



ALI "QUOTES"

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Website <http://www.princeton.edu/~pacs/>

Dinner Meeting and Presentation of 2006 Outstanding High School Chemistry Teacher Awards

Wednesday, May 17, 2006

Our guest speaker will be

Professor Robert Cava, Princeton University

**"Triangles, Water, and Superconductivity in
Sodium Cobalt Oxide"**

Time: 6:00 PM
Lecture: Frick Laboratory, Room 120
Dinner: Kalluri Corner Restaurant

Research Topics

Areas of interest of Professor Cava and his research group include new superconductors, dielectric, thermoelectric, magnetoresistive, frustrated magnets, and transparent conducting materials. In all cases, they employ the principles and synthetic and analytical methods of solid state chemistry to try to find new materials with exceptional physical properties in the hope of driving the field of study in new or unexpected directions. They work closely with colleagues in theoretical and experimental condensed matter physics at Princeton, Columbia University, Bell Labs and many other labs around the world. They interact with experts in other specialties in materials science, such as the neutron scattering group at the National Institute of Standards and Technologies.

Biography

Professor Cava received his M.S and B.S in Materials Science and Engineering from the Massachusetts Institute of Technology (MIT) in 1974 and his Ph. D. in Ceramics from MIT in 1977. He has been Professor of Chemistry and Princeton Institute for the Science and Technology of Materials at Princeton University since 1996 and Chair, Department of Chemistry, Princeton University since

2004. He has also been Acting Director, Princeton Materials Institute, Princeton University 2001-2002 and Associate Director, Princeton Materials Institute, 1999-2001. Prior to this, he was Distinguished Member of Technical Staff, Bell Laboratories. He has over 350 professional publications and 30 patent applications.

He has received numerous awards and honors including, most recently, the Presidents Award for Distinguished Teaching, Princeton 2005 and the John J. Carty Award for the Advancement of Science, National Academy of Sciences 2005.

Reservations

The meeting will be held in room 120, Kresge Auditorium, Frick Laboratory, Princeton University (see www.princeton.edu/~pacs for more information). Seminar is at 6 PM followed immediately by dinner at Kalluri Corner Restaurant, 235 Nassau St. Princeton, NJ. The seminar is free and open to the public. Reservations are required for dinner, which is \$25 for full members, \$15 for retirees and \$10 for students. All reservations will be billed, for the section pays on the number of reservations, not the number of attendees. Please contact Denise D'Auria at (609) 258-5202 or denised@princeton.edu by Wednesday, May 10th to make or cancel reservations.

Dinner Meeting

Thursday, June 22, 2006

Our guest speaker will be

**Dr. Mark R. Viant, The University of
Birmingham, U.K.**

**"Applications of NMR Spectroscopy and
Advanced Mass Spectrometry in
Environmental Metabolomics"**

Time: 6:00 PM
Lecture: Frick Laboratory, Room 120
Dinner: Kalluri Corner Restaurant

Abstract

With the advent of the post-genomics era of biology, global profiling techniques are increasingly being used to characterize the molecular processes in cells, tissues and organisms. The most widely established methods include transcriptomics – the study of mRNAs transcribed from the genome, and proteomics – the determination of proteins. The complete characterization of cellular processes, including responses to disease or toxic insult, also requires information on the metabolic status of the cell. Metabolomics completes the trilogy of omics approaches used for phenotypic characterization by measuring the low molecular weight metabolites involved in biochemistry, for which NMR spectroscopy and mass spectrometry are the leading analytical tools. This presentation will describe some recent applications of metabolomics for characterizing the molecular responses of fish and shellfish to disease and toxic stress. In addition it will highlight recent developments in the measurement of metabolites, using both two-dimensional NMR methods as well as Fourier transform-ion cyclotron resonance (FT-ICR) mass spectrometry.

Biography

Dr Viant received his B.Sc. in Chemistry in 1991 and his Ph.D. in Chemical Physics in 1994 from the University of Southampton, UK. He also received an M.S. in Avian Sciences (emphasis in Environmental Toxicology) from the University of California, Davis in 1999. Since 2003 he has been NERC Advanced Fellow, School of Biosciences, University of Birmingham, UK. Prior to this he was Assistant Research Toxicologist (Research Faculty), University of California, Davis. Since 2004 he has served on the editorial board of Metabolomics. For a listing of his numerous honors and publications please see <http://www.biosciences.bham.ac.uk/labs/viant/>.

