

The Chemical Bulletin

<http://chicagoacs.org>

March • 2009

CHICAGO SECTION AMERICAN CHEMICAL SOCIETY

Public Affairs Meeting

WEDNESDAY, MARCH 18, 2009

Café La Cave
2777 Mannheim Road
Des Plaines, IL 60018
847-827-7818

DIRECTIONS TO THE MEETING

From I-290 East/West - Take I-290 from either direction and exit onto I-294 North. Continue until you reach the exit for I-190 West (to O'Hare). Exit and immediately pay toll. Exit onto Mannheim Road North. Go North for 1.5 miles. The restaurant is on the right side after the second stoplight.

From 90 East/West - Take I-90 from either direction and exit I-190 West (to O'Hare). Then follow I-290 East/West directions given above.

From 294 North/South - Take I-294 from either direction and exit I-190 West (to O'Hare). Then follow I-290 East/West directions given above.

From I-88 East - Take I-88 East to I-294 North. Take I-294 and exit at I-190 West (to O'Hare). Then follow the directions for I-290 East/West given above.

PARKING: Go directly to parking lot for self-parking. Valet parking also available.

Job Club: 5:15 - 6:15 P.M.

SOCIAL HOUR 5:30 - 6:30 P.M.
Complimentary Hors D'oeuvres served
butler style. Cash Bar

DINNER 6:30 P.M.

Menu: Cream of Tomato Soup with Spinach and Pasta; Squillo Salad with Walnuts and Cranberries; Entrée choice of either a Breast of Chicken Combination (Sautéed Breast of Chicken with fresh mushrooms & shallots

with a Sherry Cream Sauce and Sautéed Breast of Chicken with Shiitake mushrooms with a Marsala Wine Sauce), Seared Salmon with a Ginger Sauce, or Fresh Vegetables with Pasta; Anna Potatoes; medley of fresh vegetables; Chocolate cake with Raspberry Sauce; a variety of breads; beverage.

Dinner reservations are required and should be received in the Section Office via **phone** (847-391-9091), **email** (chicagoacs@ameritech.net), or **online** (<http://membership.acs.org/C/Chicago>) by noon on Monday, March 16. The dinner cost is \$32 to Section members who have paid their local section dues, members' families, and visiting ACS members. The cost to members who haven't paid their local section dues and to non-Section members and is \$34. The cost to students and unemployed members is \$20. Seating will be available for those who wish to attend the meeting without dinner. PLEASE HONOR YOUR RESERVATIONS. The Section must pay for all dinner orders. No-shows will be billed.

NOTICE TO ILLINOIS TEACHERS

The Chicago Section ACS is an ISBE provider for professional development units for Illinois teachers. Teachers who register for this month's meeting will have the opportunity to earn up to 3 CPDU's.

FREE T-SHIRTS

The Hospitality Committee raffles one T-shirt at each monthly dinner meeting. The shirt has **CHICAgO** spelled out using the periodic table. So come to a monthly meeting and maybe you'll win one!

GENERAL MEETING

7:30 P.M.



Dr. George R. Lester, President of George Lester, Inc., and an Adjunct Professor, Center for Catalysis and Surface Science, Northwestern University, Evanston, Illinois

Topic: "Wha'cha Gonna Do When the Oil is Gone? Energy Sources for the Twenty-First Century"

Abstract: The practical life of known energy sources which are likely to be used in the nascent century and over the next five some billion years will be considered. Also, the likely sequence in which different transportation fuels and automotive power plants will provide for our mobility over the next fifty-plus years will be posited and discussed. The myths surrounding the use of biologically-derived fuels to help reduce our dependence on foreign oil and global warming will also be examined.

The relative energy requirements to move a mass of vehicle for a given distance at a specific speed will be estimated using conventional and hybrid gasoline or diesel engines, hydrogen/fuel cell

(continued on page 2)

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motors, plugin-hybrids, or electric battery power systems. Finally, a clean and fail-safe technology for generating electric power from uranium and thorium, which was initially developed in this country but is now being pursued mainly in Europe and Asia, will be discussed and advocated. Accelerator Driven Transmutation Technology (ADTT) in one application could be used to convert the current long-life nuclear waste to electricity with very little remaining short life waste.

