



Chemical Bond

Volume 56
Number 6
September 2005

St. Louis Section, American Chemical Society

Welcome Back!

A word of advice for this year:

If you can't be
funny,
be interesting.

- Harold Ross, founder of
The New Yorker



Her Lab in Your Life: Women in Chemistry

August 8 - September 23, 2005
Rettner Gallery, Lab Sciences Building
Washington University

Her Lab in Your Life takes a fresh look at everyday life, revealing how chemical science and engineering help shape it. Created for high school and college students, and engaging for general audiences, this traveling exhibition showcases women chemists who have helped create our modern world and their historic contributions to science and technology. From the action of atoms to the substance of stars, these women have given us new visions of the material world and our place in it.

The exhibition encourages young women to explore possible careers in chemistry by presenting the rich history of women chemists and their contributions to everyday life. Featured chemists range from the 17th century's Marie Meurdrac and her early chemistry text to today's Susan Solomon and her contributions to environmental understanding. Topics covered include:

- Challenges: women chemists faced professional and social challenges and overcoming these challenges helped open doors for future generations.
- Chips: women chemists have helped develop and advance the world of semiconductors.
- Environment: Protecting the environment requires knowledge and women chemists have led the way in many areas of environmental chemistry.
- Food: From the chemical analysis needed to structure nutritional diets for low-income families to the invention of Xanthan gum.
- Medicines: From penicillin to protease inhibitors women chemists have helped.
- Style: Women chemists have put their skills to work in the fashion industry, from smudge-proof lipstick to refining gold to high-end clothing.

Her Lab in Your Life was made possible through the generous support of the Hach Scientific Foundation. The Hach Scientific Foundation is dedicated to enhancing the quality and availability of chemical education, supporting efforts to encourage the youth of America to pursue a positive exploration of the sciences. The exhibition and its companion web site and publications were created by the Chemical Heritage Foundation (CHF). Headquartered in Philadelphia, CHF is a national, nonprofit organization dedicated to preserving and promoting the history and heritage of the chemical and molecular sciences, technologies, and associated industries.

Tours of the exhibit by high school and college groups in the St Louis area are encouraged. If you would like to arrange a group tour, please contact Kim Selle at (314) 935-6000.

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Editor	Andrea Reaka	areaka@siue.edu 618/650-5166
Advertising Manager	Sue Saum	ssaum@stlcc.edu 314/595-2308
Business Manager	Donna Friedman	dfriedman@stlcc.edu 314/513-4388
Staff Writer	John Bornmann	jbornmann@msn.com 636/946-5161
World Wide Web Webmaster	Eric Ressler	http://www.umsl.edu/~acs/ ressner@worldnet.att.net

*Correspondence, letters to the Editor, etc., should be sent to
St. Louis Section-American Chemical Society
125 West Argonne Drive, St. Louis, MO 63122*

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Meeting & Seminars

Board of Directors

St. Louis Section—ACS Board of Directors meets on the second Thursday of each month, at the **Glen Echo Country Club** (map available on website at www.umsl.edu/~acs/). Meetings are open to all members, and all are encouraged to attend. Elected officers and chairs of major committees have the right to vote; others in attendance have voice but no vote. If you want to attend the dinner, please contact Ted Gast (ted@cfgastco.com) at least one week prior to the meeting date. The cost of dinner is \$18. Members wishing to become active in section activities are welcomed to their first dinner for free, compliments of the section.

Date: *September 8*

Social hour: 5:30 pm

Dinner: 6:30 pm

Business meeting: 7:15 pm

Fall meeting dates: Oct. 13

Nov. 10

Dec. 8

University of Missouri-St. Louis

Seminars are held on Mondays at 4:00 pm in Room 451 Benton Hall unless otherwise specified. Refreshments 15 minutes prior to seminar time. (www.umsl.edu/chemistry)

September 12

Tony Mannino

Mallinckrodt

What's in a Pill?

