

# Silicon Valley Chemist

Santa Clara Valley Section

American Chemical Society

Volume 29 No. 2

## FEBRUARY 2007 NEWSLETTER TOPICS

- February Dinner Meeting: Impact! Meteor Fireballs!
- Chair's Message
- March Dinner Meeting: Energy for the Twenty First Century
- April Dinner Meeting: The H. L. Hunley: Recovery and Preservation
- ACS Presidential Events - Chicago, IL
- CHEMPLOYMENT ABSTRACTS

## February Dinner Meeting

**Date:** Wednesday, February 7, 2007

**Time:** 6:00 Social Hour

7:00 Dinner

8:00 Presentation

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

**Speaker:** Dr. Steven Dutch  
"Impact!! Meteor Fireballs!"

**Cost:** \$27.00 with the choice of  
Chicken Monterey or  
Eggplant Parmesan  
Includes wine with dinner.

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

Reservations should be made by February 5th, 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 Tuesday, the 6th, you will be invoiced following the dinner meeting.

## February Dinner Meeting Impact! Meteor Fireballs!

Dr. Steven Dutch



### Abstract

The age of planetary exploration has revealed that meteor impact is a fundamental process in the evolution of planets, and the discovery of evidence that a large meteor impact may have triggered the extinction of the dinosaurs has raised awareness of the role of impact on the earth. Several times a year the earth is struck by objects packing the energy of a small nuclear weapon. These objects break up in the atmosphere and are seen as brilliant fireballs. Fragments often survive to reach the surface as meteorites. Perhaps once a century objects hit the surface hard enough to dig small craters, and once every few thousand years objects with megaton energies, capable of making kilometer sized craters, strike the earth. Much larger impacts are possible. The physics of large impacts is simply astounding. The forces involved are so far beyond the yield strength of rock that the rock behaves as if it has no strength at all, and some of the best analogs of cratering mechanics are slow-motion photographs of droplets splashing. The kinetic energy of the impacting object converts instantaneously into heat, and the impacting object and large amounts of target material are melted and vaporized. The resulting crater is about 30 times the diameter of the impacting object. Multi-kilometer meteors can have global effects. Radiant heat and blast effects

can cause damage for hundreds of kilometers, and the impact fireball can create vast quantities of nitrogen oxides. Ejecta blasted into space can subject the entire earth to intense radiant heat. Stratospheric dust can block sunlight and

volatiles liberated from the target rocks can have important climatic effects. As one impact researcher put it: "The problem isn't figuring out how a large impact can cause a mass extinction. It's figuring out how anything survives."

### Biography

Steven Dutch is a geologist who got his bachelor's degree (and a ringside seat for the unrest of the 1960s) from the University of California at Berkeley. He did his doctoral research at Columbia University, with a break for military service that included a year in Turkey. The subject of his thesis was the geology of the Sudbury, Ontario area, but in 1975, he also participated in a Columbia expedition to Antarctica. Since 1976, he has been at the University of Wisconsin at Green Bay, where he holds the rank of professor and teaches "hard rock" geology: mineralogy, petrology, structural geology, and plate tectonics. His principal research interests are the Precambrian geology of the Great Lakes region, the development of computer programs for earth science education, and the relation-

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ships between science and society, particularly as expressed in pseudo-science movements. He is the author of an earth science textbook. In 1982, Dr. Dutch resumed his military career by joining the 432nd Civil Affairs Battalion of the U.S. Army Reserve. He spent six months in the Persian Gulf and Kurdistan in 1991 and six months with the peacekeeping mission in Bosnia in 1996, and retired from the military in 2001.



