this is an extraordinary competitive award, involving nominations for most of the very best scientists of this generation from the United States and Canada. The selection from this remarkable group of nominees should convey a clear indication of the high esteem in which Dr. Li's past work and future potential are held by her fellow scientists.

Lingjun gave an invited talk at the 2006 Society for Neuroscience (SfN) Annual Meeting, in Atlanta, GA this fall. Her research group gave three presentations at the SfN meeting, seven presentations at the 54th American Society for Mass Spectrometry (ASMS) Conference in Seattle, WA, and two presentations at the 2006 PittCon meeting in Orlando, FL.

The Li Lab published 12 research papers in 2006, including a paper on quantitation of neuropeptides by MALDI FTMS featured on the cover of *The Analyst*, a paper on mammalian neuropeptidomics featured in the Research Profile of the *Journal of Proteome Research*, and a paper

published in *Science* in collaboration with Professor **Jon Thorson's** lab at UW School of Pharmacy.

**Jim Skinner** has one more year as Dept Chair. He gave talks at a number of universities, Pacificchem in December 2005, the Spring and Fall ACS meetings in 2006, two Gordon Conferences, two Telluride meetings, a meeting on Coherent Multidimensional Spectroscopy in Zurich, and a meeting to try to assess whether we understand water (the *Wall Street Journal* says we do not!) in Stockholm, all in the summer of 2006.

Perhaps the most interesting news about **Bob West** is that he along with **Dr. Viacheslav Dementiev** have founded a company: Polyrion Materials, Inc. Bob's group has been developing organosilicon electrolytes for lithium ion batteries for several years, and the new company will now use this technology in the manufacture of a new type of supercapacitor. These developments are under way with a SBIR grant, in cooperation with **Prof. Bob Hamers**. An article about Bob's research appeared in the October 5, 2005 issue of *Wisconsin Week*, the weekly campus paper.

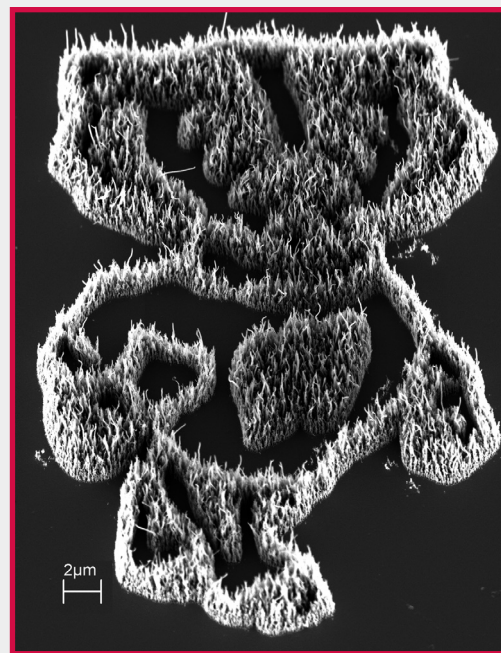
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## Nanobucky: UW's Smallest Mascot

With the explosion of interest in nanoscale materials, **Bob Hamers'** group has created a new Nano-mascot for the University of Wisconsin: **Nano-Bucky**. Nano-Bucky is created by patterned growth of carbon nanofibers. The "hairs" of NanoBucky consist of carbon nanofibers. Each fiber is only about 75 nm in diameter, less than 1/1000 the width of a human hair. The position of the fibers was controlled using electron-beam lithography to control the placement of nickel catalyst from which the nanofibers grow. Nanobucky is so small that about 9,000 of them would fit on the head of pin.

While NanoBucky was initially created on a whim, he featured prominently in a *Wisconsin State Journal* article on Nanotechnology at UW and in a UW News Release. Bob's group has done a number of outreach activities with school children using their scanning electron microscope, and NanoBucky has proven to be a hit. The making of NanoBucky and an assortment of high-resolution NanoBucky images are on Bob's web site at:

<http://hamers.chem.wisc.edu/research/nanofibers/index2.htm>.







# Wisconsin Initiative for Science Literacy

If giggles, shrieks and sincere applause are valid measures, the Wisconsin Initiative for Science Literacy (WISL) programs and events, directed by Chemistry Professor **Bassam Shakhshiri**, succeeded in raising the level of science literacy among the young and not-so-young alike.

## Science in the Capitol wins by a landslide

A gathering of voting constituents is a sure way to attract legislators. Several elected representatives and legislative staffers were on hand for the inauguration of “Science in the Capitol”, a new program series that took hands-on demonstrations to the state capitol rotunda in October and February. Since most of the student demonstrators involved in Science in Fun demonstrations are from Wisconsin, it was a case of good politics meets good science.

The demonstrations, like those at other Science Is Fun events, illustrate basic principles using everyday objects. In one demonstration a full can of diet soda floats in water while, mysteriously, a full can of regular soda sinks. Why? The large amount of sugar dissolved in the regular soda (typically a whopping 39 grams in a 12 oz. can) gives it a specific gravity greater than water. This is an effective way of driving home the concept of how much sugar there is in soda and giving legislators a critical new perspective when dealing with issues such as obesity and its related health costs.

## Science is Fun Student Presentations set a new record

The Science is Fun student demonstrators made dozens of presentations during the 2005-2006 school year at schools, malls, on the UW-Madison campus and at other events statewide. Both undergraduate and graduate students can earn academic credit by becoming a demonstrator through an independent study course, Chem. 299/699. The course is open to all students, though most are chemistry majors. **Mike Boll** (BS '04), and a graduate student in Professor Shakhshiri's group, is the chief instructor. He is gaining valuable classroom experience while earning his certificate to teach high school chemistry. Over 20 stu-



Mike Boll at Nichols Science Night

dents participated along with a couple of faculty members.

**Sarah Haerle** (Chemistry and Education '07) has been doing Science is Fun demonstrations for two school years and has participated in more than a dozen presentations. Sarah is from Eden Prairie, Minn. and with her double major plans to be a teacher, probably in middle school. She says middle-schoolers are the perfect Science Is Fun audience—young enough to remain fascinated and excited by the demonstrations but able to understand more science concepts than elementary school students. Sarah also felt the state capitol was an important place to take science. “Politicians sometimes forget or neglect the science aspects of environmental and other issues”, she says, “and we reminded them to think about science when making policy.”

**Shaun West** (Chem. Engr. '09) discovered that making presentations was a lot more fun than he expected. Like most of the student demonstrators, he had little public speaking experience. The sum total of his previous performances was a speech for his high school graduation ceremony. Shaun admits to a little stage fright at the beginning, but a few successful presentations made him an unflappable veteran. He has experienced a demonstrator's worst night-

mare: a demonstration that doesn't work. Here's how the experiment is *supposed* to work. Heat a small amount of water in the bottom of an otherwise empty soda can to boiling. Then (with tongs, of course), suddenly turn the can upside down in a dish of cold water. The can should implode as the steam rapidly condenses, reducing the gas pressure inside the can. Shaun was deftly able to turn failure into a teachable moment by explaining that experiments don't always work as expected and that experimenters learn as much from failures as from successful experiments. Shaun likes working with young children best because middle-schoolers can seem less impressed and less interested.

**Sara Hempel** of Racine (BS '06) is a new UW-Madison graduate. Inspired by her mother's work as a chemical technician at Johnson's Wax in Racine, Sara has dreamed of a career in chemistry since childhood and has begun the daunting process of applying for research jobs. She says demonstrations are the most fun when the kids and the parents get involved together. Even without previous experience in making public presentations, Sara has no stage fright in front of little children. She says, “They get so excited about it, and they are like little sponges, absorbing information. I hope I can get them interested in science.”



Sara Hempel at Nichols Science Night

**Matt Dailey** (Chem. '07) has been preparing for veterinary school since he was in middle school. He worked at a small animal hospital while in high school in Cincinnati and now works at the UW-Madison Dairy Research Center. Completing some college courses as a high school senior will allow him to earn his undergraduate degree in just three years. Matt attributes his interest in science to great middle school teachers. "Without those teachers in middle school, I wouldn't be here," he says, "and now I'm trying to show the kids neat stuff and pass my love of chemistry on to the next generation." Matt and Shaun share a favorite demonstration: the ethanol cannon. It requires a small amount of ethanol in a corked plastic bottle. Insert two nails on each side of the bottle, almost touching at the center. Applying a Tesla coil to one of the nails causes a spark to jump the gap, igniting the ethanol and rocketing the cork to the ceiling. The few dents in the ceiling of the main lecture room attest to Matt's affection for this simple demonstration. The audience gets a blast out of this one, too, as kids in the front row scramble to retrieve the wayward corks.

All the Science Is Fun demonstrators enjoyed the extended labs they worked on in conjunction with the PEOPLE Program and Shainfest. Working one-on-one with eager students for a longer period was especially rewarding.

### **Science in the city— People to PEOPLE**

WISL once again provided chemical workshops during the summer of 2006 for inner city students from Milwaukee, Racine, Kenosha and other school systems as part of the PEOPLE Program (Precollege Enrichment Opportunity Program for Learning Excellence). The PEOPLE Program seeks to increase enrollment and graduation by ethnic minority and low-income students in institutions of higher education, particularly at UW-Madison.

Additional programs were offered during the summer for students from the Madison area through the Youth Empowerment Academy and the 100 Black Men Mentoring programs. These provided



Matt Dailey

opportunities for follow up interactions between students and WISL staff.

**Dr. Rodney Schreiner** (MS '73, Ph.D. '81) developed the workshop curriculum and again this year was assisted by **Mike Boll** (BS '04), **Paul Ellison** (BS '06) and Science Is Fun student instructors. Junior high students in the PEOPLE Program attended three hours of chemistry laboratory instruction every morning for three weeks while high school students attended two hours a day for one week. The program not only teaches content, but helps teens develop the habits and discipline that will make them successful college students.

### **2005 Christmas lecture— The holiday tradition goes on**

The 36th annual Christmas Lecture, ONCE UPON A CHRISTMAS CHEERY IN HE LAB OF SHAKHASHIRI, played to capacity crowds at all four presentations. Once again, the lecture was recorded by Wisconsin Public Television and broadcast throughout Wisconsin on Christmas Day. A one-hour edited version was up linked for telecast on PBS stations and cable systems in the United States.

This year's special guests included "Mathemagician" **Arthur Benjamin**, professor of math from Harvey Mudd College. He amazed the audience with rapid additions and squares of numbers up to seven digits. He also shares the secret to becoming a math wiz in his new book, "Secrets of Mental Math: The Mathemagicians Guide to Lightening Calculation and Amazing Math Tricks" (2006 Random House).

What's the holiday without music? Three talented graduate students from the

UW-Madison School of Music, **Gina Gilie** on French horn, **Todd Schendel** on trombone and **Amy Schendel** on trumpet, added a classy brassy sound and some lessons in sound waves to the lecture.

The 2005 Christmas Lecture is available on DVD from Educational Innovations, Inc. ([www.teachersource.com](http://www.teachersource.com)) as are DVDs of earlier programs.

### **Communicating science and art to the public**

WISL brought four distinguished writers and artists to campus during the year to speak on the symbiotic relationship between the sciences and the arts.

#### **Robert W. Wolke**

In October, Professor Emeritus Robert W. Wolke of the University of Pittsburgh answered the question many of us are too embarrassed to ask, "Does baking soda really absorb those noxious refrigerator odors?"

Author of the "Food 101" column in the *Washington Post*, Professor Wolke writes extensively about cooking and chemistry. His talk was titled, "Chemical Abuse in the Kitchen." Prof Wolke also signed copies of his books, *What Einstein Didn't Know*, *What Einstein Told His Barber*, *What Einstein Told His Cook* and *What Einstein Told His Cook 2*. His appearance was co-sponsored by the UW-Madison Chemistry Department and WISL.

#### **Lise Keiter-Brotzman**

Professor Lise Keiter-Brotzman chairs the Music Department at Mary Baldwin College and is a noted concert pianist and piano teacher. In October, she offered a concert of often unfamiliar and unperformed music by women composers including Maria Hester Park, Fanny Mendelssohn Hensel, Amy Beach, Clara Schumann and Madeleine Dring. Her appearance was co-sponsored by the UW-Madison School of Music and the Women in Science program of WISL. Professor Keiter-Brotzman's parents are chemistry professors Richard Keiter and Ellen Keiter of Eastern Illinois University.

