ACS Chemistry for Life™

The 46th Midwest / 39th Great Lakes Joint Regional Meeting of the American Chemical Society, October 19-22, 2011
Saint Louis, Missouri

Solutions for a Changing World
Celebrating the International Year of Chemistry

Hosted by the Saint Louis Section of the Midwest Region

and the

Wabash Valley Section of the Great Lakes Region

Sheraton Westport Chalet Hotel

St. Louis, MO

Meeting Schedule at a Glance

EVENT	Wed. PM 10/19	Thurs. AM 10/20	Thurs. PM 10/20	Fri. AM 10/21	Fri. PM 10/21	Sat. AM 10/22	Location
SYMPOSIA							
Pharmaceutical Chemistry	1:30-4:40						St. Moritz
Pharmaceutical Chemistry Roundtable	7:00-8:00						St. Moritz
Revitalizing the Heartland's Chemical Economy	1:30-5:00						Davos
Small Chemical Businesses: True Stories of Success from Chemical Entrepreneurs	1:25-5:00						Alpine II
Small Chemical Businesses: What Every Small Business Owner Needs to Know about Patents, Trademarks, and Intellectual Property		8:15-11:30	1:30-5:00				Alpine II
Natural Products Chemistry		8:00-12:00					Zurich
Supramolecular Chemistry in Membranes		8:55-12:00	1:00-5:00				St. Moritz
Plant Biotechnology –Blurring the Lines Between Chemistry and Biology		8:00-12:00					Bern
Biological Mass Spectrometry		8:00-12:00	1:00-4:50				Alpine I
High Sensitivity Spectroscopy			1:30-4:45				Zermatt
Biomolecular Structure and Function				8:25-11:30	1:30-4:50		Zurich
NMR: The Next Generation (of Techniques)				8:15-11:50	1:00-5:00		St. Moritz
Sigma-Aldrich Symposium on Nanomaterials					1:20-5:05		Alpine I
Chemical Education Research and Practice				9:00-12:00	1:00-5:00		Davos
GENERAL SESSIONS							
Analytical General Session			1:00- 4:40	8:00-12:00	1:00-4:40		Basel
Organic General Session	1:00-4:40	8:00-11:40	1:00- 4:40	8:00-12:00	1:00-4:40		Geneva
Inorganic General Session				8:00-12:00	1:00-5:00		Bern
Nanoscience General Session	1:00-5:20			8:00-12:00			Alpine I
Nanoscience General Session		8:00-12:00					Basel
Physical General Session		8:00-12:00		8:00-12:00			Zermatt
Biochemistry General Session			1:00–5:00				Bern
Polymer General Session				8:20-11:00			Alpine II
Environmental General Session					1:00-4:00		Alpine II
Chemical Education General Session		8:55-12:00					Davos
POSTER SESSIONS							
SciMix Poster Session	7:00-9:00						Versailles
General Poster Sessions		8:30- 10:00 10:30-12:00	1:00-2:30 3:00-4:30	8:30- 10:00 10:30-12:00			Versailles
AWARDS ACTIVITIES							
Midwest Award Symposium			3:00 – 5:00				Zurich
Midwest Award Address			5:00 – 6:00				Zurich
Midwest Award Reception			6:00 – 7:00				Matterhorn
Midwest and Great Lakes Awards Banquet			7:00 – 9:00				Matterhorn
UNDERGRADUATE ACTIVITIES							
Ice Cream Social and Talk	5:00-7:00						Matterhorn
Undergraduate Symposium on Plant Chemistry			1:00-3:00				Davos
Undergraduate Career Fair					2:30-4:30		Matterhorn
OTHER EVENTS							
Diversity Luncheon			12:00-1:30				Matterhorn
ACS Governance and Roundtable Discussion on Chemistry and Society					12:00-1:30		Matterhorn
ACS Career Management Workshops			1:00-5:30				Lugano
ACS Career Management – Individual Resume Reviews				8:30–12:30 (by appt)			Lugano
ACS Leadership Development Workshop – Collaborating Across Boundaries				8:00-12:00			Skylight
ACS Leadership Development Workshop – Communication Strategies					1:00-5:00		Skylight
Midwest Board Breakfast				7:00-8:30			Matterhorn
Great Lakes Board Meeting						9:00-11:00	Davos
Workshop on PLTL (Peer-Led Team Learning)						9:00-11:00	Alpine II
EXHIBITION	7:00 – 9:00	8:30 – 12:00	1:00 – 5:00	8:30 – 12:00			Versailles
HIGH SCHOOL TEACHER EVENTS							
High School Teacher Programming						8:00- 12:00	Alpine I

The 46th Midwest / 39th Great Lakes Regional Meeting of the American Chemical Society
October 19-22, 2011
Saint Louis, Missouri

Table of Contents

*Notice to attendees: ***this printed program booklet is the definitive program for the meeting***. Some abstract numbers are out of order because we sought to meet a number of requests from attendees to change times of the presentations and it was not possible to alter the on-line abstract numbers or on-line program after the notifications were sent.

Meeting Organizers

46th Midwest/39th Great Lakes Regional Meeting Organizing Committee

General Chair	Leah O'Brien, Southern Illinois University-Edwardsville
Co-General Chairs	Jim O'Brien, University of Missouri – Saint Louis
	Leroy Breimeier, Vincennes University
Program Chair	Keith Stine, University of Missouri – Saint Louis
Program Co-Chair	Darell Clinton, Oakland City University
Treasurer	Bruce Ritts, Steris Corporation
Exhibits Chairs	Lisa Balbes, Balbes Consultants LLC
	Ted Gast, Carl F. Gast Company and Arch Paper
Awards Chair	Jetty Duffy Matzner, Augustana College
Governance Liaison	Lawrence Barton, University of Missouri – Saint Louis
Leadership Development	Alexa Serfis, Saint Louis University
Webmaster	Eric Ressner
ACS Liaison	John Michael Sophos, ACS Dept. of Meeting and Exposition Services

Symposium Organizers

Biological Mass Spectrometry	Henry Rohrs, Washington University Michael Gross, Washington University Joshua Coon, University of Wisconsin - Madison
Biomolecular Structure and Function	Dana Baum, Saint Louis University Cindy Dupureur, University of Missouri–Saint Louis Julie Soukup, Creighton University
Chemical Education Research	Steve Kinsley, Washington University Susan Wiediger, Southern Illinois University-Edwardsville
High Sensitivity Spectroscopy	James O'Brien, University of Missouri – Saint Louis
Midwest Award Symposium	Patrick Dussault, University of Nebraska - Lincoln Lichang Wang, Southern Illinois University - Carbondale
Nanomaterials	Shashi Jasty, Sigma- Aldrich Angel Thompson, Sigma-Aldrich
Natural Products Synthesis	Christopher Spilling, University of Missouri – Saint Louis
NMR: The Next Generation (of Techniques)	Sophia Hayes, Washington University Nathan Oyler, University of Missouri – Kansas City Chris Jaroniec, Ohio State University

Pharmaceutical Chemistry	Todd Stark, Johnson Matthey Pharma Services
Plant Biotechnology - Blurring the Line between Chemistry and Biology	Xuemin Wang, University of Missouri–St Louis and Danforth Plant Science Center Joseph Jez, Washington University
Revitalizing the Heartland's Chemical Economy	Lisa Balbes, Balbes Consultants John Borchardt
Supramolecular Chemistry in Membranes	George Gokel, University of Missouri – Saint Louis Jerry Atwood, University of Missouri – Columbia
Small Chemical Business Program	Joseph Sabol, ACS Division of Small Chemical Businesses
■ True Stories of Success from Chemical Entrepreneurs	Joseph Sabol, ACS Division of Small Chemical Businesses
■ What Every Small Business Owner Needs to Know about Patents, Trademarks, and Intellectual Property.	Harry Guttman, Stipkala LLC
■ Small Chemical Businesses Poster Session	Joseph Sabol, ACS Division of Small Chemical Businesses
Undergraduate Program	Brent Znosko, Saint Louis University Patrice Vallot, Chemistry Club, Saint Louis University
High School Teacher Program	Harold Harris, University of Missouri – Saint Louis
Career Services	Lisa Balbes, Balbes Consultants
Sheraton Hotel Staff	Deborah Picker, Sheraton Chalet Hotel
Logo Design	Katie Gast, Carl F. Gast Company

Symposia Sponsors

Biological Mass Spectrometry

Advion

Leco

Waters
THE SCIENCE OF WHAT'S POSSIBLE.™

JEOL

AB SCIEX

Thermo
SCIENTIFIC

Agilent Technologies

BRUKER

SHIMADZU

Biomolecular Structure and Function

American Chemical Society
Division of
Biological Chemistry

TriLink
BioTechnologies

ChemGenes
CORPORATION

RNA
SOCIETY

HORIBA
Scientific

NEW ENGLAND
BioLabs Inc.

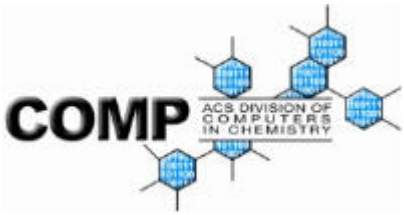
IDT
INTEGRATED DNA TECHNOLOGIES

GLEN RESEARCH

Chemical Education Research and Practice

High Sensitivity Spectroscopy

Midwest Award Symposium



Natural Products Synthesis

NMR – The Next Generation (of Techniques)

Plant Biotechnology—Blurring the Line between Chemistry and Biology

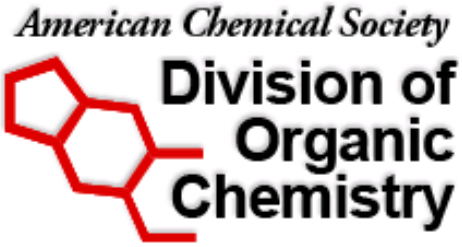
Plant Science: Undergraduate Programming

Revitalizing the Heartland's Chemical Economy

Sigma-Aldrich Symposium on Nanomaterials

Small Chemical Businesses Symposia

Supramolecular Chemistry in Membranes



Coffee break sponsors

ACS Division of Small Chemical Businesses

COVIDIEN

positive results for life™

PINE RESEARCH INSTRUMENTATION

American Chemical Society

OFFICE OF THE PRESIDENT

Nancy B. Jackson
President-Elect, 2010
President, 2011
Immediate Past President, 2012

1155 SIXTEENTH STREET, N.W.
WASHINGTON, D.C. 20036
Phone 202-872-4461
Fax 202-872-6338

October 19, 2011

Dear MWRM/GLRM 2011 Participants:

On behalf of the more than 163,000 members of the American Chemical Society, I am pleased to extend greetings to the attendees of the 46th Midwest and 39th Great Lakes Joint Regional ACS Meeting in St. Louis, Missouri.

I am especially pleased that Dr. Leah O'Brien, General Chair, and the meeting organizers have selected "Solutions for a Changing World: Celebrating the International Year of Chemistry" as the theme for this event – this is our chance to increase the public appreciation of chemistry, to encourage interest in chemistry among young people, and to generate enthusiasm for the creative future of chemistry. Technical programming and topical symposia have been chosen carefully to support this theme. Please take this opportunity to interact with your colleagues and to discuss developments taking place in your field.

While you're here, I do hope that you are able to take the opportunity to fully explore the interesting complement of symposia, workshops, and special sessions, attend the many social events, visit the exhibits, and take advantage of the greater St. Louis area's many attractions.

I am grateful to our many volunteers, especially our hosts, the Saint Louis Section (Midwest Region), the Wabash Valley Section (Great Lakes Region), the Organizing Committee, and the other 36 participating sections of the Midwest and Great Lakes regions – representing almost 18,600 members – for their hard work and dedication to create an intellectually stimulating and personally enjoyable experience here in St. Louis.

Sincerely,

Nancy B. Jackson, Ph.D.
President
American Chemical Society

Fall 2011

Dear Attendees,

Welcome to the 2011 Midwest-Great Lakes Joint Regional Meeting of the American Chemical Society! As you are probably aware, 2011 has been designated by the United Nations as the **International Year of Chemistry**. We have chosen a theme, *Solutions for a Changing World: Celebrating the International Year of Chemistry,* to highlight the ways that chemists are an important, integral component of the world's economic and educational systems.

The Program Chair and Symposium Chairs have worked hard to bring you a comprehensive program of current chemical research, with over 14 special symposia and 8 different sessions on more traditional chemistry topics. We will have as many as 7 parallel sessions – please review the meeting schedule and presentation titles so you don't miss the talks and posters of particular interest to you. Many students will be presenting their research for the very first time: one of our goals has been to provide a stage for cutting-edge research in a student-friendly environment.

The Expositions Committee has gathered a record-breaking number of educational and scientific equipment vendors, as well as numerous graduate school recruiters for Ph.D. and M.S. chemistry programs from across the country. The Exposition Hall is also the site for the poster presentations. Be sure to look for the special posters on "IYC 2011: International Trends and Practices in Chemistry," where international students, post-docs, and industrial chemists are showcasing research, the chemical industry, and highlight chemical education trends and practices in their home countries.

Many Special Events are planned: an opening Sci-Mix session on Wednesday night, a Diversity Lunch with ACS President Nancy Jackson, an Awards Reception and Banquet, Career Development workshops, Leadership Development workshops, special programming for undergraduate students, a box-lunch discussion on *Chemistry and Citizen Science* with ACS President-Elect Bassam Shakhashiri, and special programming for high school chemistry teachers on Saturday.

Please avail yourselves of the scientific and social activities that are planned – we are all so glad you are here. Have a great meeting!

Leah O'Brien, General Chair
Midwest-Great Lakes Joint Regional Meeting

Saint Louis Section
of the
American Chemical Society

July 22, 2011

Dear MWRM/GLRM 2011 Attendees

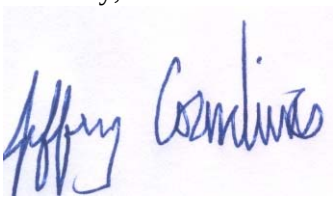
The Saint Louis Section of the ACS welcomes you to St. Louis for the 46th Midwest/39th Great Lakes Joint Regional ACS Meeting! This year's theme is *Solutions for a Changing World* and we are also pleased to be celebrating the International Year of Chemistry. The Saint Louis Section from the Midwest Region has joined with the Wabash Valley Section from the Great Lakes Region to bring you this event. We hope that each of you is able to take advantage of the many opportunities for you to network, explore interesting new areas and to learn from each other.

We are grateful to take advantage of members and institutions from both the St. Louis Section as well as the Wabash Valley section to put together a program with a great many things to offer. We have 12 topical symposia, general and oral poster sessions, career management and leadership workshops, special programs for undergraduates, programs for high school teachers, special events and expositions all included in the program. There are plenty of ways within this meeting to learn new things and become part of the solution!

While you are in St. Louis, we also hope you will take advantage of the many activities in and around St. Louis. I know your time is valuable. Quite a few options are listed on the program website as area activities.

Thank you again for coming. Please enjoy your stay with us in St. Louis!

Sincerely,



Jeffrey Cornelius, PhD
2011 Chair, St. Louis Section ACS
Professor and Chair Chemistry Department, Principia College

American Chemical Society
Wabash Valley Section

July 18, 2011

Friends,

On behalf of the Wabash Valley Section of the American Chemical Society, welcome to the joint Midwest/Great Lakes Regional Meeting. Regional meetings such as MWRM/GLRM provide excellent opportunities to academic and industrial chemists alike to present their work. Graduate and undergraduate students will find this regional meeting to provide many of the amenities found at national ACS meetings in a smaller and more relaxed venue. Scientific vendors will also find ample space to present the latest in scientific instrumentation, equipment, books and other wares.

The theme of this meeting, *Solutions for a Changing World*, is particularly timely in this International Year of Chemistry. Chemistry is at the forefront of managing the sustainability of energy, agriculture, water and air resources, all of which are of particular interest to the Midwest and Great Lakes. We hope this meeting will inform and inspire you to contribute to these goals in ways relevant your own inclination and expertise.

Whatever your reason for attending this meeting, we hope you will find your stay to be productive and pleasant. At the meeting, please attend the exhibits, symposia, and poster sessions, as well as the social events, which make for excellent networking opportunities. St. Louis is a vibrant Midwest city and has many fun and exciting attractions to entertain a wide variety of interests. We invite you to visit many of these venues during your stay.

Again, welcome to the joint Midwest/Great Lakes Regional Meeting. We hope you find the meeting to be personally enjoyable and professionally rewarding. Thanks for coming.

Best wishes,

Richard W. Fitch, Chair
American Chemical Society,
Wabash Valley Section

International Year of CHEMISTRY 2011
www.acs.org/iyc2011

GOVERNOR OF MISSOURI

JEFFERSON CITY
65102

JEREMIAH W. (JAY) NIXON
GOVERNOR

P.O. Box 720
(573) 751-3222

February 14, 2011

Greetings:

On behalf of the state of Missouri, I am pleased to extend greetings to those attending the 46th Midwest/39th Great Lakes Regional Meeting of the American Chemical Society in St. Louis, Missouri.

Established as a trading port for the Missouri and Mississippi Rivers, St. Louis has grown into one of the finest cities in the nation. Whether you enjoy the thrill of professional sports, historic sites, shopping, international cuisine, or the serenity of an outstanding park system, St. Louis offers something to suit every taste and interest.

Best wishes for an enjoyable meeting.

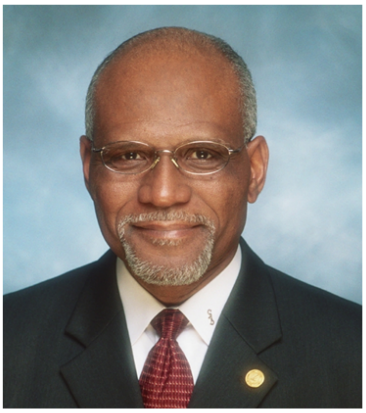
Sincerely,

Jeremiah W. (Jay) Nixon
Governor

OFFICE OF THE COUNTY EXECUTIVE
SAINT LOUIS COUNTY
41 SOUTH CENTRAL AVENUE
SAINT LOUIS, MISSOURI 63105

CHARLIE A. DOOLEY
COUNTY EXECUTIVE

(314) 615-7016
TTY (314) 615-8411



As the Gateway to the West, we are excited to host the 46th Midwest/39th Great Lakes regional meeting of the American Chemical Society. The Sheraton Westport Chalet is one of our premiere hotels and your stay should be pleasant.

I am pleased to welcome you to St. Louis. We are enthusiastic about the 1,000 attendees enjoying all the amenities that we offer here.

The University of Missouri-St. Louis has provided leadership in our sciences and has educated over 70% of the areas workforce. St. Louis County wholeheartedly supports their efforts.

Please enjoy your visit and come back soon!

Sincerely

Charlie A. Dooley
County Executive

OFFICE OF THE MAYOR
CITY OF ST. LOUIS
MISSOURI

FRANCIS G. SLAY
MAYOR

CITY HALL - ROOM 200
1200 MARKET STREET
SAINT LOUIS, MISSOURI 63103-2877
(314) 622-3201
FAX: (314) 622-4061

October 8, 2011

American Chemical Society
46th Midwest/39th Great Lakes Joint Regional Meeting
St. Louis, Missouri

Greetings:

On behalf of the City of St. Louis, I am delighted to extend a warm welcome to members of the American Chemical Society attending the 46th Midwest/39th Great Lakes Joint Regional Meeting. I am pleased that St. Louis was chosen as the site to hold this important meeting.

