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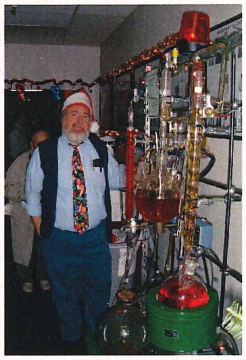
Chemistry Newsletter

Volume 22 - Fall 2002

Jim Krueger honored by friends and family for years in Chemistry Department, p. 3.



Jack Whitney retires after 32 years at OSU, p. 17

High-temperature, light-emitting ceramic film deposited onto a flexible plastic substrate, p. 16

Achieving Departmental Goals

A section of the Department of Chemistry Mission Statement reads:

> Conduct research and scholarly activities that will augment the education of our students, be relevant to national and international needs, and improve the economic competitiveness of Oregon and the nation. Focus that research on **areas of chemistry important to biology, materials, and the environment**.

This strategy to focus some fraction of departmental resources into a few areas is based on the following premise: the best way to build prominence in research is to select a few areas of strength and of national interest, and to invest in these areas. As a practical matter, this strategy is implemented through hiring in these areas, investing in instrumentation and facilities to support these areas, and reshaping the graduate program along these lines. To that end, the department hired Staci Simonich, Assistant Professor of Analytical Chemistry and Rich Carter, Assistant Professor of Organic Chemistry. Rich's research will strengthen and complement the natural products synthesis research in the department and will build up the biological chemistry focus area. Staci's program has already begun to attract greater numbers of graduate students interested in the analytical/environmental chemistry arena.

Improving the inventory of research instrumentation is also critical. Recent success in obtaining funding for NMR upgrades, new mass spectrometers, and an area detector for x-ray diffraction exemplify the investments needed to develop strength in research. In the past year Doug Barofsky and Wei Kong were successful in acquiring major new equipment for their laboratories (p.4-5). Reshaping graduate curriculum to attract students to OSU may take the form of developing strong interdisciplinary programs in areas such as environmental sciences, materials science, and medicinal and pharmaceutical chemistry.

Continued on page 2

Departmental Goals: Continued from page 1

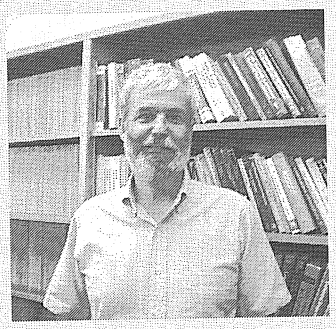
Despite these signs of progress, state and national economic shortfalls present a challenge for the research program. Older adults returning to school are back-filling the ranks of graduate students and a baby boomlet in the seventies has expanded undergraduate enrollment. Worn out buildings and outdated equipment are starting to show their age under the strain of larger classes. To serve more undergraduates with fewer dollars and achieve departmental goals will require ingenuity and budgeting skills beyond customary day-to-day administration. What will it take to continue building a cohesive program based on the talent and commitment of the dedicated members of our department? Research faculty members have been reaching across traditional borders to other academic units and to industry to find creative ways to keep research inspiration alive. The Chemistry Department Advisory Board meets annually to wrestle with these issues and offer new ideas to the discussion.

As one approach towards meeting these challenges, the Department established a new **Fund for Excellence in Graduate Education** in the OSU Foundation. With a target of $25,000 per year for five years, this fund will be used to provide fellowships and to attract the very best new graduate students into our program; to provide a seminar program with speakers at the cutting edge of research; to provide travel funds for graduate students to attend conferences; and to support the development and presentation of innovative courses for graduate students, such as the highly successful course in medicinal chemistry described on page 13.

As an alumnus or friend of chemistry who has benefited from the Chemistry program at OSU, you can recognize the value of such a fund. We think you will want to support this effort. You may designate all or a portion of your annual giving to the Graduate Education Fund by checking the box on the envelope provided in this newsletter.

It has been a pleasure to hear from several of you during the past year and we are extremely grateful for your generous donations. We like to hear from our former students, so please take a few minutes to tell us how you are doing. If you are in the area, be sure to stop by.

John C. Westall

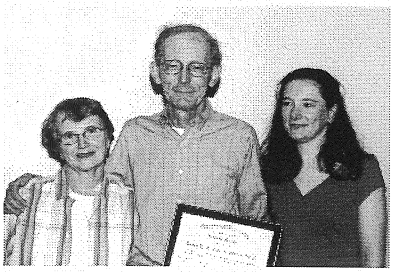


John Westall
Chairman

Chemistry Alumni News

Last year's newsletter was not mailed, but rather was posted on our website.
www.chem.orst.edu

Honoring a Remarkable Man

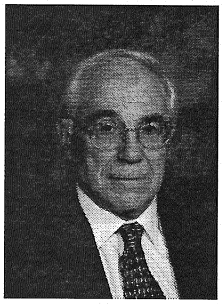


Jim Krueger's wife Bonnie and daughter Carolyn joined in honoring him for a remarkable career as teacher, mentor, and researcher at OSU.

The Department of Chemistry at Oregon State University and friends and family of **Professor Jim Krueger** have created the James H. Krueger Excellence Fund through the OSU Foundation. This fund was created on June 6, 2001, on the occasion of his 65th birthday to honor him and his dedication to excellence in chemistry education at Oregon State University. Jim Krueger, highly regarded teacher and researcher, and emeritus chemistry professor, earned his BS in 1958 from the University of Wisconsin and his PhD in 1961 from UC Berkeley. He taught at OSU for 36 years prior to his retirement. Even though Jim has retired, he continues to teach general chemistry in the Honors College at OSU, and is an active participant in the mentoring program for chemistry graduate students who plan to teach. He continues to motivate and inspire chemistry students to become science teachers and stays in touch with them after graduation.

This fund will support the James H. Krueger Excellence in Education Award, established to recognize and benefit the members of the faculty and student members of the Department of Chemistry who share his commitment to effective teaching. The annual James Krueger Award of $1000 will be given to a faculty or student member of the Chemistry Department who has made an outstanding contribution to chemistry education at OSU. This fall, the first James H. Krueger Award was presented to Rick Nafshun, an outstanding instructor in the general chemistry series.

James D. White
2003 Arthur C. Cope Senior Scholar



Professor James White

Congratulations are in order for **Jim White**, winner of a prestigious 2003 Arthur C. Cope Senior Scholar Award from the American Chemical Society. The award, announced August 19th in *Chemical & Engineering News*, includes an honorarium of $5,000, a certificate, and a $40,000 unrestricted research grant assigned by the recipient to any University or non-profit institution. White is being recognized for his work on the synthesis and structural elucidation of natural products. In a 30-year career at OSU, White has trained nearly 60 graduate students and more than 80 postdoctoral researchers, served on the editorial boards of several professional chemistry journals and authored over 100 publications.

