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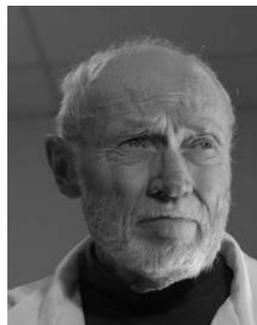
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September Dinner Meeting

Thinking Outside the Box About Cold Fusion

Abstract

Since that 1989 announcement claiming the observation of excess energy in electrolysis of a palladium cathods in an electrolyte of lithium deuterioxide, we have experienced what I characterize as a scientific version of a "religious war". In warfare, essential reality is frequently distorted or ignored altogether. Such is the case in this "war". My purpose in this talk is to present my view of the essential experimental results of 20 years of research done under wartime conditions of controversy, demonization of proponents, fights for budget share, refusal of the U.S. Patent Office to consider cold fusion patents, and refusal to publish by mainstream scientific journals. The internet is the only means by which research results on this subject have received widespread



Dr. Tom O. Passell

availability. Several hundred are accessible on the web site www.Lenr-Canr.org.

Here is my working hypothesis of the conditions required to observe the cold fusion phenomenon:

1. High fluxes of deuterium atoms through interfaces of grains of metals that readily accommodate movement of hydrogen atoms interstitially is the driving variable that produces the widely observed episodes of excess above the total of all input energy.
2. This deuterium atom flux has been most often achieved at high electrochemical current densities on highly deuterium-loaded palladium cathodes, but is clearly possible in other experimental arrangements in which the metal is interfacing gaseous deuterium, as in an electrical glow discharge or membrane permeation.
3. Since excess heat episodes must be producing the product(s) of some nuclear fusion reaction(s), screening of options will be easier with the measurement of those "ashes" than with the observance of the excess heat.
4. All but a few of the exothermic fusion reactions known among the first five elements produce He-4. Hence, He-4 appearance may be the most efficient indicator of some fusion reaction without commitment to which reaction is occurring.
5. Absence of the normally observed products of the D+D reaction have

Reminder

Annual Family Picnic and Awards Ceremony

Our next Section event will be our summer picnic on Saturday, July 11. It will feature a special red wine tasting hosted by Floyd Hobbs. The afternoon will also include a catered picnic outside the Mudd chemistry building at Stanford and ceremonies honoring our 50-and-above-year and other award winners. See the complete list in the box on page 4.

Wine Tasting:

Floyd Hobbs has offered to arrange a wine tasting. This year we will be tasting a horizontal selection of red wines, i.e. wines grown in cold to cool climate compared to ones grown in warmer climates.

Reminder

Dinner:

Armadillo Willy's will cater the picnic, as they did last year.

Location:

The Stanford University Chemistry Department.

Time:

4:30 p.m. Wine Tasting
5:30 p.m. Buffet BBQ Dinner
7:00 p.m. Awards

Directions:

From Route 101 (Bayshore Freeway):

Take University Avenue west through Palo Alto. It becomes Palm Drive on the Stanford

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Thinking, continued from front page

led to the assumption by mainstream scientists that no fusion reactions could be occurring. However, direct production of He-4 by the D+D reaction is rare, but is known to occur in hot fusion. Also, other reactions such as $B_{10} + D \rightarrow He-4 + Be-8$ followed by $Be-8 \rightarrow 2 He-4$ are possible reactions that do not produce the missing neutrons or tritium atoms expected in normal D+D hot fusion. Other reactions such as $Li-6 + D \rightarrow Be-8$, followed by $Be-8 \rightarrow 2 He-4$ are possible which are free of neutron and tritium emissions.

Biography

Thomas Passell has been an ACS member since 1954. He received a PhD from UC Berkeley's Department of Chemistry in 1954. His research thesis title was "Internal Conversion of Gamma Radiation in the L-Subshells".

