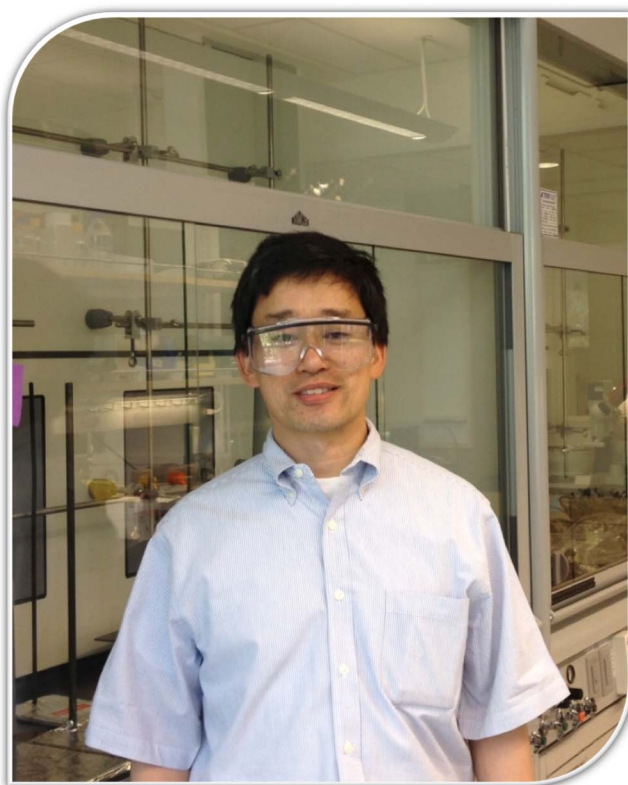


# Periodic Tabloid

Chemistry and Chemical Engineering Division at Caltech

Vol 4, No 2, Spring 2012

## Professor Gregory C. Fu joins the CCE Division faculty



The Division of Chemistry and Chemical Engineering at Caltech is delighted to announce that Gregory C. Fu, Altair Professor of Chemistry, joined the Caltech faculty on April 1<sup>st</sup>, 2012, followed by his research group of 17 members a month later. The Fu lab is located on the second floor of the Schlinger Building, and is presently in the process of installing and setting up lab instruments and offices.

Professor Greg Fu was born in Galion, Ohio, in 1963. He received a B.S. degree in 1985 from MIT, where he worked in the laboratory of Prof. K. Barry Sharpless. After earning a Ph.D. from Harvard in 1991 under the guidance of Prof. David A. Evans, Greg spent two years as a postdoctoral fellow with Prof. Robert H. Grubbs at Caltech. In 1993, he returned to MIT, where he served as a member of the faculty from 1993-2012. In 2012, he was appointed the Altair Professor of Chemistry at the California Institute of Technology.

Greg received the Springer Award in Organometallic Chemistry in 2001, the Corey Award of the American Chemical Society in 2004, the Mukaiyama Award of the Society of Synthetic Organic Chemistry of Japan in 2006, and the Award for Creative Work in Synthetic Organic Chemistry of the American Chemical Society in 2012. He is a fellow of the Royal Society of Chemistry and of the American Academy of Arts and Sciences. Greg serves as an associate editor of the Journal of the American Chemical Society. His current research interests include metal-catalyzed coupling reactions, chiral-ligand design, and enantioselective nucleophilic catalysis.

## Prof. John Seinfeld Receives Tyler Prize

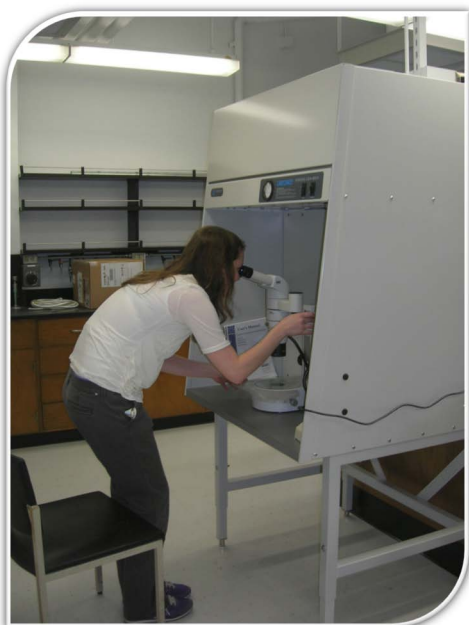


Atmospheric researcher John H. Seinfeld, the Louis E. Nohl Professor and professor of chemical engineering, has been named one of two winners of this year's Tyler Prize for Environmental Achievement, an honor regarded as the top prize of environmental science, environmental health, and energy.

