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SEPTEMBER • 2004

CHICAGO SECTION AMERICAN CHEMICAL SOCIETY

Joint Meeting with the Joliet Section

THURSDAY, SEPTEMBER 23, 2004

NOTE CHANGE IN DAY!

University of St. Francis
The Auditorium in the
Main Educational Building
500 Wilcox Street
Joliet, IL
815-740-3360

DIRECTIONS TO THE MEETING:
From Chicago: Take I-55 South (Stevenson) to I-80. Go East on I-80 to North Larkin Exit (known as Hwy 7). Go North on Larkin to Glenwood Ave. (fourth traffic light). Turn East (right) on Glenwood Ave. and go to Wilcox. Turn North (left) on Wilcox to the University (500 Wilcox), about 2 blocks.

From Northwest Indiana: Take I-80 to North Larkin Ext. (known as Hwy 7), Go North on Larkin to Glenwood Ave. (fourth traffic light). Turn East (right) on Glenwood Ave. and go to Wilcox. Turn North (left) on Wilcox to the University (500 Wilcox), about 2 blocks. **See detailed map on back page.**

Park anywhere

Signs will be posted inside the building directing you to the lecture.

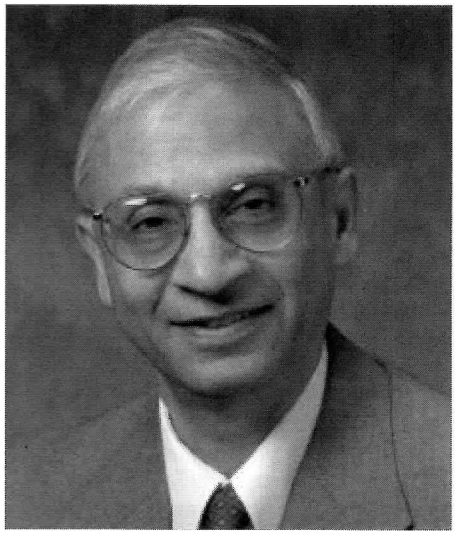
The Joliet Section does not have a meal or social hour associated with their meetings. Members normally eat at home, at a nearby restaurant (see short list below), or at the University Cafeteria. The Cafeteria opens at 5:00 p.m. and closes at 6:30 p.m. sharp. Those wishing to use the cafeteria should arrive by 5:30.

Restaurants in the area:
Louie's Chophouse, 700 W. Jefferson, Shorewood, 815-773-2192
Al's Steak House, 1990 W. Jefferson, Joliet, 815- 725-2388
La Mex, 3157 W. Jefferson, Joliet, 815-729-2686
Note: Jefferson is Hwy 52.

REGISTRATION
We would like those coming to our meeting to register with Gail at the section office. If there are any last minute changes or if some additional information becomes available, then you can be contacted. **This is especially important for those planning on having dinner at the University Cafeteria.** You can phone the Section Office **847-647-8405** and leave your name and contact information or simply register by email (**chicagoacs@ameritech.net**) or via the web-site (**http://ChicagoACS.org**).

We are hoping for a good turnout for this meeting, especially from our members in the southern suburbs and Northwest Indiana.

GENERAL MEETING 7:00 P.M. (SHARP)



Dr. Romesh Kumar, Fuel Cell Department, Chemical Engineering Division, Argonne National Laboratory

Title: "Hydrogen & Fuel Cells: Where We Are, Where We Are Headed"

Abstract: Fuel cells offer clean, efficient power production from conventional and alternative fuels. They have been used in space applications for about 40 years. Their use in terrestrial power generation has been demonstrated in a variety of applications and in many different geographic locations. Their development for use in transportation and dispersed power and co-generation has been energized by the new emphasis on hydrogen as the energy carrier of the future. This talk will discuss the issues in hydrogen and fuel cells, their potential for bringing about changes in the world's energy picture, and the challenges that yet remain to be overcome before they become technically and commercially viable for the mass market.

Biography: Romesh Kumar received his B.Sc. in Chemical Engineering from Panjab University in India, and M.S. and Ph.D., in Chemical Engineering, from the University of California, Berkeley. In his research career at Argonne National Laboratory, he has been involved in advanced nuclear reactor safety analyses, atmospheric chemistry as related to acid rain and dry acid deposition, and, most recently, the emerging field of fuel cells for clean, efficient power production for stationary, portable, and transportation applications. Currently, he heads up the Fuel Cell Department in Argonne's Chemical Engineering Division.

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.

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 **Gerty Cori**.

The implications for the work of Gerty and Carl Cori on carbohydrate metabolism are so well known in our culture that any normal jock can tell you the importance of carbohydrates in the generation of energy in the mammalian body. The names Gerty and Carl Cori and the term Glucose-1-Phosphate also known as the Cori ester mean nothing to the average American. However, most of them know that if they consume excess carbohydrate they are likely to become obese.

Gerty Theresa Radnitz and Carl Ferdinand Cori were both born in Prague in what is now the Czech Republic in 1896. They met at the German University of Prague where both studied Medicine. They collaborated on research work as students and spent recreational time together as well. Carl described her as follows: "She was a fellow student, a young woman who had charm, vitality, intelligence, a sense of humor, and love of the outdoors, qualities which immediately attracted me." They married in 1920 after graduating earlier that year with Doctorates in Medicine.