Dr. Passell's employment history includes: Phillips Petroleum Co. Atomic Energy Division at the National Reactor Testing Station, Idaho Falls, ID; SRI International, Menlo Park, CA; Physics International, San Leandro, CA; Lockheed Palo Alto Research Laboratory; Electric

Power Research Institute (EPRI), Nuclear Power Division, Palo Alto, CA; D2Fusion, Inc., Foster City, CA; Private Consulting Company, Palo Alto, CA.

Dr. Passell's research interests are numerous with chemistry and physics technology as applied to industrial uses of atomic energy being a primary one. Major topics within this overall category include: beta and gamma ray spectroscopy; neutron activation analysis; radiochemical separations with emphasis on the transuranium and fission product elements; charged particle trapping in the geomagnetosphere; water chemistry of corrosion reduction in nuclear power plants; plasma diagnostics in hot fusion devices using magnetic compression; detection of chemical explosives in luggage and buried land mines; ion chromatography for corrosive ions at the part-per-billion level; pH control additives for corrosion reduction in high temperature water coolants in steam power systems; x-ray emission from nuclear fission devices in vacuum; calorimetry and He-4 measurements in electrochemical and glow discharge experiments on metals that absorb hydrogen; hydrogen storage for mobile applications; research project management for the electric utility industry.

Chair's Message

Depending on when you read this, I hope that you will have just come from our summer picnic, or be on your way there. Either way, it's a great event where we recognize our 50-and-above-year ACS members, as well as the special contributors to ACS from the past year. We also have a great picnic and taste some special wines.

As you know, we take a break from dinner meeting seminars during the summer months. But the ACS activities continue in different forms. Again this summer, we will be participating in the Stanford Tech Trek. This is an annual program organized and sponsored by the American Association of University Women for 8th grade girls. The AAUW chapters raise money to sponsor girls who come and spend a week at Stanford and participate in many different science explorations. The Santa Clara Valley Section conducts two workshops (Monday, July 13 and Monday, July 20) in which we will teach the girls some basic pH properties as well as demonstrating the practical application of the freezing point depression of an ice/salt mixture as we make ice cream. Volunteers are always needed and welcomed. Please contact me at 650-906-7831 if you would like to help.

The other exciting activity that is going on this summer is Project SEED. Stanford University is mentoring three Project SEED students. The three students are all seniors at Sequoia High



School in Redwood City and first generation college bound. The students are working on projects in the Chemical Engineering Department at Stanford under the direction of Drs. Andrew Spakowitz, Gerald Fuller and Eric Shaqfeh.

Their projects include:

- Helping to develop a science curriculum for middle school and high school students being treated for childhood cancer at Lucile Packard Children's Hospital by implementing computer models into the chemistry teaching modules, developing computer-based "laboratory" protocols, and assessing the use of computer models as a teaching tool.
- Examining the dynamics of single DNA chains and vesicles (fluid sacs surrounded by membranes) in a variety of flow fields in the laboratory to be able to see the flow dynamics of these molecules.
- Investigating the removal of particles attached to solid, flat surfaces using polymer solutions to effectively clean such surfaces without damaging delicate surface structures.

The Project SEED students, along with other Stanford interns, will present their work at a Research Poster Session and Reception at Stanford on August 4. Please mark your calendars for this event.

Have a great summer.

Natalie McClure



Picnic, continued from front page

Campus. Turn right on Roth Way and continue to the Chemistry Department. Park in the parking structure on your right. Keck and Mudd chemistry buildings are across Roth Way from the parking structure.

From Route 280: Take the Sand Hill Road exit. Drive east and turn right on Stock Farm Road. Then turn left on Campus Drive West and right on Roth Way. Park in the parking structure immediately on your left. Keck and Mudd chemistry buildings are across Roth Way from the parking structure.

Reservations:

You can make a reservation by accessing the Internet at our website: www.scvacs.org/Local_Folder/din_mtg.html.

Remember, this is the one meeting where you have to send a payment with your reservation. The cost will be the same as it was last year: \$16 for adults, \$5 for kids 4-12, and kids under 4 free. Reservations and payments must be received by Friday, July 10.

New Website for ACS Members in Industry

<http://boilthisdown.org>

To focus on the specific information needs of chemists and chemical engineers working in industry, the ACS Industry Member Program has launched a new web site, Boil This Down.

