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Harris, Marletta and Bell at the helm

A new triad of administrators has taken over the leadership of the college. As of July 1st, **Charles B. Harris** is the new dean of the college, **Michael A. Marletta** is the new chair of chemistry, and **Alexis T. Bell** is the new chair of chemical engineering.

"Charles Harris brings his remarkable abilities in science and in management to a position of great importance on the campus, ensuring that the college's great tradition of leadership will continue," said **Paul Gray**, Executive Vice Chancellor and Provost, at an August 3rd reception to welcome the team into their new positions.

Harris is an acclaimed chemist and "has a solid understanding of how to sustain excellence in his field at Berkeley," said then-Chancellor **Robert Berdahl** in announcing the appointment in June 2004. "Charles Harris's 38 years on our faculty give him deep ties and an excellent perspective on the future of one of our most critical areas of science." Harris has specialized in developing femtosecond lasers to study energy transfers and the primary processes in chemical reactions in liquids, as well as the dynamics of electrons at interfaces and surfaces. The author of more than 200 papers, he is the Gilbert Newton Lewis Professor, a member of the National Academy of Sciences and a Fellow of the American Academy of Arts and Sciences. He chaired the chemistry department from 2003 to 2005.

Harris expressed his desire to live up to the high standards set by outgoing dean **Clayton Heathcock**; to continue to bring in outstanding faculty members, students and staff; and to foster a sense of community within the college. "Together, my colleagues, along with our dedicated staff members, will maintain our outstanding programs that make this the best place in the world to study chemistry and chemical engineering."

The new chair of chemistry, Michael Marletta, is a more recent addition to the college. He joined the faculty in 2001 after a stellar career at the University of Michigan, where he was an investigator in the Howard Hughes Medical Institute, was elected to the prestigious Institute of Medicine, received a MacArthur Foundation Award and was elected a Fellow of the American Academy of Arts and Sciences.

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In Memoriam

Three chemistry students died in a tragic car crash on July 16 in Berkeley. The students were **Benjamin P. Boussert**, 27, a sixth-year graduate student from Baton Rouge, Louisiana; **Jason L. Choy**, 29, of Bowie, Maryland, a student completing his seventh year of a Ph.D. program in chemistry and molecular and cell biology; and **Giulia A. Adesso**, 26, a visiting scholar from Italy conducting research at UC Berkeley while pursuing a Ph.D. from the University of Lecce. The cause of the crash is still under investigation as a criminal case by the California Highway Patrol.

"We as a college want to express our heartfelt condolences to the families of these young people," said Charles Harris, dean of the College of Chemistry. "We cannot comprehend the pain that they must feel, but our thoughts will always be with them and with the friends and co-workers of our students."

The college held a private memorial event for the three students on Friday, July 22, with an additional memorial

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College News

Product development program in chemical engineering in planning stage


Keith Alexander

The chemical engineering department is starting a new product development program in response to the growing demand for the department's graduates from small and large product-based companies, noted Dr. **Keith Alexander**, the program's recently appointed executive director. "Industry wants students who can leverage their technical backgrounds early in their careers. Many companies now rely on new products (those less than 5 years old) for 30 to 40 percent of their revenue, so new product development is a critical area for them."

With seed funding from The Camille and Henry Dreyfus Foundation, Alexander and various faculty members have begun developing the curriculum. "We intend to create a graduate-level learning experience that uses the education of chemical engineering and expands the reach and future professional horizons of our students. Our goal is to create a post-bachelor's program that can be completed in one calendar year." Although the program is not scheduled to begin until the fall of 2006, Alexander is already working to increase its visibility by launching student surveys and talking to both student groups and industry leaders in order to get their input.

An enthusiastic proponent of the program's goals, Alexander has a diverse background, with expertise in both technical and development fields. He received his B.S. ('78) and Ph.D. ('83) in chemical engineering from Berkeley, studying food spray-drying with Professor **C. Judson King**, followed by an M.B.A. from Stanford University. He spent twenty years in industry, including eleven years at CH2M Hill, Ltd., where he served as General Manager and Senior Vice President.