In the early 1920's Gerty began doing biochemical research in Vienna. Her initial research dealt with thyroid treatment for temperature regulation in a patient with congenital myxedema, and subsequently with studies in thyroid ectomized rabbits. In the time period immediately following WWI, there was wide spread poverty in this part of Europe and anti-Semitism was emerging as a serious issue for them. Since Gerty was Jewish, this meant that her chances of getting an academic position in Europe were extremely slim. They made a decision to emigrate to the United States in 1922. Their first positions were in what is now Roswell Park, New York, near Buffalo, where Gerty continued her studies of thyroid hormone action. This work quickly led to studies on carbohydrate metabolism in vivo and its hormonal regulation.

In 1931 Carl was appointed Professor and Chairman of the Department of Pharmacology at Washington University Medical School in St. Louis and Gerty accepted a position as Research Associate in that Department at a token salary. Together they established a large and unusually productive research program focusing on blood glucose regulation. This research was recognized by the Nobel Prize in Physiology or Medicine in 1947 which they shared with Bernardo Houssay of Argentina. Gerty was the first American woman to receive this honor. The Cori's prize was awarded for describing glucose 1-phosphorylation as the first step in glycogen synthesis. In 1946 they moved to the Department of Biochemistry and in 1947, Gerty became a full professor of Biochemistry. The quality of research and training in the group at Washington University was of such high standard and so significant to medical sciences that six additional Nobel laureates were trained in their lab.

The Cori's were also involved in the formation of Sigma Corporation, the St. Louis, MO based distributor of biochemicals. Their only child, Tom, who was born in 1936, retired as Chairman of Sigma-Aldrich Corporation in 2000.

Gerty died in 1957 after suffering for ten years with myelofibrosis, a rare disease of the bone marrow.

HELEN DICKINSON

36TH GREAT LAKES REGIONAL MEETING

The Peoria Section of the American Chemical Society invites you to participate in the **36th Great Lakes Regional Meeting** "Formulate Your Future", **October 17-20**, at the Pere Marquette in downtown Peoria, Illinois.

Join the best minds in education, industry and government at a variety of technical and poster sessions, including symposia focused on education, food and agricultural chemistry, and polymer chemistry, in addition to the core high-quality ACS sessions.

The North Central American Oil Chemists' Society will also sponsor numerous symposia ranging from new crop developments to edible applications.

Meeting highlights will include:
Teacher Workshop
Short Courses
Undergraduate Poster Session
Vendor Exposition
ACS Regional Employment Clearinghouse
Riverboat Cruise Awards Dinner
WCC and YCC Events

http://membership.acs.org/g/glrm04

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 Don Holden (June meeting).

FRAN KAREN KRAVITZ
HOSPITALITY COMMITTEE CHAIR

In This Issue

Features

In Every Issue

"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.

Mentos Mayhem

Kids, why do Mentos mints dropped into a can of soda make a foamy fountain? One might guess that the acid in the soda might be reacting with some kind of carbonate in the mint coating to create CO_2 carbon dioxide fizz. Mentos have a strange chalky color and texture and they do taste a bit like antacid (calcium carbonate) tablets. However, the ingredients do not include carbonates or, for that matter, any other significantly alkaline material. Mint Mentos contain sugar (sucrose), glucose, coconut oil, starch, emulsifiers, natural flavor, and gum arabic. They are pretty much just big pellets of flavored sugar with gummy stuff added to give them structural integrity.

Drop a Mentos directly into a freshly opened full can of soda. But wait! First, make sure that the can is in a sink or tray to collect the significant amount of foam that will spill over. In our labs, a mint Mentos and a diet cola provided the most foam, causing about half of the soda to be lost. Using the can makes the foaming more spectacular than if you poured the soda into a glass because of the small opening.

So why do Mentos make soda foam up? It's a physical reaction, not a chemical one. Ordinarily, water resists the expansion of bubbles in the soda. Water molecules attract each other strongly, forming a tight mesh around each bubble. It takes energy to push water molecules away from each other to form a new bubble, or to expand a bubble that has already been formed. The property is called surface tension. The oils, emulsifiers, and gum arabic from the dissolving candy disrupt the water mesh, so it takes less work to expand bubbles. At the same time, the roughness of the candy surface provides many little nooks and crannies (more surface area) that allow new bubbles to form more quickly. As more of the surface dissolves, both processes accelerate, and foam rapidly begins to form.

You can see a similar effect when cooking potatoes or pasta in a pot of boiling water. The water will sometimes boil over because organic materials that leach out of the cooking potatoes or pasta disrupt the tight mesh of water molecules at the surface of the water, making it easier for bubbles and foam to form. Root beer can also foam over if a scoop of ice cream is added, for essentially the same reason. The surface tension of the root beer is lowered by gums and proteins from the melting ice cream, and the CO_2 outgassing from the root beer blows the foam.

Test this hypothesis by dropping a Mentos into orange juice or any acidic but non-carbonated drink, or by dropping a Mentos into completely flat soda. What happens? Why? (Mentos is a registered trademark of Van Melle USA Inc.)

Provided by KATHLEEN A. CARRADO (ARGONNE NATIONAL LAB) and STEVEN S. TRAIL (BP CHEMICALS)

References: Fred Senese, **senese@antoine.frostburg.edu, http://antoine.frostburg.edu/chem/senese/101/consumer/faq/mentos.shtml**

As an interesting sidelight, teacher Lee Marek of Naperville North High School, Naperville, IL., developed this into a demo for the Letterman show.

All past "ChemShorts": **http://membership.acs.org/C/Chicago/ChmShort/kidindex.html.**

September, 2004 Vol. 91, No. 7. Published by the Chicago Section of The American Chemical Society, Editorial Staff: Cherlyn Bradley, Editor, and Fran Kravitz; 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

DONATION POP TOPS

Save the environment and help the Ronald McDonald House at the same time. In January of this year, the Chicago Section American Chemical Society started a program to collect pop tops, those little rings on top of your soda can. The section has a goal of collecting one million pop tops by the end of December.