## March Dinner Meeting Energy for the Twenty First Century

Dr. Gerald Meyer



### Abstract:

In 1998 the United States used 91.0 Q (Quads; a quadrillion BTU) and produced 69.2 Q. We exported 4.4 Q (coal), and therefore imported 26.2 Q (mostly oil). As a nation we consumed 37.1 Q of petroleum and produced 13.2 Q. A Quad of is 176,000,000 barrels of oil, so last year we imported  $23.9 \times 176\text{MM} = 4.2$  billion bbls of oil. At about \$55 a bbl that is over \$231 billion U.S. dollars sent overseas each

year. This is not a sustainable scenario either in terms of world supplies or our balance-of-trade. What are the alternatives? First, (let's hear the howls) petroleum products are too cheap. As a result of that we have adopted a life style that is profligate

in its use of petroleum products, particularly gasoline. And things are getting worse rather than better. Second, while coal is by far most abundant fossil fuel resource in the U.S. (and the world), we have not adopted any national policy to emphasized the use of coal. Now, more howls; coal is "dirty" and produces oxides of sulfur and nitrogen and carbon. That is conventional wisdom, and while true to a degree, an aggressive R&D program

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### Chair's Message

I'm finding that 2007 is moving along quickly. I hope that many of you are planning to attend the February dinner meeting on the 7th. This is quite a bit earlier than our regular meetings but the topic will hopefully bring many of us to the Biltmore. "Impact!" is about what happens when a meteor hits a planet, like Earth, and "how do we know this." Dr. Steven Dutch's presentation should be very informative for all of us.

The dinner speaker for March 14, Dr. Gerald Meyer, will present a discussion on the world's energy and how he sees the U.S. and the world coping with energy needs and supplies of energy as we all proceed into the 21st Century. Plan to attend this event. See the notice in the newsletter and on our website.

The bylaws amendment proposal to allow for electronic voting has been submitted to national ACS. We await the national office's preliminary approval for content and amendment language. We will then submit the amendment to the membership for a vote on the issue. This part of the process may take up to three months. Stay tuned. If you have questions about this issue, please let me know.

There is an area of educational challenge for our young "future chemists and scientists." Certainly there will be young students who will excel in science and go on to study chemistry, physics, biology, etc., and do well. There will also be others who just "don't get it yet." What can our membership do to help all of our young students excel? Perhaps some of us would be willing to be a judge in a science fair, or maybe some can be mentors to students in chemistry and other science classes, or help the local chemistry teacher establish a chemistry club, such as at Palma High School in Salinas, or help with the Chemistry Olympiad coming up soon. What do you think? Would you be willing to help? How about your employer? Can they offer any sort of resource assistance to science teachers and students? If so, please contact me or someone on the Executive Committee and let us know of your interest, suggestions or assistance availability.

See you at our next dinner meeting.

*George Lechner*

### March Dinner Meeting

**Date:** Wednesday, March 14, 2007

**Time:** 6:00 Social Hour

7:00 Dinner

8:00 Presentation

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

**Speaker:** Dr. Gerald Meyer  
Energy in the 21st Century

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

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

Reservations should be made by March 12, 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 Tuesday, March 13th, you will be invoiced following the dinner meeting.

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could vastly improve things. But we are not talking about fossil fuels for the long term, only the intermediate term, a way to get from here to there. There is nuclear energy, which of course has taken a bum rap. In fact, however, the U. S. resource of U-235 is about the same as that of oil and gas, and so a breeder system is needed for the long term. There is the hydrogen system, but it, like the electron system (electricity), requires a primary energy source. But these are all centralized systems. There are other choices but requiring significant societal changes. They will be discussed in terms of "cradle to the grave" scenarios.

#### **Biography:**

Dr. E. Gerald Meyer was born in Albuquerque, NM and attended Carnegie Mellon University (B.S. in

1940 and M.S. in 1942), and the University of New Mexico (Ph.D. in 1950). He was a laboratory chemist for the U.S. Bureau of Mines, the U.S. Naval Research Laboratory (as a naval officer during WWII), and the Research Division of New Mexico Tech before returning to complete his graduate work. He was on the faculty of the University of Albuquerque (1950-92), and New Mexico Highlands University (1952-63) where he was successively department head, and dean of graduate studies and research. In 1963 he was appointed professor and dean of arts and sciences at the University of Wyoming, and in 1976 vice president for research. In 1990 he retired and is currently emeritus professor and dean and works part-time. Dr. Meyer has served as State Science Advisor, as

president of Council of Colleges of Arts and Sciences, of the Associated Western Universities, and the Laramie Regional Airport Board. He chairs the ACS Rocky Mountain Regional Meeting, is past president of the American Institute of Chemists, is past chair and councilor of the ACS Wyoming Section, and has served and continues to serve on the ACS national committees. Dr. Meyer is a consultant to government agencies and industrial companies, refining processes he invented and patented. He is listed in several Who's Who editions: in the World, in America, in France and Industry, in Science and Technology. He has competed in the last three Nation Senior Olympics (5K and 10K road races), rides a Harley, and is Vice Mayor of the Laramie, Wyoming.