While chemical and consumer product companies may be the first to sign up, the geographic location of Berkeley will allow numerous companies to participate, including those in the biotechnology, microelectronics and nanotechnology fields. "We are also intensely interested in getting alumni involved, both with their ideas and with financial support," noted Alexander. "We want to create a program that supports our students' aspirations and that the department and the University will be proud of."

What's new in information systems

With his staff of nine, **Yau-Man Chan** is responsible for more than 800 computers and for maintaining the college's network and infrastructure. "We are in the process of upgrading everything, trying to bring all of our networks up to code in all of the buildings so that we can turn over their maintenance to central campus," said Chan, the director of Information Systems (IS) in the college. He and his group are also working to make the building laptop-friendly. "The library, Bixby Commons and Lewis Hall are just a few of the places that have wireless already, and we hope to install it throughout the college complex by the end of the year."

Chan "fell into" IS after running the electronics shop. "Since I knew how to solder and run wires, I got the job of installing the network wires and running all the equipment when we strung up the first network in 1985." he said with a grin. "Twenty years later I am still fixing everything."

His job keeps him busy during the day, but it is the issue of security that can keep Chan up nights. "Security is never-ending," he explained. "When the networks were first installed, no one thought once about it, and now everything has to be patched and updated almost weekly to keep all the systems secure. Our goal is to secure tightly the network without impeding the work of the people using it. I know that people would like to do remote computing and access their work computers from home, but we have a very strict policy in order to keep out unwanted intruders."

In addition to computers and networking, IS develops and maintains both web applications and those programs used in the storeroom and gas cylinder checkout. The group also is coordinating with the campus to install a modern and easy-to-use system with unified messaging. "Soon we will be able to get voicemail and email from either a computer or a telephone," Chan said.

Harris, Marletta and Bell at the helm *(continued from page 1)*

Within the college, Marletta is both the Joel Hildebrand Distinguished Professor—a position accorded to the department chair—and the Aldo DeBenedictis Distinguished Professor. He has a joint appointment on campus in Molecular and Cell Biology and an additional position at UCSF in the Department of Cellular and Molecular Pharmacology. His research is at the interface of chemistry and biology, focusing on the biochemistry of nitric oxide, a gas that regulates a wide range of physiological processes.

"It's a very exciting time for chemistry and for the department," said Marletta. "I believe that chemistry is a central science and that, as chemists, we should break out and influence other disciplines, which is what is happening. Chemistry is influencing the way questions are being asked in fields like biology and materials sciences because chemists can answer molecular questions, and many biological and materials problems are molecular."

One of the department's top academic priorities is to establish a materials chemistry program similar to the successful chemical biology program. "The first course, Introduction to Materials Chemistry, will be launched in the spring of 2006 and should provide the foundation for an undergraduate program," noted Marletta. "Additionally, chemical biology is not going to stand still. It has proven to be a popular undergraduate major, leading to a large increase in the number of undergraduates in the college, in addition to the thriving graduate program."

The new college leadership was welcomed at an August 3rd reception, and outgoing dean Heathcock was thanked for his tireless work for the college. Back row: Provost Paul Gray, outgoing dean Clayton Heathcock and new dean Charles Harris. Front row: Chemical engineering chair Alex Bell and chemistry chair Michael Marletta.

He also plans to lead the discussion about the department's future. "There is always some tension between the more traditional types, those who say 'don't dilute our bread and butter,' and those who favor interdisciplinary programs," said Marletta. "I believe this creates a healthy academic tension, allowing us to talk and debate what the future of chemistry is as a department, and then move forward as a consensus."

Bell will serve as the chair of the chemical engineering department until July 2006, when **Jeffrey Reimer** will assume the position. Bell's research group is working on the development and application of experimental and theoretical approaches for understanding the relationships between the structure and composition of heterogeneous catalysts and their activity and selectivity. He is a member of the National Academy of Engineering, has received the Professional Progress and R. H. Wilhelm Awards, and has just won the William H. Walker Award of the AIChE.