Just a little trivia, one million pop tops weighs 790 pounds.

What will we do with all those pop tops? They will be taken to a collection site near Loyola University Medical Center and the money from the aluminum will be donated directly into the operating costs of the Ronald McDonald House. Ronald McDonald House provides a temporary "home away from home" for families of seriously ill or injured children who are in the hospital.

So, please help the cause and bring your pop tops to a monthly section dinner meeting and put the in the jar at the registration desk.

FRAN KRAVITZ
HOSPITALITY CHAIR

2004 SCHOLARSHIP EXAM RESULTS

The High School Education Committee of the Chicago Section ACS held its fiftieth annual High School Scholarship Examination on May 8, 2004 at Loyola University in Chicago. This year, 82 students were nominated to take the examination. Each high school chemistry teacher could nominate up to two students. The results of the 2004 Scholarship exam are listed in the table below.

PRIZE	WINNER	TEACHER & SCHOOL
FIRST $5,000 AWARD	**Paul Kornbluh **Vernon Hills	**Lynne Shenk **Vernon Hills High School
SECOND $3,000 AWARD	**Amanda Park **Morton Grove	**Najwa Dajani **Niles North High School
THIRD $2,500 AWARD Akzo Nobel	**Danny Kim **Lincolnwood	**Ami LeFevre **Niles West High School
FOURTH $1,500 AWARD	**Joshua Wunder **Naperville	**Shari Wood **Naperville Central High School
FIFTH $1,250 AWARD	**Michael Weaver **Naperville	**Robert Schmitt **Naperville North High School
MARIE LISHKA * $500 AWARD	**Amanda Park **Morton Grove	**Najwa Dajani **Niles North High School
MARSHALL S. SMOLER $200 AWARD**	**Abraham Sohn **Chicago	**Mike Cipolla **Lincoln Park High School
BERNARD E. SCHAAR* $400 Chicago Chemists' Club Award**	**Abraham Sohn **Chicago	**Mike Cipolla **Lincoln Park High School

*To the highest-scoring female in the examination.
**To the highest-scoring Chicago Public High School Student. Marshall S. Smoler's sister, Rachel, established this award in 1972 in memory of her brother. Mr. Smoler was a chemistry teacher in the Chicago public schools for many years.
*** To the highest scoring Chicago High School student. Mr. Schaar's widow established this award in memory of her husband, who was active a long time in the Chicago Section ACS and the Chicago Chemists' Club.

HONORABLE MENTIONS LISTED IN ALPHABETICAL ORDER

(These students were the next highest performers)

Student & School	Teacher
Spencer Allee Niles North High School	**Najwa Dajani**
Bob Chen Naperville Central High School	**Jaci Gentile**
Priya Dugad Naperville North High School	**Jeff Martin**
Anjalika Gandhi Vernon Hills High School	**Lynne Shenk**
Jordan Green North Shore Country Day School	**Garret Forbes**
Kevin Hallock Maine West High School	**Stefan Panzilius**
Daniel Lewin Glenbrook South High School	**Preston Hayes**
Sameer Manck Naperville Central High School	**Steve Wiesbrook**

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Don Turcza
Oak Park River Forest High School

Cheryl Rulis

Thomas Willems
Naperville Central High School

Patti Kenton

The section is grateful to Dr. David Kanis from Chicago State for authoring and administering the examination. In addition, Dr. Kanis personally sent each student a letter stating their percentile rank.

The section is also grateful to the following for their contributions that made these scholarship awards possible: Akzo Nobel Inc., Rachel Smoler, and the Chicago Chemists' Club.

AMI LEFEVRE
CHAIR, HIGH SCHOOL EDUCATION COMMITTEE

2004 US CHEMISTRY OLYMPIAD

The Chicago Section ACS supported the United States National Chemistry Olympiad this year. Under the direction of Dr. David Crumrine both the Local and National Exam were held at Loyola University. On March 20, 2004 the search for potential nominees took place. About thirty-four students took a two-hour exam to identify the top students. The students qualifying to take the challenging five-hour exam on April 17, 2004 were:

Michael Bilow	Deerfield High School
Michael Chu	Naperville Central High School
Daniel Cullina	Morgan Park Academy
Stephen DeVience	Notre Dame High School
Mitchell C. Ji	Libertyville High School
Julian Klosowiak	Glenbrook South High School
Caleb Ng	Libertyville High School
Jose Regalbuto	Glenbrook South High School
Adam Strom	Naperville North High School
Felix Yap	Naperville North High School
Syed Zaheer	College Preparatory School of America

The top twenty students (nationwide) from the National Exam attended a study camp from June 6-20, 2004 at the U.S. Air Force Academy in Colorado. Out of this group, four students entered the IChO being held in Kiels, Germany from July 18-27, 2004. **I am proud to announce the Chicago Section had two representatives, Michael Bilow and Caleb Ng. Both students attended the study camp this summer. We also had two additional students rank in the top 50 (High Honors)- Felix Yap and Daniel Cullina.**

The Chicago Section would like to thank Dr. David Crumrine and Loyola University for sponsoring the competition this year.