White's award address will be presented before the Division of Organic Chemistry at the 226th ACS National Meeting in New York, in September 2003. The purpose of the Arthur C. Cope Scholar Awards, established in 1984 by the ACS Board of Directors, recognizes and encourages excellence in chemistry. These awards are supported by income from the Arthur C. Cope Fund administered by the ACS.

New MALDI TOF/TOF MS Installed

Lilo Barofsky is responsible for operation and maintenance of the new MALDI TOF/TOF MS.

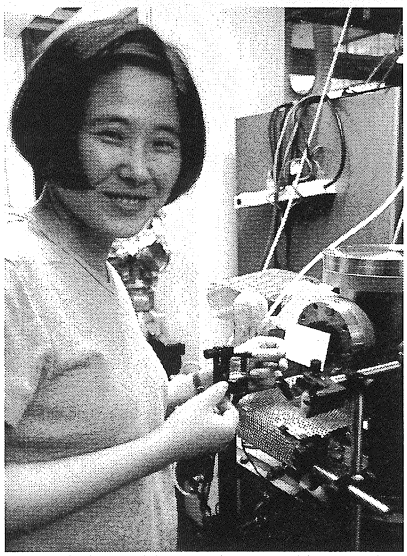
The Department of Chemistry was awarded a grant from the National Institutes of Health for the acquisition of a state-of-the-art, matrix-assisted laser desorption/ionization (MALDI) tandem time-of-flight mass spectrometer (TOF/TOF MS). Matching funds toward the purchase of this instrument were provided by the OSU Office of Research, College of Agricultural Sciences, College of Pharmacy, College of Science, Center for Gene Research & Biotechnology, Environmental Health Sciences Center, Linus Pauling Institute, Department of Biochemistry & Biophysics, Department of Chemistry, Department of Environmental & Molecular Toxicology, Department of Microbiology, and Gene Tools, LLC. Purchased from Applied Biosystems at a cost of $550,000, this is the only commercially manufactured time-of-flight mass spectrometer that makes use of high-energy collision-induced dissociation – a feature that makes it possible to elucidate the sequences and other structural features of proteins in a way that is complementary to that of instruments, such as the powerful quadrupole/time-of-flight mass spectrometer the Department acquired last year, that use low-energy collision-induced dissociation to break apart proteins and peptides.

The new MALDI TOF/TOF MS generates peptide-sequencing information from 0.10 to 100 fmol of sample. The new MALDI TOF/TOF MS generates peptide-sequencing information from 0.10 to 100 fmol of sample. The instrument's resolving power is equal to or greater than 5,000 at masses slightly lower than that of the peptide ion being subjected to fragmentation and equal to or greater than 1,500 at masses less than 100u. The mass-accuracy gained by this unparalleled capability, which at a few ppm is sufficient to determine a peptide's elemental composition, dramatically increases the likelihood of unambiguously identifying a protein by database searching or unequivocally locating sites of modification on a peptide. Nucleic acids, glycolipids, and carbohydrates are also amenable to analysis on the new instrument.

The MALDI TOF/TOF MS system was installed in the Department's Mass Spectrometry Laboratory. Its addition is doubly gratifying for the Department of Chemistry. Not only will this powerful instrument enable the Department to engage in numerous research efforts in biochemical sciences and biotechnology, but the invention of the TOF/TOF ion optics originated within the Department itself. Doug Barofsky conceived the idea in the early nineties and, with the aid of one of his OSU students (Dan Katz, Physics) and international collaborators (Per Håkansson and Gamini Piyadasa, Division of Ion Physics, University of Uppsala, Sweden), produced working prototypes of the device's two key components, viz. one that permits precursor ions (i.e. the ions targeted for fragmentation) to be selected with high resolving power and high transmission and one that makes it possible to produce a high resolution mass spectrum covering the entire mass range of the fragment ions for each time-of-flight recording event. OSU, which holds the patent for this invention, and the Department of Chemistry can take credit for a significant advance in the mass spectrometric technology that makes the nascent field of proteomics possible.

New Tunable Laser System Installed

In an effort to reach the departmental goal of updating equipment available for current research, **Wei Kong** submitted a joint proposal for a new broadly tunable laser system last year. This equipment was built, delivered, and installed in her laboratory during the 2001/02 year. The new laser is the first of its kind on campus, with a tuning range from the infrared (2200nm) to the ultraviolet (410 nm). This tremendously enhances research possibilities campus wide, with impact far beyond the projects specified in her proposal. Funding for the new equipment came from the Kelly Family Fund (50%), the OSU Research Office (25%) and 12.5% from both the College of Science and the College of Engineering. Several proposals have already been submitted to NSF, DOE, and Air Force Office of Scientific Research to fund studies which could only be pursued with this level of instrumentation.

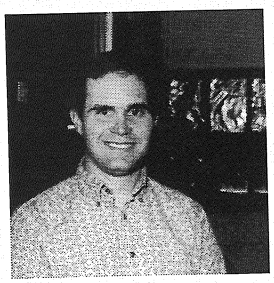


Wei Kong sets the laser beam into position before performing experiment.

Kong's proposal was submitted jointly with Chih-Hung Chang in Chemical Engineering whose studies in nanotechnology-based chemical processes will make use of the new laser. He submitted a proposal for NSF funding for the acquisition of a monochromator with a CCD detector. The combination of this tunable laser and the additional instrument will provide a variety of tools for process characterization and material synthesis, including Photoluminescence Excitation (PLE), Resonance Raman and Multiphoton Absorption Spectroscopy.

The broad tunability of this laser system ensures its application in many other disciplines. For example, Doug Keszler in Inorganic Chemistry will now be able to use the laser to characterize nonlinear crystals developed in his laboratory. Tom Plant from Electrical and Computer Engineering is interested in a tunable light source for research in several different areas, including optical fibers, flat panel display and laser ablation. Kaichang Li from Forest Products is interested in collaboration on studies of photobleaching of paper and photo-decomposition of wastes from the paper industry. Finally, the entire display/device group in Electrical and Computer Engineering on campus will benefit from this acquisition. Now that the laser has been installed (a wall had to removed to make space) graduate student Yonggang He and post-doc Chengyin Wu have compiled many hours with the instrument and are now the resident operational experts.

Rich G. Carter



The Department was fortunate to be able to hire a new tenure-track faculty member in the organic division this year as a part of the commitment to strengthen its focus on the interface between chemistry and biology. Rich Carter came to the Department in May 2002 as Assistant Professor of Organic Chemistry. He earned his BS at Gettysburg College and his PhD in organic chemistry at University of Texas at Austin. Carter held an NIH Postdoctoral Fellowship in Jim White's lab at Oregon State University from 1997-99. In 1999, he accepted a position as Assistant Professor of Chemistry at the University of Mississippi where he was located until returning to Corvallis this year.