Reservations

The meeting will be held in room 120, Kresge Auditorium, Frick Laboratory, Princeton University (see www.princeton.edu/~pacs for more information). Seminar is at 6 PM followed immediately by dinner at Kalluri Corner Restaurant, 235 Nassau St. Princeton, NJ. The seminar is free and open to the public. Reservations are required for dinner, which is \$25 for full members, \$15 for retirees and \$10 for students. All reservations will be billed, for the section pays on the number of reservations, not the number of attendees. Please contact Denise D'Auria at (609) 258-5202 or denised@princeton.edu by Thursday, June 15th to make or cancel reservations.

News From The National Meeting

The 231st ACS National Meeting took place this past March 26-30 in Atlanta, GA. Our councilors, Lynne Greeneblatt and Barbara Lences attended. A few highlights of the Council and Board's activities follows.

Election Results: The Council selected Bruce E. Bursten and Bassam Z. Shakhshiri as candidates for 2007 President-Elect. Candidates for Board of Directors were also chosen.

Registration Report: As of March 28, 2006, the ACS spring national meeting had attracted 12,546 registrants as follows: Regular attendees 6,323; Students 4,158; Exhibitors 1,288; Exposition only 413; and Guests 364.

Vision Statement: The Society's new vision statement: *"Improving people's lives through the transforming power of chemistry,"* which resulted from the input of several thousand ACS members, was unveiled and discussed at this meeting. The Board-Council Policy Committee Governance Review Task Force was charged with reviewing the Society's governance, and Constitution and Bylaws, to ensure that the Society has a governing framework to enable it to best fulfill its mission, meet member needs, and remain a world-class organization.

Member Statistics: ACS closed 2005 with 158,422 members, reversing a 4-year downward trend in Society membership. Of the 15,532 applications processed in 2005, nearly 900 came from the Member-Get-A-Member campaign, in which many councilors participated. The membership retention number remained stable at 92.4%.

ACS Board Activity in the Community: The Board considered an opportunity to participate in a community building activity in the San Francisco Bay Area while attending the fall 2006 ACS National Meeting in San Francisco. The activity, to be planned by local section organizers, focuses on the National Chemistry Week theme: "Your Home: It's all Built on Chemistry." The Board plans to readjust its schedule to allow for participation by its members.

2006 Hubert Alyea Award

Area high school science teachers are invited to nominate one student each year for the Hubert Alyea Award presented by the Princeton Section of the American Chemical Society. This award is given to recognize an outstanding student in the study of the sciences. The namesake of this award, Hubert Alyea, was a Professor of Chemistry at Princeton University who was world renowned for his scientific demonstrations, his

enthusiasm, and his love of scientific discovery. As the letter of congratulations to the student reads, "You have demonstrated enthusiasm for the study of sciences and have distinguished yourself as a student who excels in chemistry and related scientific disciplines."

This award is unique in that it leaves the criteria for the award at the discretion of the Science Department of each high school. The one stipulation made by the Award Committee is that the award not be based on test scores or grade point averages. We seek to recognize the student who is excited by scientific discovery, as was the award's namesake, Hubert Alyea. Awards will be presented at the Princeton University Alyea Memorial Demonstration Lectures on June 3rd. For further information or to make a nomination contact Denise d'Auria at (609) 258-5202 or denised@princeton.edu.

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Princeton University Plans Chemistry Reunion

Princeton University will be holding its annual Chemistry Reunion June 2 & 3, 2006. All events are open to the general public.

FRIDAY, JUNE 2, 2006

2:00 PM - 2:16 PM

Chemistry Graduate Student Awards Presentation. Andrew Bocarsly, professor of chemistry and chemistry department director of graduate studies, presiding. Frick Laboratory, Kresge Auditorium (Room 120).

