

# Silicon Valley Chemist

Santa Clara Valley Section

American Chemical Society

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## JANUARY 2011 NEWSLETTER TOPICS

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## Chair's Message

Get ready for the "Most Exciting Year in Chemistry"! Now, while I would like to think the excitement is because I will have the honor of acting as your Chair of the Santa Clara Valley Section, in fact I'm referring to the International Year of Chemistry (IYC) 2011! I am thrilled to be your Chair during this special year. The IYC objectives include increasing public appreciation of chemistry in meeting world needs, increasing interest of young people in chemistry and generating enthusiasm for the creative future of chemistry. Each quarter during 2011 will focus on a different theme: the environment, energy, materials and health. Check out the global website [www.chemistry2011.org](http://www.chemistry2011.org) for fun information about this year-long celebration. Also, stay tuned for more details here in



*continued on page 3*

## February Dinner Meeting Sex, Love and Oxytocin

Susan Kuchinskas



Find Trust, Love and Intimacy. She writes about science, technology and culture for a variety of publications, and is a frequent guest on talk radio, where she discusses how neuroscience can improve our relationships. She is in training to become a certified Slow Sex Coach.

She has a B.A. from Rutgers, and an M.A. in creative writing from San Francisco State University. Her websites are [www.kuchinskas.com](http://www.kuchinskas.com), [www.chemistryofconnection.com](http://www.chemistryofconnection.com) and [www.hughthemonkey.com](http://www.hughthemonkey.com), which covers oxytocin news, research and cultural sightings.

### Abstract

We tend to think of our emotions as coming from our minds. In fact, what we call emotion can be seen as the expression of a bodily state. As chemicals like cortisol or adrenaline prep our bodies for fight or flight, they tweak our minds into the state we call fear.

The sunnier emotions are also the result of chemicals flooding our bodies and brains. The emotions of positive interaction with others -- trust, friendship, connection and every kind of love -- are all based on oxytocin, the neurochemical of bonding. This includes sexuality. While lust is driven in both men and women by testosterone, when we're touched, and especially when we orgasm, our brains release oxytocin. You could say that sexuality, love and intimacy -- when you read them as neurochemical states -- are all one thing. And they're all the result of oxytocin.

If the need to propagate our species has driven human evolution, it's not surprising that sex would be one of the most fun things to do. What is surprising is that the sheer joy of sex is so closely tied to our most transcendent emotions.

In this lecture with Susan Kuchinskas, author of the new book, *The Chemistry of Connection*, we'll explore the effects of oxytocin as a hormone coursing through the bloodstream and as a neurochemical, exciting the emotional pathways of the brain. We'll review research in biology, neuroscience and psychology to examine the connection among the myriad kinds of love we're capable of and ponder what it means for each of us that sex and love are so intertwined.

### Biography

Journalist Susan Kuchinskas, M.A., is the author of *The Chemistry of Connection: How the Oxytocin Response Can Help You*

## February Dinner Meeting

**Date:** Thursday, February 17, 2011

**Time:** 6:00 Social Hour  
7:00 Dinner  
8:00 Presentation

**Location:** Shiva's Indian Restaurant  
800 California St, Suite 100  
Mountain View, CA 94041

**Speaker:** Susan Kuchinskas  
Science writer  
"Sex, Love and Oxytocin"

**Cost:** \$27.00  
Indian Buffet that includes both vegetarian and chicken dishes.

**Reservations:** [www.scvacs.org](http://www.scvacs.org)  
Sally Peters 650-812-4994

Reservations MUST be made by February 14th stating your name, address, company affiliation, number of people in party. Watch the web site for more information. If you are unable to honor your reservation and do not cancel by Monday, February 15th, you will be invoiced following the dinner meeting.

