NEWSLETTER

Oklahoma Section
American Chemical Society

Volume 18 Number 3 http://oklahoma.sites.acs.org/ **May 2012**

Annual Awards Banquet
Wednesday 02 May 2012
!! NOTE THE DATE CHANGE !!

Nanoscale Chemistry for Enhanced Power Systems

Dale Teeters
Department of Chemistry and Biochemistry
University of Tulsa

Batteries, the components that make electronic devices mobile and that allow for novel autonomous operation, have not kept pace with the devices that they power. While computer speed, disk capacity and computer memory have increased at a Moore's law rate (doubling every two years), battery capacity has not increased substantially since the introduction of Sony's lithium ion battery technology, which became widely available in the early 90s. We are using nanotechnology to improve battery performance and to construct new electronic devices by using nanobatteries, batteries so small that 240 of them will fit in the diameter of a human hair .

continued on page 2 with the speaker's biographic sketch. →

Schedule of Events

6:00 pm	**Social Half Hour**
6:30 pm	**Dinner**
7:15 pm	**Awards**
7:30 pm	**Presentation**

OSU-OKC map QR code

Oklahoma State University – Oklahoma City
Student Center 3rd Floor, Conference South
900 N. Portland Ave, Oklahoma City, OK 73107
map: http://www.osuokc.edu/map/

Dinner Reservation Information

Italian Buffet Menu
Chicken Parmesan
Fettuccine Alfredo
Italian Salad
Italian Green Beans
Garlic Bread
Iced Tea or Coffee

Cost
$20 members
$5 students

RSVP Deadline
Thursday 26 Apr 5 pm
Contact: Dyanne Rutledge
405-945-9112
cdr@osuokc.edu

RSVP is NOT required to attend the presentation.

Annual Awards Banquet Honorees

- Our members with 50 and 60 years of service in 2011* and 2012.
- Chemistry Olympiad finalists and their teachers.

*The 2011 Awards Banquet was canceled due to a severe weather event, so we are also honoring the 2011 Service Milestone recipients at this year's Awards Banquet.

2011 Service Milestones

50 Years of Service
- Petar Alaupovic, OKC
- John Brand, Mustang
- Richard Grunder, Norman
- Earl Mitchell, Stillwater
- Thomas Wardall, Edmond

60 years of Service
- Charles Crane, Moore

2012 Service Milestones

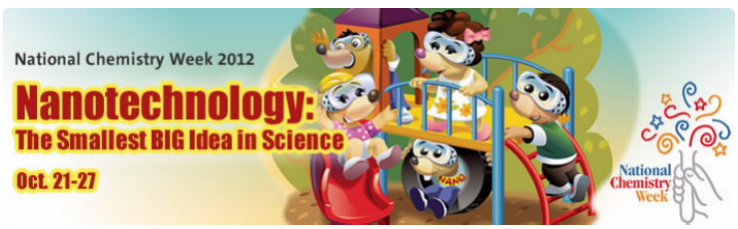
50 Years of Service
- Donald C. Sanders, OKC
- Roland J. Schultz, Edmond
- John C. Schwartz, Weatherford

60 years of Service
- Ronald G. Menzel, Durant

2012 Chemistry Olympiad Finalists

- Ian Bergman (Norman North—Chris Yohn)
- Haeyoung Cha (Moore—Valerie Ferguson)
- Robert Chancellor (Moore—Valerie Ferguson)
- Joe Greatches (Edmond North—DeLora Mowery)
- Uday Kohli (Edmond North—DeLora Mowery)
- Venus Luong (Midwest City—Leann Robertson)
- Ryan Maxey (Midwest City—Leann Robertson)
- Avinash Shivakumar (Norman North—Chris Yohn)
- Qisi Sun (OSSM—Fazlur Rahman)
- Jimmy Wu (OSSM, Fazlur Rahman)

NCW 2012 Marks 25 Years of National Chemistry Week



Report from District V Councilor Caucus (March 25, 2012)

Allen W. Apblett (Oklahoma Section Councilor)

Three members of the District V Board of Directors briefly addressed the caucus:

Peter Dorhout, Board of Directors and Professional Member Relations chair, spoke about the job outlook. The unemployment among chemists is the highest ever, especially among more qualified chemists. The response of Professional Member Relations committee was to launch a virtual career fair as an addition to the career fair at the meeting, for people who are unable to attend the meeting.

Kent Vorhees, Board of Directors and Chair of Grants and Awards, mentioned that the selection Committee for national awards is time consuming, and asked that ACS members with expertise who are willing to help out should contact Bassam Shakashiri. He also said that five hundred talks from this meeting are being recorded and will be available on-line in three weeks for all attendees. He mentioned the possibility of a hybrid technical meeting, both actual and virtual.