2:15 PM - 3:00 PM

Chemistry Talk: "Progress on the Plans for the New Chemistry Building". By Robert J. Cava, professor of chemistry and Princeton Institute for the Science and Technology of Materials and department chair. Plans for the new Chemistry building, to be located on the site of the current Armory, adjacent to the Physics Department on Washington Road, have progressed significantly in the past year. Hopkins and Payette Architects, ARUP Engineers, GPR lab specialists, and project managers Mark Wilson and Jim Wallace, have worked closely with members of the department to develop the innovative Hopkins concept for the building into a specific design. Though all aspects of the building design are not yet set in stone, and we are years from final occupancy (scheduled for 2010), we now have a good idea for what the future home for the chemistry department will look like. This talk is intended to update our alumni on our progress to date. Frick Laboratory, Kresge Auditorium (Room 120).

3:00 PM

CHEMISTRY ALUMNI & DEPARTMENT TEA. Renew former friendships with faculty, colleagues, students, and staff. Frick Laboratory Foyer

SATURDAY, JUNE 3, 2006

11:00 AM - 12:00 Noon

Alyea Memorial Demonstration Lectures. Robert J. Cava, professor of chemistry and department chair, and Kathryn M. Wagner, lecture demonstrator, will present a program of chemical demonstrations, including those popularized by the late Professor Hubert Alyea '24 *28. Bring the family! Sponsored by the Department of Chemistry, Frick Laboratory, Kresge Auditorium (Room 10).

PACS EARTH DAY ACTIVITIES A SUCCESS!

By Schuyler Antane, Earth Day Coordinator



The Princeton ACS Chemists Celebrate Earth Day (CCED) culminated on April 22nd with events at the West Windsor library and the Princeton MarketFair Mall. Preparations began about a month earlier with outreach activities to 4-6th graders in local middle school classrooms. We targeted these age groups because it matched both their enthusiasm for our particular chemistry demonstrations and complemented the school's existing lesson plans. The 4th and 5th graders were given an acid rain presentation (poster and talk), a safety presentation (goggles and non-latex gloves), and guided through a Kids & Chemistry (K&C) Acid Rain Kit developed by the ACS and Mary Jo Diem. To render the K&C activity kit more pertinent to the 'Dig It!' theme it was supplemented with a soil buffering experiment found on an Environmental Protection Agency website (<http://www.epa.gov/airmarkets/acidrain/experiments/exp6.html>).



Mrs Manning's 4th grade class at the Village School is proud to show off the safety ware!

for our community event. We knew the public would be interested in real down to earth examples and we built upon our outreach effort by contacting a local environmental consulting firm – Princeton Geoscience, Inc. (<http://www.princetongeoscience.com/index.html>). This firm specializes in the cost-effective characterization and remediation of environmentally impaired sites. The president, Jim Peterson, joined us at the library event to talk about his business and to supervise a hands-on aquifer demonstration!

To publicize our library and mall community events we prepared a tri-fold 'Dig It!' brochure. It announced the location of the events, detailed the history of Earth Day and the ACS involvement through CCED. It included information on the Haiku contest. The center panel is actually an activity itself – a Sudoku puzzle. This Sudoku, unlike the more usual number-type puzzle, features ACS images Avogadro and Meg A. Mole along with other environmental images. These brochures were distributed to area schools, grocery stores, and libraries.

The local 6th grade science curriculum was entering the study of organisms. On the Internet we found a description of a science fair project on the effects of pollution on Daphnia (<http://www.selah.k12.wa.us/SOAR/SciProj2000/RobB.html>). We slightly modified this experiment (testing differing concentrations of household chemicals on percentage survival of Daphnia). The connection between the environment and chemistry were dramatically demonstrated during this activity. Students' results from all classes were combined in graphs. These graphs were displayed to the general public at the local library and mall events. Teachers from surrounding areas saw this and became interested. In addition, photographs of the students safely performing the hands-on chemical concentration effect on Daphnia and the soil buffering effect on acid rain were displayed at our community events.

The classroom outreach program laid the foundation



James L. Peterson of Princeton Geoscience, Inc. conducting an aquifer demonstration at the West Windsor library.