I hope that this meeting will offer you the opportunity to discuss new ideas in advancing the mission of the American Chemical Society. Established in 1876, the American Chemical Society is the world's largest scientific society with over 160,000 members. The mission of the American Chemical Society is "to advance the broader chemistry enterprise and its practitioners for the benefit of Earth and its people." The Saint Louis Section of the American Chemical Society, established in 1907, also serves to advance this mission both locally and throughout the Midwest.

While you are here, I encourage you to take a break from your meeting and explore some of St. Louis's great restaurants, sporting events, and other attractions.

I extend my best wishes to you for a productive and enjoyable meeting.

Sincerely,

Francis G. Slay
Mayor, City of St. Louis

46th Midwest/39th Great Lakes Joint Regional Meeting Events

Sci-Mix and Welcoming Mixer	**Wednesday, October 19**	**Versailles Ballroom** **7:00 pm – 9:00 pm**

The opening mixer and SciMix poster session will take place on Wednesday, October 19, 7pm – 9pm, and the Exposition will be open at this time.

Pharmaceutical Chemistry Roundtable	**Wednesday, October 19**	**St. Moritz** **7:00 pm – 8:00 pm**

The Business of Pharmaceutical Chemistry: A roundtable of scientists will discuss their current roles in the pharmaceutical industry that involve placing dollar values to chemistry effort, chemical compounds, and pharmaceutical products. Each panelist will describe how they arrived to their current position and together discuss the skills required to succeed in business-focused, pharmaceutical chemistry careers. Organized by Dr. Todd Stark, Business Development Manager, Johnson Matthey Pharma Services.

Diversity Luncheon	**Thursday, October 20**	**Matterhorn** **12:00 pm – 1:30 pm**

Come join ACS President Nancy Jackson, who will present a talk entitled *Leadership and Diversity* (note: this is not a free event, if you have not already purchased a ticket, see the Registration desk)

Midwest Award Symposium	**Thursday, October 20**	**Zurich** **3:00 pm – 6:00 pm**

The symposium honors Professor Xiao Cheng Zeng of University of Nebraska – Lincoln, who will present his award address at 5:00 pm. Further details can be found in the technical program.

Midwest/Great Lakes Awards Reception	**Thursday, October 20**	**Matterhorn** **6:00 pm – 7:00 pm**
Midwest/Great Lakes Awards Banquet	**Thursday, October 20**	**Matterhorn** **7:00 pm – 9:00 pm**

The Midwest Award will be presented, and so will the Outstanding High School Teacher Awards for both the Midwest and Great Lakes Regions, the E. Ann Nalley Volunteer Awards for both the Midwest and Great Lakes Regions, and the Stanley C. Israel Award for Advancing Diversity in the Chemical Sciences for both the Midwest and Great Lakes regions.

ACS Governance and Roundtable Discussion	**Friday, October 21**	**Matterhorn** **12:00 pm – 1:30 pm**

Come and join ACS President-Elect Bassam Shakhashiri and hear from your ACS Governance. Professor Shakhashiri will then lead a roundtable discussion that will feature a distinguished panel including Chancellor Mark Wrighton of Washington University, Chancellor Vaughn Vandegrift of Southern Illinois University Edwardsville, and Dr. Susan Fitzpatrick, Vice President of the James S. McDonnell Foundation.

Career Services Workshops **Thursday, October 20** **Lugano**
1:00 pm – 5:30 pm

Workshops on *Job Search Strategies* (1–2:30 pm), *Preparing a Résumé* (2:30–4 pm), and *Effective Interviewing Skills* (4–5:30 pm). These workshops are free, and no pre-registration is required.

Career Services Resume Reviews **Friday October 21** **Lugano**
AM only

Individual résumé reviews by appointment; sign up at registration desk or during the Thursday Career Workshops.

Leadership Development Workshops **Friday, October 21** **Skylight Room**

The ACS Leadership Development staff will offer two courses during MWRM/GLRM 2011, on Friday, October 21st. These courses offer leadership training appropriate for use in ACS governance, but teach skills that are also widely applicable in the workplace.
Collaborating Across Boundaries, 8 am–12 noon, facilitated by Jason Ritchie
Communication Strategies, 1–5 pm, facilitated by Frankie Wood-Black

High School Program **Saturday, October 22** **Alpine I**
8:00 am – 12:00 pm

A full morning of activities and talks by distinguished speakers for high school teachers, organized by Prof. Hal Harris of the University of Missouri – Saint Louis.

Workshop on PLTL **Saturday, October 22** **Alpine II**
(Peer-Led Team Learning) **9:00 am – 11:00 am**

Dr. Gina Frey will guide workshop attendees through the process of successfully implementing PLTL, including presenting data from the program at Washington University.

International Year of Chemistry Posters

Posters by attendees that profile some aspect of the chemical enterprise or of chemical education in their home countries will be on display near the registration area during the meeting.

Undergraduate Program

Ice Cream Social, Wednesday, Oct 19, 5–7 pm, in the Matterhorn Room

Dr. Doug Goff, an ice cream expert in the Department of Food Science at the University of Guelph, will kick off the social by giving an oral presentation on ice cream. The title of his talk is *Designing ice cream quality with the aid of a microscope*. Following the lecture, frozen custard from a local business will be available. In addition, we will have the supplies to make ice cream using liquid nitrogen.

Research Poster Sessions (Thursday and Friday, Oct 20 and 21, see meeting schedule)

Undergraduates will have the opportunity to present their research during each of the general poster sessions. By participating in the research poster sessions, students will gain experience preparing a scientific poster, presenting their research to other scientists, and answering questions about their projects. They may also gather suggestions for future experiments. Five posters will be selected for "Outstanding Poster" awards; those presenters will be given framed certificates and $100 checks. Winners will be announced during the Career Fair event on Friday afternoon.

Technical Symposium on Plant Chemistry, Thursday, Oct 20, 1–3 pm in the Davos Room

St Louis is world-renowned center of plant science. At the symposium, you will hear about some of the exciting plant research they are undertaking. Their talks will be at a level suitable for undergraduates.

Featured Speakers

Toni Kutchan, Danforth Plant Science Center, *Post-genomic elucidation of plant natural product pathways*
Douglas Sammons, Monsanto Company, *Evolution of herbicide resistance*
Russell Williams, Sequoia Sciences, *Plant natural products in a modern drug discovery program*

Lunch with Bassam Shakhashiri, Friday, Oct 21, 12 noon–1:30 pm, in the Matterhorn Room

Join ACS President-elect Bassam Shakhashiri and a distinguished panel for a roundtable discussion about chemistry and society**.**

Careers for Chemists, Friday, Oct 21, 2:30–4:30 pm, in the Matterhorn Room

Representatives from local industries and organizations will talk with undergraduates about their careers and offer career advice. During the first hour, panelists will tell a little about their jobs, how they got there, what they do in a typical day, what they like/dislike about their jobs, what advice they have for someone who wants to pursue that job, etc. First hour panelists: Cody Cass, Sigma-Aldrich Inc; Matt Hulvey, Akermin Inc; Laura Mecker, US Food & Drug Administration; Rob Morrison, Pfizer.

The second hour will be more of a "mixer." Panelists and undergraduates will mingle. The idea is for the undergrads to seek out the professionals who most interest them and ask questions about their jobs. Second hour minglers include the first-hour panel plus: Brian Dowe, Dionex Corporation; Walter Gavlick, Monsanto Company; Joe Haar, Covidien; Joseph Hardimon, Jost Chemical Company; Rik Holmes, Fisher Scientific .

Midwest/Great Lakes Regional Meeting
Schedule for High School Day
October 22, 2011
Sheraton Westport Chalet Hotel
St. Louis

We thank our generous co-sponsors:

Department of Chemistry and Biochemistry, University of Missouri-St. Louis

Educational Innovations

The Journal of Chemical Education

8:00-8:15	Coffee and pastry shared with PLTL group
8:15-9:00	Debbie Goodwin (Chillicothe High School, Chillicothe, MO) "Corrosion is Everywhere – Use It To Make Chemistry Relevant and Fun"
9:00-9:45	Ron Perkins (Retired, Founder of Education Innovations, Inc.) "Super, Wow, Neat Chemistry!"
9:45-10:15	Bassam Shakhashiri (University of Wisconsin – Madison, 2011 President-Elect, American Chemical Society, "Exhortations for Good Teaching and the Joy of Learning"
10:15-10:30	Coffee and refreshments shared with PLTL group
10:30-11:15	Laura Slocum (University High School of Indiana, Carmel, IN) "Ready-to-use Resources for the International Year of Chemistry and Beyond"
11:15-12:00	Bob Becker (Kirkwood High School, Kirkwood, MO and 2011 Missouri High School Teacher of the Year) "Screencasts and Videogames -- Reaching Out to Students Where They Are"

Career Services
Lugano, October 20-21
Presented by Dr. Lisa Balbes, Balbes Consultants LLC
Councilor, Saint Louis Section

"Planning Your Job Search" is a series of three workshops that prepares chemical professionals to take charge of their own professional destiny. The three components are listed below.

Job Search Strategies 1:00 pm – 2:30 pm

- How to research the job market and identify potential opportunities
- How to identify your strongest assets for the job you want
- Networking - the key to finding and competing for hidden jobs

Resume Preparation 2:30 pm – 4:00 pm

- The difference between a resume and a C.V.
- How to write an effective resume for a scientific position
- What to include, and what not to include, on your resume
- Formatting and structure tips that will make your resume stand out

Effective Interviewing Skills 4:00 pm – 5:30 pm

- What to expect from an industrial interview, and how to prepare for them
- How to answer behavior-based interview questions
- How to handle difficult interview questions
- How to prepare a research presentation

Individual Resume Reviews

These will take place on Friday morning; please sign up either at the Registration desk or during the workshops.

Diversity Luncheon

Thursday, October 20th, 12:00 noon – 1:30 pm, Matterhorn
Featuring ACS President Nancy Jackson

Dr. Jackson will speak on "Leadership and Diversity". This talk will address the issues that diversity plays in leadership – including expectations, stereotypes, and the strengths and challenges facing leaders from diverse backgrounds.

Nancy B. Jackson is manager of the International Chemical Threat Reduction Department in the Global Security Center at Sandia National Laboratories which assists the U.S. Department of State and other federal agencies in solving problems related to international chemical security. With the U.S. Department of State, Dr. Jackson has developed the Chemical Security Engagement Program an international program to raise awareness of chemical safety and security among chemical professionals and to enable the practice of safety and security in the research, teaching, and commerce of chemicals. Previously, Dr. Jackson was deputy director of Sandia's International Security Program where she assisted the director in fulfilling its mission to create technology-based solutions through international cooperation to reduce the threat of weapons of mass destruction proliferation and terrorism. During the past four years, Dr. Jackson was responsible for leading the Laboratory Directed Research and Development program for Global Security which requires identifying and overseeing the research program in support of Global Security. Prior to her positions in Global Security, Dr. Jackson was involved in research and development at Sandia, as a principal investigator and a manager. Primarily her research was in heterogeneous catalysis with an emphasis on energy applications. Later work involved chemical imaging with a wide variety of applications from biological systems to homeland defense problems.

Dr. Jackson is a National Affiliate of the National Academies where she has served on several boards and chaired studies. Dr. Jackson is a Fellow of the American Association for the Advancement of Science and was recipient of the 2005 American Indian Science and Engineering Society Professional of the Year Award. Dr. Jackson was a member of the Board of Trustees of Rocky Mountain College and is a Research Associate Professor at the Chemical and Nuclear Engineering Department of the University of New Mexico.

Dr. Jackson has a B.S. degree in chemistry from George Washington University from which she won a Distinguished Alumni Achievement Award in 2005 and has a Ph.D. in chemical engineering from the University of Texas at Austin.

In 2009, she was elected to the Presidential succession of the American Chemical Society. She served as President-Elect for 2010, serves as President for 2011, and will serve as Immediate Past President in 2012.

(photo of Dr. Jackson is courtesy of Peter Cutts photography)

Governance Lunch and Roundtable Discussion

CHEMISTRY AND SOCIETY: ENLIGHTENMENT AND THE RESPONSIBILITIES OF THE ENLIGHTENED

Friday, October 21st, 12:00pm – 1:30pm, in the Matterhorn Room
Featuring ACS President-Elect Bassam Shakhashiri

Come and meet ACS governance, and participate in a roundtable discussion on chemistry and its role in society and the responsibilities of chemists as citizens.

The event will feature a distinguished panel led by ACS President Elect Bassam Z. Shakhashiri, and featuring Chancellor Mark Wrighton of Washington University in Saint Louis, Chancellor Vaughn Vandegrift of Southern Illinois University Edwardsville, and Dr. Susan Fitzpatrick, Vice President of the James S. McDonnell Foundation.

CHEMISTRY AND SOCIETY: ENLIGHTENMENT AND THE RESPONSIBILITIES OF THE ENLIGHTENED

Professor Bassam Z. Shakhashiri
The William T. Evjue Distinguished Chair for the Wisconsin Idea Department of Chemistry Director, Wisconsin Initiative for Science Literacy University of Wisconsin-Madison
2011 President-elect, American Chemical Society

We live in the most advanced scientific and technological society in history. New discoveries have led to improvements and benefits in our daily lives, but also to new societal problems. It is through chemistry that we can make major contributions to improve the quality of life in America and to advance the human condition around the globe. Chemistry is the key to eradicating disease and reducing poverty. Chemical research and technology can provide clean water and nutritious food, meet energy demands, and help lead to sustainable development everywhere.

Chemistry brings a wide range of goods and functions to everyone and thus is vital to our democracy. Science literacy is necessary for the democratic process to work. By science literacy I mean an appreciation of science, an understanding of the benefits of technology and the potential rewards and risks associated with advances in both, as well as recognition of what science is capable of achieving and what it cannot accomplish. Science literacy enlightens and enables people to make informed choices; to be skeptical; to reject shams, quackery, and unproven conjecture; and to avoid being bamboozled into making foolish decisions where matters of science and technology are concerned. Science literacy is for everyone-chemists, artists, humanists, all professionals, the general public, youth and adults alike. The level of science literacy in any society is a measure of what it values and its resolve to put these values into practice.

Bassam Z. Shakhashiri is the first holder of the William T. Evjue Distinguished Chair for the Wisconsin Idea at the University of Wisconsin-Madison, where he has been a faculty member for over 40 years. He is well known internationally for his effective leadership in promoting excellence in science education at all levels, and for his development and use of demonstrations in the teaching of chemistry in classrooms as well as in less formal settings, such as museums, convention centers, shopping malls and retirement homes. The *Encyclopedia Britannica* sites him as the "dean of lecture demonstrators in America." His scholarly publications, including the multi-volume series, *Chemical Demonstrations: A Handbook for Teachers of Chemistry*, are models of learning and instruction that have been translated into several languages. He is an advocate for policies to advance knowledge and to use science and technology to serve society. He promotes the exploration and establishment of links between science, the arts and the humanities, and the elevation of discourse on significant societal issues related to science, religion, politics, the economy, and ethics. Professor Shakhashiri is the 2011 President-Elect of the American Chemical Society, and will serve one-year terms as president in 2012 and immediate past president in 2013.

A native of (Anfe, El-Koura) Lebanon, Professor Shakhashiri came to the United States in 1957. He completed undergraduate work at Boston University (Class of '60) with an A. B. degree in chemistry, served as a teaching fellow at Bowdoin College for one academic year and then earned M.Sc. and Ph.D. degrees in chemistry at the University of Maryland ('64 and '68, respectively). After a year of post-doctoral research and two years as a junior member of the chemistry faculty at the University of Illinois-Urbana, Professor Shakhashiri joined the faculty of the UW-Madison in 1970, a position he still holds. In 1977 he became the founding chair of the UW System Undergraduate Teaching Improvement Council, now called the Office of Professional and Instructional Development. In 1983 he founded the Institute for Chemical Education (ICE) and served as its first director. In 2002 he founded the Wisconsin Initiative for Science Literacy (WISL) and continues to serve as its director.

From 1984 to 1990 Professor Shakhashiri served as Assistant Director of the National Science Foundation (NSF) for Science and Engineering Education. As the NSF chief education officer he presided over the rebuilding of all the NSF efforts in science and engineering education after they had been essentially eliminated in the early 1980's. His leadership helped set the annual NSF education budget at its current level of over $900 million. His NSF strategic plan launched the systemic initiatives and most of the other NSF education programs of the last two decades.

Professor Shakhashiri has given over 1300 invited lectures and presentations across the globe. He has been featured in newspapers, magazines, national and local radio and television. He is the recipient of over 35 awards, including the 1977 Kiekhofer Distinguished Teaching Award from UW-Madison, the James Flack Norris Award for Outstanding Achievement in the Teaching of Chemistry (1983) and the ACS George Pimentel Award in Chemical Education (1986). In 2005 he received the Chemical Pioneer Award from the American Institute of Chemists, and the ACS Helen M. Free Award for Public Outreach. He is the recipient of honorary doctoral degrees from George Washington University, Illinois State University, Ripon College, University of Colorado, Grand Valley State University, University of South Carolina and Lebanese American University.

Professor Shakhashiri and his wife June live in Madison. Their daughter Elizabeth is a 2007 alumna of UW-Madison, and received her law degree from the University of Michigan Law School in Ann Arbor in 2010; she currently practices law in Chicago.

Washington University in St. Louis

MARK S. WRIGHTON, PH.D.

BRIEF BIOGRAPHY

Dr. Mark S. Wrighton is Chancellor and Professor of Chemistry at Washington University in St. Louis. Wrighton assumed his duties as the 14th Chancellor on July 1, 1995.

Chancellor Wrighton is committed to teaching and research. Since his arrival, Washington University has made unprecedented progress in campus improvements, resource development, curriculum, international reputation, and especially in undergraduate applications and student quality.

Chancellor Wrighton served as a presidential appointee to the National Science Board, (2000-06). He served as Vice Chair of the NRC Committee on America's Energy Future and Chair of the NRC Committee on the Management of University Intellectual Property in the Public Interest. He is a past chair of the Business-Higher Education Forum and the Association of American Universities.

Wrighton has received many awards for his research and scholarly writing, including the distinguished MacArthur Prize. He is the author of over 300 articles in professional and scholarly journals, is the holder of 14 patents, and co-author of a book, *Organometallic Photochemistry*. His research interests are in the areas of transition metal catalysis, photochemistry, surface chemistry, molecular electronics, and in photoprocesses at electrodes.

He is a fellow of the American Academy of Arts and Sciences and of the American Association for the Advancement of Science and he is a member of the American Philosophical Society. Active in public and professional affairs, he has served on numerous governmental panels and has been a consultant to industry. He is an active member of numerous professional organizations and serves as a director on the boards of national companies and St. Louis organizations.

From 1990 until 1995, he served as provost and chief academic officer at the Massachusetts Institute of Technology. A member of the MIT faculty from 1972 until 1995, Wrighton became a full professor of chemistry in 1977. He was named Frederick G. Keyes Professor of Chemistry in 1981 and became head of the Chemistry Department in 1987. In 1989 he was named the first holder of the Ciba-Geigy Professorship.

Wrighton received his B.S. degree with honors in chemistry from Florida State University in 1969 and his Ph.D. in chemistry from the California Institute of Technology in 1972.

Vaughn Vandegrift, Chancellor
Southern Illinois University Edwardsville

Dr. Vaughn Vandegrift was appointed the seventh chancellor of Southern Illinois University Edwardsville on July 1, 2004. As chancellor, Dr. Vandegrift has been instrumental in guiding the University toward fulfillment of its vision to be recognized nationally as a premier Metropolitan University for the excellence of its programs and development of professional and community leaders. He has instituted a plan for achievement of the vision by the year 2015 that incorporates the values and long-term strategic goals of the University.