AMI LEFEVRE
CHAIR, HIGH SCHOOL EDUCATION COMMITTEE

2004 FRED BASOLO MEDAL GOES TO CHISHOLM

Northwestern University will honor **Malcolm H. Chisholm**, Distinguished Professor of Mathematical and Physical Sciences at The Ohio State University, with the 2004 Fred Basolo Medal for recognition of work in inorganic chemistry. Named for Northwestern University chemistry professor Fred Basolo, the award is given by Northwestern University and cosponsored by the ACS Chicago Section. Chisholm will deliver the award lecture at the Northwestern University Technological Institute, Evanston, IL Campus, on October 22, 2004.

The Medal presentation will follow the lecture at the Chicago Section's meeting. Meeting information and additional details may be found at the section website: **www.chicagoacs.org**. Reservations may be made on-line or by calling (847) 647-8405.

Professor Chisholm's accomplishments include key chemistry for routes to a new generation of polymers that employ single-site metal alkoxide catalysts. Presently 90% of all commodity chemicals are fossil-fuel based. Professor Chisholm's research is in the area of complexes with metal-metal multiple bonds, the use of alkoxide and related (-donor ligands in organometallic chemistry, and molecular routes to materials and the development of catalysts and for the preparation of biodegradable and biocompatible polymers from readily renewable resources. This work is supporting the move toward new plastics and polymers based on polyoxygenates. He is also working on new routes toward polyesters produced from biomass-derived cyclic esters.

Professor Chisholm is the author of over 500 publications and has received several awards for his research including the Awards for Inorganic Chemistry and Distinguished Service to Inorganic Chemistry of the ACS and the Centenary and Ludwig Mond Lectureships of the Royal Society of Chemistry. He is a Fellow of the Royal Society, London, American Academy of Arts & Sciences, and the recipient of the Davy Medal of the Royal Society. He has served as Associate Editor for the Americas for Chemical *Communications, Dalton Transactions*, the inorganic journal *Polyhedron* and has held several positions of office within the ACS, including Chair of the Division of Inorganic Chemistry.

ALMA E-NEWS

Is Promotion to Manager Good?

Managers view promotions into the management ranks as a reward for their top researchers or technical specialists even while envying the independence, challenge, and collegial relationships associated with the technical positions. It is assumed that these talented individuals will welcome these opportunities and will appreciate the recognition and status. However, a recent article ("Managerial Misfits", *Harvard Business Review*, May 2003) points out that the offer of a promotion places significant pressure on the candidate. Since it is clearly management's desire that he/she accept, it is implied that the decision will influence future opportunities or status, and there may be pressure for a quick decision.

Thus, a highly motivated, exceptional contributor may feel trapped into accepting a position where they are less valuable to the organization, are less capable of excelling, find the work less satisfying, and are generally less happy with their lives. Clearly this is not the reward intended. Management's own self-aggrandizement contributes to this situation with the tacit acceptance of the premise that success = management (firmly supported by most HR practices).

While there's not much we can do about the corporate caste system, we can at least help our technical contributors make the decision that is best for them. This can be done by offering an honest assessment of their management potential and by helping them to understand the degree of satisfaction that they might derive from planning, budgeting, attending meetings, listening to other's problems, enforcing policies, and all of the other functions of management. Technical managers are not necessarily helping or rewarding strong technical performers by automatically selecting them for management.

Past ALMA (Analytical Laboratory Managers Association) e-News editions are available at the website **http://www.labmanagers.org/**.

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

WAYNE COLLINS
wayne.collins@bpsolvaype.com

REGISTER ONLINE for Chicago Section

monthly meetings

www.ChicagoACS.org

SCIENCE AND MATHEMATICS DEPARTMENT — COLUMBIA COLLEGE CHICAGO

Since its inception, the Science and Mathematics Department of Columbia College Chicago has served as an important extension to the professional training of Columbia's students. The curriculum, designed specifically for those concentrating in the performing, visual and communications arts, provides basic scientific instruction and a mastery of mathematics fundamentals.

The Department is one of four in the School of Liberal Arts and Sciences. These departments are collectively responsible for the general education curriculum for Columbia College. The Science and Mathematics Department offers courses that fulfill three of the general education requirements — science (SC), science with lab (SL), and mathematics (MA). The department's general education objectives are for students to develop a basic scientific literacy, understand the scientific method of inquiry and appreciate the impact of science on society. Additionally, students will become proficient in mathematical skills and the concepts necessary to support their chosen career and to function effectively in society. Students are given a wide variety of choices in each of these areas; more than twenty distinctly different courses in non-laboratory sciences, twelve in laboratory sciences, and eleven in mathematics courses ranging from the basic skills of *College Mathematics to Introductory Calculus and Introductory Statistics*. This variety supports a wide range of student interests, and allows us to offer courses geared toward specific arts and communication majors. The department offers one specialized minor field of study, *Environmental Studies*. We also provide the science component courses for the *Science Writing and Reporting* concentration offered by the Journalism Department.

The objectives set forth by the Department are to provide students with: a comprehensive scientific and mathematical background; the adaptability and flexibility they will need in order to remain abreast with the continuing changes in the world; and the ability to deal effectively with specific changes in their professional disciplines. Helping students further develop their rational thinking and problem solving skills are major objectives of the departmental program To better prepare students and to demonstrate the relevance of science and mathematics, faculty often use simulations of actual problems. This strategy is critical in ensuring clarity of understanding of science and mathematics concepts. Many of the faculty engage their students in semester-length projects where they may use their respective major fields of study to demonstrate their understanding of concepts. Courses are enhanced by the employment of practical knowledge and hands-on approaches. These approaches assist in promoting student learning. They are integral to understanding the world The faculty strives to capitalize on the use of technology such as the integration of Internet research into course instruction to enhance the teaching and learning.