Biography: George R. Lester, President of George Lester, Inc., is a consultant on catalysts in environmental and energy conservation applications. He is also an Adjunct Professor in the Center for Catalysis and Surface Science of Northwestern University, Evanston, Illinois.

He is a 1954 graduate of Berea College, and received the M.S. and Ph.D. degrees in Physical Chemistry from the University of Kentucky in 1956 and 1958, respectively.

Dr. Lester retired in 1996 as Senior Research Fellow at AlliedSignal after almost thirty-eight years with AlliedSignal, Signal Companies, UOP, and Universal Oil Products Company. He is known internationally for his contributions to heterogeneous catalysis - most notably for his involvement in the development of the original automotive exhaust catalysts and for extensions of that technology to create new business opportunities in environmental, air purification, and energy-conservation applications. He holds 45 US Patents and has authored over 50 technical publications. He represented AlliedSignal on the White House Policy Dialogue Committee to Reduce Automobile Greenhouse Emissions in 1994-5. He was awarded the 2002 E. V. Murphree Award in Industrial and Engineering Chemistry by the American Chemical in April, 2002.

Dr. Lester was a pioneer in the development of catalysts designed to destroy all three of the noxious auto exhaust pollutants (carbon monoxide, hydrocarbons and nitrogen oxides), and developed one of the earliest catalysts (LEANOX™) for destruction of nitrogen oxides in the exhaust of fuel-lean automotive and stationary engines.

He was a key player in programs leading to catalysts for protection against chemical warfare attack, and is one of the inventors of the very lightweight catalytic converter that is being used for removal of ozone from the cabin pressurization air on the Boeing 777 and other airliners.

During his final years at AlliedSignal, he was involved in the development of catalytic combustors for very clean and

highly efficient gas turbine engines for hybrid electric autos. These catalysts were developed by AlliedSignal in programs supported by several US and European government agencies and auto makers, including DOE/Ford and a consortium including Renault, Peugeot, Volvo and the French and Swedish governments (AGATA).

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EXPLORE CAREERS IN CHEMISTRY AT THE 237TH ACS NATIONAL MEETING

Learning about and preparing for careers in chemistry is the focus of the undergraduate program to be held at the ACS 237th Spring National Meeting in Salt Lake City this month. The two-day program includes symposia and workshops on chemistry careers, art and archeology, nanotechnology, graduate school, and outreach opportunities. There will also be a presentation by eminent scientist Luis Echegoyen, NSF-Chemistry Division Director, and the Student Affiliates Chapter Award Ceremony. For more information, email saprogram@acs.org.



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at

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"CHEM SHORTS" For Kids

The Elementary Education Committee of the Chicago Section ACS presents this column. They hope that it will reach young children and help increase their science literacy. Please cut it out and pass it on to your children, grandchildren, or elementary school teachers. It is hoped that teachers will incorporate some of the projects in this column into their lesson plans.

Bubble Prints

Kids, let's pop colored bubbles onto a piece of paper to make bubble prints. Bubble prints are like fingerprints except made with bubbles. You can make bubble prints and learn about how bubbles are shaped and how pigments combine to make different colors.

Bubble prints are made by adding color to a bubble solution, blowing bubbles, and pressing paper onto the bubbles. You need brightly-colored bubbles in order to get a good picture. Tempera paint powder works really well, but you can substitute other water-soluble paints if you like. Here's everything you need: bubble solution (buy it or make your own), tempera paint powder, white paper, straws, and some small plates.

First make your colored bubble solution. Pour a little bubble solution into a plate. Stir in paint powder until you have a thick paint. You want the thickest paint you can get, yet still able to make bubbles using it. If you get the three primary colors of tempera paint then you can mix them in order to make other colors. You can add black or white paint, too.

Make Bubble Prints

1. Put the straw into the colored bubble solution and blow bubbles. It may help to tilt the dish slightly. You can experiment with a few large bubbles versus many small bubbles.
2. Touch the bubbles with a sheet of paper. Don't press the paper down into the paint - just catch the impressions of the bubbles.
3. You can switch between colors. For multicolored bubbles, add two colors together but don't mix them. Blow bubbles into the un-mixed solutions.