Reminder

January Dinner Meeting

Reminder

## Mosher Award Recipient Plastic Solar Cell with Engineered Interfaces

Dr. Tobin J. Marks

### Abstract

The ability to fabricate molecularly-tailored interfaces with nanoscale precision can selectively modulate charge transport across hard matter-soft matter interfaces, facilitating transport of the “correct charges” while blocking transport of the “incorrect charges.” This interfacial tailoring can also control defect densities at such interfaces and stabilize them with respect to physical/thermal decohesion. In this lecture, challenges and opportunities are illustrated for three specific and related areas of research: 1) charge transport across hard matter-soft matter interfaces in organic electroluminescent devices, 2) charge transport across hard matter-soft matter interfaces in organic photovoltaic cells, 3) charge transport to unconventional electrodes. It will be seen that rational interface engineering along with improved bulk-heterojunction polymer structures leads to solar power conversion efficiencies as high as 5.6% - 7.3%, along with far greater cell durability.

### Biography

The 2010 Harry and Carol Mosher award recipient is Dr. Tobin J. Marks. Dr. Marks is the Vladimir N. Ipatieff Professor of Chemistry and Professor of Materials Science and Engineering at Northwestern University. Among the themes of his research are synthetic organo-f-element and early-transition metal organometallic chemistry, polymer chemistry, materials chemistry, homogeneous and heterogeneous catalysis, molecule-based photonic materials, superconductivity, metal-organic chemical vapor deposition, and biological aspects of transition metal chemistry.

He received a B.S. degree from the University of Maryland in 1966 and a Ph.D. from MIT in 1971 in Chemistry. Dr. Marks has mentored over 100 Ph.D. students and nearly as many postdoctoral fellows. He has been chair of the ACS Division of Inorganic Chemistry, and he has been active in the Chicago local section. Dr. Marks has also organized a



number of conferences and symposia to help introduce the scientific community to emerging fields, and he has been an Associate Editor of the ACS journal, *Organometallics*.

Dr. Marks has served on the NAS-NRC International

Benchmarking committee to evaluate the health of the US chemical research, and the DOE Basic Energy Grand Research Challenges Committee to help identify promising future directions for US scientific research. He will be serving as the US team leader (on behalf of ACS office of International Activities and NSF Chemistry Division) at an upcoming Chemical Sciences and Society Symposium on Sustainable Materials involving the US, UK, German, Japanese and Chinese Chemical societies.

## January Dinner Meeting

**Date:** Thursday, January 20, 2011

**Time:** 6:00 Social Hour  
7:00 Dinner  
8:00 Presentation

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

**Speaker:** Dr. Tobin Marks  
Northwestern University  
“Plastic Solar Cells with  
Engineered Interfaces”

**Cost:** \$27.00 with a choice of:  
Pork Marsala or  
Eggplant Parmesan

**Reservations:** [www.scvacs.org](http://www.scvacs.org)  
Sally Peters 650-812-4994

Reservations should be made by January 17th stating your name, address, company affiliation, number of people in party. Watch the web site for more information. If you are unable to honor your reservation and do not cancel by Wednesday, January 19th, you will be invoiced following the dinner meeting.

Dr. Marks has received multiple awards and honors from the ACS and other organizations. We are very pleased to add the 2010 Mosher Award to this distinguished list. A few of the major ones include the ACS 2000 ACS Cotton Medal; 2001 ACS Willard Gibbs Medal; 2001 ACS Linus Pauling Medal; 2002 American Institute of Chemists Gold Medal; 2003 German Chemical Society Karl Ziegler Prize; 2004 Royal Society of Chemistry Frankland Medal, and the 2005 ACS Bailar Medal. He received the 2008 Spanish Principe de Asturias Prize for Scientific Research; the 2009 N. American Catalysis Society Pines Award; the 2009 Taylor Materials Research Award from Pennsylvania State University; the 2009 Von Hippel Award from the Materials Research Society; the 2010 ACS Nichols Medal; the 2010 Distinguished Affiliated Professor Award and Wilhelm Manchot Prize, Technical University of Munich; and the 2011 Schulich Prize from the Technion-Israel Institute of Technology.

*Happy  
New  
Year!*



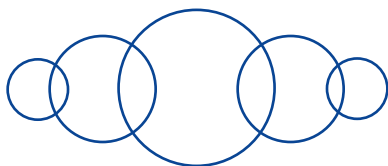
*Chair's Message, continued from front page*

your upcoming newsletters about how you can celebrate locally.