It is important to fill the knowledge gap between the scientific/political decision-makers and the lay public on issues such as energy policy, the economy, education, genetic engineering, and warfare. The curriculum is designed to educate students so that they may participate intelligently in the national debate of such survival concerns. In order for every citizen to understand and participate in such discussions, they must have an appreciable level of scientific literacy.

We provide Columbia's students with a strong support system by providing tutorial services in a Learning Center staffed by part-time teachers. This one-on-one and/or group tutoring environment offers increased learning in all disciplines encompassing the fields of science and mathematics. New instructional techniques, including computer-assisted self-study programs, are also available. Non-scientists can view Science, mathematics, and technology as foreign languages. Our job is to ensure that the appropriate translation is made to ensure student understanding. This, we believe, makes science and mathematics accessible to everyone. Arts and communications majors, not unlike any other citizens, need and deserve a basic education in science, mathematics, and technology that prepares them to live more interesting, productive, and well-rounded lives. Literacy in these areas has emerged as the main focus of education today.

Chemistry Course Titles and Descriptions

56-1210 SLChemistry in Daily Life In this introductory chemistry course, the high prevalence of chemical occurrences in the world is explored. Topics such as chemical terminology, measurement and arithmetic techniques, matter and chemical change, nineteenth century atomic theory, chemical calculations, the periodic table, energy relationships in chemical reactions, chemical bonding, and atomic structure are considered. Materials from organic chemistry, biochemistry and polymer chemistry are integrated into discussions and lab activities to demonstrate some of the practical applications of common everyday substances.

56-12— SL Molecules in Art and Life This course includes the application of chemistry (organic) to art and nature. Topics include: Neon, textiles, dyes, polymer sculpture, paint, papermaking, perfume, natural dyes, food, sex hormones, drugs and vision. Students will learn chemical concepts by engaging in hands-on activities and performing experiments and demonstrations. This is a survey course, which looks at the role of molecules in art and life. It's a smorgasbord, which introduces a vast array of topics, which in broad terms may include molecular properties, organic molecules, polymers, food molecules, paint and dye molecules, and drug molecules. The purpose of this course is to explore the molecules that occur everyday in the artist's studio and at home. Student suggestions for topics to explore are welcomed. The artist and the consumer use molecules to express a point of view or make the quality of life better. This course will provide them with an understanding of the various ways molecules are used to achieve the desired artistic expression and how the molecules encountered in everyday life influence the quality of life.

56-12— SL Chemistry of Art and Color This course entails the study of atoms and molecules and how they create color, or light, and reflect and absorb light (dyes and pigments). Topics include additive and subtractive color mixing; interference, or iridescence, which is demonstrated through niobium anodizing; history and chemistry of pigments; various paint media, including encaustic, or wax, egg tempura, linseed oil, gouache, or gum arabic, fresco, or calcium compounds, and oriental lacquers. The chemical reactions that set these paints are discussed. This is a survey course in which we look at the role of chemistry of color science in art and color. It's a smorgasbord, which introduces a vast array of topics - 1/3 light properties, 1/3 color science, and 1/3 the chemistry of artist's materials. The purpose of this course is to explore the chemistry that occurs everyday in the artist's studio. Chemistry is the study of matter and how it changes. The artist uses matter to express a point of view. This course will provide you with an understanding of various ways to effect change in matter so as to achieve the desired artistic expression.

56-1211 SL Scientific Investigations This course provides an introduction to the basic principles and uses of forensic science. The basic applications of the biological, physical, chemical, medical, and behavioral sciences currently practiced and limitations of the modern

(continued on page 8)

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crime laboratory are presented. Critical thinking skills, as well as problem solving skills, are essential in all areas of study. Scientific investigation is the scientific method in action. The course aids in helping students to develop these essential skills and to provide them with the basic knowledge of science, that they may become productive citizens. The intense coverage of such cases as the O.J. Simpson trial which included a great deal of forensic evidence and testing certainly brings to the general public crime scene searches and investigations. This course makes science relevant and pertinent to the interests and goals of those students who desire to learn more about forensic science and other related concepts such as DNA analysis which are often reported on in the mass media. The techniques, skills, advances and limitations of the modern crime laboratory are presented. Students are not required to have any prior knowledge or background in the forensic sciences.

56-1220 SL Chemistry and Art: Textiles and Dyes Course focuses on natural and synthetic textiles, their chemistry, properties, and applications. Paper and dye chemistry is extensively covered. Dye synthesis and interaction of fibers with vat, reactive, acidic, basic, azoic, and mordant dyes are also investigated. Special emphasis is placed on the extraction of natural dyes from plants.

56-1226 SL Chemistry of Photography Chemical processes behind all major photographic methods are explored in this course. These processes include: daguerreotypes, black-and-white, color, non-silver, image making using alternative materials such as gum dichromate, holography, and xerography. Science of additive and subtractive color mixing is also explored. Laboratory experimentation constitutes significant part of course.

56-1240 SL Material Science Technology This laboratory course provides practical knowledge of the ever-expanding use and development of materials in today's world. Material Science Technology is a multidisciplinary approach to science and technology that teaches students to better understand the properties and uses of materials. It combines scientific theories, practical applications and technology, and actual hands-on experiences to prepare students to work in a technologically rich environment.

With the implementation of OASIS, an Internet management system, faculty have technological capability of making their course materials including lecture notes, and other course materials accessible to student enrolled in their respective courses. Internet communication in form of emails (individual and class as a group), chat sessions, forums, registration, student advising, etc. may be effected. Students have the option of downloading the information to your own computers and/or printing it.