Please see:  
<http://features.caltech.edu/features/339>

## The Moore Foundation funds new CCE facility: Center for the Chemistry of Cellular Signaling

Dedicated to understanding the intricacies of cellular signaling, the Center for the Chemistry of Cellular Signaling was built on Caltech's successes at the interface of chemistry and biology. It is focused on determining how complex systems of molecules interact to create the pathways that regulate the lives of cells and allow them to respond to their environments. Rather than just studying a complex biomolecule in isolation, an understanding of how it is part of a larger path of molecules is the purpose of the Center's establishment. The Center was made possible by a generous \$6 million grant from the Gordon and Betty Moore Foundation.

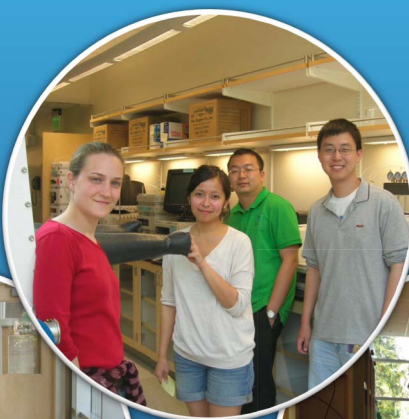


Six CCE faculty members have established the Center: Dennis A. Dougherty, George Grant Hoag Professor of Chemistry; Jacqueline K. Barton, Division Chair and Arthur and Marian Hanisch Memorial Professor of Chemistry; Peter B. Dervan, Bren Professor of Chemistry; Linda Hsieh-Wilson, Professor of Chemistry and Investigator with the Howard Hughes Medical Institute; Shu-ou Shan, Professor of Chemistry; and Long Cai, Assistant Professor of Chemistry. Professor Dennis Dougherty is its present Director.

Seminars covering the research conducted at the Center are held every other Thursday in Room 147 Noyes between 12:00 p.m. and 1:00 p.m. The speakers are Caltech faculty, students, and postdoctoral researchers. Eight graduate students (Anna Arnold, Katie Schaefer, Alyson Weidmann, JJ Kang, Kristina McCleary, Thang Nguyen, Tima Zhiventayev, and Andrew Wang) help run the instruments, which include a microplate reader, a scanner, a real-time PCR detection system, spectrometers, shakers,

centrifuges, a biomolecular imager, an electroporation transfection device, an incubator, several microscopes, and specialized hoods. The Center presently occupies two rooms in the Crellin Laboratories.

### Arrival of the Fu Group on May 1, 2012



## A cheerful lab warming party opens the Hoelz Group Laboratory



The entire CCE Division—faculty, staff, and students—and the Division of Biology were invited by the members of the Hoelz research group to celebrate with pizza and drinks the opening of the Hoelz laboratory. The party was held in the meeting room of the laboratory, in 122 Braun, on March 6<sup>th</sup>, 2012. Tours were conducted by Andre Hoelz, Assistant Professor of Chemistry, and his research group.



### Judy Stanton is CCE's New Division Administrator

On March 19<sup>th</sup>, 2012, Judith Stanton joined CCE as Division Administrator. Judy came to Caltech in 2004 from UCLA's School of Medicine. She served first as Division Administrator for the Division of Engineering and Applied Sciences, working with Richard Murray from 2004-2006. She then joined Financial Services, working with Sharon Patterson, where she served as Director, Institute Budgeting and Financial Planning. "She, of course, comes highly recommended, and her past experiences will be invaluable in working here in CCE," said Professor Barton, CCE Chair, "It's great to have Judy as part of the CCE family." A staff meeting was held in 151 Crellin to introduce and welcome Judy, and she was also introduced to the faculty in the Chair's Office.



## Two visit weekends to welcome prospective Chemistry graduate students with dinners, outings, and poster sessions.

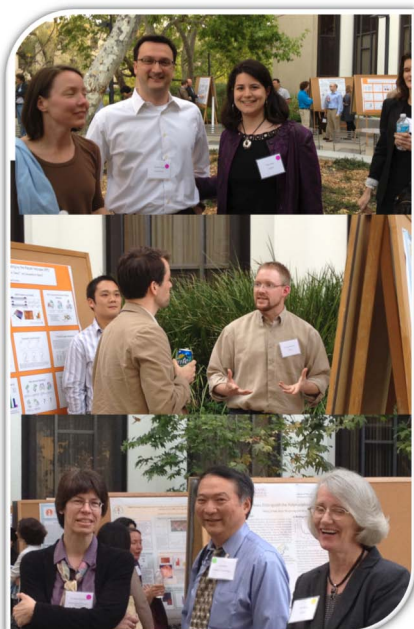
The Chemistry Option invited over one hundred prospective graduate students to visit the Caltech campus, so that they can get to know the campus, faculty, and students. There were two visit weekends, March 1-3 and March 22-24.