Our first dinner meeting of 2011 fits perfectly into the IYC theme of the environment: Dr. Tobin Marks, our Carol and Harry Mosher Awardee for 2010, will present his work on plastic solar cells, which will ultimately improve solar power technology and help us to protect our environment as we decrease our dependency on fossil fuels.

Finally, during my inaugural Chairs Message, I hope you will indulge me as I speak about a few of my goals for our Section for 2011. First, I would like to continue our pursuit of bringing timely, fun and varied programming to you in the form of dinner meetings and special events. We'll be trying out a few new venues, new speaker topics on the fringes of chemistry and new joint meetings with other Bay Area scientific societies. So if you've long thought about attending a meeting, but it was just never the right time—we're hoping to give you several new reasons to attend!

A second goal of mine for 2011 is to make our Section your premier source of career networking. During a time when there are tectonic shifts in employment for chemists in the Bay Area, networking is even more essential. Many of you are already members of the national ACS Network at [www.acs.org](http://www.acs.org), and I would encourage the rest of you to check it out and sign up. To take this idea a step further and to help you to network locally, I'd like to invite you to become a "fan" of the Santa Clara Valley ACS page on Facebook. That's right, the Santa Clara Valley ACS is now on Facebook! You will be able to hear about upcoming activities conveniently this way. Post on our wall—ideas for meetings, comments on newsletter articles, opinions on hot topics or suggestions for our Executive Committee. Or just check out photos from recent events that we didn't have room for in our newsletter. I also welcome your feedback or ideas any time at [akennedy@exelixis.com](mailto:akennedy@exelixis.com). See you online and happy IYC 2011!



## Recycling "Tiny Trash" -- Cigarette Butts

A new study suggests expanding community recycling programs beyond newspapers, beverage containers, and other traditional trash to include an unlikely new potential treasure: cigarette butts. Terming this tiny trash "one of the most ubiquitous forms of garbage in the world," the study describes discovery of a way to reuse the remains of cigarettes to prevent steel corrosion that costs oil producers millions of dollars annually. It appears in ACS' Industrial & Engineering Chemistry Research, a bi-weekly journal: "Cigarette Butts and Their



Application in Corrosion Inhibition for N80 Steel at 90°C in a Hydrochloric Acid Solution."

Jun Zhao and colleagues cite one estimate that 4.5 trillion cigarette butts find their way into the environment each year. Studies show that cigarette butts are more than an eyesore. They contain toxins that can kill fish and harm the environment in other ways. Recycling could solve those problems, but finding practical uses for cigarette butts has been difficult.

The scientists showed that extracts of cigarette butts in water, applied to a type of steel (N80) widely used in the oil industry, protected the steel from rusting even under harsh conditions, preventing costly damage and interruptions in oil production. They identified nine chemicals in the extracts, including nicotine, which appear to be responsible for this anti-corrosion effect.

<http://pubs.acs.org/stoken/presspac/presspac/full/10.1021/ie100168s>

## The ACS Member Insurance Program

If your new year's resolutions include losing weight, eating better, or exercising more, why not add getting ACS insurance to your list. This simple task could help to protect you and your loved ones in the upcoming year.

To assist ACS members secure the insurance coverages they need to help safeguard against the unexpected, the Board of Trustees, Group Insurance Plans for ACS Members and the ACS Member Insurance Program are committed to offering a wide range of high-quality plans to members and their families.

Designed for the unique needs of ACS members, these plans use the power of group purchasing to pass along significant savings on insurance premiums. Plus, the coverages are portable, staying with you no matter where your career takes you—as long as the group policy remains in effect, you pay your premiums when due, and you maintain your ACS membership.

By partnering with only top-rated, financially stable insurance providers, the ACS Member Insurance Program helps ensure members have access to coverage they can rely on for years to come, including:

- Group Term Life Insurance Plan
- Group 10-Year Level Term Life Insurance Plan

- Group 20-Year Level Term Life Insurance Plan
- Group High-Limit Accidental Death and Dismemberment Insurance Plan
- Group Disability Income Insurance Plan
- Group Hospital Indemnity Insurance Plan
- Health Insurance Brokerage Service
- Short Term Medical Insurance Plan
- Excess Major Medical Insurance Plan
- Long Term Care Program
- Medicare Supplement Insurance
- Medical Discount Cards
- Auto and Homeowners Plus
- Professional Liability

To learn more, visit the ACS website > Membership and Networks > ACS Membership > Member Benefits.



