

The Crucible

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Calif., NJ, NY, PA Students Bring Home Gold And Silver Medals From International Chemistry Olympiad

WASHINGTON, July 19, 2011 — Two gold medals and two silver medals — the U.S. team competed very successfully against 269 students from 69 countries in the 43rd International Chemistry Olympiad. The international competition was held July 9-18 in Ankara, Turkey. In addition to the medals, team member Joe Tung of Cerritos, Calif., was selected to deliver a speech to his peers during the opening ceremony.

The four students were selected from an original pool of more than 12,000 high school chemistry students who vied to be on the team. The final four emerged after a two-week training camp held for the 20 student finalists in mid-June at the U.S. Air Force Academy. ACS, the world's largest scientific society, sponsors the U.S. team along with additional support from other partners.

The medals were presented to winners in ceremonies at the Middle Eastern Technical University in Ankara, Turkey. When the U.S. team returns home, they will be invited to meet with the offices of their representatives in Congress.

U.S. Team students:

•**Konstantin Borisov of North Allegheny Senior High School, PA, won a Gold Medal and placed 9th overall.**

•Tayyab Shah of Vestal High School, NY received a Silver Medal and placed 80th overall.

•Elmer Tan of Vestal High School, NJ earned a Silver Medal and placed 48th overall.

•Joe Tung of Gretchen A. Whitney High School, CA won a Gold Medal and placed 24th overall.

“ACS is especially proud of the 2011 U.S. Chemistry Olympiad team. They successfully competed in graduate-level science with the best and the brightest of their peers from around the world,” said ACS President Nancy B. Jackson, Ph.D. “In this International Year of Chemistry, the Olympiad is even more meaningful as we celebrate the importance of chemistry in solving global problems.”

In past Olympiads, the U.S. team has been a strong competitor at the international event. In 2010, the U.S. Team won two gold medals, one silver, and one bronze. In 2009, the U.S. team won a gold medal and three silver medals. In 2008, they brought home one silver and three bronze medals.

The American Chemical Society has sponsored the American team annually since the U.S. joined the Olympiad. Principal funding is through the ACS' Othmer Olympiad Endowment with additional support from the Air Force Academy; Advanced Chemistry Development; Carolina Biological Supply Company; Fisher Scientific; Flinn Scientific, Inc; Houghton Mifflin Harcourt Publishing Company; John Wiley & Sons, Inc.; McGraw-Hill Companies; Merck Publishing Group; Pearson Prentice Hall; Sigma Aldrich Co.; Texas Instruments, Inc.; and University Science Books.

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Society for Analytical Chemists of Pittsburgh



September Meeting

Monday, September 12, 2011

8:00 PM

Duquesne University, Laura Faulk Hall

“Magnetorotation Based Micro and Nano Platforms for Biomedical Applications: Real Time Monitoring of Growth Anomalies in Single Bacterial and Cancer Cells”

Raoul Kopelman, Ph.D.

University of Michigan

Abstract: Growth anomalies in single cells are important for biological studies and can also have significant biomedical impacts. For instance, antibiotic dose effectivity can be determined by monitoring bacterial cell growth anomalies and drug chemotherapy effectivity can be determined by monitoring cancer cell growth anomalies. The magnetorotation method utilizes micrometer scale magnetic particles that are rotated by an external magnetic field. When magnetic particles are rotated by an external field at sufficiently high frequencies, they are asynchronous with the external field (e.g. the bead rotates at a slower speed than the rotating magnetic field). The asynchronous magnetic bead rotation (AMBR) rate is very sensitive to drag. As a result, when bacteria attach to the particle and grow there are significant changes in the speed of asynchronous rotation (e.g. the particle rotation slows with increasing cell size or concentration). The single bacterial cell growth can be monitored, with minimal perturbation, in real time with nanometer precision, i.e. well below the diffraction limit of optical microscopy. In this way, cell growth can be rapidly detected and the time needed to obtain susceptibility to an antibiotic can be dramatically reduced, from current methods. Likewise, cancer cell growth, and other induced volume changes, can be monitored for spatially suspended single cancer cells. In this case the cancer cell itself becomes a rotating bead, due to impregnation with superparamagnetic nanoparticles. The same magnetorotation principle can also be utilized for various bio and immuno-sensing schemes.