The Science and Mathematics Department consists of twelve (12) full-time and more than forty-five (45) part-time faculty members, a chairperson, a full-time administrative assistant and a secretary. One of the full-time faculty Roughly 40% of the full- and part-time faculty have doctoral degrees in appropriate areas, and virtually all have advanced degrees in science, mathematics, or related fields. The department serves over 5000 students per academic year, in more than 120 sections of science and mathematics courses. Seventy-one percent of the full-time faculty and 33% of the part-time faculty have terminal degrees in their respective disciplines.

Science and Mathematics Department Faculty

Cynthia L. Gerstner, PhD. Aquatic Ecology, University of Michigan
Tania Giordani, MS, Ed., Mathematics, Loyola University
Susan Tyma, MS Mathematics (in progress), National-Louis University
Abour Cherif, PhD, Biology/Science Education, Simon Fraser University (Canada)
Michael J. Welsh, PhD. Chemistry University of Illinois
Constantin Rasinariu, PhD. Theoretical Physics, University of Illinois at Chicago
Kanchana Mudalige, PhD, Chemistry, University of Illinois-Chicago
Ann C. Hanson, MS Secondary Mathematics, Ed. University of Maryland
Gerald Adams, PhD, Geology, Northwestern University
Aboubacar Sow, PhD. Mathematics and Physics, Rostov on Don Sate University
Khoi Nguyen, PhD, Computational Mathematics, University of California-Irvine
Pangratios Papacosta, PhD. Physics, University of London

Written by
CHARLES E. CANNON, CHAIR
SCIENCE AND MATHEMATICS DEPARTMENT
COLUMBIA COLLEGE CHICAGO

PLEASE VOTE

(BALLOTS ARE IN THE MAIL)

ACS MEMBERS BRING ENERGY MESSAGE TO CAPITOL HILL

I believe that one of the most interesting assignments that a councilor can have is membership in the Joint Board Committee on Chemistry and Public Affairs (CCPA). The committee is charged with providing advice and recommendations on public policy matters for ACS action. Each April the committee visits with the members of Congress to provide recommendations about issues of importance to chemists and chemical engineers. This year we recommended that our legislators support basic research in the physical sciences through the Office of Science in the Department of Energy (DOE). This Office is the largest supporter of basic physical science research and the third largest supporter of federal science research (after NIH and NSF). We asked the Congress to boast the funding levels for the Office of Science for future research and development, energy security, energy alternatives, and for the training of the nation's future scientists. The Office of Science also funds the National Laboratories.

The day before the visit to Capitol Hill we received a series of briefings by

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prominent members of the Washington science policy community, including Dr. Patricia Dehmer, associate director, Basic Energy Sciences Division, Office of Science, and Dr. Bob Simon, staff member for the Senate Energy and Natural Resources Committee. Following the daytime briefings, ACS hosted its annual Public Service Awards for Senator John Warner (R-VA), Congresswomen Eddie Bernice Johnson (D-TX), and Dr. Ray Orbach, Director of the Office of Science, followed by a reception attended by Hill staff and members of the science community.

Early on the day of the legislative visits, ACS held a breakfast for Congresswomen Judy Biggert (R-OH), a strong champion of DOE and a member of the House Science Committee. At the breakfast, Rep. Biggert circulated a "Dear Colleague" letter addressed to the Appropriations Committee seeking increases in the Office of Science funding for fiscal year 2005 and asked ACS for help in getting legislators to sign on. Perhaps the most important thing we do during our visits with individual legislators and their staffs is to point out that a "Dear Colleague" letter exists and to ask them to sign it.

Following the breakfast, the ACS teams fan out across the Hill to visit about six legislators. At each meeting, we discuss our personal experience with the Office of Science and the importance of the Office to the chemistry community. Then we ask the Congressmen to sign the Biggert letter and the Senators to sign the "Dear Colleague" letter written by Senators Lamar Alexander (R-TN) and Jeff Bingaman (D-NM). My team visited with legislators from Minnesota and Illinois. I was fortunate to be able to visit personally with my Congressman, Mark Kirk of the Tenth District. We heard about the tight budget and the many demands due to the war against terror. We know that 55 Senators signed the "Dear Colleague" letter which called for a 10% increase in funding for the Office of Science in DOE.

I believe we may have made a difference. We shall see.

CLAUDE LUCCHESI

ONLINE COURSE IN ORGANIC CHEMISTRY

Governors State University will offer an online course in organic chemistry (Organic Chemistry Lecture I, CHEM 341) in the Fall 2004. The course is the first semester of the year-long sequence in organic chemistry for undergraduate students. The second semester of this sequence (Organic Chemistry Lecture II, CHEM 343) will be offered in the Winter 2005 semester. For details, contact Dr. Shelly Kumar, 708-534-4528 or **s-kumar@govst.edu**, or go to **www.govst.edu**.

CHICAGO SECTION SLATE FOR 2004 BALLOT

The following slate of candidates was put together by the Nominating Committee for the 2004 Section Election. New officers will take office January 2005. Ballots have been mailed and are due in the Section office by noon on October 22. The results of the election will be announced at the October 22 dinner meeting.

