

theCHEMICALbulletin

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DECEMBER • 2004

CHICAGO SECTION AMERICAN CHEMICAL SOCIETY

Joint Meeting with CHICAGO CHEMISTS CLUB AND IOTA SIGMA PI

HOLIDAY PARTY/MEETING

FRIDAY, DECEMBER 10, 2004

Holiday Inn Willowbrook

7800 Kingery Highway
(Route 83)
Willowbrook, IL
630-325-6400

DIRECTIONS TO THE MEETING

Take Interstate 55 (Stevenson Expressway) South to IL-83 (Kingery Rd) exit. Keep right at the fork in the ramp and merge into IL-83 North. Proceed to the Holiday Inn. It is on the east side of Route 83, just 0.5 block North of Interstate 55.

PARKING: Free

This is the Chicago Section ACS/Chicago Chemists Club/Iota Sigma Pi Annual Holiday party/meeting. At this event, everyone is a chemist (either practicing or honorary)! Come join in the celebration with all your fellow chemists. In addition to our technical program, there will be gifts! ENJOY!

We are asking you to also bring a gift!!! Please bring some canned food or other non-perishable food item (in non-glass containers) that we, as the ACS, can donate to a charity for needy people in the Chicagoland area. Let's share our good fortune in the spirit of the season. THANK YOU!!

JOB CLUB 5:00 - 6:00 P.M.

SOCIAL HOUR 6:00- 7:00 P.M.
Cash Bar

DINNER 7:00 P.M.

Please make your reservations by Tuesday, December 7 with the Section office via **phone** (847-647-8405), **fax** (847-647-8364), **email** (chicagoacs@ameritech.net), or **website** (<http://chicagoacs.org>).

Holiday Menu: Fresh Fruit Cup, Tomato Florentine Soup, Tossed garden salad with choice of dressing; Entrée choices: Vegetarian rolled verdi ricotta, Baked salmon with cucumber/dill sauce, or Filet Mignon with mushroom cap and Béarnaise sauce on the side; Bake potato and Prince Albert blend of wax beans, green beans and carrots; Breads and butter; Apple Cobbler; Beverage

The cost to Section members who have paid their local section dues, members' families, and visiting ACS members is \$32; Cost to non-Section members is \$34. The cost to students and unemployed members is \$16.00. Seating will be available for those who wish to attend the meeting without dinner. Tables of 8 or 10 are available and may be reserved at this time. PLEASE HONOR YOUR RESERVATIONS. The Section must pay for all dinner orders. No-shows will be billed.

CHANGING OF THE GAVEL 8:00 P.M.

Outgoing Chair Milt Levenberg will turn over the gavel to incoming 2005 Chair Russell Johnson.

GENERAL MEETING 8:05 P.M.

Title: Missions to Mars - Past, Present, and Future

Abstract: A look at the successes and failures of missions to Mars in the past. A more in-depth look at the 1997 Mars Pathfinder mission and current Mars Exploration Rovers. Finally, a view of the future of Mars Exploration.



Dr. Sheila Bailey, NASA Glenn Research Center, Cleveland, OH

Biography: Sheila is a senior physicist in the Photovoltaic and Space Environments Branch at NASA Glenn Research Center. She is currently the lead scientist in "Quantum Dot Solar Cell Technology", which will hopefully yield a way to enhance the efficiency of solar cells in converting sunlight to electricity. She has authored or co-authored over 120 journal and conference publications, 6 book chapters and two patents.

She is on the Editorial Board of

(continued on page 2)

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 4 CPDU's.

"Progress in Photovoltaics", an active member of the American Physical Society, and a speaker for the American Institute of Physics Visiting Scientist Program. She is a member of AIAA Aerospace Power Systems technical committee and has served on the executive committee of the IEEE Photovoltaic Specialist Conference (PVSC) since 1987. She was the Technical Program chair for the 25th PVSC in Washington DC and the U.S. General Chair for the 2nd World Conference in Photovoltaic Energy Conversion in Vienna, Austria in 1998.

Sheila is a member of the Lewis Business and Professional Women and vice president of the Lewis Engineers and Scientists Association. Currently, she is an adjunct professor at both the Ohio Aerospace Institute and Baldwin Wallace College and a faculty member of the International Space University. She was the co-chair of the Space Systems Analysis and Design Department at the International Space University in Thailand in '99 and Chile in '00.

She has a B.S. from Duke University in physics, a M.S. in solid state physics from the University of North Carolina at Chapel Hill, and a Ph.D. in solid state physics from the University of Manchester in England. She spent a post-doctoral year at the Royal Military College (part of the Univ. of New South Wales) in Canberra, Australia. She joined Glenn Research Center in 1985.

Sheila is the recipient of the faculty excellence award from Baldwin Wallace College, of the Federal Women's Program award, and is an Ohio Academy of Science "Exemplar". She was awarded the NASA Exceptional Service Medal for her work in space photovoltaics in 1999 and was inducted into the Ohio Women's Hall of Fame in 2003.

She is married with three children and a resident of Lakewood. Sheila loves to travel starting with her early days, after earning her degree in England and spending a post-doctoral year in Australia, with a drive from Liverpool, England to Cape Town, South Africa. She is fond of saying she will go wherever the sun shines.

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! **Congratulations to T-shirt winner Fred Basolo (October meeting)**

FRAN KAREN KRAVITZ
HOSPITALITY COMMITTEE CHAIR

JOB CLUB

The next meeting of the **Chicago Section ACS Job Club** will be held on **Friday, December 10** at the **Holiday Inn Willowbrook** at 5:00 p.m. The meeting will include a review and discussion of some of the fundamental 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 what kind of job you are looking for.

Several participants have received outsource help with resume preparation and marketing strategies to present their best attributes to prospective employers. The group actually 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 meeting following the Job Club, the cost for unemployed members is \$16 and you can continue your networking activities. Please call the Section office for reservations and indicate that you are eligible for a discount.

