

The CSRA Chemist

Savannah River Section
of the

American Chemical Society



January 22nd Meeting!!!

“Putting the ACS-SR Government Affairs Committee (GAC) into Action”

Guest Speakers: Dr. Chris Bannochie, ACS-SR GAC Chair, Mr. Brad Smith, ACS Office of Legislative and Government Affairs (OLGA), Georgia and South Carolina Members of Congress and/or Member Staff Representatives

Date: Monday, January 22, 2007

Time: 6:30 p.m. Social

7:15 p.m. Dinner (\$10 pizza and tips, beer extra)

8:00 p.m. Presentations

Location: Mellow Mushroom Annex, 1167 Broad Street

(at corner with 12th Street), Augusta, GA)

- RSVP - Jan 19 with Kristine Zeigler, 803-725-4180

All members of the local section and in particular ACS Legislative Action Network (LAN) members should plan to attend this kickoff for our Local Section Government Affairs Committee (GAC). Learn how you can help advance the nation's science policy through your involvement in the legislative process. This program is your chance to do something constructive to improve the process and the dialog.

Congratulations to Chad Leverette on his grant from the ACS PRF!
- see Augusta Chronicle note posted on last page

Dr. Kristine Zeigler will be attending the ACS National Leadership conference for all new Section Chairs. The meeting is January 28-29 in Baltimore.

Dr. Chris Bannochie will be attending the ACS Region Summit as one of two individuals representing the southeastern region; the meeting is February 9-11 in New Orleans. In addition Chris has been awarded the 2007 Walt Westman Award from the National Organization of Gay and Lesbian Scientists and Technical Professionals (NOGLSTP) - their highest national award. The award will be presented at the AAAS National Meeting on February 18 in San Francisco.

Welcome - Jake Venzie, Analytical Chemist, Ph.D. from Clemson, who just started working at SRNL and is joining the local section.

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NOTE: This Newsletter is available by email. Please contact Lewis Baylor if you want to receive notices by email. We have found that land mail is sometimes unpredictable due to the low priority of bulk rate mailing and the email or web additions give timely announcements.

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First off, I would like to thank all of those who made last year a resounding success especially those who made SERMACS one of the best in years! How do we top that this year? Something bold like, “in our 50th year I want to get all 268 local members out on a football field making a giant 50 to send the picture to C&ENews.” After a year as chair elect I have a simpler goal; get some of those we haven’t seen for a while to come to a meeting or volunteer to help with some of our community activities.

It won’t be easy as this means that we need to work on getting the word out better than we already do. (Most local sections would envy our ~25 average member meeting turnout.) To do this, we are going to look over our web site (<http://www.acs-sr.org/>) to see how it can be improved. Check into increasing our email notification. We will give an overview of spring and fall events in the Jan. and Aug. meetings. This is in addition to the four ACS speakers we have coming this year. Finally, I wanted to try having something more convenient for our older members which make up > 20% of our membership. So we are going to put together a 50th anniversary brunch on a Saturday morning, if you want to help or know a place that serves brunch next to a football field let me know.

-Mike Bronkowski, Section Chair 2007.



ACS President Ann Nalley recognizes the contribution of Chris Bannochie.

ACS 2007 Calendar of Events

Month	Meeting Topic	Location
Jan 22 nd	Dr. Chris Bannochie Overview of spring events, New Government Affairs Committee (GAC) Mellow Mushroom, Broad Street, Augusta	
Feb 13 th	Dr. Alton Hasssel ACS Tour Speaker - "Using Nuclear Chemistry to study Antique Watermarks" Ft. Discovery Tech Days?	
Mar 5 th	Dr. Alexander Shedrinsky ACS Tour Speaker - "Amber, real or fake" USCAiken	
March 25-29	ACS National Meeting Chicago, Ill	
April 21 st	50 th anniversary brunch (Sat?)	
April 22	Chemists Celebrate Earth Day Recycle Chemistry Can	
Aug 16 th	Fall events overview BBQ [Bobby's or Catered location]	
Aug 19-23	ACS National Meeting Boston, Ma	
Sept.	CSRA College night	
Sept 25 th	Dr. Badal Sara ACS Tour Speaker - "Fuels and Chemicals from Biomass: Challenges and Opportunities"	
Oct	Local speaker/Local tour	
Oct 21-27	National Chemistry Week "The Many Faces of Chemistry"	
Oct 24-27	SERMACS 2007, Greenville, SC	
Nov 27 th	Dr. Helene Dickel ACS Tour Speaker - Matter between the Stars USCA Ruth Patick Center	
Dec (First week)	Awards & Wine/Dinner/other	

February 13th - Tour Speaker and Tech Days -- Come to Tech Days and then stay for dinner and the ACS Tour Speaker.

