

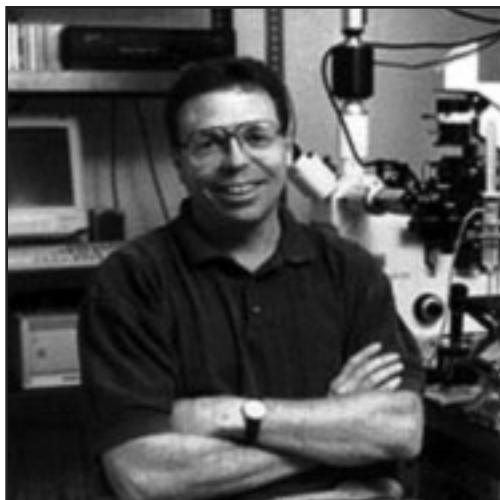
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March 2007



EDGAR FAHS SMITH MEMORIAL LECTURE Dr. David A. Tirrell

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Please carefully review the following information:

- All contributed abstracts must be submitted through our web site at www.eas.org between March 1 and April 15, 2007. No faxed, e-mailed, or mailed abstracts will be accepted.
- Please note that no one author may submit and present more than two posters.
- All abstracts will be acknowledged via e-mail.
- The title of the presentation and the list of authors that you submit are final, and may not be changed.
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- Presenting authors of contributed submissions will be notified in June 2007 of the status of the abstract and its session assignment.

If you have questions concerning the submission of abstracts, please contact us at:

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ADVANCE NOTICE

APRIL MEETING

**Scholastic Achievement Awards
and
Recognition of the Designation of the USDA
as a National Historic Chemical Landmark**

THURSDAY, April 19th, 2007

See the APRIL issue of *the Catalyst* for details,
call the Section Office at (215) 382-1589, email PhilaACS@aol.com

**From
The
Chair**

**David
Cichowicz**



Although you are reading this column at the end of February or the beginning of March, I am writing it just after the January Section Meeting. We once again featured the talent of our local graduate and undergraduate students at our Seventh Annual Poster Session. This year we had a total of 34 posters, 16 undergraduate and 18 graduate, and decided to give cash awards to the top four posters in each group. All of the students did a wonderful job of preparing their posters and presenting their research, making the judges' jobs very difficult. The results of the judging will be published elsewhere in the *Catalyst*.

I would like to take this opportunity to publicly thank all those who made the event a success. First and foremost, Deb Kilmartin, who gathered the abstracts, created the booklet and made sure that they were duplicated and available for the meeting. Three of the awards were sponsored by Section members: The William Penn Memorial Award by Sharon Haynie and two undergraduate awards by Deb Kilmartin. This year's judges were Dr. Laurie Morton from Villanova, Dr. Samuel Morton from Lafayette University, Sr. Rose Mulligan from Immaculata University, Mr. Alan Heldon from Heldon Associates, Dr. John Tierney from Penn State University, Media and Drs. Tom Straub, Stu Gentry and Mike Prushan from La Salle University. Finally, Libby Harper, Anne DeMasi, Tony Addison and Andy Gettes helped with all the behind the scene details. Thank you all!

This month will feature the Edgar Fahs Smith Lecture by Dr. David A. Tirrell from the California Institute of Technology at the University of Pennsylvania. I hope to see you there!

SPEAKER ABSTRACT

Dr. David A. Tirrell

***Non-Canonical Amino Acids in
Protein Design, Evolution and
Analysis***

Macromolecular chemistry has traditionally been divided into two fields, with biochemists and biochemical engineers working on proteins and nucleic acids while polymer chemists and materials scientists have concerned themselves with synthetic polymers. These two classes of macromolecules are profoundly different from one another; proteins and nucleic acids are uniform, well-folded, and evolvable, whereas polymers are heterogeneous and for the most part adopt random-coil conformations. The advantage held by synthetic polymers is their compositional diversity; thousands of different monomers are available to the polymer chemist, while proteins and nucleic acids are made from relatively small numbers of amino acids and nucleotides. This lecture will describe an ongoing attempt to bridge the gap between polymers and proteins by devising methods to build functional proteins that contain non-standard amino acids. Implications for biomaterials science, protein therapeutics, protein evolution and proteomic analysis will be explored.