ACS COMMITTEE ON CHEMISTS WITH DISABILITIES TRAVEL AWARDS FOR STUDENTS AND POSTDOCTORAL RESEARCHERS

The ACS Committee on Chemists with Disabilities (CWD) is pleased to announce the availability of Travel Awards for students and postdoctoral researchers with disabilities. The program's purpose is to promote presentation of scientific research by individuals with disabilities and provide opportunities to build lasting professional relationships through networking at scientific meetings. The deadline for receipt of the application will be the abstract deadline for the meeting.

For further information on this program or other committee activities, please go to <http://membership.acs.org/C/CWD>, email CWD, or contact Kathleen Thompson 800-227-5558 ext. 8072; TDD (202) 872-6355.

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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 science literacy. Please cut it out and pass it on to your children, grandchildren, or elementary school teachers. It is hoped that teachers will try to incorporate some of the projects in this column into their lesson plans.

The Power of Tiny Bubbles

Kids, can you make popcorn kernels dance? This particular dance will be up and down rather than side to side. You will need two clear glasses or containers, water, clear soda water, and several uncooked popcorn kernels. Fill one glass with water and the other with soda water, then drop a few popcorn kernels in each. Notice whether they sink or float right away. Then wait a few minutes to see where they are and what they are doing. Tap the side of the containers and notice what happens.

The popcorn should sink to the bottom of the water glass and stay there pretty much forever. As for the soda glass, however, what do you think makes the kernels float after awhile, and what makes them sink again? This cycle is possible using the power of tiny bubbles. Bubbles of carbon dioxide, that is. When enough bubbles stick to the kernels, buoyancy lifts them to the surface. There, the bubbles burst and the kernels sink again. Tapping also makes the bubbles come loose. Your sink-float-sink cycle should last about 1/2-hour before the soda gets too flat.

Do you know another way to make a solution with carbon dioxide bubbles? Start with water, add some vinegar, then sprinkle in some baking soda, and voila! The acetic acid (CH_3COOH) reacts with the sodium bicarbonate (NaHCO_3) to make carbon dioxide gas (CO_2), water (H_2O), and sodium acetate ($\text{NaC}_2\text{H}_3\text{O}_2$).

Previous ChemShorts columns about this activity have appeared; see "Dancing Raisins" 2/92 and "Floaters and Sinkers" 1/93. The latter suggests items and amounts needed for an impressive large-scale demo.

PROVIDED BY K. A. CARRADO AND J. SULLIVAN, ARGONNE NATIONAL LABORATORY

Reference: "52 Amazing Science Experiments" by Lynn Gordon, 1998; Chronicle Books, San Francisco, CA.

All past "ChemShorts": <http://member.ship.acs.org/C/Chicago/ChmShort/kidindex.html>

CHICAGO SECTION'S ELECTION RESULTS

The Chicago Section's ACS tellers committee met on October 22, 2004. There were 511 ballots received as of noon on October 22. Of these, 507 ballots were counted and four ballots were invalid. Officers, directors, councilors, and alternate councilors take office January 2005. The results are as follows:

Chair: Russell W. Johnson

Chair-Elect: Allison Aldridge

Vice-Chair: Barbara Moriarty

Secretary: Fran Clifton

Treasurer: Mary Newberg

Directors: Roy H. Bible
Ken Brubaker
Mark Cesa
David Crumrine
Margaret Stowell
Levenberg
Sharon Northup
Fred Turner

Councilors: Cherlyn Bradley
Russell W. Johnson
Barbara Moriarty
Seymour Patinkin

Alternate Councilors: Frank Jarzembowski
Margaret Stowell
Levenberg
Mary Newberg
Gayle O'Neill
Paul Young

Thanks to all the candidates for participating and congratulations to the winners!

MARILYN KOUBA, CHAIR
TELLERS COMMITTEE, 2004

BUDGET DIRECTOR'S NOTE:


It has come to the attention of the Chicago Section Board that the number of members paying local section dues over the years has decreased. **Upon surveying Board members it was noted that if you have your company pay your dues they may not be including your local section voluntary portion of \$15. Please check with your company.** You can pay your local section dues direct to the Chicago Section by mailing them to our office at Chicago Section ACS, 7173 North Austin Avenue, Niles, IL 60714.

December, 2004 Vol. 91, No. 10. Published by the Chicago Section of The American Chemical Society, Editorial Staff: Cherlyn Bradley, Editor; Fran Kravitz, Copy Editor; Avrom Litin, Publications Business Manager. Address: 7173 North Austin, Niles, Illinois 60714; 847/647-8405. Subscription rates: \$15 per year, \$15 outside North America. Frequency: monthly-September through June.

CONTACT THE CHAIR

Do you have any questions, suggestions, recommendations, ideas, gripes, complaints, or pet peeves relating to the Chicago Section? Do you want to volunteer, help out, or lend a hand with Section programs or activities? Then contact your Chair. Simply log onto the Section's Web Page at <http://chicagoacs.org>, find the green button "Contact the Chair", and send me an e-mail. If I can answer your query I will respond personally. If I can't I will forward your e-mail to someone who can, or try to provide you with a contact — all in a timely manner. The Section belongs to you and the other 5,600 ACS members who reside in the Chicago area (northeast Illinois and northwest Indiana). Only you can make it work for you by being involved. But you can also make it fail by not being involved. I look forward to hearing from you.

MILT LEVENBERG
Chair



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ANALYSIS FOR THE CHEMICAL ELEMENTS

ALMA E-NEWS

Maintaining Minimum Quantities of Chemicals

In past decades, managers paid little attention to the chemicals used in the lab beyond providing a safe storage location, basic safe handling instructions, and perhaps setting up an inventory system. It was common for laboratories to buy chemicals in bulk to save money and to gladly accept "free" samples from vendors for evaluation. Some lab managers continue to follow this model even though new environmental and hygiene standards make this approach risky and costly.

Prudent management of chemicals for the laboratory now requires more manager attention and a more proactive system to protect the company and employee interests. The new philosophy requires reducing the volume of every chemical to the minimum necessary to achieve the goals for which it was acquired. Policies are needed to restrict "gifts" that can cost many times their value in disposal costs and to establish clear purchase guidelines to prevent stockpiling. Alternative arrangements such as leaving responsibility for storing and inventorying chemicals with the supplier should be pursued.

