

Periodic Tabloid

Chemistry and Chemical Engineering Division at Caltech

Vol 1, No 1, Summer 2009

CCE Division Thanked David Tirrell for having been Chair for 10 years.

With a party at the Old Mill on May 31st, the Division of Chemistry and Chemical Engineering celebrated Dr. David A. Tirrell's accomplishments as its chairman for the last two terms.

The Division Faculty assembled at the Old Mill, in San Marino, on May 31 to give a rousing thanks to David Tirrell for his decade of service as Chair of the Division. There was an exceptional turnout, reflecting everyone's heartfelt thanks to Dave. Because of Dave's efforts, we will be adding the Schlinger Building to the Division by the start of



2010. These laboratories will bring together synthetic chemists and chemical engineers under one roof in outstanding space to carry out their research. As a memento of these efforts, Dave was given a drawing of the Schlinger Building signed by all of the divisional faculty. Perhaps most touching to Dave, and most gratifying with respect to his tenure as Chair, was an additional gift of a photograph of all the young faculty that Dave brought to the Division over the past 10 years. Current faculty brought here with Dave's help are Theo Agapie, Anand Asthagiri, Bil Clemons, Jim Heath, Linda Hsieh-Wilson, Tom Miller, Sarah Reisman, Shu-ou Shan, and Brian Stoltz. Dave Tirrell has been an

outstanding Chair and deserves all of our thanks!



Welcoming Dr. Barton as CCE's New Chair

Dr. Jacqueline K. Barton, Caltech's Arthur and Marian Hanisch Memorial Professor, has been named Chair of the Division of Chemistry and Chemical Engineering, effective July 1. Ed Stolper, Provost, said, "... Jackie ... has the judgment and energy to lead the division creatively and effectively."



Harry Gray Receives 2009 Welch Award



The Division recently gathered together at the Athenaeum to help celebrate the announcement of this year's Welch Award in Chemistry to Harry B. Gray. Dr. Gray is being honored by this year's award based on his seminal

studies of protein electron transfer and inorganic photochemistry. Dr. Gray will receive the 2009 Welch Award in Chemistry in October at a banquet hosted by the Welch Foundation in Houston. At that time, he will be presented with the Welch Award gold medallion and the \$300,000 prize.

For information regarding the 2009 Welch Award see: <http://www.welch1.org/NewsRoomReports/PressReleases/WelchAwardSaluteSPi1602.asp>



The From L-R: Peter B. Dervan, member, Welch Foundation SAB, Norbert Dittrich, President, Welch Foundation, John D. Roberts, 1990 Welch Award recipient, Harry B. Gray, 2009 Welch Awardee, Ahmed H. Zewail, 1997 Welch Award recipient and member Welch Foundation SAB, and Dennis Hendrix, Chairman of the Board, Welch Foundation. (Photos by Bob Paz 626-695-0811)

Congratulations to the Chemistry and Chemical Engineering Grads of 2009!

Caltech's 115th annual commencement ceremony took place at 10 a.m. on Friday, June 12, at Beckman Mall. Renowned physicist, U.S. Secretary of Energy, and Nobel Laureate Steven Chu presented the keynote address. Chu has devoted his recent scientific career to the search for new solutions to energy challenges and to stopping global climate change. He was appointed by President Obama as the 12th U.S. secretary of energy and sworn into office on January 21 of this year. Below are the CCE graduates of 2009. (Complete coverage available at pr.caltech.edu/commencement)



Bachelor of Science

Maria Irina Chiriac
Nathan Charles Crook
Christopher Joseph Dempsey
Andrea Rose Dubin
William Gibson
Matthew James Glassman
Anna Maria Hiszpanski
Beijing Kara Huang
Michael Huynh
Georg Kaltenboeck
Sungshik Kim
Mason Man Gien Lai
Ryan Lanman Glen
Dana Jaya Levine
Jack Jie Lin
Shuyi Ma
Deepak Mishra
Herschel Mukherjee
Caleb Enoch Ng
Duc-Huy Tran Nguyen
Arthur Benjamin Prindle IV

Noah Abdul Rahman
David Kingsland Romney
Daniel Walter Rowlands
Joy Yue Sheng
Wilson Chia-hao Sung
Abdul Ahad Tariq
Alexandra Velian
Muzhou Wang
Tina Wang
Haile (Robbie) Xiao
An-Tu Xie
Yekaterina Yevgeniy Zak

Doctor of Philosophy

Akinleye C. Alabi
Benjamin D. Allen
Raymond Humphrey Archer
Travis Scott Bayer
Chase Lawrence Beisel
Stephen Allen Chapman
Wei-Chen Chen
David Michael Chenoweth