Biography: Raoul Kopelman is the Richard Smalley Distinguished University Professor of Chemistry, Physics, Biophysics, Biomedical Engineering, and Applied Physics at The University of Michigan, Ann Arbor, as well as a founding member of The Michigan Nanotechnology Institute for Medicine and Biological Sciences.

Professor Kopelman received the Pittsburgh Analytical Chemistry Award (2011), in which he was recognized for his contributions in the areas of bioanalytical and nanochemistry. This work includes exciton transport in molecular wires, non-classical chemical reaction kinetics in confined domains, and ultra-small opto-chemical sensors and actuators for biomedical use. Kopelman invented optical nanosensors for single cell chemical and physical imaging and is the inventor of multifunctional targeted nanoplatfoms for the imaging, therapy, and surgery of tumors, as well as of a nanoscale photon source, a nanoscale voltmeter and a nanoscale viscometer.

Professor Kopelman obtained B.S. and Dipl. Eng. Degrees in Chemical Engineering from the Technion, Israel Institute of Technology, as well as an M.S. in Physical Chemistry under the direction of Otto Schnepf. He received a Ph.D. in Chemistry from Columbia University in 1960 under the guidance of Professor Ralph S. Halford. He then moved to Harvard for a postdoctoral position in the laboratory of William Klemperer. After two years as an instructor at the Technion, Israel Institute of Technology, he moved in 1964 to the California Institute of Technology as a senior research fellow in the laboratory of G. Wilse Robinson. In 1966 he joined the faculty of the University of Michigan Department of Chemistry.

Professor Kopelman is a fellow of the American Physical Society and the American Association for the Advancement of Science. He has received, among others, the American Chemical Society's Edward Morley Award and Medal (1997), and the American Chemical Society's Spectrochemical Analysis Award (2005). With his student, Jeff Anker, he also received the Hall of Fame Collegiate Inventors Grand Prize (2002).

Dinner Reservations: Please email the SACP Administrative Assistant, Valarie Daugherty at daugherty@pittcon.org by Wednesday, September 7, 2011 to make dinner reservations. Should you not have email, please call 412-825-3220, ext 204. Dinner will cost \$8 (\$4 for students) and checks are to be made out to the SACP. If you have any dietary restrictions, please let Valarie know when you leave message. **Parking:** Duquesne University Parking Garage entrance is on Forbes Avenue. Upon entering the garage, you will need to get a parking ticket and drive to upper floors. Bring your parking ticket to the dinner or meeting for a validation sticker. Please contact Duquesne University, if any difficulties should arise.

Nominations Sought Gustavus John Esselen Award for Chemistry in the Public Interest

The Esselen Award for Chemistry in the public interest is a very prestigious honor provided by the Northeastern Section of the American Chemical Society. The award annually recognizes a chemist whose scientific and technical work has contributed to the public well-being, and has thereby communicated positive values of the chemical profession. The Awardee should be a living resident of the United States or Canada at the time of nomination, and the significance of this work should have become apparent within the five years preceding nomination.

The Esselen Award has no limitations with respect to the chemical field in which the nominees are active. It differs from many other awards in that it is for chemical activities whose importance to the public has been demonstrated.

The award consists of a medal and a check for \$5,000. Travel expenses incidental to the conferring of this award will be reimbursed. The award will usually be held in Cambridge, Massachusetts at the April meeting of the Northeastern Section. The Awardee will deliver an address on the subject of the work for which the honor is being conferred, or for work in progress which is also directed to chemistry in the public interest. The award address should be at a level where it would be of interest to an audience that does not have knowledge of the specific field.

Continued on Page 8

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ACS Energy Technology Group Pittsburgh Section The Pittsburgh Section AIChE

Tuesday, September 13, 2011

“ChargeCar Electric Vehicle Conversion Project at CMU”

Benjamin Brown Jr.