## April Dinner Meeting

# The H. L. Hunley: Recovery and Preservation

Dr. Jack Breazeale

#### **Abstract**

On the night of February 17, 1864 the Confederate submarine, the H.L. Hunley, attacked and sank the USS Housatonic. The attack occurred in Charleston Harbor on the South Carolina coast. The Hunley and its crew never returned from the mission. That is, until 8:37 A.M. on August 8, 2000, when the submarine and its crew were recovered off the South Carolina coast. Work is complete on the recovery of the crew and continues on the preservation of the vessel. The talk will include a brief history of the Hunley, explain the search and recovery process, and a brief discussion of the continuing preservation process of the submarine.

#### **Biography**

Dr. Jack Breazeale received his Ph.D. from the University of South Carolina in 1966. He taught at Winthrop College in Rock Hill, SC



from 1965-1970. In 1970 he was a founding faculty member of a new state college in Florence, SC: now Francis Marion University. From 1970 until his retirement in 1997, he was chair of the Department of Chemistry and Physics and Professor

of Chemistry. Dr. Breazeale has been active in the American Chemical Society for over 40 years. He has served nine years as a member of the ACS Committee on Chemical Safety including three years as chair. He also held offices in the ACS Division of Chemical Health and Safety including that of chair. Other activities at the national level have included appointments to the Committee on the Economics Status of Chemists, the Committee on Constitution and Bylaws, the National Chemistry Week Task Force with three years as chair, and the Board of Trustees for Group Insurance Plans for ACS Members. He

is currently a member of the Council Committee on Committees. At the local level Dr. Breazeale has held several offices in the South Carolina Section including chair and currently serves the Section as Councilor. His interest in laboratory safety became a major professional activity in the early 1980s in the South Carolina Section. Dr. Breazeale has presented in the Laboratory Safety Institute workshops for some twenty years. These presentations include one-, two-, and four-day workshops nationwide on various safety topics. He presently serves on the Board of Trustees of the Laboratory Safety Institute. He resides in Mount Pleasant, SC and is an Adjunct Professor of Chemistry at the College of Charleston.



## ACS Presidential Events - Chicago, ILL

Catherine T. ("Katie") Hunt, ACS President 2007, will be cosponsoring a full week of exciting presidential events and sessions in Chicago. In her desire to address substantive societal issues, she has selected Sustainability of Energy, Food and Water as the presidential theme for the Chicago meeting in March and Material Innovations: From Nanotech to Biotech and Beyond as the presidential theme for the Boston meeting in August. Her goal is to successfully execute meaningful thematic programming at national meetings that will not only nucleate ideas, foster community, and accelerate innovation, but will be essential to effectively communicate chemistry to a broader audience. Openly discussing these topics as a scientific community will better enable us to speak with one voice to our membership, the media and the general public.

**SUSTAINABILITY OF ENERGY, FOOD AND WATER.** Three presidential sessions will be featured, including Sustainability: A World View on Sunday, March 25, Technology Challenges and Opportunities for a Sustainable Future on Monday, March 26, and Educating for Sustainability on Monday, March 26. These themes are well-aligned with the ACS strategic plan and the new thematic programming initiative of ACS divisions and secretariats for national meetings. For full descriptions of these sessions, refer the Sustainability (SUST) listing in the technical program or on-line at [chemistry.org/meetings/chicago2007](http://chemistry.org/meetings/chicago2007).

- Sustainability: A World View, Sunday, March 25, 1 to 4 PM, McCormick Place.
- Presidential Reception, Sunday, March 25, 4:30 to 6 PM, McCormick Place.
- Pressing Challenges and Technology Opportunities for a Sustainable Future, Monday, March 26, 8 to 11:30 AM, McCormick Place.