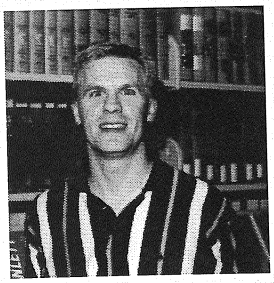
The Carter laboratory works on the total synthesis of biologically active and structurally challenging natural products. Selected targets include azaspiracid (a potent spirotoxin found in mussels), amphidinolide (a potential cancer treatment with nanomolar cytotoxic activity) and vacidin (a polyene antibiotic used in the treatment of life-threatening infections in AIDS patients). Carter received particular attention for his efforts toward the total synthesis of azaspiracid. Two of his group's recent publications in *Organic Letters* were designated "Hot Articles." His research is supported by the National Institutes of Health.

Carter is setting up new laboratories in rooms formerly occupied by Pete Freeman's group. When renovations are complete, the laboratories will be state-of-the-art and an ideal place for research efforts in total synthesis. "I am excited about the opportunity to enhance an already strong organic division at Oregon State and I am looking forward to many productive years here." Carter had considerable help throughout the move from third-year graduate student Wei Zhang who transferred with him from the University of Mississippi. Carter said that he simply "couldn't have done it without him." Wei continues his thesis research on the total synthesis of amphidinolide which, Wei modestly admits, "is very tough to make."

Rich and Mary Duffy were married on Kaua'i Island in September and have bought a home in Corvallis. They enjoy hiking around Corvallis with their two dogs Gretta Garbo and Linus Pauling. Mary completed a Masters degree in German and is working on a secondary teaching certificate.

Newest Members of the Faculty, **Rich Carter** and **Nick Drapela** are Organic Chemists.

Nicholas Drapela



OSU alumnus Nick Drapela arrived in September to join the instructor group. After completing his PhD in organic chemistry in 1998 under J.D. White, Drapela held teaching and research positions at Whitman College in Walla Walla, WA, Colorado College in Colorado Springs, CO, and St. Martin's College in Olympia, WA. Drapela and his wife Priscilla have two young sons, Brandon (age 3) and Jackson (age 1). When asked about his plans, he tells us, "I am happy to be back in Corvallis at OSU. I'm looking forward to beginning the fall term and to enriching student lives with chemistry. Ideally, I will be able to find the space and funding to continue my research, possibly with undergraduates. In my spare time, I hope to enjoy many of the benefits this area affords such as athletics, performing arts, language, and culture." Drapela was recognized during his years at OSU with a University Club Foundation Award for outstanding community involvement and with a Harris Teaching Award in 1994/95.

Graduation Audits for Majors and Minors

Undergraduate Advising

Advising Web Pages

Curriculum Updates

Welcome Letters

EPA Research Projects

Graduate Research Advisor

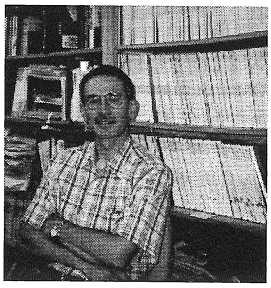
Teaching

University Catalog Updates

Designing New Curriculum

Chair of Pacific Northwest Section of the Society of Applied Spectroscopy

Head Advisor
Jim Ingle



Quietly Getting Things Done

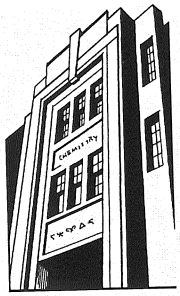
Jim Ingle fills a unique niche in the chemistry department. He doesn't seek the limelight, but this year the College of Science awarded him the Boedtker Award, a richly deserved honor. Ingle has filled his plate with an amazing array of goals to keep the Department growing during difficult times. As Head Undergraduate Advisor for the chemistry department, he and the other advisors probably answer 10,000 questions per year. Not only does he answer them, he records some of them on a website he maintains for undergraduates who are interested in majoring or minoring in chemistry. As student enrollment reaches 20,000 this fall, this website should help him keep up with increased inquiries.

Five years ago, Ingle was the primary motivator leading to a big change in curriculum, Chemistry With Options! He began researching student needs and surveyed students and then accepted the challenge to define 9 new alternative programs for majoring in chemistry at OSU. As described in last year's Chemistry Alumni Newsletter, this runs the gamut from business to pre-medicine. Since the new options became available, the number of undergraduates studying chemistry, and therefore the number of advisees, has risen steadily.

While overseeing the graduation audits of chemistry majors and hundreds of chemistry minors and helping individual students, Ingle also supervises the research program of two graduate students working on micro-sensors for environmental monitoring, chairs the Pacific Northwest Section of the Society of Applied Spectroscopy, and teaches upper division and graduate level laboratory classes in Spectrochemical Analysis and Experimental Chemistry. To keep his energy levels high, Ingle jogs at noon with a group of campus runners and is completing the construction of a new house with wife Sarah, a Corvallis accountant.

When asked "What's next?," Ingle responded, "Oh, just a few small things, some changes in chemistry curriculum for engineering students and things like that." Ingle works with faculty members from across campus and maintains a low profile while effectively "getting things done."

OSU Chemistry to Launch Summer Research Program for Undergraduates



Various surveys of higher education point out that many undergraduate students in the US are unaware of the expectations of a research-based graduate program or the requirements of research careers. Recognizing this, chemistry faculty proposed the development of the **Summer Research Program for Undergraduate Students (SRP)** similar to REU programs funded by the National Science Foundation.

Beginning summer 2003 the Department will launch its first SRP. Subject to available funds, up to 10 undergraduate students will be invited to Corvallis from across the country for ten weeks of research. Projects will be available in analytical, inorganic, organic and physical chemistry.

Working closely with their faculty mentor, each participant will assume an active and meaningful role in the mentor's research activities alongside graduate students and post-doctoral fellows. Weekly meetings will provide opportunities for participants to share their experiences with one another and with faculty mentors. On the final day of the program each participant will present a short seminar summarizing his or her research efforts. The luncheon to follow will officially draw the SRP to a close.

Finances will be provided in part by the *Summer Research Program for Undergraduate Students Fund* at the OSU Foundation. Individuals may direct all or a portion of their Annual Giving in support of this endeavor. These funds will be used for laboratory supplies, stipends for participants, administration, promotional materials and miscellaneous costs of the program. Initially the department will fund the program itself. Building on the first year's success, a proposal will be submitted to NSF for sponsorship of an REU site at OSU.