# Welcome to the Santa Clara Valley Section of ACS

Each month the section receives a spreadsheet from national ACS with the names of members new to our section. The members are either new to ACS, have transferred in from other areas, or are the newest members -- the students. To welcome you to the section and get to know you, the Executive Committee offers new members a free dinner!! To encourage you to attend a monthly section dinner meeting, we would

like you to be our guest. When you register, make certain to mention that you are a new member and you and a spouse (or friend) will be our guests. The dinner meetings are often the 3rd Thursday of the month at a local spot, somewhat convenient to the entire section. If you are unable to attend in the evening, perhaps you would join us for an outreach event, like judging a science fair, participating in the chemistry olympiad, or a national chemistry

week event in October. Then, there is our annual wine tasting and awards picnic in July. The local section is a volunteer organization. Please attend an event, volunteer to help, and get to know your local fellow chemists. Welcome!!

## New Members List for December

Evangelia Bekou  
Kristi Budzinski  
Melissa Cayabyab  
Virginia C. Chamberlain  
Evaline Cheng  
Marina S. Chow  
Andrew Chung  
Dr. Hongjie Dai  
Calvin P. Darosa  
Stripe Demarest  
David Dewez  
Jacinda Do  
Kelly Ann Femrite  
Dr. Scott Edward Fendorf  
Jaclyn Flowers  
Hana F. Hashim  
Dr. Carl Nicholas Hodge  
Dr. Hongyi Hou  
Brittany K. Huffman  
Neel S. Joshi  
Christopher Joyce  
Dr. Roy Tomoo Kamimura  
Dr. Jailakshmi Krishnamurthy  
Dr. Yakira Rodriguez Landaverry  
Dr. Byoung-Chul Lee  
Ming Lei  
Dr. Gianni Domenico Leonarduzzi  
Alexej Lodonnikov  
Rebecca Lui  
Prof. Melissa B. McAlexander  
Farah Memon  
Steven Dean Mieliich  
Patrick Joseph Morris  
Dr. Jeremy Murray  
Ed Oliver  
Christopher Osagie Oriakhi  
Dr. Anjana Parker  
Dr. Thomas Perroud  
John M. Riviello  
Carl Thomas Schrader  
Dr. Hong Shih  
Frederic St-Jean  
Kyle Sutherlin  
Prima Tatum  
Kevin Tran  
Ngoc-Han T. Tran  
Thang Tran  
Eric Villatoro  
Nancy Ellen Von Herrmann  
Dr. Xiaoyu Xu  
Dr. Fenmei Yao

## Pop Rockets

One important characteristic of gas is pressure. Increasing the amount of gas in a container can raise the pressure of a gas. In this activity, you will use the build-up of gas pressure to launch a film-canister rocket.

### Materials

- File folder or card stock
- Blunt-end scissors
- Glue
- Empty film canister
- Double-sided tape
- Half of an effervescent antacid tablet

NOTE: This activity can be messy and should be conducted outside.

SAFETY: Be sure to follow Milli's Safety Tips and do this activity only with adult supervision! Do not eat or drink the water used in this activity! Eye protection must be worn by everyone present in the launch area!

### Procedure Build the Rocket

1. To make fins for the rocket, trace the pattern below (four times) onto a file folder, or a piece of card stock.
2. Cut along the solid lines so that you make four fins.
3. Fold the fins along the dotted lines.
4. Place glue on each of the fins in the area marked "Glue here" in the picture above, and attach each of the fins to the film canister. Be sure to have the point of the triangle towards the closed end of the canister and to leave enough room to put the lid on the open end of the canister.
5. Fold the fins so they stick straight out from the canister. Make 4 of these.

### Fuel the Rocket

1. Ask your adult partner to help you select an appropriate area outside for the launch of your rocket.
2. Fill the canister half full of water.