Under his leadership, SIUE has been recognized by *U.S.News & World Report* as one of 68 up-and-coming universities in the United States. SIUE has also been recognized by the American Association of Colleges and Universities and *U.S.News* for the sixth consecutive year for its Senior Assignment program, a culminating experience required of all graduating seniors. For the seventh year running, SIUE is ranked by *U.S.News* as one of the top 20 public master's universities in the Midwest and by the *Daily Beast*, an online news magazine, as the 21st safest campus in the nation with enrollment over 6,000 students. In addition, SIUE is listed by *Washington Monthly* magazine among the top 50 master's granting institutions in the nation for a commitment to the public good in the areas of Social Mobility, Research and Service. In Fall 2010, SIUE attained a record enrollment of over 14,000 students and has completed $140 million of a planned $250 million construction and infrastructure program. The University also is being reclassified to an NCAA Division I athletics institution as a member of the Ohio Valley Conference.

Dr. Vandegrift currently serves as a member and past president of Leadership Council Southwestern Illinois. In addition, he is a member of St. Louis Civic Progress and the Boards of Directors of Innovate St. Louis; St. Louis Regional Commerce and Growth Association; United Way of Greater St. Louis; the Southern Illinois Collegiate Common Market; and University Park, SIUE. The author of numerous articles and publications in protein/nucleic acid biochemistry, Dr. Vandegrift is a member of the American Chemical Society and the American Association for the Advancement of Science. He has been elected into the honor societies of Omicron Delta Kappa, Sigma Xi, Beta Gamma Sigma and Phi Kappa Phi.

Dr. Vandegrift received his Ph.D. in biochemistry from Ohio University and his baccalaureate and master's degrees in chemistry from Montclair State University. He previously served as Provost and Vice President for Academic Affairs at Georgia Southern University, Dean of Science and Mathematics at Montclair State University and on the faculties of Murray State University, Illinois State University and Southern Illinois University Carbondale.

Vaughn and his wife, Sue, are the parents of three adult children. Beth is an attorney, while David and Mark are employed in private business. In addition, Vaughn and Sue are the proud grandparents of four granddaughters, Vaughn, Camilla, Elizabeth, and Amelia, and one grandson, Fletcher.

Susan Fitzpatrick, Ph.D. is Vice President of the James S. McDonnell Foundation. The McDonnell Foundation is one of a limited number of international grant-makers supporting university-based research in the biological and behavioral sciences through foundation-initiated programs via competitive, peer-review proposal processes. As Vice-President, Fitzpatrick serves as JSMF's Chief Operating Officer.

Fitzpatrick received her Ph.D. in Biochemistry and Neurology from Cornell University Medical College (1984) and pursued post-doctoral training with *in vivo* NMR spectroscopic studies of brain metabolism in the Department of Molecular Biochemistry and Biophysics at Yale University.

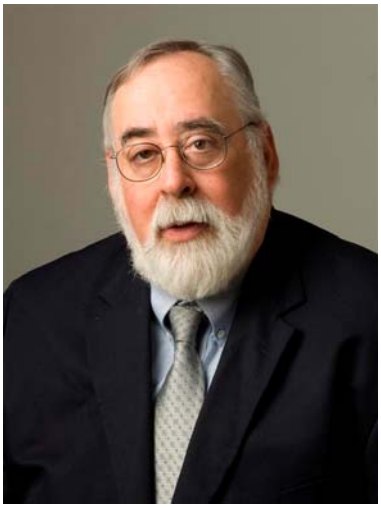
Fitzpatrick served as the Associate Executive Director of the Miami Project to Cure Paralysis (1989-1992), a comprehensive basic science and applied science research center focused on restoring neurological function to persons with spinal cord injury. Her responsibilities included all public outreach and educational efforts and she served as the scientific liaison to the development, fundraising, and public relations staff. As Executive Director of the Brain Trauma Foundation (1992-1993), Fitzpatrick guided the Foundation through a re-organization. BTF is now a leader in advancing the acute care of patients with traumatic brain injury. Fitzpatrick joined the James S. McDonnell Foundation in 1993 as the Foundation's first Program Officer. She was promoted to Program Director in 1997 and to Vice President in 2000. Fitzpatrick is an adjunct associate professor of Neurobiology and Anatomy and Occupational Therapy at Washington University School of Medicine (St. Louis), teaching neuroscience. Fitzpatrick lectures and writes on issues concerning applications of neuroscience to clinical problems, the role of private philanthropy in the support of scientific research, and on issues related to the public dissemination of and understanding of science. Fitzpatrick serves on the boards of the Association of Women in Science and the Ontario Brain Institute and is a past member of the board of the American Association for the Advancement of Science.

ACS Board of Directors Members in Attendance

In addition to our ACS President, Nancy Jackson, and President-Elect Bassam Shakhashiri, we are privileged to have three other ACS Board of Directors members with us for MWGL 2011: George Bodner, Director, District II; Peter Dorhout, Director, District V; and Marinda Li Wu, Director-at-Large.

Please seek them out during the meeting, especially during the coffee breaks, poster sessions, and receptions, to share your ideas, concerns, and comments. They are here to listen and respond to you – our ACS members, to take your ideas—and to make things happen!

Marinda Li Wu, Director at Large



George Bodner, Director, District II

Peter Dorhout, Director, District V

Exposition
Versailles Ballroom

Organizers

Lisa Balbes, Balbes Consultants LLC
Ted Gast, Carl F. Gast Company, Arch Paper

HOURS: Wednesday, October 19, 7:00 – 9:00 pm
Thursday, October 20, 8:30 am – 12:00 pm, 1:00 pm – 5:00 pm
Friday, October 21, 8:30 am – 12:00 pm

Commercial Exhibitors

ABC Labs
Agilent Technologies
Bruker Daltonics Inc.
Cannon Design Product Group
EAG Life Sciences
Edinburgh Instruments Ltd.
EPL BioAnalytical Services
Fisher Scientific
Horiba Scientific
John Wiley & Sons
LECO Corporation
Midland Scientific Inc.
Millipore
NanoScience Instruments
Pearson
PerkinElmer
Pine Research Instrumentation
Rieke Metals, Inc.
RPMC Lasers Inc.
Shimadzu Scientific Instruments
Spectrum Chemicals and Laboratory Products
TA Instruments
Teledyne ISCO
ThermoFisher Scientific

Commercial Vendor Information

Agilent Technologies is a leading supplier of chemical analysis and life science instrumentation ranging from gas and liquid chromatography systems and mass spectrometers, to DNA microarrays and scanners. Agilent's technology and services enable researchers to accelerate scientific research and discoveries in key areas: Environmental Analysis, Energy, Food Safety, Integrated Biology, Forensics, and Pharmaceutical, along the entire discovery value chain, from basic biological research through drug discovery and manufacturing. Agilent Technologies, 800-227-9770, agilent_inquiries@agilent.com.

Bruker Daltonics is a leading manufacturer of mass spectrometry (MS) instruments and accessories for life science, pharmaceutical, biochemical and chemical research as well as for more routine analytical tasks in forensics and food safety. Bruker Optics offers the most advanced Fourier transform (FT-) Infrared and Near Infrared, Raman, time domain low resolution NMR and terahertz spectrometers for academic and industrial research, process and quality control. Contact: Chris Leitner/ Bruker Daltonics, cml@bdal.com, 812-944-7785. Rod Jorritsma/ Bruker Optics, rkj@brukeroptics.com, 978-771-4366

HORIBA Scientific is the leading manufacturer of materials analysis systems based on spectroscopic and imaging techniques including fluorescence, Raman, XRF, ICP, GD-OES, ellipsometry, particle sizing, and cathodoluminescence. World leaders in fluorescence and Raman systems, our offerings include macro and microscope based solutions featuring the world's most sensitive spectrofluorometers for steady state and TCSPC lifetimes, and the highest performance, most flexible Raman systems for every budget. Post-show contact: Michael Oweimrin, Fluorescence, Raman, X-ray Fluorescence, Thin Films, Glow Discharge, ICP Sales Engineer, HORIBA Jobin Yvon, Inc., A HORIBA Scientific Company, 3880 Park Avenue Edison, New Jersey USA 08820, Phone: 908-209-6762, Fax: 732.549.5125, E-mail: michael.oweimrin@horiba.com, www.HORIBA.com/Scientific

LECO Corporation. In 1936, the Laboratory Equipment Company introduced the first rapid carbon determinator to the American iron and steel industry. Today, 75 years later, LECO is globally recognized as a leader in the development of high-quality analytical instrumentation, mass spectrometers, comprehensive two-dimensional chromatography, metallography and optical equipment, and consumables. www.leco.com, info@leco.com, (269) 985-5496, (800) 292-6141.

Millipore's Lab Solutions business unit supplies products for research, analytical and clinical laboratories in a wide variety of industries. We are one of the leading suppliers of laboratory chemicals, lab water purification equipment and consumables. We serve the inorganic chemistry markets with high purity reagents (salts, acids, caustics, buffers) for instrumental analysis and products for inorganic trace analysis. For organic chemistry we supply a full range of basic products for synthesis and as a leader in chromatography we are advancing the development of analytical separation technologies. Contact: Richard

Goldstein, Senior Application Specialist, EMD Millipore, Millipore Corporation, St. Louis, MO, e-mail: Richard.Goldstein@Merckgroup.com, www.millipore.com, Cell: (314) 800-4775, Phone (VM): 800 645-5476, ext. 6797, Fax: (314) 878-2091

Pearson. Every student is unique. What if learning could adapt? Learn uniquely. Transform learning with proved, customizable solutions that help teachers, institutions and students succeed. Welcome to Pearson Higher Ed. Engage uniquely. eLearning solutions are proven to guide students to the moment of new knowledge. Transform uniquely. Quick visibility into your students' performances can help you achieve real results. Share uniquely. With custom publishing you take control of our content.

Pine Research Instrumentation manufactures an affordable electrochemical instrumentation including portable potentiostats, rotating disk and ring-disk electrodes, and screen-printed patterned electrodes. Our portable WaveNow USB potentiostat system coupled with our patterned electrodes provide a quick-and-easy way to teach voltammetry in the undergraduate instrumentation lab course. Our powerful AfterMath software package is used to control the WaveNow potentiostat and to graph and analyze voltammograms. Contact: Marion Jones, Sales Manager, mjones@pineinst.com. http://www.pineinst.com/ECHEM/

Rieke Metals, Inc has supplied the world with active Rieke Zinc and Magnesium, Grignard and Organozinc reagents, fine organic chemicls and organic semi-conducting polymers and monomers for over 20 years. Headquartered in Nebraska, the facility produces and supplies over 10,000 research compounds. Contact: Elizabeth Hefley- Marketing and Sales, sales@riekemetals.com, 402-434-2775.

RPMC Lasers, Inc, Since 1996 RPMC has been offering high power single emitters in wavelengths from 622nm - 2.3um, laser diode bar products including unmounted bars, conductive packages, microchannel cooled stacks, and fiber coupled packages, laser diode modules, and laser diode accessories including laser diode drivers, TEC controllers, and heatsinks. RPMC also offers flashlamp, diode pumped and fiber lasers and fiber amplifiers, including femtosecond lasers, picosecond lasers,nanosecond lasers, millisecond lasers, and CW lasers, with energy from nJ up to 300J, and rep rates from pulse-on-demand to 50 MHz, for scientific R&D; for industrial processes such as cold ablation, semiconductor processing, solar cell manufacturing, stent cutting, laser marking; for medical processes such as ophthalmology and dermatology; and for military uses such as seeding, range finding, SWIR imaging, and ladar/lidar: for scientific process such as LIBS, spectroscopy and PIV. www.rpmclasers.com. RPMC Lasers, Inc. 636-272-7227

Spectrum Chemicals & Laboratory Products manufactures and distributes fine chemicals and laboratory products including active pharmaceutical ingredients, excipients, controlled substances, biochemicals, reagents, chemical solutions and ingredients for

cosmetics and dietary supplements, offered in research, scale-up and production sizes. Spectrum's ISO 9001-2008-certified facilities are FDA registered and operate under current Good Manufacturing Practices. Contact: Matthew Lanham, Account Manager – Heartland, Spectrum Chemicals & Laboratory Products, 800.772.8786 x 5788, Cell 314.581.0458, Fax 314.677.3523, mlanham@spectrumchemical.com

Thermo Fisher Scientific is the world leader in serving science. The company enables its customers to make the world healthier, cleaner and safer by providing analytical instruments, equipment, reagents and consumables, software and services for research, analysis, discovery and diagnostics.

The company delivers the industry's broadest selection of analytical instruments, equipment, consumables and laboratory supplies. Its growing portfolio of products includes innovative technologies for mass spectrometry, elemental analysis, molecular spectroscopy, sample preparation, informatics, fine and high-purity chemistry production, cell culture, RNA interference analysis and immunodiagnostic testing, as well as air and water quality monitoring and process control. The company also gives its customers the most convenient purchasing options, including a direct sales force of 7,500 professionals, catalogs and e-commerce.

Thermo Fisher Scientific Brands

Thermo Fisher Scientific's two premier brands are the foundation of its portfolio:

Thermo Scientific represents a broad range of high-end analytical instruments, chemistry and consumable supplies, laboratory equipment, software and services that enable integrated laboratory workflow solutions. Thermo Scientific is the new name for a trusted brand – Thermo Electron – that the world's most renowned researchers, clinicians and scientists already count on to solve their analytical challenges. The brand is strengthened by the addition of equipment, consumables and reagents acquired from Fisher Scientific.

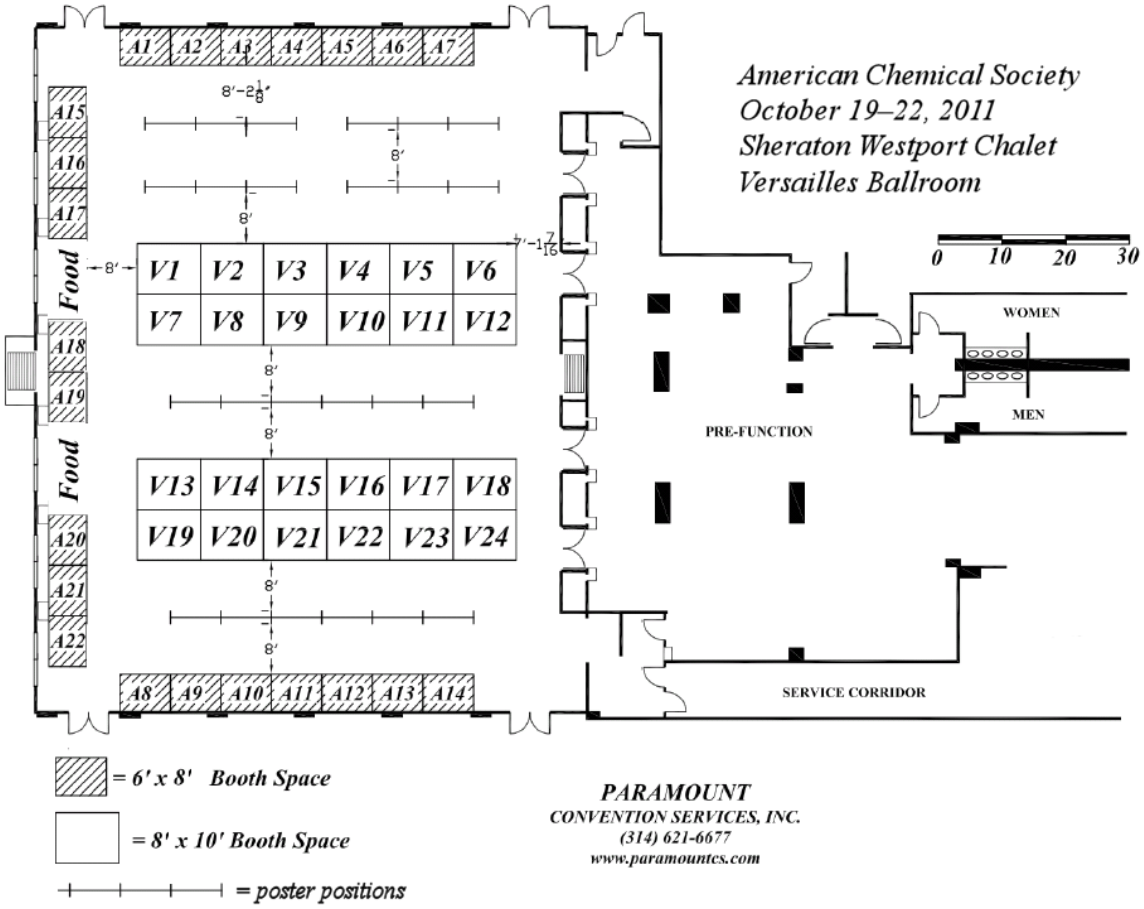
Fisher Scientific represents a family of global product and service brands comprising a complete portfolio of laboratory equipment, chemicals, supplies and services used in healthcare, scientific research, safety and education. Fisher Scientific brings these solutions to general research customers worldwide, and through Fisher HealthCare, Fisher Safety and Fisher Science Education it delivers the specialty equipment, supplies and services that customers want, when and how they want them. Contact: Jan Ferrara, jan.ferrara@thermofisher.com

Academic Exhibitors

Emporia State University
Illinois State University
Iowa State University of Science & Technology
Kansas State University
Missouri State University
Northwest Missouri State University
Saint Louis University
Oklahoma State University
Southern Illinois University
Texas A&M University
University of Arizona
University of Iowa
University of Kansas
Univ of Kansas, Self Grad Fellowship
University of Missouri - Columbia
University of Missouri - Kansas City
University of Missouri - St. Louis
University of Nebraska-Lincoln
University of South Carolina
Vanderbilt University
Washington University
Wichita State University

MWRM2012 (Omaha, Nebraska)

Map of Exposition



V1	**RPMC Lasers Inc.**
V2	**EPL BioAnalytical Services**
V3	**Canon Design Product Group**
V4	**TA Instruments**
V5	**Pearson**
V6	**Horiba Scientific**
V7	**Midland Scientific, Inc.**
V8	**ThermoFisher Scientific**
V9	**Edinburgh Instruments Ltd.**
V10	**John Wiley & Sons**
V11	**LECO Corporation**
V12	**Bruker Daltonics Inc.**
V13	**Fisher Scientific**
V14	**Millipore**
V15	**Shimadzu Scientific Instruments**
V16	**PerkinElmer**
V17	**Agilent Technologies**
V18	**Pine Research Instrumentation**
V19	**Rieke Metals, Inc.**
V20	**Teledyne ISCO**
V21	**ABC Labs**
V22	**ThermoFisher Scientific**
V23	**EAG Life Sciences**
V24	**Spectrum Chemicals and Laboratory Products**

A1	**Texas A&M University**
A2	**University of South Carolina**
A3	**University of Missouri – Kansas City**
A4	**Illinois State University**
A5	**University of Missouri - Columbia**
A6	**Emporia State University**
A7	**University of Iowa**
A8	**Washington University**
A9	**Oklahoma State University**
A10	**Saint Louis University**
A11	**Wichita State University**
A12	**Missouri State University**
A13	**University of Missouri – Saint Louis**
A14	**Vanderbilt University**
A15	**Kansas State University**
A16	**Southern Illinois University**
A17	**Southern Illinois University**
A18	**Iowa State University**
A19	**University of Arizona**
A20	**University of Kansas**
A21	**University of Nebraska - Lincoln**
A22	**University of Kansas, Self Grad Fellowship**
	MWRM 2012
	NanoScience Instruments

Meeting Give-Aways are Courtesy of the Following Companies

Agilent Technologies is a leading supplier of chemical analysis and life science instrumentation ranging from gas and liquid chromatography systems and mass spectrometers, to DNA microarrays and scanners. Agilent's technology and services enable researchers to accelerate scientific research and discoveries in key areas: Environmental Analysis, Energy, Food Safety, Integrated Biology, Forensics, and Pharmaceutical, along the entire discovery value chain, from basic biological research through drug discovery and manufacturing. Agilent Technologies, 800-227-9770, agilent_inquiries@agilent.com.

