

## Department of Chemistry Newsletter 2009

### *Message from the Chair*

It's my pleasure to welcome you in this first annual chemistry alumni newsletter. I hope you'll enjoy reading about what's been happening in the department as much as we enjoy telling it to you. And there's a lot to share! So much, in fact, that it didn't seem right to limit this first issue to just the notable events of this past year. So instead, this is a year-in-review and a decade-in-review rolled into one, with updates from all the faculty and staff as well as highlights of student activities and accomplishments. There's also an alumni section and in future newsletters we would like to include updates from our alums. We'd really love to hear from as many of you as possible, so please drop us a note and share what you've been up to.

So I hope you'll find this newsletter both interesting and fun. Of course, if you ever find yourself in the New London area, please stop by to visit. It always makes our day when we get the chance to catch up with friends.

Best wishes to you!

*Stan*

Stanton Ching

## Year in Review

2009 is a milestone year marking the retirement of **Professor Dave Cullen**. Dave concludes his impressive 31-year career at Connecticut College with a promotion to full professor. He will be remembered as the mainstay of the biochemistry program as well as a strong presence in inorganic chemistry and advanced general chemistry courses. Dave has prepared many a student for medical school, graduate school, industrial employment, and other career endeavors. He has also volunteered annually as a judge for the State of Connecticut State High School Science Fair and is an active member of the Appalachian Mountain Club. Let's all wish Dave the very best in his retirement! Anyone wanting to send Dave a personal greeting can contact him by email at [dlcul@conncoll.edu](mailto:dlcul@conncoll.edu).



Dave Cullen's final biochemistry class at Connecticut College. Dave's class presented him with a celebratory tiara and a classroom with retirement trimmings.



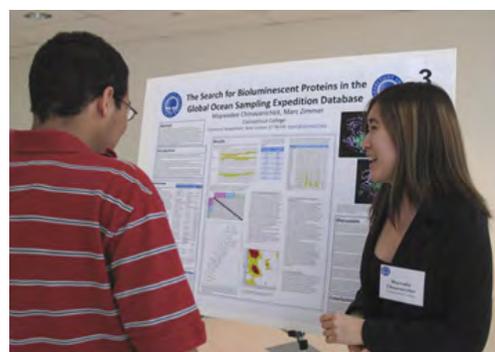
Dave with President Higdon (left) and Dean of Faculty Roger Brooks (right), along with other 2009 retiring professors.

In March, the department welcomed a visiting committee to get an outside assessment of the chemistry program. Our discussions with the committee members were very fruitful and we received helpful suggestions on topics that spanned the range of staffing, space, curriculum, and equipment needs. We were pleased that they recognized the high level of activity and camaraderie in the department as well as the dedication to providing high quality instruction and research experiences for students. Overall it was an excellent visit that will help us to further strengthen our work in the sciences.

On April 25<sup>th</sup>, Connecticut College hosted the annual American Chemical Society – Connecticut Valley Section (ACS-CVS) Undergraduate Symposium and Awards Banquet. Stanton Ching and Marc Zimmer served as organizers. The symposium featured 54 student presenters representing 14 different institutions from Connecticut, Massachusetts, and New York. Other highlights included 18 speakers in three concurrent sessions (chaired by Stanton Ching, Marc Zimmer, and David Lewis) and 26 posters given by a total of 36 presenters. Connecticut College was well represented with talks given by Jon Franklin '09 (Ching), Doris Dekovic '09 (Zimmer), and Larson Hogstrom '09 (Zimmer) and poster presentations by David Kriz '11 (Ching), May Chinavanichkit '09 (Zimmer), and Charles Gartman '11 (Lewis).



The ACS-CVS poster session packed in a big crowd at Cro.



May Chinavanchit '09 describes her work.