ACS guidelines cite several advantages for maintaining minimum quantities such as reduced risk of breakage, reduced risk of exposure following an accident, reduced storage costs, reduced waste from decomposition during storage, and reduced disposal costs. Experience has shown that if a chemical has not been used in the past three years, it is unlikely to be used in the future and should be disposed of—the longer it sits on the shelf, the more expensive it is likely to be to get rid of it. A little time invested in setting up a good chemical management program can yield big dividends and avoid expensive headaches in the future.

Past ALMA (Analytical Laboratory Managers Association) e-News editions are available at the website <http://www.lab-managers.org/>.

If you have any comments, cost saving suggestions, opinions, etc. let me hear from you.

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Roosevelt University is an urban, independent university committed to student success, academic quality, and social justice, with campuses in Chicago and Schaumburg, Illinois.

The School of Science and Mathematics of Roosevelt University offers Bachelors and Masters degrees and certificates at both the undergraduate and graduate levels. Courses, degree programs, and certificates are offered in the natural sciences, mathematical sciences. Courses are offered in all disciplines on both campuses and most degrees can be completed on either campus. The chemistry degrees must be completed at the Schaumburg campus.

Roosevelt's chemistry curriculum is designed to provide every student major with a solid foundation in the sciences. Most of our chemistry courses include hands on laboratory experience, which is critical to success in today's competitive job market. We also encourage students to work directly with faculty members on supervised laboratory research projects. Small class sizes and a highly qualified faculty make Roosevelt an ideal place for chemistry students who desire personal attention and direct access to the knowledge and expertise of experienced professional scientists.

The Roosevelt chemistry program welcomes new college students, community college transfer students and students returning to college after a break in their education. We also welcome post-baccalaureate students who desire pre-professional preparation for medical, dental or veterinary school, and post-baccalaureate science students who wish to upgrade their technical skills to enhance employment opportunities. Students planning to transfer from a community college should see a counselor familiar with Roosevelt articulation arrangements early in their academic careers. Transfer students will benefit from strong preparation in mathematics and chemistry.

Schedule of Spring 2005 Chemistry Courses:

Downtown Chicago Campus, 430 S. Michigan Ave.

Chem. 106 Forensic Science: 3 s.h. Sat. Mornings
Chem. 202 General Chemistry II: 4 s.h. Tue. & Thu. Days
Chem. 211 Organic Chemistry I: 4 s.h. Tue. & Thu. Evenings
Chem. 212 Organic Chemistry II: 4 s.h. Mon. & Wed. Evenings

Schaumburg Campus 1400 N. Roosevelt Blvd., Schaumburg

Chem. 100 Chemistry in Context 4 s.h. Tue. & Thu. Days
Chem. 101 General Chemistry I: 4 s.h. Mon. & Wed. Evenings
Chem. 202 General Chemistry II: 4 s.h. Mon. & Wed. Days
Chem. 212 Organic Chemistry II: 4 s.h. Tue. & Thu. Days
Chem. 237 Quantitative Environmental Analysis 3 s.h. Mon. & Wed. Evenings
Chem. 313/413 Advanced Organic Chemistry 4 s.h. Tue. & Thu. Evenings
Chem. 322/422 Physical Chemistry II: 3 s.h. Mon. & Wed. Evenings
Chem. 325/425 Physical Chemistry Laboratory Saturday Days
Chem. 355/455 Biochemistry 3 s.h. Tue. & Thu. Evenings
Chem. 381/481 Polymer Chemistry 3 s.h. Mon. & Wed. Evenings
Chem. 393/493 Chemistry Seminar 1 s.h. Thu. Evening

For further information, go to www.roosevelt.edu. or call 312-341-3687.

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APATHY IN THE CHICAGO SECTION

A growing trend has been occurring in our section. It is also seen in our national organization and most likely occurs in our nation as a whole. Maybe you wonder what it is. Our members no longer care or want to take the time to exercise their right to participate in our section's elections. It is not this year or last year but year by year the numbers of ballots have decreased. Our section has 5100 members and only 511 members bothered to return a ballot in the 2004 election. This is only 10% of our membership.

One committee I enjoy participating in is the Tellers committee. Maybe it is because in 1978 when I joined the American Chemical Society, the first committee another member took me to was the Tellers Committee. At that time our section office was downtown on Van Buren Street. In those days the Tellers Committee met as early as possible in the morning and finished, maybe if you were lucky, just before the dinner meeting at 5 p.m. Those were the days of 2000 to 3000 ballots. It was a time to learn new names as you counted the ballots.

So, what is happening to cause such apathy in our members? We also see this in our dinner meeting attendance; but, as most sections have come to realize, people are busy with family activities or are bombarded by many other technical meetings everyday and would rather enjoy the evening with other activities. Yes, some of our board discussed Friday meeting night as the problem. This topic is for a discussion at another time.

Now back to the problem of poor voter return. Is it because our members no longer care about our section or who runs it? Could it be that our members feel that the candidates are not qualified so why vote? Are we behind the times and our members would prefer to vote electronically? Are we not meeting the needs of our newer members or younger members?

Now it is your turn. I as a concerned member would like to open up a dialogue in the *Chemical Bulletin* on the reasons you feel there is low ballot return and suggestions to improve member participation in future elections. Being a cynic, I feel this article will fall on deaf ears. Prove me wrong that there is not apathy among both young and mature chemists in solving such a critical problem.

Remember I would like to hear viewpoints from members we never hear from as well as members who usually communicate with us. Therefore meet my challenge and send in a letter to the Bulletin or directly to me, Fran Kravitz

through the section office. I look forward to hearing from at least one member.

FRAN KRAVITZ

CHEMAGINATION--OUT-REACH PROGRAM FOR HIGH SCHOOL STUDENTS AND TEACHERS

Chemagination is a science essay and poster contest developed by the American Chemical Society's Office of Community Activities (OCA). In the contest students in grades 9-12 are asked to write an article and design the cover for a future edition of ChemMatters magazine. Articles are written to describe an innovation or breakthrough in chemistry that is important in the lives of teenagers in the future. Students are encouraged to base their ideas on sound chemistry and then develop those ideas.

