

Silicon Valley Chemist

Santa Clara Valley Section

American Chemical Society

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MARCH 2012 NEWSLETTER TOPICS

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March Dinner Meeting

What Happened to the Kilogram and the Mole?

Peter Rusch



University of Texas at Austin. After post-doctoral research in France and the U.S. he joined the Chemical Abstracts Service division of the American Chemical Society. He was an Information Scientist working with the emerging online services to add CAS databases to their offerings.

Abstract

For more than two hundred years the International Prototype Kilogram (IPK) has rested peacefully under double, evacuated bell jars in a vault near Paris. It is the international standard for the kilogram. Occasionally, its cousins (a.k.a. "the witnesses") come from their various locations to visit the IPK. Naturally, they all compare weights and that's when the trouble begins. We will look at the data and explore the possibilities leading to the most recent decisions of what to do. The mole is also ready for a makeover that will fundamentally change its definition that most chemists learned.

Biography

Peter Rusch received his Ph.D. in Physical-Inorganic Chemistry from The

He then moved to Lockheed Information Systems, that later became DIALOG Information Services, where he worked for almost twenty years. During that time he led the development of chemical and

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March Dinner Meeting

Date: Thursday, March 15, 2012

Time: 6:30 p.m. Social Hour
7:30 p.m. Lectures

Speaker: Dr Peter Rusch

What Happened to the Kilogram and the Mole?

Our hosts: Julie and Father Ron Newdoll, Founder of Newdoll Enterprises

Location: Newdoll Enterprises and the art gallery
Edison Technology Park
3515 Edison Way
Menlo Park, Ca 94025

Cost: \$10.00 per person (Cash or check only, not a sit down dinner)

Reservations: www.scvacs.org
Sally Peters 650-854-4614

Needed by Monday, March 12 if you will be there for the food. Reservations are not needed if you are coming only for the lecture, but they are needed for everyone else, (we need to know ahead of time how much food to buy).

Chair's Message

I am very excited with the March program. We have set up an interesting seminar, in an interesting location. Peter Rusch, long time Santa Clara Valley councilor, and chair of the ACS committee on Nomenclature, Terminology and Symbols, will educate us on the changing definition for the kilogram and the mole. These are, of course, fundamental to everything we do as chemists.



There is an international effort to redefine the kilogram. To date, with the exception of Peter's committee, ACS has not issued an official position or statement. We should end the evening with a much better understanding of the issues and challenges.

In addition to Peter's talk, we will hear briefly from Julie Newdoll.

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Correction

In last month's newsletter the article "The Iron Lady" co-authored by Howard and Sally Peters, had two errors. Lady Thatcher first worked as a research chemist at BX Plastics near Colchester then moved to J. Lilly, a food conglomerate near London. Also in Feb 2012 Robert Gates, former US Secretary of Defense and a CWM graduate replaced Santa Day O'Conner as Honorary Chancellor of CWM.

Newdoll Enterprises

Our March dinner meeting will be held at the Brush with Science Art Gallery housed at Newdoll Enterprises. Our hosts for the evening will be Julie Newdoll and her father Ron Newdoll.

Julie Newdoll is both a scientist and an artist. Her scientifically inspired artwork has been featured on over 20 journal covers in the last few years, including such publications as Cell, Nature Reviews Genetics, Nature Reviews Molecular Cell Biology, Structure, PLoS, American Scientist, and others. Her prints and paintings are in the collections of prominent scientists belonging to the National Academy of Sciences, winners of the Nobel Prize and in institutions, such as, Stanford University, Macalester College, Western Kentucky University, the University of California at San Francisco and Walthamstow Hall of the UK. Newdoll works with scientists and does her own in-depth cross disciplinary research, to create metaphorical imagery for clients and for display in the Brush with Science Gallery, on her website and at select shows. She is a member of the American Chemical Society (ACS), a result of her latest project, where she uses an impossibly fine lens to focus her mind's eye on atoms. The result is her chemistry game series "Journey to Neon", as well as new methods for visualizing the atom and drawing chemical structures, which she hopes will make learning chemistry easier for students with

benefits for professionals, as well.

Julie Newdoll has been painting in oils since 1976. Torn between art and science in college, she ended up with a degree in Microbiology, and a minor in art. Following this, she received a masters in Medical Illustration. The world of microscopic images and molecules first appeared in her artwork in 1990, while she was employed as a scientific visualization specialist at the University of California at San Francisco. Following this experience, she spent a few years as the Supervising Technical Director at Tippett Studio, directing the lighting for the special effects for films. The culmination of her art, lighting, computer graphics and scientific training primed her to become a unique "portrait" artist for the life sciences. She started her own business, Brush with Science, creating imagery for scientists about their research to engage and enlighten others in their work (see www.brushwithscience.com).