Each of the two weekends ran from Thursday evening to Saturday afternoon. Prospective students arrived on Thursday to join Chemistry students and other prospective students for dinner in Old Town Pasadena. On Friday they attended lab tours, met with individual faculty, and had lunch at the Athenaeum with Chemistry students. Agnes Tong, the Graduate Program Administrator, arranged the Friday poster sessions at Dabney Garden, and festive dinners at Dabney Lounge. The event continued on Saturday with students' choice of hiking, beach trips, or a Huntington Library visit. Thanks to the events' success, thirty-five graduate students in Chemistry will be joining us in the Fall of 2012.

The Chemical Engineering Option held their visit weekend on March 16-18<sup>th</sup>. As a result of their activities, twenty-one Chemical Engineering students will also join us in the Fall.



## Barton Fest—a weekend symposium—brought back Barton Group members for a great Caltech reunion



The weekend of Friday and Saturday, March 30th and 31st was a time of reunion and new friendships between those who had been members of the research group of Jacqueline K. Barton, Division Chair and Arthur and Marian Hanisch Memorial Professor of Chemistry, many years ago and those presently doing research with Prof. Barton at Caltech. The event was coordinated by her research group. Outside co-organizers were Catherine Murphy, Eric Stemp, and Marisa Buzzeo. Former advisors, new professors, post docs who did their graduate work with Professor Barton, scientists and owners of pharmaceutical companies, all flew in from different parts of the world and gathered in the 153 Noyes lecture hall, sharing memories and speaking of the science that launched their illustrious careers. Some of the guest speakers included Prof. Barton's Ph.D. advisor Stephen Lippard, the Arthur Amos Noyes Professor of Chemistry at the Massachusetts Institute of Technology and Professor Nicholas Turro from Columbia University, who connected remotely via Skype with a warm message to Prof. Barton and her group. There were also poster sessions in the courtyard of the Schlinger Building. A dinner at the Athenaeum concluded the first day, when a beautiful piece of sculpture was presented as a gift from the group to Prof. Barton. Another dinner at her home concluded the weekend festivities.

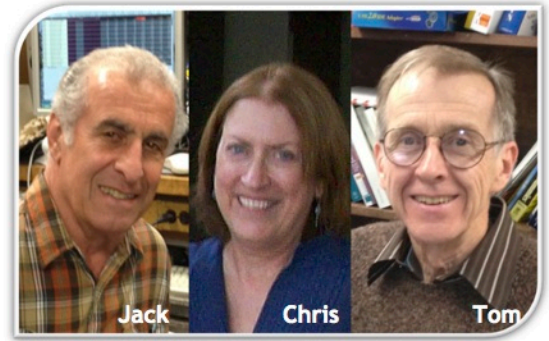


# Barton Fest March 30-31, 2012



# Tom Dunn, Chris Smith, and Jack Guledjian retire on May 1<sup>st</sup>

Tom Dunn, manager of the CCE electronics shop, Jack Guledjian, electronics engineer, and Chris Smith, materials manager, announced their retirement date as May 1st. The Division celebrated with a party at the Athenaeum on April 26th, inviting faculty, staff, and students from CCE, friends from other Caltech Divisions, and the retirees' family members. There was live music, performed by members of the Caltech Jazz Band, followed by a short program with Professor Harry Gray as Master of Ceremonies. Professor Gray spoke warmly of the three retirees, informing the audience that the years of service they gave to CCE added up to 97! Professors Douglas Rees, Thomas Miller, Mitchio Okumura, and Jacqueline Barton, Chair of CCE, spoke of the retirees with much affection and appreciation. Larry Henling, who runs the X-Ray facility, said some humorous words that ranged from the retirees' eating habits to their extensive knowledge and experience. Matthew Van Wingerden, a graduate student in Professor Grubbs' research group, spoke of how all three of them were there for him, thanking them for all their help. "This is a happy, but bittersweet occasion," said Professor Rees, who called Tom and Jack "wizards at keeping all the equipment running." Professor Okumura described them as dedicated, hard-working individuals who cared about the Division. He vividly recalled the occasion of Tom and Jack building his first spectrometer. Professor Barton spoke of how they worked behind the scenes, and were always there when needed. She said that the staff "take incredible care of us and feel the pride in what we do." She thanked them for all that they had done and said, "Don't go too far away, because you will always be part of the CCE family."