September 19

Matt McIntosh

University of Arkansas-Fayetteville

Progress toward the Synthesis of the Eunicellin Diterpenes

September 26

Shuqun Zhang

University of MO, Columbia

MAP Kinases in Plant

Signaling: biochemistry

meets genetics

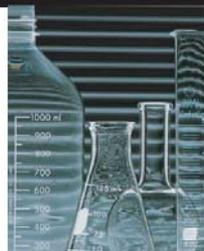
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If you would like to receive e-mail reminders of upcoming ACS events and activities, subscribe to the Reminders Listserv. You will be informed of ACS activities including meetings, lectures, banquets, etc. Send your e-mail address to Alexa Serfis, Chair Elect, at BARNOSKI@SLU.EDU.

Her Lab in Your Life

Exhibit Reception

All are Invited!

Sunday, September 18, 4:00 - 6:30 pm

Hosted by St. Louis Section ACS Women Chemists

Sponsored by Sigma-Aldrich Company

Speaker, Dr. Mildred Cohn

University of Pennsylvania (Emerita)

5:00 pm in lecture room adjacent to the Rettner Gallery.

Dr. Cohn is one of the featured women chemists in the exhibit.

She will speak on her research and career.

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Through Space and Time

by Jack Bornmann

What is space? Well, I have space in my closet for one more suit. Others say space is everything beyond the Earth, but let's not decide where the Earth ends and space begins. This treatment leaves Earth out of Space. Scientists have argued about the definition of space: Gottfried Wilhelm von Leibniz said space and time were relations of where things were and when events took place. Leibniz argued with Isaac Newton about this definition (and about who should receive credit for developing calculus).

Letters & Words & More

If we have two objects, we need space in order to describe their locations and the distance between them. But what if there were no objects? Would we need space? Would space exist? If we run time backwards all of the objects in space would approach each other all the way back to the first point of the Big Bang. In high school geometry I learned that a point has no dimensions; it has no elements of space to shrink down to a point.

Some cosmologists say that, at the present time, space is expanding. Some even say that space is expanding faster than the universe. Others say the universe is not expanding, but that it is space that is expanding. That is heavy thinking! Let's avoid that for now and do the simpler thing by thinking back in time. In reverse time, space would be shrinking instead of expanding. Just as all matter would shrink into a single point, so would space.

At the instant of creation, space, time, and the universe were a single point (or points?). Before creation there was no matter, no space, and no time. What existed before the Big Bang and the creation of the Universe? Nothing! No matter, no time, no space. Perhaps "nothing" is too strong of a word to describe what existed before the universe came into existence. But, we can say that nothing with mass existed, nothing with volume existed, and nothing moving through time existed (because there was no time). Nothing with velocity or acceleration existed. Nothing with momentum existed. There was no kinetic energy because there was no motion (if there was no space and no time). There was no potential energy because there was no space and, therefore, no energy of position. Let us call this place of no space, no time, and no matter the Other Realm.

Where the Universe ends is where the Other Realm exists. The Other Realm is where the Universe is not. If there is anything in this Other Realm it is massless, timeless, and without volume. If I were to travel in one direction to the very edge of space and make the transit, I would be in the Other Realm. Now, suppose I traveled in exactly the opposite direction to another edge of the Universe and again made the transit into the Other Realm. I would discover something very strange. The two positions where I entered the Other Realm would be exactly the same and the transits would occur at exactly the same time. This is because the Other Realm has no space (positions) or time.

Suppose I took my wife with me on the first transit and told her to wait for me. If I then re-entered Our Realm and traveled across our universe to the opposite edge and made the transit, I would be standing beside my wife

Continued on page 11

The St. Louis Section of the American Chemical Society and the St. Louis Community College at Florissant Valley are pleased to announce the 2005:



Battle of the Burets

This contest, for high school chemistry students, will match teams from local high schools against one another in a test of titration speed and accuracy. Teams will be run in preliminary rounds with the winner of each round will advance to the championship. Trophies will be awarded to the preliminary round winners and the winning school.

The contest will be held during a single evening in the later part of October. Come join us for a few hours of not too serious competition as we celebrate National Chemistry Week using one of the most basic techniques of analytical chemistry. Watch for further announcements!

For more information on how to enter a team from your high school contact:

Bruce Ritts
314-290-4744
bruce_ritt@steris.com

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Don't Forget to plan your trip to see the Her Lab in Your Life:
Women in Chemistry exhibit at Washington University
(for details see page 2).