The Robotics Institute, CMU

Spaghetti Warehouse

26th & Smallman Streets, Strip District, Free parking behind the restaurant

Social Hour: 6:00 pm Dinner: 6:30 pm

Presentation: 7:30 pm

Ben Brown is a Project Scientist in the Robotics Institute at Carnegie Mellon University with over 30 years of experience in the robotics field. He is interested in the design and construction of robots and electro-mechanical systems, and specializes in the development of high-performance structures and mechanisms, dynamically stabilized robots in particular. He has worked on a wide variety of robotics projects, including wheeled, tracked and legged vehicles, as well as snake-like devices, for space and terrestrial applications. Recently, he has been involved in the conversion of automobiles to electric power. Mr. Brown has three patents and has authored or coauthored approximately 50 conference and journal papers, mainly in the field of mobile robotics.

ChargeCar is a project of the CREATE Lab in the Robotics Institute at Carnegie Mellon University. ChargeCar endeavors to make electric commuter vehicles a realistic and practical alternative to gasoline-powered vehicles in the Pittsburgh region. To this end, we have developed an efficient process and technology for converting used vehicles to pure electric power. Our production prototype is a 2002 Honda Civic using an AC motor and 10kW-h lithium iron phosphate battery pack. The car has a comfortable 40 mile range which is adequate for typical daily commutes, a top speed over 70mph, and charges overnight from any 120VAC outlet. We are presently negotiating a license agreement with a local company to manufacture and assemble the components that can then be installed by a local garage in 2-3 days.

A ChargeCar will be on display at the restaurant.

For reservations, please contact Elliott Bergman by 12:00 noon Monday, Sept. 12th at elliott.acstechnology@gmail.com. Our meetings are open to all.

The cost of the dinner is \$16 including tax and gratuity. Please specify your preference from the following menu choices: •Spaghetti with meatballs •15-layer lasagne •Four-cheese manicotti •Fettuccini Alfredo •Grilled chicken Caesar salad
•Also indicate special needs such as vegetarian, gluten-free, etc.



SPECTROSCOPY SOCIETY OF PITTSBURGH



Wednesday, September 21, 2011

Duquesne University - Mellon Hall of Science (Laura Falk Hall)

8:15 PM - Technical Program

“Chemical Shifts and Dipolar Couplings: How Can They Help?”

Dr. Adriaan Bax

Laboratory of Chemical Physics, NIDDK, NIH, Bethesda, MD

NMR chemical shifts provide important local structural information for proteins. Consistent structure generation from NMR chemical shift data has recently become feasible for proteins with sizes of up to 130 residues, and such structures are of a quality comparable to those obtained with the standard NMR protocol. Further enhancements in empirically derived relations between chemical shift and protein structure, together with small angle X-ray scattering data, hold promise to extend protein structure determination to systems much larger than can be studied using conventional approaches.

Study of membrane protein structure by solution NMR frequently poses particular challenges, as the rotational correlation time for such systems in the presence of the requisite detergents often is much longer than for water soluble proteins of comparable size. The protein and detergent choice are usually optimized for generating conditions that yield the optimal NMR spectral properties, preferably allowing complete spectral assignments and permitting the measurement of numerous RDCs. With the above mentioned novel computational approaches, the chemical shifts are yielding increasing structural restraints, while use of DNA-based liquid crystals in addition to stretched acrylamide gels permit the measurement of accurate RDCs. Application is demonstrated for the fusion domains of hemagglutinin. RDCs and relaxation measurements in micelles and bicelles provide important information on the dependence of structure and dynamics on the lipophilic environment.