(continued on page 26)



# Institute for Chemical Education

**During 2005 and 2006 the Institute for Chemical Education (ICE) continued its many outreach programs and also began distributing a new kit.**

## Chem Camp

ICE continued its tradition of hosting summer chemistry camps for middle school aged students this summer. Both the Fun with Forensic Science camp developed in 2004, and a revised version of 2005's Fun with Chemistry Inventions camp were offered. These camps were developed by graduate student and ICE Outreach Specialist **Diane Nutbrown**. Two sessions of each camp theme were scheduled – doubling the number of camp weeks available in the past. Over two hundred 5th-8th graders attended the summer camps, with several campers registering for both topics. Guest speakers introduced each day of experiments. During the inventions camp, the participants were visited by a representative from the Wisconsin Alumni Research Foundation to discuss patenting, a scientist from Spectrum Brands (Rayovac) to introduce batteries as the daily theme, and the Coordinator of Education and Outreach for ICE and the NSEC, **Andrew Greenberg**, to talk about nanotechnology. The forensic science camp hosted speakers from the Madison Police Department's CSI unit, the UW Police department, the Secret Service, and the Clinical and Lab Sciences Department at UW-Madison. A forensic pathologist also addressed the campers.

## Students Participating in Chemical Education (SPICE)

SPICE is a volunteer science outreach organization of graduate and undergraduate members who perform chemistry demonstrations or lead hands-on activities in the community. The program is organized and led by ICE Outreach Specialist Diane Nutbrown. During the 2005-2006 academic year, SPICE members participated in twenty-five events serving over two thousand pre-K children through adults. For example, SPICE members represented the bulk of volunteers who developed and facilitated the National Chemistry Week

activities sponsored by the local Wisconsin section of the American Chemical Society, they led experiments with parent and children during several Family Science Night programs at elementary schools, and they participated in UW-Madison's Science Expeditions Why's and Wows event.

## National Chemistry Week

Under the leadership of ICE Outreach Specialist Diane Nutbrown, the Wisconsin local section of the ACS expanded its National Chemistry Week (NCW) programming in 2005 to involve the community on a larger scale to celebrate the Joy of Toys. Events were publicized through several media, covered a broad geographic area, and engaged audiences as participants in hands-on activities supported by a crew of able volunteers.

The different venues, audiences, and scientific concepts among the toys addressed attest to the variety of our section's programming. Events were held in every corner of the greater Madison area, including: general public events at the east and west side Toys R Us store locations, experiments at fifteen 7th grade classrooms at east and west side middle schools, activities at a private west side Catholic high school, and a NCW-themed science club session for teens at a south side Boys & Girls Club. The toys



highlighted in our programs illustrated several scientific concepts aligned with the National Science Education Standards. For example, phases, density and solubility, and magnetism were discussed in the context of liquid crystals, lava lamps, and Magna-Doodles, respectively.

Our section's volunteers innovated or creatively adapted the activities experienced by over 700 participants and sponsored by several collaborative organizations. Many of the forty-two volunteers worked in teams to assemble materials for the three hands-on exploration stations at Toys R Us stores, as

well as modify the experiments performed by teens at the middle and high schools and Boys & Girls Club. Some representative activities include: disassembling an LCD watch, making "mood patches" using thermotropic liquid crystals, mimicking lava lamps with wave bottles, constructing Petri dish ver-



(continued on page 22)





# Shainfest—Honoring a Researcher, Educator and Leader

*Irv Shain has been, and continues to be, even in retirement, one of the most consistently influential figures in the history of the University of Wisconsin. He was an inspirational teacher and scholar. As department chair and later chancellor, his leadership paved the way for the many difficult organizational and administrative modernizations needed for the challenging times he foresaw. The naming of this research tower for Irv Shain is a fitting and well-earned tribute to his impact on UW-Madison.*

*John C. Wiley, Chancellor, University of Wisconsin-Madison*

State and university notables including **Governor Jim Doyle, State Senator Fred Risser, Regents President David Walsh** and UW-Madison **Provost Patrick Farrell** joined faculty, alumni, family and guests to honor Emeritus Chemistry Department Chair and former Chancellor **Irving Shain** at a weekend of special events, dubbed “Shainfest”, on May 5 and 6. The opening ceremony dedicated the newest wing of the Chemistry Building as the Irving Shain Research Tower. The audience listened to speakers trace Irv’s career and recognize his many contributions to science, the arts, the University and the Madison community.

Shainfest, organized by a celebrations committee chaired by **Professor Bassam Z. Shkhashiri**, included science, social and artistic events with programs of interest for both the scientific community and the general public of all ages.

One of several weekend high points was the presentation to Irv of a check for \$100,000 donated by his friends and colleagues to establish an annual Irving Shain Chemistry Colloquium. The gift, an obvious surprise to Irv, was presented by Professor



The Irving Shain Research Tower: the newest wing of the Chemistry Building

Bassam Shkhashiri and department chair **James Skinner. Allen J. Bard**, Hackerman-Welch Regents Chair in Chemistry, Biochemistry and Chemical Engineering, University of Texas at Austin inaugurated the series with his lecture, “Fuel Cells and the Discovery of Electrocatalysts for Oxygen Reduction Based on Scanning Electrochemical Microscopy.”

The Chemistry Department open house on Saturday, May 6th featured tours of the Mass Spectrometry Facility, The Magnetic Resonance Facility, the Computer Center, the Crystallography Laboratory, the Scanning Electron Microscope Laboratory, and the Glassblowing Shop. Sculptor **Beverly Stucker Precious** discussed the intersection between art and science. Her installation, “Light Spectra” which was funded by the State of Wisconsin Percent for Art Program as part of the Shain Research Tower construction stands in the Daniels wing of the Chemistry Building just outside

the library. Hands-on sessions for people of all ages provided several activities including “Exploring Polymers”, “Chemistry Around the House”, “Energy Makes It Happen”, “The Amazing Right and Left Handed Worlds of Chemistry”, “Making a Visible-Light Spectrometer”, “Amaze Your Friends: Cool Chemistry Demonstrations”, “Jelly-bean Chemistry” and “I am an Element.”

Shainfest also offered some intellectual indulgence for more advanced chemistry enthusiasts at the Shainfest Chemistry Symposium where UW-Madison faculty members presented the following talks:

**Robert L. Hamers**, Irving Shain Professor of Chemistry, “A Giant’s Legacy Applied to Small things: Electrochemistry of Nanoscale Materials”

**Laura Kiessling**, Hilldale Professor of Chemistry and Biochemistry, “Controlling Human Embryonic Stem Cells with Chemistry”

**Samuel H. Gellman**, Evan P. Helfaer and Ralph F. Hirschmann Professor of Chemistry, “Foldamers: A New Way to Control Molecular Shape and Function”

**F. Fleming Crim**, John H. Willard and Hilldale Professor of Chemistry, “Using Lasers to Control Chemical Reactions”

**Helen E. Blackwell**, Assistant Professor of Chemistry, “Expanding the Language of Bacterial Communication Using Synthetic Ligands”

**Shannon S. Stahl**, Associate Professor of Chemistry, “Use of Molecular Oxygen in ‘Green’ Catalytic Oxidation Reactions”

**John C. Wright**, Andreas C. Albrecht Professor of Chemistry, “Light-Our Most Precious Gift”

**Larry R. Faulkner**, President, Houston Endowment, Inc. and President Emeritus, University of Texas at Austin delivered the keynote lecture, “Lessons from the Cavenish Laboratory.”

On Friday evening, the Department of Chemistry hosted an informal dinner at Blackhawk Country Club in honor of Irv and his family. In attendance were former students, chemistry faculty, and colleagues, including former chancellor **Edwin Young** who drafted Irv to be his vice chancellor and former Vice Chancellor **Bernie Cohen**, who served with Irv in the University administration. Also present were five of the six faculty members who joined the department as assistant professors during Irv’s last year as chairman and subsequently achieved tenure. Members of this “Class of ‘70” are Shainfest organizer Professor **Bassam Shakhshiri**, Dean Emeritus **Phil Certain**, Professor Emeritus **John Schrag**, and Professors **Hans Reich** and **Tom Record**.

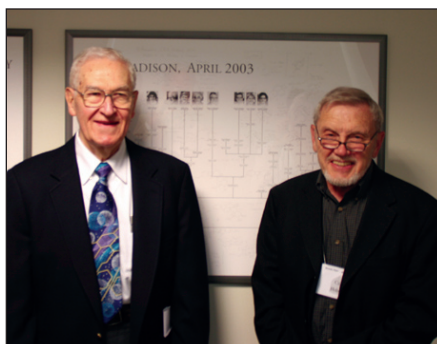
Also present were **Gary Anderson**, the president of the national chemistry fraternity Alpha Chi Sigma, who announced the election of Irv Shain to the fraternity’s Hall of Fame making him the first Alpha Chapter initiate to be so honored, **Mark Bugher**, current director of University Research Park which was founded by Irv in 1984, and

**Wayne McGown** who was its first director. Dean Certain led an after-dinner program of many heartfelt testimonials to Irv’s vision and accomplishments and to Millie Shain for the support she gave to make it all possible. With his usual grace, Irv concluded the emotional and joyous evening.

Irv Shain may be best known to chemists for a paper on electrochemistry he co-authored with graduate student **Richard S. Nicholson**, which was named by the *Journal of Analytical Chemistry* as the fourth most cited paper of the period 1945-1999. The paper established the experimental technique for electrochemical studies now called “cyclic voltammetry”. During the Shainfest Scientific Symposium, Chemistry Professor **Dennis H. Evans** of the University of Arizona (and former UW Chemistry Department chair) discussed the importance of the paper and subsequent developments in his talk “Forty Years after ‘Nicholson and Shain’”.

Irv’s influence extends far beyond chemistry. As Chancellor, he began planning for the UW-Madison Research Park, presided over the UW Hospital’s move to the west campus, established the School of Human Ecology as an independent academic unit, and started the School of Veterinary Medicine, the Chancellor’s Scholars Program and the Academic Computing Center, which became the Division of Information Technology. However, his greatest legacy, he says, is the 27 students who earned their Ph.D.s working with him.

Irv also was devoted to promoting the arts. As a young man, Irv considered pursuing a career in music, though he has no regrets about choosing chemistry instead. “Art and science are merely two aspects of the entire range of human endeavor”, he says, and during his tenure as Chancellor



he backed several Music Department initiatives, including establishment of the Beethoven Piano Sonata Competition. The School of Music honored Irv with a public concert May 5th in Music Hall. The program included the Quartet for Flute and Strings in D Major by Wolfgang Amadeus Mozart played by Stephanie Jutt and members of the Pro Arte Quartet, the Sonata in C# Minor by Ludwig Van Beethoven, played by Catherine Kautsky, and Sonata for Piano and Cello in G Minor by Frederic Chopin, played by Parry Karp and Howard Karp.

#### AN EDITORIAL IN THE MADISON CAPITAL TIMES SUMMERIZED IRV’S CONTRIBUTIONS:

“His years as chancellor were sometimes tense. There was turmoil in the athletic department, and there were incidents when students complained they were left out of decision-making, but he handled the duties with firmness and grace. A relatively quiet man, Shain not only brought stability to the chancellorship, but he reached out to the Madison community to make it feel like a partner.

He oversaw the building of a new University Hospital and numerous other advancements on campus. But his most impressive achievement was the establishment of the UW Research Park, which embodies the true meaning of the Wisconsin Idea, sharing the UW’s advancements with the people of the state. It has become a model of success.

We join the university community today in praise of Irv Shain and all he has done not only for Wisconsin, but for Madison too. Thanks for a great job.”

The Chemistry Department web site [www.chem.wisc.edu](http://www.chem.wisc.edu) features a salute to Irv Shain including photographs taken at the May 5-6 celebrations.



# Shainfest Chemistry Symposium— Honoring a researcher, educator and leader

**May 5&6, 2006**



Shainfest, organized by a celebrations committee chaired by Professor Bassam Z. Shakhshiri, included science, social and artistic events with programs of interest for both the scientific community and the general public of all ages.