Justin Delgado Cohen
Stephanie June Culler
Amy Lynn Eastwood
David C. Ebner
Paul Richard Elowe
Cristal Ivette Gama
Alon A. Gorodetsky
Irina A. Gorodetskaya
Ariele Patrice Hanek
Kristy Michelle Hawkins
Carey Frank Hsu
Claire Sigrid Jacobs
Jennifer Rae Keeffe
Peter Michael Kekenes-Huskey
Hyungjun Kim
Robert Randolph Knowles
Brian S. Leigh
Alexander Pei-den Lin
Bo-Lin Lin
James R. Maiolo III
Stacey Ann Maskarinec
John Charles McKeen
Shane Michael Murphy

Heather Elizabeth Murrey
Kimberly Marshall
Papadantonakis
Heidi Kathleen Privett
James William Puckett
Erik A. Rodriguez
Rosemary Dyane Rohde
Ian Ross McKay Shapiro
Bonnie Ann Sheriff
Jennifer Lynn Stockdill
Ismet Çağ ıler Tanrikulu
Michael McCann Torrice
Chad David Vecitis
Ron Walker
David Richard Weinberg
Matthew Thomas Whited
Heather L. Wiencko
Marc Dominic Woodka
Ke Xu

Miller, Reisman, and Agapie – the three latest additions to our faculty.

The Division is pleased to have added three new chemists to the faculty.

Thomas F. Miller

Tom was born in San Diego, California and grew up in College Station, Texas. He attended Texas A&M University as a major in chemistry and mathematics, where he developed his interest in theoretical chemistry through research in the computational inorganic chemistry group of Michael Hall. Tom graduated from TAMU with honors in 2000 having won a number of awards and scholarships, including the Barry Goldwater Scholarship, the Beckham Award in Science, and the TAMU undergraduate mathematics competition. He received a British Marshall Scholarship to pursue graduate study in the U.K., which he used to obtain an M. Phil. from University College London in 2002. He then attended the University of Oxford on an NSF graduate research fellowship,



earning a D. Phil. from Balliol College in 2005. His thesis work, which was performed in the research group of David Clary and entitled Quantum Simulation of Biological Molecules, was recognized with the Jowett Senior Exhibition Prize, the highest award for graduate scientific research from Balliol College. Tom returned to the U.S. for a joint postdoc with Bill Miller and David Chandler at UC Berkeley, where he joined the Helios project to study the fundamental science of solar energy conversion. He joined the Caltech faculty in June 2008. He has since received a 2008 Camille and Henry Dreyfus New Faculty Award.

Sarah E. Reisman

Sarah was born and raised in Bar Harbor, Maine. She attended Connecticut College in New London, CT, where she developed a passion for organic synthesis working in the laboratory of Professor Timo Ovaska, and graduated with honors in 2001. In the fall of that year, Sarah enrolled in graduate studies at Yale University and joined the research group of Prof. John Wood. She earned her Ph.D. in chemistry

[Continued on Page 4](#)

Tom Dunn wins the 2009 Thomas W. Schmitt Staff Prize

The Thomas W. Schmitt Prize is presented to a Caltech staff member whose contributions embody the values and spirit that enable the Institute to achieve excellence in research and education. On June 2nd, 2009, it was presented to Sheila Shull, an administrative assistant in Applied and Computational Mathematics, and to Tom Dunn, head of the CCE electronics shop. The prize was presented at the Annual Staff Service Awards ceremony.

Tom Dunn has been at Caltech since 1973. Hundreds of faculty, students, postdocs, and staff—current and former—feel enormous admiration and respect for him. This year, no fewer than 90 of Tom’s admirers wrote words of praise for him.

One nominator said, “Simply put, Tom is a gem. He has outstanding technical skills—if it’s got a plug, he can fix it... What makes Tom Dunn truly remarkable is that his skills are coupled to one of the nicest personalities one could ever meet... When others [are] losing their heads, Tom always [keeps] his... He always [finds] a way to solve the hard problems and deal with the hard personalities.”



Caltech ranks high among best grad schools
"U.S. News & World Report" collected data from more than 12,000 grad programs and both Caltech chemistry and Chemical engineering ranked #1



New staff member joins CCE

On September 2, 2008, Agnes Tong joined CCE to succeed Laura Howe in managing the Chemistry Graduate Student Option responsibilities. Laura has relocated to Ann Arbor with her husband, where he took a position on the Geology faculty of the University of Michigan. Students, staff, and faculty attended her farewell reception in 161 Crellin. A two-week overlap was provided to smooth the transition between Laura and Agnes.

Agnes had worked for years as an administrative assistant for faculty at Caltech in the Division of Physics, Mathematics, and Astronomy and the Division of Engineering and Applied Science, so she brought her experience with supporting research groups and graduate students. Prior to joining Caltech, Agnes worked in escrow services, and as assistant to the chairman of a large company in Hong Kong. Agnes graduated from Binghamton University with a Bachelor degree in Biology. She enjoys her free time scuba diving either at Catalina Island or overseas.