Chemagination was designed with the National Science Education Standards in mind and has successfully been used as an alternative to science fair projects and as an in- or out-of-class assignment by participating teachers. Organizing a Chemagination contest requires a level of commitment similar to running a science fair, and can be handled by one person or a committee of interested individuals. Planning the contest, mentoring students and judging entries have proven to be outstanding opportunities for local sections to involve senior chemists, student affiliates, teachers, members of industry and academe.

The local contest would be in February or March but we would like to begin promotion as soon as possible. To find out more about Chemagination, visit <http://chemistry.org/oca>. Chemagination resources for coordinators and committee members are available on CD-ROM and may be requested from OCA at <http://chemagination@acs.org>, or 800-227-5558, ext. 4458.

CHICAGO CHEMISTS' CLUB

Club History

The Chicago Chemists' Club was chartered December 30, 1919 as a social organization to promote good fellowship and camaraderie among Chicago-area chemists. Through the years, the Club roster has included many prominent members of the chemical profession.

Social Events

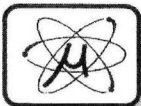
The social calendar of the Chemists' Club includes ten dinner meetings per year where spouses and/or guests are welcome to attend. Meetings are on the second Wednesday of the month at various restaurants in the metropolitan area featuring a variety of cuisines. We present timely, stimulating speakers in fields such as science, politics, medicine, etc., and folk-singers, artisans and world travelers with their videos. In the spring the Club has a dinner-theater party. In June, jointly with the ACS Chicago Section's Education Meeting, we present the Bernard Schaar Memorial Award to the first-place winner of the ACS high-school chemistry examination. The Club is also a co-sponsor of the ACS Chicago Section's annual Holiday Party in December.

Membership Benefits

Membership dues are \$50 per year. As a non-profit organization, the Club returns a portion of these dues to its members in the form of dinner price reductions. The Club also publishes a newsletter, *The Stirring Rod*, and a Membership Directory. The Club has proven to be a valuable venue for exchange of technical knowledge.

Joining the Club

Membership is open to chemists, chemical engineers and allied scientists. A person wishing to join the Club must be sponsored by an active member and complete an application which is approved by the Board of Trustees.



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WCC COLUMN

Members of the Chicago Section's Women Chemist Committee (WCC) are developing outreach plans for Chicago Area section members and the community. These plans include a column in the Chicago Bulletin covering topics such as networking, career development, vignettes of women in chemistry. This month's topic is about **Catherine Woytowicz**.

I was quite a bit nervous as I walked into the classroom of the Cudahy Science Building at the Loyola University Lakeshore campus. It was the first day of the Summer Semester, and I was bracing myself for an epic, three months long battle with the archenemy of my undergraduate career: Organic Chemistry. What was even worse is that I didn't know who the teacher was going to be: the class schedule simply stated TBA. As I took a seat in the back of the crowded classroom, I noticed an attractive young woman, whom I assumed to be a fellow student, seated at the teacher's desk. She had flowing long hair, bright green eyes, and posture that exuded confidence. "That girl better find a seat before the prof gets here," I thought to myself. At that point, she glanced at the clock, stood up, and said in a strong, pleasant voice: "Hello, and welcome to the Organic Chemistry!"

That's how I met Dr. Catherine Woytowicz.

Right from the start I knew it wasn't going to be an ordinary class. Once the syllabi were handed out and the semantics of the course were covered, Dr. Woytowicz asked: "So, how many of you like oil and vinegar dressing on your salad?" I exchanged a couple of confused glances with the students around me and sheepishly raised my hand. Was this a joke? Some sort of a culinary icebreaker? Yet it all made sense when Dr. Woytowicz went on to explain how vinegar is pretty much diluted acetic acid, which in turn is an organic molecule with a formula $C_2H_4O_2$. Suddenly, Organic Chemistry was no longer a lab-dwelling, GPA-injuring arch-enemy -- it now was the stuff of life around me, friendly stuff like vinegar to spice up my salad. As the course progressed, chemical names, structures, and reactions little by little ceased to seem contrived or foreign, but rather became simple and even natural attempts to describe the going ons in this crazy world of ours. And I ended up tremendously enjoying the class that I once feared.

Organic Chemistry by far wasn't the only thing I learned from Dr. Woytowicz. The class before our first exam Dr. Woytowicz announced that we were having a review session. She then produced a stack of practice questions and ... a large bag of

candy! "We are going to review the same way the dolphins are trained," she explained. "Every time you get a question right, you get to take a piece of candy out of the bag. Eventually your brain will learn to associate the correct answer with a sweet reward, whether or not the physical reward actually follows." Now that's not something you see in every 200 level college course. Then again, maybe you should. By golly, it works.

That was in summer 1999. And since then, Catherine Woytowicz's career has developed in a way that is just as outstanding and remarkable as her method of teaching. She has served as the American Chemical Society's Science Policy Fellow (1999-2001) and joined the U.S. Department of State as an American Association for the Advancement of Science (AAAS) Science and Technology Diplomacy Fellow (2002-2004). There she coordinates the Eastern Europe portfolio (geographic focus); covers biotechnology, education, biological and chemical terrorism, nanotechnology (topical portfolio); and acts as liaison to the Organization for Economic and Cooperative Development's Committee for Scientific and Technological Policy and its sub-bodies. She works closely with 14 countries (posts) and 2 Hubs (Copenhagen and Budapest) to cover regional issues. Dr. Woytowicz also interacts with the White House Office of Science and Technology Policy on strategies for U.S. science and technology that intersect her portfolio. Outside of the Department of State, she teaches on the chemistry faculty of George Washington University where she initiated a program to mentor science students in career development including nontraditional science jobs such as public policy work. She is committed to public outreach about civic science and has spoken at several schools - including Washington D.C.'s celebrated School Without Walls - on the value of science as a career choice in nontraditional fields. She coaches public speaking including television preparation for Toastmasters and helped produce a television show with Broadcasters, a Chicago-based advanced chapter of Toastmasters. In her spare time, Dr. Woytowicz writes and maintains a consulting practice in technical writing. She also tours as a stand-up comedienne. And on top of all that, she has been appointed the Hometown Diplomat for the Chicagoland - which is very appropriate since Dr. Woytowicz was born and raised in Park Ridge, IL and obtained her undergraduate degree in Chemistry from the Honors Program at Loyola University of Chicago. (Her Ph.D., also in Chemistry, came from the University of California, Riverside.)