Shainfest offered hands-on sessions and activities for people of all ages.



The opening ceremony dedicated the newest wing of the Chemistry Building as the Irving Shain Research Tower.





One of several weekend high points was the presentation to Irv of a check for \$100,000 donated to establish an annual Irving Shain Chemistry Colloquium. The gift was presented by Professor Bassam Shkhashiri and department chair James Skinner.





# Nanoscale Science and Engineering Center Outreach

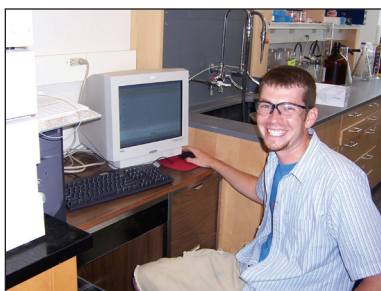
The Institute for Chemical Education (ICE) continued its role as coordinator of education and outreach activities of the Nanoscale Science and Engineering Center (NSEC). The NSEC, a \$13 million grant that is in its second year of five, is comprised of four interdisciplinary research thrusts and the education and outreach group that explore complementary concepts around the central theme of self-assembly at the nanoscale. The NSEC education and outreach program aims to cultivate the next generation of nanoscale science and engineering experts, building on UW's vast experience in science education and infrastructure provided by ICE. Chemistry graduate students and staff guide all the NSEC education outreach programs.

## SCIENCountErs

**Diane Nutbrown** continued to guide the SCI ENCountErs program, a collaboration between the NSEC and Madison Boys and Girls Club. SCI ENCountErs aims to capture the interest of middle-school and high school students from areas of the city that have large proportions of under-represented students. Diane, with the help of NSEC graduate students and post docs, led club members in a series of hands on science activities on varying topics such as rocketry, chromatography, and the chemistry of soda pop.

## Research Experience for Undergraduates

As part of the NSEC grant, ICE organized a Research Experience for Undergraduates (REU) program with the goal of providing undergraduates from UW-Madison and other schools around the country, with a summer research opportunity within NSEC research laboratories. Three REU students resided in the chemistry department: **Corbin Occhino** a junior chemistry major from UW-Madison, **Lisa Goetter**, a sophomore biochemistry major from



Corbin Occhino

UW-Madison, and **Candice Smith** a junior biochemistry major of Spelman College in Atlanta. Corbin and Candice worked on synthesizing beta peptides in the lab of NSEC faculty member Sam Gellman while Lisa worked with NSEC education director John Moore to adapt chemistry laboratory activities for blind and visually impaired students.

## Research Experience for Teachers

During the summer of 2006 ICE and the NSEC hosted a Research Experience for Teachers program for four Wisconsin teachers. The four teachers, **Jeanine Gelhaus** a 7th grade science teacher at Medford Area



Lisa Goetter



Candice Smith

Middle School, **Kevin Moore** a chemistry teacher at Adams Friendship High School, **Jeanne Nye** a 7th grade teacher at Lake Mills Middle School, and **Peter Watts** a 7th grade teacher at Riverside Middle School in Watertown. Jeanine, Kevin, Jeanne, and Peter worked with NSEC education and outreach staff and graduate students to produce nanoscience curriculum units that each is using in their classroom during the 2006-2007 school year. Their lessons will be combined with other nanoscience lessons developed by ICE and the NSEC to serve as the basis for a summer teacher workshop being offered through the 2007 Wisconsin Academies Program.

## Today's Science for Tomorrow's Scientists

With NSEC support, graduate student **Caroline Pharr** continued her work on Today's Science for Tomorrow's Scientists (TSTS). TSTS is an innovative website that explains the research of UW-Madison faculty at the level middle and high school students. Goals for the project are to enhance student's knowledge of how research is done, to adapt cutting-edge research for presentation to students, and to do so in a way that is keyed to the National Science Education Standards. To date Caroline has adapted the research of three chemistry faculty members, **Sam Gellman**, **Shannon Stahl**, and **Bob McMahon**. TSTS was field tested at Middleton High School during the spring semester of 2006. A larger testing effort will take place over the next academic year.

## Nanoscience and Nanotechnology Online Course

Graduate student **Janice Hall** completed the development of an online nanoscience and nanotechnology course for middle and high school students. With the help of NSEC faculty members, Janice developed eight modules that focus on

varying nanoscale topics ranging from environmental impacts to sensing at the nanoscale. The course, offered for credit for the time during the summer of 2006, attracted 16 middle and high school science teachers from across the country. The course culminated with a visit from the teachers to Madison where the teachers completed hands-laboratory activities and met with NSEC faculty including chemistry faculty Song Jin.

### **Independent Laboratory Access for the Blind**

Over the past year the NSEC has been an active member of the Independent Laboratory Access for the Blind (ILAB) project. The goal of the ILAB project is to raise the



Andrew Greenberg working with a student at the National Federation for the Blind Meeting

expectations of blind and visually impaired (VI) high school and college students, as well as educators of these students, with

the goal of encouraging them to consider careers in Science, Technology, Engineering, and Mathematics (STEM) professions. This is being achieved through the development of speech-accessible tools as well as modified laboratory procedures, which will enable blind and VI students to perform chemistry laboratory experiments without sighted assistance. This will change the laboratory experience by giving students a more active and independent role. On behalf of the NSEC and the ILAB members Andrew Greenberg, coordinator of education and outreach for the NSEC, developed and led a workshop at the National Federation of the Blind meeting in Dallas, Texas. The workshop served as the first test of the developed tools with blind and visually impaired middle and high school students.



Institute for Chemical Education

(continued from page 15)

sions of Woolly Willy magnetic faces, and experimenting with memory metal.

This year's local NCW events were publicized via radio, newspaper, Internet, and television media. The Isthmus and the Wisconsin State Journal listed our general public events both in print and on-line, drawing community members to visit the Toys R Us stores during our kick-off and grand finale programs on Sunday, October 16, and Saturday, October 22. These events were also publicized on 1310 AM WIBA during their repeating news updates. WISC channel 3, the local CBS television affiliate, featured our visits to 7th grade classrooms on the six o'clock news Friday, October 21, and announced Saturday's Toys R Us event.

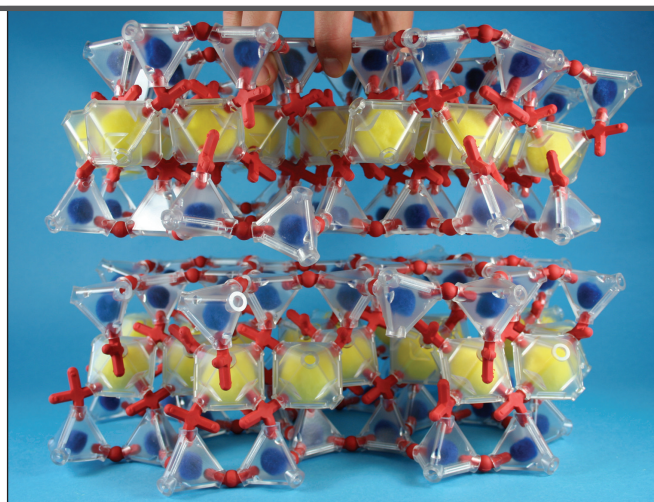


All these media combined to help raise the community's awareness of NCW and the relevance of science to toys and beyond.

As a result of these efforts, the local Wisconsin section of the ACS was a finalist in two ChemLuminary award categories for 2005: Outstanding Community Involvement in National Chemistry Week, and Outstanding Event for a Specific Audience.

### **Polyhedral Model Kit**

As a result of work initiated by **Art Ellis** and carried forward by the UW Materials Research Science and Engineering Center under the leadership of **Wendy Crone** in chemical engineering, ICE is now distributing a Polyhedral Model Kit. The kit nicely complements the ICE Solid-State Model Kit and is especially useful for depicting complex solid-state structures that involve tetrahedral or octahedral coordination.



Instead of building structures an atom at a time, users of the Polyhedral Model Kit link together polyhedra consisting of many atoms to form layers or three-dimensional structures. If you or your colleagues are users of the ICE Solid-State Model Kit, you will want to take a look at this new kit, because the polyhedron approach provides a complementary view of structures and makes it much easier to build extended structures and show the relations among them. A photo of a model of pyrophyllite built using the kit appears here; the layered structure is clearly evident.





# Journal of Chemical Education and National Science Digital Library

In its tenth year under the editorship of **John Moore**, the *Journal of Chemical Education* is thriving and innovating. In addition to publishing 12 issues of the world's premiere journal in the field of chemical education, this year we started a major new program in the National Science Digital Library (NSDL), continued to publish high quality chemistry videos, and welcomed some new staff.



The ChemEd Digital Library will greatly expand existing collections (see the description of the eight existing collections in the *JCE* Digital Library in the 2005 issue of the *Badger Chemist*) by adding new materials and assigning metadata (keywords) to resources such as *JCE* articles and *Chemistry Comes Alive!* videos. We will consolidate existing digital assets into more extensive learning objects that correspond in scale with textbook sections or chapters. Through our

own resources and in collaboration with the NSDL and other Pathways we plan to develop online tools to help participants in the ChemEd DL to submit, review, and publish excellent learning materials online and to communicate with each other. We expect to make the digital library the beginning of the publication process by enabling online submission of resources that can later be peer reviewed and published, but that can be used immediately (just as *JCE* WebWare open review items can be used now by non-subscribers and subscribers alike). To make as many people as possible aware of all of these resources, we plan extensive outreach through workshops, presentations, symposia, and booths at regional and national meetings.

The ChemEd DL will be initiating communities of developers, users, and adapters of online materials. The communities will create, evaluate, adapt, and use the ChemEd DL's contents. We are looking for volunteers who can actively participate in identifying members for each community, nurturing the community, and overseeing the materials developed by the community. And we have funding to support initiators of communities who wish to spend time at the University of Wisconsin-Madison working to get a community started. During each year of this three-year project a community will be developed in each of three major areas: educational level, such as high school or two-year college; subject areas, such as physical, organic, or general chemistry; and pedagogical techniques,

## NSDL Pathways Grant

As of October 1 the *Journal of Chemical Education*, the leader of a collaborative project, received from the NSF a total of \$2.25 million over three years to develop what we are calling the ChemEd Digital Library—a major pathway associated with the NSDL. We are developing the portal for chemical science education on the Web, associating it with both the ACS Web site and the *JCE* Online site. This project will complement and augment the reinvention of ACS's Web presence recently announced by ACS CEO Madeleine Jacobs.

As stated by Lee Zia, a program officer in the NSF Division of Undergraduate Education, the purpose of the NSDL is to provide “broad access to a rich reliable, and authoritative collection of interactive learning and teaching resources and associated services in a digital environment” and to “encourage and sustain continual improvements in the quality of STEM education for all students, and serve as a resource for lifelong learning”.

The *JCE* is collaborating with the ACS Education Division (Mary Kirchhoff and her staff) and with several others: **Theresa Zielinski** of Monmouth University in physical chemistry, **David Yaron** at Carnegie Mellon who does online laboratories and simulations, **Frank Settle** at Washington and Lee who has developed a major Web site on nuclear chemistry, and **Grace Baysinger**, librarian at Stanford, chair of the ACS Committee on Publications, and a member of an international consortium dealing with digital libraries in chemistry.

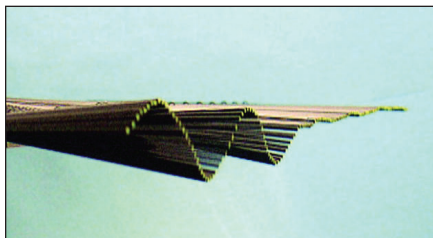
The ChemEd Digital Library is one of 11 carefully selected Pathways projects in the NSDL. The Pathways projects are the principal means by which the NSDL's online collections are connected with teachers and students in a broad range of STEM disciplines. At present these Pathways projects are developing portals, new materials, and communities of developers and users with support from a variety of disciplines:

- Biological Sciences—BEN, AAAS
- Computational Science—Shodor Foundation
- Engineering—Teach Engineering, University of Colorado
- Engineering—National Engineering Education Delivery System, University of California, Berkeley
- Materials Science—MatDL, Kent State University
- Mathematical Sciences—Math Gateway, MAA
- Physics and Astronomy—ComPADRE, AAPT
- Middle School—Digital Library Projects, Ohio State University
- Multimedia Resources—Teachers Domain, WGBH
- Two-Year Colleges—AMSER, University Wisconsin-Madison

Our chemistry project will nicely complement these.