An article appearing in the July 2009 issue of the *Journal of Chemical Education* caught our attention because it listed of over 50 top undergraduate chemistry programs in the country and tabulated their publications from three different decades (1976-85, 1986-95, 1996-2005). Over those three decades, our total publications increased from 13 to 24 to 60. More impressively, in the most recent decade we were one of only five chemistry programs on the list to publish greater than one article per faculty member per year. This speaks well of our strength in research and the fine work of our chemistry students.

2009 also marked the first year of the Connecticut College Science Leaders Program, which recruits cohorts of students into science and mathematics from underrepresented ethnic minorities, women in math and physics, students with disabilities, and first generation college students with financial need. The program is supported by a \$514K grant from the National Science Foundation and is administered by Marc Zimmer. This year's first cohort had 17 students and all are continuing in the sciences and/or mathematics.

Finally and sadly, the chemistry department remembers **Professor Emeritus Mary Gertrude "Trude" McKeon**, who passed away on August 27, 2009 at the age of 83. Trude joined the faculty of Connecticut College in 1952 after receiving her Ph.D. from Yale in organic chemistry. She held the Margaret W. Kelly Professorship in Chemistry from 1973 until she retired in 1992. She played an integral role in educating many science majors at the College during her nearly 40 years of teaching organic chemistry. Trude was a strong, supportive, and humble colleague who always worked toward the best interests of Connecticut College, the chemistry department, and its students.



**Professor Trude McKeon at the 1992  
Connecticut College Commencement**

## Class of 2009 Chemistry Majors

### ACS Chemistry

Florent Abaziou

Jonathan Franklin

### Biochemistry, Cellular and Molecular Biology

Audrey Davis

Doris Dekovic

Larson Hogstrom

Chuan (Darren) Jiang

John Prevedini

This was obviously a rebuilding year since we usually graduate twice the majors.

## Honors Theses

Audrey Davis (Branchini)

*Improved Red-emitting Firefly Luciferase Mutant for Biotechnical Applications*

Doris Dekovic (Zimmer)

*Analysis of the Relationship Between the Chemospatial Properties of the Chromophore Cavity in  $\beta$ -Barrel Fluorescent Proteins. Their Color and Evolutionary Development*

Jonathan Franklin (Ching)

*Synthesis of Hollandite-Type Manganese Oxides with Interstitial and Framework Cr(III) as Nanorods and Nanowires*

Larson Hogstrom (Zimmer)

*Dihedral Freedom and Excited-state Barriers of the Chromophore in Red Fluorescent Proteins*

## Chemistry Department Awards

*ACS-Connecticut Valley Section Award*

Audrey Davis

*Jean V. Johnston Prize*

Jonathan Franklin and Alicia Morgan

*Dr. Joseph Nunes Pereira Prize*

Doris Dekovic and Laura Frawley

*Paul Abel Swartz Memorial Prize*

John Prevedini

*American Institutes of Chemists Awards*

Jonathan Franklin (Chemistry)

Larson Hogstrom (Biochemistry)

*CRC Press General Chemistry Awards*

Amy Smith and Shuang Song

*Department Organic Chemistry Award*

Samantha Brackett

*ACS-Analytical Chemistry Award*

Elizabeth Archer

*ACS-PolyEd Organic Chemistry Award*

Kelsey Taylor

## Summer Research



### 2009 Summer Research Groups



**Branchini Group:** Anna Bianchini '11, Kelsey Taylor '11, Paul McCarthy '12.  
Research Technicians: Danielle Ablamsky, Audrey Davis '09, Rebecca LeFleur,  
Justin Rosenberg '07, Tara Southworth. (Photo left-to-right: Kelsey, Danielle,  
Justin, Rebecca, Tara, Bruce, Audrey, Paul, and Anna.)