Once, the challenge was getting access to information; today, we're drowning in information. Boil This Down will separate the wheat from the chaff, so you can quickly access the information you need to be successful:

- Quickly grasp the Top News of the day affecting chemists and chemical engineers employed by industry (as

reported by the world's top scientific and business publications).

- Provide ACS industry members employed by small and mid-size companies with information targeting their specific needs.
 - Highlight Featured Articles published in scientific and business publications that help you become a better manager and scientist, and
 - Identify and access the ACS programs, products, and services of greatest value to the Society's industry members.
- The site has many rich features

that allow you to comment on articles, rate them, and share or post them to other sites. The interactivity of the site was purposefully designed to allow for a continuous process of improvement through readers' comments and ratings of the various articles, features and ACS programs. Please visit Boil This Down at <http://boilthisdown.org> and let us know what you think.



ACS Network: Largest On-line Global Chemistry Community

Today over 17,000 chemists and chemical practitioners worldwide have already joined the ACS Network and are using the power of this on-line community to establish connections, collaborate with colleagues and to share their knowledge and expertise. The ACS Network is a professional networking and collaboration platform that connects scientists, ideas and opportunities.

The ACS Network's suite of tools allow members to build on-line profiles, form and join groups, participate in discussions, get email alerts, share documents and collaborate with other network members who share similar interests. The ACS Network can help you:

- Manage your career, meet people and find opportunities.

- Interact and collaborate with peers in a trusted environment.
- Sharpen your skills, learn and grow in your profession.
- Do your work, gain insights and research and gather information.
- Become a leader in your field and get

recognized by your peers.

Thousands of chemists world-wide have already established the ACS Network as the premier on-line community for chemistry and the chemical sciences. Join the ACS Network (www.acs.org/acsnetwork) today and make it your #1 online destination to connect, communicate and collaborate within the world of chemistry



From Invention to Venture: Women and Entrepreneurship

The American Chemical Society's Women Chemists Committee (WCC) and the National Collegiate Inventors and Innovators Alliance (NCIIA) invite you to attend an afternoon workshop on the basics of technology venturing with special emphasis on the key challenges facing women as they pursue a start up opportunity, license or otherwise transfer technology.

Sessions include panel discussions and feature the opportunity for entrepreneurs to "speed pitch" to VIPs and speakers. You do not have to be a member of the American Chemical Society to attend the workshop.

Registration will be available through ACS national meeting registration or through NCIIA for those not attending the meeting. For more information, including speakers and prices, visit:

www.invention2venture.org/wcc09/.

We hope you will be able to attend!

Happy July 4th



INTEL, ACS and Many Other Groups Make Awards at ISEF in Reno

By Howard Peters

Reno Nevada, "The Biggest Little City in the World," usually known for its gambling, quickie divorces, and "Hot August Nights," took on a completely different character for the week of May 11-16, 2009. The INTEL International Science and Engineering Fair (ISEF) 2009 was in town. Over 1500 enthusiastic high school students from 60 countries plus their committed teachers, mentors, observers, judges, etc. descended on the Reno-Sparks Convention Center. Despite the concerns about the swine flu affecting this ISEF there was a very good turnout. Japan chose not to send any ISEF finalists because of continuing concern about the flu, but very few representatives were missing.

As has occurred in previous years, the three top awardees for the Intel Young Scientist Awards (\$50,000 scholarships/student) went to three talented young women. Tara Anjali Adiseshan, age 14, from Ramana Academy in Charlottesville, Virginia, won for her project "Identifying and Classifying Evolutionary Interactions between Sweat Bees and Nematodes." Olivia Catherine Schwob, age 16, from Boston Latin School in Boston, Massachusetts, won for her project "How Worms Learn, Part III: Mammalian Gene Expression and Associative Conditioning in *Caenorhabditis elegans*." Finally, Li Sallou Boynton, age 17, from Bellaire High School in Bellaire, Texas, won an award for her project, "The Use of Bioluminescent Bacteria to Detect Environmental Contaminants".