Traveling wave

such as testing or problem-based learning. If you are interested in participating, please contact me.

We will also be enhancing the library with a new means of browsing for resources that we call Textbook Tables of Contents (TToC). Because textbooks remain the basis for course content in many instances, and because the table of contents of a textbook outlines that content, the table of contents can be a powerful tool for organizing online resources. Metadata (keywords) are already assigned to each resource in the digital library, and the same keywords can also be assigned to each entry in a table of contents. This makes possible a browsing mode in which a teacher or student can call up the table of contents of the textbook they are using, click on an appropriate chapter and section, receive a list of available resources, and rapidly click to a resource that can provide appropriate instruction. A prototype TToC interface for *JCE* QBank is available at *JCE* Online (<http://www.jce.divched.org/JCEDLib/QBank/topics/index.html>).

We are looking for a great many volunteers to participate in the ChemEd DL and serve as nuclei for the many communities we plan to develop and the outreach programs we plan to carry out.

## Chemistry Comes Alive! Volume 8

As readers of the *Badger Chemist* know, for some years *JCE* Software has been publishing video materials on CD-ROMs. Our latest such CD, *Chemistry Comes Alive! Volume 8* has just become available. CCA8 contains a large collection of videos and still images related to wave phenomena: traveling waves and standing waves; diffraction, interference, and scattering; wave and particle nature of light; and wave and particle nature of electrons. In addition there are videos on gases and atmospheric pollution, reactions in aqueous solution, a sequence showing nitric acid dissolving a copper penny, and even the reaction of chlorine with iodine to form iodine monochloride. If you are a fan of the CCA! series, then this is good news for you.

## Personnel Changes

**Lin Morris**, who had worked for *JCE* Software since 1990, retired at the beginning of the summer. Those of you who have visited the *JCE* booth at an ACS national meeting or a Biennial Conference on Chemical Education will remember Lin as the person who set up the booths and was always available to answer questions. To replace Lin we have hired **Linda Fanis**, who spends part of her time organizing meeting booths and overseeing outreach and *JCE* Software sales but also works as liaison with the MERLOT project, creates Classroom Activities and CD-ROMs such as *The Joy of Toys*, and works with the *JCE* High School Editor on high school workshops.

Another new *JCE* staff member is **Liana Lamont**, who joined us in mid-July. Liana has taken on many of **Mary Saecker's** duties while Mary is on maternity leave and will also help with editing graphics and copy editing manuscripts. Liana is a new Ph.D. in biochemistry who is interested in education and outreach. We are happy that she is already making excellent contributions to production of the *Journal of Chemical Education*.



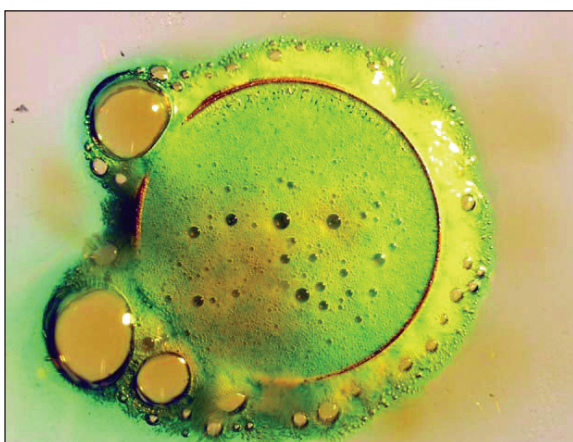
Linda Fanis

## Say Hello! at Meetings

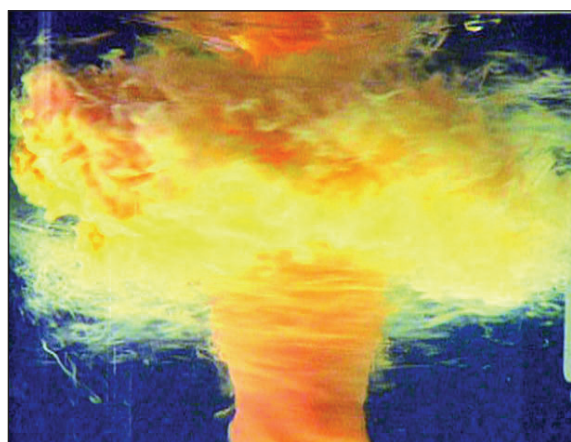
You are always welcome at the booths that *JCE* sponsors at national ACS meetings, summer conferences on chemical education, and meetings such as MACTLAC and UW-System Chemistry Faculty. With the new NSDL Pathways grant, we will be doing even more outreach and will probably be present at other meetings as well. We look forward to seeing you at one or more of these meetings. Just stop by the *JCE* booth and say Hello!



Liana Lamont



Nitric acid acts upon copper



Orange tornado



# This n' That



**Vladimir Cirkva** (Postdoc 1998-2000, Zimmerman) is an Asst. Professor at the Academy of Sciences of the Czech Republic. The microwave photochemistry is going well, and he now has many publications dealing with preparation of electrode-less discharge lamps. Also, he now has his first PhD student.

**Dave Crumrine** (PhD '71, Zimmerman) reports that he has been chair at Loyola for four years and was in the Research Office for 5 years before that. This is his 9th year of administrative service, and it should be the last. It wastes too much time and "has kept me away from the lab". "I have papers to write and experiments to run".

**Qiang Fu** (PhD '06, Li) successfully defended his Ph.D. thesis this summer and became the first PhD graduate from the Li group. Qiang has moved on to a post-doctoral position at the Pacific Northwest National Lab.

**Joe Kocal** (PhD '81, Dahl), was awarded the Stine Star in 1994. He was given the award for development of a heterogeneous catalyst and process for the alkylation of benzene with detergent range (C10-C14) normal olefins to produce linear alkylbenzene. The linear alkylbenzene is subsequently sulfonated and is a common component in many detergents. The heterogeneous catalyst is environmentally friendly, replacing HF and aluminum chloride based processes. All new units since this development have gone to this solid catalyst technology. **Dean Simon** (BSE '83) majored in Broad Field Science education with a concentration in Chemistry. He's been teaching Chemistry, Advanced Chemistry, and a class called, "Organic Chemistry and Polymer Science" for the last 23 years at Kimberly High School in Kimberly, WI, and received a Herb Kohl Fellowship in April at Portage High School.

**Bob Lewis** (PhD '65, Zimmerman) writes that he has been the US representative to ISO (International Standards

Organization) and with ASTM (the U.S. counterpart), holding several technical committee chairmanships and executive positions, and has written 10-12 ASTM standards on air quality. Also, he has written a book chapter for a book on environmental science that will be used as a teaching text at Stanford.

**Greg Lewis** (PhD '92, Dahl) was awarded the "Stine Star" from UOP. The Stine Star is named after Larry Stine, who had a very successful career commercializing new processes at UOP. It is given yearly to a UOP researcher for research leading to a commercial product or process. Greg received his award for the "Charge Density Mismatch Approach to Zeolite Synthesis leading to the Discovery of the New UZM Zeolites." (UZM stands for UOP Zeolite Materials.) The approach gains control over the zeolite crystallization process by first preventing crystallization followed by a perturbation of the reaction mixture with crystallization agents in a manner that allows them to cooperate to form new zeolite structures. One zeolite derived from this process, UZM-8, is being commercialized for a new liquid phase process to make ethylbenzene from benzene and ethylene.

**Dick Pagni** (PhD '68, Zimmerman) notes that he is involved in getting caught up with quite a few papers to write. Then he plans to work on a book. He mentioned checking out Anslyn's and Dougherty's "Modern Physical Organic Chemistry/" where the di-pi-methane rearrangement is prominently displayed and his and **Rich Given's** (PhD '67, Zimmerman) work on benzobarrelene is discussed. Rich is a Professor at the University of Kansas and Dick's classmate.

**Jess Sager** (BS '91, Zimmerman) reports "I have left Merck and have taken a position as an Application Specialist with IntelliChem. IntelliChem is a leading provider of electronic notebook software. In my new position, I go out and talk to chemists in the industry about our product,

providing demonstrations and training and funneling requirements from the chemists back to the programmers. Oregon has provided a nice change from the crowded hustle that I left."

**Valeriya Smolenskaya** (Postdoc 1997-2002, Zimmerman) has been promoted to Group Leader at the Solid-State Information Pharmaceutical Company in Lafayette, Indiana. Valeriya likes Madison and travels back to visit almost every six months.

**Dr. Eric J. Stoner** (BS '86, Zimmerman) has been promoted to Associate Research Fellow accompanying induction into the Volwiler Society of Abbott Laboratories. Stoner has been employed at Abbott as a Pharmaceutical Process Chemist since 1991. Abbott, headquartered in north suburban Chicago, is a global, broad-based pharmaceutical and medical products company with 60,000 employees worldwide and marketed products in more than 130 countries. Induction into the Volwiler Society is the highest honor an Abbott scientist can receive from the company. Of the approximately 7,000 scientists employed by Abbott, fewer than 200 are presently members of the Volwiler Society. Admission is based on a demonstrated continuous record of scientific achievement reflected internally by project successes and externally by patents, publications and peer recommendations. The society is named after Ernest Volwiler, an Abbott scientist, co discoverer of Pentothal, and member of the United States Inventors Hall of Fame. Stoner's promotion was based on his work on several projects. He made pivotal contributions to the synthesis of lopinavir, an HIV protease inhibitor that is the principle active ingredient in Kaletra™ Abbott's breakthrough medication for the treatment of AIDS. His contributions to this project were recently recognized as part of a team effort in an American Chemical Society Regional Industrial Innovation Award. He is also responsible for the commercializing development of several antibiotics including cethromycin and oritavancin, both

in late stage clinical trials. In addition to other awards, Stoner is a prolific author and has several patents. He is recognized as an expert in the field of process chemistry. Stoner attended UW Madison from 1985-1986, earning his B.S. in Chemistry. He performed undergraduate research with Professor Howard E. Zimmerman during this time. This valuable experience solidified his desire to continue in the field and he left for MIT to do his graduate studies. Dr. Stoner received his Ph.D. in Chemistry from the Massachusetts Institute of Tech-

nology in 1991. He presently resides in Kenosha, WI.

**Mansukh Wani** (Postdoc '62, Zimmerman) received the North Carolina Award (one of six honored by the Governor) for his discovery of Taxol and captothecin. See <http://www.ncdcr.gov/ncaward.asp>.

**Drew Weber** (PhD '88, Zimmerman) reports that starting last January 1st he took on a broader role as Global Business Director, DuPont Fluoroproducts, Industrial

- Films, Membranes and Finishes. He will continue to have business accountability for DuPont Fuel Cells as well and will remain in Wilmington, Delaware. Officially, he is Global Business Director, Industrial - Films, Membranes and Finishes DuPont Fluoroproducts.

**Joe Wilson** (Postdoc '62-'63, Zimmerman) writes that he is now Emeritus Professor at the University of Kentucky but still does teaching.



WI Initiative for Science Literacy

(continued from page 14)

### Harold McGee

Food was again the topic in February as WISL, The College of Engineering and The Center for the Humanities presented noted food writer Harold McGee. McGee's public lecture, "Playing With Food: Three Centuries of Science in the Kitchen", packed a large lecture room in Engineering Hall. While in Madison, McGee also appeared on Wisconsin Public Radio, gave an enrichment lecture to Professor Shakhshiri's Chemistry 104 class, and participated in a public forum entitled "Cooking Philosophies: A Chef's Debate" along with Madison chefs Tory Miller (L'Etoile Restaurant), Tami Lax (Harvest Restaurant), and Madison writer and restaurant critic Raphael Kadushin. McGee's best-known book, *On Food and Cooking: The Science and Lore of the Kitchen*, was published in a revised and enlarged edition in 2004, and has been named the best food reference book by two culinary associations.



