

# Silicon Valley Chemist

Santa Clara Valley Section

American Chemical Society

Volume 30 No. 1

## JANUARY 2008 NEWSLETTER TOPICS

- February Dinner Meeting: The Colors of Art: History and Properties of Artists' Pigments
- Chair's Message
- Truthiness in Chemistry
- Reminder: January Dinner Meeting, Mosher Award

## February Dinner Meeting

**Date:** Thursday, February 14, 2008

**Time:** 6:00 Social Hour

7:00 Dinner

8:00 Presentation

**Location:** Biltmore Hotel & Suites  
2151 Laurelwood Blvd.  
Santa Clara, CA 95054

**Speaker:** Dr. Ariel Fenster  
McGill University  
The Colors of Art: History and Properties of Artists' Pigments

**Cost:** \$27.00 with the choice of  
Chicken Honey Dijon  
Eggplant Parmesan  
Includes wine with dinner

**Reservations:** [www.scvacs.org](http://www.scvacs.org)  
Shirley Radding  
408-246-2564  
408-296-8625 Fax

Reservations should be made by February 10 stating your name, address, company affiliation, number of people in party, and menu selection. If you are unable to honor your reservation and do not cancel by Wednesday, February 13, you will be invoiced following the dinner meeting.

## February Dinner Meeting

# The Colors of Art: History and Properties of Artists' Pigments

Dr. Ariel Fenster



### Abstract

This dinner presentation explores the history and the science of the various pigments used by the great masters, Titian, Rembrandt, Monet and others. Discover the unusual origins of Indian yellow and learn the secret of ultramarine. Understand the reasons for the widespread popularity of lead white and the versatility of cadmium paints. This will be an exceptional presentation highlighting the complementary relationship that exists between science and art.

### Biography

Ariel Fenster teaches at McGill University, where he is a founding member of the Office for Science and Society, an organization dedicated to disseminating up-to-date information in the areas of food, food issues, medications, and environment and health topics in general. Dr. Fenster is well known as an outstanding communicator and an exceptional promoter of science with an extensive program developed over nearly three decades.

Over that period he has given close to 600 lectures and public presentations in English and in French across North America and overseas. He appears regularly on TV and radio to discuss health, environmental and technolo-

gy issues and has presented numerous science segments for children's television. Recently he was seen in French on Radio-Canada's popular daily health show "37,5" and in English on the "Discovery" science show "What's That All About?" Numerous awards recognize his contributions to teaching and to the popularization of science. He has received the "Award for Excellence in Chemistry Teaching" by the U.S. Chemical Manufacturers Association and the "McNeil Medal for the Public Awareness of Science." Ariel Fenster, who is a native of the wine-growing region of Bergerac, France, holds a Master's degree from the University of Paris and a Ph.D. from McGill University.

## Chair's Message



Happy New Year to everyone. Wow! Where did the past year go? In a way it doesn't seem like all that long ago since last January, when I became chair-elect.

This section is one of those that the Society deems very large, with over 3000 members. We have a wide variety of professional

experience represented by our members: from industry and academics, from students to those who have retired after long and fulfilling years as chemists. One of the goals of the section is to provide educational and professional networking opportunities at our

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*Chair's Message, continued from front page*

monthly dinner meetings. In order to further that goal, we seek those who can speak on a variety of topics, reflecting the wide diversity of chemistry. Chemists are like anyone else, they often have a variety of interests, and so we try to have monthly speakers that will hit as wide a variety of topics as possible.

A new chair of the section takes over each January. My name is Mark Kent, and I have been a member of ACS since my undergraduate days at Cal Poly, 30-odd years ago. I am a process chemist, with experience mostly in pharmaceutical/biotech companies. The Executive Committee of the Santa Clara Valley Section is at your service to guide the section through 2008. I would like to thank George Lechner, last year's chair, for his outstanding efforts in the leadership

of the section. Thanks also to the Executive Committee for its leadership role.

The January dinner meeting of the section will be on January 7, 2008 at the Biltmore. Our speaker will be the recipient of the Mosher award, Dennis Curran, who will be speaking on Cascade Radical Annulations: From Curiosity to the Clinic. Be sure to sign up on the web site: [www.scvacs.org](http://www.scvacs.org). If you are unable to dine with us, please join us to hear the talk. The program starts at 6 PM, with a social hour, followed by dinner, the award presentation and lecture.

On February 14, 2008 our speaker will be Dr. Ariel Fenster, who will be speaking to us on The Colors of Art: History and Properties of Artists' Pigments. Also in February, we are working to set up a joint meeting with the California Section, at which

some of the scientists from Genentech have offered to speak about their work.