Welcome, Agnes!

Continued from Page 3 (Agapie, Reisman, Miller)

in 2006; her thesis detailed the total synthesis of the natural product welwitindolinone A isonitrile. For her postdoctoral work, Sarah pursued studies in the field of asymmetric catalysis as an NIH fellow, working with Prof. Eric Jacobsen at Harvard University. She joined the Caltech faculty in June 2008.



Theodor Agapie

Theo was born in Bucharest, Romania. He received his B.S. degree from Massachusetts Institute of Technology in 2001 and his Ph.D. from California Institute of Technology in 2007. Upon completion of his Ph.D. he moved to University of California, Berkeley as a Miller Postdoctoral Fellow. Theo developed his passion for chemistry during high school and participated in chemistry competitions; he won two silver medals at the International Chemistry Olympiads as part of the Romanian team. While an undergraduate at MIT, he worked with Professor Christopher C. Cummins for more than three and a half years on atom and fragment transfer chemistry involving metal complexes, on titanium-ketyl radical chemistry, and on DFT computations to detail the electronic structure of synthesized complexes. At graduation, he received the Chemistry Department's Alpha Chi Sigma Award for achievement in research, scholarship, and service to the department. At Caltech, Theo worked under the tutelage of Professor John E. Bercaw on mechanistic and synthetic aspects of chromium-based olefin oligomerization catalysis and on developing new early transition metal nonmetallocene olefin polymerization catalysts. His Ph.D. thesis received Caltech's Chemistry Department Herbert Newby McCoy Award for outstanding contribution to the science of chemistry. Upon graduation, in May 2007, Theo moved to UC Berkeley to work with Professor Michael A. Marletta as a Miller Institute Fellow. There, he focused on mechanistic aspects of biochemical nitric oxide synthesis involving the metalloprotein nitric oxide synthase. Theo returned to Caltech in February 2009 to start his independent career as an assistant professor of chemistry.



Dennis A. Dougherty, George Grant Hoag Professor of Chemistry, was elected to the National Academy of Sciences on April 28, 2009 at the 146th annual meeting of the Academy in Washington D.C.

Caltech's Liquid NMR Facility is under experienced management

The NMR facility is in the Crellin sub-basement, Room 050. It has three 300 MHz Spectrometers with auto-switchable probe, one auto-sampled 300 MHz Spectrometer with ATB X-Channel probe, one 500 MHz Spectrometer with auto-x pfg broad band probe, one auto-sample 500 MHz Spectrometer with auto-x pfg broad band probe, and one 600 MHz Spectrometer with 5 mm triple resonance inverse probe, 3 mm inverse probe, 5 mm penta probe.

The facility is now managed by Dr. David VanderVelde, who replaced Christopher Brandow. VanderVelde brings almost 30 years of extensive NMR experience, last of which from his position as Director of NMR, Senior Scientist, and Professor of Medical Chemistry at University of Kansas. He has been the author of many successful NMR instrumentation proposals from NSF and NIH.

Scott Ross continues in his position as spectroscopist, working with VanderVelde to help design and interpret experiment results. Online instrument signups and lab spectrometer status can be found at:

<http://mangia.caltech.edu/NMR.html>



Dr. David VanderVelde is the manager of our High-Resolution Nuclear Magnetic Resonance (NMR) Facility

Congratulations to the CCE Staff Who Received Service Awards in 2009!

10 Years

Sonjong Hwang
Nannette Pettis
Scott Ross

15 Years

Mario Blanco
Yvette Grant
Piotr Polaczek
Yuling Shen

20 Years

Maureen Renta

25 Years

Martin Budd

Doug Rees Hosts The First Annual Ch 82 Senior Thesis Symposium

After having completed three terms of Ch 82, chemistry undergraduates Alexandra Velian, Dana Levine, Daniel Rowlands, and Maria Chiriac presented theses of approximately 20 pages each (excluding figures and references) at a symposium on Friday, June 5, 2009 in 147 Noyes. The theses were presented to the mentors and the Chemistry Curriculum and Undergraduate Studies Committee (CUSC). The symposium was hosted by Doug Rees.

Congratulations to the CCE Students Who Received Awards in 2009!

Arie J. Haagen-Smit Memorial Fund:
Andrew M. Freddo (Junior, 2010)

Renuka D. Sharma Prize Award:
Wesley Y. Yu (Sophomore, 2011)

Richard P. Schuster Memorial Prize:
Maria I. Chiriac (Senior, 2009)
Muzhou (Mitchell) Wang (Senior, 2009)

Herbert Newby McCoy Award:
David M. Chenoweth (Graduate)
Ding Shyue (Jerry) Yang (Graduate)

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