CHAIR (see Note)
Charles Cannon
Russell Johnson

CHAIR-ELECT
Allison Aldridge
Susan Shih

VICE-CHAIR
Keith Kostecka
Barbara Moriarty

TREASURER
Margaret Levenberg
Mary Newberg

SECRETARY
Fran Clifton
Helen Dickinson

DIRECTORS
Larry Berman
Rudy Bernath
Roy Bible
Jerry Brozek
Ken Brubaker
Mark Cesa
David Crumrine
Mary Fiebig
Ken Fivizzani
Sharon Northup
Rajashree Sen
Steve Sichak
Ken Stagliano
Ken Schug

COUNCILORS
Cherlyn Bradley*
Mark Cesa
Russ Johnson*
Barb Moriarty*
Seymour Patinkin*
Susan Shih

ALTERNATE COUNCILORS
Inessa Gorelik
Frank Jarzembowski
Keith Kostecka
Margy Levenberg*
Avrom Litin
Mary Newberg
Gayle O'Neill*
Bob Shone
Paul Young

* Incumbents

Note: The current Chair-Elect has asked to step down from office for personal reasons; the Nominating Committee was, therefore, charged with slating individuals to run for Chair for 2005 as well as for Chair-Elect.

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.

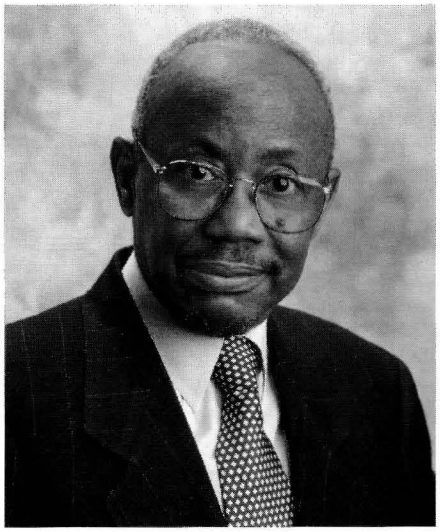
You can get help improving your resume through the Career Consultants. These are volunteers trained by the American Chemical Society to assist its members with writing resumes, contacting prospective employers, and providing tips on interviews.

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.

This article is the second of a series on profiles of Chicago area chemists that have had an impact on Chemistry in Chicagoland.

PROFILES IN CHEMISTRY: JAMES P. SHOFFNER



The science community knows New Madrid, Missouri for two events: the apparently largest earthquake known to have occurred in the United States and Dr. James Shoffner. Young Jim was born on a very rural plantation in the Illinois-Missouri-Kentucky-Tennessee-Arkansas region. Jim's parents moved the family to New Madrid (located in the Bootheel Section of Missouri on the Mississippi River) when he was an infant where he was able to attend grade school and high school...some of the time. In the 1930's the segregated schools were only open for African Americans for about 5 months of the year. School was closed for cotton chopping and picking. Young Jim didn't even know anything about chemistry until he attended a boarding high school in Kansas City, Missouri, for the last two years of high school. While offering a semester course in chemistry, this school didn't have a laboratory, but did teach chemical formulas. General biology and math were also offered. Young Jim continued to fulfill his duties to work in the fields, and generally started attending the last two years of school by about November. Dr. Shoffner indicated that this left him with a "very incomplete background in math and science." At this time, it would have been difficult to anticipate that Dr. Shoffner would become a highly successful scientist at a major company and serve the ACS in so many ways, including a position on the Board of Directors of the national organization.

Jim wanted to attend college...not an easy task with his background. Jim attended college at Lincoln University (MO); first for a year. He then joined the Army, in part to earn tuition benefits under the GI Bill. After the service, he completed his college career. Jim's first career thought was to become a medical doctor. During this time in college, the head of the Chemistry Department enticed students to major in chemistry with the argument that "you won't all get into medical school," and "with chemistry, you can get a job in industry." Jim also loved biology, but decided he could at best hope to teach biology if he didn't eventually become a doctor. Jim did quite well in college, and made his family very proud with a new degree; it was now time for a real job. At this point, Jim was not certain what he wanted to do, but decided that the path was not through medical school. Well, his dream was chemistry, but the only job opportunity at this time was at the Post Office - he worked for a time at the Post Office in Chicago, where he moved after getting his B.S.

Going back to school, Jim earned a Masters Degree in organic chemistry from DePaul University. Back to work, he was now working for a local paint and varnish company. In the 1950's workers were not protected by OSHA. With the very strong odors and presence of volatile chemicals, Jim "knew that this was probably not good for my health." Jim then moved on to do carbohydrate research for Corn Products in Argo, Illinois. This turned out to be a wonderful opportunity for research in carbohydrate chemistry, and Jim married Cornelia and started a family. After 6 years at CPC, he decided to return to graduate school to earn a Ph.D.

Jim earned his Ph.D. in organic chemistry at the University of Illinois at the Medical Center in Chicago. Jim's thesis work involved synthesis and characterization of pyridones, pyrimidones and their cations; the work required synthesis and characterization using infra-red (IR) spectroscopy. One day, a prominent scientist from UOP, Dr. Louis Schmerling, gave an inspiring lecture at the School of Pharmacy, followed by the suggestion for students to look at employment opportunities at UOP after completing graduate school.

At the time, UOP was at the center of chemical research; UOP was doing interesting research: fundamental research, engineering research...everything from basic to very applied chemistry. UOP had a long list of distinguished researchers that were internationally known and respected. Jim and his family enjoyed the Chicago area, and UOP looked like "the place to be" for him. UOP would be Dr. Shoffner's professional home for the next 30 years. As with most industrial positions, UOP provided...and required a very broad career. Jim loved his job at UOP; he was treated very well by the company and enjoyed working with a broad range of scientists and engineers. With exceptional energy, Dr. Shoffner was not content to only do one job! While working on broad areas such as NMR spectroscopy, shift reagents, additives for plastics, rubber and fluids and breaking new ground in imine chemistry, Dr. Shoffner also started a second career with the American Chemical Society. Dr. Shoffner was highly encouraged by his bosses Dr. Haensel and Dr. Bloch (both were inducted into the National Academy of Science) to

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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

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become involved in the American Chemical Society. UOP encouraged professional activities...and Dr. Shoffner excelled at this. He became active in the Division relevant to his employment: the Division of Petroleum Chemistry. He also became a board member of the Chicago Section of the ACS, and then a Councilor in 1974; last year he received his 30-year councilor plaque. In the national ACS, he has served as a member of all standing committees of the national board. He has also worked tirelessly in many positions, including Chair, at the Chicago Section.