Other topics this spring will be Chemistry and Alchemy of Brewing, and A Chemist Wanders into Archaeology. What topics would be of interest to you? Please let us know. All of us on the Executive Committee are interested in hearing what members think about the programs and activities that the section has planned. You can e-mail us at [scvacs@yahoo.com](mailto:scvacs@yahoo.com). Remember, this is your Society. You can make a difference by participating at both local and national levels. If you are interested, please join us as your schedule permits at the monthly dinner meetings, the summer picnic, or meetings of the Executive Committee. I look forward to meeting you.

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## Truthiness in Chemistry

Jim Ryan

The Colbert Report, hosted by comedian Stephen Colbert, is one of the more popular shows on the cable television channel Comedy Central. The host purports to be one of the talking heads common to 24-hour news channels such as Fox and MSNBC, but in fact Colbert uses his persona to instead lampoon such people. One of the program's comedic routines began with the show's October 17, 2005, debut. Called "The Word," the parody has Colbert discussing a particular word or phrase, while across his shoulder barbed editorial comments are displayed onscreen. His first word on that initial episode was "truthiness," a word he defined to describe things that a person knows intuitively without regard for facts or even logic, like knowing that chocolate is bad for you. I sometimes wonder if we have some truthiness issues in chemistry.

We call our discipline "the central science," and if one searches Google for that explicit term, 140,000 possible hits come to light. Not that I went to all of them, but of the first dozen or so pages, most of the citations were along the lines of "chemistry is often called the central science" or "chemistry is the science that connects all other natural sciences."

Also featured was the chemistry textbook, now in its 10th addition, by Brown, LeMay, and Bursten entitled Chemistry: the Central Science. All promote chemistry as the linchpin from which all other of today's sciences derive.

But is chemistry really at the heart of all science today? Maybe in the middle-third of the last century, but perhaps not so much these days, especially in a post-DNA world. It seems that biology, or at least biochemistry, is more the central science, especially as we continue to seek the definition of what constitutes life. Once we thought there were 100,000 or more genes in the human genome. Now it looks as if there are closer to 30,000 genes, and many of those can be found in living species ranging from bacterium to your children. It seems to me that one could plausibly argue that biochemistry is more central than "pure" chemistry.

I'm not the only one thinking along these lines, either. It turns out that there are people who study such science trends in a field called scientometrics. Modern scientometrics is derived from the work of Eugene Garfield, the founder of the Institute of Scientific Information (ISI). The latter's citation indices play a

large role in the evaluation of scientific journals. Dating myself though I may be, I first learned of ISI with its Current Contents publication. It was required reading before the advent of the Web.

Several recent articles published in the eponymously named journal Scientometrics have attempted to discern how various fields of science are related to each other. In one paper entitled "Mapping the Backbone of Science," authors Kevin Boyack, Richard Klavans, and Katy Börner build their representation of scientific knowledge based on 7121 journals and 1 million documents. It resembles a star cluster, with seven major scientific centers (mathematics, physiology, chemistry, earth sciences, medicine, psychology, and the social sciences) arranged in a vast circular pattern of relationships. There is no "central science." There is only a map that shows that all fields of science relate to one another.

In another Scientometrics paper, "Is Chemistry 'The Central Science'? How are Different Sciences Related? Co-citations, Reductionism, Emergence and Posits," authors Alexandru Balaban and Douglas Klein of Texas A&M argue that a linear model of mathematics leading to astronomy, astronomy leading to

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physics, physics leading to chemistry and then on to physiology and the life sciences is old-think. These authors put forth a new “framework” map of the sciences with a re-ordering, in which chemistry is derived from mathematics and physics. However, now chemistry is only central in the sense that “it is . . . at a location where significant branching begins. Biology appears nearer the center of gravity.” Now of course there

is another question that comes to mind. Who cares? Chemistry is what it is, covalent and ionic bonds, pH and pKa calculations, halogens and transition metals. The problem with that view of chemistry is that it's all trees, no forest. We chemists may have gotten here in the past four centuries via a linear model of mathematics and physics leading to chemistry, but that is not how it is practiced today. Chemists are related to microbiologists, psychologists, medi-

cine, and the earth sciences.

To really understand chemistry, you need to understand it in context. And with due respect to Brown, LeMay, and Bursten, chemistry is probably not the central science today, though many think it is. But that's truthiness for you. Sometimes in error, but never in doubt.