Selection of Research Projects:

Enzymes and Chemical Transformations

Physical Chemistry of Self-Assembling Systems

Low-Temperature Deposition and Crystallization of Oxide Films

Synthesis of 1,3-Dimethyl Thymine for Gas Phase Spectroscopic Investigations

Coherent Anti-Stokes Raman Scattering (CARS) Studies of Small Molecules

Studies on Aptamers as Sorbents for Chromatographic Separations

Microfluidics and Small-scale Analytical Devices

Investigating a New Route for the Synthesis of α-Hydroxy-β-Amino Acids

Synthesis and Structural Characterization of an Inorganic Complex

Program Director

Jeffrey Walker

Participating Faculty

Rich Carter

Nick Drapela

Glenn Evans

Douglas Keszler

Wei Kong

Michael Lerner

Joseph Nibler

Vincent Remcho

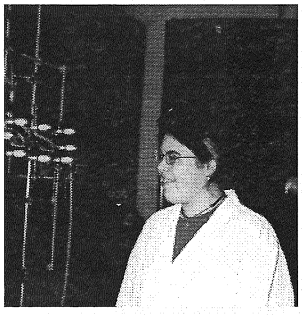
Staci Simonich

James White

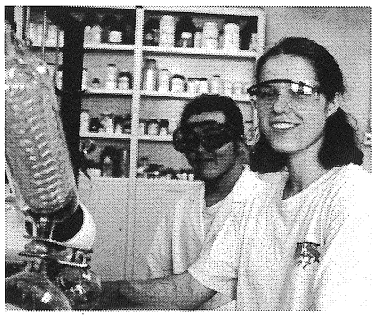
Alexandre Yokochi

Watch our website for updated information about the summer research program.
www.chem.orst.edu

Oregon State University has made a monumental effort to provide new opportunities for undergraduate research. The University Research Office and Office of International Research and Development worked diligently to place students in positions this year where they learned valuable skills to complement their classroom experiences. Chris Pastorek, Senior Instructor in the Department of Chemistry, helps students to find programs appropriate to their interests. Students found projects at other universities, in government and private laboratories, and abroad. Some students were paid for their work while others received class credit. To learn about a new undergraduate research program in the Department of Chemistry, please see opposite page.



Emily Simpson learns about lasers in Wei Kong's lab during the summer.



Betsy Camp and Michinao Hashimoto learn natural product synthesis skills in Rich Carter's and Dave Horne's labs.

Undergraduate Research

Undergraduate Research, Innovation, Scholarship, and Creativity (URISC) Program 2002
Elizabeth Camp (D. Horne, R. Carter)
Michinao Hashimoto (D. Horne)

Howard Hughes Medical Institute
Tak Suyama (D. Horne)
Sara Breitenbach (D. Rockey, Microbiology)

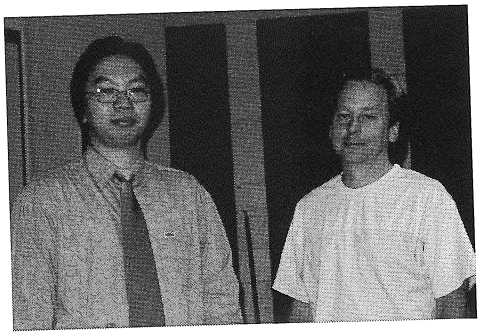
Undergraduate Research
Simeon Andrews (Gerwick, Pharmacy)
Sara Robinson (Gerwick, Pharmacy)
Man Ling Chiu (K. Gable)
Dave Camoriano (G. Evans)
Szabolcs Farkas (Rochefort, Chem. Eng.)
Emily Simpson (W. Kong)

International Research Opportunities
Cristian Ion (Lyon, France)
Emily Simpson (Spain)
Denay Tubbs (UK)

Nationwide Summer Internship Programs
Mark Abel (REU Kansas State University)
Nick Lockard (REU Sandia Labs & Univ. of New Mexico)
Susan Gino (Office of Naval Research, US Navy Air Warfare Center, China Lake, CA)
Jessie Hartford (Teaching Assistant in Center for Talented Youth, Johns Hopkins University, NY)

AVI BioPharma, Inc Internships 2002
John Frieh
David Hartmann
Matt Reeves
Adam Hendy
Jason Schindler
Mac Wisdom
Robert J. Mills

CH2M Hill
John Frieh
Anthony Atha
Jeff Bilyeu
Dan Oldham



Sangmoon Park and Doug Keszler pose briefly after Sangmoon's PhD thesis defense.

Telecommunications

Internet

Flat Panel Displays

Fiber Optics

Optical Coatings

Insulators

Semiconductor Electronics

Electrical Storage

Magnetic Devices

Credit Card Coating

Thin-Films

Interdisciplinary Efforts Pay Off

Doug Keszler and John Wagerhave taken the metal-oxide thin-film process to new heights this year! Keszler, of the Department of Chemistry, and Wager, of Electrical and Computer Engineering, note that the high-tech industry has followed a high-cost, difficult approach to making thin layers of oxides in electronic and optical devices. While exploring the preparation of new oxide films at OSU, the researchers had a 'light-bulb' moment.

"We've learned a trick to make atoms move at low temperatures and then lock them into specific positions," explained Keszler. They discovered that various oxides could become deposited without a vacuum chamber and crystallized at temperatures near 125 degrees by using a water-based chemistry. They began testing the process by using metal-oxide powders.

Original funding for the research was from an NSF grant shared by the two departments. With the prospect of a new, lower temperature process, they approached Hewlett-Packard for further support. This winter, ReyTech Corporation, a small Bend research firm interested in developing electronic and optical devices using extremely small particles, joined the ranks of financial supporters for these experiments.

Graduate student Sangmoon Park, a member of the Keszler research group, worked on this project as part of the doctoral thesis that he defended in mid-July. Park will continue in a post-doctoral research position while they fine-tune the process. A patent application has been submitted and interesting applications for these films are surfacing. "It is a good application of very simple chemistry," explains Keszler, and it can be of importance in telecommunications, flat panel displays and fiber optics. Someday, Keszler said, the new production method could help boost the energy storage capacity of batteries, allow credit cards to be embedded with MP3 players, make paint that is environmentally benign and create a super-efficient plastic light bulb. The new technique should reduce production costs. Preliminary findings from their research were published in a July issue of *Science*.

In spite of the economic recession, OSU friends of chemistry supported the Department extensively this past year. Donations honoring distinguished OSU alumni allowed us to offer new awards like the first undergraduate scholarship in honor of Norman Logan. The first James Krueger Award was funded by a new account in his name and a very popular lecture series for organic chemistry students was provided by your unrestricted donations. Your Annual Giving pledges sustain a well-balanced program of research and instruction for graduates and undergraduates. This year's $126,000 in donations have made all of this possible. Thank you all.