Julie Newdoll is also currently designing and producing a Chemistry game series called Journey to Neon, and chemistry playing cards called Electronimoos, which incorporate her artistic and metaphorical experience depicting atoms for a wide range of ages and experience. Upon having school-age children, Newdoll discovered an empty space in early education on the subject of chemistry and the basics of an atom.

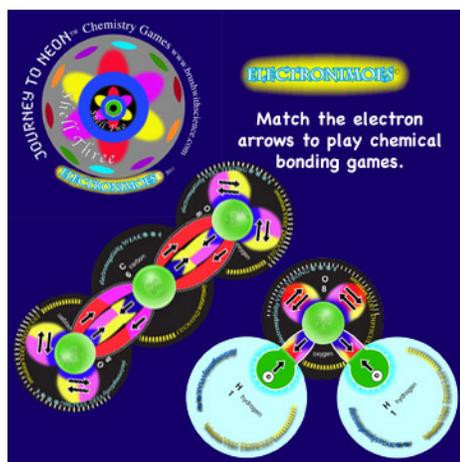
The atom is not mentioned in the California Education Standards until 7th and 8th grades. Many subjects are surveyed early on, such as electricity, that would benefit from some knowledge of the subject. She has invented the game of Electronimoos, a double deck of circular cards which represent atoms and how they bond. She is currently working with teachers of students at first and second grades, seventh and eighth grades, high school and college using these cards and her system for drawing molecular structures based on her new symbolism.

Ronald Newdoll is President and Founder of Newdoll Enterprises, LLC, and its subsidiary Accurate Solar Power, Inc. These companies design and develop photovoltaic electric power generating products, including a more efficient Micro-Inverter, a Solar Panel Emulator, a Smart Module, a Smart DC Boost Module and a "Whole System Approach" to photovoltaic solar system design to include automatic computer controlled solar panel cleaning and cooling. Design requirements for this solar equipment development, which is in a prototype stage, resulted from experience gained in the design and installation of a 400,000 kilowatt solar system at Edison Technology Park, 85,000 square foot industrial center

Newdoll Enterprises
3515-B Edison Way
Menlo Park, CA 94025.



Julie Newdoll



Electronimoos



Painting from the Emergence series

Dinner Meeting, continued from front page

patent information products and services.

He has been a member of the ACS long enough to get a clock. He is Chair of the ACS Committee on Nomenclature, Terminology and Symbols which is how he learned about the kilogram and the mole. He is an Associate Member of the Society of the Sigma Xi, a Fellow of the American Institute of Chemists and a Trustee of the Chemical Structure Association Trust.



Chair's Message, continued from front page

Julie is an artist who uses science themes as the basis for her artistic expression. She has been published on the cover of several different scientific journals, including American Scientist, PLoS, and Cell Therapeutics. Julie has also developed a novel game for young students to help explain chemical bonds. Julie exhibits her art in Newdoll Enterprises, a solar

cell development company run by her father. We will meet at Newdoll Enterprises for some light snacks, enjoy the art work and then be educated on the kilogram. Altogether, it will be a different meeting than our traditional sit-down dinner.

We are also embarking on another exciting program. We have submitted a grant application to the National office of the ACS for support for a chemistry outreach program to the "Forgotten Children", the children in the homeless shelters and the migrant farm worker children. There are 4 homeless shelters in San Mateo County that house families with children. Some of these shelters have up to 80 children at any given week. The shelters offer after-school programs, mostly arts and literature. We plan on taking our various hands-on science experiments to these shelters. Our goal is to offer some fun science to this underserved group and make them aware that anyone can do science experiments often

using inexpensive, readily available household items. If the initial efforts are well received, we hope that this program can become one of our "regulars". If you are interested in volunteering, or hearing more about this, please contact me or Bonnie Charpentier.

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 -- 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 January

STACI ADAMS	Robert J. Duffy
Prof. Prashanth Asuri	Ignatius Elbert
Dr. Ashok Bhandari	Jennifer A. Harris
Timothy Ray Blake	Janine M. Keller
Dr. Brenda Burke	Dr. David Henry Krevor
Johannes Burkhard	Gabrielle Anne Lapena Laguisma
Melissa Casteel	Tim S. Lane
Lei Chen	Michelle Lee
Dr. Samuel Chess	Dr. Clement Levard
Melanie Chiu	Dr. Jixiang Liu
Halbert Chong	Song Luo
Ryan E. Cowley	Dr. Shirley S. Mihardja
Dr. Bernardo da Costa	Sarah Elizabeth Mullen
Christopher G. Dudzik	Kenneth Melvin Otteson