A member of the faculty since 1967, Bell needed no startup time as chair, since he had already done the job for ten years (1981 to 1991), in addition to serving as dean from 1994 to 1999. "I found that many of the issues that I need to face are the same, although the details are different. The two biggest challenges facing the department are faculty recruitment and startup of the recently initiated Product Design Program.

"What I have found encouraging is the willingness of our faculty to help me address all of the issues facing the department," continued Bell, the Warren and Katharine Schlinger Distinguished Professor. "It was clear from the discussions held at our faculty retreat that solutions to the challenges facing the department will require team work and a lot of effort on everyone's part. I am quite confident that working together we will accomplish a great deal this year."

Outgoing dean Clayton Heathcock was also singled out at the August reception for his outstanding service, after leading the college for the past six years. "We are thrilled that he is taking a lead role at QB3 [as Chief Scientist], ensuring that we will keep him around in a position of leadership on campus," said Provost Gray.

FACULTY *News*

Chemical engineering professor **Alex Bell** has won the 2005 AIChE William H. Walker Award for Excellence in Contributions to the Chemical Engineering Literature "for pioneering the application of quantum methods to elucidate the siting and reactivity of exchanged cations in zeolites and the detailed pathways of chemical reactions."

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Harvey Blanch, professor of chemical engineering, was elected a Fellow of the American Association for the Advancement of Science in November 2004, for "broad-ranging scientific and educational contributions to biochemical engineering and biotechnology, particularly bioseparations, biothermodynamics, enzyme engineering, and transport and kinetics in microbial systems."

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Kristie Boering was promoted to associate professor in the chemistry department. She also was honored with a Camille Dreyfus Teacher-Scholar Award from the Dreyfus Foundation.

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Carlos Bustamante received an honorary doctorate from the University of Chicago in June in recognition of his work as a pioneer in single molecule studies of nucleic acids and proteins. In addition to being a professor of chemistry, Bustamante is also a professor of molecular and cell biology and the Luis Alvarez Professor of physics .

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Chemistry associate professor **Ron Cohen** is part of the Intercontinental Chemical Transport Experiment—North America Science Team, which received the NASA Group Achievement Award in June. The scientists' goal is to trace the flow of ozone, aerosols, and long-lived greenhouse gases in North America.

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Assistant Professor of Chemistry **Jay Groves** won the Langmuir Lecture Award of the Division of Colloid and Surface Chemistry of the ACS, to be given at the annual national meeting in August. He also received an NSF CAREER award to further his studies of the physical chemistry of cell membranes.

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John Kuriyan is this year's recipient of the National Academy of Sciences's Richard Lounsbery Award, which is given for achievement in biology and medicine. A professor of chemistry and of molecular and cell biology, Kuriyan was recognized for his work on DNA replication and tyrosine kinases.

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The Optical Society of America has awarded chemistry professor **Daniel Neumark** its William Meggers award, which recognizes outstanding work in spectroscopy. The award specifically honors Neumark's "pioneering contributions to the molecular spectroscopy of transient species, including transition state spectroscopy by photo-detachment, the development of anion zero-electron-kinetic-energy spectroscopy and time-resolved photoelectron spectroscopy."

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David Schaffer has been named the Van Ness Lecturer at Rensselaer Polytechnic Institute. He recently received a promotion to associate professor of chemical engineering.

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Chemistry professor **Kevan Shokat**, who holds a joint appointment at UCSF, was named a Howard Hughes Medical Institute investigator. Shokat uses chemical genetics to study individual kinases and their cellular signaling network to discover which of these enzymes are good candidates for drug development.

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Chemistry professor **Gabor Somorjai**'s article "Characterization of polymer surface structure and surface mechanical behaviour by sum frequency generation surface vibrational spectroscopy and atomic force microscopy" in *Journal of Physics: Condensed Matter* was among the journal's most highly downloaded articles during 2004.