Arnold Johnson Jr. Fellowship
Sharon Ervin Johnson[$$]

Bend Research Fellowship
Bend Research, Inc.[$$]

Carroll DeKock Scholarship
Engelene Chrysostom
Peter DeGroot[$$]

J. Krueger Fund for Excellence
Carolyn Brumley
James & Bonita Krueger[$$]
John C. Westall[$$]

Colleen Spurgeon Scholarship
Colleen Spurgeon[$$]

Molecular Probes Fellowship
Molecular Probes, Inc.[$$]

George Buechi Lectureship
Pfizer Inc[$$]

David Shoemaker Mem. Fund
Clara B. Shoemaker[$$]

Chemistry Unrestricted
3M
Maya Abels
Regina Atoigue
Linda Youde Badcock
Rodney A. Badger
Paul M. Bajema
Carl & Susan Baker
Kathleen & August Barber
Chris & Lisa Baumann
Elizabeth & Gerhard Beenen
James Billigmeier
Kenneth Bomben
Nathan Bower
Nancy and John Breen
Andrew P. Butler
Gilbert W. Butler
Diygkas & Carol Campbell
Beverly & David Castner
Thomas Chadwick
Chevron Corporation
Marjory & Howard Coker
Karen & Melville Nickel-Creusere
Marshall Crew
Robert W. Cummings
Peter DeGroot
Robert & Marian DeMattei
James & Helen Dennison
Kevin Clark DeWhitt
Anthony Diaz
Ronald & Lois Dueltgen
Ronald & Isabelle Dupzyk
Melissa & Robert Eierman
Bill & Irene Fitts
Martha Jean & Paul Frederickson
Peter & Judith Freeman[$$]
Kevin Gable
Homer & Hazel Gallaher
Gene Tools, LLC[$$]
J.M Greendorfer
David E. Hackleman[$$]
Thomas R. Hays[$$]
Dana & Gail Heimbecker
Scott & Claudia Hein[$$]
Herbert & Lois Hergert
Kenneth Higbie
Grant & Linda Huglin
George & Paulina Ikeda
Dudley Jayasinghe
Karen Jernstedt
John & Betty Karinen
Lou Kayser
Linda Streamer Kenyon
Curtis Lee Kirkemo
Barbara J. Koch
Robert & Janet Komoto
Laurence Ladwig
Lt. JG James R. Lebakken
Thomas Hoi-Chow Li
Norman & Kathleen Logan[$$]
Kevin L. McKennon
Charles E. McMurdo
Helen Brown & Edward Mead
Janis & Henry Meyer
J Bartley Miaullis
Gail Kinney & Charles P Miller
Rafael & Meg Miranda[$$]
Arthur & Melva Mosen
Gary & Barbara Munn
George & Eleanor Neilson
John & Marilyn Reed Nickel
Akio & Saeko Nishino
Gerald Nordblom
Laurance L. Oden
Fumio Okamoto[$$]
Mikhail & Nadia Orlov
Robert & Barbara Ottinger[$$]
Linda Sue Park
James & Kala Paul[$$]
John & Florence Pease
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Phillips Petroleum Company
John & Teresa Planton
Norma & Rheta Potter
George A. Pubanz
Mary & John Rauch
Patricia & Harry Renouf
Esther & Albert Rimbault
Celia R. Rockholt
Evan Rougeux
Ronald Rusay
Daberath Kouts Ryan
Thelma & John Sacklin
John & Pamela Sanderson
Guy Alan Schiehser
LCDR Robert & Lynn Schmidt
Col. Colben & Betsy Sime
Robert J. Spector[$$]
John & Charlene Stephenson
Melissa M. Strait
Harry & Carol Studer
Jeffrey & Carol Stults
Helen White Sudbeck
Edward & Joanne Suzuki
John Dale Sytsma
Roslyn & Richard Taylor
Milton & Joanne Thompson
Candace J. Tomlinson
Sherri & Jeffrey Tonn
Richard J. Treinen
Fred L. Underwood
Roberta & Andy Ungerer
Debra Van Engelen
Davis & Catherine Vieira
David & Wendy Voit
Thomas R. Webb[$$]
Doreen & Dwight Weller
Patrick & Laurinda Woodward
Stephen E. Wuerch
George & Bonnie Zeagas[$$]

[$$] more than $500 contributed

Advanced Degrees 2001-2002

Bachelors Degrees

Matthew Reeves (ACS-Advanced Chemistry) is working at Bend Research in Bend, OR.
Simeon Andrews (ACS-Advanced Chemistry, Honors) is a research technician at OHSU in Portland
Lindsay Bader (ACS-Advanced Chemistry) is a state trooper in Washington
Derek Hamill (ACS-Advanced Chemistry) is travelling for a year
Brian Chan (ACS-Pre-Medicine & Business) attends dental school
Dave Camoriano-Nolasco (ACS-Pre-Medicine) and BS-Microbiology attends McGill Medical PhD program
Bradley Root (BS & BA-Biochemistry & Pre-Medicine) attends law school at U of O.
Ilanya Strauss (BA)

Master of Science

Kevin Wiese	Non-thesis (D. Horne). Kevin works at Molecular Probes in Springfield, OR
James Abbott	Non-thesis (W. Kong) Jim serves in the US Navy, Nuclear Power Training Command in Charleston, SC.
Xiumei Xun	Non-thesis (A. Sleight) went on to complete her PhD in chemistry
Robert Kovacich	Non-thesis (M. Schuyler)
Stephanie Mélin	*Applications of Nonlinear Raman Spectroscopy* (J.Nibler)

Doctor of Philosophy

Scott Allen	*Studies and Design of Ligands for Affinity Column Separation of 2,5-Dihydroxyacetanilide Epoxidase (DHAE) I and II.* (K. Gable) Scott has an NIH post-doctoral position in the College of Pharmacology at University of Chicago.
Catalin Doneanu	*Mass Spectrometric Analysis of UV-Crosslinked Protein-Nucleic Acid Complexes* (D. Barofsky). Catalin has a post-doctoral position at University of Washington.
Sangmoon Park	*Synthesis and Study of Oxides and Chalcogenides: Thin Films and Crystals.* (D. Keszler) Sangmoon will stay in the Keszler lab in a post-doctoral position.
Xianzhao Peng	*Threshold Ionization Spectroscopy of Metal Clusters and Metal Complexes*. (W. Kong) Shawn is Senior Optical Engineer at New Focus, Inc in San Jose, CA.
Jennifer Stone	*A Study of the Correlation Between Anionic Group Geometry, Orientation, Composition, and Packing Density and the Nonlinear Optical Properties in Noncentrosymmetric Crystals.* (D. Keszler) Jennifer has married and has a research position with Saint-Gobain Crystal Products in Portland
Nipaka Sukpirom	*Intercalation, Exfoliation, and Nanocomposites of Layered Inorganic Compounds.* (M. Lerner) Nipaka is Assistant Professor at Chulalongkorn University in Bangkok.
Ju-Zhou Tao	*Theory of Negative Thermal Expansion.* (A.Sleight)
Xiumei Xun	*The Synthesis and Structure of New Transition Metal Containing Bismuth Oxides.* (A.Sleight) Xiumei has a post-doctoral position at University of Texas, Austin in Materials Engineering.
Yuan Heidi Zhang	*Mass Spectrometric Analysis of Proteins and Peptides: Elucidating the Folding Pathways of rhm-CSF.* (M.Deinzer) Heidi has married and will assume a post-doctoral position in Italy this fall.
Fedor Zhuravlev	*Mechanistic Studies on Re(V) Mediated C-O Bond Transformations.* (K.Gable) has a post-doctoral position at the University of Erlangen (Germany)

Strengthening Ties to Industry

This past spring term CH 638, a graduate course titled "Frontiers in Medicinal and Natural Products Chemistry," organized by Dr. James White, brought six distinguished speakers from the pharmaceutical industry to campus. Each visitor spent a week in the Department and gave three lectures on his specialty. The lectures ranged over the entire research and development activities that lead to drug discovery in today's competitive world of pharmaceuticals. The course drew a large audience of both faculty and students and provided a valuable perspective on the way in which academic chemistry impacts the industrial sector.