It just so happens that Dr. Catherine Woytowicz is scheduled to be the main

speaker at the Chicago Section ACS January Dinner Meeting. Therefore, be sure to attend the January meeting and meet this remarkable lady who has accomplished so much and made a difference in the lives of so many students, including my own.

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SECTION SPEAKERS' BUREAU

The Section is trying to rejuvenate its Speakers' Bureau. We have had some individuals volunteer to speak at schools, service organizations etc and a few requests for speakers or demonstrators. We are in need of someone willing to take responsibility for compiling a list of volunteer speakers and topics and for getting this information out to area schools, libraries and service organizations. One person has volunteered to help organize this but cannot take on the project without assistance. If you can possibly fit this task into your busy schedule, please call or e-mail the Section office. If you cannot do this but are interested in speaking, please also let us know.

SUSAN SHIH, CO-CHAIR
LONG RANGE PLANNING

NEW PROGRAM AIMS TO HELP MATURE CHEMISTS

ACS industrial members age 45 and over who have lost their jobs, or have been given notice that they will become unemployed by December 31, are eligible for a pilot program that aims to assist them to return to work.

Five mid- and late-career members will receive financial subsidies to receive professional career coaching and to participate in the Chemjobs Career Center at the Spring 2005 National Meeting in San Diego. The new program, "Member Career Outreach," was launched this fall by the ACS Department of Career Services (DCS) with the support of Corporation Associates.

Data show that mature chemists (age 45+) face very different challenges in securing employment than younger chemists. Not only are older workers more likely to be unemployed and to experience lengthy periods of unemployment, but they also may lack recent experience in looking for a job, face greater family and financial responsibilities than younger candidates, have outdated skills, bring unrealistic expectations to the job search, and suffer age discrimination.

According to data from the 2004 ACS Comprehensive Salary and Employment Status Survey, the unemployment rate is positively correlated with age. Not only is the unemployment rate higher for older chemists, but chemists over the age of 45 are likely to experience a lengthier period of unemployment than younger chemists. According to the latest survey, as of March 1, 2004, 38.5 percent of the unemployed age 45+ had been unemployed for a year or more, while only 17 percent of those under age 45 were unemployed for a long period.

The "Member Career Outreach" program will help grantees in four essential ways:

- It will provide financial support to receive professional career coaching, purchased online and delivered via telephone and e-mail. This personal, one-on-one assistance can help members refine their job-search strategy.
- It covers travel expenses to attend the Spring 2005 National Meeting in San Diego. This will enable grantees to participate in Chemjobs Career Center, including taking interviews with prospective employers and attending workshops and technical sessions.
- A reception for mid- and late-career job seekers and selected employers will be held at the San Diego National Meeting. This will afford grantees an opportunity to interact informally with

other chemists, including prospective employers. Networking is known to be one of the main mechanisms by which job seekers learn of job opportunities and eventually secure positions.

- Each participant will receive a career transition workbook developed by the Department of Career Services. The workbook will guide ACS members through the stages of the career transition process as well as provide a record-keeping system for tracking the progress of their job search.

After advertising "Member Career Outreach" in Chemical & Engineering News, DCS will select awardees by a combination of lottery and evaluation of their application materials with the assistance of the Subcommittee on Professional Services of the Committee on Economic and Professional Affairs (CEPA). (CEPA reviews ACS career programs and services.) Those selected for the program will be notified in early January.

To apply for the program or for further information, contact Elaine Diggs (e_diggs@acs.org).

HOLIDAY PARTY

Get those fingers ready to make reservations for the annual Chicago Section, American Chemical Society holiday party on Friday, December 10, 2004. This year the Hospitality committee plans to use the same plan as last year that made the holiday gift raffle more efficient. Prior to the meeting, gifts will be numbered randomly and placed on tables in the back of the dining room. Each attendee will draw a clip with a number on it when they register that evening for the meeting. Please attach that number to your name badge.

Gifts will be handed out by volunteers throughout the evening by calling up groups of individuals having a series of numbers. Larger gifts such as dinner certificates or gift certificates will be announced separately throughout dinner. Meeting attendees are asked to claim their gift only during the time their numbers have been announced. A schedule will be handed out at the time of registration. Those individuals who forget to claim their gift will have another opportunity to claim them at the end of the evening. Individuals must present their numbered clip in order to pick up their gift. There will be no exchanges for anyone who is unhappy with their raffle gift. These gifts are only meant to be a token item.

Door prizes of wine will only be handed out to those 21 or older. A substitute prize will be handed out to students under the age of 21. As always, please do not open your wine at the table.

FRAN KRAVITZ

ZAFRA TAKES ON MIDDLE EAST PEACE CHALLENGE

Chicago Section's **Dr. Zafra Lerman**, Distinguished Professor of Science and Public Policy and Head of the Science Institute at Columbia College, initiated a conference of scientists last December on the Mediterranean island of Malta. The conference, called "Frontiers of Chemical Science: Research and Education in the Middle East" included 35 scientists from Israel, the Palestinian Authority, Jordan, Syria, Lebanon, and Kuwait. At Zafra's initiation, the conference was sponsored by the ACS, IUPAC, and the Royal Society of Chemistry of the United Kingdom, and dealt with regional issues such as water purification, waste disposal, protection of the atmosphere, and best practices for a sustainable chemistry industry.

Zafra's hope is that people-to-people contact, understanding, and partnerships in solving quality-of-life problems will eventually lead to peace in the region. "I decided that if you just leave it to the politicians it doesn't go. So I am trying to mobilize scientists to talk to each other and collaborate because science really doesn't have borders and it's an international language", says Zafra. The conference resulted in several joint Israeli-Arab initiatives, scholarships funded for Middle Eastern scientists, and plans underway for Malta II in 2005. And finally, Zafra admits, "Now I am trying to make peace in the Middle East". Well, if anyone can do it, Zafra can!