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Assistant professor of chemistry **F. Dean Toste** received the Pfizer Award for Creativity in Organic Chemistry. The $50,000 award will help fund his development of novel catalysts that will have a low impact on the environment. He was also one of two winners nationally of the Bristol-Myers Squibb Unrestricted Grant in Organic Synthetic Chemistry, which provides $100,000 per year for three years.

Bertozzi and Stacy honored for research and teaching innovations

Two chemistry professors have received national recognition for their innovative work. **Carolyn Bertozzi** was elected to the National Academy of Sciences in honor of her distinguished and ongoing achievements in scientific research, and **Angelica Stacy** was named a Distinguished Teaching Scholar (DTS) by the National Science Foundation (NSF) for her role as an educator and mentor.

Bertozzi, the T. Z. and Irmgard Chu Distinguished Professor of Chemistry, studies the chemistry of carbohydrates anchored on cell surfaces. These branched sugars are involved in numerous biological processes, from cell surface recognition to communication between cells, and pose challenging synthetic targets. Along with scientists in her lab, Bertozzi has invented new methods to follow the biochemical structures of these sugars and to discover how they change in response to various stimuli.

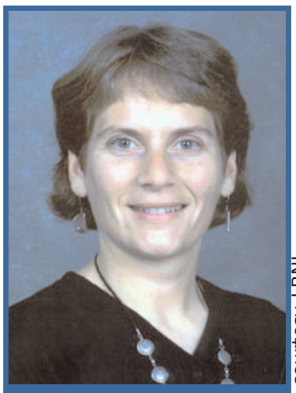
"It is very humbling to be included in such a distinguished group of people. I consider my election to the NAS an acknowledgment of my students' and postdocs' achievements. I have been blessed with a tremendously talented group of coworkers, and this wonderful news celebrates their capabilities more so than my own."

In 2000, Bertozzi developed a method for chemically modifying cell surface glycans by equipping their constituent sugars to participate in a chemical reaction known as the Staudinger ligation. Using this technique, scientists can attach a variety of biological markers to the surfaces of cells both in culture and, as Bertozzi's lab reported in 2004, in living animals. This method has facilitated fundamental studies of sugar biology and provides an avenue for diagnostic imaging of changes in sugar structures associated with diseases such as cancer.

Bertozzi's lab is also working toward the identification of new targets for tuberculosis (TB) therapy. *Mycobacterium tuberculosis*, the causative agent of TB, has unusual pathways for sulfate metabolism. Using a combination of chemical and genetic techniques, Bertozzi's group has identified enzymes in sulfate metabolism that are important in bacterial infection. The scientists are now studying the structure and mechanisms of these enzymes with the long-term goal of developing new anti-TB drugs.

Stacy received her DTS award, worth up to $300,000 over four years, in a June ceremony at the National Academy of Sciences. "The awards are NSF's recognition of accomplishments by scientists and engineers whose roles as educators and mentors are considered as important as their ground-breaking results in research," said NSF's director, Arden L. Bement Jr.

Stacy, who also serves as associate vice provost for faculty equity at Berkeley, has published eleven articles in the area of graduate, undergraduate and high school education. She has developed a one-year high school chemistry course, Living by Chemistry, and created ChemQuery, a criterion-referenced evaluation method for tracking student learning. She also created a new undergraduate course at Berkeley for non-science majors called Chemical Attractions, plus a course about teaching chemistry, Communicating Chemistry, in which undergraduate and graduate students go out into the community to teach elementary students. She recently received a Chancellor's Service Award for co-founding the latter course, which has led to similar classes in physics, astronomy and ocean science on campus.



courtesy LBNL

Jane Scheiber

Carolyn Bertozzi (top) has been elected to the National Academy of Sciences, and Angelica Stacy (bottom) is a Distinguished Teaching Scholar of the National Science Foundation.

Using the funds from this award and her results from Living by Chemistry and ChemQuery, Stacy plans to study how best to design a textbook that builds upon and enhances the benefits of guided-inquiry education.

In addition to her research in chemistry education issues, she also maintains an active research program preparing and studying new solid state materials with novel electronic and magnetic properties.