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SPEAKER BACKGROUND

Dr. David A. Tirrell
Ross McCollum-William H.
Corcoran Professor and Professor
of Chemistry and Chemical
Engineering
Chair, Division of Chemistry and
Chemical Engineering
California Institute of Technology

BS, Massachusetts Institute of Technology,
1974; MS, University of Massachusetts, 1976;
PhD, 1978; Dhc, Technische Universiteit
Eindhoven.

Research in the Tirrell group combines organic, biological, and materials chemistry to make new polymeric systems of controlled molecular and supramolecular architectures. Two kinds of systems are under active investigation: artificial proteins made by expression of artificial genes in microbial cells, and flexible polymeric nanowires and nanotubes made by a membrane templating approach. In each case, investigators are concerned not only with architectural control but also with the functional properties of the macromolecular system of interest.

Artificial proteins represent a new class of macromolecular materials that bridge the gap that has traditionally separated natural polymers from their synthetic counterparts. While synthetic polymers are interesting and enormously important, their utility derives in large part from their physical properties; chemists have yet to capture in synthetic polymers the more subtle catalytic, informational, and transduction properties of proteins and nucleic acids. The reason for this distinction may lie in the levels of architectural control to be found in each class of polymers; proteins and nucleic acids are characterized by defined lengths, sequences, and stereochemistries, while synthetic polymers are highly heterogeneous molecular mixtures. This raises interesting questions regarding the kinds of materials science that could be done if new macromolecular architectures could be created with precise control of the most important structural variables.

Microbial expressions of artificial genes provide a means of doing just that. The process begins with molecular design—the specification of a chain structure that the investigator believes will exhibit interesting (and perhaps useful) behavior. The target structure is then encoded into an artificial gene, and the gene is expressed in an appropriate microbial host. Current targets include novel liquid crystal phases, macromolecular surface arrays, reversible hydrogels, and artificial extracellular matrices for use in tissue regeneration and repair. An important theme of all of these projects is the development of methods for efficient incorporation of new monomers (beyond the twenty “normal” amino acids) into artificial proteins *in vivo*.

The second program under development in the Tirrell group is directed towards fabrication of nanometer-scale wires, networks, and tubes. The approach involves patterning of fluid lipid bilayer membranes via micromanipulation, followed by photopolymerization and crosslinking of macromonomers confined by the membrane template. The method offers substantial advantages in comparison with other patterning techniques, in that it yields flexible structures that can be manipulated readily in three dimensions. Current efforts are directed toward development of new patterning chemistries and toward new methods for introduction of controlled electronic, mechanical, and transport properties.

DELAWARE VALLEY SCIENCE FAIRS

The Delaware Valley Regional Science Fairs start in February and run until March, culminating in the Delaware Valley Science Fair April 2-5 at the Valley Forge Convention Center. Judges and mentors are always needed. Check the website www.dvsf.org for more information and to volunteer.

MARCH MEETING

THE PHILADELPHIA SECTION,
AMERICAN CHEMICAL SOCIETY
and
THE UNIVERSITY OF PENNSYLVANIA
present the
2007 Edgar Fahs Smith Lecture

Dr. David A. Tirrell
California Institute of Technology

*Non-Canonical Amino Acids in Protein Design, Evolution and
Analysis*

**Thursday, March 8th, 2007
6:00 PM**

Carolyn Hoff Lynch Lecture Hall
Chemistry Building, University of Pennsylvania
34th and Spruce Streets
Philadelphia, PA

The lecture is free

Dinner following the lecture at the White Dog Cafe, 3420 Sansom Street
Dinner Cost: \$55.00; students with reservation and ID: \$28.00.

RESERVATIONS should be made by calling Mrs. Libby Harper at the Section Office, (215) 382-1589, or emailing PhilaACS@aol.com by **5:00 PM on Thursday, March 1st**. **UN CANCELLED RESERVATIONS WILL BE BILLED.**

PARKING is available for \$12 in the University of Pennsylvania lot located at 34th and Chestnut Streets. Going south on 34th, turn left into the lot toward the end of the block past Market and just before reaching Chestnut. Metered parking on the street may also be available.