Guest lecturers in the course were **Dr. David Coffen** of Discovery Partners, Inc., San Diego, whose three lectures told how drug discovery evolved as a science-based craft but is now undergoing technology-driven transformation into an industrial process by which cost, timelines, and outcomes are all highly predictable; **Dr. Stuart McCombie** of Schering-Plough Corporation, Kenilworth, NJ, who lectured on receptor antagonists as new therapeutics for HIV infections and, more generally, on drug discovery and synthetic methodology; **Dr. Michael Green** of Celera, South San Francisco, who described ways to win and lose in drug discovery, specifically focusing on anti-allergy agents and anti-obesity drugs; **Dr. Mark Jensen** of the Merck Process Group in Rahway, NJ, whose lectures covered metal-catalyzed cross-coupling in process research, and applications of asymmetric synthesis in process research; **Dr. Mark Wuonola** of AstraZeneca, Cambridge, MA, who discussed genome-based, target-directed drug discovery, especially its use in antibacterial and antifungal projects, as well as diseases caused by the gastric pathogen *H. pylori*; and **Dr. James Leahy** of Exelixis, South San Francisco, who gave us a view of drug discovery in a postgenomic environment, including ultra-large combinatorial chemistry library production.

This lecture series, part of an Organic Special Topics Course, was the third offering of this type. It is popular with both students and speakers because it opens a window into the work environment for synthetic chemists and provides a forum for dialogue between students and industry leaders.

■ ■ ■ ■ ■ ■ ■ ■

Jan Napack, graduate student in **Mike Lerner's** research group, is spending the summer doing a contract research project sponsored by Intel. In reaching out to explore industry collaborations, we are finding projects like this one that benefit Oregon industry and help train graduate students at OSU. Gaining practical information concerning deposition and removal of organic monolayers is one aspect of the project. The project has so far required integration of analytical, physical and chemical engineering applications in order to meet the needs of the study.

New Scholarship funds established this year to benefit chemistry students.

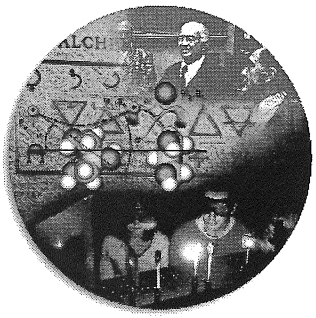
Dr. Bruce Graham Memorial Scholarship in Chemistry

Molecular Probes Graduate Fellowship/Internship

Arnold Johnson, Jr. Fund for Doctoral Candidates in Chemistry

Bend Research Graduate Fellowship

What's New at OSU Chemistry?



Find the latest at *www.chem.orst.edu*

Do You Remember?

- Who taught chemistry on TV in 1957?
- When Gilbert Addition was built?
- Who presided at the American Chemical Society National Mtg in April of 1956?
- When we received funds to research tin can corrosion from the American Can Company?
- When we received our first liquid air machine?
- Probability seminars?
- Seminars titled "Thermal implosion characteristics of *Zea maize sacharrhia?*"

Alumni News

John W. Daly, BS '54, MA '55, Chief of Pharmacodynamics at the National Institute of Diabetes & Digestive & Kidney Diseases, was honored with the Ernest Guenther Award in the Chemistry of Natural Products by the ACS this year. Daly's work in isolating and determining the structures of over 500 alkaloids from the skins of frogs has contributed to the understanding of ecology and biodiversity of tropical rainforests and has provided hundreds of new leads for therapeutic agents.

Ramon Barnes, BS '62, Professor Emeritus, retired from the University of Massachusetts after 31 years of teaching, research, and service in analytical chemistry, is now Director of University Research Institute for Analytical Chemistry in Amherst, MA, and editor of the *ICP Information Newsletter.* His e-mail is *rmbarnes@chem.umass.edu*

Ronald H. Engebrecht, PhD '64, retired in 1991 as Senior Research Chemist at Eastman Kodak Co., now splits his time between homes in Bradenton, FL, Naples, NY, and Crested Butte, CO.

Lane Goodell, MS '68 (J.Yoke), retired to Portland after 34 years with Rhone Poulenc, the last 11 years in Los Angeles.

Dr. Paul F. Hudrlik, professor of Chemistry at Howard University, was among the educators who received the "Millennium Award for Excellence in Teaching and Research at Historically Black Colleges and Universities" during a HBCU conference held last month at the Omni Shoreham Hotel in Washington, DC.

Alan T. Yeates, BS '76, is a Research Chemist doing theoretical modeling of materials at the Air Force Research Laboratory, Materials and Manufacturing Directorate, at Wright-Patterson Air Force Base in Ohio.

Wen-Shu Hwang, PhD '79 (J.Yoke), was named President of the National Dong Hwa University in eastern Taiwan. This new University opened its doors in 1994. Dr. Hwang succeeds the founding President.

Larry Bass, PhD '80 (G. Gleicher/S.Wilson), is director of the polymer/catalysts section at Ciba Specialty Chemicals in McIntosh, Alabama.

Dennis Guthals, PhD '81 (J. Nibler), was promoted to full Technology Fellow adjunct to his work in lasers with Boeing Co. in Thousand Oaks, CA. Dennis is attempting to populate his local neighborhood with friendly snakes and chameleons along with raising two sons.

Duane Friesen, PhD '81, Director of Research at Bend Research, gave an interesting departmental presentation in October on some of the research programs and opportunities at Bend Research.

Smokey McAfee, PhD '85 (DeKock), visited in August and was pleased to see Clara Shoemaker, who had overseen his crystal structure work in the '80's, and Joe Nibler (still playing 3rd base on the softball team). Smokey, who was known for his green lab coat and 'probability seminars', is an Associate Professor at The Citadel in South Carolina.

Brian Bozlee, PhD '87, has taken a position as Professor of Chemistry at Hawaii Pacific University. He, his wife Sena, and two sons are adjusting to a major climate change after leaving the University of Great Falls in Montana. His e-mail address is *bbozlee@hpu.edu.*

Karen Wooley, BS '88, professor of chemistry at Washington University in St. Louis, was awarded an Arthur C. Cope Young Scholar Award for her work in polymers. Karen's work was featured in the Spring '02 issue of the *Washington University Magazine* and the February '02 issue of *C & E News.*

James G. Pavlovich, PhD '93 (D. Barofsky), is the Manager of the Mass Spectrometry Facility at UC Santa Barbara Department of Chemistry. Jim's e-mail is: *pavlovich@sbmml.ucsb.edu.*

Bill Fitts, BS '93, completed his PhD in chemistry at the University of Texas in May, 2001. He, with wife Irene, returned to Gresham,OR, to take a job at Intel.