Arch Paper makes paper from post consumer fabrics in an eco-friendly process.

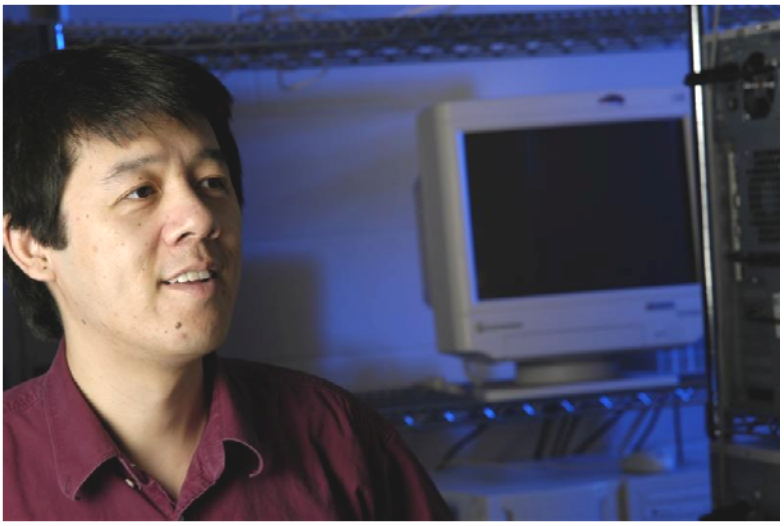
ARCH Paper is:
- *100% post-consumer content
- *Tree free, dye-free, bleach-free and solvent-free
- *Made and creates jobs in the USA
- *The greenest paper on Earth

http://www.archpaper.net/

Carl F. Gast Company is a manufacturer's representative for industrial instruments and equipment. We specialize in selling technical products with non-self-evident uses to a wide range of industries. Third generation since 1935.
http://www.cfgastco.com/

Pearson. Every student is unique. What if learning could adapt? Learn uniquely. Transform learning with proved, customizable solutions that help teachers, institutions and students succeed. Welcome to Pearson Higher Ed. Engage uniquely. eLearning solutions are proven to guide students to the moment of new knowledge. Transform uniquely. Quick visibility into your students' performances can help you achieve real results. Share uniquely. With custom publishing you take control of our content.

2011 Midwest Award
Sponsored by the Saint Louis Section



Xiao Cheng Zeng, Ameritas Distinguished University Professor of Chemistry, is internationally known for his computational studies of new phases of ice, gold and silicon clusters, and nanostructured materials. Zeng is a fellow of the American Association for the Advancement of Science, and a fellow of the American Physical Society. He has also held a John Simon Guggenheim fellowship and a fellowship of Japan Society for the Promotion of Science. He was a recipient of numerous awards and honors, including University of Nebraska Outstanding Research and Creative Activity Award, Sigma Xi Outstanding Young Scientist Award, and an inaugural Willa Cather professorship at UNL.

Zeng has published 271 scientific papers in refereed journals including two papers in the journal *Nature*, nine papers in the journal *Proceedings of the National Academy of Sciences USA*, and twenty four papers in *Journal of the American Chemical Society*. The most significant scientific discoveries from the Zeng group include the two-dimensional hexagonal bilayer ice ("Nebraska ice"), two-dimensional ice clathrate, multi-walled helical ice, one-dimensional ferroelectric ice, and hollow cages of gold. These findings were featured in the *New York Times*, *Omaha World Herald*, *Lincoln Journal Star*, Royal Society of Chemistry, *American Scientist* Magazine, *New Scientist* Magazine, and National Public Radio.

A faculty member for 18 years at UNL, Zeng has supervised 20 graduate students (16 Ph.D. and 4 MS) and 19 postdoctoral fellows. Eight former Ph.D. graduate students in Zeng group received University of Nebraska, College of Arts & Science, and/or Department of Chemistry Outstanding Graduate Research Assistant Awards. Zeng received his bachelor degree from Peking University in 1984 and his Ph.D. from the Ohio State University in 1989. He pursued his postdoctoral research at University of Chicago and UCLA from 1989 to 1993.

The Midwest Award Symposium in honor of Professor Zeng will take place Thursday from 3:00 pm – 6:00 pm in the Zurich Room

Dr. Zeng's Award Address entitled: *Computer-aided nanoscience research: Nanoice, nanoclusters, and superhydrophobicity* will take place from 5:00 pm – 6:00 pm in the Zurich room.

The Midwest Award
Sponsored by the St. Louis Section

The St Louis Section established the ACS Midwest Award in 1944 to publicly recognize outstanding achievements in chemistry in the Midwest region. The award is conferred annually on a scientist who has made meritorious contributions to the advancement of pure or applied chemistry, chemical education, and the profession of chemistry. The award ceremony takes place during a banquet at the Midwest Regional ACS meeting in October. The awardee or the nominator usually organizes an Award Symposium with speakers in the awardee's field of study.

To be eligible, a nominee's cited work must have been performed while he or she was residing within the Midwest Region of the ACS, which includes Missouri, Arkansas, Iowa, Nebraska, Kansas, Southern Illinois, and South Dakota. However, the nominee does not have to be an ACS member. Neither the nominee nor the nominator has to currently reside in any of these locations. Nominees can be from industry, academia, government or private practice.

RECIPIENTS OF THE MIDWEST AWARD

Sponsored by the St. Louis Section

Year	Recipient	Year	Recipient
1944	Lucuas P. Kyrides	1983	Jacob Kleinberg
1945	Carl F. Cori & Gerty T Cori	1984	Norman Cromwell
1946	Anderson W Ralstgn	1985	John D. Corbett
1948	Paul L. Day	1986	Charles W. Gehrke
1949	Robert D. Coghill	1987	Jacob Schaefer
1950	William S. Haldeman	1988	C. Davie Gutsche
1951	Henry Gilman	1989	Robert W. Murray
1952	Edward Mallinckrodt, Jr.	1990	Donald J. Burton
1953	Roger Adams	1991	Michael J. Welch
1954	Richard M. Hixson	1992	Richard L. Schowen
1955	Cliff S. Hamilton	1993	Daniel W. Armstrong
1956	Carroll Hoochwalt	1994	Theodore Kuwana
1957	Ray O. Brewster	1995	Thomas J. Barton
1958	Charles D. Hurd	1996	Garlan R. Marshall
1959	Melvin DeGroote	1997	Reuben D. Rieke
1960	Charles D. Harrington	1998	Kenneth J. Klabunde
1961	Samuel I. Weissman	1999	Dewey Holten
1962	Oliver H. Lowry	2000	Joyce Y. Corey
1963	Herman Pines	2001	Vasu Nair
1964	Harold H. Strain	2002	Michael Gross
1965	Richard W. Riley	2003	Kristin Bowman-James
1966	Ralph G. Pearson	2004	Mark Gordon
1967	Frank H. Spedding	2005	Jerry L. Atwood
1968	Byron Riegel	2006	Jay A. Switzer
1969	Joseph J. Katz	2007	George Gokel
1970	Irving M. Klotz	2008	Daryle H. Busch
1971	John C. Bailar, Jr.	2009	Richard C. Larock
1972	Myron L. Bender	2010	John Verkade
1973	Herbert S. Gutowsky	**2011**	**Xiao Cheng Zeng**
1974	Glen A. Russell		
1975	Takeru Higuchi		
1976	Stanley Wawsonek		
1977	Paul Kuroda		
1978	Orvill Chapman		
1979	Ralph Adams		
1980	Robert Hansen		
1981	Donald W. Setser		
1982	Klaus Ruedenberg		

2011 ACS Division of Chemical Education
Midwest Region Award
For Excellence in High School Teaching
In honor of John E. Baumann, Jr.

Greg Cooper, Lincoln Southwest High School, Lincoln, Nebraska

Greg earned his B.S in Education from the University of Nebraska/Lincoln (UNL). His first teaching position was in Columbus, NE where he taught eighth grade science. Greg moved back to Lincoln and took a position teaching Chemistry at Lincoln Southeast High School. While working at Southeast, Greg started working on his master's degree and received his Masters in Education from UNL. His current teaching position is at Lincoln Southwest High School where he teaches Honors Chem, Honors Chem II, Forensic Science, and is assistant coach for the Science Olympiad Team. Greg is in his sixteenth year of education.

Greg has two children and three stepchildren. By coincidence, Greg got married last year on mole day. He served twenty-two years with the Nebraska Air National Guard.

Recipients of the Division of Chemical Education Midwest Region Award for Excellence in High School teaching in Honor of John E. Baumann, Jr.

1985 Donna Jean Bogner
1986 Mary E. Harris
1987 Richard K. Kavanaugh
1988 Claudia K. Viehland
1990 William H. Nelson
1991 Dianne Epp
1992 John M. Hambacker
1993 James E. McGaham
1994 John Oliver
1995 Robert Becker
1996 Robert Cutright
1997 James B. Jenkins
1998 Andrew Dwight Shaw
1999 Arthur J. Crum
2000 Pamela S. Abbot
2001 Julie A. Larsen
2002 Janice P. Cowley
2003 Eugene Erickson
2004 Rhonda Reist
2005 Shannon D. Sample
2006 Paula R. Kuhlman
2007 Jackie Stewart
2008 Rosemary V. Camp
2009 Jeff Hepburn
2010 Eric Knispel
2011 Greg Cooper

2011 ACS Division of Chemical Education
Great Lakes Region Award
For Excellence in High School Teaching

Jeff Christopherson. Normal Community High School, Normal, Illinois

Jeff holds a BS (with honors) and MS degree in Chemistry from Illinois State University. He has worked as a research chemist for The Upjohn Company, but found he enjoyed interacting with students and teaching more than real work. Since 1990, he has taught chemistry and honors chemistry at Normal Community High School in Normal, Illinois, as well as Biology, Earth Science, and Physical Science. For several years now, his summers have been spent teaching 100 level chemistry classes at Illinois State University.

Jeff has developed a web based curricula to enhance the students classroom experience. He has also developed an Instructional Support CD containing 1000's pages of highly animated PowerPoints and hundreds of worksheets with keys (showing problems worked out in equation editor). The CD is available at no charge through his website www.unit5.org/chemistry. His website has enabled him to share and interact with teachers around the world, and he enjoys mentoring new chemistry teachers.

Jeff tries to bring a professional attitude to his students about the dangers of chemicals and how to handle them safely. His teaching style is a volatile mix of high enthusiasm, dry humor, and storytelling to explain chemical concepts. Students will rarely say "I'm bored" in his classroom. They work hard, but they have fun doing it.

Jeff has three children, 3rd, 10th and 12th graders, all active in sports and numerous other activities. His wife, Indu, teaches chemistry at Illinois State University.

2011 E. Ann Nalley Midwest Region Award for Volunteer Service

D. Paul Rillema

Wichita State University
Wichita Local Section

He received a B.A. degree in chemistry from Hope College in 1965 and his Ph.D. degree in chemistry from Michigan State University in 1969 working under the direction of Carl H. Brubaker. He studied as a postdoctoral researcher under the direction of John F. Endicott at Wayne State University from 1969-72 and then with Fred Basolo from 1972-73. From 1973-1994, he was a faculty member at the University of North Carolina at Charlotte where he was chair of the department for six years before transferring to Wichita State University where he assumed a similar position for eight years.

His past ACS service includes: Executive Committee member and 1988 Chair of the Carolina Piedmont section of the American Chemical Society, Vice Chair of the Program Committee for the 1983 Southeast Regional American Chemical Society Meeting held in Charlotte, Program Committee member of the National American Chemical Society's Division of Chemical Education, Chair of the Program Committee and a member of the Executive Committee and 2000 Chair of the Wichita local section of the American Chemical Society, organizer of the General Session for the Division of Chemical Education at the San Francisco National ACS meeting, March 2000, Co-Organizer of the Division of Chemical Education's Program for the Washington National ACS meeting, August, 2000, the Philadelphia National ACS meeting, 2004 and the Philadelphia National ACS meeting, 2008, Editor of the Division of Chemical Education's Newsletter, 2001-2011, Program Chair for the 2010 Midwest Regional Meeting held in Wichita, KS, October 27-30.

Currently he serves as Councilor of the Wichita local section, as an Executive Committee member of the Wichita local section, as a Program Committee member of the Chemical Education Division, as an Executive Committee member of the Multidisciplinary Program Planning Group (MMPG) of the National ACS, as an Executive Committee of the National ACS Divisional Activities Committee (DAC), as Co-Chair of the Innovative Projects subcommittee of the DAC, as a liaison to the ACS Graduate Education Advisory Board, and is Co-Organizer of the Division of Chemical Education's Program for the Philadelphia 2102 National ACS fall meeting for Philadelphia in 2012.

The E. Ann Nalley Midwest Region Award for Volunteer Service

Established during her presidential year, 2006, the E. Ann Nalley Midwest Regional Award for Volunteer Service recognizes the selfless dedication of our ACS members who give of their time and talent by living our ACS vision of enriching people's lives through the transforming power of chemistry.

Past Recipients of the E. Ann Nalley Midwest Region Award for Volunteer Service

2006	Frank Salter
2007	Ruth Ann Hathaway
2008	John E. Adams
2009	Yasmin Patell
2010	Michael D. Mosher
2011	D. Paul Rillema

2011 E. Ann Nalley Great Lakes Region Award for Volunteer Service

Lydia Hines, Western Michigan University
Kalamazoo Section

Originally from the island of Cyprus, she received a B.S. degree from Aurora College (now University) in 1967, and the M.S. and Ph.D. degrees in Organic Chemistry from the University of Illinois at Urbana-Champaign in 1971 under the direction of Dr. Douglas E. Applequist. From 1971-1975 she was a research chemist at Mead Johnson (Bristol -Myers) in Evansville, IN, and from 1975-1985 was employed at The Upjohn Company in Kalamazoo, MI, first as a Patent Liaison Specialist and then as a Technical Intelligence Scientist. In 1985 she resigned her position to raise her family (two daughters, one now a managing editor at a small newspaper and the other a violinist, and a son, now an aero/mechanical engineering Ph.D. student) and to provide care at home for her mother, an Alzheimer's patient. Her service to her Local Section and to the National American Chemical Society remained uninterrupted through those years.

From 2004 to 2008 she had a teaching position at Kalamazoo Valley Community College, and since 2006 she has served as part-time faculty in the Chemistry department at Western Michigan University.

Her ACS Local Section service includes being Publicity Committee Chair of the Indiana-Kentucky Border Section, 1974-1975. Since her arrival in Kalamazoo in 1975 she has served as Chair-elect and Program Chair of the Kalamazoo Section, 1980; Chair 1981; Alternate Councilor 1978-1983; chair of the Publicity Committee 1986-2001; pre-high-school science education coordinator 1988-2001; member of the Section's Awards Committee 1991-2001 and its chair in 1992 and again since 2008; chair of the Chemistry Promotion Committee 1991-2001. She has been the coordinator for the Section's Chemists Celebrate Earth Day event since its inception in 2004, and she has continued to serve as the National Chemistry Week coordinator for the Section since 1988. She has been a Councilor and a member of the Executive Committee of the Kalamazoo Section since 1984.

In 1984 she had the privilege of serving as General Chair of the Joint Great Lakes-Central Regional Meeting for which the Kalamazoo Section was host, and since that year has been the Kalamazoo Section representative to the Great Lakes Region Steering Committee.

As Councilor, she most recently (2011) completed service for her allowed terms on the Committee on Constitution and Bylaws and on the Committee on Community Activities and at the Fall 2011 ACS Meeting in Denver her colleagues on the Council elected her to the Committee on Nominations and Elections. She previously served full terms on the Committee on Committees; on the Committee on Nominations and Elections, serving as Secretary in 1995; on the Committee on Copyrights, and as Chair in 1990-1992; and on the Women Chemists Committee, serving on its Garvan Medal Canvassing Committee and as editor of its newsletter, Women Chemists, from 1984-1987.

2011 Stanley C. Israel Regional Award for Advancing Diversity in the Chemical Sciences, Midwest Region

Alexa Serfis, Ph.D. is currently a Professor and Associate Chair of Chemistry at St Louis University. She has advised pre-professional undergraduates on their educational options, as well as mentoring any number of undergraduate students and research assistants.

In 2001, she led the Student Affiliates of the ACS (SA-ACS) group at SLU to start a mentoring program for Gateway Middle School students (a predominantly African-American St. Louis City school). The students work on a high quality scientific projects, which are presented as science fair projects and orally at the Junior Academy of Sciences. The SA-ACS students serve as advisors to the middle school students.

In 2007 and again in 2010, Dr. Serfis developed a Senior Girl Scout Interest Project around chemistry. The first program was centered around spectroscopy and included hands-on use of a UV-Vis spectrometer to investigate properties of sunscreens. The second program included activities focused on forensic science and the use of chemical methods to characterize physical evidence. In each case, the Girl Scouts took the indicator home, and in order to earn the badge used their new knowledge to conduct an outreach activity at a local elementary school.

Dr. Serfis has hosted a Project SEED student in her laboratory, and is currently helping to start an internship program and bring another round of students to St Louis University next summer. She is a regular volunteer both for the ACS local section with the Boy Scout Chemistry Merit Badge and has twice chaired outreach activities for National Chemistry Week.

2011 Stanley C. Israel Regional Award for Advancing Diversity in the Chemical Sciences, Great Lakes Region

The Chemistry and Physics Department of Chicago State University (CSU) has been awarded the Stanley C. Israel Award for their work in diversifying the chemical sciences and community outreach. CSU is a regional comprehensive university located on the far south side of Chicago, IL. Approximately one million people of color live in its service area. Annually, over 7,000 students attend CSU and approximately 85% are African-American. The department is committed to excellence in undergraduate education and awards ACS approved B.S. degrees in four areas of chemistry. It is consistently ranked among the top 15 schools in the number of degrees awarded annually to African-Americans and, since 2005, has graduated 66 chemistry majors, 64 of who come from groups underrepresented in the sciences. CSU has a vibrant undergraduate research program that engages not only their own students but also students from the local community colleges. CSU has supported well over 100 undergraduates during the summer and academic year. CSU students have given 45 presentations at local, regional, and national conferences; and have co-authored 28 peer-reviewed publications with CSU faculty. For the past 15 years, CSU has maintained the "Chicago Chemistry Van"—a mobile teaching resource that delivers science experiments to 43 regional high schools. Many of these schools are part of the Chicago Public School (CPS) system [approximately 90% of CPS students are non-white] and other suburban schools serving predominantly African-American and economically disadvantaged school districts. They also host an annual "Science Fair Central" event to help CPS student prepare for school and city science fairs. In recent years, annual student attendance at this event has been approximately 300.

The Stanley C. Israel Regional Award recognizes individuals and/or institutions who have advanced diversity in the chemical sciences and significantly stimulated or fostered activities that promote inclusiveness within the region.

Nominees may come from academia, industry, government, or independent entities, and may also be organizations, including ACS Local Sections and Divisions. The nominee must have created and fostered ongoing programs or activities that result in increased numbers of persons from diverse and underrepresented minority groups, persons with disabilities, or women who participate in the chemical enterprise.