The Board of Directors will meet at 4:00 PM in the Makineni Room of the Chemistry Building (Room 260 in the Cret wing), University of Pennsylvania.

SAVE THE DATE!

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- ♦ Teaching Forensic Chemistry ♦ Ultrafast Chemical Processes ♦ Undergraduate Research

Special Workshops

- ♦ Forensic Chemistry (High School Teachers)
- ♦ Three Chemical Safety Workshops
- ♦ Career Services: Interviewing Skills/Resumé Review

Awards

- ♦ E. Emmett Reid Teaching Award
- ♦ Stanley C. Israel Award
- ♦ Industrial Innovation Award
- ♦ Chromatography Forum Student Awards

Special Events

- ♦ Walking tour of Ursinus Sculpture Collection
- ♦ Barbeque Mixer ♦ Education Awards Night ♦ Undergraduate Mixer
- ♦ Women Chemists Committee Luncheon & Symposium

NEWS ATOMS

Robin M. Hochstrasser received the ACS 2007 Ahmed Zewail award in ultrafast science and technology. He has pioneered the development of femtosecond infrared techniques and two-dimensional infrared spectroscopy, among many other ultrafast technologies. Hochstrasser is the Donner Professor of physical sciences and the director of the Regional Laser and Biomedical Technology Laboratory at the University of Pennsylvania.

DEATHS

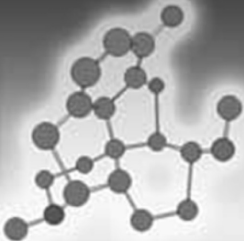

Susan Malin Clift, former research director of Arco Chemicals, January 1st at 47. She was employed by Air Products before joining Arco, and her name appears on 12 patents. She was a supporter of the American Cancer Society's breast cancer programs and established a support group in Lansdale, PA.

MARK YOUR CALENDARS

**ACS National Meeting — Chicago,
March 25-29**


The American Chemical Society's 233rd national meeting promises to be one of 2007's biggest and most productive science conferences, and a bonanza of spot news, feature topics and background for reporters covering science, medicine, energy, environment, food, business or the environment. We expect more than 9,000 scientific papers on topics spanning science's horizons from astronomy to zoology. For preliminary program information, media registration and housing: <http://chem-istry.org/meetings/chicago2007>.

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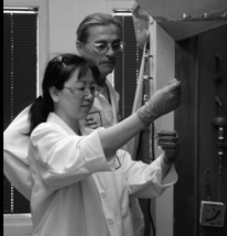


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MASS SPECTROMETRY TRAVEL AWARD

The Delaware Valley Mass Spectrometry Discussion Group is now accepting applications for an award to provide financial support for travel to the 55th ASMS Conference on Mass Spectrometry. The conference will be held June 3-7, 2007 in Indianapolis, IN. One award of \$500 will be granted to a full-time student enrolled in a graduate or undergraduate program at an institution in the greater Delaware Valley area.

Interested applicants should submit the following information electronically to Dr. Amanda M. Grannas, Department of Chemistry, Villanova University, amanda.grannas@villanova.edu:

1. A copy of their ASMS abstract
2. A 1-2 page supplementary description of the research project
3. A 1 page curriculum vitae
4. A letter of recommendation from their research advisor

Submissions may be in Word or Adobe PDF.

Applications will be accepted until Monday, March 19th, 2007. Applications will be judged by the Board of the DVMSDG. The winner will be announced at the discussion group's meeting on April 9th, 2007 at Villanova.

Further information about the DVMSDG can be found at our website:

<http://science.widener.edu/svb/msdg/>.

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Save The Date

Wednesday, April 18, 2007
To Recognize an ACS

National Historic Chemical Landmark



Eastern Regional Research Center
Wyndmoor, PA



Plan to join us for a ceremony to designate the potato flake process and related food dehydration technologies, developed at the Eastern Regional Research Center, as a National Historic Chemical Landmark by the American Chemical Society

John R. Carey, Director

Where: Eastern Regional Research Center
600 East Mermaid Lane
Wyndmoor, PA 19038
215-233-6595