SRS Tech Days 2007 Family Night is Tuesday, February 13, 4:30-7:30 p.m. at the Fort Discovery National Science Center in Augusta, Ga. Admission is free and no reservations are required. Technology Days is a yearly event which motivates students to be excited about some aspect of technology; encourages students to seek careers in science fields such as chemistry, biology, engineering, or physics; informs students why math and science are important; enables the public to view technologies being developed at SRS; and provides opportunity for site employees to display SRS work activities to their families. The free admission includes Fort Discovery displays, interactive exhibits by SRS employees, and several local exhibitors. Displays will be of interest to children of all ages as well as adults, so please plan to bring your entire family. Our very own Bill Trammell will have an exhibit booth entitled: Your Home – It's All Built on Chemistry! Demonstrations will show how chemistry is used around the home. We'll learn how pressure treated wood is made and how you can check to insure that the chemicals are drawn into the wood itself and not just coat the outside. We'll see how a thermostat with a mercury bulb and a bimetallic strip works to cut the heat and air conditioning on in your home. We'll check for the presence of lead in items using a quick, easy and inexpensive swab and find lead in some places we really don't expect to see it. We'll see how a simple device developed for home use can lower the temperature of a can of soft drink from room temperature to about 43°F in just 1 minute. We'll also see how Command Strips from 3M work to make removing hangers from walls simple and easy without damaging the surface of either the wall or the fastener. Come out and join in on the fun! Visit the Tech Days website at:
<http://irmsrv02.srs.gov/general/outreach/techdays/index.html>

If anyone is interested in helping Bill with his exhibit Tuesday (2/13) or Wednesday (2/14) mornings for the middle school demonstrations, please contact him at wtrammell@knology.net

Feb 13, 2007 -

Using Nuclear Chemistry to Study Antique Watermarks,

- C. Alton Hassel, ACS Tour Speaker

Abstract The watermarks in paper made by laying pulp on a bed of wire are unique to the papermaker. These watermarks are difficult to study and especially to compare. Beta-radiography is a method that produces permanent images of the watermarks. The watermarks can then be studied and easily compared. This talk will describe the method and discuss some of the results. The talk could also be titled "How Nuclear Chemistry Helped the English Professor".

Audience Level

Chemists, Students, General (nontechnical)

Categories

Nuclear Chemistry

ABOUT -- Dr. Hassel

I am a native Texan from the small town of Seagraves. My degrees are a B.S. in chemistry and physics from Baylor University (1969) and Ph.D. in chemistry from Texas A&M University (1975). I was a postdoctoral research fellow at Texas A&M and at Baylor. I taught at Texas A&M where I served as assistant director of the First Year Chemistry Program and as manager of the College of Science Learning Resources Center. At Baylor University, I have taught mathematics and physics and am presently teaching chemistry and archaeology. I also taught at two junior colleges: Blinn Junior College and McLennan Community College. I have authored or co-authored papers in chemical research and chemical education, books on problem solving, and lab manuals. The latest are Chemical Investigations for Changing Times (11th Ed.) and the solutions manuals to General Chemistry by Hill and Petrucci, both by Prentice Hall, and a mystery novel for use in a chemistry class. My current research areas are chemical education, cleaning and restoration of metals, and the use of beta radiography to study watermarks in antique books. I have been listed in Who's Who among American Teachers and Who's Who in American Education.