CHEMICAL ENGINEERING SYMPOSIUM

The American Institute of Chemical Engineers is making plans for its April 2005 symposium, "Chemical Engineering - At the Crossroads of Technology," to be held at the Illinois Institute of Technology. Actual dates will be finalized shortly. The two-day event will feature sessions in five areas: Nanotechnology; Biotechnology; Sustainable Chemical Engineering; Computers & Chemical Engineering; and Fundamental Studies. Members are encouraged to participate by submitting a poster or presented paper. A complete program listing will be available online at <http://www.aiche.org>. For more details, contact Ram Ramachandran, Ph.D., 630-922-5603, Ram_Consult@hotmail.com, or nadhikarun@aol.com.

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

INVENTED IN CHICAGO: PETROLEUM REFINING

This article is the first of a series that highlights chemical innovation in the Chicago metropolitan area. Through invention and innovation, local organizations have made very important contributions to the quality of life that we enjoy today. The impact of "Chicago Technology" is felt on a truly-global scale. The purpose of this series is to highlight several examples.

Petroleum Refining

Think of petroleum...most people think of Texas, Oklahoma, the Middle East, and many other places far from Chicago. However, crude petroleum is not suitable for use in our cars, airplanes, chemical plants, and other applications without substantial refining. When you think of petroleum refining, you must think of chemistry...and Chicago. Crude oil can't be used directly to make the plastics, fabrics, and other modern materials that we depend on for a wide variety of our modern needs. It is often said that the world runs on petroleum. This is not completely accurate; it is much more accurate to say that the world runs on products refined from petroleum. The modern refinery was essentially invented in the Chicago area. Oil refining is not simply one invention...the modern refinery is a complex, interconnected set of individual chemical processes. Starting with a goeey, sticky, bad-smelling material, an integrated set of advanced chemical process technologies is used to make a wide range of products. The cost? A gallon of highly refined gasoline, with all the tax, is delivered to you for about the cost of bottled water.

The modern refinery is based on technology from many individuals and organizations. However, it can be argued that perhaps the most impact on refining has been made by a company that doesn't even own any oil wells! Nestled at a couple of sites in suburban Chicago, UOP has made enormous impact on petroleum refining over the last 90 years.

During the industrial revolution, oil was generally produced from whales. (The peak number of whales harvested was in 1962!) Edwin Drake's first well in Titusville, Pennsylvania struck oil in 1859. However, at that time, crude oil produced only a limited amount of useful product. Before the 1920's, crude oil was separated into products mostly by simple fractionation. Gasoline was a waste product. The automobile changed this. All of a sudden, the problem was how to make more gasoline from petroleum.

Jesse A. Dubbs and his son Carbon Petroleum (yes, his real name was Carbon Petroleum CP — for short) invented a process for using chemistry to increase the amount of gasoline yield from crude oil. In his spare time, CP was also President of the Village of Wilmette. With investment from fellow Chicagoan J. Ogden Armour, UOP built in 1921 a new research and development center near the suburb of Riverside. In an interesting parallel, Armour's father is famous for his quote on "using everything but the squeal," which characterizes his effort to make meat-packing plants more efficient. Jesse Dubbs' son Carbon leveraged his father's inventive vision to start the refining industry on the path of efficiency by converting more of the barrel into useful product. Serving as a showcase for chemical innovation, The UOP Riverside R&D Center generated over 9,000 US patents during the period from 1921 to 1955. The Riverside Laboratory was designated as one of the first National Historic Chemical Landmarks in 1995 by the American Chemical Society. As the demand for gasoline and other hydrocarbon-based products increased, this Chicago-based company continues to be the leader in new refining technology.

Over the years, this company has been owned by the oil companies and the ACS. It has been a publicly-traded corporation, and is now owned as a joint venture by two major US companies. The primary R&D center is now co-located with the company headquarters in suburban Des Plaines. This Center is staffed with a new generation of enthusiastic scientists and engineers, who have continued the tradition of innovation. A stream of major inventions related to new processes for fuels and petrochemicals has emerged from this Chicago giant. For example, this company not only provided major innovation for the automotive catalytic converter, but also for the required lead-free fuel. This effort has made Chicagoland a major center for development of advanced, more environmentally compatible, fuels and chemicals.

The first stop on any tour of the Des Plaines Research Center is the Patent Hall of Fame, located in the lobby. An employee must have at least 75 US patents to earn a place on this wall; today, there are photographs of 26 inventors...with more on the way. We should be proud of the modern petroleum industry...it was...invented in Chicago.

Additional information may be found for this company at www.uop.com

RUSS JOHNSON

ACS PROSPECTIVES 2005 CONFERENCE SERIES

Go to www.acsprospectives.org for more information on any of the conferences listed below.

- **Process Chemistry in the Pharmaceutical Industry**
February 6-9 / Miami, FL
- **Interplay of Chemistry and Biology in Integrative Drug Discovery**
March 6-9 / Miami, FL
- **Advanced Forensic Science to Combat Counterfeit Drugs, Crime & Terrorism**
May 1-4 / San Diego, CA
- **Discovery and Selection of Successful Drug Candidates**
May 15-18 / Boston, MA
- **Advances in Structure-Based Drug Discovery**
June 5 - 8 / Philadelphia, PA
- **NEW: 2nd International Congress on Antioxidant Methods**
June, 2005 / Orlando, FL
- **Organic Microelectronics (joint with IEEE and MRS)**
July 10-13 / Newport, RI

The ACS ProSpectives conferences series combines all the best elements of scientific conferences:

- Narrowly focused treatments of topical subjects
- Presentations by top authorities on the subject — every speaker, from the keynote to the last presenter, is hand picked from among the field's top experts
- Limited attendance, so you will have the chance to meet and talk to the presenters and fellow attendees
- Shorter programs that let you put in a day or two at the office the same week of the conference
- Venues that are comfortable, in easy-to-reach cities

Please go to www.acsprospectives.org and register for NEW CONFERENCE ALERTS to stay updated on confirmed speakers and new additions to the schedule.

FOOD DRIVE

We will be collecting canned goods for charity at the December Holiday Party. Please bring at least one can of food to donate when you come.

Last year you donated about 500 pounds of food that went to the Loaves and Fishes Community Pantry for distribution. This matched what we collected last year. Let's try to beat last year's record!