- Sustainability Luncheon, Monday, March 26, 11:45 AM to 1:15 PM, McCormick Place. (See Ticketed Events for ticket information.)
- Educating for Sustainability, Monday, March 26, 1:30 to 4:30 PM, McCormick Place.

**CHEMISTRY IN ACTION: IT'S EASY BEING GREEN COMMUNITY OUTREACH PROJECT FOR UPPER ELEMENTARY AND MIDDLE SCHOOL STUDENTS** [cosponsored by Committee on Community Activities]. Saturday, March 24, 11 AM to 1 PM, The Notebaert Nature Museum at 2430 N. Cannon Dr.

**OTHER SYMPOSIA AND EVENTS SUPPORTED BY THE PRESIDENT.** In addition to all Sustainability events, the following sessions are cosponsored by the ACS President.

- Student Affiliates ACS Chapter Awards [sponsored by CHED] Sunday, March 25, 7 to 8:30 PM, Hotel Westin Michigan Avenue.
- Realizing the Full Potential of Solar Energy Conversion through Basic Research in Chemistry and Biochemistry [sponsored by PHYS; cosponsored with SUST], Monday, March 26, 8 AM to 5 PM, McCormick Place.
- Sustainability and Chemistry: Tomorrow's Challenge for Today's Students [sponsored by SOCED; cosponsored with CEI], Monday, March 26, 9 to 10 AM, Westin Michigan Avenue.
- Going with the Flow: Water Sustainability: Past, Present, Future [sponsored by HIST; cosponsored with SUST and ENVR] Tuesday, March 27, 8:30 AM to 12 Noon, McCormick Place.
- Benchmarking the Research Competitiveness of U.S. Chemistry and Chemical Engineering [sponsored by

PRES, cosponsored with CHED, CEPA, ComSCI, and International Activities Committee] Tuesday, March 27, 2 - 4:30 PM, McCormick Place.

- Excellence in Graduate Polymer Science Research Symposium [sponsored by POLY; cosponsored with YCC and PROF], Poster Session: Sunday, March 25, 6 to 8 PM, Hyatt Regency Chicago; Oral Session: Monday, March 26, 8:30 AM to 5:30 PM, McCormick Place;
- Undergraduate Research in Polymer Science [sponsored by POLY], Oral Session: Sunday, March 25, 8:30 to 12:30 PM, McCormick Place; Poster Session: Sunday, March 25, 6 to 8 PM, Hyatt Regency Chicago.
- Women Achieving Success: the ACS as a Platform in Leadership Development [sponsored by WCC; cosponsored with PROF], Tuesday, March 27, 9 to 10:40 PM and 2 to 5:15 PM, Hyatt Regency McCormick Place.

**ACS Committee on Chemists with Disabilities Ambassadors Program**

The Committee on Chemists with Disabilities (CWD) Committee of the American Chemical Society (ACS) announces its new CWD Ambassadors Program. The CWD Ambassadors Program will act as a source for speakers and information for ACS Local Sections and Regions, community groups or schools on working as a chemist with a disability.

The CWD Ambassadors Program is intended to enhance the committee's mission of promoting educational and professional opportunities in the chemical sciences and in fields requiring knowledge of chemistry for persons with disabilities and championing the capabilities of those persons to educators, employers, and peers.

If you are a chemist with a disability, or a professional in the chemical sciences with an interest in or knowledge of disability, and would like to become a CWD Ambassador, or if you would like to get more information about how the CWD Ambassadors Program could help your Section, Region or organization, please call the Department of Diversity Programs at (800) 227-5558 or E Mail: [cwd@acs.org](mailto:cwd@acs.org).

AAAS Seeks Role Models with Disabilities for Resource Directory Participate in the Resource Directory of Scientists and Engineers with Disabilities.

Are you a scientist, engineer, IT professional, or mathematician with a sensory, mobility, learning, or other disability? The American Association for the Advancement of Science (AAAS) invites you to participate in the Resource Directory of Scientists and Engineers with Disabilities. This Directory is used

by the National Science Foundation, government agencies, universities, newspapers, and individuals to recruit advisors, speakers, mentors, and peer-reviewers. Find out more

and how to participate by going to <http://ebrweb.aaas.org/resource> or email Tesa Leon at [tleon@aaas.org](mailto:tleon@aaas.org).