Bio: Adriaan (Ad) Bax was born in 1956, in The Netherlands and became a US citizen in 1999. He received his Ph.D. in 1981 from the Delft University of Technology, The Netherlands, for work related to the development of two-dimensional nuclear magnetic resonance (NMR) techniques, which he carried out at Delft and Oxford Universities. His Ph.D. thesis was reprinted in book format and for many years served as a popular text, introducing students to the application of two-dimensional NMR in chemistry. After post-doctoral work in solid-state NMR, Bax joined NIH where he currently holds the title NIH Distinguished Investigator. His work focuses on the development and application of a wide variety of advanced multi-dimensional NMR techniques to problems of biochemical and biomedical interest. Advances in the studies of proteins, pioneered by him and his group include the development of high-sensitivity indirect detection methods for ^{13}C and ^{15}N ; the development of an approach to characterize the ^{15}N amide motions in proteins at high sensitivity; the development of $^{13}\text{C}/^{15}\text{N}/^1\text{H}$ -based triple resonance multi-dimensional NMR to assign resonances in proteins; the introduction of heteronuclear three- and four-dimensional spectroscopy for the study of protein structure; the introduction of uniform perdeuteration of proteins for the purpose of improving resolution and sensitivity of triple resonance NMR spectra; the introduction of technology that imposes a weak degree protein alignment permitting the measurement of residual dipolar couplings; and the introduction of advanced procedures that make it possible to model protein structures on the basis of chemical shifts. He and his group have applied their novel technology to a range of biomedically important systems, including the regulation of kinases by calmodulin, the structures of HIV proteins such as Nef and the catalytic core domain of integrase, the Parkinson's disease related protein alpha-synuclein, and the fusion domain of influenza virus protein hemagglutinin.

Bax's work has been recognized by numerous awards, including the Maryland Outstanding Young Scientist Award from the Maryland Academy of Sciences, the Gold Medal from the Dutch Chemical Society, the Bijvoet Medal from Utrecht University, the Protein Society Young Investigator Award, the E. Bright Wilson, Hillebrand, and Remsen Awards from the American Chemical Society, the Kirkwood Medal from Yale University, the Gunther Laukien Award from the Experimental NMR Conference, the John Scott Award from the City of Philadelphia, the Jeanette Piperno Award from Temple University, the Hans Neurath Award from the Protein Society, and the Glenn Seaborg Medal from UCLA, and the City of Florence Award for the Molecular Sciences. He holds an honorary doctorate from the Free University of Brussels, is a corresponding member of the Dutch Royal Academy of Sciences, a Fellow of the American Academy of Arts and Sciences, a competing member of DC Velo, and a Member of the National Academy of Sciences.

Dinner Reservations: Please register on-line at <http://www.pittcon.org/misc/societies/ssprsvp.php> to make dinner reservations NO LATER THAN FRIDAY, September 16, 2011. This month's entrée is TBD. Dinner will cost \$8 and checks can be made out to the SSP. If you have dietary restrictions, please indicate them when you RSVP. **Parking Instructions:** The Duquesne University Parking Garage is located on Forbes Avenue. Upon entering the garage, receive parking ticket and drive to upper floors. Pick up a parking chit at the dinner or meeting.

Spectroscopy Society of
Pittsburgh

Technology forum

Wednesday
September 21, 2011

Duquesne University, 5:30 p.m.
Mellon Hall of Science (Laura Falk Hall)

“An Assessment of the Fukushima Nuclear Incident”

Brian Beebe

Director Core Engineering
Westinghouse Electric Company

Brian will talk about the Fukushima Japan Nuclear site's incident due to the March 11, 2011 Japan earthquake and tsunami. The discussion will start with a sequence of events at the Fukushima site during and shortly after the earthquake and tsunami and move through specific site actions up to the current date. Next the discussion will focus Westinghouse's actions since the accident.

Bio: Brian Beebe is Director of Core Engineering in Westinghouse Electric Company's Nuclear Fuel Division. Westinghouse is the recognized world leader in the building of Nuclear Power Electric Generating Plants, Operational Support for Nuclear Power Plants, Nuclear Fuel Development and Supply and overall nuclear power generation research and development. Core Engineering is responsible for PWR and BWR methods, modeling, licensing, and operational support of more than 100 nuclear reactors around the world. Brian is a three time recipient of the George Westinghouse Engineering Signature Award of Excellence, a five time recipient of the Performance Excellence Award, and a graduate of the Westinghouse Customer First leadership Program. During his tenure at Westinghouse Brian has worked at many of Westinghouse's facilities worldwide including living for 2 years in Västerås, Sweden. Prior to joining Westinghouse Brian received his MS and BS with High Honors in Nuclear Engineering from the University of Florida.