REVISION OF ACS GUIDELINES FOR UNDER- GRADUATE CHEMISTRY PROGRAMS

Maintaining high standards of excellence in undergraduate and graduate education is an important part of the mission of the American Chemical Society, and the Committee on Professional Training (CPT) plays a major role in this effort. Most chemists are aware of CPT because it develops and administers the ACS approval program for undergraduate chemistry programs.

The guidelines for ACS approval are regularly reviewed by CPT to ensure that they reflect the current state of chemistry and of education. Chemistry is a rapidly evolving science, particularly in interdisciplinary areas. Major changes have also been taking place in the delivery of undergraduate education, with increasing emphasis on applications, active learning, and group experiences.

Although the most recent edition of the guidelines was released in 2003, CPT is already considering possible major revisions for the next edition. As part of this process, it is essential to obtain broad input from the chemistry community regarding the undergraduate chemistry curriculum.

CPT invites the chemistry community to comment on new directions for the next edition of the guidelines for ACS approval of undergraduate chemistry programs. In particular, CPT seeks responses to the following questions:

- What should an ACS certified chemistry graduate know and be able to do?
 - Are there any major impediments for an undergraduate student pursuing an ACS certified chemistry degree?
 - How should a chemistry curriculum balance the breadth of required core courses with the flexibility of elective advanced courses?
 - What ancillary skills should be required of ACS certified chemistry graduates?
 - What should be the relative roles of traditional chemical disciplines (e.g., analytical, inorganic, organic, physical chemistry) and more recently developed interdisciplinary areas (e.g., biochemistry, environmental science, green chemistry, material science) in chemistry education?
 - Given increasing public demand for program assessment and improvement, should approved departments be required to regularly assess the effectiveness of their curriculum and use the results to continually improve their program?
 - What is the value of ACS approval to your program and of an ACS certified chemistry degree to your graduates?
- Please send your views on these

issues, or on any other issue relating to the guidelines for ACS approval, to CPT by email at cpt@acs.org with a subject of Guidelines Revision.

SCIENCE EDUCATION TODAY:

CHILDREN'S SCIENCE EXAM ANSWERS

The following are real answers given by children —

- Q:** Name the four seasons.
A: Salt, pepper, mustard and vinegar.
- Q:** Explain one of the processes by which water can be made safe to drink.
A: Flirtation makes water safe to drink because it removes large pollutants like grit, sand, sheep stuff and canoeists.
- Q:** How is dew formed?
A: The sun shines down on the leaves and makes them perspire.
- Q:** How can you delay milk turning sour?
A: Keep it in the cow.
- Q:** What causes the tides in the oceans?
A: The tides are a fight between the Earth and the Moon. All water tends to flow towards the moon, because there is no water on the moon, and nature hates a vacuum. I forget where the sun joins in this fight.
- Q:** What are steroids?
A: Things for keeping carpets still on the stairs.
- Q:** What happens to your body as you age?
A: When you get old, so do your bowels and you get intercontinental.
- Q:** What happens to a boy when he reaches puberty?
A: He says good-bye to his boyhood and looks forward to his adultery.
- Q:** Name a major disease associated with cigarettes.
A: Premature death.
- Q:** What is artificial insemination?
A: When the farmer does it to the bull instead of the cow.
- Q:** How are the main parts of the body categorized? (e.g., abdomen.)
A: The body is consisted into three parts - the brainium, the borax and the abdominal cavity. The brainium con-

tains the brain; the borax contains the heart and lungs, and the abdominal cavity contains the five bowels, A, E, I, O, and U.

Q: What is the fibula?

A: A small lie.

Q: What does "varicose" mean?

A: Nearby.

Q: Give the meaning of the term "Caesarian Section"

A: The Caesarian Section is a district in Rome.

Q: What does the word "benign" mean?

A: Benign is what you will be after you be eight.

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 847-647-8405 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.

SECTION SURVEY

Did you know that there is an ACS Chicago Section Survey available on our website? The Membership Committee invites you to fill out and send in the survey for the purpose of finding out your opinions and preferences on the monthly dinner meeting locations, meeting format, and topics. Go to <http://ChicagoACS.org> to fill out the survey.

ARE YOU OR YOUR COLLEAGUES TRAINED IN IDENTIFYING OR USING FIRE EXTINGUISHERS WHEN NEEDED?

Placing fire extinguishers throughout a facility and not providing training in their use is an exercise in futility. What it amounts to is this. Placing fire extinguishers throughout a facility but not providing any training in how to use them in an emergency is a charade.

Training In Using A Fire Extinguisher

OSHA requires fire fighting training only of those who are expected to fight fires. If emergency action plans communicated to building personnel state that they should evacuate in the event of a fire, they do not need to be trained in fire fighting. Facilities that have fire fighting brigades do need to provide extensive training to brigade members. One good approach is to train and expect building occupants to use extinguishers to fight contained fires such as in wastebaskets only. If the fire is larger or out of control, EVACUATE!

ABC's of Fire Extinguishers

To control fires, extinguisher users must be familiar with the four available types and their uses. The four basic types of fire extinguishers that can be used to subdue a fire include: Class A, Class B, Class C, and Class D.

Class A fire extinguishers are used for ordinary fires that burn paper, trash, cloth or rags. The fire is controlled by wetting down the fire and/or cooling the flames.

Class B Types put out fires that may involve flammable liquids or gases such as oil, paint, solvents, and grease. They do this by suffocating the fire.

Class C Extinguishers are used on electrical equipment and wiring. These extinguishers use carbon dioxide or a non-conducting chemical. N.B. Never, never use water to fight an electrical fire!

Class D Types of extinguishers are used for fires that involve combustible metal these may involve sodium, potassium, lithium, magnesium or other active metals.

Combination ABC or BC extinguishers are used on fires involving combinations of the A, B, and C classes.

Location, Location, Location

Fire extinguishers, as well as any emergency equipment, should be conspicuously located in such a way that they're readily available for immediate

use. They should be placed along normal paths of travel and egress and identified as to location. Operating instructions on the extinguishers should face outward. Travel distance for Class A and D extinguishers should not exceed 75 feet; Class B distance is 50 feet. There is no maximum for Class C extinguishers. And, of course, classification markings must be clearly visible.