## CHEMPLOYMENT ABSTRACTS FEBRUARY 2007

### **CHEMPLOYMENT ABSTRACT 3880**

*Position Title:* Research Associate – Medicinal Chemistry

*Job Description:* We have a position available for an Organic Chemist who will be responsible for the design and synthesis of biologically active small molecules. The candidate will participate in our drug discovery efforts as part of a multi-disciplinary project team.

**QUALIFICATIONS DESIRED:**

*Education:* The candidate must possess a BS/MS in Organic Chemistry

*Experience:* Minimum 1-5 years' pharmaceutical and/or academic research experience in chemistry. Expertise in multi-step synthesis, compound purification and structural characterization to provide compounds for biological testing and support the scale up of lead molecules required. Knowledge in the interpretation of his/her own spectral and LC/MS analytical data required.

**LOCATION, SALARY, MAIL ADDRESS:**

*Job Location:* 1 DNA Way, South San Francisco, Ca., 94080

*Salary:* DOE

*Employer Description:* For 30 years, Genentech has been at the forefront of the biotechnology industry, using human genetic information to develop novel medicines for serious and life-threatening diseases.

*Application Instructions:* To learn more about all of our current opportunities, please visit [www.gene.com/careers](http://www.gene.com/careers) and reference Req.# 1000016542. EOE

### **CHEMPLOYMENT ABSTRACT 3881**

*Position Title:* Scientist, Analytical Chemistry

*Job Description:* You will be expected to establish a physicochemical characterization program for compounds produced by the medicinal chemistry department. This could include, but not be limited to, pKa, solubility, and Log D assays. In addition, you will have exceptional chromatographic skills to lead required separation efforts in analytical and medicinal chemistry. The use of these skills to establish and run a high-throughput purification and characterization system is a strong plus.

**QUALIFICATIONS DESIRED:**

*Education:* Candidates must have a Ph.D. in chemistry or analytical chemistry, or equivalent industry experience

*Experience:* Minimum of two years industry experience

**LOCATION, SALARY, MAIL ADDRESS:**

*Job Location:* South San Francisco, CA

*Salary:* Achaogen is committed to hiring the best qualified individuals. We offer a competitive compensation and benefits package and we are proud to be an equal opportunity employer.

*Employer Description:* Achaogen is a startup biotechnology company located in the San Francisco Bay Area. Our mission is to develop novel solutions to the critical problem of antibiotic-resistant bacteria. We have received financing from a world-class team of experienced life science investors, as well as the Department of Defense, and have established collaborations with infectious disease thought leaders throughout the United States and Europe.

*Application Instructions:* Please submit resume and cover letter as a word document or pdf to [resumes@achaogen.com](mailto:resumes@achaogen.com) or fax to 650.266.1130 and reference Job Code 07-2006



SANTA CLARA VALLEY SECTION  
AMERICAN CHEMICAL SOCIETY  
P.O. Box 395, Palo Alto, CA 94302

Visit our web site at:



<http://www.scvacs.org>

To receive emails when newsletters are published on our web site, send an email to [SCVACS-newsletters-subscribe@yahoogroups.com](mailto:SCVACS-newsletters-subscribe@yahoogroups.com).

## SANTA CLARA VALLEY SECTION

### 2007 Section Officers

Chair	<b>George Lechner</b>	408-226-7262	<a href="mailto:glechner@aol.com">glechner@aol.com</a>
Past Chair	<b>David Parker</b>	408-615-4961	<a href="mailto:dparker@ci.santa-clara.ca.us">dparker@ci.santa-clara.ca.us</a>
Chair Elect	<b>Mark Kent</b>	408-736-0989	<a href="mailto:markkent@yahoo.com">markkent@yahoo.com</a>
Secretary	<b>Karl Marhenke</b>	831-688-4959	<a href="mailto:karlmar@armory.com">karlmar@armory.com</a>
Treasurer	<b>Herb Silber</b>	408-924-4954	<a href="mailto:hbsilber@sjsuvm1.sjsu.edu">hbsilber@sjsuvm1.sjsu.edu</a>