Regina Atoigue, BA '94, who works for FSE-Tyco Electronics in Plano, TX, is pursuing an MBA in International Management at University of Texas, Dallas.

Greg-Stephen Hassard, BA '96, is pursuing a degree in dentistry.

Chris Oriakhi, PhD '96 (Lerner), was recently promoted to Senior Member of the Technical Staff at Hewlett-Packard in Corvallis. Mike Lerner and Chris are collaborating on a chapter of the "Handbook of Layered Materials."

Anthony Diaz, PhD '97 (Keszler), has moved to the University of Central Washington as Assistant Professor of Chemistry.

Pat Woodward, PhD '97 (A. Sleight) received an NSF Young Career Award to fund research for five years. He is an Assistant Professor at Ohio State University.

Darren Williams, PhD '98 (Nibler) is doing computational chemistry and spectroscopy at the BWXT Pantex Plant in Amarillo, TX. Darren's and Jennifer's second child was born in January 2002.

Sherry Zhang, PhD '98 and **Steve Sloop**, PhD '96, who work at Lawrence Berkeley Laboratories and are co-authors on a joint publication in *J. Electrochem. Soc.*, won an Advanced Technology Development Program award from the Department of Energy.

Michael Orlov, PhD '98 (Nibler), has a new position at Maxim Integrated Products in Beaverton. His e-mail address is *orlovm@home.com*

Anthony Ocana, BS '98, is Metals Supervisor for North Creek Analytical Labs in Bothell, WA.

Gregory Less, BA '99, attends graduate school in inorganic/materials science at University of Michigan. Greg is a recipient of a prestigious NSF- IGERT fellowship.

Brian Jones, PhD '99 (Ingle),and wife Quyen celebrated the arrival of son Kyle in February. Brian is working at Hewlett-Packard in Corvallis.

Luke Lavis, BS '00, who did undergraduate research with Jim White, continues to distinguish himself in industry (2 patents and a few papers) at Molecular Devices in the SF Bay Area. Luke has chosen science (over medicine) for graduate school in 2003.

Rebecca Bliesner, PhD '00 (Sleight), and husband Nate Sunderman announced the arrival of son Luke in June. Becca is an Assistant Professor at Buckhannon College in West Virginia.

Meadow Anderson, BS '00, has returned from two years of teaching in Indonesia and is applying to graduate programs.

Kezia Emerald, MS '00 (Loveland) is an Applications Specialist at CTI, Inc in Knoxville, TN.

Karen Castle, PhD '00 (Kong) is an Assistant Professor at Bucknell University. Karen and fellow OSU graduate **Tammy Amos** were featured in *C & E News,* 2002**, 80**, no.6, 45-53.

Jorg Quadrino, BS '00 is a graduate student in organic chemistry at Brooklyn College.

Cheryl Moody Bartel PhD '01 (Field) has taken a position with Lawrence Livermore National Laboratories and reports that she is learning her way around California's mid-section. She and Joe live in Pleasanton.

Tammy Amos, PhD '01 (A. Sleight), completed her Post-Doc at NIST in Gaithersburg and accepted a position with DuPont Chemical in Hockessin, DE.

Engelene Chrysostom, PhD '01 (J. Nibler), married Georg Oberdorfer (OSU Forestry MS '01) of Austria and has a post-doctoral position at Sandia Livermore Laboratories. Her e-mail address is *ehchrys@california.sandia.gov*

Faculty News

Mike Lerner, who spent a sabbatical year at Intel from April '00 through April '01, has returned after 5 months on a Fulbright Lectureship at Chulalongkorn University in Bangkok, where former graduate student Nipaka Sukpirom is an Assistant Professor. Mike reports that Nipaka is doing well, has 3 graduate students, and has begun her research in titanate and manganate-based materials.

For his Fulbright project, Mike is developing and teaching a class on materials chemistry and electrochemistry of batteries. He hopes to offer this class at OSU in the future. Mike's goal is to increase the collaborative research and student exchange between OSU and Thai universities, especially in materials and inorganic chemistry. He gave lectures at Mahidol University, Ramkhahaeng University, and Khon Kaen University and organized a workshop and seminar at the International PACCON Conference in Bangkok in May '02.

L to R: Mike Lerner, Caroline Lerner, Kimi Lerner, Nipaka's mother, Jenni Lerner, and Nipaka Sukpirom at the summer palace at Ban Pa In in Thailand.

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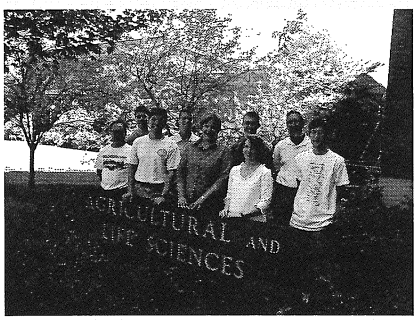
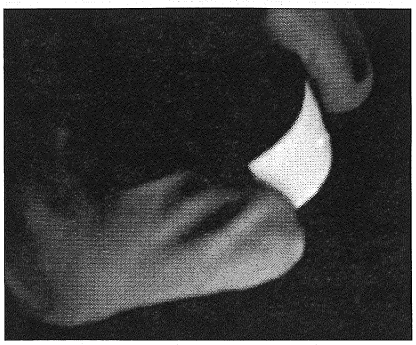
The laboratory of **Staci Simonich** continues to grow and reached a peak of eight people this past summer. Analytical chemistry equipment in the laboratory now includes two gas chromatographic mass spectrometers, an accelerated solvent extractor, two gas chromatographs, two air samplers, and an in-situ system for extracting lake water. Over the past few months, research efforts have focused on analytical method development and validation for measuring semi-volatile organic air pollutants in high elevation ecosystems in seven national parks over the next five years. These matrices in the parks include snow, lake water, sediment, fish and other biota. This past spring the laboratory participated in NOAA's Intercontinental Transport Campaign to study the trans-Pacific atmospheric transport of these same pollutants. Presentations on Simonich laboratory research will be given at the Society of Environmental Toxicology and Chemistry meeting and American Geophysical Union meeting this Fall.



The Simonich Research Group (L to R): *Front Row* G. Wilson, T. Park, S. Simonich, C. Hauser, R. Killin, *2nd Row* L. Ackerman,E. Moore, S. Usenko, D. Schmedding

• • • • • • • • • •

Doug Keszler attended the Boron Americas VIII Conference in Death Valley, CA. He also gave invited presentations at the Gordon Research Conference on Solid-State Chemistry; National Meeting of the American Chemical Society, Boston, MA; and the Fourteenth American Conference on Crystal Growth and Epitaxy, Seattle, WA. He and his students continue to enjoy productive research collaborations with Hewlett Packard, Orem Sylvania, Coherent/Crystal Associates, Molectron Detector, and ReyTech.



High-temperature, light-emitting ceramic film deposited onto a flexible plastic substrate by member of the Keszler research group.