STUDENT News

A place in space: Bhushan Mahadik


Bhushan Mahadik

Imagine having your own asteroid or an acre of Mars with your name on it. Chemical engineering undergraduate **Bhushan Mahadik** doesn't have to imagine—he has received both tributes in recognition of research he carried out in high school.

His asteroid, officially known as Asteroid (17095) Mahadik, is nearly three miles wide and is currently between Mars and Jupiter. It was named through a program known as the Ceres Connection at M.I.T.'s Lincoln Laboratory in honor of his placing fourth in the 2003 Intel International Science and Engineering Fair. His prize-winning work dealt with the isolation and optimization of carbon nanotubes from natural vegetable oils, comparing them with those obtained from conventional sources.

"Currently carbon nanotubes are produced from fossilized precursors, such as coal, which are nonrenewable. I produced them from vegetable oils and evaluated the characteristics compared to those made from standard protocols. I found that, though the yield of carbon nanotubes from natural oils was lower, the quality of the carbon nanotubes could be higher, as defined by capacitance."

His Martian real estate was granted for taking part in the "Red Rover Goes to Mars" program in 2002 at NASA's Jet Propulsion Laboratory (JPL). "After a worldwide competition, I was chosen to spend two weeks at the JPL interacting with scientists and getting hands-on experience programming the Red Rover, which is a prototype of rovers on Mars."

Mahadik is currently working with postdoc Dr. **Andrew Solovyov** in the group of Professor **Alex Katz**. He is synthesizing acid and base functionalized calixarenes—large molecules that the Katz group has succeeded in anchoring onto solid surfaces with an extraordinarily high degree of local structure and organization. These anchored calixarenes will be used as active sites for acid-base bifunctional catalysis, in which the acid and base function cooperatively and cannot annihilate one another due to their rigidity, in much the same manner that push-pull catalysis is observed in enzymes. A sophomore, Mahadik plans eventually to obtain a Ph.D. and conduct research in nanotechnology.

GLC and GSO merge

The Graduate Life Committee in the chemistry department recently merged with the Graduate Student Organization, and the new group has taken over responsibility for hosting student events, such as the summer softball league, the holiday party, and chemistry barbeques. "We'd like to encourage faculty, staff, and alumni to support the GLC's efforts," said committee chair and chemistry professor **John Arnold**. The group just re-started the weekly barbeques and hopes to expand upon some of its activities.

For more information about the GLC, contact Arnold or student chair **Ian Stewart** at istewart@socrates.berkeley.edu.

Student Awards

Dylan Arias received an ACS Project SEED scholarship. An undergraduate student, he worked with Ron Cohen while he was in high school. Project SEED is designed to encourage economically disadvantaged high school students to pursue a career in the chemical sciences

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Jennifer Murphy, a graduate student with Ron Cohen, won an Outstanding Student Paper Award from the Geophysical Union.

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Thirteen college graduate students were recognized in May by the Teaching & Resource Center on campus as Outstanding Graduate Student Instructors. From the chemical engineering department are: **Kendra Krutilla**, **Christopher Roper**, **Sarah Stewart** and **Joseph Vegh**. From the chemistry department are: **Laura Anderson**, **Timothy Bertram**, **Joshua Gilmore**, **Patrick Holder**, **Martin Mulvihill**, **Amanda Murphy**, **Amish Patel**, **Paul Peng** and **John Tannaci**.

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Kristine Nolin, a graduate student in Dean Toste's group, won an ACS Women Chemists Committee Travel Award to attend the fall ACS national meeting.

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STAFF *News*

Staff Appreciation 2005

The college held its annual staff appreciation ice cream social on May 18. Both retirements and milestone years of service in the UC system were recognized.

Those honored for their years of service and the number of service years include: **Marcia Bogart** (40), **Henry Chan** (30), **Christina Davis** (25), **Nancy Horton** (25), **Rita Tidwell** (25), **Yi-Min Hsieh** (20), **Camille Olufson** (20), **Linda Wigmore** (20), **Karen Carkhuff** (15), **Maria Rodriguez** (15), **Emery Wilson** (10), **Michael Brateng** (10), and **Robert Lamoreaux** (10).