Harold McGee

### Brian Schwartz

"Science as Performance, A Proactive Strategy to Communicate and Educate Through Theater, Music and Dance" was the topic of Brian Schwartz, professor of physics at the City University of New York. For several years, Professor Schwartz has conducted public programs at the interface between science and theater, art, music and dance. He has developed and taught a graduate course on science and theater entitled "Staging Science" and is currently producing a new musical based on the novel *Einstein's Dreams* by Alan Lightman. His talk was co-sponsored by WISL and the UW-Madison Department of Theatre and Drama.

### Conversations in Science for Teachers

Motivating kids in the classroom is one thing, but how do we also keep teachers enthusiastic and up to date? Now in its sixth year, Conversations in Science for Teachers invited teachers in Dane County to eight seminars with top UW-Madison researchers. The series attracted 30 participants this year, eight of them enrolling for credit. The purpose is to re-invigorate the teachers' enthusiasm for science by exposing them to cutting-edge research, and to encourage researchers to communicate with a broader audience. The series is co-sponsored by WISL, which arranges for the presenters; the Madison Metropolitan School District, which enrolls the teachers; and Edgewood High School, which provides the auditorium

of the new Sonderegger Science Center. All presentations are recorded by the school district and shown multiple times on its cable channel in Madison. The 2005-2006 presentations included:

**Dr. Rodney Schreiner** (MS '73, Ph.D. '81), "What's So Special About Science?"

Professor of Anthropology **Karen B. Strier**, "Behavior, Ecology and Conservation in Primates"

Professor of Psychology **Jenny Saffran**, "Language Learning in Infancy"

Professor of Dermatology **George T. Reizner** (M.D.), "Current Thinking about Skin Cancer and Sun Screens"

Professor of Wildlife Ecology **Scott R. Craven**, "The Wildlife Resources of Wisconsin and Management Challenges"

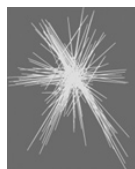
Professor of Nutritional Sciences **Susan A. Nitzke**, "Fruits and Vegetables Aren't Nutritious Until Somebody Eats Them"

**Phil Pellitteri**, Distinguished Faculty Associate, Department of Entomology, "Look Who Is at the Front Door Now—The Ever-changing Insect Invasions in Wisconsin"

**Ken Ono**, Manasse Professor of Letters and Science, "The Number Theory of Partitions"







# Chemistry Department Support

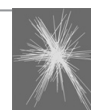
## from Alumni, Staff and Friends

The Chemistry Department is blessed with many generous alumni and friends, and nowhere is that more evident than in the array of funds of various types that we can draw on for support of our activities. These funds include those that support general operations, scholarships and fellowships for students, lectures, seminars, research, awards and publications. We have listed here all of the funds the UW Foundation administers, plus the trust funds that have been set up to benefit Department activities. For contributions to Foundation accounts, checks should be made out to the UW Foundation, not to the Chemistry Department; gifts can also be made on line at <https://www.uwfoundation.wisc.edu/giving/giving2.nsf/jsCheck>. Gifts to the UW Foundation are tax deductible, and many companies provide matching contributions, allowing you to multiply the value of your gift. When you send your donations to the Foundation, you can specify that your gift go to Chemistry, and further specify any of the funds. Donations to trust funds must be made out to the Chemistry Department, with the particular trust noted on the memo line.

Donors are acknowledged every year on the pages following our listing of funds. You are all essential to the continued high caliber of the Chemistry Department in its teaching, research and outreach missions.

*Address gifts/correspondence to the UW Foundation, 1848 University Ave., Madison, WI 53708 or to the Chair, Department of Chemistry, University of Wisconsin, 1101 University Ave., Madison, WI 53706*

*In addition to honoring and acknowledging those people who donate to the Department to help support our Teaching, Research, and Outreach missions, we would like to also honor the people **for whom funds are named**. Many of you have donated to pay tribute to a mentor, colleague, friend, or relative in the Chemistry Department. This is a tribute not only to the donors, but to the people memorialized in donations.*



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Harlan L. and Margaret L. Goering	Edward Panek	Lloyd L. Withrow
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# UW – Foundation Accounts for the DEPARTMENT OF CHEMISTRY

## OF SPECIAL INTEREST IN 2005-2006

Although we appreciate all of our donors, the following funds are of very broad application to Department activities, or had some special event occur in 2005-2006.

<b>Department of Chemistry Fund</b> <i>Supports research and teaching activities in the Department.</i>	1222137
<b>Chemistry Building Fund</b> <i>Supports the construction of the New Chemistry Building Addition, and remodeling of the Mathews and Daniels Buildings. Remodeling was completed in 2003, and the last bill was paid in late 2006. This fund will continue to pay for construction such as remodeling for new professors.</i>	12221293
<b>Community-Building Fund for Chemistry</b> <i>Provides funds for receptions, retirement parties, funeral memorials, and other similar activities; established in 2001.</i>	12223316
<b>Alpha Chi Sigma Alumni Endowed Scholarship Fund</b> <i>Established in 2006 for the purpose of providing scholarship support for undergraduate students in the Chemistry, Biochemistry, or Chemical Engineering Departments.</i>	13334506
<b>Irving Shain Chemistry Colloquium Series Fund</b> <i>Established in 2006 in conjunction with the ceremony honoring Irv Shain with the naming of the "Irving Shain Research Tower".</i>	12224514
<b>Irving Shain Professorship Fund</b> <i>Established in 2006 with a gift from Irv Shain for a permanent professorship in the Chemistry Department.</i>	12224681
<b>John and Dorothy Vozza Research Fellowships</b> <i>Established in 2006 by the John and Dorothy Vozza Trust. Professorship or Fellowships in Organic Chemistry.</i>	12224612
<b>Pei Wang Fund</b> <i>Established in 2005 by a gift from the estate of Pei Wang, to be used for fellowships for students in the Chemistry Department. Pei Wang Fellowships were first given to incoming students in Fall 2006.</i>	12224225

## STUDENT SUPPORT

<b>Ackerman Scholarship Fund (Undergrad)</b> <i>Supports undergraduate students in Chemistry, especially those from East High School in Madison.</i>	12223212
<b>Alfred L. Wilds Scholarship in Chemistry (Undergrad)</b> <i>Undergraduate scholarship in memory of Professor Al Wilds.</i>	12220072
<b>Andrew Dorsey Memorial Scholarship Fund (Undergrad)</b> <i>Undergraduate scholarship in memory of Andrew Dorsey. A musical fundraiser was held on campus in March 2004.</i>	12223281
<b>David F. and Donald G. Ackerman, Jr. Wisconsin Distinguished Graduate Fellowships</b> <i>Supports graduate students in Chemistry.</i>	12223244
<b>Don Brouse Memorial Scholarship (Undergrad)</b> <i>Undergraduate scholarship in memory of Don Brouse.</i>	32220536

<b>Edwin M and Kathryn M Larsen Fund (Undergrad)</b> <i>Supports undergraduate students in Chemistry.</i>	1222308
<b>Elizabeth S Hirschfelder Endowment for Graduate Women in Chemistry</b> <i>Supports women graduate students in Chemistry research.</i>	12223191
<b>Eugene and Patricia Kreger Herscher Fund (Undergrad)</b> <i>Supports undergraduate students in Chemistry, especially women.</i>	12223562
<b>Farrington Daniels Ethical Leadership Fellowship Fund (Grad)</b> <i>Established in 2004 by William G. and Virginia Hendrickson.</i>	12223995
<b>Gary R. Parr Memorial Fund (Grad or Undergrad)</b> <i>Scholarship in Bioanalytical or Biological Chemistry, in memory of Gary Parr.</i>	12222192
<b>Harry and Helen Cohen Graduate Research Fund (Grad)</b> <i>Supports graduate students in Organic Chemistry.</i>	12222250
<b>Henry and Eleanor Firminhac Chemistry Scholarship Fund (Undergrad)</b> <i>Supports Undergraduate students in Chemistry, in memory of Ralph Firminhac's parents, Henry Firminhac and Eleanor Firminhac. First awarded in 2003.</i>	12223644
<b>Harlan L. and Margaret L. Goering Organic Chemistry Fellowship Fund (Grad)</b> <i>Established in 2004 by Margaret Goering's will, in honor of her late husband, Professor Harlan Goering. The fellowship will support a graduate student in Organic Chemistry.</i>	12223951
<b>Ralph F. Hirschmann – Daniel H. Rich Graduate Fellowship Fund (Grad)</b> <i>Established in 2004 by Ralph Hirschmann to encourage and assist students in the early stages of their research careers; and to honor and to express his high regard for Professor Daniel H. Rich.</i>	12224086
<b>John and Elizabeth Moore Awards in General Chemistry</b> <i>Provides funds for awards to the best students in the Fall Chemistry 108 and Chemistry 109 courses.</i>	12223663
<b>Kimberly-Clark Undergraduate Scholarship</b> <i>Supports undergraduate research with an annual award.</i>	12222807
<b>Leah Cohodas Berk Award for Excellence in Chemistry Research (Grad)</b> <i>Honors an outstanding female graduate student.</i>	12543124
<b>Roger J. Carlson Fund (Grad)</b> <i>Graduate Fellowship in Analytical Chemistry, in memory of Roger Carlson.</i>	12220918
<b>Student Support in Chemistry (Undergrad)</b> <i>Supports undergraduate students from Wisconsin high schools with GPA above 3.0.</i>	12222068
<b>Walter W. and Young-Ja C. Toy Scholarship Fund (Undergrad)</b> <i>Supports undergraduate students, with preference for students of Asian descent.</i>	12221917
<b>Wayland Noland Undergraduate Research Fellowship</b> <i>Established by Professor Wayland E. Noland to support summer or academic year research by undergraduates.</i>	12222191



## DIVISIONAL SUPPORT

<b>Analytical Chemistry Fund</b> <i>Supports research and educational activities in the Analytical Sciences Division, including conferences and grad recruiting.</i>	1222679
<b>Analytical Research Fund</b> <i>Supports research and programs in the Analytical Sciences Division – Originally established in 1990 with a gift from the Olin Corporation Charitable Trust.</i>	12220448
<b>Center for Chemical Genomics</b> <i>Established in 2001 by a gift from the W. M. Keck Foundation.</i>	12223086
<b>Inorganic Chemistry Seminar Fund</b> <i>Supports the Inorganic Division seminar and research programs.</i>	12221344
<b>J. O. Hirschfelder Prize Fund</b> <i>Awards an annual Prize to an internationally prominent scientist to recognize outstanding work in Theoretical Chemistry.</i>	12220984
<b>J. O. Hirschfelder Visitors Fund</b> <i>Supports visits to the Theoretical Chemistry Institute by outstanding scholars.</i>	12220912
<b>John L. Schrag Analytical Research and Teaching Fund</b> <i>Provides funds for activities that will enhance the excellence and humanity of the Analytical Sciences Division.</i>	12223637
<b>Organic Synthesis Fund</b> <i>Supports research activities in Organic Chemistry including symposia and visiting lecturers.</i>	1222548



## CHEMISTRY EDUCATION

<b>Institute for Chemical Education Fund</b> <i>Supports activities in Chemical Education.</i>	1222929
<b>James W. Taylor Excellence in Teaching Award</b> <i>Established in 2002 and first awarded in 2003, this provides an endowed fund to support awards to outstanding teachers in the Chemistry Department.</i>	12223590
<b>Michael S. Kellogg Chemistry Fund</b> <i>Provides funds to support an annual prize, a lectureship, or other support of science education.</i>	12223655
<b>Project SERAPHIM Fund</b> <i>Supports activities in Chemical Education.</i>	12220404
<b>Shakhashiri Science Education Fund</b> <i>Supports activities in Science Education under the direction of Prof. Bassam Shakhashiri.</i>	12221133



## LECTURESHIPS/PROFESSORSHIPS

<b>Evan P. Helfaer Fund</b> <i>Provides funds to support endowed chairs in the Chemistry Department.</i>	32225081A
<b>H. L. and M. L. Goering Visiting Professorship Fund</b> <i>Provides funds to support a Visiting Professor in Organic Chemistry.</i>	12223391
<b>J. D. Ferry Lectureship in Macromolecular Science</b> <i>Provides funds to support a Lecturer in Macromolecular Sciences.</i>	12222793
<b>John E. Willard Lectureship</b> <i>Funds a special seminar in Physical Chemistry.</i>	1222829
<b>Joseph O. Hirschfelder Professorship Fund</b> <i>Provides funds to support an endowed chair.</i>	12220310
<b>McElvain Seminar Fund</b> <i>Supports the ongoing seminar series organized and run by graduate students in the Department of Chemistry.</i>	12220241