Jim Ryan (ACS '67) is Assistant Director of the ACS Continuing Education program. He can be reached at [j\\_ryan@acs.org](mailto:j_ryan@acs.org).

## Reminder: January Dinner Meeting, Mosher Award Cascade Radical Annulations: From Curiosity to the Clinic

Dennis P. Curran

### Abstract:

The road to drug discovery and development in an academic setting is a long and tortuous one, especially if you don't even set out to discover a drug in the first place. Having developed many 3-atom + 2-atom radical annulations during the 1980's, we became curious around 1990 whether we could develop a 4-atom + 1-atom radical annulation. The reaction that we discovered was not entirely the one that we planned, but in many ways it proved even more interesting. One thing led to another, and soon we were making the anti-cancer agent camptothecin, and later new analogs. One unusual class of new camptothecins bearing a silicon substituent, “silatecans”, was especially exciting, and the



chemistry and biology results eventually led to the preclinical and now clinical development of the silatecan “DB-67”. This lecture recounts the DB-67 story from curiosity to the clinic.

### Biography:

Dennis P. Curran received his B.S. in 1975 from Boston College. His Ph.D. was granted from the University of Rochester in 1979 where he worked under Professor Andrew S. Kende. After a two-year postdoctoral stay with Professor Barry M. Trost at the University of Wisconsin, Dr. Curran joined the faculty of the Chemistry Department at the University of Pittsburgh in 1981. He now holds the ranks of Distinguished Service Professor and Bayer Professor of Chemistry, and is the founder of Fluorous Technologies, Inc. ([www.fluorous.com](http://www.fluorous.com)). Among other awards, Dr. Curran has received the Blaise Pascal International Research Chair, Préfecture de la Région D'Ile-de-France Paris (2007-2008), the Pittsburgh Award, Pittsburgh Section, American Chemical Society (2006), the Morley Medal, Cleveland Section, American Chemical Society (2006), the Pittsburgh Magazine Innovators Award (2003), American Chemical Society Award for Creativity in Organic Synthesis (2000) and the Cope Scholar Award (1988),

and the Janssen Prize for Creativity in Organic Synthesis (1998). He is currently an ISI “Highly Cited Researcher” ([www.isihighlycited.com](http://www.isihighlycited.com)). Dr. Curran has authored over 350 papers, thirty patents and two books, and is well known for his work in at the interface of radical chemistry and organic synthesis. More recently he has made significant contributions to the emerging discipline of fluororous chemistry. Additional information is at

<http://radical.chem.pitt.edu>.

## January Dinner Meeting

**Date:** Monday, January 7, 2008

**Time:** 6:00 Social Hour

7:00 Dinner

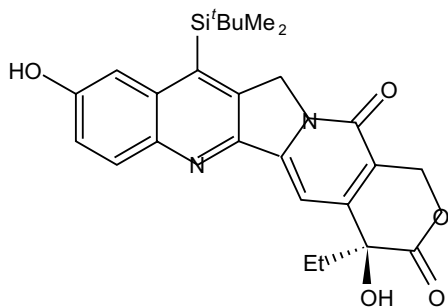
8:00 Presentation

**Location:** Biltmore Hotel & Suites  
2151 Laurelwood Blvd.  
Santa Clara, CA 95054

**Speaker:** Dr. Dennis P. Curran  
University of Pittsburgh  
Cascade Radical  
Annulations

**Cost:** \$27.00 with the choice of  
Grilled Salmon or  
Vegetarian Crepes  
Includes wine with dinner

**Reservations:** [www.scvacs.org](http://www.scvacs.org)  
Shirley Radding  
408-246-2564  
408-296-8625 Fax





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## SANTA CLARA VALLEY SECTION

### 2008 Section Officers

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### ChemPloyment Abstracts

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## FUTURE MEETINGS

- Feb 14** Dr. Ariel Fenster  
The Colors of Art: History and  
Properties of Artists' Pigments  
Biltmore Hotel  
Santa Clara, CA
- Feb 20** BioScience Forum  
Dr. Kevin Judice  
CEO Achaogen  
[www.biosf.org](http://www.biosf.org)
- Mar 2-4** Pittcon  
New Orleans, LA  
[www.pittcon.org](http://www.pittcon.org)
- Mar 3** Dr. Robert Bates  
Chemistry & Alchemy of  
Brewing  
Place TBD
- Mar 9-14** DNA Damage, Mutation & Cancer  
Gordon Research Conference  
Ventura Beach, CA  
[www.grc.org](http://www.grc.org)
- Apr 6-10** National ACS Meeting  
Joint with AIChE  
New Orleans, LA