When asked what guidance he would give young people, Dr. Shoffner replied: "Follow your dream; find things that you are passionate about...and don't make career decisions strictly on the basis of current job openings" When he was starting chemistry, people advised him that "companies don't hire black people." Well, Dr. Shoffner determined that he wanted a career in chemistry, and that he had the skill and the passion to succeed. He became a key employee in a major chemical technology company, a science advisor to the governor, a Councilor and Board Member of the American Chemical Society. Attending a local or national ACS meeting, almost anybody connected to our 160,000 organization will recognize Dr. Shoffner. He became one of the first in 1968 to chair (with Dr. Joe Arrigo) the pilot of Project SEED, a program to help disadvantaged students into a career in chemistry. He continues to work tirelessly for the ACS and for the broader community.

Dr. Shoffner through his many years of experience continues to have unending energy and passion for chemistry; he also sees significant changes in the field of chemistry. "Chemistry is becoming more interdisciplinary," he states. "You must see the glass as half full, and you must get out of our narrow ways that we do science...the ways of the past...and transfer knowledge to and accept knowledge from other disciplines. For example, "we are just scratching the surface of chemical biology."

Dr. Shoffner's career: A dream career for an ambitious, energetic young man working on a rural plantation, where part time school was only required to the 6th grade, during a time when many people were excluded from our profession...who became a highly respected scientist at a major corporation and an honored Board Member of the world's largest scientific organization devoted to a single discipline... *"Follow your Dream."*

Written by RUSS JOHNSON
PUBLIC RELATIONS CHAIR

Advertising Index

CALENDAR

September 28-30, 2004: The Plastics USA tradeshow of the Society of the Plastics Industry will be in Chicago, IL. For further information, call (800) 774-0015 or go to **www.plasticsusa.org**.

October 7-8, 2004: 14th International Activated Carbon Conference, Pittsburgh, PA. Go to **http://www.pacslabs.com** for information on the conference, courses, vendor's night and other conference activities.

October 11-14, 2004: Industrial Applications of Renewable Resources: A Conference on Sustainable Technologies hosted by the American Oil Chemists Society, Chicago, For further information, call (217) 359-2344 or go to **www.aocs.org/meetings/ia.**

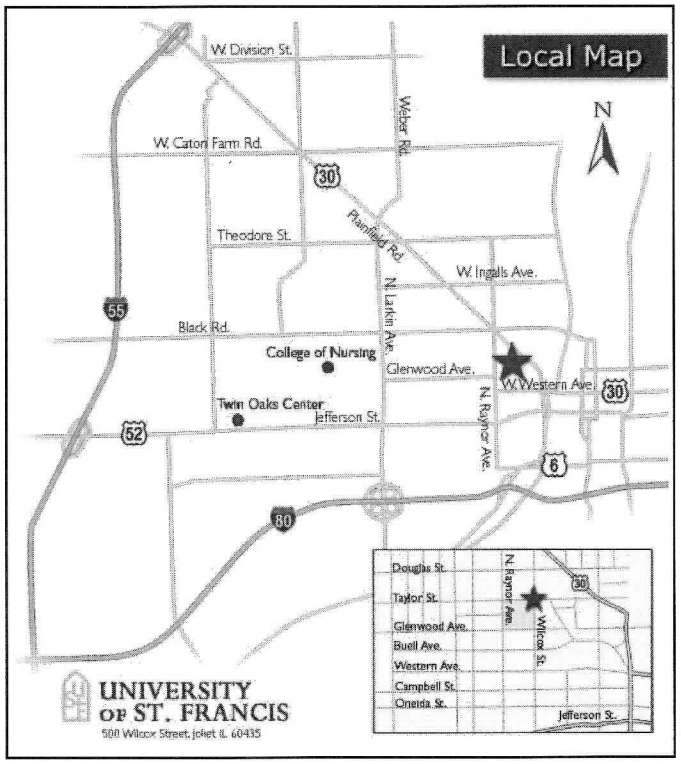
October 17-20, 2004: ACS 36th Great Lakes Regional Meeting, "Formulate Your Future" at the Pere Marquette, Peoria, IL. Go to **http://membership.acs.org/g/glrm04**.

October 22, 2004: The joint meeting of Northwestern University, Dept. of Chemistry and the Chicago Section ACS for the Basolo Medal Award lecture at Northwestern. More information as the date approaches.

October 24-26, 2004: The National Paints & Coatings Association Annual Meeting will take place in Chicago. For more information, call 202- 462-6272 or go to **http://www.paint.org/meetings/index.cfm**

November 10-12, 2004: The 25th Annual ALMA Conference will be held Agilent Technologies in Wilmington, DE. For detailed information, contact ALMA at (505) 989-4683, **alma@labmanagers.org**, or go to **www.labmanagers.org.**

November 19, 2004: Joint Chicago Section ACS Dinner Meeting with the University of Chicago's Department of Chemistry for the Julius Stieglitz Award Lecture.



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