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www.ars.usda.gov/naa/errc

When: April 18, 2007

What: Symposium
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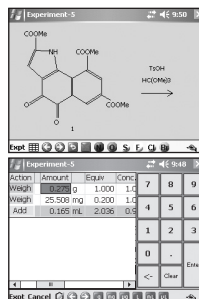
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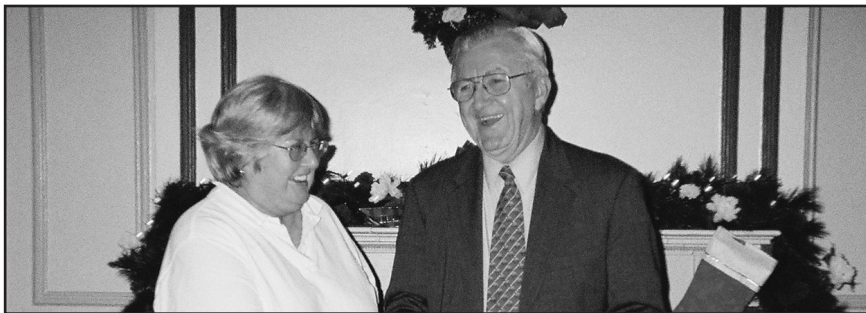
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DECEMBER 2006 SECTION SERVICE AWARDS

Following the December 16th, 2006 Board meeting, several Section Service Awards and special “Salutes to Excellence” awards were presented to some extraordinary members. Dr. James D. Burke, who ended his term as Chair of the Board of National American Chemical Society at the end of December, was honored with a “Salutes to Excellence” Award celebrating the many important positions he has held in the Society—a Lifetime of Achievements. On the local level, he has served as Chair-Elect and Chair of the Section, councilor, and member of the Board of Directors. Until recently he organized the popular “Graduate School Night” where local students are invited to meet with representatives from top graduate schools in the nation to interview for graduate placements.

The other three honored with special “Salutes to Excellence” awards were Dr. Kathleen Thrush-Shaginaw, Mrs. Anne DeMasi, and Dr. Thomas Straub. Dr. Kathleen Thrush-Shaginaw was honored for her long-term work chairing the Women Chemists’ Committee and the now biannual “Expand Your Horizons Mini-Conference for Sixth Grade Girls.” Mrs. Anne DeMasi was honored for her long-term work chairing the successful National Chemistry Week events for many years. Dr. Thomas Straub was honored for not only chairing the Education committee for many years but for organizing the wonderful Herb Bassow Memorial Chemical Demonstrations (the Chem Demos) on the second Saturday each December and arranging the ChemOlympiad testing each year.

The Section Service Awards and the Ulliyot Awards for Meritorious Service were presented by Dr. James D. Burke, Chair of the National Board of Directors. Awardees presented with Section Service awards were Ms. Marge Matthews (Proofreader, Publications Committee) and Kathleen Thrush-Shaginaw (Chair, Women Chemists’ Committee). The awardees for the Ulliyot Awards for Meritorious Service were Mrs. Ella Davis, Dr. Sharon Haynie, Dr. Wilford Mendelson and Hank Whalen.



Ms. Marge Matthews receiving her Section Service Award from Dr. Burke.



Dr. Georgia Arbuckle-Keil at the meeting with awardee Marge Matthews.

JANUARY 2007 GRADUATE AND UNDERGRADUATE POSTER SESSION

On January 18th, the Seventh Annual Graduate and Second Undergraduate Poster Session was held at La Salle University. Thirty-seven students from area universities presented posters in all areas of chemistry, with applications chemistry and biochemistry predominating. The abstract book from the session is available in hard copy from the Section Office or as a pdf on the Section's website (<http://membership.acs.org/p/philadelphia>).

The following graduate students were presented with a \$100 cash award for their posters: Anthony Tuesca (advisor Anthony M. Lowman) of Drexel University received the William Penn Memorial Award for his poster on "The Oral Delivery of Insulin Using Protein Conjugates in Complexation Hydrogels;" Jennifer Vernengo (advisor Anthony M. Lowman) also of Drexel University received the Cichowicz Award for her poster on "Evaluation of Novel Injectable Hydrogels for Nucleus Pulposus Replacement;" and both Ali Eftekhari-Bafrooei (advisor Eric Borguet) of Temple with his poster "Ultrafast Vibrational Dynamics at Water Interfaces by Sum-Frequency Generation," and Yangjun Xing (advisor Eric Borguet) also of Temple with his poster "Two Dimensional Charge Diffusion in a Self-Assembled Monolayer of Redox Active Porphyrins" were presented with Philadelphia Section Awards.