<b>Ralph Hirschmann Lectureship</b> <i>Funds a Visiting Professor in Organic, Bioorganic or Physical Organic Chemistry.</i>	1222295
<b>V. W. Meloche-Bascom Professorship</b> <i>Provides funds to support an endowed chair.</i>	1222889
<b>V. W. Meloche Lectureship</b> <i>Funds a special seminar series in Chemistry.</i>	1222825



## GENERAL DEPARTMENTAL SUPPORT

*These untargeted funds provide key support for our new initiatives.*

<b>Badger Chemist Fund</b> <i>Provides funds to support the Badger Chemist and other Department publications.</i>	1222534
<b>Dr. Norbert Barwasser Chemistry Fund</b> <i>Benefits the Department of Chemistry research and Programs.</i>	32225010
<b>Farrington Daniels Memorial Fund</b> <i>Funds special projects relating to the benefits of science to society.</i>	1222324
<b>Harry L and A Paschaleen Coonradt Fund</b> <i>Established in December 2003 by the family of Jean Irene Love and John Edmund Wright, to remember Jean's kindness, her self-sacrifice, and her deep and unconditional love for all people.</i>	12221413
<b>Jean Irene Love Fund</b> <i>Established in December 2003 by the family of Jean Irene Love and John Edmund Wright, to remember Jean's kindness, her self-sacrifice, and her deep and unconditional love for all people.</i>	12223870
<b>John and Caroline Dorsch Fund</b> <i>A general fund established with a gift from the estate of Professor Les Holt.</i>	12220322
<b>Les Holt Memorial Endowment</b> <i>A general fund established with a gift from the estate of Professor Les Holt.</i>	12223535
<b>Norman G. Mailander Fund</b> <i>Est. in '04 by Norman Mailander's will (see In Memoriam, Badger Chemist #47 (2003)), for special enhancement of the Department of Chemistry in the College of Letters and Science at the University of Wisconsin - Madison.</i>	12224058
<b>Lloyd L. Withrow Fund</b> <i>Paul A. and Jane B. Wilson Fund</i>	12221190
<b>Thomas B. Squire Fund</b>	32220550
	12221796



## INDIVIDUAL RESEARCH GROUP SUPPORT

*(Group; Established by)*

<b>Bio-Analytical Chemistry Fund</b> <i>(Lloyd Smith; Upjohn)</i>	12220368
<b>Carbohydrate Chemistry Research Fund</b> <i>(Laura Kiessling; Zeneca Pharmaceuticals)</i>	12221999
<b>Chemistry Catalysis Fund</b> <i>(Shannon Stahl)</i>	12223733
<b>Eastman Kodak Professorship</b> <i>(Hyuk Yu; Eastman Kodak)</i>	12221901
<b>Kocher Award</b> <i>(Thomas Brunold; Kocher-Preis Kommission, University of Bern)</i>	12223165
<b>Lawrence Dahl Research Fund</b> <i>(Larry Dahl)</i>	12222076
<b>Nuclear Magnetic Resonance Research Fund</b> <i>(Tom Farrar; Johnson Controls)</i>	12221877
<b>Organic Chemistry Research</b> <i>(Hans Reich; Bell, DuPont)</i>	12220190
<b>Organic Research Studies Fund</b> <i>(Howard Zimmerman; Alumni and Friends)</i>	12220747



*In addition to the above Foundation accounts, the following trust funds have been established to support Department programs.*

**STUDENT SUPPORT**

Belle Crowe Fellowship  
 Daniel L. Sherk Award in Chemistry  
 Edward Panek Memorial Scholarship  
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 Chemistry Department Fund  
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 Mabel Duthey Reiner Scholarship  
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**DIVISIONAL and INDIVIDUAL SUPPORT**

Arthur C. Cope Scholar Grant (Casey)  
 Chemistry Department Special Library Fund  
 Chemistry Research Fund (Reich)  
 Dreyfus Teacher-Scholar Award (Nathanson)  
 Hilldale Foundation Funds  
 Innovation Recognition Research Fund (Casey)  
 John Edmond Kierzkowski Memorial Trust (Library)  
 MacArthur Fund (Smith)  
 Steenbock Professorship in Chemical Sciences (Casey)  
 Theoretical Chemistry Institute Fund

**LECTURESHIPS/PROFESSORSHIPS**

James M. Sprague Lectureship  
 Karl Folkers Lecture  
 Series in Chemistry

**GENERAL DEPARTMENTAL SUPPORT**

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This list acknowledges donors to all Departmental funds from July 2005 through June 2006, as recorded by the University of Wisconsin Foundation.

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*We thank each of you for  
 making the improvement of  
 our program possible.*

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 Drs. Rein U. and Carla Verschoor Kirss

Mr. Donald A. Kita  
 Professor Michael Klagsbrun  
 Mr. Robert S. Klang  
 Mr. Alexander A. Klein  
 Mr. Donald B. Koch  
 Dr. William E. and  
 Mrs. Anita J. Koerner  
 Mr. Mark S. Konings  
 Mr. Daniel D. Konowalow  
 Professor Charles S. Kraihanzel  
 Ms. Barbara A. Kratochwill  
 Dr. David A. Krause  
 Mr. and Mrs. Kurt G. Kronholm  
 Dr. Vincent P. Kucski  
 Ms. Paula L. Kuester  
 Mr. Mitchell L. Kurtzweil  
 Mr. Mark D. Kurz  
 Dr. Paul T. Kwitowski

## L

Mr. Ronald William Larochele  
 Mr. and Mrs. Scott D. Larsen  
 Mr. John P. Larson  
 Dr. Robert J. Lascola, Jr.  
 Mr. Lee H. Latimer  
 Dr. Richard G. Lawton  
 Mr. Bi Le-Khac  
 Mr. Charles Y. Lee  
 Ms. Suzanne Legner  
 Dr. and Mrs. Louis M. Leichter  
 Mr. Phillip G. Leith  
 Mr. Victor Lewchenko  
 Mr. Shouzhong Lin  
 Mr. John Carl Littrell  
 Dr. and Mrs. Thomas V. Lloyd III  
 Dr. Frederick Y. Lo and  
 Ms. Polly Chan  
 Professor and Mrs. Jerrold  
 P. Lokensgard  
 Dr. Robert E. Lyle, Jr.  
 Mr. Matthew L. Lynch

## M

Mr. Ning Wang and Ms. Jingwen Ma  
 Dr. David R. Taylor and  
 Dr. Ronda M. Macchello  
 Dr. Mildred M. Maguire

Ms. Donna L. Majewski  
 Mr. Vincent F. Malek  
 Mr. and Mrs. Michael K. Mao  
 Mr. Thomas E. Marfing  
 Ms. Judith Steuck McCleary  
 Professor Robert W. McGaff  
 Ms. Kirsten L. Mc Killop  
 Dr. Lester R. McNall  
 Mr. and Mrs. Rudd A. Meiklejohn  
 Professor Craig A. Merlic  
 Dr. Aubrey F. Messing  
 Mr. James W. Meyer  
 Mr. Adam D. Miller  
 Mr. Dennis L. Miller  
 Professor Gerald R. Miller  
 Ms. Maria L. Miller  
 Dr. Scott B. Miller  
 Mr. Stephen P. Miller and  
 Ms. Alexandra L. Brown  
 Dr. William H. Miller  
 Mr. and Mrs. Brian R. Minix  
 Professor John W. Moore  
 Mr. William J. Morris  
 Mr. and Mrs. Michael M. Morrissey  
 Dr. Stephen D. Morton  
 Dr. Richard D. Mullineaux  
 Mr. and Mrs. John Howard Munch  
 Dr. Catherine J. Murphy  
 Dr. Dennis J. Murphy  
 Professors Mark A. and  
 Karen J. C. Muyskens

## N

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 Dr. Ronald E. Negri  
 Dr. and Mrs. Norman A. Nelson  
 Dr. John A. Neptune  
 Dr. F. Henry M. Nestler  
 Dr. and Mrs. Stephen M. Neumann  
 Professor James C. Nichol  
 Professor Anne-Marie L. Nickel  
 Ms. Pamela Ann Norris

## O

Ms. Lois Hirai Ohlson  
 Mr. William J. Oien  
 Mr. Richard E. Olson

## P

Ms. Kathleen B. Pantzer  
 Mr. David R. Patek  
 Dr. Robert C. Paulick  
 Mr. Theodore E. Pauly  
 Dr. Paul E. Peckham  
 Mr. Jeffrey L. Petersen  
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 Professor Ralph H. Petrucci  
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P

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 Mr. Larry S. Pierce  
 Dr. David W. Piotrowski  
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 Ms. Nicola Lucia Pohl  
 Mr. Stanley W. Polichnowski  
 Mr. Derek J. Popp  
 Mr. Ryan E. Powers  
 Professor Berton C. Pressman  
 Procter and Gamble Fund  
 Mr. Clifford J. Pukaite  
 Professor Curtis R. Pulliam

Q

Professor La Verne Carl Quass

R

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 Mr. Douglas R. Radtke  
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 Dr. Anthony E. Ramsey  
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 Mr. and Mrs. Winfield A. Reinemann, Jr.  
 Mr. John R. Reinert Nash  
 Ms. Margaret M. Rendall  
 Mr. Charles T. Ricksecker  
 Dr. Steven C. Rifkin  
 Mr. Christopher J. Rito  
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 RND Pharmaceuticals Inc.  
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 Professor Laurence D. Rosenhein  
 Dr. Thomas M. Rosseel  
 Mr. Bill F. Rothschild  
 Mr. Stephen L. Royal  
 Mr. Donn N. Rubingh  
 Mr. and Mrs. David E. Rudolph  
 Mr. Roswell J. Ruka  
 Drs. Robert C. and  
 Kathleen H. Ryan

S

Ms. Alison Marie Sadowy  
 Mr. Gilbert M. Nathanson and  
 Ms. Mary E. Saecker  
 Mr. and Mrs. Robert Gerd Salomon  
 Mr. Myran C. Sauer, Jr.  
 Dr. Donald F. and  
 Mrs. Winifred M. Saunders  
 Mr. Charles B. Schewene  
 Mr. Richard S. Schiefelbein  
 Mr. Robert W. Schmelzer  
 Ms. Lori E. Schneider  
 Mr. Stephen R. Schoening  
 Dr. Frederic W. Schremp  
 Ms. Margaret A. Schumacher  
 Mr. C. Eric and Professor  
 Marietta H. Schwartz  
 Mr. and Mrs. Carl W. Seidel  
 Mr. Paul H. Severin  
 Dr. Irving Shain  
 Dr. Rubin Shapiro  
 Dr. Marlene S. Shaul  
 Dr. Steven A. Shaya  
 Dr. and Mrs. Brian D. Shepherd  
 Dr. Robert A. Shepherd, Jr.  
 Mrs. Jean B. Shuler  
 Dr. and Mrs. Donald J. Siehr  
 Professor Ernest F. Silversmith  
 Mr. Merlin E. Silverthorn  
 Mr. James D. Sinclair  
 Mr. Martin F. Sloan  
 Ms. Evelyn S. Smith  
 Dr. Gary Lee Smith  
 Mr. Victor G. Soukup  
 Mr. James E. Speerschneider  
 Mr. Ralph E. Spindler  
 Professor Charles H. Stammer  
 Professor Daniel J. Steffek  
 Dr. Monroe A. Sprague and  
 Mrs. Carol A. Stevens Sprague  
 Mr. and Mrs. Robert E. Stevens  
 Dr. Theodore M. Stokich, Jr.  
 Mr. Jeffrey S. Stults  
 Ms. Qiong Jie Sun  
 Mr. Paul W. Sutton  
 Ms. Roberta A. Svacha  
 Mr. Peter G. Szanto