ACS Local Sections of the Midwest Region

Local Section	Chair
Ames	Joseph W. Burnett
Iowa	Wanda Reitner-Kintz
Kansas City	Chung V. Lam
Kansas State University	Viktor Chikan
Mark Twain	Mark W. Moore
Mo-Kan-OK, The Tri-State	Khamis S. Siam
Nebraska	Nathaniel P. Fackler
Omaha	Abijah M. Nyong
Ozark	Albert K. Korir
Saint Louis	Jeff Cornelius
Sioux Valley	Haoran Sun
South Central Missouri	Manashi Nath
Southern Illinois	Qingfeng Ge
University of Arkansas	Julie A. Stenken
University of Missouri	Thomas D. Sewell
Wakarusa Valley	L. Alan Shaver
Wichita	James Bann

ACS Local Sections of the Great Lakes Region

Local Section	Chair
Central Wisconsin	Robin S. Tanke
Chicago	Keith S. Kostecka
Decatur-Springfield	Aaron L. Wilham
East Central Illinois	Ben J. McCall
Illinois Heartland	Gregory Ferrence
Illinois-Iowa	Sunil Malapati
Joliet	William J. Peacy
Kalamazoo	Doug Williams
LaCrosse-Winona	Claude L. Mertzenich
Lake Superior	James W. Lane
Mark Twain	Mark W. Moore
Milwaukee	Robert C. Todd
Minnesota	Kim K. McKinney
Northeast Wisconsin	Corey T. Cunningham
Purdue	Adam C. Myers
Red River Valley	David L. Mork
Rock River	Deborah R. Breiter
St. Joseph Valley	Daniel V. Brown
Upper Peninsula	Peter F. Method
Wabash	Richard W. Fitch
Wisconsin	James P. Hamilton

46th Midwest/39th Great Lakes Joint Regional Meeting of the American Chemical Society

Technical Program

Keith J. Stine, Program Chair
Darrell Clinton, Program Co-Chair

Sheraton Westport Chalet Hotel
Saint Louis, MO

WEDNESDAY AFTERNOON SESSIONS
OCTOBER 19, 2011

Wednesday, October 19, 2011, 1:00 PM – 5:20 PM
Nanoscience General Session A
Room: Alpine I

Xiaobo Chen, *Presiding*

1:00 **1.** Capping and passivation of aluminum nanoparticles with epoxy-alkenes. **B. J. Thomas**, K. Wentz, E. Guliants, C. E. Bunker, S. E. Hayes, P. A. Jelliss, S. W. Buckner

1:20 **2.** Nanoneedles and Nanowires of superconducting FeSe encapsulated by carbon nanotubes. D. Nath, **S. Patil**

1:40 **3.** Aniline capped gold colloids by solvated metal atom dispersion method. **Y. Sun**, K. J. Klabunde

2:00 **4.** Effects of the potential energy landscape on exciton delocalization in single 1-d quantum wires. **V. L. Wayman**, R. A. Burnett, B. S. Hoener, P. J. Morrison, F. Wang, W. E. Buhro, R. A. Loomis

2:20 **5.** Effect of doping transition metal ions on silica and titania aerogel systems. **M. N. Weerasinghe**, K. J. Klabunde

2:40 **6.** Coaxial Silicon Coating on Vertically Aligned Carbon Nanofibers for High-Performance Lithium-Ion Batteries. **S. A. Klankowski**, J. Li, R. Rojeski

3:00 Break.

3:20 **7.** Characterizing the excitation-energy dependence of photoluminescence quantum yields in quantum nanostructures. **J. Hoy**, Y. Liu, L. Steinberg, W. E. Buhro, R. A. Loomis*

3:40 **8.** Tuning titanium dioxide nanomaterials for renewable energy applications. **X. Chen**

4:00 **9.** Hybrid titanium dioxide nanomaterials for dye-sensitized solar cells. **H. He**, Y. Zhong, M. Dubey, M. Shrestha, L. Si

4:20 **10.** TiO_2 compact layers prepared by low temperature colloidal synthesis and deposition for high performance dye-sensitized solar cells. **C. S. Kovash**, B. A. Logue

4:40 **11.** Design of MspA-based solar cells. **A. Perera**, S. Wendel, H. Wang, S. H. Bossmann

5:00 **12.** Solution-based synthesis of crystalline titanium disulfide nanobelts. **V. V. Plashnitsa**, P. Tongying, G. Krylova, M. K. Kuno

Wednesday, October 19, 2011, 1:00 PM – 4:40 PM
Organic Chemistry General Session A
Room: Geneva

Ryan Groeneman, *Presiding*

1:00 **13.** Synthesis of hybrid arylene ethynylene macrocycles via alkyne metathesis depolymerization. **D. E. Gross**, J. S. Moore

1:20 **14.** Aromatics from pyrones: 4-Substituted alkyl benzoates from alkenes, coumalic acid and methyl coumalate. **S. J. Riley**, G. A. Kraus

1:40 **15.** Modular Syntheses of Tetrahydro Benzoquinolines and Dihydro Benzoindoles via Sequential Copper, Ruthenium and Palladium Catalyzed Reactions. **S. N. Raikar**, H. Malinakova

2:00 **16.** Reaction pairing: A modular approach to diversity-oriented synthesis of benzofused sultams. **J. K. Loh**, T. B. Samarakoon, A. Rolfe, S. Yoon, P. R. Hanson*

2:20 **17.** Carbonyl-directed catalytic asymmetric hydroboration of 1,1-disubstituted alkenes. **M. O. Bani Khaled**, S. smith, G. Hoang, J. M. Takacs

2:40 **18.** Dehydration of 3 and 4-methyl-1-cyclohexanols: A study of reaction rates and product distributions. **N. Toritto**, J. Friesen

3:00 Break.

3:20 **19.** Predicting DNA-intercalator binding: The development of an arene-arene stacking parameter. **L. K. Hardebeck**, C. A. Johnson, Y. Ren, T. Zahrli, B. M. Znosko, M. Lewis

3:40 **20.** Enhancing photoreactivity of co-crystals by utilizing molecular pedal motion in the organic solid state. **R. H. Groeneman**, E. Elacqua, L. R. MacGillivray

4:00 **21.** New insights into an alternate mechanism for oxidation of alcohols using iodine (V) reagents. B. Raya, K. K. Madne, S. Jajam, **T. K. Vinod**

4:20 **22.** Iodine atom economic co-iodination of alkenes: Selective and differential functionalization of the two double bonds in dienes. H. Gottam, M. Kistammagiri, S. R. Pandey, **T. K. Vinod**

Wednesday, October 19, 2011, 1:25 PM – 5:00 PM
Small Chemical Businesses - True Stories of Success from Chemical Entrepreneurs
Room: Alpine II

Joseph Sabol, *Organizer*

Supported by Division of Small Chemical Businesses

1:25 Introductory Remarks.

1:30 **23.** From sewage sludge to ebooks: An academician's ventures into the small business world. **S. E. Manahan**

2:05 **24.** So, you want to be a consultant? Here's how to do it. **D. Webster**

2:40 Break.

3:00 **25.** NUtech Ventures: Catalyzing startup success. **J. Garrity**

3:35 **26.** Terminated to terminator. **J. Jost**

4:15 Panel Discussion: At the conclusion of the presentations, the speakers will remain for a panel discussion to address additional questions from the attendees, including the skill set needed run a successful chemical business, how to get started, understand the market, and increase sales and grow or any other questions from attendees.

5:00 Concluding Remarks.

Wednesday, October 19, 2011, 1:30 PM – 4:40 PM
Pharmaceutical Chemistry
Room: St. Moritz

Todd Stark, *Organizer*

1:30 Introductory Remarks.

1:40 **27.** Chemistry in the pharmaceutical industry, part one. **T. M. Stark**

2:20 **28.** Synthesis of fluorophores that reveal dynamic aspects of physiology in vivo in *C. elegans*. **B. R. Peterson**, Z. R. Wodziak, A. M. Bender, L. Fu, M. Branden, N. M. Wallace, Z. Zhou, M. Visvanathan, G. H. Lushington, B. D. Ackley

3:00 Break.

3:20 **29.** Pyrrole-imidazole Polyamides active against Human Papillomavirus (HPV) in cell and tissue culture. **J. K. Bashkin**

4:00 **30.** Chemistry in the pharmaceutical industry, part two. **T. M. Stark**

A special roundtable discussion associated with this symposium will be held from 7pm – 8pm in the St. Moritz room.

"The Business of Pharmaceutical Chemistry": A roundtable of scientists will discuss their current roles in the pharmaceutical industry that involve placing dollar values on chemistry effort, chemical compounds, and pharmaceutical products. Each panelist will describe how they arrived at their current position and together discuss the skills required to succeed in business-focused, pharmaceutical chemistry careers.

Participants:

Todd Stark, Business Development Manager, Johnson Matthey Pharma Services
Helen Anderson, VP Commercial Development, Harvard Drug Group
Karthik Raghavan, CEO, Sentio BioSciences LLC
Katie Grayson, Sr Director, Technical Affairs, EAG Life Sciences division of Evans Analytical Group
Umashanker Sampath, Director, New Business Development, Reliable Biopharmaceutical Corporation
Matthew T Reding, Procurement Specialist Consultant II, Biologics Strategic Sourcing–Small Molecules, EMD Millipore

Wednesday, October 19, 2011, 1:30 PM – 5:00 PM
Revitalizing the Heartland's Chemical Economy
Room: Davos

John Borchardt, Lisa Balbes, *Organizers*

Supported by Division of Professional Relations, and an ACS Innovative Project Grant for Divisional Enhancement

1:30 Introductory Remarks.

1:35 **31.** ConocoPhillips Wood River CORE project. **J. Burkinshaw**, K. Peccola

2:05 **32.** R&D phoenix: new labs arising from the ashes. **J. K. Borchardt**

2:35 **33.** Tech transfer & commercialization: Applied research and gap funding. **R. Silva**

3:05 Break.

3:25 **34.** Divergence: From startup to acquisition, a success story. **D. Rapp**

3:55 **35.** Innovators turning into entrepreneurs: How to get started. **D. J. Broderick**

4:25 Panel Discussion.

4:55 Concluding Remarks.

Wednesday, October 19, 2011, 5:00 PM – 7:00 PM
Chemistry of Ice Cream
Room: Matterhorn

Brent Znosko, *Organizer*

Supported by Supported by Education Division of the American Chemical Society

5:00 **36.** Designing ice cream quality with the aid of a microscope. **H. Goff**

The Undergraduate Ice Cream Social begins at 5:40 pm.

WEDNESDAY EVENING SESSIONS
OCTOBER 19, 2011

Wednesday, October 19, 2011, 7:00 PM – 9:00 PM
SciMix Poster Session
Versailles Ballroom

37. Valence-bond determination of bond lengths of polycyclic aromatic hydrocarbons. **J. R. Dias**

38. In search for natural tau fibrillization inhibitors: Preliminary evaluation of horse apple fruit extract. S. Awan, A. Abraha, **E. A. Abourashed**

39. RNA CoSSMos: Characterization of Secondary Structure Motifs- A searchable database of secondary structure motifs in RNA three dimensional structures. **P. L. Vanegas**, G. A. Hudson, A. R. Davis, S. C. Kelly, C. C. Kirkpatrick, B. M. Znosko

40. Chemical synthesis of α-deuterated amino acid, biosynthesis of *Clostridium symbiosum* glutamic dehydrogenese (*cs*-GDH) and study of kinetic isotope effect of dehydrogen reaction of glutamic acid catalyzed by *cs*-GDH. **X. Chen**, S. J. Maniscalco, H. F. Fisher

41. Time-averaging approximation in the interaction picture for absorption line shape and vibrational energy transfer in liquid water. **M. Yang**, J. L. Skinner

42. Control of surface functionality via photopatterning: Self-assembled monolayers for small molecule and protein attachment. **M. Hynes**, J. Maurer

43. Contribution of core/shell and core/shell/shell lattice interfaces on the optical properties of quantum dots? **B. O. Omogo**, M. Benamara, C. D. Heyes

516. Increasing biochar surface area: Effects of various milling parameters. **S. C. Peterson**, M. A. Jackson, S. Kim, D. Palmquist

45. Characterization of arsonic acid self-assembled monolayers (SAMs): A new class of monomers. **N. A. LaFranzo**, J. A. Maurer

46. Mineral Levels in Mature Soybean Seed Are Not Altered by Glyphosate Treatment or the Glyphosate Tolerance Trait. **D. R. Lundry**, R. M. Alba, A. H. Culler, M. S. Bleek

47. Self-assembly and dynamics in pore formation by amphiphilic heptapeptides. **S. Negin**

48. ^{19}F NMR studies reveal pH susceptibility of domain 2 of anthrax PA. **F. Chadegani**, J. Bann

49. Free Energy Changes and the Vibrational Partition Function. P. E. Smith, **S. Dai**

50. Photophysical Properties and Electronic Structure of Stable, Tunable Synthetic Bacteriochlorins: Extending the Features of Native Photosynthetic Pigments. **E. Yang**, C. Kirmaier, M. Krayer, M. Taniguchi, H. Kim, J. R. Diers, D. F. Bocian, J. S. Lindsey, D. Holten

51. Theoretical studies on the optoelectronic properties of *N*-fused quinazoliniminiums. **O. Alawode**, S. Rayat

52. Synthesis of potent inhibitors of YopH in *Yersinia pestis*: Pathogen responsible for the Black Death. **M. P. Paudyal**, C. D. Spilling

53. Morphology-controlled synthesis of nanosize cuprite (Cu_2O). **K. M. Shrestha**, K. J. Klabunde

54. Computational investigation of the extrusion of $PhSi:^+$ from a 7-phenyl-7-silanorbornadienyl cation in solution. **S. E. White**, P. P. Gaspar

55. In situ generation of bromine for micelle-assisted bromination and oxidation. **A. Mishra**, Z. Wang, D. S. English, E. Talaty

56. Reaction of hemiacetals with Pd π-allyls: Stereoselective synthesis of cyclic ethers. **S. Dawadi**, C. D. Spilling

57. AFM imaging analysis of pUC19 DNA on modified mica. **N. Nezamabadi**, J. C. Goeckner, C. Wei, E. J. Voss

58. NMR observations of optical pumping events in si-GaAs and GaAs quantum wells. **D. Wheeler**, E. Sesti, W. Worthoff, C. Stanton, S. E. Hayes

59. Elucidating the energy-transfer mechanisms at the interface between the chlorosome and FMO protein in green sulfur bacteria. **G. S. Orf**, D. Bina, R. E. Blankenship

60. Spectroelectrochemical investigations of metalloporphyrin carbonyl and nitrosyl complexes. **M. J. Shaw**, K. Sharmah-Gautam, K. W. Rodgers, C. Felchlia, A. Daryaei, P. Ashitey

61. Prospecting for NMR Structures with Sparse, Unassigned Data. **A. E. Nesbitt**, M. Tang, M. C. Brothers, K. M. Nuzzio, G. Comellas, L. J. Sperling, C. M. Rienstra

62. Preparative Studies of Re(I)-Terpyridine Complexes. **D. R. Black**, S. E. Hightower

63. Tether-Mediated Ring-Closing Metathesis Studies. **S. Maitra**, R. Chegondi, J. Markley, P. R. Hanson*

64. Selective sialylations by the use of C-5 modified S-benzoxazolyl sialyl donors. **C. Gobble**, C. De Meo, M. Stark, P. Patel, B. Harris

65. Electronic structure of platinum fluoride, PtF, by intracavity laser absorption spectroscopy. **K. A. Womack**, L. C. O'Brien, J. J. O'Brien

66. Spectral analysis of the three major isotopologues of PtC. **J. Raskas**, **D. Schultz**, J. J. O'Brien, L. C. O'Brien

67. Cobalt(III) Schiff base complexes as zinc finger transcription factor inhibitors. **M. C. Heffern**, A. S. Harney, N. Yamamoto, T. J. Meade

68. Reductive Photoelimination of Bromine from a Pt(IV) Perylene Complex. **M. Masjedi**, A. Raphael Karikachery, P. R. Sharp

69. Synthesis and reactivity of bidentate phosphine platinum(II) peroxo compounds. **M. A. Moody**, P. R. Sharp

70. Triflic acid promoted synthesis of various azapolycyclic aromatic compounds. **A. Kethe**, A. Li, R. Naredla, D. A. Klumpp*

71. Assignment of proton resonances for damaged DNA using two-dimensional nuclear magnetic resonance. **S. P. Kramer**, B. Medrano, G. Meints

72. Synthesis toward molecular “tweezers”. **T. R. Bowen**, Z. Yan

73. Nanorattles: Silver nanoparticles entrapped in porous polymer nanocapsules. **S. N. Shmakov**, E. Pinkhassik

74. Synthesis and functionalization of Rhenacarboranes as drug-delivery vehicles. **D. Pruitt**, P. Jelliss

75. Studies towards the electrooxidative coupling of heterocycles to olefins. **J. A. Smith**, K. D. Moeller

76. New cucurbitane analogs: Potential anticancer candidates for the treatment of prostate cancer. **N. Rice**, F. Halaweish

77. Optimization of synthesis toward the development of an anion binding molecule. **A. Dawson**, C. Bagwill, S. Garvey, E. Sullivan, M. Lewis

78. Anodic olefin coupling reactions: Probing reaction mechanisms and relative reaction rates via competition experiments. **J. M. Campbell**, H. Xu, K. D. Moeller

79. New BODIPY based fluorescent indicator for elective detection of Pb^{2+} ions in living cells. **M. Baruah**, E. Huntimer, S. Mahmoud, A. Hoppe, F. Halaweish

80. Protease-activated receptor (PAR)-1 inhibiting nanoparticles for modulation of vascular inflammatory signaling. **B. Sinha**, H. Pan, C. F. Semenkovich, S. A. Wickline

81. Amphiphilic Behavior of Alkyl-chained Resorcinarenes. **P. Ogirala**

82. Synthesis and photochromicity of extended cinnamaldehyde derivatives from phosphorous ylides. **J. M. Saathoff**, S. M. Fortin, E. M. Treadwell

83. Hydrogen atom abstraction from rhodium hydrides by nitroxyl radicals and generation of LRh^{2+}. **J. F. Dunne**, A. Bakac

84. Microelectrode array-based chemistry. J. Bartels, **S. Uppal**, K. D. Moeller

THURSDAY MORNING SESSIONS
OCTOBER 20, 2011

Thursday, October 20, 2011, 8:00 AM – 12:00 PM
Biological Mass Spectrometry
Room: Alpine I

Henry Rohrs, Joshua Coon, Michael Gross, *Organizers*

Supported by Advion, Leco, Waters, JEOL, Thermo Scientific, Bruker, AB Sciex, Agilent Technologies, Shimadzu, and Division of Analytical Chemistry

8:00 Introductory Remarks.

8:05 **85.** Redox profiling and protein characterization via MS to investigate thiol-based regulatory mechanisms induced by oxidative stress in plants. **L. M. Hicks**, J. M. Jez, S. Alvarez, A. Galant, Z. Liu

8:50 **86.** Functional proteomics in *Arabidopsis* G-protein signaling in response to ABA. **S. Alvarez**, L. M. Hicks, S. Pandey

9:20 **87.** Integrated metabolomics provides novel insight into legume natural product biosynthesis. D. S. Yang, J. H. Snyder, D. V. Huhman, V. Tzin, S. Allen, Y. Tang, **L. W. Sumner**

10:05 Break.