Staff members who retired recently and their years of service include: **Tom Livingston** (7), **Sharron Pope** (28, who is on recall part-time), **Susan Slavick** (24), **Kim Steele** (17), and **Linda Wigmore** (20). "We would like to wish them all the best in their life after UC," said Dean Charles Harris.

And speaking of leaving, the college would like to thank the following staff members for their contributions and wish them well as they further their careers elsewhere: **Clifton Horn**, **Christine Rutkowski** and **Stacey Shulman**.

Some of the staff members honored at the Staff Appreciation event include (back, left to right): Henry Chan, Yi-Min Hsieh, Michael Brateng, Robert Lamoreaux, (front, left to right): Camille Olufson, Nancy Horton and Christina Davis.

In memoriam *(continued from page 1)*



Chemistry graduate students Giulia Adesso, Benjamin Boussert and Jason Choy were killed in a July car crash.

event held for Choy on August 20. Boussert and Choy were awarded posthumous Ph.D.s by the Graduate Division.

Boussert had worked since October 1999 on a Ph.D. in nano structures with Paul Alivisatos after graduating from Louisiana State University with degrees in chemistry and chemical engineering. Boussert's Ph.D. thesis topic concerned the spectroscopy of single nanocrystals.

Adesso, a native of Bari, Italy, had worked in Alivisatos' laboratory since February 2004 through an exchange program with the University of Lecce. She received her M.S. in physics from the University of Bari in 2002 with a thesis on quantum cascade lasers. Her research at Berkeley involved measuring the elastic response of hollow nanoparticles when poked and pushed.

"This is a loss for the whole group," said Alivisatos.

Choy had worked in the laboratory of Carlos Bustamante, professor of molecular and cell biology and of physics and chemistry, since his graduation from the College of William and Mary in 1998. In his research, Choy used optical tweezers to measure the forces generated when an enzyme—in this case, a bacterial protease—snips a protein.

Boussert, who lived in Oakland, is survived by his parents, Anne and Christian Boussert of Baton Rouge, Louisiana, and a brother, Joel, a third-year law student at Tulane University.

Choy, who lived in Kensington, is survived by his parents, Norma and Lawrence Choy of Bowie, Maryland, and a sister, Allison, of Ann Arbor, Michigan.

Adesso, who lived in Berkeley, is survived by her parents, Carlo Adesso and Paola Maria Palombella of Bari; a sister, Eleonora Adesso; and a brother, Giuseppe Adesso.

with excerpts from Robert Sanders

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CALENDAR

Upcoming events for College of Chemistry alumni and friends:

check http://chemistry.berkeley.edu/alumni for the latest information and to register for events

September 8
Pyramid Brewery tour for young alumni

Calling all alumni from the years 2000 and beyond! Join us for a tour and reception from 6:30-8:30 p.m. at Pyramid Brewery at 901 Gilman Street in Berkeley. Catch up with college news while networking with professors and former classmates in a fun environment. Online registration is available.

September 30-October 1
Homecoming

Alumni and Parents: Join us from 8:30-9:00 a.m. in the Tan Hall lobby for a complimentary continental breakfast with an espresso bar, followed by a lecture by chemical engineering professor Doug Clark on "From the Earliest Bacteria to the Latest Arrays: Old and New Opportunities for Biotechnology," at 9:00 a.m. in 180 Tan Hall.

October 1
Free Radicals and CHEMillenniums

Alumni and friends from the graduating years of 1964-1979 and 1980 - 1999 will gather for a festive brunch from 10:30 a.m. to 12:00 p.m. on the Saturday of Homecoming weekend. Registration for this event is available online and includes a free pass to many other Homecoming activities. Families are welcome.

November 17
G. N. Lewis Alumni Era luncheon

The annual gathering of alumni and friends who graduated before 1945 will take place this year from 12:00-2:00 p.m in the Heyns Room at The Faculty Club. Look for a separate mailing soon or contact Camille Olufson at 510/643-7379 or colufson@berkeley.edu for more information.