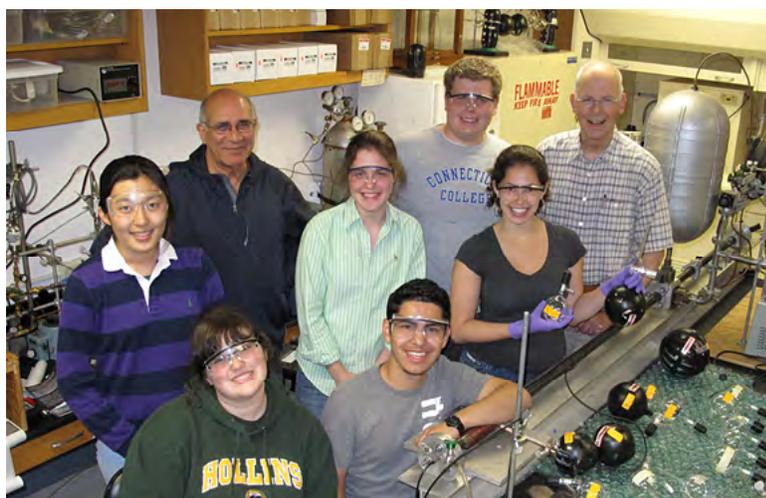


Thermal analysis heating things up in Stan's lab.



Scoping the new TEM in New London Hall.

**Ching Group:** David Kriz '11, Kyle Fast '10, Alex Lin (Williams School, '10).



**Lewis Group:** Erick Argueta '12, Jessica Yi '12, Kathryn Arroyo '12. Research technician: Jon Franklin '09. Summer Visiting Professor Bansi Kalra and students Emily Klein and Amelia Campbell from Hollins University (VA). This year marked the 40<sup>th</sup> (!) consecutive summer that Dave Lewis has had an active summer research group with undergraduates. Congratulations Dave!



The flurry of synthetic activity that we've all come to expect from Timo's lab.

**Timo Ovaska Group:** Jake Winegrad '10, Bibi Zhelyazkova '10, Sarah Spiegel '11, David Wu '11. Research Technician: Sami Ovaska.



Marc's group killing time in between calculations . . . and now back to work!

**Marc Zimmer Group:** Alex Samma '10, Chelsea Johnson '11, Shawn Mulcahy '11, Wayne Ong '11, Vishwanie Persaud '11, Sam Alvarez '12, Shuang Song '12.

## End of Summer Science Poster Session



As usual, a big turnout for the poster session and refreshments.



Nineteen students participated in chemistry summer research.



R & R in summer science is Research and Refreshments!



Some posters were sized better than others.



Chatting it up with President Higdon.



Yum!

## News from the Past Decade

### Department Updates

#### **Bruce Branchini**

Bruce continues to oversee an active platoon of researchers who are doing excellent work elucidating the mechanism of firefly chemiluminescence. His research collaborations in Florence and Bologna have had the side benefit of enabling students in his Spectroscopic Methods course to travel to Italy. In 2001, Bruce led a group of students on a "Spectroscopy in Florence" trip over spring break. In 2003 the experience was extended to a semester-long Away-Teach Away program. In 2002, Bruce was awarded the Connecticut College Nancy Rash Award for excellence in research.



#### **Stanton Ching**



Stan still teaches general chemistry, inorganic chemistry, and instrumental methods of analysis. His research continues to explore new synthetic routes to microporous and nanostructural manganese oxides. His major professional service includes secretary to the editorial board of *Inorganic Syntheses* since 1999 and local site coordinator for the National Conference for the Council on Undergraduate Research in 2002. In 2002-03, he also had the unique opportunity to serve as Interim Athletics Director and Chair of Physical Education at the college. Stan got married in 2007 and is enjoying family life with his wife and two dogs (see photo).