T

Mr. and Mrs. Richard L. Tallman  
 Dr. Martha H. Tanner  
 Mr. Anthony W. Tantillo  
 Dr. and Mrs. Charles W. Taylor  
 Dr. Marvin Harold Tegen  
 Dr. Glenn A. Terry  
 Mr. Stephen L. Thacher  
 Ms. Monica Mary Thiry  
 Mr. James A. Thomas  
 Mr. and Mrs. Alan C. Thomas  
 Mr. David E. Thompson  
 Dr. Patrick M. Thompson  
 Dr. Jerome Timmons  
 Mr. Russell G. Tonkyn  
 Ms. Beatrice Touton-Fritz  
 Mr. Donald L. Towns  
 Mr. John E. Trend  
 Mr. Viet Trinh  
 Professor Joseph J. Tufariello  
 Mr. Gregory Peter Turco  
 Mr. Vitaliy Tymokhin

U

Dr. Marjorie L. Uhalde  
 Ms. Mary Claire Uhing

V

Mr. William C. Vladuchick  
 Ms. Heather J. Vlasak  
 Mr. James C. Vlazny  
 Dr. Nicholas W. Vollendorf  
 Mr. Donald J. Voskuil

W

Dr. Eric A. Wachter  
 Mr. Eugene R. Wagner  
 Mr. and Mrs. Klaus Peter Wagner  
 Mrs. Jean F. Waite  
 Ms. Carol H. Wallace  
 Mr. Winston J. Wayne  
 Ms. Ruby F. Webb  
 Ms. Karen J. Weiland  
 Professor Gary R. Weisman  
 Dr. Robert E. Wellauer  
 Mr. and Mrs. Kevin M. Welsh  
 Professor Robert C. West, Jr.  
 Mr. Donald P. Wiesler  
 Mr. Adolph Y. Wilburn  
 Mr. Douglas G. Williams  
 Dr. and Mrs. Robert C. Williams  
 Mr. Malcolm L. Williams  
 Mr. C. V. Wittenwyler  
 Mr. Paul L. Wollenzien  
 Dr. Herbert T. Wood  
 Mr. Robert H. Wopschall  
 Dr. Julie S. Wrazel  
 Ms. Kelly J. Wright  
 Mr. Brian P. Wurst

Y

Drs. Warren C. and Laura C. Yeakel  
 Mr. and Mrs. Kenneth E. Yelm  
 Mr. and Mrs. Howard Bruce Yokelson  
 Dr. and Mrs. Austin H. Young  
 Professor and Mrs. Hyuk Yu

Z

Dr. Jeffrey P. Zebrowski  
 Mr. David C. Zecher  
 Mr. and Mrs. George J. Ziarnik







# In Memoriam

## Chris Daniels

Chris Daniels, grandson of former Chair of the Department of Chemistry Farrington Daniels, and son of Farrington Daniels Jr., died March 12, 2006, while skiing in Duluth, MN. A celebration of Chris's life was held on April 1, 2006, at the Barrymore Theater on Atwood Ave. Contributions in honor of Chris can be made to Big Brothers and Big Sisters of Dane County, the Nature Conservancy for work in Door County, WI, the Wisconsin Law Foundation, or the Madison Curling Foundation.

## George T. Furukawa

(PhD '48, Bender) of Gaithersburg, MD, passed away on Friday, March 31, 2006, at the age of 84. He was the beloved husband of the late Sally S. Furukawa; father of Barbara F. Hayashida of El Cerrito, CA and Corinne M. Westphal of Hamburg, Germany. After receiving his Ph.D. in physical chemistry from the University of Wisconsin in 1948, Dr. Furukawa joined the National Bureau of Standards. His career spanned 57 years at the National Bureau of Standards, later the National Institute of Standards and Technology, as both an employee and a guest researcher. Until 1970, his research centered on experimental thermodynamics—the study of interactions between materials and heat. Dr. Furukawa measured the thermal properties of numerous scientifically important chemical compounds, developed new measurement and analysis methods, and was an author of the authoritative chapter "Heat Capacity" in the American Institute of Physics Handbook.

In the second half of his career, Dr. Furukawa devoted himself to perfecting methods for the accurate calibration and characterization of precision thermometers. Work that Dr. Furukawa published decades ago has not been significantly improved upon by subsequent researchers. As recently as 2001, 15 years after his official retirement, he published state-of-the-art investigations on the high-temperature properties of thermometers. Many of the technical methods that Dr. Furukawa developed for thermometry have been adopted worldwide, both commercially and at other government laboratories, and

the present capability of these laboratories to measure temperature accurately is due in large part to Dr. Furukawa's ground-breaking work. His comprehensive publications and collegial interactions with his colleagues have educated a generation of temperature metrologists in both government and industry. In recognition of the depth and importance of his work, Dr. Furukawa received the Department of Commerce Silver Medal in 1973 and was selected for inclusion in the NIST Portrait Gallery of Distinguished Scientists and Engineers in 2003.

Up to the time of his death, Dr. Furukawa actively participated in the development of written standards for the American Society of Testing and Materials (ASTM), which guide the industrial practice of thermometry throughout the United States and many other countries. He received the ASTM Award of Merit in 1986 in appreciation of this work. Dr. Furukawa's encyclopedic and perceptive knowledge, along with his ability to craft exceptionally clear prose, earned him continued respect from his colleagues.

## Alan A. Jones

(PhD '72, Cornwell) died Tuesday, May 23, 2006, at the age of 61. Alan was born in Jamestown, NY, settled in Worcester County in 1974 and moved to North Brookfield where he lived for the past 23 years. He received his B.A. (Magna Cum Laude, Phi Beta Kappa) with High Honors in Chemistry from Colgate University in 1966. He went on to graduate study in the field of Nuclear Magnetic Resonance (NMR) and completed his Ph.D. in Chemistry at the University of Wisconsin in 1972 and spent two years of post-doctoral work at Dartmouth College working with the late Walter J. Stockmayer in Polymer Science. He became an Assistant Professor of Chemistry at Clark University in 1974 and rose quickly through the ranks to full Professor in 1983. He served as Chairman of the department during much of the 1980s and served a term as University Professor from 1996-1999. Professor Jones also served the University community as a member of the Academic Administration. He was Dean of Graduate Studies and Research from 1993-95 and Acting Provost during 1987-88.

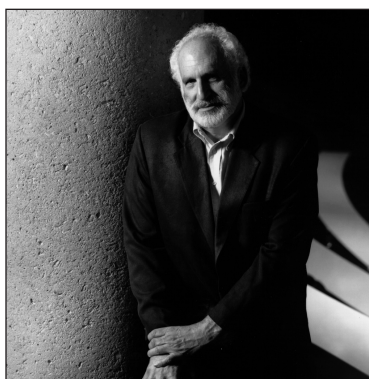
Prof. Jones' research focused on the properties of modern polymeric/plastic materials and polymer dynamics and the study of those properties through the use of solid state NMR spectroscopy. He published more than one hundred scholarly articles, both as book chapters and articles in peer reviewed scientific journals, describing his work. His work had been supported for many years through grants from the National Science Foundation, the Naval Research Office, the Petroleum Research Fund and the Army Research Office. His research group had an ongoing relationship with many major corporate research centers including General Electric, Eastman Chemicals, Xerox and Exxon. He was involved with private foundations in obtaining funds to enhance the sciences at Clark both in terms of major scientific equipment acquisitions and infrastructure. As a consequence of his leadership, Clark University and in particular The Carlson School of Chemistry and Biochemistry gained national recognition as a Center for Nuclear Magnetic Resonance. He made presentations and organized scientific symposia on the national and international stage in his field. Professor Jones worked with research students at all levels and was mentor to undergraduate, graduate and post-doctoral students over his thirty-two years at Clark University as well as new faculty coming to the University. He was widely regarded as an exceptional teacher and received the University's Outstanding Teacher Award in 1988. He was especially well known for his dedication to his students and spent as much time mentoring them as individuals as he did working with them on their professional development.

Beyond his work at Clark University, Al devoted much of his life to guiding youth of all ages. Ever-active, he enjoyed teaching children skiing and snowboarding, coaching basketball teams, helping with homework, and doing chemistry demonstrations at local schools. Al was also an avid gardener and over the years transformed his lakefront yard into a wondrous and meticulously maintained landscape of flowers and decorative plants and trees. Al was very generous and shared his good fortune with many.

Al is survived by two brothers, Brad Jones of New York and Bruce Jones of Cleveland, OH; nephews/nieces; and his two dogs, Duncan & Sadie. His wife of 34 years, Eunice (Li) Jones, is grateful for Al's love and for the travel experiences they shared together made possible by his adventurous spirit. Al treasured time spent with family and friends, vacations with his brothers, and holidays with Eunice's cousin Joanne and their families. The family has asked for donations to Clark University in memory of Dr. Alan A. Jones 950 Main St., Worcester, MA 01610.

### Richard Sacks

(PhD '69, Walters) Professor of Chemistry at University of Michigan-Ann Arbor, died peacefully at his home in Ann Arbor on February 11, 2006, after a courageous battle with cancer. He was 63. He received his B.S. Chemistry from the University of Illinois (Champaign) in 1965, and his Ph.D. in Analytical Chemistry from the University of Wisconsin at Madison in 1969. He began his career as an assistant professor in Ann Arbor that same year and was promoted to associate professor in 1974 and full professor in 1979. He served the Chemistry Department as associate chair for graduate studies from 1987-1992. During his 37 years as a faculty member in the Chemistry Department, Sacks was a truly outstanding educator, teaching both undergraduate and graduate students the principles of modern analytical chemistry and instrumentation. Over this period, he was a driving force in modernizing the analytical chemistry curriculum. He developed completely new courses on chemical instrumentation at the undergraduate level; and at the graduate level he introduced courses on electronic measurements and microcomputer control of analytical instruments, as well as modern separations methods. He served as mentor to many

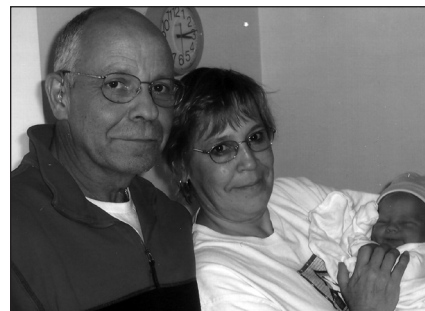


Ph.D. graduate students, who have gone on to distinguished careers in academia, industry and government laboratories. Professor Sacks was internationally recognized for his pioneering work on analytical instrumentation. During the early part of his career, his research focused on novel atomic emission spectroscopic methods, including direct solid-sample elemental analysis. In the 1970s he developed exploding thin film platforms for solids analysis that combined simplicity of sample introduction with unprecedented low detection limits. In the mid-1980s, he turned his attention to innovative approaches to high-speed gas chromatographic separations of complex mixtures of volatile organic compounds. His methodologies reduced measurement times for complex mixtures almost 100-fold and attracted great academic and industrial interest, eventually leading to formation, with several of his students, of a spin-off company, Chromatofast Inc., that commercialized instrumentation invented in the Sacks laboratory. In recent years he helped to lead efforts at the University to create wireless micro-analytical systems for environmental, homeland security, and deep-space applications. During his career, Prof. Sacks and his coworkers published more than 150 research papers on these topics and presented their findings at scientific conferences all over the world. Prof. Sacks is survived by his wife Kristine and his daughter Jenny. A public memorial service was held on March 9, 2006. The Department of Chemistry has established the Richard D. Sacks Memorial Travel Award used to support yearly travel awards for analytical chemistry graduate students to present their research at technical conferences. For more information, call the Chemistry Department at 734 615-9852.

### Dick Terhall

It is with great sadness that we inform you of the death of our friend and colleague Dick Terhall. He died in Madison on Sunday, October 8, 2006 of a heart attack. Dick had been battling esophageal cancer. Dick worked in the Chemistry Mail Room for the past 6 years, and was a friend to everyone he came in contact with. His good humor and positive approach to life were a great influence on all of us, and I believe we have all been enriched by his presence in our lives. We send his family our condolences and deepest sympathy.