### Councilors

2005-2007	<b>Herb Silber</b>	408-924-4954	<a href="mailto:hbsilber@sjsuvm1.sjsu.edu">hbsilber@sjsuvm1.sjsu.edu</a>
2006-2008	<b>Abby Kennedy</b>	650-837-8043	<a href="mailto:akennedy@exelixis.com">akennedy@exelixis.com</a>
2006-2008	<b>Jack Riley</b>	925-256-4050	<a href="mailto:jfriley2004@sbcglobal.net">jfriley2004@sbcglobal.net</a>
2006-2008	<b>Ean Warren</b>	650-329-4554	<a href="mailto:ewarren@scvacs.org">ewarren@scvacs.org</a>
2007-2009	<b>Linda Brunauer</b>	408-554-6947	<a href="mailto:lbrunauer@scu.edu">lbrunauer@scu.edu</a>
2007-2009	<b>Sally Peters</b>	650-812-4994	<a href="mailto:Sally.Peters@parc.com">Sally.Peters@parc.com</a>
2007-2009	<b>Peter Rusch</b>	650-961-8120	<a href="mailto:pfrusch@aol.com">pfrusch@aol.com</a>
2007	<b>George Lechner</b>	408-226-7262	<a href="mailto:glechner@aol.com">glechner@aol.com</a>

### Alternate Councilors

2005-2007	<b>Mark Kent</b>	408-736-0989	<a href="mailto:markkent@yahoo.com">markkent@yahoo.com</a>
2006-2008	<b>Ihab Darwish</b>	650-343-4456	<a href="mailto:darwishis@yahoo.com">darwishis@yahoo.com</a>
2006-2008	<b>David Parker</b>	408-615-4961	<a href="mailto:dparker@ci.santa-clara.ca.us">dparker@ci.santa-clara.ca.us</a>
2006-2008	<b>Bruce Raby</b>	408-294-6718	<a href="mailto:brida954@comcast.net">brida954@comcast.net</a>
2007-2009	<b>Ernest Gargas</b>	408-365-2866	<a href="mailto:eggargas@yahoo.com">eggargas@yahoo.com</a>
2007-2009	<b>Natalie McClure</b>	650-851-1052	<a href="mailto:nmclure@drugregulatoryaffairs.com">nmclure@drugregulatoryaffairs.com</a>
2007-2009	<b>Maureen Scharberg</b>	408-924-4966	<a href="mailto:mscharberg@earthlink.net">mscharberg@earthlink.net</a>
2007	<b>Ferenc Makra</b>	415-730-0387	<a href="mailto:ferenc.makra@roche.com">ferenc.makra@roche.com</a>

### Newsletter

Editor: **Cinzia Muzzi** 408-864-5790 [muzzicinzia@deanza.edu](mailto:muzzicinzia@deanza.edu)

### ChemPloyment Abstracts

Director: **Charles Sullivan** 650-359-0731 [cdansullivan@sbcglobal.net](mailto:cdansullivan@sbcglobal.net)

## FUTURE MEETINGS

Mark your calendars for these great upcoming events.

- |                  |   |
|------------------|---|
| <b>Feb 5-9</b>   | 2nd Annual Palma High Science Fair<br>Salinas, CA   |
| <b>Feb 7</b>     | SCV Dinner Meeting<br>Dr. Steve Dutch<br>Biltmore Hotel & Suites<br>Santa Clara, CA                           |
| <b>Feb 21</b>    | BioScience Forum meeting<br><b><a href="http://www.biosf.org/programs.htm">www.biosf.org/programs.htm</a></b> |
| <b>Mar – Apr</b> | Chemistry Olympiad<br>Local Section exam administration   |
| <b>Mar 14</b>    | SCV Dinner Meeting<br>Dr. Gerald Meyer<br>Biltmore Hotel & Suites<br>Santa Clara, CA                          |
| <b>Mar 25-29</b> | 223rd ACS National Meeting<br>Chicago, IL   |
| <b>Apr 18</b>    | SCV Dinner Meeting<br>Dr. Jack Breazeale<br>Location TBD  |
| <b>Apr 28</b>    | 2007 UNCO National Exam<br>Santa Clara University   |