Learn About Bubbles

Bubbles consist of a thin film of soapy water filled with air. When you blow a bubble, the film expands outward. The forces acting cause it to form the shape that encloses the most volume with the least surface area -- a sphere. Look at the bubble prints that you have made. When bubbles

stack, do they remain spheres? Probably not, because when two bubbles meet they will merge their walls to minimize their surface area. If bubbles that are the same size meet, then the wall that separates them will be flat. If bubbles that are different sizes meet, then the smaller bubble will bulge into the large bubble. Bubbles meet to form walls at an angle of 120°. If enough bubbles meet, the cells will form hexagons. Can you see this structure in the images you've made?

References: Dr. Anne Marie Helmenstine at <http://chemistry.about.com/od/bubbles/a/bubbleprints.htm>

Edited by K. A. CARRADO, Argonne National Laboratory

All past "ChemShorts for Kids": <http://membership.acs.org/C/Chicago/ChmShort/kidindex.html>

2009 PUBLIC AFFAIRS AWARD POSTPONED


For the past twenty-odd years, we have given a Public Affairs Award biannually at the March Meeting. **Dr. Mary L. Good**, who served here for many years as a VP/Director of Research for UOP/Allied Signal in Des Plaines, has been chosen as the Awardee for 2009. Unfortunately, she is unable to come for the award at this time. She has agreed to be the speaker for the September meeting, at which time we will honor her for some of the wonderful work she has conducted.

We are fortunate to be able to have **Dr. George Lester**, who worked for Dr. Good for a significant portion of his career with UOP/Allied Signal, as our speaker for the March meeting. George has had a very distinguished R&D career with UOP/Allied Signal until his retirement in 1996. Since that time he has been a consultant and an Adjunct Professor in the Center for Catalysis and Surface Science of Northwestern University.

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SCHOLARSHIPS AVAILABLE FOR FUTURE SCIENCE TEACHERS

Chicago State University recently received a grant to fund students preparing to be secondary science teachers. The project, "Establishing a Supportive Environment for the Recruitment, Preparation, and Retention of the Urban Science Teacher" is funded through the National Science Foundation Robert Noyce Teaching Scholarship Program. The Department of Chemistry and Physics and the Department of Biological Sciences will receive \$670,962 over 5 years. 20% will be programmatic while 80% of the funds will be for student scholarships and internships. Scholarships are available for junior/senior undergraduates, certification students, and Masters of Arts in Teaching candidates. Individuals who have a degree in science and are looking into a career change are highly encouraged to apply for a full tuition scholarship for the certification or masters program. Please see our website <http://webs.csu.edu/~noycesch/or> contact the program director, Dr. Andrea Gay Van Duzor at agay@csu.edu, for more information.



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UPCOMING 2009 AMERICAN CHEMICAL SOCIETY HIGH SCHOOL PROGRAMS

- * ACS Chem Club
- * USNCO Chemistry Olympiad
- * ACS Scholarship Exam
- * Great Lakes Regional Meeting
- * Project SEED

- **ACS Chem Club — FREE support materials for science clubs**
Do you have a Science Club? Or would you like to start a Science Club?

The ACS Education Division would like to send you FREE materials -- no strings attached! You only need to register to receive support materials. While the club sponsor and the students are directly in charge of the character and direction of their clubs, the ACS Office of High School Chemistry provides support such as:

- Start-up manual
- Quarterly resource packets
- T-Shirts (chartered clubs only)
- Charters (chartered clubs only)
- Connections to ACS Local Sections
- Connections to ACS Student Affiliate Chapters

How can I sign up or get more information?

Visit <http://fs7.formsite.com/ACSEducation/form709367230/index.html> to sign up for introductory materials. For additional information, contact High School Chemistry Clubs staff at hschemclubs@acs.org or email Ami LeFevre at amilef@niles-hs.k12.il.us

What is the ACS High School Chemistry Club Program?

The ACS High School Chemistry Clubs Program provides fun, authentic, and hands-on opportunities for members to experience chemistry beyond what is taught in the classroom, learn about study and career opportunities in the many and varied fields of chemistry, and provide service for the betterment of their communities.

What do High School Chemistry Clubs do?

Current clubs have reported activities such as chemistry demonstration shows and hands-on labs with elementary school students, National Chemistry Week outreach, fundraisers, field trips, talks on chemistry careers, homecoming parade floats, and laboratory investigations.