10:25 **88.** Mass spectrometry based protein footprinting: the fourth pillar of proteomics. **M. L. Gross**, D. Rempel, J. Chen, B. Gau, H. Zhang, R. Huang, C. Frieden, K. Gerai

11:10 **89.** The use of hydrogen/deuterium exchange-mass spectrometry in VDR modulator development. **J. Zhang**

Thursday, October 20, 2011, 8:00 AM – 12:00 PM
Nanoscience General Session B
Room: Basel

Yih Horng Tan, *Presiding*

8:00 **90.** Formation of Hydrogen-Bonded Nanostructures through the Self-Assembly of Mixed Macrocycles. **C. R. Pfeiffer**, A. K. Maerz, D. A. Fowler, M. Mistry, C. L. Barnes, J. L. Atwood

8:20 **91.** Encapsulation of Fluorescent Reporter Molecules within Hydrogen-Bonded Dimeric Pyrogallol[4]arene Nanocapsules. **D. A. Fowler**, K. K. Kline, S. A. Tucker, J. L. Atwood

8:40 **92.** Nanocapsules with programmed nanopores. **E. Pinkhassik**

9:00 **93.** Liposome-templated polymer nanocapsules: from synthetic methods to smart containers. **S. A. Dergunov**, M. D. Kim, E. Lindner, E. Pinkhassik

9:20 **94.** Controlled Polymer Property Manipulation via Nano and Other Technologies. **D. E. Bowen III**, E. A. Eastwood

9:40 Break.

10:00 **95.** Polymeric "single molecule magnet" nanoparticle as a magnetic resonance imaging contrast agent. **D. Pan**, B. Kim, A. H. Schmieder, A. J. Stacy, S. A. Wickline, G. M. Lanza

10:20 **96.** Morphology control of cadmium selenide nanocrystals: Insights into the roles of di-*n*-octylphosphine oxide (DOPO) and di-*n*-octylphosphinic acid (DOPA). **F. Wang**, W. E. Buhro

10:40 **97.** Characterization of protein immobilization on nanoporous gold using atomic force microscopy and scanning electron microscopy. **Y. Tan**, A. V. Demchenko, K. J. Stine

11:00 **98.** Pseudocapacitive behavior of electrodeposited nickel hydroxide films on laser ablated nickel electrodes. **T. G. Smith**, C. Zuhlke, T. Anderson, D. Alexander, R. Y. Lai

11:20 **99.** Balancing stability and the SERS activity of caged nanoparticles. **M. Konne**, M. Pierre, A. J. Haes

11:40 **100.** Synthesis of $Fe/Fe_3O_4/Au$ core/shell nanoparticles for magnetic hyperthermia and MRI application. **H. Wang**, T. B. Shrestha, M. T. Basel, R. K. Dani, L. Maurmann, V. Chikan, D. L. Troyer, S. H. Bossmann

Thursday, October 20, 2011, 8:00 AM – 12:00 PM
Natural Products Synthesis
Room: Zurich

Christopher D. Spilling, *Organizer*

Supported by Division of Organic Chemistry, Reliable Biopharmaceutical, Covidien

8:00 **101.** Approaches to Tetrahydrofuran-Containing Natural Products. **C. D. Spilling**

8:30 **102.** Semi-synthetic opiods from diene natural products. **T. Mannino**

9:00 **103.** Natural product synthesis through tandem cationic reactions. **D. F. Wiemer**

9:30 **104.** Phosphate tether-mediated protocols for natural product synthesis. **P. R. Hanson**

10:00 Break.

10:20 **105.** Progress toward the synthesis of Antascomicin B. J. M. Hutchison, D. R. Clay, J. Rivero, **M. C. McIntosh**

10:50 **106.** Total synthesis of marine alkaloids. **C. J. Lovely**

11:20 **107.** Natural products as leads for anticancer drug discovery. **G. I. Georg**

Thursday, October 20, 2011, 8:00 AM – 11:40 AM
Organic Chemistry General Session B
Room: Geneva

Richard W. Fitch, *Presiding*

8:00 **108.** Iodine Lewis acid catalysis in organic chemistry: Iodine bonding between molecular iodine and triethyl orthoformate. **S. Coyle**, R. Glaser

8:20 **109.** Biomass deconstruction using ionic liquids. **T. Guney**, G. A. Kraus

8:40 **110.** Intramolecular hydroamination of olefins using a novel salicylaldimine calcium complex. **K. Kunchithapatham**, J. P. Stambuli

9:00 **111.** A four step route to a benzannulated benzocarbazole. **J. Beasley**, G. A. Kraus

9:20 **112.** Strategic benzylic cross-coupling via Pd-mediated decarboxylation. **R. R. Torregrosa**, J. A. Tunge

9:40 Break.

10:00 **113.** Supported patterned lipid bilayers on glycol-terminated monolayers: Formation and characterization. **M. K. Strulson**, J. A. Maurer

10:20 **114.** Improved substituent constant for predicting the strength of cation-π binding. S**. Wireduaah**, T. M. Parker, C. C. Kirkpatrick, M. Lewis

10:40 **115.** Investigation of silicon analog of fluorescein as pH responsive fluorescent probe. **N. Sattenapally**, Q. A. Best, C. Liu, C. Bailey, D. Dyer, L. Wang, M. McCarroll, C. G. Scott

11:00 **116.** Anodic electrochemistry: New reaction development and the use of solar power. **A. M. Redden**, K. D. Moeller

11:20 **117.** Effects of antioxidants on atomic oxygen O(^{3}P) induced cleavage of DNA. **J. Korang**, R. D. McCulla

Thursday, October 20, 2011, 8:00 AM – 11:40 AM
Physical Chemistry General Session A
Room: Zermatt

John E. Adams, *Presiding*

8:00 **118.** CREPES, a tool for conformational searching on a potential energy surface. **M. P. Ver Haag**, T. A. Holme

8:20 **119.** Development and testing of torsional potentials for peptides and proteins. **Y. Jiao**, F. Chen, P. E. Smith

8:40 **120.** Microwave spectroscopic study of C-H…X (X = π, Cl, F or Br) interactions in a series of weakly bound dimers. **R. A. Peebles**, S. A. Peebles, B. J. Bills, C. L. Christenholz, A. A. Elliott, L. F. Elmuti, D. A. Obenchain, J. M. Sexton, B. H. Pate, M. T. Muckle, J. L. Neill, A. L. Steber

9:00 **121.** Calixarene and pyrogallolarene "suction cups" for the tethering of peptides. **M. D. Breite**, J. E. Adams

9:20 **122.** Dynamic stability of hydrogen-bonded pyrogallolarene capsules in the gas phase and in solution. **A. C. Webb**, J. E. Adams

9:40 Break.

10:00 **123.** Cobaloxime hydrogen catalysts: A comprehensive EPR and computational investigation of the effect of ligand substitution on electronic structure. **K. L. Mardis**, J. Niklas, D. M. Tiede, O. G. Poluektov

10:20 **124.** TDDFT studies of optical properties of silver nanoparticles: Octahedra, truncated octahedra, and icosahedra. **G. Bae**, C. M. Aikens

10:40 **125.** Structural and single particle and ensemble spectroscopic studies of various core-shell biofunctional quantum dots: Implications for biological imaging. **C. D. Heyes**

11:00 **126.** Attempts to fabricate high efficiency chalcogenide solar cells through patterned growth of nanowires. **M. Nath**, S. Patil

11:20 **127.** Fluorescence intermittency of CdSe nanorods in PMMA/P3HT polymer blend. **S. Roy**, D. A. Higgins, V. Chikan

11:40 **449.** Batch pH oscillations in the Belousov-Zhabotinsky reaction. **G. A. Frerichs**, X. Huang, J. Jones, M. Gebrekidan, J. Burch, M. Yuan

Thursday, October 20, 2011, 8:00 AM – 12:00 PM
Plant Biotechnology : Blurring the Line between Chemistry and Biology
Room: Bern

Joseph Jez, Xuemin Wang, *Organizers*

Supported by Pioneer – A Dupont Business, EPL Analytical Services, Divergence, VWR, Integrated DNA Technologies, Inc., Monsanto, Sequoia Sciences

8:00 Introductory Remarks.

8:05 **128.** Carbonyl chemistry-based biorenewable chemicals: Diversifying fatty acid synthesis with polyketide synthesis biocatalysts. **B. J. Nikolau**

8:45 **129.** Engineering proteins to improve biological function: Applications to Ag Biotech. **S. J. Franklin**

9:05 **130.** From climate change to proteins: redox proteomics of ozone-induced responses in soybean. **J. M. Jez**, A. Galant, R. P. Koester, E. A. Ainsworth, L. M. Hicks

9:25 **131.** Vacuolar glyphosate-sequestration correlates with glyphosate resistance in ryegrass (*Lolium spp.*): a ^{31}P-NMR investigation. **X. Ge**, D. A. d'Avignon, J. J. Ackerman, A. Collavo, E. L. Ostrand, R. D. Sammonse

9:45 Break.

10:10 **132.** Tailoring plant biomass for biofuel production. **Z. Ye**

10:40 **133.** Improvement of soybean nutritive value by overexpression of a key enzyme involved in the sulfur assimilatory pathway. W. Kim, J. M. Jez, **H. B. Krishnan**

11:00 **134.** Carbons for lipids or carbohydrate: identifying a potential point of metabolic modulation. **M. Li**, S. Bahn, L. Guo, W. Musgrave, A. Saettele, M. Tang, H. Berg, R. Welti, X. Wang

11:20 **135.** Visualizing lipid compositions in plant tissues, cells and subcellular compartments: Could location be a factor in oilseed engineering? P. J. Horn, P. B. Neogi, A. R. Korte, K. Strupat, T. Arrey, V. Shulaev, Y. Lee, **K. D. Chapman**

Thursday, October 20, 2011, 8:15 AM – 11:30 AM
Small Chemical Businesses - What Every Small Business Owner Needs to Know about Patents, Trademarks, and Intellectual Property
Room: Alpine II

Harry J. Guttman, *Organizer*

Supported by Division of Small Chemical Businesses

8:15 Introductory Remarks.

8:20 **136.** Small business IP – red flags and core concepts. **H. J. Guttman**

9:05 **137.** Patent information research and its role in managing intellectual property. **E. S. Simmons**

9:50 Break.

10:10 **138.** So you have an invention, now what? Important considerations when filing a patent application (*develop a patent strategy!*). **C. M. Tellez**

10:55 **139.** When is your molecule or method eligible for patent protection? Lessons from recent court cases and practical business guidance. **S. M. Lee**

Thursday, October 20, 2011, 8:30 AM – 10:00 AM
General Poster Session I
Versailles Ballroom

140. Synthesis and Electrochemical Properties of Various Pd(II) Complexes. **S. Park**, F. Tang, L. M. Mirica

141. Recycling gold from electronics. **A. W. Hummer**, H. J. Gregg, T. L. Troyer

142. Pressure-Induced Structural and Optical Changes in $YIn_{1-x}Mn_xO_3$. **D. Freeman**, Z. Hayes, K. Chapman, P. Chupas, G. Halder, C. Josefson, P. Barnes

143. Biomimetic studies of manganese (II) dioxygenase and cobalt-substituted enzymes. **J. Transmeier**, F. E. Jacobsen, T. A. Jackson

144. Synthesis, electronic structure, and properties of organometallic indium porphyrins. **J. R. Sabin**, P. V. Solntsev, S. J. Dammer, V. N. Nemykin

145. Preparation and testing of nanoparticle materials and thin films for use as substrates in dye-sensitized solar cells. **C. A. Nicholson**, E. A. Wovchko

146. Complexation studies of Ru(II) and Re(I) pendant polyamine host complexes. **A. M. Putt**, M. Harris

147. Preparation and investigation of gallium-based materials for hydrogen storage. **A. A. Fratantuono**, E. A. Wovchko

148. Novel synthesis and characterization of various pyrazolylsilane compounds. **N. C. Boyde**, S. Mason

149. Estimating the HOMO-LUMO gaps of siloles by cyclic voltammetry. **E. A. Weber**, B. E. Eichler, D. E. Weisshaar

150. Synthesis and characterization of biomimetic Rieske complexes. **C. J. Windorff**, C. T. Saouma, J. M. Mayer

151. Predicting the dimensionality of metal halides and oxides. **S. R. Cowin**, A. M. Beatty

152. Synthesis and binding studies of anion-responsive terpyridine functionalized calixarenes. G. Chen, **N. Y. Edwards**

153. Synthesis of some new tridentate ligands to complex silver. **L. R. Verheyen**, E. Bosch

154. The (1,1) band of the $b\ ^1\Sigma^+ - X\ ^3\Sigma^-$ transition of O_2 by intracavity laser absorption spectroscopy. **L. C. O'Brien**, E. C. O'Brien, J. J. O'Brien

155. Reciprocal kinetic curves in electrochemical systems. **M. Hankins**, I. Kiss, G. Yablonsky

156. Calibration of model complexes and pyrogallol for metal-coordinated pyrogallol[4]arene capsules. **C. M. Mayhan**, A. V. Mossine, A. E. Kroeger, C. W. Dye, J. L. Atwood, C. A. Deakyne

157. Raman scattering of deuterated DNA nucleoside and solid DNA structure. **C. Hagan**, M. Hayes, S. Nichols, G. Meints

158. Using Knudsen effusion to measure the vapor pressure of compounds. **Y. Li**, C. Greenlief, G. A. Baker

159. Accurate monitoring of *x*, *y*, and *z* magnetization at any point in an NMR pulse sequence. **E. T. Satterfield**, K. Woelk

160. Low-field NMR spin-lattice relaxation time-constant distributions of shale. **R. E. Gerald II**, L. Chi, H. Zhang, K. Woelk

161. Solid-state NMR of inorganic nanomaterials. **K. M. Wentz**, B. Thomas, D. W. Hammerstroem, S. W. Buckner, P. A. Jelliss, S. E. Hayes

162. Spontaneously synchronized current oscillations of nickel electrodissolution in an epoxy-based dual electrode microchip flow cell. **Y. Jia**, I. Z. Kiss

163. Using streamlined mutagenesis and screening to increase electron transfer to the B-branch pathway in bacterial photosynthetic reaction centers. **K. M. Faries**, P. D. Laible, L. Kressel, M. Wander, D. Holten, D. K. Hanson, C. Kirmaier

164. Photoreactions in the solid state: An NMR study. **S. J. Mattler**, D. A. Hirsh, K. Harstein, S. E. Hayes

165. Ship-in-a-bottle assembly of molecules in porous hollow nanocapsules. **S. N. Shmakov**, S. A. Dergunov, E. Pinkhassik

166. Ytterbium nanocolloids as a potential molecular contrast agent for computed tomographic imaging. **A. Senpan**, D. Pan, A. H. Schmieder, C. Schirra, X. Yang, S. A. Wickline, G. M. Lanza

167. Nucleic Acid-Directed Self-Assembling Nanoparticles for Imaging and Therapy. **Z. Li**, J. A. Taylor

168. Enhancement of commercial antibiotics by synthetic ion channels. **J. Atkins**, M. Patel

169. Coadsorbent effects on DSSC performance and dye loading. **J. Kofford**, B. Logue

170. Self-catalyzed growth of semiconducting samarium sesquisulfide nanowires. **C. M. Marin**, H. Liu, M. S. Thompson, C. Cheung

171. Impact of "click" functionalization on the toxicity of titanium dioxide nanoparticles in zebrafish embryos. **S. P. Yang**, K. M. Louis, O. Bar-Ilan, R. J. Hamers, R. E. Peterson, W. Heideman, J. A. Pedersen

172. Conjugated polymers as photocatalysts to promote homolytic pinacol coupling of aryl-aldehydes: Effects of Lewis and Brønsted acids. **W. D. Rouch**, M. Zhang, R. McCulla

173. Charge delocalization and enhanced acidity in tricationic superelectrophiles. **R. R. Naredla**, S. O. Nilsson Lill, C. Zheng, D. A. Klumpp*

174. Superelectrophilic chemistry of various nitriles. **E. K. Raja**, D. Klumpp*

175. Rapid access to exocyclic allenes by double hydride reduction of 3-trimethylsilylethynyl-2-cycloalkenones. J. M. Kum, A. K. Urick, **M. Hulce**

176. Synthesis and spectra of methyl-3α-carboethoxy-7α-(4-iodobenzoyloxy)-5β-cholanoate. **H. Veeramachaneni**, M. Turkyilmaz, H. Karabulut, J. R. Dias

177. Neutral picket fence porphyrins that bind the head group of phosphatidylglycerol, a phospholipid found in bacterial membranes. **A. Alliband**, D. H. Burns

179. From NP-HPLC to RP-UPLC: Ultra performance liquid chromatography for in-process analytical support of narcotics in the pharmaceutical industry. **H. Zhong**

180. Building addressable libraries: UV-Cross-linkable di-block copolymer strategy for functional reaction surfaces on microelectrode arrays. **L. Hu**, K. D. Moeller

181. Band-gap engineering of carborane-containing conducting polymers: A computational study. **E. Harak**, J. Varberg, P. Bobadova-Parvanova

182. Synthesis and characterization of polyionic mixed polymer nanobrushes on gold by ATRP and surface-initiated photopolymerization techniques. **B. Mitrovic**, C. Scott

183. Soybean-based epoxy-anhydride thermoset coatings. **A. Paramarta**, T. Nelson, X. Pan, D. Webster

493. A batch pH oscillator: The Belousov-Zhabotinsky reaction. **J. Jones**, X. Huang, M. Gebrekidan, J. Burch, M. Yuan, G. A. Frerichs

185. Synthesis, extraction and analysis of molecularly imprinted quercetin polymers. **A. Heck**, B. Schenavar, G. Mwangi

186. Synthesis of Photoactive Polymer Brush by RAFT polymerization: Applications in isolation of biological macromolecules. **M. D. Bisen**, M. J. Pabich, D. Dyer, C. Scott

187. Reactivity of cyclic carbonates as substrates for non-isocyanate polyurethanes. **O. Bilic**, I. Javni, D. Hong, J. Hong, Z. S. Petrovic

Thursday, October 20, 2011, 8:55 AM – 12:00 PM
Chemical Education Research and Practice
Room: Davos

Steve Kinsley, Susan Wiediger, *Organizers*

8:55 Introductory Remarks.

9:00 **188.** High school students' attitude towards chemistry as a science and chemistry studies. **F. Mumba**, V. M. Chabalengula, A. Banda, S. M. Mbewe

9:20 **189.** Successes and challenges in the implementation of the laboratory components of a dual credit general chemistry course. **J. L. Torres y Torres**, B. D. Caldwell, M. W. Ducey

9:40 **190.** Evaluating the probability of success in general chemistry coursework using placement testing and course prerequisite information. **Y. Law**, E. G. Olmstead, Jr

10:00 **191.** Targeting diverse learning needs in general chemistry with a buffet redesign model. **K. Woelk**

10:20 Break.

10:40 **192.** Teaching chemistry in inclusion classrooms: Implications for chemistry teacher education. **F. Mumba**

11:00 **193.** Zambian pre-service science teachers' ranking of chemistry education goals. **A. Banda**, F. Mumba, V. M. Chabalengula, S. Mbewe

11:20 **194.** Teaching assistants' successes and challenges in Assessment, Review and Instruction System (ARIS) program. G. Kinsel, **V. Wong**, F. Mumba

11:40 **195.** Impact of computer-based structured learning workshop on graduates teaching assistant's specific chemistry content. V. Wong, **K. K. Priyasantha**, G. Kinsel, F. Mumba

Thursday, October 20, 2011, 8:55 AM – 12:00 PM
Supramolecular Chemistry in Membranes
Room: St. Moritz

George W. Gokel, Jerry L. Atwood, *Organizers*

Supported by Division of Organic Chemistry

8:55 Introductory Remarks.