3. Tape the half tablet of the effervescent antacid inside the lid of the canister using a piece of double-sided tape.
4. Close the canister, quickly place it on the launch area with the lid at the bottom, and take at least three big steps backwards.
5. The tablet should produce enough gas in the canister to pop off its lid, which will propel the rocket into the air.
6. Dissolve any unreacted pieces of the effervescent tablets by placing them in a bowl of water. Thoroughly clean the work area and wash your hands.
7. Record your experimental data in the "What Did You Observe?" section.

Film canister

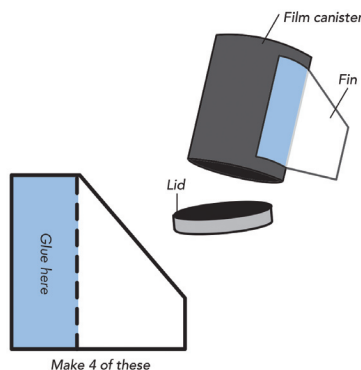
Fin

SAFETY!

Lid

### Where's the Chemistry?

Effervescent antacid tablets contain an acid and a base, similar to baking powder. When the acid and base are dry, they do not react, but when they dissolve in the water, they react to produce carbon dioxide gas. As the gas is formed, pressure builds up until, finally, the cap is blown off the canister and your rocket is launched.



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[www.acs.org/kids](http://www.acs.org/kids)

## Election 2010 by Karl Marhenke, Secretary

Our 2010 election ended after the December issue of this newsletter went to press. As one might expect, all candidates were elected because we had no contested races. Three hundred thirty ballots (about 10% of Section membership) were received, which seems to be the norm for our electronic elections.

We thank everyone who voted, and we hope that our electronic election, managed by Vote-Now, was as easy for you as it was for us. We also thank those who voted for the implied vote of confidence in the volunteer work we do for the Section.

The most important requirements for Executive Committee (ExComm) membership are (1) membership in the Santa Clara Valley Section of the ACS and (2) willingness to serve. If you're interested in serving, going to dinner meetings is a good way to meet current members and get to know them. At the meetings, feel free to approach any of the current ExComm members who will be

glad to describe what being a member of the ExComm involves. Guests are always welcome at monthly ExComm meetings; the times and places are listed near the bottom of our home page at [www.scvacs.org](http://www.scvacs.org). Currently, the ExComm meets on the first Monday of the month at PARC in Palo Alto from 7:30pm to 9:30pm.

Our Nominations and Elections committee puts names on the ballot based upon interest and willingness to serve, or, for incumbents, willingness to continue to serve. Thus, you have to find a way to be active in Section activities and attract the notice of the committee.

Our Section is designated by the national office as "large"; therefore we have eight Councilors, and eight Alternate Councilors. That's sixteen people; the current ExComm has seventeen members. That means that four of our five Officers also serve as Councilors or Alternate Councilors. Despite the fact that Section membership is well over 3000, all we have been able to do is get

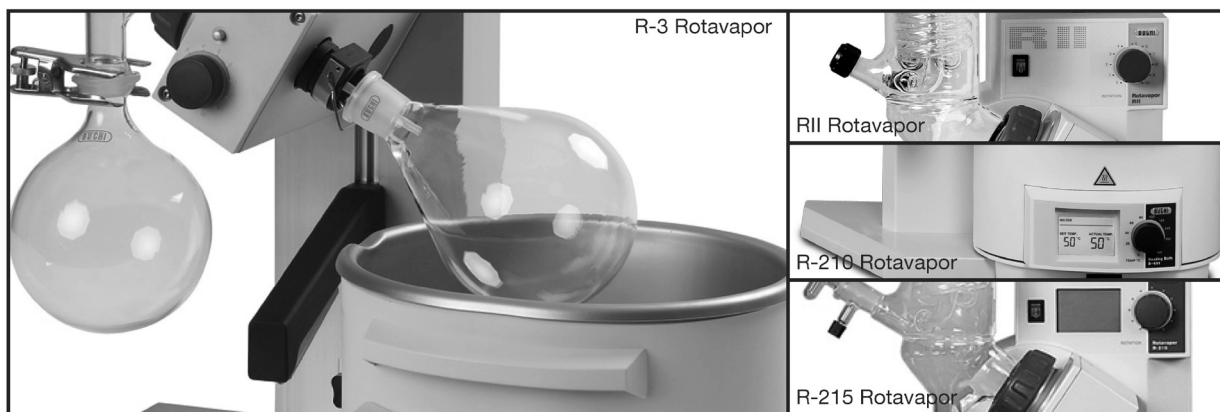
17 people to fill 21 slots! Getting volunteers for ongoing work isn't easy!