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• **USNCO Chemistry Olympiad**
Chemistry competition for high school chemistry students at the advanced level

The U.S. National Chemistry Olympiad (USNCO) is a multi-tiered competition designed to stimulate and promote achievement in high school chemistry. Sponsored by the American Chemical Society, the national competition highlights significant national achievement. Each year, four students are chosen to represent the United States team at the International Chemistry Olympiad competition. This year's local UNSCO Exam, is scheduled for **Friday, March 13, 2009** at Loyola University, Chicago, IL. Registration is required. Contact **Linda Bennett** at lbennett@naperville203.org for more information.

To learn more about the Chemistry Olympiad visit www.acs.org under Education/High School and Chemistry Olympiad links. You will also find past exams and lab practicals.

• **ACS Scholarship Exam**
\$200 to \$5,000 scholarships
available to first-year high school chemistry students

The Chicago Section of the American Chemical Society is sponsoring the 2009 Scholarship Examination. High school students in the Chicago area who are presently enrolled in the first year of high school level chemistry are eligible. A.P. Chemistry is not considered a first year high school chemistry course. The exam will be held at **North Central College**, in Naperville, Illinois **Saturday, May 23rd, 2009** from 10:00 a.m. to 1:00 p.m. Room number to be determined. Registration is required. Contact **Linda Bennett** at lbennett@naperville203.org for more information.

• **ACS Great Lakes Regional Meeting - Marriott Lincolnshire, Illinois**
Professional workshops for high school chemistry teachers

The Great Lakes Regional Meeting will offer three teacher education sessions on **Saturday, May 16th** from 9:00 until noon. A variety of sessions will be offered: "Bringing nanotechnology to the high school classrooms," "Demonstrations you can use to engage high school chemistry students" and "Enhancing Reading Comprehension in Science. The meeting will take place at the Marriot Lincolnshire, in Lincolnshire, IL. Contact **Linda Bennett** at lbennett@naperville203.org.

• **Project SEED**
Summer Research Internship Program for Economically Disadvantaged High School Students

The ACS Project SEED summer research program opens new doors for economically disadvantaged students to experience what it's like to be a chemist. Students entering their junior or senior year in high school are given an opportunity to work with scientist-mentors on research projects in industrial, academic, and federal laboratories, discovering new career paths as they approach critical turning points in their lives. With guidance from mentors, they gain confidence, a solid sense of direction, and the ability to realize their own potential. For more information visit www.acs.org/education and the Project SEED link under high school programs. Or contact **Tracey Braun**, Project SEED coordinator for the Chicago Section at tracey.braun@abbott.com.

**The Chicago Section's
e-mail address
is
chicagoacs@ameritech.net**

ARE YOU UNEMPLOYED?

Are you seeking a better job? Are you looking to improve your career? The place to start is with your resume. That is the single tool that will get you an interview, illustrate your professional strengths, and show how you can improve your importance to your employer.

You can get help improving your resume through the Career Consultants. These are volunteers trained by the American Chemical Society to assist its members with writing resumes, contacting prospective employers, and providing tips on interviews.

There are several Career Consultants in the Chicago Section who are willing to meet with you and help improve your resume. Simply call the Section office at 847-391-9091 and set up an appointment. Fifteen to thirty-minute sessions will be arranged at our monthly meetings. Should you require more time arrangements can be made with your consultant to continue discussions by telephone, by e-mail or by additional face-to-face sessions. You also can attend the Section's Job Club where you can network with other people having similar concerns.

We are here to help. All you need to do is pick up the telephone and bring copies of your resume to the next monthly meeting.

GIBBS MEDAL AWARD

Mark your calendars! **The 2009 Willard Gibbs Medal Award Presentation and Dinner** will be on **May 15, 2009** at the Marriott Lincolnshire Resort. **Louis Brus** of Columbia University is the recipient.

JOB CLUB

The next meeting of the **Chicago Section ACS Job Club** will be held on **Wednesday, March 18 at 5:15 p.m. at Café La Cave**. The meeting will include a review and discussion of some of the tools that a chemist can use to conduct a job search.