#### **Vicki Fontneau**

Vicki has now been with the department for 25 years! She has continued to teach and coordinate the General Chemistry labs and the Biochemistry labs, adding new experiments and revising existing ones. She has also continued to enjoy advising freshmen and upper class students. The most important personal highlight is the addition of a granddaughter to the family (see photo). Amelia is now 3 years old. :-)



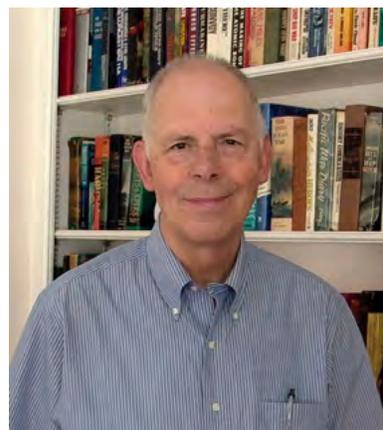
## Colleen Kaczmarek



Colleen continues to teach both general chemistry and organic chemistry labs as well as the Molecular Science course for non-majors. This fall, she will team-teach a freshman seminar course with Anne Bernhard from Botany called "Microbes, Molecules, and More!". In 2008, she joined the Goodwin-Niering Center for Conservation Biology and Environmental Studies. When she has the chance, Colleen still enjoys spending time in the White Mountains of New Hampshire.

## David Lewis

Dave has been wearing many hats at the college over the past decade. In addition to teaching physical chemistry and analytical chemistry, as well as general chemistry labs, he had administrative duties as Dean of the Faculty from 1997-2000 and then acting President of Connecticut College for 2000-2001. His research at the college and part-time at Aerodyne Labs in the Boston area continues to investigate fast chemical reactions in shock tubes, ultrahigh resolution laser spectroscopy, and atmospheric chemistry.



## Timo Ovaska



Timo is still the face of organic chemistry at the college, teaching the second-year organic chemistry as well as advanced organic and medicinal chemistry courses. His synthetic projects focus broadly on synthetic methodologies for complex polycyclic ring systems that may be crucial in molecules having medicinal benefits. Most recently, he has completed total syntheses in a class of molecules called frondosins. His students have benefited from his many grants, including a number from pharmaceutical companies such as Pfizer and Bristol-Myers-Squibb that have supported student summer research. His son Sami now works as a research assistant in his lab. He also became a proud grandfather this past year as his daughter Mintu gave birth to a baby girl.

## Maureen Ronau

Maureen has taught a wide range of courses over past several years. In addition to her ongoing involvement in general chemistry and organic chemistry labs, she has taught the lecture and lab for analytical chemistry and labs in the advanced general chemistry sequence. In 2007, she also taught a freshman seminar course in food chemistry.



## Marc Zimmer



Marc has had “glowing” years of late – having published many computational studies on green fluorescent protein, authoring his book, *Glowing Genes* in 2005, teaching his freshmen seminar course called GLOW, writing numerous opinion articles after 3 GFP researchers were awarded the Nobel Prize, and even attending the Nobel Prize Ceremony in Sweden (see photo). He continues to teach general chemistry and environmental chemistry. In 2007, Marc received national recognition as Connecticut Professor of the Year. His household pets have grown to include green fluorescent mice, fish, and salamanders.

## Evelyn Bamford

Evelyn continues to be the glue that holds the department together. She has now worked at the college for 23 years and (as many of you know) has been a great source of moral support and encouragement for numerous chemistry majors. She enjoys weekends with family on Cape Cod and is still singing with a couple of groups. Evelyn is busy with her six grandchildren from daughters Sarah '90 and Anne '96, and son David. The oldest one is entering high school and the youngest is getting ready for nursery school.