March 5, 2007 Amber, Real or Fake

Speaker [Dr. Alexander M. Shedrinsky](#)

Title Amber, Real and Fake

Abstract Amber has long fascinated collectors and researchers. There is the aura of mystery associated with belief in its healing power; the variety of beautiful colors that make it so desirable for jewelry; and finally, the exquisite preservation of a great variety of inclusions, from insects to small frogs and lizards. Unfortunately, from earliest times these properties have also drawn the attention of forgers. By forgeries we mean the substitution for real Baltic amber (succinite) or other fossilized resins, of materials ranging from recent copals to synthetic polymers. Attempts to forge amber inclusions are known from antiquity. At that time, such natural materials as melted amber or copal were used. At the very beginning of the 20th century these natural materials were usually replaced by Bakelite and similar synthetic polymers. These materials are not transparent and so can readily imitate certain kinds of milky amber but are useless in terms of transparent ambers with inclusions. Beginning in the 1940s, two new classes of organic materials became available for amber imitation: polyester resins and epoxy resins. Both are transparent, able to dissolve organic dyes and can achieve an appropriate degree of hardness, depending on the addition of fillers (e.g., fiberglass), the structure of the original monomers, or the degree of cross-linking. With easy commercial availability and sophisticated “artwork”, one can prepare convincing imitations of large transparent amber pieces with a wide variety of “inclusions” (ants, bees, lizards, mosquitoes, etc.). The question of the authenticity of amber inclusions has become particularly significant in view of the recent publication by a team of scientists from the American Museum of Natural History of DNA gene fragments from an insect preserved in amber for almost 30 million years. This represents the oldest DNA ever recovered from fossils. The book and the movie Jurassic Park created enormous interest in the subject of amber. In our lecture we will try to sort out the real and imaginary aspects related to this subject. The lecture will be profusely illustrated by slides of samples from the collection of the American Museum of Natural History as well as from private collections.

Audience Level

Specialists (highly trained), Chemists, Students, General (nontechnical)

Categories

Analytical Chemistry
Chemical Education

Speaker [Dr. Alexander M. Shedrinsky](#)

Biographical Sketch

Alexander M. Shedrinsky graduated from the Chemistry Department of Leningrad State University in 1965. He continued his studies there and completed his postgraduate study in polymer chemistry in 1970. He was a lecturer in organic and general chemistry at Leningrad North-West Polytechnical Institute, First Leningrad Medical Institute, and Leningrad Pharmaceutical College. Dr. Shedrinsky continued his graduate studies at New York University, completing his M.S. in 1983 and his Ph.D. in 1986 in synthetic organic chemistry. He was Charles and Francis Atkins Fellow at the Paintings Conservation Department of the Metropolitan Museum of Art from 1984 to 1986, and a Postdoctoral Fellow at the Conservation Center of the Institute of Fine Arts of New York University from 1986 to 1988. He was Andrew Mellon Fellow at the Objects Conservation Department of the Metropolitan Museum of Art (1988-1990) while continuing as an assistant professor of chemistry at the Brooklyn Campus of Long Island University and a Kervorkian Fellow at the Conservation Center of the Institute of Fine Arts of New York University (1990-1992). Presently, Dr. Shedrinsky is a professor of chemistry at Long Island University and an adjunct professor of conservation at the Conservation Center of Institute of Fine Arts (NYU). Dr. Shedrinsky was a Fulbright Professor during the spring semester of 1995 at the Academy of Arts, St. Petersburg, Russia, teaching a course on Organic Chemistry of Museum Objects and a Forchheimer Visiting Professor at the Hebrew University of Jerusalem during spring semester of 1997. Professor Shedrinsky specializes in pyrolysis gas chromatography of organic materials of art and archaeology. His skills and knowledge have been sought in the analysis of a variety of subjects, such as materials from the Sistine Chapel, Egyptian oil of archaeological interest, and Italic amber carvings from the J. Paul Getty Museum, to name but a few. During the last ten years, his research interests have been heavily concentrated on the analysis of different ambers and amber look-alike materials.

MORE --- FYI

1) Denise L. Creech award nominations are out! Nominate your High school chemistry teacher for their exemplary achievements in the classroom. For information contact mark.barnes@srnl.doe.gov

2) Local ACS section looking for YCC leader. Need to be outgoing, interested in chemistry and under 43 years old. If interested get in touch with the chair.

3) 6-10 Aiken Elementary Science Fair judges needed Feb. 1st. 2:45-6 pm contact Judi Girardeau (JGIRARDEAU@aiken.k12.sc.us) if interested.