Winning undergraduate presenters were Mohit Sirohi (advisor Loyd D. Bastin) of Widener University with "Isolation and Characterization of Parvalbumin Isoforms from Sheephead" and Richard J. Zimny (advisor Michael Prushan) of La Salle University with "The Effect of Lithium Sulfide on \pm -Keto-Alkene Systems" each received one of the two \$50 cash Kilmartin Awards. The two \$50 Philadelphia Section Awards were presented to Broc Flores (advisor Robert Giuliano) of Villanova University for his

poster on "Addition of Benzenesulfonic Acid to Glycols: Synthesis of C-Glycoside Precursors" and to Allison Pymer (advisor Eric Borguet) of Temple University for her poster on "Nonlinear Optical Studies of Mesoscopic Colloidal Particle Surface Charge."

NEW DRUGS AWAITING DISCOVERY IN CHINESE HERBS?

— from *Journal of Chemical Information and Modeling*

The first large-scale computer screenings of Chinese herbs — commonly used in traditional Chinese medicine — has revealed a wide variety of compounds with potential for use in treating HIV/AIDS, cancer, Alzheimer's Disease, arthritis and other diseases, according to scientists in London.

In an article scheduled for the March 26th issue of the ACS' *Journal of Chemical Information and Modeling*, a bi-monthly publication, David J. Barlow and colleagues note that such in silico research is becoming increasingly effective in identifying promising compounds that could be candidates for drug development. In silico ("in silicon") means research done on computers or via computer simulation and has joined the in vivo and in vitro experiments traditionally used in the life sciences.

The researchers screened a database of chemical structures of Chinese herbal constituents from 240 species of plants for possible activity against various diseases. About 62 percent of the species were found to contain chemicals with characteristics required for activity against at least one disease and 53 percent against two or more diseases. The study also describes corroborative evidence from the scientific literature that supported many of the computer predictions. In a companion article in the journal, the researchers describe the herbal databases.

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or contact the Section Office at
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PHILADELPHIA SECTION, ACS 2007 CALENDAR OF EVENTS

TBA	AIChE: Tour of Paper Factory http://aiche-philadelphia.org/events/events.html	TBA
March 8 (2nd Thurs.)	Edgar Fahs Smith Lecture Dr. David A. Tirrell, California Institute of Technology	University of Pennsylvania Philadelphia, PA
March 12	Delaware Valley Mass Spectrometry Discussion Group: Chrys Wesdemiotis http://science.widener.edu/svb/msdg	Villanova University Villanova, PA
March 14	Chemical Consultants Network www.chemconsultants.org	Bala Cynwyd, PA
March 29	Philadelphia Organic Chemists Club: Timothy MacDonald, University of VA www.chem.temple.edu/main/pocc/default2.html	TBA
April 18	Designation of the USDA Eastern Regional Research Laboratory as a National Historic Chemical Landmark	Wyndmoor, PA
April 19	Scholastic Achievement Awards USDA <i>The Chemistry of Everyday Food</i>	TBA
May 16-18	ACS Middle Atlantic Regional Meeting (MARM)	Ursinus College Collegeville, PA
May 17	Teaching Awards Bassam Shakhshiri, U. of Wisconsin	Ursinus College Collegeville, PA
June 21	Fifty-Year Member Recognition	TBA
Sept. 20	Chemistry of Scents	TBA
Oct. 18	Philadelphia Section Award	TBA
Nov. 1	Ulyot Lecture: Shirley Tilghman Princeton University	Chemical Heritage Foundation Philadelphia, PA
Dec. 15	Herb Bassow Memorial Chemistry Demonstration and Hands-on Program	La Salle University Philadelphia, PA



Dr. Mendelson receiving the Ulyot Award from Dr. Burke (see p. 47).



Salutes to Excellence Awardees: Dr. James D. Burke, Lifetime Achievement Award, Dr. Kathleen Thrush-Shaginaw, Mrs. Anne DeMasi, and Dr. Thomas Straub (see p. 47).