Homemade vanilla

Spicy Apple Cider for the winter holidays

Wild ties

Santa hats

Ice cream making work-shop in summer

Weekly popcorn.

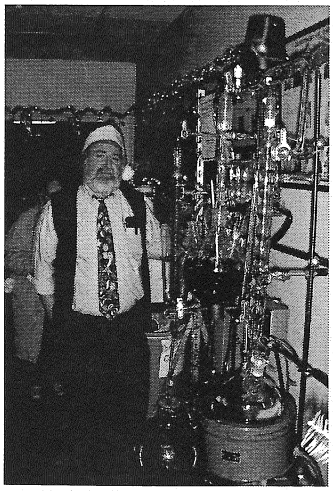
Desk Toys

Great fall picnics

Jokes, jokes, jokes....

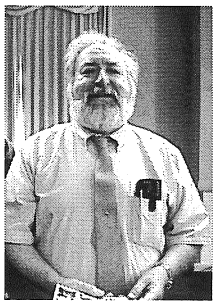
Star Trek Trivia

Sons of the Pioneers



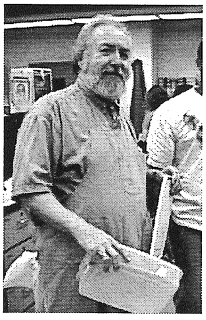
Jack's "Apple-ratus" is a special part of the holidays in Gilbert Hall

Jack Whitney
Chem Stores Manager
Gilbert Building Manager



Live Long and Prosper

In August the Department congratulated Jack Whitney at a retirement reception honoring him for 32 years in the Department of Chemistry. Jack came to OSU as a stores clerk in 1972, was promoted to lab coordinator in the teaching labs in 1977, and then became stores manager in 1982. Purchasing duties were added to his responsibilities in 1996. Jack's duties as building manager brought him in close contact with folks from all over the campus. They will miss him as much as we will.



Jack has seen faculty members, staff and students come and go and he can tell some pretty good stories about the characters who called Gilbert Hall their home. Over the years, Jack created some indelible memories for the department, too. Each year he made vanilla for anyone who needed a supply for their cooking. He taught graduate students how to make ice cream during the summer and held weekly "seminars" on the thermal implosion characteristics of common *Zea maize sacharrhia* (popcorn) on Fridays. He dealt with a myriad of complaints associated with this aging building and peppered our days with jokes and stories to keep a healthy perspective, a chuckle always under the surface. If you were a Star Trek fan, you had a friend forever. However, you had to do your homework to stay ahead of Jack's Star Trek trivia knowledge.

If you borrowed a cart from Chem Stores and didn't return it promptly, you became one of Jack's "horse thiefs", destined to be tarred and feathered at sundown. Jack made a point of wearing a tie to work every day and some of those ties were notable for sure! When asked for a parting sentiment, Jack promptly replied, 'Had a lotta good times.' And even though Jack took the "Apple-ratus" home with him, he promises to bring it back during the holidays, filled with that wonderful cider.

Our wish for Jack is that Star Trek's next generation will provide him with new material for years to come and that he and wife LaDonna enjoy a long life of photography, star gazing, music, and happiness. And we sincerely hope that he will return to Gilbert Hall from time to time.

College of Science Scholarships for 2002/2003

Peter Culter Memorial Scholarship
- Mark Abel
- Jeffrey Bilyeu
- Emily Simpson
- Sarah Robinson

Carroll DeKock Scholarship
- Nanako Ogi
- Rebecca Parker

Colleen Spurgeon Scholarship
- Luke O' Rourke

Jesse Hanson Scholarship
- Jessie Hartford
- Cristian Ion

Milton Harris Scholarship
- Michinao Hashimoto
- Nicholas Sabrowski

Chemistry Department Awards, June 2002

Ingram First Year Graduate Fellowship
- Cheol-Hee Park

Benedict 2nd Year Graduate Fellowship
- Yonggang He
- Helmars Smits

Fall 2000 Laboratory TA Awards
- Panut Vongpayabal
- Varong Pavarajarn
- Pat Patthumarak

Winter 2001 Laboratory TA Awards
- Carin Huset
- Amit Garg
- Jian Sun

Spring Laboratory TA Awards
- Sascha Usenko
- Ashish
- Chris Walsh

Shirley Kuse Fellowship
- Martha Stapels

David Shoemaker Fellowship
- Catalin Doneanu
- Tony Masiello

N.L.Tartar Summer Research Fellowships
- Robert Killin
- Stacey Clark
- Eric Korf
- Darrell Ziemski
- Mike Hruschka
- Martha Stapels
- Chris Lincoln
- Melissa Schultz

Minority Pipeline Fellowship 2002-03
- Robert Killin
- Carlos Gonzalez

Outstanding Analytical Student
- Emily Simpson

CRC Press Freshman Chemistry Awards
- Shannon Nohara
- Laura Miller

Phi Lambda Upsilon Outstanding Sophomore
- Mark Abel
- Rebecca Parker

American Institute of Chemists-Graduating Senior
- Cristian Ion

Merck Index Award for Outstanding Senior
- Simeon Andrews

Norman Logan Academic Excellence
- Elizabeth Camp

Milton Harris Academic Excellence
- Takashi Suyama

Graduate Student Conference Award Recipients
- Martha Stapels 2nd Place Oral Presentation
- Catalin Doneanu 3rd Place Oral Presentation

Chemistry Department Awards, Fall 2002

2000-2001 Milton Harris Graduate Teaching Awards
- Kristi Haataja
- Joanie Kroon

2000-2001 Milton Harris Faculty Teaching Award
- Emile Firpo
- David Horne

2000-2001 Staff Service Award
- Kristi Edwards

James H. Krueger Award for Excellence in Education
- Rick Nafshun

Faculty Awards, College of Science, Fall 2001

Boedtker Advising Award
- James Ingle

Gilfillan Memorial Award for Distinguished Scholarship in Science
- Doug Keszler

Thomas Sugihara Award for Young Faculty Research
- Wei Kong

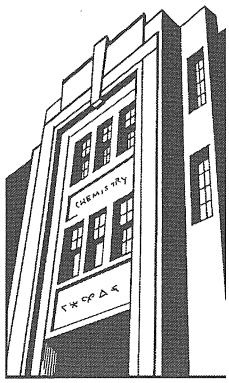
Loyd Carter Teaching Award
- David Horne

Fred Horne Award for Excellence in Teaching
- Mike Schuyler

Faculty Award, College of Science, Fall 2002

Loyd Carter Teaching Award
- Rick Nafshun

Certificates in recognition of 30 years' service
- James D. White
- James D. Ingle



We would like to hear from you. Please send us your personal or professional news or comments to be included in a future issue of Chemistry Newsletter. You may send e-mail to *chemadm@chem.orst.edu* or mail this form in the envelope enclosed.

Name: _____

Degree from OSU (and year earned): _____

Please tell us what you are doing these days: _____

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Ye olde getting-to-know-you pizza feed!