Kathleen Schultz, Board of Directors and Chair of Public Affairs and Public Relations explained that her committee guides and oversees ACS public policy, and internal communications and public relations, for example in local sections. The committee has established and ranked the ACS public priorities for 2012, partly for the benefit of the ACS staff. In April the Public Affairs and Public Relations staff and others will meet with legislators in Washington DC. The ACS award will be given to legislators who have been helpful with science policy. The committee is also giving special attention to the local sections public relations chairs, and the "Sparkle" training for those chairs is highly recommended. Other priorities of this committee are STEM education, open access to publications and funding for research and development. She said that the criteria for a national award for entrepreneurship are being developed.

Next, Kristin Omberg from the Budget and Finance committee then gave a report. The good news is that overall, 2011 was an excellent year from an operational perspective. ACS ended the year with total revenues of $472M, which equates to top line growth of about 1.8% over 2010. Much has been reinvested in Chemical Abstracts Service (CAS) and publications, which are the source of much of the revenue. Expenses in 2011 were high: $451M, a 2.6% increase over 2010. However ACS continues to focus on expense management across all units, and this is having a favorable impact on financial performance. ACS ended the year with a net from operations of $20.9M. The not-so-good news is that ACS's financial position weakened in 2011 with the unrestricted assets (reserves) declining from $130.5M in 2010 to $102M in 2011 (and over the last few years the decline has been from $212M in 2007). The decline in 2011 was largely due to a $48.2M charge related to the Society's two post retirement benefit plans. It is to be hoped that as the economy improves, the need to transfer money into these plans will lessen.

58TH ANNUAL PENTASECTIONAL MEETING

mark your calendars

Saturday 09 Mar 2013

Hosted by the Tulsa Section

(Speaker—continued from front page)

Dale Teeters Biographical Sketch

Dr. Dale Teeters is a professor and the chair of the Department of Chemistry and Biochemistry at The University of Tulsa. He received his B.S. degree in chemistry from Southwestern Oklahoma State University in 1975 and his Ph.D. in physical chemistry from The University of Oklahoma in 1981. Upon receiving his doctorate, he worked as a senior research chemist for Dow Chemical's Urethanes and Oxide Polymers Fundamental Research, investigating conducting polymers. He has been at The University of Tulsa since 1983 where his research interests include nanotechnology as it applies to power systems. He is a member of the executive committee for the National Science Foundation's Oklahoma NanoNet Nanotechnology Center and serves on the Oklahoma Center for the Advancement of Science and Technology, OCAST, Applied Research Committee and Nanotechnology Committee. He is on the Advisory Board for the Oklahoma State Nanotechnology Initiative. He teaches both undergraduate and graduate level courses in nanotechnology, and in 2000 he was selected as a Camille and Henry Dreyfus Fellow for his research with undergraduate students and was selected Oklahoma Chemist of the Year for 2011. Dr. Teeters has published over 50 papers and has seven patents, which are concerned with electronic applications of polymers and nanotechnology.

CHEMISTRY OLYMPIAD

- March 1–31 — Local Section Competitions
- April 21 — National Exam
- June 5–20 — Study Camp
- July 21–30 — 44th IChO Washington, DC

Contact Nathan Malmberg for more information
nathan.malmberg@okbu.edu 405.878.2048

ACS Chemistry for Life™

SWRM 2012

68th Southwest Regional Meeting

4–7 November 2012

Hosted by The Baton Rouge Section (Baton Rouge, LA)

http://www.swrm2012.org/

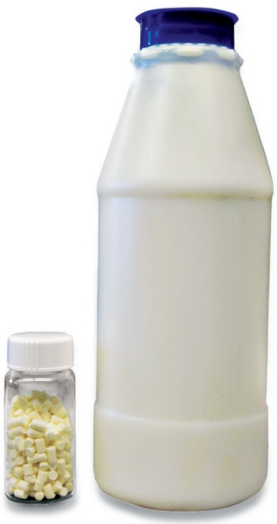
Removing Radioactivity

ACS Meeting News: Nanoparticles strip radioactive strontium and other heavy metals from beverages

By Bethany Halford

Pellets capable of removing radioactive isotopes and heavy metals from milk, juice, and other beverages have been developed by chemists at Oklahoma State University. The material could be used to remove heavy metals from contaminated juices and other foodstuffs. And in emergency situations, such as the one that took place at the Fukushima nuclear plant in Japan last year, it could remove radioactive particles from liquids.

After the Fukushima accident, radioactive ^{89}Sr was identified in milk as far afield as Hilo, Hawaii, according to EPA. Milk is the primary vector for human exposure to radioactive Sr, which tends to accumulate in bones and bone marrow and has been linked to bone cancer and leukemia.



Yellow pellets composed of $CaWO_4$ nanoparticles can be used to remove radioactive Sr from liquids, such as milk. Credit: Courtesy of Allen Apblett

Chemistry professor Allen Apblett and his team had been using nanoparticles to remove uranium from water, but after the events at Fukushima, they realized their technology could be made to take Sr out of liquids. He presented the work at the American Chemical Society national meeting in San Diego last week.