The Job Club provides a continuing opportunity for unemployed members of the Section to meet with one another, share their experiences and develop a network that may help in identifying employment opportunities. Bring plenty of resumes and business cards to distribute to your colleagues. Be prepared to talk about the kind of job you are seeking.

Several participants have received outsource help with resume preparation and marketing strategies to present their best attributes to prospective employers. The group has critiqued some individual resumes and made suggestions for improvements in a positive way!

The Job Club is also for employers seeking chemists. Employers need to be prepared to describe the positions to be filled and requirements for these positions.

Should you wish to attend the Section's dinner meeting following the Job Club, the cost is \$20 and you can continue your networking activities. Please call the Section office for reservations and indicate that you are eligible for a discount.

Also, the Chicago Section's website has a link to the Job Club's yahoo job forum group. If you can't attend the Job Club, you can still find out about job openings and other information.

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March Historical Events In Chemistry

March 1, 1896 Antoine Henri Becquerel discovered the radioactivity of uranite in pitchblende.

March 3, 1709 Andreas S. Marggraf, who isolated zinc from calamine, distinguished between potash and soda by flame test, found alumina in clay, and discovered beet sugar in beetroot, was born.

March 3, 1918 Arthur Kornberg, who shared the Nobel Prize in Physiology or Medicine in 1959 with Severo Ochoa for their discovery of the mechanisms in the biological synthesis of ribonucleic acid and deoxyribonucleic acid, was born.

March 6, 1869 Aleksei E. Favorskii, a researcher in the anionic rearrangements of acetylenes and alpha-halo ketones, was born.

March 10, 1762 Jeremias B. Richter, who discovered the law of equivalent proportions, was born. He was the first to establish stoichiometry, and founded the basis of quantitative chemical analysis.

March 12, 1824 Gustav R. Kirchhoff, who invented the spectroscope with Robert Bunsen with which they discovered cesium (Cs, 55) in 1860, and rubidium (Rb, 37) in 1861, was born. He discovered that substances that emit radiation when hot absorb the same type of radiation when cool (Kirchhoff's Law).

March 14, 1984 The first atom of the element hassium (Hs, 108) was observed at GSI Laboratory in Darmstadt, Germany.

March 16, 1834 Hermann W. Vogel, inventor of the orthochromatic photographic plate in 1873, was born. He also designed a photometer and was a researcher in spectroscopic photography.

March 19, 1900 Frédéric J. Joliot (Joliot-Curie), who with H. Halban and L. W. Kowarski proved experimentally that neutron emission occurs in nuclear fission, was born. In 1935, Joliot shared the Nobel Prize in Chemistry with his wife Irène for the production of artificial radioisotopes.

March 20, 1834 Charles W. Eliot, a teacher of chemistry and president of Harvard University, was born.

March 24, 1884 Peter Joseph William Debye, a researcher in dipole moments and powder method of x-ray diffraction, was born. He was awarded the Nobel Prize in Chemistry in 1936 for his contributions to the understanding of molecu-

lar structure through his investigations on dipole moments and on the diffraction of X-rays and electrons in gases.

March 31, 1811 Robert Bunsen, inventor of the spectroscope with Gustav R. Kirchhoff with which they discovered cesium (Cs, 55) in 1860, and rubidium (Rb, 37) in 1861, was born. He invented the Bunsen burner, filter pump, a galvanic battery, and with Henry E. Roscoe, the actinometer.

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Additional historical events can be found at Dr. May's website, <http://faculty.cua.edu/may/Chemistrycalendar.htm> or This Week in Chemical History in the ACS website, <http://www.acs.org/whatischemistry>.

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WCC Article Authors Needed

The Chicago Section's Women Chemists Committee has a project to highlight women, both current and historical, and topics of interest to women. The project is called the "WCC Column" in the Chemical Bulletin and the project has been very successful.

We invite anyone, women or men, to join us in this endeavor of writing an article for the column. The article needs to be about 500 words long and will also be put on the Chicago Section website. The author also needs to design a poster for the corresponding monthly meeting. Our office manager, Gail Wilkening, will help with the poster, which can be primarily a large font version of what you wrote, if you wish. We welcome new authors and those who have already discovered what a pleasure this project is. Whether you interview a current chemist or research an historical chemist on the web, please join us in this stimulating activity.