Bionic Microrobot Mimics The “Water Strider” And Walks On Water

“Bioinspired Aquatic Microrobot Capable of Walking on Water Surface Like a Water Strider”

ACS Applied Materials & Interfaces

Scientists are reporting development of a new aquatic microrobot that mimics the amazing water-walking abilities of the water strider — the long-legged insect that scoots across the surface of ponds, lakes and other waterways. The bionic microrobot incorporates improvements over previous devices of this kind that position it as a prime candidate for military spy missions, water pollution monitoring, and other applications, the scientists say. Their study appears in the journal, *ACS Applied Materials & Interfaces*.

“Walking on the water surface is a dream of humans, but it is exactly the way of life for some aquatic insects,” Qinmin Pan and colleagues note, citing water striders, mosquitoes, and water spiders. This is due largely to their highly water-repellent (superhydrophobic) legs. Other scientists have made tiny aquatic devices based on the water strider with the hope of developing bionic robots that can monitor water supplies, conduct military spy missions when equipped with a camera, and perform other tasks. But until now, no one has found a way to make water-walking robots that are practical, agile, and inexpensive.

The scientists describe progress on a new robot, with a body about the size of a quarter; ten water-repellent, wire legs; and two movable, oar-like legs — propelled by two miniature motors. “Because the weight of the microrobot is equal to that of about 390 water striders, one might expect that it will sink quickly when placed on the water surface,” the report noted. However, it stands effortlessly on water surfaces and also walks and turns freely.

The authors acknowledged funding from Harbin Institute of Technology and Natural Science Foundation of China.

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MARK YOUR CALENDAR!

National Chemistry Week is Coming!!!

Join the Pittsburgh Section of the American Chemical Society as we celebrate NCW 2011 with the theme

“Chemistry - Our Health, Our Future!”

Where: Carnegie Science Center

When: Friday, October 21st (9 AM to 3 PM)

Saturday, October 22nd (10 AM to 5 PM)

What’s Happening: Over 20 tables of hands-on experiments, activities, and demonstrations, hourly raffle prizes, and special theater-style shows

The Pittsburgh Section ACS could use your help to make this year’s NCW celebration a success. Are you interested in volunteering to help with the event? Do you have an organization that would like to sponsor a hands-on activity at the event?

If you, or your organization, are interested in participating in this year’s NCW event, please contact:

Michael Mautino

Phone: 412-777-4792

E-mail: michael.mautino@bayer.com or vmikem@comcast.net

For more information about the NCW celebration in Pittsburgh, visit the Pittsburgh Section’s website at <http://www.chem.cmu.edu/acs-pgh/activities.html#week> or look us up facebook at Pittsburgh ACS NCW

You can also find additional information about NCW on the ACS’s website at <http://chemistry.org/ncw>

The Pittsburgh Section’s 2011 NCW activities are sponsored by The Society for Analytical Chemists of Pittsburgh, The Spectroscopy Society of Pittsburgh, PPG Industries Foundation, Carnegie Science Center, and Bayer Corporation.

Product Stewardship: Designing For Life After The Consumer

“Taking It Back”

Chemical & Engineering News

Manufacturers of everything from smart phones to SUVs are starting to design products not just for the customer’s use, but also for an often troublesome life after the consumer, according to an article in *Chemical & Engineering News (C&EN)*, ACS’ weekly newsmagazine.

The cover story by C&EN Senior Editor Melody M. Bomgardner focuses on product stewardship, an increasingly popular approach to environmental protection in which manufacturers, retailers, users, and disposers share responsibility for reducing the environmental impacts of products. That means, for instance, making products from biodegradable materials that decompose quickly in landfills, or fabricating products for easy disassembly so their components can be economically recycled and reused.

Bomgardner explains how Federal and state policies and regulations already are driving retail product companies to establish stewardship policies. At least 25 states have regulations requiring recycling of electronic waste, and others are considering such action. The article describes how the move toward product stewardship is fostering take-back programs to recover and reuse materials that previously could have posed environmental pollution risks.

Pittsburgh Section ACS

Section’s Website:

<http://www.chem.cmu.edu/acs-pgh/>

Facebook Page:

ACS Pittsburgh

Linked In:

Pittsburgh Local Section ACS



National Chemistry Week 2011: “Chemistry - Our Health, Our Future!”