2005 National Chemistry
Week presents:

The Joy of Toys

October 22, 2005

11 AM - 4 PM

in the May Exhibition Hall

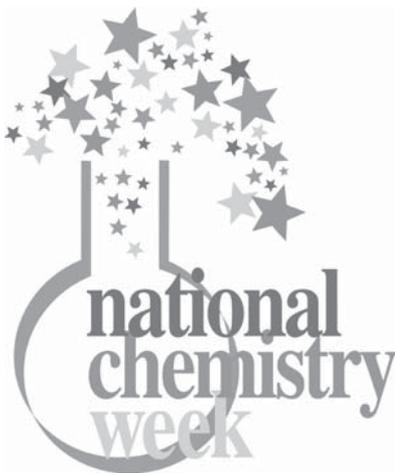
The Science Center is hosting the Chemistry Expo sponsored by the St. Louis Section of the American Chemical Society during National Chemistry Week, **October 16-22, 2005.**

This annual event brings chemist from the community to communicate the importance of chemistry to our quality of life. Toys are for everyone and we love our toys. From home made toys to manufactured toys, they all based on chemistry. Come join in the celebration of chemistry and the joy it has brought to toys. See antique toys and explore the chemistry that made them. Watch chemical demonstrations explaining the concepts behind our toys. Participate in hands-on chemistry demonstrations and make your own chemical toy.

We will be joined at this festive event by the President of the American Chemical Society, Dr. Bill Carroll. You can be a part of this event by volunteering your time and talent. Mark your calendars for this one-day festive event.

For further information, contact:

Greg Wall, NCW Coordinator,
by telephone: 800-325-5832 ext. 3139
or e-mail: gwall@sial.com.



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without the passage of any time as far as she were concerned.

Now, suppose I knew six people to whom I promised to take to the Other Realm, but in the six directions: +x, -x, +y, -y, +z, -z directions. Suppose I took them one at a time. The first friend I would take in the +x direction, make the transit, and deposit him or her in the Other Realm. Then, I would go back through Our Realm and fetch another friend, whom I would take in the -x direction to the edge of space (the edge of Our Realm), make the transit, and deposit him or her in the Other Realm. I would repeat this for the four other friends. These travels through Our Realm would take time, but surprisingly my wife, my six friends, and I would arrive in the Other Realm at the same

time and same location, meaning we would be together and would not experience the passage of time; because there is no time and no space in the Other Realm. But, the directions of x, y, and z are arbitrary and can point in any direction. Thus, I could transport a multitude of people from Our Realm to the Other Realm and they would all be in the same location.

Suppose I were charged with the duty of transporting people at their time of death to the Other Realm. Regardless of the time of death in Our Realm, they would seemingly all arrive together on the same day. For each of them, the presiding person at their funeral in Our Realm could say "On this day they are in heaven," and still talk about the coming of the great Judgment Day.

St. Louis Chemical Science and Technology Award 2005 Call For Nominations

The St. Louis Science and Technology Award will be presented to a chemist in the St. Louis area who has demonstrated a high degree of professionalism and scientific contribution. Criteria used to judge the award include technical proficiency, presentations, coaching/teamwork and additional professional activities. The award will consist of a plaque, a check for \$500.00 and dinner for the awardee and a guest at the annual Chemical Progress Week Awards Night. The award will be presented to the winner at the Awards Night event, which will be held in April of 2006.

The Chemical Science and Technology Award will be presented to a person whose training includes successful completion of an Associate, Bachelor or Masters degree in chemistry or a chemistry-related curriculum.

Letters of nomination must be received by Joel Krauser, Pfizer Corp., mail code T2A, 700 Chesterfield Parkway West, Chesterfield, MO 63017 by December 20, 2005. Nominations, including seconding letters, must not exceed six pages. The nominating letters should address the criteria above. A current work address, phone number and fax number must be provided for each nominee. Please include an e-mail address. Nominees need not be a St. Louis Section member to be eligible for this award. This award is administered by the St. Louis Section of the American Chemical Society (ACS).

For more information contact: Joel Krauser at 314-274-8430,
FAX 314-274-4426, joel.a.krauser@pfizer.com

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