Nancy W. Peltier
Dave Pinson
Andrew Richard
Jennifer Roizen
William Tyler Scull
Bonggeun Shong
Elvin Titan
Zhan Wang
Stevien Washington
Dr. Michael J. Weiss
Manabu Yasumoto
Haiqiang (Bill) Yu
Jiajing Zhang
Wenjia Zhang

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The SPLASH Program

April 21-22 Sat-Sun

The novel SPLASH education program is returning to Stanford. This is a low cost weekend program on the beautiful Stanford campus in Palo Alto for middle and high school students in the seventh through twelfth grades to sample the 1-2 hour fun and informative courses/topics available. Classes are taught by volunteer Stanford graduate students, undergraduates and local professional community members. In addition to great classes, there will be some delicious pizza served for lunch.

See www.stanfordesp.org/learn/index.html for detailed information or contact Howard Peters at peters4pa@sbcglobal.net.

Volunteers Needed 2012 Chemistry Olympiad

The 44th International Chemistry Olympiad will be held in Washington, D.C. on July 21-30. The US will be hosting some of the world's most talented high school students from more than 70 countries around the world. The U.S. will have a team of four outstanding students, who will be selected from a pool of 20 finalists from across the United States.

The selection process begins right here in our local section! Chemistry students from the Santa Clara Valley will participate by taking a standardized ACS written exam to determine their placement. The first round of testing is conducted in the local high schools in March. The local section encourages the high schools to participate and provides the testing materials.

The top 17 students will meet on Saturday, April 21st, to compete in the national exams with over one thousand students from across the country that weekend. More written tests and a lab exercise will be administered at Las Positas College in Livermore. Students from the California section will join us for the day. The California section hosts the event and provides snacks and lunch.

Those exams are sent to national ACS for grading. The top 20 students are chosen from the 1000 participants and those 20 will attend the weeklong study camp at the Air Force Academy in Colorado in June. The team that will represent the U.S. in Washington is chosen on the last day of the study camp. Our section has been represented at the study camp in 2002, 2005 and 2007.

Would you like to help with the process? Encourage your local high school chemistry teachers to have their advanced placement and honors students participate in the testing process. We have over 100 high schools in the valley, but only about 23 compete. We contact each science department at each high school by letter in January, giving them the Olympiad information and encouraging them to participate.

A few local section members are needed to register the students and proctor the exams on April 21st at Las Positas College. This is an excellent chance to volunteer and encourage these students to

think about careers in chemistry. It is an especially good chance for members who live in the East Bay! Lunch is even provided.

Also, if someone has access to a good color printer or scanner/printer, they could help by customizing the ACS student certificates that each student receives before the end of the school year. Or, customizing by calligraphy would be grand! There should be about 150 certificates that will need to be customized.

So here are some opportunities to help your local section with the 2012 International Chemistry Olympiad

– encourage the teachers to participate (maybe even offer to help them grade the exams!), volunteer to be a proctor, or help print certificates. If you need more information, please contact me.

Sally Peters

Chair of the Santa Clara Valley Section
Chemistry Olympiad Committee
sallybrownpeters@gmail.com
650-854-4614



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Last Chance to Judge at Local Science Fairs

The last four local science fairs of 2012 will be held this month. We need a few interested members to complete our SCV-ACS special awards team to judge the 100 plus chemistry projects at the Synopsys Championship. For all of these fairs, category judges are needed in chemistry, botany, biology, biochemistry, chemistry, microbiology, and the behavioral/social sciences. (So ask professionals you know in these fields to join us and judge, too.) The interaction between the students and judges is the heart of each and every science fair. The encouragement, critiquing, and interest we as judges share with the students benefit all of the participants. So, no matter which fair includes your home town, now is your last chance to volunteer!

Monterey County Science and Engineering Fair

Date: Saturday, March 3, 2012

Location: California State University, Monterey Bay

For more information, visit www.montereycountysciencefair.com

Synopsys Championship (aka Santa Clara Valley Science and Engineering Fair)

Date: Wednesday, March 7, 2012

Location: San Jose Convention Center, San Jose

For more information on category award judging,

visit www.outreach-foundation.org/judges.html

For more information on participating in the SCV-ACS judging team for this fair,

contact Susan Oldham-Fritts, [sofritts@garlic.com](mailto:solfritts@garlic.com), or Mark Kent, markkent@yahoo.com