CO-CHAIRS MARGY LEVENBERG
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CALENDAR

March 2: The Chicago Chapter of ChemPharma will meet from 6 p.m.-9 p.m. at Pompei Restaurant, Oakbrook Terrace, IL. The speaker will be Michael L. Hetzel, Vice President Americas, Pro QC International. The topic is "Emerging Trends in Global Manufacturing". For more details and registration, visit the website <http://www.chempharma.net/>.

March 8-13: PittCon 2009 Conference and Expo and Science Week, McCormick Place, Chicago. Visit www.pittcon.org for more information.

March 18: Chicago Section ACS Public Affairs Meeting. **See this issue.**

March 22-26: ACS National Meeting in Salt Lake City, Utah.

April 20-23: The Chicago Chromatography Discussion Group (CCDG) will have its 46th Annual Introductory Course in Gas Chromatography, Roosevelt University, Schaumburg, IL. For more information, visit www.ccdg.org or contact Leslie Chiappetti, CCDG Coordinator, ccdgcordinator@att.net, (708) 557-0024.

April 24: Chicago Section ACS Meeting

May 13-16: The 38th Great Lakes Regional meeting (GLRM) will be held at the Lincolnshire Marriott in Lincolnshire, IL. The theme is "A Better Environment Through Chemistry." The call for papers opened November 15, 2008. Please go to our website at www.glr2009.org for the latest information on the meeting.

May 15: Chicago Section ACS's Gibbs Award Banquet, Marriott Lincolnshire Resort. Louis Brus of Columbia University is the medalist.

May 18: Catalysis Club of Chicago's Spring symposium at BP in Naperville, IL. Visit <http://www.catalysisclubchicago.org/2009SpringSymp.html> for details.

June 19: Chicago Section ACS Meeting

June 22-26: National Plastics Expo 2009 in Chicago. Contact Phyllis Hortie, (202) 974-5295, phortie@plasticsindustry.org; website:www.npe.org.

September 25: Chicago Section ACS Public Affairs Award Meeting. Dr. Mary L. Good is the awardee.

October 23: Basolo Medal Award Lecture, Dinner, and Presentation; joint Chicago Section ACS's meeting with Northwestern University's Department of Chemistry

November 18: Chicago Section ACS Meeting

December 4: Chicago Section ACS's Holiday Party jointly with the Chemists' Club and Iota Sigma Pi

The mission of the Chicago Section of the ACS is to encourage the advancement of chemical sciences and their practitioners.

GREAT LAKES REGIONAL MEETING

The 38th Great Lakes Regional meeting (GLRM) will be held **May 13-16, 2009** at the Lincolnshire Marriott in Lincolnshire, IL. The theme for this meeting is "A Better Environment Through Chemistry." Symposia planned for the meeting include sessions on small chemical business, medicinal chemistry, plant biochemistry, material science, polymer chemistry, non-crystalline X-ray structural chemistry and the environment, molecular simulation and the environment, environmental chemistry and the Great Lakes, food chemistry, issues and resources in chemical health and safety and general sessions in organic chemistry, inorganic chemistry, physical chemistry, analytical chemistry and biochemistry.

In addition, a number of workshops and other events are planned including career workshops, ethics workshops, a Botanic Garden tour and attendance at the Lincolnshire Marriott dinner theater show "Spelling Bee", and the Willard Gibbs Award Banquet to publicly recognize an eminent chemist who, through years of application and devotion, has brought to the world developments that enable everyone to live more comfortably and to understand this world better.

Lincolnshire is a suburb of Chicago and so many activities located in Chicago are available by train from the location.

The call for papers opened on November 15, 2008. Please go to our website at www.glr2009.org for the latest information on the meeting, including the paper abstract submission process and meeting registration.

2011 – INTERNATIONAL YEAR OF CHEMISTRY

The General Assembly of the United Nations has adopted a resolution proclaiming 2011 as International Year of Chemistry. The American Chemical Society celebrates the news. "We will help provide opportunities for Nobel Laureates, eminent scientists, teachers, outstanding young chemistry students, and chemistry communities around the world to demonstrate how people's lives are improved through chemistry", declared ACS President, Thomas H. Lane. Read more at: <http://pubs.acs.org/subscribe/journals/cen/87/i01/html/8701notw8.html>