Operating Instructions

The National Fire Protection Association (NFPA) advises people to remember the word "PASS," which spells out the steps to take when using a fire extinguisher—

Pull the pin on the unit unless there is a lever to press to activate the unit Aim at the base of the fire, while standing about eight feet away Squeeze the handle to expel the extinguishing agent Sweep from side to side until the fire is out.

Never turn your back on a fire even if it looks like the fire is out. The flames may flash up again and it may be necessary to continue spraying

Fire Extinguishers Inspection and Maintenance Program

A regular inspection and maintenance program for extinguishers is required by OSHA. The inspection program requires a once-a year examination of all extinguishers to verify their working condition. The inspection tag should be marked with the date of the inspection to verify that the inspection had taken place.

Don't Be A Hero

Even if building occupants have been well trained on when, where, and how to use fire extinguishers for small fires, they still need to be trained that if a fire is too large for them to handle on their own, they need to evacuate immediately and notify the fire brigade or the fire department.

Training Tips

Hands-on training works best with fire prevention and extinguisher use. Those who are to be trained should take a tour of the facility and the different types of extinguishers, within the facility, should be identified. At the same time, potential hazards, e.g. greasy rags, frayed wiring, or blocked exits should be noted. Practice outside on a pretend fire or ask the local fire department to give a demonstration.

STEVE SICHAK
ENVIRONMENTAL & LAB SAFETY
COMMITTEE CO-CHAIR

SCIENCE HISTORY TOUR HEADS TO EASTERN EUROPE

The annual summer Science History Tour headed by University of Illinois at Chicago chemistry teacher **Lee Marek** has just returned from Germany and is making plans for a 2005 tour to Eastern Europe. The two-week trip will start in the second half of June 2005. Exact dates are not yet decided.

The group will travel to Dresden and the Saxony region of Germany, Prague and other places in the Czech Republic, and Vienna, Austria.

Marek said that accommodations will be in comfortable, welcoming hotels where all rooms have private bathrooms. During the tour all admissions to museums, lecture fees, and taxes are included along with land transportation, hotels and breakfasts, and at least (on average) one other meal per day. The cost of the 2005 tour is not yet calculated, but for guidance, the 2004 tour cost was \$2,850 per person double occupancy.

Graduate credit is available. CPDUs are also available for teachers.

For more information and to be put on the mailing list, contact Yvonne Twomey of Naperville, 630-961-9811, ytwomey@mindspring.com, or Lee Marek at 630-420-7516, LMarek@aol.com, www.chem.uic.edu/marek/

POP TOP RINGS COLLECTION

Instead of throwing away those pop top rings from your pop cans, please bring them to the dinner meeting so we can donate them to a program at Ronald McDonald House.

COMMITTEE ON CHEMICAL SAFETY WEBSITE

The ACS Committee on Chemical Safety (CCS) provides advice and counsel on the handling of chemicals, and seeks to ensure safe facilities, designs, and operations by calling attention to potential hazards and stimulating education in safe chemical practices. CCS has developed publications such as Safety in Academic Chemistry Laboratories, Safety Audit/Inspection Manual, and Safety in the Elementary (K-6) Science Classroom. For more information, including on-line publications and resources, visit the CCS website at: <http://chemistry.org/committees/ccs>

STANLEY C. ISRAEL REGIONAL AWARD FOR ADVANCING DIVERSITY IN THE CHEMICAL SCIENCES

The ACS Committee on Minority Affairs is pleased to announce a call for nominations for the Stanley C. Israel Regional Award for Advancing Diversity in the Chemical Sciences.

Purpose: To recognize individuals and/or institutions that have advanced diversity in the chemical sciences and significantly stimulated or fostered activities that promote inclusiveness within the region.

Nature: The award consists of a medal and a \$1000 grant to support and further the activities for which the award was made. The award also will include funding to cover the recipient's travel expenses to the ACS regional meeting at which the award will be presented.

Rules of Eligibility: Individuals nominated for the award may come from any professional setting: academia, industry, government, or other independent facility. Nominees may also be organizations, including ACS local sections and divisions. The awardees will have increased the participation and leadership of underrepresented minorities, persons with disabilities, and women through mentoring, hiring, promotion and/or other activities that lead to greater inclusiveness within the chemical sciences.

To Nominate: For nomination of individuals, the packet should include a letter of no more than three pages, a seconding letter, and a CV or résumé. For the nomination of institutions, the packet should include the first two items and a brief description of the institution.

Send nominations to: Committee on Minority Affairs, American Chemical Society, 1155 16th Street, NW, Washington, DC 20036

For information regarding the award, contact Cheryl Brown, 800/227-5558, ext. 6123.

Deadline for receipt of nominations is January 15, 2005.

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CALENDAR

January 14, 2005: Chicago Section's monthly dinner meeting.

February 25, 2005: Chicago Section's monthly dinner meeting.

February 27 — March 4, 2005: PittCon 2005 will be held in Orlando, FL, Orange County Convention Center. Go to www.pittcon.org for more information.

March 13-17, 2005: The 229th ACS National Meeting will be in San Diego, CA.

March 25, 2005: Chicago Section's monthly dinner meeting.

April 22, 2005: Chicago Section's monthly dinner meeting.

May 20, 2005: Chicago Section's Willard Gibbs Medal Presentation Lecture.

June 24, 2005: Chicago Section's monthly dinner meeting.

August 12-21, 2005: Illinois Local Sections' cooperative program at the Illinois State Fair.

August 28 - September 1, 2005: The 230th ACS National Meeting will be in Washington, DC.

September 23, 2005: Chicago Section's monthly dinner meeting.

October 16-21, 2005: National Chemistry Week — Theme: "The Joy of Toys".

October 21, 2005: Basolo Medal Award joint meeting with Northwestern University.

November 18, 2005: Chicago Section's monthly dinner meeting.

December 9, 2005: Chicago Section's Holiday party and dinner meeting.

*Have a Happy
and Safe
Holiday Season*

CHICAGO SECTION, AMERICAN CHEMICAL SOCIETY
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