Santa Cruz Science Fair

Date: Saturday, March 10, 2012

Location: Santa Cruz County Fairgrounds, Santa Cruz

For more information, visit <http://science.santacruz.k12.ca.us>

San Francisco Bay Area Science Fair - ISEF affiliate

Date: Wednesday, March 14, 2012

Location: San Francisco County Fair Ground Building - Golden Gate Park

Contact: Robert Fabini, sfbasf@gmail.com, www.usc.edu/CSSF/Fairs/300.html

Highlights of the February 16th Dinner Meeting with Dr. Ripudaman Malhotra

Photos Courtesy of Lois Durham



Bonnie Charpentier and Jeanette Medina



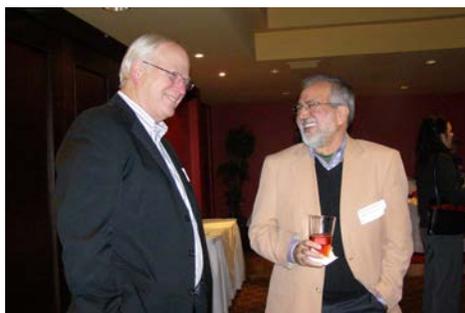
Dick Silva, George Lechner, Joseph Dilger,
Mary Jo Dilger and Herb Silber



Dan Krassowski and Joseph Dilger



Howard Peters and Bonnie Charpentier



Lee Latimer and Ripudaman Malhotra



Yvette Mimieux Vaske, Jim McClure and Mousumi Mani Biswas



Howard Peters, Peter Rusch and Sally Peters



Natalie McClure and Ripudaman Malhotra

Change in Executive Committee Leadership

Unfortunately, Peter Rusch has resigned as Chair Elect of the Santa Clara Valley section. His workload with other ACS duties is too much to allow him to serve as our Chair Elect. Our section by-laws address this situation, and the Executive Committee is authorized to appoint a replacement Chair Elect. This is a one year appointment and the Chair Elect will have to run for the position of Chair in our next election.

The Executive Committee has appointed Jeanette Medina to this position. Jeanette Medina is Professor at the Chemistry Department at Canada College. In 2009, Jeanette was awarded by the Santa Clara Valley ACS, the inaugural Teacher-Scholar Award for Community College Chemistry Faculty. She has taught chemistry for 15 years and, has been awarded three NSF grants that benefit students at her college as well as local elementary teachers. She is involved in numerous outreach activities which encourage or spark an interest in science in general or chemistry in particular. She has been active in local section events since 2008.

Please welcome Jeanette as our new Chair Elect.



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

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SANTA CLARA VALLEY SECTION

2012 Section Officers

Chair	Natalie McClure	650-906-7831	nmclure@drugregulatoryaffairs.com
Chair Elect	Jeanette Medina	650-306-3255	medinaj@smccd.edu
Past Chair	Abby Kennedy	209-640-2005	akennedycali2007@yahoo.com
Secretary	Karl Marhenke	831-688-4959	karlmar@cruzio.com
Treasurer	Ihab Darwish	650-594-1654	darwishis@yahoo.com

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2010-2012	Linda Brunauer	408-554-6947	lbrunauer@scu.edu
2010-2012	Sally Peters	650-854-4614	sallybrownpeters@gmail.com
2010-2012	Peter Rusch	650-961-8120	pfrusch@aol.com
2011-2013	George Lechner	408-226-7262	glechner@aol.com
2011-2013	Herb Silber	408-924-4954	hbsilber@science.sjsu.edu
2012-2014	Abby Kennedy	209-640-2005	akennedycali2007@yahoo.com
2012-2014	Ean Warren	650-329-4554	ewarren@scvacs.org

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2010-2012	Natalie McClure	650-906-7831	nmclure@drugregulatoryaffairs.com
2010-2012	Stephanie Gehling	408-429-9681	s_gehling@hotmail.com
2011-2013	Mark Kent	408-736-0989	markkent@yahoo.com
2011-2013	Harry Ungar	831-708-2049	haungar@cruzio.com
2012-2014	Lisa Milstein	510-624-4019	lisa.milstein@balazs.com
2012-2014	David Parker	408-615-4961	dparker@santaclaraca.gov

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ChemPloyment Abstracts

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

- Mar 15** Dr. Peter Rusch
What Happened to the Kilogram and the Mole?
Menlo Park, CA 94025
- Mar 25-29** Spring National Meeting
San Diego, CA
- Mar-Apr** Santa Clara Valley
Chemistry Olympiad
- Apr 4-6** 16th Annual John Stauffer Lectures
Stanford University Chemistry
Department
www.stanford.edu/dept/chemistry/events/conf/jstauffer/index.html
- Apr 19** Local section SciMix Poster Session
Venue to be announced
- Apr 21** National Chemistry Olympiad Exam
Las Positas College
Livermore, CA
- May 17** Nick Drobar and Captain
Homer Holm
The Clean Oceans project
Venue to be announced