9:00 **196.** Synthetic organic transporters that function in bilayer membranes. **G. Gokel**, S. Negin, M. Daschbach, J. Atkins, M. Patel, P. Ogirala, J. Autry, N. Curvey

9:30 **197.** Transmembrane ion transporters made from various natural products and their analogs. S. Bahmanjah, N. Zhang, S. Rastogi, **J. T. Davis**

10:00 **198.** Protein-binding molecular switches: Designs based on supramolecular and nucleic acid chemistry. **J. Jayawickramarajah**, D. C. Harris, X. Su

10:30 **199.** Nor-seco-cucurbit[n]uril molecular containers. **L. Isaacs**

11:00 **200.** Assembly and binding properties of deep-cavity cavitands in water. **B. C. Gibb**

11:30 **201.** New strategy of transforming pharmaceutical crystal forms. **J. L. Atwood**, J. Tian, S. J. Dalgarno

Thursday, October 20, 2011, 10:30 AM – 12:00 PM
General Poster Session II
Versailles Ballroom

202. Encapsulation of cantharadin in gold nanoshells for use as a potential cancer therapeutic agent. C. M. Klimavicz, **L. Baxter**, P. W. Barnes, G. D. Bennett

203. Investigating solution-phase architecture of copper-seamed *C*-heptadecylpyrogallol[4]arene nanocapsules. **N. J. Schuster**, H. Kumari, S. R. Kline, C. L. Barnes, J. L. Atwood

204. Self-assembled nanoparticles from non-lanthanide metal oleates for magnetic resonance imaging application. D. Pan, **C. Yalaz**, A. Senpan, A. H. Schmieder, S. A. Wickline, G. M. Lanza

205. Synthesis and biological evaluation of irregular-shaped micelles prepared from amphiphilic di block co polymer. D. Pan, **B. Kim**, A. H. Schmieder, S. A. Wickline, G. M. Lanza

206. Infrared studies of photochemistry of adsorbed species over semiconducting nanoparticles. **J. Kristalyn**, J. VanAuker, S. Bandaru, D. K. Paul, K. J. Klabunde

207. Low-temperature photoluminescence spectroscopy of single semiconductor quantum wires. **R. A. Burnett**, R. A. Loomis, V. L. Wayman, W. E. Buhro, J. J. Glennon, Y. Liu, B. S. Hoener

208. Analytical strategies for monitoring and quantifying interactions of gold nanoparticles with thiolated molecules in solution. **C. Burke**, M. Roca

209. Construction of functional group arrays on SAMs with the guanidium-sulfonate macromolecular synthon. **G. Ruan**, M. Hynes, A. Munir, J. A. Maurer

210. Attachment of a Fluorescent Dye to Core-Shell Quantum Dots. **K. Luepke**, S. Adrian, B. Eichler

211. Does the reaction of thiol with surface cluster atoms of Au nanoparticles, prepared by the solvated metal atom dispersion (SMAD) method, yield RS-H or RS^- interactions? **J. E. Matthiesen**, K. J. Klabunde, D. Jose, Y. Kuo

212. Degradation of Rhodamine B Using TiO_2 Nanofibers Calcined in O_2 and H_2. **J. Benoy**, E. Obuya

213. Effects of two commercial nanoparticles on two unique environmental bacteria. **K. Ruedinger**, K. Crawford, S. Mueller-Spitz

214. Investigations into Metal-Seamed Dimeric Capsules of Aryl-Pyrogallol[4]arenes. **S. M. Hirner**, D. A. Fowler, A. K. Maerz, C. A. Deakyne, J. L. Atwood

215. Study of the relation of nanoporous gold structure to optical and electrochemical responses to protein binding. **J. K. Bhattarai**, Y. Tan, A. V. Demchenko, K. J. Stine

216. Electroanalytical studies to determine the surface morphology of nanoporous gold. **A. Sharma**, Y. H. Tan, J. Bhattarai, A. V. Demchenko, K. J. Stine, B. Pandey

217. Surface area and pore size characteristics of nanoporous gold subjected to thermal, mechanical, or chemical modifications studied using BET isotherm analysis, cyclic voltammetry, and scanning electron microscopy. **J. A. Davis**, Y. Tan, A. V. Demchenko, K. J. Stine

218. The effect of 1-methyl, 2,3 dimethylimadzolium tetrafluoroborate BDMIMBF_4 ionic liquid as a mobile phase additive on the adsorption behavior of tryptophan. **T. Ahmad**, K. Aluguvelli

219. Investigation of the effect of 1-butyl -3-methyl immidazolium terafluoroborate ionic liquid on the separation of basic drugs. **T. Ahmad**, K. Aluguvelli, T. Ahmad, S. Salam

220. Dye-loaded porous polymer nanocapsules as new optical sensor platform. **M. D. Kim**, S. A. Dergunov, E. Lindner, E. Pinkhassik

221. Surface chemistry studies of CO_2 with the MgO(100) surface. **J. Wang**, C. Greenlief, T. R. Marrero

222. Analysis of variance components in spectroscopic imaging data. **J. Kwak**, R. Reddy, S. Sinha, R. Bhargava

223. Improving the compatibility of macrocyclic polyamide compounds within ion-selective membranes for fluoride analysis. **Q. Zhang**, J. T. Mitchell-Koch, K. Bowman-James

224. Method for testing antibiotic residues in milk, fish, and distiller grain. **J. Baldwin**

225. Transmission Raman tomography for determining the position and size of targets buried in light scattering media. **M. R. Kole**, M. V. Schulmerich, M. K. Gelber, R. Bhargava

226. Application of three chromatographic techniques in the bioanalysis of a new thiazolodiazepin ultra-short-acting hypnotic. **E. A. Abourashed**, M. Hefnawy, H. I. El-Subbagh

227. Determination of DNA base pairs by surface-enhanced Raman scattering spectroscopy. **M. W. Stutelberg**, B. A. Logue

228. Effect of sodium hydroxide and sodium pyrophosphate on the extraction of humic acid and humin from different source materials. **C. Johnson-Edler**, G. Chilom, J. Rice

229. Solvent dependent cluster formation of thioamide-based Pd and Pt pincer complexes. **R. A. Begum**, Q. Wang, V. W. Day, K. Bowman-James

230. Free energy correlations of platinum(II) biphenyl complexes containing 2,2'-bipyridine derivatives. W. Huang, D. Rillema, K. Siam, **A. J. Cruz**, D. Base.

231. Developing oligourea-based anion ligands inspired by metal coordination. **C. Jia**, S. Li, B. Wu, K. Bowman-James

232. Diffusion of tin from TEC-8 conductive glass into mesoporous titanium dioxide in dye sensitized solar cells. **J. Cabell**, R. J. LeSuer

233. (Triphos)Ir(III)-Complexes for photo Chemistry Study. **A. Ross**, P. R. Sharp, C. Barnes

234. Elucidating the mechanism of electrocatalytic dioxygen reduction with copper complexes. **M. A. Thorseth**, C. S. Letko, T. B. Rauchfuss, A. A. Gewirth

235. Rhenium complexes as photocatalysts in the reduction of CO_2 to CO. **E. Oweggi**, V. Komreddy, D. Rillema

236. Preparation, characterization and photocurrent efficiency of Re(I) and Ru(II) bipyrazine complexes. **V. Komreddy**, N. Subbaiyan, E. Oweggi, D. Rillema, C. Wilkinson

237. Effect of graphene nanofillers on flexible molded polyurethane foam properties. **N. Bilic**, I. Javni, Z. S. Petrovic

238. Synthesis of comb-like polymers with rigid-rod side chains. **X. Bai**, X. Chen, J. Dias, T. Sandreczki

239. Foam from cashew nut shell liquid. **D. Hong**, M. Ionescu, I. Javni, Z. S. Petrovic

240. Dynamic solid phase microextraction sampling for monoterpenes in the present of ozone. **W. Hua**, K. E. Huff Hartz

241. Plastic debris: Is Lake Superior invaded by synthetic polymers? **L. M. Rios**

242. Self-assembled polyelectrolyte complex: Sericin/DDAB. R. Chollakup, **W. Smitthipong**, K. Mougin, M. Nardin

243. Surface modification of silk fabric using polyelectrolyte technique. **R. Chollakup**, W. Smitthipong, R. Tantatherdtam, M. Nardin

244. Dual control of selectivity in the synthesis of donor-acceptor cyclopropanes via the addition of alcohols to *in situ* generated cyclopropenes. **P. G. Ryabchuk**, J. P. Matheny, I. A. Babkov, M. Rubina, M. Rubin

245. Investigating the mechanism of formation of phenanthridine fused quinazoliniminiums from heteroenyne-allenes. **K. Robb**, S. Rayat

246. Molecular Scaffold in Biocatalysis. X. Song, W. Niu, **J. Guo**

247. Studies towards the synthesis of protected derivatives of 4(5)-benzylhistidine suitable for peptide synthesis. D. D. Smith, **V. M. Crowley**, W. Gergens, P. W. Abel, A. T. Gallagher, M. Hulce

248. Synthetic applications of indole aryne cycloadditions. New strategies for the construction of complex natural products. N. Chandrasoma, **A. Nerurkar**, L. Maina, N. Brown, D. Luo, A. Brassfield, J. DeCapo, S. Suarez, K. R. Buszek

249. Parallel Synthesis of Alkyl and Aryl *S-tert*-butylthioethers. **R. Norcross**, J. Stanfield, R. W. Fitch

THURSDAY AFTERNOON SESSIONS
OCTOBER 20, 2011

Thursday, October 20, 2011, 1:00 PM – 4:40 PM
Analytical Chemistry General Session A
Room: Basel

Edward Navarre, *Presiding*

1:00 **250.** Enhanced Fourier transform infrared (FT-IR) spectroscopic imaging. **R. K. Reddy**, P. S. Carney, R. Bhargava

1:20 **251.** Towards the design of an enzymatic breath sensor for acetone. **N. Hausmann**, S. D. Minteer

1:40 **252.** Measuring protease concentrations in dog urine: A new diagnostic method for cancer detection? **L. K. Bossmann**, D. Udukala, C. Robinson, H. Wang, M. Kalita, M. T. Basel, M. Pyle, D. McCaw, D. L. Troyer, S. H. Bossmann

2:00 **253.** Sub-diffraction determination of changes to the actin network by stimulated emission depletion microscopy. **M. D. Lesoine**, S. Bose, J. W. Petrich, E. A. Smith

2:20 **254.** Measurements of integrin mobility in the membrane of cultured cells using fluorescence recovery after photobleaching (FRAP) and single molecule imaging. **D. Mainali**, N. Arora, E. Smith

2:40 Break.

3:00 **255.** Scanning Angle Total Internal Reflection Raman Microscopy of Plant Cell Wall Biopolymers. **E. A. Smith**, K. McKee, M. Meyer, J. Lupoi

3:20 **256.** Design and characterization of a dual-signaling DNA sensor based on target hybridization-induced change in DNA probe flexibility. **W. Yang**, R. Y. Lai

3:40 **257.** Multivariate spectral analysis of phase partitioning in methacrylate-based dentin adhesive. **Q. Ye**, P. Spencer, R. Parthasarathy, J. Park, J. S. Laurence, A. Misra

4:00 **258.** Quantitative investigation of surface functionalization of cylindrical nanopores derived from polystyrene-poly(methylmethacrylate) diblock copolymers. **F. Li**, R. Diaz, T. Ito

4:20 **259.** In vitro simulation studies for the development of a nocturnal hypoglycemic alarm based on near-infrared spectroscopy. **S. Ranasinge Pathirajage**, G. W. Small

Thursday, October 20, 2011, 1:00 PM – 5:00 PM
Biochemistry General Session
Room: Bern

Michael R. Nichols, *Presiding*

1:00 **260.** Utilizing enzyme cascades for deep oxidation of a variety of biofuels. **D. Sokic-Lazic**, S. D. Minteer

1:20 **261.** Optimizing the growth of *M. smegmatis* with respect to cell mass yield and fermentation cost. **S. O. Wendel**, A. S. Perera, P. H. Pfromm, P. Czermak, S. H. Bossmann

1:40 **262.** High resolution imaging mass spectrometry of sphingolipid and cholesterol distributions in intact mammalian plasma membranes. **J. F. Frisz**, K. Lou, H. Klitzing, R. Wilson, W. P. Hanafin, R. Kim, V. Lizunov, P. K. Weber, J. Zimmerberg, M. L. Kraft

2:00 **263.** Diffusion dynamics of single molecules confined in biomimetic crowded environment. R. Welty, J. Bentley, D. Wickramasinghe, **A. A. Heikal**

2:20 **264.** New molecular biomarkers for cancer detection. **C. D. Nusbaum**, S. Almowallad, S. A. Wolfe, J. E. Mayfield, J. G. McAfee

2:40 Break.

3:00 **265.** Membrane topology and mechanistic view of a disulfide bond generating membrane protein by a structural model of membrane-embedded DsbB. **M. Tang**, A. E. Nesbitt, L. J. Sperling, D. A. Berthold, C. D. Schwieters, R. B. Gennis, C. M. Rienstra

3:20 **266.** Microglial activation by Aβ(1-42) protofibrils. **G. S. Paranjape**, L. K. Gouwens, D. C. Osborn, M. R. Nichols

3:40 **267.** Secondary structure comparison of the early onset Parkinson's disease related mutants and wild-type α-synuclein fibrils. **L. R. Lemkau**, G. Comellas, L. K. Rikardson, S. W. Lee, W. S. Woods, J. M. George, C. M. Rienstra

4:00 **268.** Rapid and accurate determination of entrapped volume and permeability in liposomal suspensions. **J. T. Buboltz**

4:20 **269.** Zinc and Manganese Homeostasis in Streptococcus pneumoniae and Myxococcus xanthus. **F. E. Jacobsen**, L. Brumley, K. Kazmierczak, M. Winkler, D. Giedroc, R. Taylor

4:40 **270.** Archaeal Histones: Homo- or Heterodimers? **L. Gray**, J. Kristalyn, M. Miller, J. G. McAfee, I. S. Zegar

Thursday, October 20, 2011, 1:00 PM – 4:50 PM
Biological Mass Spectrometry
Room: Alpine I

Henry Rohrs, Joshua Coon, Michael Gross, *Organizers*

Supported by Advion, Leco, Waters, JEOL, Thermo Scientific, Bruker, Ab Sciex, Agilent Technologies, Shimadzu, and Division of Analytical Chemistry

1:00 **271.** New mass spectrometry technology for protein sequence analysis and beyond. **J. J. Coon**

1:45 **272.** Characterization of D-amino acid-containing peptides (DAACPs) in the central nervous system. **L. Bai**, E. V. Romanova, I. Livnat, J. V. Sweedler

2:15 **273.** Protein interaction reporter: "News" on protein topologies in cells. **J. E. Bruce**, J. D. Chavez, C. Zheng, L. Yang, C. Weisbrod

3:00 Break.

3:20 **274.** Directed mass spectrometry: Molecular dissection of androgen signaling networks in human disease. J. J. Hsaio, H. D. Martinez, **M. D. Wright**

4:05 **275.** Mass spectrometry characterization of a therapeutic antibody conjugate. **J. B. Sperry**, J. C. Rouse, J. A. Carroll

Thursday, October 20, 2011, 1:00 PM – 2:30 PM
General Poster Session III
Versailles Ballroom

276. Helical dimanganese-(salen) complexes and application in asymmetric epoxidation of olefin. **T. Liu**, C. Levy, J. Desper

277. Anisotropy tensor alignment in $\{Fe^{III}_{n}Ni^{II}_{m}\}$ cyanometalate-based single-molecule magnets. **P. J. Janini**, Y. Zhang, U. P. Mallik, N. Rath, R. Clérac, S. M. Holmes

278. Coordination of bqp on Rhenium(I). **C. J. Bosworth**, D. J. Losey, D. R. Black, S. E. Hightower

279. Electronic communication and reaction chemistry of dinuclear anthracene bridged platinum complexes. **Y. Li**, P. R. Sharp

280. Reductive Photoelimination of Chlorine from Organoplatinum(IV)Chloro Complexes. **T. A. Perera**, M. Moody, P. R. Sharp

281. Cloning, Purification and Characterization of Acetate Kinase from Methicillin resistant *Staphylococcus aureus* Mu50 strain. **T. McCune**, C. Wu

282. An Exploration on Purification of putative Fructose 1, 6-Bisphosphate Adolase from Methicillin resistant *Staphylococcus aureus Mu50* strain. **E. Girard**, C. Wu

283. Comparative analysis of protein phosphorylation in the Protein Databank: What have we known? **M. Zha**, J. Warnke, H. Zhong

284. Synthesis of 3-pyridylmethyl glucosinolate from 3-pyridylacetonitrile. **J. W. Keppen**, J. J. Clark, J. R. Mays

285. Synthesis and RP-HPLC Monitored Hydrolysis of Non-natural Glucosinolates. **K. J. Vastenhout**, J. R. Mays

286. Exploring the Significance of F427 in Anthrax Protective Antigen using ^{19}F-NMR. **L. J. Ferris**, J. G. Bann

287. Optical and DNA binding studies of *N*-fused heterocyclic cations based on quinazoline scaffold. **C. Galloway**, C. A. Larson, O. Alawode, V. K. Naganaboina, S. Rayat

288. A putative mammalian riboswitch in the spermine biosynthetic pathway. **K. Del Vecchio**, J. Monahan, M. McDevitt, G. Soukup, J. Soukup

289. *glmS* ribozyme mechanism and development of artificial agonists as candidate antibiotics. **E. Johnson**, M. McDevitt, D. Renner, X. Fei, D. Berkowitz, G. Soukup, J. Soukup

290. Thermodynamic contribution of pseudouridine·adenosine base pairs in oligoribonucleotides. **G. A. Hudson**, R. Bloomingdale, W. Qu, V. E. Ponnusamy, B. M. Znosko

291. Establishment of photo-activated localization microscopy (PALM) for imaging signaling complexes on the surfaces of cells. **B. E. Iverson**, A. Hoppe

292. Evaluating transgenic *Xenopus* as a model system for the expression of secreted proteins. **K. R. Marshall**, M. A. Dean, J. G. Laird, S. A. Baker

293. Potential for using waste glycerol from biodiesel production as a carbon source for heterotrophic algal feedstock production. **C. Wooldridge**

294. Thermodynamic Parameters for the Formation of RNA Duplexes with Triple Nucleotide Bulges. **M. H. Murray**, J. A. Hard, A. R. Davis, B. M. Znosko

295. Effects of non-nearest neighbors on the stability of RNA GNRA tetraloops. **P. L. Vanegas**, T. S. Horwitz, B. M. Znosko

296. Fluorescence polarization imaging of sub-resolution membrane curvature during endocytic events. **E. D. Swanson**, J. G. Kerkvliet, H. D. Adam

297. Determination of adenine nucleotide levels in rat urine by HPLC to elucidate the role of resveratrol in reducing cisplatin toxicity. **H. J. Gregg**, A. W. Hummer, T. L. Troyer, M. A. Valentovic

298. Investigation of alcohol-tolerant deoxyribozymes. **A. K. Behera**, K. O. Alila, D. A. Baum

299. Synthesis of 1-butyl-3-methylimidazolium derivatives. **M. E. Amundson**, A. R. Letcher, G. W. Earl, D. E. Weisshaar

300. Synthesis and Characterization of Hydrophobic and Hydrophilic Siloles for Cytotoxicity Studies and Applications in Printable Radio-frequency Antennas. **E. Gardner**, B. Eichler