*Faculty Accomplishments (since 1999)*

**Bruce Branchini**

Publications

14 publications

Grants

National Science Foundation (3); U.S. Air Force (2)  
NSF-MRI (co-PI) – 500 MHz NMR Spectrometer

Awards

Connecticut College Nancy Rash Award for Research, 2002

**Stanton Ching**

Publications

6 publications

Grants

National Science Foundation; Research Corporation (2);  
Petroleum Research Fund  
NSF-MRI – Powder X-ray Diffractometer;  
NSF-MRI (co-PI) – Transmission Electron Microscope

**David Lewis**

Publications

5 publications

Grants

National Science Foundation (2)

**Timo Ovaska**

Publications

13 publications

Grants

National Institutes of Health (3); Petroleum Research Fund;  
Dreyfus Scholar Fellow Program  
NSF-MRI (co-PI) – 500 MHz NMR Spectrometer

**Marc Zimmer**

Publications

24 publications

Grants

National Institutes of Health (3); Research Corporation (2);  
Petroleum Research Fund; Dreyfus Teacher-Scholar Program  
NSF-MRI (co-PI) – 7 College Computer Consortium  
NSF Chemical Education Grant

Awards

2001 Connecticut College John King Award for Teaching  
2005 Connecticut College Nancy Rash Award for Scholarship

2005 Burlew Award – ACS Connecticut Valley Section  
for outstanding contributions to chemistry  
2007 Connecticut Professor of the Year

## Alumni News



Recent Alums: Some students from the Classes of 2008 and 2009  
showing off the chemistry department T-shirts

### *Alumni Seminars*

We've been fortunate to have quite a number of alums pass through to speak in our department seminar series. We apologize if we forgot anyone.

1999

Denise Lusitani '92 Yale University  
*Biophysical Studies of the alpha-Spectrin Repeat Motif* (Graduate studies work)

2000

Maria Pellegrini '69 W. M. Keck Foundation  
Distinguished Alumni Speaker Series

2001

Karin Melkonian '90 Long Island University  
*Designing and Testing New Antibacterial Compounds: Fusion Between Chemistry and Biology*

2003

Christine Thetford '98 University of North Carolina  
*Capillary Electrophoresis and Diode Array Detection as Tools for Measuring Diffusion* (Ph.D. work)

Chris Cooper '99 Worcester Polytechnic Institute  
*Self-Assembling Systems for Molecular Device Applications* (Ph.D. work)

#### 2005

Emily Peacock '02 Woods Hole Oceanographic Institute  
*The Florida Oil Spill After 35 Years: New Insights on the Fate of Petroleum Residues in Salt Marsh Sediments*

Kevin Wilkinson '01 University of North Carolina  
*Understanding RNA Structure with Organic Chemistry* (Ph.D. work)

#### 2006

Sarah Reisman '01 California Institute of Technology  
*Total Synthesis of (+/-)-Welwitindolinone A Isonitrile* (Ph.D. work at Yale)

#### 2007

Eben Cross '03 Boston College and Aerodyne Research Inc.  
*Understanding the Influence of Atmospheric Aerosol Particles on Climate* (Ph.D. work)

#### 2008

Eric Welch '01 Invitrogen Corporation  
*Trigonal Prismatic Tungsten Clusters: Atom-like Building Units of Adjustable Character*  
(Ph.D. work at Berkeley and Postdoctoral work at Princeton)

Lopa Desai '03 Bristol Myers Squibb  
*Palladium-Catalyzed Functionalization of C-H Bonds* (Ph.D. work)

Nicole McNeil '93 National Cancer Institute  
*Genetics Research at the Center for Cancer Research*

Ram Neupane '05 Three Rivers Community College  
*Rh-Catalyzed Enantioselective Hydroformylation of Alkenes* (Ph.D. work)

#### 2009

Clay Bennett '99 Tufts University  
*Development of Enabling Tools for the Glycoscientist*

Fatima (DaCruz) Jones '97 ThermoFisher (NIH contractor)  
*Effects of Mutations in the G-ract of the HIV-1 PPT on RNase H Cleavage Specificity*

### *Alumni Updates*

Future newsletters will contain updates from alums in this section, so please let us know what you've been up to. We want to hear from you!  
Send your updates to Stanton Ching: [sschi@conncoll.edu](mailto:sschi@conncoll.edu).