One display at the events had “BLUE PLANET – GREEN CHEMISTRY!” on a 4’ x 5’ bi-fold poster board. On one side was the acid rain class demo and the other side was “BROWN SOIL” which described New Jersey’s soil type and highlighted the Haiku contest. Materials were provided for participants and ACS Earth Day logo pencils were given as incentive. The centerboard showed the accomplishments of green chemistry using the excellent introductory power point material supplied by the Green Chemistry Institute (Mary Ann Ryan and Michael J. Tinnesand). It was supplemented with a description of the green synthesis of Taxol (Bristol-Myers Squibb).



Green Chemistry display at the Mall

Another display was “BUILD A MODEL OF EARTH’S LAYERS.” This drew a lot of attention as it included a hands-on activity with colored sands. Usual teaching models of the earth’s layers are an apple or an egg, which emphasize only the thickness or hardness qualities. We chose sand in part because of the geochemistry of the top two layers, which are comprised mainly of silicates. It also tied in with the temperature of the different layers being represented by colors. This was a lot of fun to create and truly a family activity in which kids persuaded their parent to stay!

Finally the “WHAT’S YOUR E-IQ?” table encouraged people to test their environmental knowledge. Remember the old Toss Across Game by Mattel? It was a Tic-Tac-Toe Game played with beanbags. We covered the X’s with toxic crossbones (minus the scary skull) and covered the O’s with blue earth stickers (NASA satellite image). We designated the nine squares

with EARTH _ DAY (in the space we used the ACS CCED logo). Eight sets of nine questions mostly from the EPA enviro-Q archive (<http://www.epa.gov/epahome/eqanswerarchive.html>) were generated. The respondent replies by flipping the square up or down based on the Q-card (a small flaw was that both A’s were the same). If the participant got three in a row they won a CCED foam globe squeeze ball.



Jennifer Antane (wearing t-shirt) demonstrates how to build a model of earth’s layers to interested audience.

On one side of the E-IQ table we placed electronic and book resource lists from the Chemists in the Library working group. In addition to a description of ecological footprint calculation we constructed wheel cards from the EPA website (<http://yosemite.epa.gov/oar/globalwarming.nsf/content/ResourceCenterToolsCalculatorsWheelCard.html>). On the other side we showed the recycling symbol (reduce, reuse, recycle).

The “CHEMIS – TREE” article from the earth day edition of Celebrating Chemistry inspired us to

add a display to the E-IQ table. This included Milli-mole in a symbiotic cycle with trees (CO_2 and O_2). As part of this display we gave away 50 spruce trees from the Arbor Day foundation with “2006 Princeton ACS Chemists Celebrate Earth Day” printed on the sleeve.

Through the varied activities at the schools, West Windsor library and MarketFair Mall I hope we helped people understand some chemistry and learn about planet earth. I sincerely thank the many people who contributed to making these events a success. Hope to see you at Earth Day 2007!

2006 Calendar Of Events

Princeton Section

Monthly meetings are held at Princeton University, Frick Laboratory unless noted otherwise. Lecture is at 6PM. Contact Denise D'Auria at (609) 258-5202 or denised@princeton.edu for more information.


May 17: Our speaker will be Professor Robert Cava, Princeton University. The Outstanding High School Chemistry Teacher Awards will also be presented.

June 22: Dr. Mark Viant from University of Birmingham, UK, will speak on "Applications of NMR Spectroscopy and Advanced Mass Spectrometry in Environmental Metabolomics."

July 19: Our speaker will be Dr. Catherine Hunt, 2006 ACS President-Elect. We will have our annual summer barbecue at Prospect House.

September: Our speaker will be Dr. Nelly Aranibar, from Bristol-Myers Squibb. Date TBA.

October: Joint meeting with AICHE. Date TBA



Chemistry in Chocolate Town," Hershey Lodge and Convention Center, Hershey, PA. Organized by the Southeastern Pennsylvania and Susquehanna Valley Sections in collaboration with MARM Sections. Visit the MARM website www.marm2006.org.

Trenton Section

Meetings are held at Rider University, Fireside Lounge. Dinner is at 6PM followed by the lecture at 7PM. For more information contact trentonacs@lycos.com or visit their website at <http://membership.acs.org/T/Trenton/>.



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