*We have also been informed of the following deaths of alumni and friends:*



**Donald Charles Aker** (BS '52) died December 22, 2005, at the age of 76.

**Gerald Richard Aldridge** (MS '50, Wilds) died August 8, 2006, at the age of 79.

**Guy B. Alexander** (PhD '47, Meloche) died August 29, 2003, at the age of 85.

**John William Alexander** (BS '35, PhD '41, Meloche) died September 14, 2005, at the age of 86.

**Sherwin Toshio Amimoto** (PhD '79, Cornwell) died September 19, 2006, at the age of 59.

**Aaron Arnold** (BS '33, McElvain) died October 29, 2004, at the age of 94.

**Chester Atfield Barrand Jr.** (BPH '47) died November 10, 2005, at the age of 85.

**William Harrison Bateman** (BS '39) died December 5, 2001, at the age of 85.

**Harold Norman Baxter** (BS '38, McElvain) died November 4, 2005, at the age of 89.

**Rosemary Behrend Beamer** (BS '30, Meloche) died June 29, 2002, at the age of 83.

**Erich Anton Bergs** (BS '80, Trost) died January 4, 2003, at the age of 45.

**Benjamin Reese Bierer** (MS '69) died June 18, 2004, at the age of 87.

**Robert Owen Blau** (BS '34, Meloche) died August 23, 2003, at the age of 92.

**Edward Gustave Bohlmann** (BS '39, MS '42, Willard) died March 28, 2006, at the age of 88.

**Archibald Newton Bolstad** (PhD '51, McElvain) died April 10, 2003, at the age of 86.

**Varley Sherman Bond** (BS '34, MS '36, Adkins) died June 18, 2001, at the age of 89.

**Wilbur Benjamin Bridgman** (PhD '37, Williams) died April 7, 2003, at the age of 90.

**Lester Paul Brillman** (BS '33, McElvain) died November 14, 2005, at the age of 93.

**William Charles Brodhagen** (BS '38, MS '39, Meloche) died June 17, 2005, at the age of 88.

**Janet Weber Bruhn** (BS '50, Meloche) died July 11, 2004, at the age of 92.

**Robert James Bugarin** (BS '81, Crim) died October 2, 2004, at the age of 45.

**Clifford John Burg** (BS '37, Meloche) died September 9, 2005, at the age of 92.

**Edward Eynon Burgoyne** (MS '47, PhD '49, Adkins) died April 30, 2004, at the age of 85.

**James Moran Caffrey Jr.** (MS '47, PhD '49, Adkins) died April 17, 2005, at the age of 86.

**Lauren Michael Cagen** (BS '64) died May 26, 2006, at the age of 62.

**Arthur Wilhelm Carlson** (MS '47, PhD '52, Wilds) died December 31, 2005, at the age of 90.

**William Thomas Carnall** (PhD '54, Willard) died June 22, 2003, at the age of 76.

**Clint W. Carpenter** (PhD '87, Zimmerman) died November 25, 2002, at the age of 45.

**Craig Ronald Carson** (BS '70) died November 17, 2000, at the age of 53.

**Mallasetty S. Chandrasekharaiah** (PhD '59, Margrave) died April 2, 2002, at the age of 72.

**Robert George Christiansen** (PhD '52, Johnson) died February 15, 2002, at the age of 77.

**George Paul Colbert** (BS '50, MS '53, Meloche/Blaedel) died January 7, 2006, at the age of 77.

**Michael Joseph Curry** (PhD '48, McElvain) died in 2001.

**Richard David Cyr** (BS '59) died in September 2002.

**George Larry Davis** (MS '59, Dahl) died January 21, 2004, at the age of 68.

**James Bradley Denton** (BS '75, Yu) died July 29, 2002, at the age of 48.

**Adrian M. Docken** (PhD '41, Klein) died November 27, 2003, at the age of 90.

**Daniel A. Dunnigan** (MS '49, Johnson) died August 17, 2001, at the age of 82.

**Earl Raymond Ebersole** (BS '43) died January 5, 2005, at the age of 86.

**Josephine P. Egan** (BSE '36) died April 13, 2006, at the age of 93.

**Paul Ehrlich** (MS '48, PhD '50, Ferry) died February 18, 2003, at the age of 79.

**Edward Louis Englehardt** (PhD '44, McElvain) died January 11, 2005, at the age of 85.

**Eugene Dodson Farley** (BSE '31) died April 27, 2003, at the age of 92.

**Robert Norman Feinstein** (BS '37, PhD '40, Physiological Chem) died September 23, 2005, at the age of 90.

**Ralph Henry Firminhac** (BS '41, MS '42, Holt/Schuetz) died March 18, 2000, at the age of 80.

**Rolf Edward Funer** (PhD '65, Muxfeldt) died May 5, 2003, at the age of 62.

**John Herman Giese** (BS '51, Blaedel) died September 17, 2000, at the age of 71.

**Martha E. Smith Gilbert** (PhD '37, Adkins) died March 2, 2000, at the age of 91.

**Ethel Thea Goble** (BS '35, McElvain) died September 12, 2004, at the age of 91.

**Robert Herman Goeckermann** (BS '44, Bender) died February 1, 2002, at the age of 80.

**Glenn Alan Goldsmith** (BS '53) died March 20, 2004, at the age of 72.

**Loretta Ann Grezzo** (PhD '80, Nelsen) died July 23, 2004, at the age of 51.

**Clinton Richmond Griswold** (BS '39, Sorum) died November 15, 2005, at the age of 87.

**Arthur H. Groth Jr.** (BS '50, Ferry) died December 28, 2002, at the age of 75.

**Arthur Vincent Hankinson** (BS '39) died January 1, 2002, at the age of 86.

**King Carleton Harte** (BS '48) died June 12, 2003, at the age of 76.

**Don Jordan Henderson** (PhD '68, Willard) died September 3, 2001, at the age of 61.

**Roger Allen Hoffman** (BS '39) died March 6, 2006, at the age of 90.

**Henry Boughton Hollinger** (PhD '60, Curtiss) died December 17, 2004, at the age of 71.

**Jack Matthew Horner** (BS '60) died December 4, 2004, at the age of 76.

**Norbert Isenberg** died October 30, 2004, at the age of 81.

**Robert Hayes Jensen** (BS '42, Meloche) died June 15, 2002, at the age of 82.

**Don Herbert Johns** (BS '48, MS '51, PhD '54, Hall) died July 28, 2005, at the age of 80.

**Ruth Klinka Kalmbach** (BS '39, Schuetz) died January 10, 2006, at the age of 88.

**Irene Elsie Karl** (BS '37, PhD '40, Physiological Chem) died July 7, 2006, at the age of 90.

**George Oscar Kohler** (BS '34, McElvain) died April 15, 2006, at the age of 93.

**Stephen Wickey Koontz** (MS '72, PhD '77, O'Leary) died May 20, 2005, at the age of 57.

**Marguerite Estella Kopp** (BSE '48) died February 12, 2005, at the age of 78.

**Donald William Kracht** (BS '64) died March 1, 2001, at the age of 58.



**Charles Eugene Kretz** (BS '71) died April 18, 2004, at the age of 54.

**Andris Aleksandrs Lazdins** (BS '60, Evans) died December 24, 2002, at the age of 66.

**Paul Elliott Lighty** (BPH '36, Mathews) died January 12, 2005, at the age of 96.

**John G. Lofstrom** (PhD '54, Blaedel) died June 11, 2004, at the age of 77.

**Arthur Owen Long** (PhD '50, Willard) died January 20, 2006, at the age of 94.

**Donald Thompson Lurvey** (BS '39, Meloche) died June 5, 2004, at the age of 88.

**Margaret St. Clair Lyons** (PhD '49, Williams) died April 14, 2005, at the age of 82.

**Philip Augustine Lyons** (PhD '48, Bender) died July 31, 2006, at the age of 90.

**John Lafayette Magee** (PhD '39, Daniels) died December 16, 2005, at the age of 91.

**James Edward Mars** (BS '54) died September 7, 2006, at the age of 76.

**Asa Orville Maylott** (MS '47, Schuette) died June 10, 2004, at the age of 84.

**John Sawyers Meek** (BS '41, Adkins) died January 15, 2004, at the age of 85.

**Cedric Gropper Mickelson** (BS '35, MS '36, Adkins/McElvain) died November 24, 2003, at the age of 91.

**Daniel Robert Miller** (BS '41, Willard) died February 15, 2005, at the age of 87.

**Evan Dorian Miller** (PhD '94, Yu) died June 5, 2001, at the age of 36.

**Richard Lee Myers** (PhD '71, Shain) died October 22, 2005, at the age of 60.

**Carl Eugene Nelson** (BS '39) died June 17, 2000, at the age of 85.

**Walter Robert Neuendorf** (MS '52, Blaedel) died May 1, 2000, at the age of 72.

**Jane Neustedter** (BS '39, MS '41, Schuette) died July 3, 2004, at the age of 86.

**Morris Lowell Nielsen** (PhD '41, Holt) died September 1, 2006, at the age of 92.

**Mary Jane Oestmann** (MS '48, PhD '54, Hall) died June 17, 2006, at the age of 82.

**Alfred Carman Olson** (MS '51, PhD '54, Goering) died June 26, 2005, at the age of 78.

**Marie Kleinhans Olson** (BA '26) died August 2, 2003, at the age of 99.

**Robert Charles Palmer** (BS '36, McElvain) died March 28, 2003, at the age of 90.

**Wilfred Orville Parrish** (BS '41, Meloche) died December 21, 2001, at the age of 86.

**Joseph Moses Philipson** (BS '40, Sorum) died May 10, 2004, at the age of 85.

**John Andrew Pianfetti** (MA '33, PhD '41, Adkins) died February 3, 2006, at the age of 98.

**Herbert Ernst Pleuss** (BA '37) died September 6, 2004, at the age of 89.

**Robert Frank Prier** (BS '50) died November 17, 2004, at the age of 78.

**Jack London Radomski** (BS '42, Mathews) died March 30, 2006, at the age of 85.

**William Richard Rinelli** (BS '33, Adkins) died February 7, 2006, at the age of 95.

**William Ross Roach** (BS '39, McElvain) died October 20, 2002, at the age of 84.

**Ronald Duane Roesler** (BS '50) died September 19, 2003, at the age of 74.

**Lawrence Rosen** (BS '47, Ihde) died October 16, 2005, at the age of 80.

**John M. Schempf** (BS '34, McElvain) died January 17, 2001, at the age of 88.

**Calvin Herbert Schmiede** (BS '49) died July 25, 2005, at the age of 79.

**Henry Nehemje Schrage** (BS '43) died June 18, 2002, at the age of 82.

**John George Schuren** (BS '51) died May 27, 2006, at the age of 77.

**James Louis Schwedler** (BS '49, Larsen) died May 5, 2001, at the age of 77.

**Wesley A. Severance** (BS '39, Holt) died December 22, 2003, at the age of 91.

**Randy Smejkal** (BS '78, Evans) died October 31, 2002, at the age of 46.

**Ralph Willard Stevens** (BA '30) died May 27, 2004, at the age of 94.

**Gabrielle Koehler Stoutamire** (MS '56, Wilds) died January 13, 2003, at the age of 74.

**John Henry Strohl** (PhD '64, Blaedel) died September 24, 2000, at the age of 61.

**Aaron Sweed** (BS '39) died October 30, 2005, at the age of 88.

**Burris Dwight Tiffany** (PhD '49, McElvain) died October 26, 2003, at the age of 82.

**Leon Abraham Van Akkeren** (MA '32, Adkins) died May 23, 2001, at the age of 92.

**William L. Van Horne** (PhD '41, Hall) died August 17, 2005, at the age of 91.

**John Fernando Vozza** (PhD '48, McElvain) died December 20, 2002, at the age of 86.

**William Henry Washburn** (BA '41) died Jul 13, 2006, at the age of 85.

**Frances Helders Webb** (BA '52, PhD '56, Ferry) died November 9, 2004, at the age of 73.

**Gary Allen West** (PhD '75, Berry) died May 12, 2005, at the age of 56.

**Donald Dean Wheeler** (BS '50, McElvain) died January 29, 2003, at the age of 74.

**Donald Robert Williams** (BS '37, McElvain) died March 7, 2006, at the age of 88.

**Patrice Diane Zvara** (BS '80, Curtiss) died May 11, 2005, at the age of 46.