SERMACS FOLLOW-UP - TEACHER PROGRAMS
-Kristine Zeigler

We had a great turnout for our Teacher Programs, which included a variety of workshops held Friday and Saturday. Over one hundred high school educators from Georgia and South Carolina as well as many undergraduate instructors attended the Hydrogen Fuel Cell Car Workshop where every participant received a fuel cell kit to take back to their classroom. Additional workshops were on Environmental Chemistry, Forensic Chemistry, Classroom Demonstrations, POGIL, Vernier, Ocean Optics Instrumentation Demonstrations, and Opportunities offered through ACS and SRS Workshops. One of the local Georgia counties sent 14 of their science educators to attend the whole SERMACS conference from Wednesday through Saturday. I spoke with several of these educators and was pleased that they found interesting talks in the sessions as well as found our workshops helpful and interesting. Also, the South Carolina Association of Chemistry Teachers held their annual meeting at the conference, adding to our attendance. Overall, the attendance at the workshops was excellent.

For the Chemagination contest, 12 teams competed with a total of 34 high school students as participants. These teams had to describe an innovation of the future that would change people's lives thirty years from now. All of the essays and posters were extremely well thought out and the students did an excellent job explaining them. Winning teams in the categories of Medicine/Healthcare, New Materials, Environment and Alternative Energy Sources were from Northview High School in Duluth, Georgia. Each student on the winning team received an iPod Shuffle.

The winning entries were as follows:

Medicine/Healthcare: Silencing Senescence

New Materials: Smart Stuff

Environment: Aiding Our Ailing Atmosphere: Soaring to New Heights

Alternative Energy Sources: Air: The Fuel of the Future is NOW

Each of our contestants received a Chemagination t-shirt, pin, other tokens, and lunch. Our judges as well as conference attendees were truly impressed with the work and thought that went into designing the innovations. We have a lot of great things to look forward to from these students!

The other portion of the Education Program consisted of a Graduate School Fair and an Undergraduate Poster Contest. We had 36 graduate schools at the fair, the largest ever held at a SERMACS event. As the Graduate School Fair was held during the Poster Contest, this gave the undergraduate participants a chance to find out what great programs are being offered at some of our regional colleges.

Our Undergraduate Poster Contest was so large that we had to have four sessions over two days! Over 120 students participated with prizes being awarded to the top ten presenters. This poster contest gave spectators an opportunity to view the great undergraduate talent we have in the southeast as well as other regions. The following were winners of the poster contest:

Amanda Sylvester, Appalachian State University

Fujitsu T4210 Tablet PC; ChemDraw Ultra (1 yr license); Spartan Student Edition (computation software); Origin Plotting and Statistical Analysis Package

Tanya Pinder, North Carolina A&T

iPod Nano 4GB; Spartan Student Edition (computation software)

Christopher Priedemann, Furman University

iPod Nano 2 GB; Origin Plotting and Statistical Analysis Package

The following won iPod Shuffles:

Rishi Dilipkumar Naik, University of Tennessee Chattanooga

Jessie Geoghegan, University of Southern Mississippi

Sarah Keane, Furman University

Ramona Parsaei, Armstrong Atlantic State University

Jessica Thomas, Valdosta State University

Paul Walsh, University of Mary Washington

Joseph Yeager, Centre College





Acknowledgement - Our section wishes to give special thanks to the many judges and speakers who made SERMACS a success. Among the judges were Dr. Catherine Hunt, President-elect to ACS and Dr. Ann Nalley, President of ACS. William Carroll, the Past President of ACS, was also highly active at the meeting. In addition, we thank Dr. Anne Hancock, the U.S Secretary of Education's Regional Representative, for her excellent motivational talk to teachers.

Acknowledgement no.2 - Thank you Rob Lascola for the thousand photographs from SERMACS. They are fantastic.

**Congratulations to Dr. Chad Leverette, USC Aiken.
Petroleum research to receive funding**

The Augusta Chronicle (Georgia) Dec. 12

The American Chemical Society will fund a two-year grant for research and education in the petroleum field at the University of South Carolina Aiken. Chad Leverette, an assistant professor of chemistry, received funding for his grant proposal which is a "starter" grant set aside for faculty within their first three years at an institution. His proposal was sent to the **Petroleum Research Fund** through the chemical society. "I am extremely honored," Dr. Leverette said. "This award granted by the ACS validates the research that we are doing here at USC Aiken." The proposal was titled "Influence of Nanostructure Design on the Structure and Spectroscopic Characterization of Self-Assembled Organic Films Deposited onto Novel Metallic Surfaces."

[Have news for CSRA Chemist - send it to wspencer2@gforcecable.com]

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