It was reported that for ISEF2009 in Reno 30% of these high school exhibitors (450 of 1500) had or planned to file patent applications on their projects. In recent years the number of patent applications filed on student projects has been about 20%.

The ACS, as it has for the past several years, judged chemistry projects across the expanding borders of our science and made awards totaling \$10,000. Dr. Ana de Bettencourt-Diaz (Associate Professor of Chemistry at University of Nevada, Reno), the Chair of the ACS Sierra Nevada Local Section, did a fantastic job of organizing the intense group of 10 judges.

Difficult decisions were made easier by the camaraderie of this dedicated group of volunteers.

The ACS Sierra Nevada Local Section, a major sponsor for ISEF2009, provided an information booth that was mobbed for handouts related to the ACS and to chemistry. On Thursday, many local school students were bussed in – some from over 100 miles away.

The public attendees viewed projects, attended science lectures and demonstrations, participated in hands-on experiments and magic shows, and visited vendor booths setting a student record for attendance.

The ACS judging team in May included:

- Dr. Ana de Bettencourt-Dias
University of Nevada, Reno
- Kent Ervin
University of Nevada, Reno
- Joseph Cline
University of Nevada, Reno
- Renante Yson
University of Nevada, Reno

- Robert Sheridan
University of Nevada, Reno
- Sarah Cummings
University of Nevada, Reno
- Sean Casey
University of Nevada, Reno
- Jason Shearer
University of Nevada, Reno
- Axel Drefahl
Owens Technology
- Thomas Howell
Sierra Nevada Section of the ACS
- Howard Peters
*Santa Clara Valley (Silicon Valley) CA,
Patent Attorney (Retired)*

There were also some photos taken of the judging group at work and of the projects. An ISEF photo of all of the ACS awardees on Thursday evening should be available from Society for Science.

The theme for the ISEF2010 will be "Mentoring Global Innovation," and will be held May 9-15, 2010 in San Jose CA. Howard Peters, a former member of the ACS Board is active on the ISEF2010 Board of Directors.

July: The Month to Acknowledge ACS Membership

The local section would like to acknowledge its long time members. Listed below are the many members with over 50 years of membership and participation in ACS.

50 years

Mr. Robert N. Anderson
Dr. Joseph A. Castellano
Mr. T. Z. Chu
Dr. Arthur F. Diaz
Dr. Hubert E. Dubb
Mr. Melvin E. Ebeling
Dr. W. Patrick Gallagher
Mr. Louis K. Gottwald
Dr. Roy G. Hayter
Mr. Stanley H. Judd
Mr. Gonzalo Monarque
Dr. John A. O'Malley
Dr. Ronald C. Orłowski
Dr. David S. Ross
Mr. Charles J. Shaw
Mr. Lowell C. Yeager

60 years

Dr. C. Ainsworth
Dr. Kirtland E. Mc Caleb
Mr. Joel N. Rossen
Dr. Karl W. Kuhlman



65 years

Mr. Ronald L. De Hoff
Mr. Robert A. Johnson
Dr. Stuart M. Lee
Mr. Carl J. Oldenburg
Dr. Willis D. Perkins
Shirley B. Radding
Dr. Robert E. Stutz



75 years

Dr. Melvin F. Reynolds

ACS Represented on California Green Ribbon Science Panel

ACS Green Chemistry Institute® director Robert Peoples, Ph.D., and former ACS president William Carroll, Ph.D., have been named to California's new Green Ribbon Science Panel. The 27-member panel was established to provide advice and be a resource for the state's Green Chemistry program, aimed at removing or reducing toxic chemicals in products sold in California.

In addition to the Green Ribbon Science Panel, Dr. Peoples serves on several local and national boards including the Carpet America Recovery Effort, Georgia Pollution Prevention Advisory Board, and Green Standard.org. Prior to joining the ACS Green Chemistry Institute®, he served as Sustainability Director for the Carpet & Rug Institute, Executive

Director of The Carpet America Recovery Effort (CARE) and was the Director of Carpet Sustainability and Market Development at Solutia, Inc.