The only viable way to be elected is to get your name listed on the ballot. The national bylaws require Sections to hold elections, even if they are non-contested. We are also required to allow for write-in votes, but the fact is that no one has ever come remotely close to being elected via write-in votes. Besides being placed on the ballot by the Nominations and Elections committee, the only way to get there is through a petition. At least one past Section Chair not only ran, but was elected in precisely this way. Only 15 Section members' signatures (one can even be the candidate's) are needed. You send the petition to the Secretary, and you're on the ballot.

We're a 100% volunteer organization. None of us is paid for what we do, and we have no paid employees. Volunteers are always welcome. The work is interesting, fun, and rewarding. We invite you to join us!

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is published on our web site, sign up at:  
<http://www.scvacs.org/newsletter/>

## SANTA CLARA VALLEY SECTION

### 2011 Section Officers

Chair	<b>Abby Kennedy</b>	209-640-2005	akennedy@exelixis.com
Chair-Elect	<b>Natalie McClure</b>	650-906-7831	nmclure@drugregulatoryaffairs.com
Past Chair	<b>Bruce Raby</b>	408-294-6718	bruceraby@att.net
Secretary	<b>Karl Marhenke</b>	831-688-4959	karlmar@armory.com
Treasurer	<b>Ihab Darwish</b>	650-594-1654	darwishis@yahoo.com

### Councilors

2009-2011	<b>Abby Kennedy</b>	209-640-2005	akennedy@exelixis.com
2009-2011	<b>Howard Peters</b>	650-854-4614	peters4pa@sbcglobal.net
2009-2011	<b>Ean Warren</b>	650-329-4554	ewarren@scvacs.org
2010-2012	<b>Linda Brunauer</b>	408-554-6947	lbrunauer@scu.edu
2010-2012	<b>Sally Peters</b>	650-812-4994	Sally.Peters@parc.com
2010-2012	<b>Peter Rusch</b>	650-961-8120	pfrusch@aol.com
2011-2013	<b>George Lechner</b>	408-226-7262	glechner@aol.com
2011-2013	<b>Herb Silber</b>	408-924-4954	hbsilber@science.sjsu.edu

### Alternate Councilors

2009-2011	<b>Ihab Darwish</b>	650-594-1654	darwishis@yahoo.com
2009-2011	<b>David Parker</b>	408-615-4961	dparker@santaclaraca.gov
2009-2011	<b>Bruce Raby</b>	408-294-6718	bruceraby@att.net
2010-2012	<b>Lois Durham</b>	650-322-3507	ldurham9398@sbcglobal.net
2010-2012	<b>Natalie McClure</b>	650-906-7831	nmclure@drugregulatoryaffairs.com
2010-2012	<b>Stephanie Gehling</b>	408-429-9681	s_gehling@hotmail.com
2011-2013	<b>Mark Kent</b>	408-736-0989	markkent@yahoo.com
2011-2013	<b>Harry Ungar</b>	831-708-2049	haungar@cruzio.com

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Director **Charles Sullivan** 650-728-7034 cdansullivan@sbcglobal.net

## FUTURE MEETINGS

**Jan 20**

Dr. Tobin Marks  
Mosher Award Dinner  
Biltmore Hotel & Suites  
Santa Clara, CA

**Feb 17**

Susan Kuchinkas  
Science Journalist  
Shiva's Indian Restaurant  
800 California Street  
Mountain View, CA

**Mar 1**

Dr. Merry Sherman  
CEO Mountain View Pharmaceuticals  
BioScience Forum  
[www.biosf.org/programs.htm](http://www.biosf.org/programs.htm)

**Mar 27-31**

National Meeting and Exposition  
Anaheim, CA

**Apr 28**

Dr. Charles Bamforth  
UC Davis Professor  
BEER