# Michael William Day - An Appreciation by Douglas C. Rees

Dr. Michael W. Day, Director of the Beckman Institute X-ray Crystallography Facility and of the Molecular Observatory, passed away on Friday, January 27, 2012 at age 60, after a short illness. In these capacities, Mike played a major role in the research and educational life of the Chemistry and Chemical Engineering Division and he was a dear friend and colleague for those fortunate enough to have worked with him.

Mike developed an incredible thirst for crystallography as a Masters student in Chemistry at Cal State Northridge, working with Professors Kenneth Hardcastle and Ed Rosenberg. To have this drive was unusual enough, but in Mike's case it was all the more extraordinary given the extent of his paralysis (the result of a body surfing accident in Santa Monica Bay when Mike was 18) that restricted him to a wheel chair with only limited movement of his arms. Kenneth recently wrote of this experience "It was fairly obvious that although Mike loved chemistry, he was limited in what he could do as a synthetic chemist, however he could type quite well so I suggested that he think of working with computers and learning some crystallography. He took to that idea with enthusiasm." - indeed, that is an understatement since from my first encounter with Mike, it was obvious that he had a passion for crystallography that I still find exceptional.

Following completion of his Masters' degree, Mike came to Caltech in 1990 as a graduate student in Chemistry, and I had the great privilege of serving as Mike's research advisor. In addition to the physical challenges, Mike was nearly 40 when he started graduate school, but he was unwavering in his commitment to do protein crystallography at Caltech. By the time he had completed his PhD in 1995, he had solved the first structure of a protein isolated from a hyperthermophilic organism (the *P. furiosus* rubredoxin) and was also deeply involved in refining the structure of the *A. vinelandii* nitrogenase MoFe-protein responsible for biological nitrogen fixation. Even more remarkable, though, were his effects on my group and the people around him - it was an incredibly special time with a great spirit of cooperation and focus on research and helping each other - and Mike was definitely the glue that held this all together.

After graduation, Mike joined the Beckman Institute X-ray Crystallography Facility, becoming Director in 1997. Since that time, Mike and Staff Crystallographer Larry Henling provided numerous graduate students and postdocs with individualized attention and advice about their crystallographic problems, a tradition dating back to Noyes and Pauling, continuing with Dick Marsh through to the present. Reflecting his intimate engagement in these projects, Mike was a co-author on nearly 70 research papers from Caltech. As the instructor in Ch 122 "Structure Determination by X-ray Crystallography", Mike provided a more formal development of crystallography that was greatly appreciated by students, many of whom went in thinking that diffraction could not possibly be covered in a way that would be comprehensible, much less enjoyable. One undergraduate wrote (unsolicited) after this past Fall term "I can't think of many classes I've enjoyed here as much as Professor Day's Ch 122." Mike also understood that the future of crystallography involved the integration of small molecule and macromolecular crystallography and he was a major force behind the establishment of the Molecular Observatory that was the realization of this dream.

Mike was tenacious and persistent, yet patient, and had an unwavering dedication to crystallography. He had broad and eclectic interests, spanning the range from sports, to the Blues and World War II battles, that he knowledgeably discussed with many, and on top of all this, he had impeccable handwriting. Mike was determined to do what he wanted to do (as was made clear by the license plate frame on an earlier van of his that read "Disabled Does Not Mean Unable") and was undaunted by obstacles that would be insurmountable to most of us. Ed Rosenberg wrote of one such occasion "I will never forget my journey with him to Ashland, NC for the NCUR (ed: National Conference for Undergraduate Research). He had broken his leg within a week prior to our departure and had a metal rod inserted in his leg. When I visited him in the hospital I foolishly suggested that we cancel his talk. His response was "No Way, We are going." Of course we did. Mike gave a great talk and my other undergraduate student, Sharad Hajela (ed: who subsequently was also a Caltech graduate student with John Bercaw), got an up close look at what it means to have the degree of paralysis Mike had. The whole experience was truly inspiring".

Upon receiving the Distinguished Alumni Award from Cal State Northridge in 2000, Mike observed "I feel that my disability influenced my selection but it should be remembered that everyone has a disability; some are visible and others are not. Booker T. Washington said that one's success should not be measured by the achievement so much as by the obstacles one has to overcome. In light of that thought; most people are more successful than they might imagine." By any standard, Mike was incredibly successful and was an inspiration to many of us.

Mike is survived by his wife Liz and son Zachary, his mother Polly Spangler, and his brothers and their families.



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