Dr. Carroll, the 2005 president of the American Chemical Society, will serve as a co-chair of the Green Ribbon Science Panel. He is a Vice President of Occidental Chemical Corporation and an Adjunct Industrial Professor of Chemistry at Indiana University. He contributed to the United Nations Environment Programme's Best Available Techniques/Best Environmental Practices Guidelines for implementation of the Stockholm Convention on Persistent Organic Pollutants.

The Panel had its inaugural meeting April 29-30 in Sacramento. It is expected to meet at least twice a year.

Opportunity for Monterey and Santa Cruz County Members

John Chipley in Salinas would like to form a local group of ACS members in this area. The purpose would be to have discussions and programs about concerns and interests of members in the vicinity of Monterey Bay. Please contact John at dnjchipley@comcast.net

CHEMEMPLOYMENT ABSTRACTS JULY 2009

CHEMEMPLOYMENT ABSTRACT 3937

Position Title: Senior Scientist - In Vivo Pharmacology

Job Description: The successful candidate will provide scientific, strategic leadership and hands-on technical expertise to drive compounds from discovery to proof of concept in humans. He/she will lead and manage implementation of in vivo pharmacology models for targets of interest, using translational and pharmacodynamic approaches to prioritize compounds. The applicant will provide in vivo pharmacology expertise to project teams during the discovery and development phases of small molecule drug development program.

QUALIFICATIONS DESIRED:

Education: This position requires a PhD in Biology

Experience: Post-doctoral experience with 5-15 years of relevant experience in a research, biotechnology, or pharmaceutical lab

LOCATION, SALARY, EMPLOYER DESCRIPTION:

Job Location: South San Francisco, CA

Employer Description: Genentech is among the world's leading biotech companies, with multiple therapies on the market for cancer and other serious medical conditions

Application Instructions: Genentech is dedicated to fostering an environment that is inclusive and encourages diversity of thought, style, skills and perspective. To learn more about our current opportunities, please click here reference Req. #1000024282. Please use "Web - ChemPloyment" when a source is requested. Genentech is an Equal Opportunity Employer.

CHEMEMPLOYMENT ABSTRACT 3938

Position Title: Scientist, Small Molecule Drug Discovery

Job Description: This is an exciting opportunity for a synthetic organic chemist to participate in our innovative program in drug discovery. Successful candidates will be responsible for designing and synthesizing analogs for new targets during the hit to lead stage. The position requires an individual to address project biology and develop novel synthetic strategies.

QUALIFICATIONS DESIRED:

Education: This position requires a PhD in Organic Chemistry

Experience: The candidate must have 2-5 years of industrial experience in medicinal chemistry and a strong record of achievement. Experience in hit to lead projects and structure-based analog design is preferred.

LOCATION, SALARY, EMPLOYER DESCRIPTION:

Job Location: South San Francisco, CA

Salary: DOE

Employer Description: For more than 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. Today, Genentech is among the world's leading biotech companies, with multiple therapies on the market for cancer and other serious medical conditions. Please take this opportunity to learn about Genentech, where we believe that our employees are our most important asset.

Application Instructions: Genentech is dedicated to fostering an environment that is inclusive and encourages diversity of thought, style, skills and perspective. To learn more about our current opportunities, please visit: <http://careers.gene.com> and reference Req. #1000028009. Please use "Web - ChemPloyment" when a source is requested. Genentech is an Equal Opportunity Employer.



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ChemPloyment Abstracts

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FUTURE MEETINGS

- Jul 11** Annual Family Picnic and Awards Ceremony
Stanford University
Chemistry Department
- Aug 16-20** 238th National ACS Meeting
Washington, DC
- Aug 18-24** 9th Annual Green Chemistry in Education Workshop
Eugene, Oregon
<http://chemistry.gsu.edu/CWCS/index.php>
- Sep 17** Dr. Tom O. Passell
EPRI
Developments in Cold Fusion
Biltmore Hotel, Santa Clara, CA
- Oct 15** Dr. E. Furukawa
Food Packaging
- Nov 19** Dr. Tom Lane
President, ACS
Community College Teaching Award