Illustrated Poem Contest

As part of their National Chemistry Week (NCW) and the International Year of Chemistry (IYC) celebration, the American Chemical Society (ACS) is sponsoring an illustrated poem contest for students in Kindergarten - 12th grade.

Write and illustrate a poem using the National Chemistry Week theme, “*Chemistry - Our Health, Our Future!*” Your poem can be in any style as long as it is no more than 40 words. Some example poem styles are: Haiku, Limerick, Ode, ABC poem, Free Verse, End Rhyme, and Blank Verse.

Possible topics related to health and chemistry: Hygiene, Vitamins, Nutrition, Minerals, Medicine, and Sport Fitness.

Winners will be selected in each of the following categories:

K - 2nd grade, 3rd - 5th grade, 6th - 8th grade, and 9th - 12th grade

1st Place in each grade category - \$50 • 2nd Place in each grade category - \$25

Contest Rules

- Poems must conform to a particular style. No poem may be longer than 40 words.
- The topic of the poem and the illustration must be related to the NCW theme, “Chemistry - Our Health, Our Future!”
- All entries must be original works without aid from others.
- Each poem must be submitted and illustrated on an unlined sheet of paper (of any type) not larger than 11” x 14”. The illustration must be created by hand using crayons, watercolors, other types of paint, colored pencils or markers. The text of the poem should be easy to read and may be printed with a computer, before the hand-drawn illustration is added, or the poem may be written on lined paper which is cut out and pasted onto the unlined paper with the illustration.
- Only one entry per student will be accepted.
- All entries must have the following information included with the entry: student’s name, grade, home telephone number and/or parent/guardian e-mail address (used only for notifying winning entries), school name, school address, teacher’s full name, email, school telephone number and style of the poem below the title. For school districts with “privacy” policies regarding the sharing of student’s home contact information, please use school telephone number and teacher’s e-mail address for the student’s contact information. For home schooled students, write “Home Schooled” for school name, and note any home school association you may be affiliated with.
- All illustrated poems and/or digital representations of the poems become the property of the American Chemical Society.
- Acceptance of prizes constitutes consent to use winners’ names, likenesses and entries for editorial, advertising and publicity purposes.
- ACS is not responsible for lost, damaged, or delayed postal shipments and electronic submission is encouraged.
- Contest entries must be received at the address listed below by Friday October 21, 2011.
- NO LATE ENTRIES WILL BE ACCEPTED.
- Judging will take place Saturday, October 22, 2011.
- Winning entries will be announced Monday, October 24, 2011.

Entries will be judged based on:

- Relevance to and incorporation of the theme
- Word choice and imagery
- Colorful artwork
- Adherence to poem style
- Originality and creativity
- Overall presentation

For more information about the NCW 2011 contest, contact Michael Mautino at 412-777-4792 or michael.mautino@bayer.com (e-mail preferred)

Please send entries by Friday, October 21, 2011 to:
Michael Mautino, 3485 Frye Ave., Finleyville, PA 15332

ACS Pittsburgh Chemists Club

Pittsburgh Section,
American Chemical Society

September Meeting

Tuesday, September 27, 2011

Spaghetti Warehouse

26th & Smallman Streets, Strip District, Free parking behind the restaurant

Social Hour: 6:00 pm

Dinner: 6:40 pm

Presentation: 7:40 pm

“Arsenic Tolerant Organisms - Arsenic Based Life?”