The group's technology uses calcium tungstate ($CaWO_4$) nanoparticles, which swap Ca ions for Sr ions. The tungstate preferentially binds to Sr ions, instead of Ca ions, because of the former's larger radius.

"It's a chemical reaction that works its way from the outside of the particle to the core," Apblett told C&EN.

The particles the group uses to make the pellets are 40–150 nm in diameter. The smaller the particle, Apblett said, the greater the total surface area, and therefore the higher the reactivity. The pellets are made by attaching the particles to alumina supports.

Apblett envisions loading the pellets into a porous cartridge, which consumers could put into a gallon of milk overnight. In the morning, they'd simply remove the cartridge from the decontaminated milk.

Apblett's team has also prepared iron-based nanoparticles that can remove arsenic and other heavy metals from apple juice as well as liquids, such as baby formula, prepared with brown rice syrup. High arsenic concentration in these foodstuffs has been a recent concern.

"This work demonstrates how nanotechnology can be effectively and simply employed to solve a real-world problem," comments Andrew R. Barron, a nanotechnology expert at Rice University. "More importantly, it is invisible as nanotechnology to the end user; it is just a product that works where no similar solution is possible."

UCO OFFERS HIGH SCHOOL STUDENTS AP CHEMISTRY REVIEW

Local high school students will have the opportunity to prepare for the AP Chemistry Exam from 8:30 a.m. to 2:30 p.m. April 21 at the University of Central Oklahoma's Center for Transformative Learning.

Supported by Central, Oklahoma State University and the Oklahoma Section of the American Chemical Society, the annual AP Chemistry Review Session focuses on test-taking strategies and specific chemistry topics.

Students will begin the day with an overview of the AP Chemistry exam and test-taking strategies, followed by four optional 60-minute sessions on specific topics such as equilibrium, periodicity, bonding, thermochemistry, electrochemistry, and laboratory and equation writing. Organizers will provide students with a pizza lunch.

Presenters include Cheri Blackwood, chemistry teacher at Edmond Santa Fe High School and College Board consultant; Brad Cast, chemistry teacher at Booker T. Washington High School and former College Board consultant; T.J. Dortch, chemistry teacher at Edmond Memorial High School; Lisa McGaw, Laying the Foundation, Inc., AP question leader and former College Board consultant; and Stephen Prilliman, Ph.D., assistant professor of chemistry at Oklahoma City University, College Board consultant and AP reader.

A program of the College Board, AP classes and exams offer high school students the opportunity to take college-level courses and earn college credit and advanced placement.

The registration deadline is 5 p.m. April 18. Approximately 250 to 300 students attend the review annually.

To register, contact McGaw at lmcgaw@hotmail.com or (405) 624-0731.

Vist the section's website for the Newsletter archive.
http://oklahoma.sites.acs.org/

2012 Oklahoma ACS Section Officers and Standing Committee Chairs

Donna J. Nelson	Chair
Dane W. Scott	Chair Elect
Amanda J. Nichols	Immediate Past Chair
Lloyd A. Bumm	Secretary + interim Newsletter ed.
Jason Wickham	Treasurer
Allen Apblett	Councilor + Nominations Com.
Nicholas F. Materer	Alternate Councilor
Charles V. Rice	Awards Com.
Nathan Malmberg	Chemistry Olympiad Com.
Valerie Ferguson	National Chemistry Week Com.
Cheryl Frech	Public Relations
Jim Dechter	Web Master

Oklahoma ACS 2012 Calendar of Events.

Visit the Oklahoma ACS WWW site for the latest information.
http://oklahoma.sites.acs.org/

OK ACS web
QR code

May 02 (Wed) OSU-OKC, Dale Teeters, *Department of Chemistry, Univ. Tulsa*
Nanoscale Chemistry for Enhanced Power Systems

Sep 14 (Fri) OBU, Kacey Cliburn, *Sr Criminologist, Toxicology Div, OSBI*
Forensic Toxicology: The Good, the Bad, the Ugly

Oct 16 (Tue) OU, Gary Foutch, *Dept of Chemical Engineering, Okla State Univ*
Amines as pH Control Agents in Coal and Nuclear Power Plant Water Chemisstry

Nov (4-7) SWRM 2012
Baton Rouge, LA

Nov 15 (Thu) OSU, Lloyd Sumner, *The Samuel Roberts Nobel Foundation*
Exploiting metabolic diversity for gene discovery

2013 Mar 09 (Sat) 58th Pentasectional Meeting, hosted by the Tulsa Section.

2019 Oklahoma Section Centennial

L. A. Bumm
Oklahoma Section of the ACS
Homer L Dodge Dept of Physics & Astronomy
The University of Oklahoma
440 W Brooks St
Norman, OK 73019-2061