Prof. John Stolz

Director, Center for Environmental Research and Education
Duquesne University

Arsenic is notorious as a poison with acute doses causing death and chronic exposures resulting in a wide range of maladies. Nevertheless there are many microorganisms that are not only resistant to arsenic's toxic properties, but may metabolize inorganic and organic forms. Some may even use it to generate energy. Over the past two decades, a robust biogeochemical cycle has been elucidated that involves arsenate reduction and arsenite oxidation, as well as methylation and demethylation. As(V) is a potent electron acceptor used by a phylogenetically diverse assortment of Bacteria and Archaea. As(III) has been shown to serve as an electron donor in photolithoautotrophy and chemolithoautotrophy. Distinct enzymes are involved in arsenic resistance (Ars) and methylation. Three different enzymes have been described for energy generation: arsenite oxidase Aox, respiratory arsenate reductase Arr, and Arx an arsenic oxidoreductase that looks more like Arr but functions as an As(III) oxidase. Most recently, analyses of cells of a microbe isolated from Mono Lake CA, Halomonas strain GFAJ-1, grown under phosphate starved/arsenate rich growth conditions, suggest arsenate may substitute for phosphate in essential biological molecules, even DNA. These discoveries have implications for both the evolution of life on Earth, as well as other planetary systems.

Biography - John Stolz is Director of the Center for Environmental Research and Education and Professor in the Department of Biological Sciences at Duquesne University. He received his BS degree in biology at Fordham University in 1977 and earned his PhD at Boston University in microbial ecology and evolution studying community structure in stratified microbial mats. He was an NRC Post doctoral fellow at the NASA Jet Propulsion Laboratory and the Department of Geology and Planetary Sciences, California Institute of Technology, and an NSF Postdoctoral Fellowship in Plant Biology in the Biochemistry Department at the University of Massachusetts, Amherst. His main research interest is in the microbial metabolism of metals and metalloids including arsenic, selenium, nitrate, and chromate. His work has been funded by grants from the DOE, NASA, NSF, and NIH. Dr. Stolz has published 63 journal articles, 30 book chapters, and author-edited two books, and serves on the editorial board of International Microbiology Journal, Applied and Environmental Microbiology, Geomicrobiology Journal, and three Frontiers in Microbiology journals. Dr. Stolz is currently Secretary of the Board of Directors of RiverQuest.

For reservations, please call Ed Martin by Noon, Friday, September 24, 2011 at (724) 335-0904 or by e-mail at edwardmartin1046@verizon.net.

Nominations Gustavus John Esselen Award

Continued from Page 3

Nominations shall include: 1) a letter signed by the primary sponsor with a description of the nominee's work recognized as making a major contribution to the public welfare and as communicating positive values of the chemical profession plus the names of two co-sponsors; 2) short supporting co-sponsor statements; 3) the nominee's professional biography including a list of no more than ten of the nominee's publications selected for the pertinence to the work nominated for recognition; and 4) copies of popular and technical press news or feature articles indicative of public benefit and interest. Inquiries should be directed to Dr. Howard Mayne, c/o Karen Piper, 19 Mill Rd., Harvard, MA 01451. All nominations must be consolidated into a single electronic pdf file and emailed to howard.mayne@unh.edu with a copy to piper281@verizon.net. The due date is October 15, 2011. Joint nominations are acceptable. The committee will review the nominations and the award recipient will be notified by the first of February.

Calling All ACS Tweepers!

Fans of the social networking site Twitter who want to join the discussion about the Fall 2011 ACS National Meeting & Exposition in Denver should follow @ACSNatlMtg and be sure to use the hashtag #ACSDenver to mark and track tweets about the national meeting.

24th Annual Pittsburgh Faraday Lecture

G. Wiz at Work and Play: Freezing Spells, Fractal Music and Flying Chemical Detectors



Professor Garon Smith
University of Montana

Among numerous accolades, Garon Smith was named the 2008 Montana Professor of the Year by two national organizations: the Carnegie Foundation for the Advancement of Teaching and the Council for Advancement and Support of Education. Join us as Prof G. Wiz dons a purple wizard's cape, robe and hat then proceeds to regale and instruct students about chemistry and science with fiery tricks and humorous incantations. While still undergoing design, G. Wiz's 2011 Faraday presentation will likely be a fun blend of spells and current research work (hint: he is exploring honey bees as mobile detectors for land mines and other purposes!)

Tuesday, November 15, 2011
7:30 pm

Soldiers and Sailors Memorial Hall
4141 Fifth Avenue in Oakland, PA
FREE & OPEN TO THE PUBLIC

Sponsored by The Spectroscopy Society of Pittsburgh
(www.ssp-pgh.org)
and

The Society for Analytical Chemists of Pittsburgh
(www.sacp.org)

Middle school and high school teachers: to inquire about participating in one of the two School Student Shows (tickets required in advance for either Tuesday, November 15, 2011 at 11:00am OR Wednesday, November 16, 2011 at 10:15am) email Ms. Jenna Sabot at sabot@pittcon.org

“Super Sand” For Better Purification Of Drinking Water

“Engineered Graphite Oxide Materials
for Application in Water Purification”
ACS Applied Materials & Interfaces

Scientists have developed a way to transform ordinary sand — a mainstay filter material used to purify drinking water throughout the world — into a “super sand” with five times the filtering capacity of regular sand. The new material could be a low-cost boon for developing countries, where more than a billion people lack clean drinking water, according to the report in the ACS journal *Applied Materials & Interfaces*.

Mainak Majumder and colleagues note that sand has been used to purify water for more than 6,000 years, and sand or gravel water filtration is endorsed by the World Health Organization. Their studies of a nanomaterial called graphite oxide (GO) suggest that it could be used to improve sand filtration in a cost-effective way, they write.

The researchers used a simple method to coat sand grains with graphite oxide, creating a super sand that successfully removed mercury and a dye molecule from water. In the mercury test, ordinary sand was saturated within 10 minutes of filtration, while the super sand absorbed the heavy metal for more than 50 minutes, the scientists discovered. Its filtration “performance is comparable to some commercially available activated carbon,” the scientists said. “We are currently investigating strategies that will enable us to assemble functionalized GO particles on the sand grains to further enhance contaminant removal efficiencies,” they write.

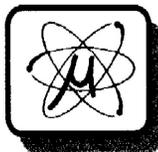
The authors acknowledge funding from Nanoholdings, LLC.

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Volunteers Needed!

There are a number of volunteer opportunities in the Pittsburgh ACS section! If you are interested in volunteering, please contact Jim Manner at manner1@comcast.net!

Crucible Deadline

The deadline for items submitted to The Crucible is the 1st of the month prior to publication.

For example, all items for the October 2011 issue must be to the editor by September 1, 2011.

The Crucible

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The Crucible

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Pittsburgh Area Calendar

Monday, September 12

Society for Analytical Chemists of Pittsburgh
“Magnetorotation Based Micro and Nano Platforms for Biomedical Applications: Real Time Monitoring of Growth Anomalies in Single Bacterial and Cancer Cells”
Raoul Kopelman, Ph.D., University of Michigan
Duquesne University, Laura Faulk Hall

Tuesday, September 13

**ACS Pittsburgh Energy Technology Group
Pittsburgh Section AIChE**
“ChargeCar Electric Vehicle Conversion Project at CMU”
Benjamin Brown Jr., The Robotics Institute, CMU
Spaghetti Warehouse, 26th & Smallman Streets, Pittsburgh, PA

Wednesday, September 21

Spectroscopy Society of Pittsburgh Technology Forum
“An Assessment of the Fukushima Nuclear Incident”
Brian Beebe, Director Core Engineering, Westinghouse Electric Company
Duquesne University, Laura Faulk Hall

Spectroscopy Society of Pittsburgh
“Chemical Shifts and Dipolar Couplings: How Can They Help?”

Dr. Adriaan Bax, Laboratory of Chemical Physics, NIDDK, NIH,
Bethesda, Maryland
Duquesne University, Laura Faulk Hall

Tuesday, September 27

ACS Pittsburgh Chemists Club
“Arsenic Tolerant Organisms”
Professor John Stolz, Director, Center for Environmental Research and Education, Duquesne University
Spaghetti Warehouse, 26th & Smallman Streets, Pittsburgh, PA

Friday & Saturday, October 21 & 22

National Chemistry Week
“Chemistry - Our Health, Our Future!”
Carnegie Science Center

Tuesday, November 15

24th Annual Faraday Lecture
“G. Wiz at Work and Play: Freezing Spells, Fractal Music and Flying Chemical Detectors”
Professor Garon Smith, University of Montana
Soldiers and Sailors Memorial Hall, 4141 Fifth Avenue,
Pittsburgh, PA