301. Synthesis and Characterization of Novel 2,3,4,5-Tetraarylsilacyclopentadienes. **J. Drenkow**, B. Eichler

302. Soluble Luminescent 2,3,4,5-Tetraarylsiloles Synthesis and Characterization for Use in OLED Devices. **B. Jackson**, B. Eichler

303. Synthesis of matrix metalloprotease chemical probes to profile enzyme activity. **M. E. Boursier**, K. Nandy, A. T. Wright

304. Synthesis of isothiocyanates with electron-deficient aromatic rings. **Z. Erickson**, J. R. Mays

305. Selective COX-2 inhibition and anticancer activity of diarylalkynylsulfonamides complexed with hexacarbonyl dicobalt. **P. Mancina**, S. Debbert

306. Synthesis of novel alkyne hexacarbonyldicobalt complexes and their effect on human breast and prostate cancer cells . **C. Vornholt**, S. Debbert

307. Synthesis of a new monomer for a fluorescent conjugated polymer to act as a chemosensor. **A. Pfeifle**, J. Duffy-Matzner, S. Pinnock, M. Fegley, A. Oakes

308. Synthetic efforts towards a selective photodynamic therapy agent. **F. A. Venable**, Q. A. Best, C. N. Scott

309. Preparation of sulfones utilizing a new green ruthenium/aluminum oxide heterogeneous catalyst. **G. Meyer**, J. Heath, T. Willliams, L. Clippard, M. Ali, B. Olesen, B. Ranu

310. Preparation of sulfones utilizing a new green ionic liquid oxidizing reagent. T. Williams, **L. Clippard**, J. Heath, G. Meyer, M. Ali, B. Olesen, B. Ranu

311. Synthesis and DNA or RNA intercalation of 4-substituted naphthalimides. **Y. Ren**, T. Zahrli, L. K. Hardebeck, M. Lewis

312. Optimization of a Multistep Synthesis of Acyl Pyrazolidinones. **P. E. Flores Gallardo**, C. P. Jasperse

313. Toward ^{18}F-naproxen radiotracer synthesis via reductive elimination of a diaryliodonium salt. **K. S. Glaspy**, J. C. Easdon, L. Qin, K. Neumann, S. DiMagno

314. Interference by matrix esters during headspace-gas chromatography analysis of volatile alcohols. **G. M. Fischer**, M. D. Power

315. Mechanistic Investigation of the γ-C-alkylation of β-Ketoesters using Equilibrating Conditions. **J. G. Hinman**, W. B. Bosma, B. Andersh

316. Utilization of β-Ketoester Monoanions for Amide Formation. **J. J. Remsza**, B. Andersh

317. γ-C-alkylation of β-Ketoesters using Equilibrating Conditions: The Identity of the β-Ketoester. **M. E. Roark**, B. Andersh

318. Synthesis and characterization of novel high-nitrogen energetic materials. D. E. Romonosky, **C. M. Hadsall**, G. D. Bennett, P. W. Barnes

319. Synthesis of 3-oxo-δ-lactones via γ-C-alkylation of β-Ketoesters using Equilibrating Conditions. **F. S. Couri**, B. Andersh

320. Towards the synthetic development of an anion binding molecule. **E. Sullivan**, S. Garvey, A. Dawson, C. Bagwill, M. Lewis

321. Synthesis and Characterization of Peptide-capped ZnS Nanoparticles. **K. L. Holt**, W. A. Patton

322. Optimization of polymer coatings for building addressable libraries on microelectrode arrays. L. Hu, **M. Graaf**, K. Moeller

323. Efficient and general approach for safe oxidation of alkyl and aromatic sulfides to sulfones. **M. R. Lutz Jr**, K. Boyer, D. Baehr, E. Blumenthal, I. Likhotvorik

Thursday, October 20, 2011, 1:00 PM – 4:40 PM
Organic Chemistry General Session C
Room: Geneva

Benjamin Barth, *Presiding*

1:00 **324.** "Click, Click, Click, Cyclize" strategy to novel tricyclic sultams. **K. Jeon**, P. R. Hanson*

1:20 **325.** Tether-mediated, one-pot metathesis processes: Application in small molecule and total synthesis. **P. K. Venukadasula**, G. M. Suryn, R. Chegondi, S. Maitra, P. R. Hanson*

1:40 **326.** Resveratrol: Efficient synthetic method and selective delivery method to target cancer cells. **H. C. Manawadu**, T. B. Shrestha, D. L. Troyer, S. H. Bossmann

2:00 **327.** Buckytriplet: Cyclotrimerization of Corannulyne. **M. Yanney**, A. Sygula, F. Fronczek, W. P. Henry, D. Beard

2:20 **328.** Synthesis of benzimidazolium ions for dye-sensitized solar cells. **R. C. Hawkins**

2:40 Break.

3:00 **329.** Comparing Reductive Cleavage Methods in the Structure Determination Of Natural Products. **K. P. Manfredi**

3:20 **330.** Isolation and characterization of novel natural products isolated from plants utilized in traditional folk medicine. **K. N. Whitlatch**, J. D. Wagoner, J. Sparks, L. G. Huggins, T. L. Troyer

3:40 **331.** Phosphate tether-mediated synthetic studies towards the total synthesis of fostriecin and analogs. **S. Jayasinghe Mudiyanselage**, J. P. McParland, P. R. Hanson

4:00 **332.** Synthetic studies towards (–)-lyngbouilloside and phosphate tether-mediated ring-closing metathesis studies . **R. Chegondi**, S. Maitra, J. Markley, P. R. Hanson

4:20 **333.** Recent developments on the homoallylation reaction and its application in the synthesis of the tetrahydrofuran ring. **M. P. Paudyal**, C. D. Spilling

Thursday, October 20, 2011, 1:00 PM – 5:00 PM
Supramolecular Chemistry in Membranes
Room: St. Moritz

George W. Gokel, Jerry L. Atwood, *Organizers*

Supported by Division of Organic Chemistry

1:00 **334.** Crystal engineering cocrystals: Application in the structure determination of a chiral ladderane. **L. R. MacGillivray**

1:30 **335.** Structural variations, dynamics, and molecular intercalation and transport in layered ammonium carboxylates. **A. M. Beatty**

2:00 **336.** Molecular pipes and boxes: Containers for anions. Q. Wang, V. W. Day, **K. Bowman-James**

2:30 **337.** Supramolecular concepts in mechanochemical synthesis. **T. Friscic**

3:00 **338.** Exploring the surface modifications of macrocycles via copper catalyzed azide-alkyne cycloaddition "click" coupling. **S. M. Grayson**, Y. Li, B. Gibb

3:30 **339.** Responsive nanoassemblies. **S. Thayumanavan**

4:00 **340.** Glowing rotaxanes: a new paradigm for optical imaging. **B. D. Smith**

4:30 **341.** Metal-organic calixarene assemblies. **S. J. Dalgarno**

Thursday, October 20, 2011, 1:00 PM – 3:00 PM
Technical Symposium on Plant Chemistry
Room: Davos

Brent M. Znosko, *Organizer*

Supported by Education Division of the American Chemical Society, Principia College

1:00 342. Evolution of herbicide resistance. **D. Sammons**

1:40 343. Plant natural products in a modern drug discovery program. **R. B. Williams**

2:20 344. Post-genomic elucidation of plant natural product pathways. **T. M. Kutchan**, D. Ruzicka, M. Rolf

Thursday, October 20, 2011, 1:30 PM – 4:45 PM
High Sensitivity Spectroscopy
Room: Zermatt

James J. O'Brien, *Organizer*

Supported by Division of Physical Chemistry, Division of Analytical Chemistry, Coherent

1:30 Introductory Remarks.

1:35 **345.** High sensitivity absorption spectra using broadband intracavity laser spectroscopy. **J. J. O'Brien**, L. C. O'Brien

2:10 **346.** Fiber laser-induced fluorescence and laser-induced phosphorescence spectroscopy for atmospheric measurements. **F. Keutsch**

2:45 **347.** New approaches to high-resolution, high-sensitivity spectroscopy of molecular ions. **B. J. McCall**

3:20 Break.

3:35 **348.** Single-conformation spectroscopy of synthetic foldamers, peptides, and model lignin compounds. E. G. Buchanan, J. C. Dean, **T. S. Zwier**

4:10 **349.** Transient absorption microscopy studies single metal and semiconductor nanostructures. **G. V. Hartland**

Thursday, October 20, 2011, 1:30 PM – 5:00 PM
Small Chemical Businesses - What Every Small Business Owner Needs to Know about Patents, Trademarks, and Intellectual Property
Room: Alpine II

Harry. J. Guttman, *Organizer*

Supported by Division of Small Chemical Businesses

1:30 Introductory Remarks.

1:35 **350.** Who owns patented technology? A review of the U.S. Supreme Court's recent decision in Stanford v Roche and how it applies to federally-funded research. **S. C. Hall**

2:20 **351.** Patent law reform legislation: Survival tips for academic and entrepreneurial scientists. **J. Stipkala**

3:05 Break.

3:25 **352.** Small businesses and their assets: Building an intellectual property wall. **T. J. Welch**

4:10 Panel Discussion: At the conclusion of the presentations, several of the speakers will remain for a panel discussion. Topics relating to value creation and revenue generation from intellectual property for small chemical businesses will be discussed. Ideally, however, attendees will drive the discussion topics.

4:55 Concluding Remarks.

Thursday, October 20, 2011, 3:00 PM – 4:30 PM
General Poster Session IV
Versailles Ballroom

353. Development and Practice of “Air Pollution” Educational Material Unit Aiming at Education for Sustainable Development (ESD) in Korea. **Y. Kong**

354. Comparison on Elementary Science Achievement between Korea and Japan in TIMSS 2007. **Y. Kong**

355. Tutorial on the facile determination of the number of Kekulé and Dewar resonance structures in conjugated systems. **J. R. Dias**

356. Impact of participation in the Indiana Science Initiative on teachers' beliefs about student learning in science. **N. Cook**, G. C. Weaver, B. Walker

357. Discovering ^{13}C-NMR, ^{1}H-NMR and IR spectroscopy in the General Chemistry laboratory through a sequence of guided-inquiry exercises. **D. C. Justice**, H. Iler

358. Kinetic study of the reaction $H_2O_2 + 3\ I^- + 2\ H^+ \rightarrow I_3^- + 2\ H_2O$ employing spectroscopic methods. **H. R. Krueger**

359. Teaching Precipitation Titration without the Buret: A Coulometric Method for the Determination of Chloride. **D. W. Harak**, M. Kimbrough

360. Project SEED in Kansas City. **E. W. Hellmuth**

361. Buffer standards for the zwitterionic buffer (ACES) at $I = 0.16$ mol·kg^{-1} from 5 to 55 °C. **I. B. Henson**, J. M. Stegner, J. J. Dinga, L. Dieterman, L. N. Roy, R. N. Roy

362. Buffer standards for the physiological pH of *N*-[2-hydroxy-1,1-bis(hydroxymethyl)ethyl]glycine (TRICINE) from $T = (278.15$ to $328.15)$ K. **J. A. Veliz**, J. M. Stegner, C. E. Summers, G. L. Suhrheinrich, L. N. Roy, R. N. Roy

363. New microboiling point technique for the undergraduate laboratory. **W. J. King**, J. A. Lehman, M. Hood, K. N. Whitlatch, J. D. Wagoner, T. L. Troyer

364. Using Non-Silver photography as a discovery based lab for non-science majors. J. Yukna, **M. Sparks**

365. Theoretical studies of a cyclic peroxide reactive intermediate. **S. Christian**, W. W. Winn, J. N. Woodford

366. Kinetics of Pore Formation and Receptor (CMG2) Dissociation from the Anthrax Protective Antigen. **K. K. Andra**

367. Structure and function of the Alternative Complex Three from the photosynthetic bacteria *Chloroflexus aurantiacus* and *Roseiflexus castenholzii*. **E. L. Wunderlich Majumder**, R. E. Blankenship

368. Probing the effect of the electron density distribution in the primary electron on the directionality of charge separation in photosynthetic reaction centers. **M. A. Harris**, P. D. Laible, L. Kressel, C. Luehr, M. Wander, D. Holten, D. K. Hanson, C. Kirmaier

369. Identification of DNA aptamers for a redox cofactor. **I. Emahi**, A. J. Mason, K. J. Schlund, D. A. Baum

370. *Staphylococcus aureus* and *Enterococcus faecalis* peptidoglycan tertiary structure by rotational-echo double resonance NMR spectroscopy. **H. Yang**, S. Kim, M. Singh, M. Preobrezenskya, J. Schaefer

371. Length requirements of the Hoogsteen bound third strand for the formation of RNA triple helices. **J. A. Holland**, A. Cardozo

372. Immobilization of thylakoids with polyethylenimine-based hydrogel for solar energy conversion. **G. Vellaichamy**, K. H. Sjöholm, M. T. Meredith, S. D. Minteer

373. Topology and dynamics of conformational exchange of a small multidrug transporter, EmrE. **S. Dutta**, R. Vafabakhsh, E. A. Morrison, G. T. DeKoster, T. Ha, K. A. Henzler-Wildman

374. Exploring lipid interactions in the *E. coli* mechanosensitive channel of small conductance (MscS). **H. R. Malcolm**, Y. Heo, D. E. Elmore, J. A. Maurer

375. Development of specific inhibitors of JmjC-domain histone demethylases. **B. Gordon**, L. M. Mirica

376. Design, synthesis, and evaluation of inhibitors of norwalk virus 3c protease. **S. Mandadapu**, K. Tiew, G. He, S. Aravapalli, M. R. Gunnam, K. R. Alliston, G. H. Lushington, Y. Kim, K. Chang, W. C. Groutas

377. Cloning and expression of L-fucose metabolizing genes. **T. J. Wiese**, S. C. Rogers, L. Yang, T. J. Wiese

378. Use of chromatography to characterize a substrate binding constant for a His-tag immobilized ascorbate peroxidase. **F. A. Kovacs**, B. White, A. Moser

379. Covalent immobilization of C-terminal hydrazide labeled proteins to ketone-presenting self-assembled monolayers (SAMs). **A. T. Castner**, J. A. Maurer

380. Inactivation of PTP-SHP2 by peroxymonocarbonate. **S. M. Lewis**, D. Seinner, H. Singh, K. Gates

381. Studying neuronal behavior in response to changes in microenvironment: An *in vitro* approach. **D. M. Johnson**, S. M. Spangler, J. P. Abi-Mansour, J. A. Maurer

382. Adenine-4-aminobiphenyl formation by acid hydrolysis of *TP53 exon7* cDNA in the presence of 4-aminobiphenyl as evidenced by LC-ESI-MS/MS. **P. R. Knoll**, J. C. Means

383. Cyclipostins as Inhibitors of Rat Hormone Sensitive Lipase. **E. Vasilieva**, R. K. Malla, S. Dutta, B. Martin, C. M. Dupureur, C. D. Spilling

384. Fluorescent sphingolipid precursors and click chemistry cholesterol analogs for imaging of sphingolipid and cholesterol distribution in the plasma membranes of living cells. **K. Lou**, R. Kim, M. L. Kraft

385. Zinc homeostasis and swarm expansion in *Myxococcus xanthus*. **L. N. Brumley**, F. E. Jacobsen, R. G. Taylor

386. Study of heparin oligosaccharides binding to proteins using affinity capillary electrophoresis. **M. Dinges**, B. Rogers, A. Korir

387. Study of carbon assimilation in plants labeled with stable and radioactive isotopes by solid state NMR and direct positron imaging. **M. Singh**, G. Potter, R. Dirks, L. Sobotka, J. Schaefer

388. Effect of a mutant with altered dynamics on hydride transfers catalyzed by thymidylate synthase. **T. Abeysinghe**, Z. Wang, A. Kohen

389. Halogen bonding interactions in substituted tetraphenylethylenes. **P. P. Kapadia**, D. C. Swenson, F. Pigge

390. Biosynthetic considerations and progress toward a total synthesis of phomopsichalasin/diaporthichalasin. **J. C. Lo**, S. G. Brown, E. P. Sizova, T. R. Hoye

391. Studies of the Bodroux reaction in tetrahydrofuran. **D. C. Hawkinson**, A. Furness

392. Anhydrobase mediated annulation reactions of substituted pyridines. **A. I. Lansakara**, S. G. Parameswarappa, F. Pigge

393. Kinetic resolution of N-acyl-β-lactams via non-enzymatic enantioselective alcoholysis. **V. D. Bumbu**, V. B. Birman

394. Kinetic resolution of *β*-lactams via catalytic, enantioselective N-acylation. **V. D. Bumbu**, X. Yang, V. B. Birman

395. Nucleosome Phase Greatly Affects Deamination rate of a 5-Methylcytosine Containing DNA Photoproduct. **Q. Song**, V. Cannistraro, J. A. Taylor

396. Exploring site-selective oxidative cyclizations on microelectrode arrays. D. Kesselring, **B. H. Nguyen**, K. D. Moeller

397. Development of fluorescent chemosensors for divalent and trivalent cations based on carboxylated ethynylarenes. **A. T. Gallagher**, J. T. Fletcher

398. Unusual secondary kinetic isotope efect behaviors in a hydride transfer reaction in solution. **B. A. Hammann**, Q. Liu, Y. Lu

399. Carboxymethylated 1,2,3-triazole-based bidentate and tridentate chelators: Preparation and amide bond conjugation under solution-phase and solid-phase conditions. **J. T. Fletcher**, B. S. Bruck, H. Ahn, M. G. Keeney

400. New functionalized resin for solid extraction of heavy metal ions in water samples. S. Khazaeli, M. Rabbani, **N. Nezamabadi**

Thursday, October 20, 2011, 3:00 PM – 6:00 PM
Midwest ACS Award Symposium
Zurich

Lichang Wang, Patrick Dussault, *Organizers*

Supported by Division of Computers in Chemistry, St. Louis Section of the American Chemical Society

3:00 **401.** Transition metal nanoparticles as catalysts in fuel cell applications. **L. Wang**

3:30 **402.** DFT optical properties and growth mechanisms of gold nanoparticles. **C. M. Aikens**, B. M. Barngrover, E. B. Guidez

4:00 **403.** Nanoporous organic structures: Creation and novel properties. **B. Gong**

4:30 Break.

5:00 **404.** Computer-aided nanoscience research: Nanoice, nanoclusters, and superhydrophobicity. **X. Zeng**

The reception for the Midwest/Great Lakes Awards banquet starts at 6:00 pm followed by the banquet at 7:00 pm in Matterhorn.

FRIDAY MORNING SESSIONS
OCTOBER 21, 2011

Friday, October 21, 2011, 8:00 AM – 12:00 PM
Analytical Chemistry General Session B
Room: Basel

Jennifer Monohan, *Presiding*

8:00 **405.** Application of twin-chain dithiol amphiphiles in electrochemical DNA sensor fabrication. **S. P. Canete**, T. J. Fisher, P. H. Dussault, R. Y. Lai

8:20 **406.** Development of a Mitochondria-based Electrochemical Water Quality Sensor for Pesticides. **S. Maltzman**, S. D. Minteer

8:40 **407.** Microdialysis-Microchip Electrophoresis with Electrochemical and Fluorescence Detection. **D. E. Scott**, D. R. McKenzie, R. Grigsby, S. M. Lunte

9:00 **408.** Demonstration of rapid single cell analysis on simple microfuidic devices: A study nitric oxide production in Jurkat cells. **E. C. Metto**, A. Sharma, A. H. Culbertson, K. Evans, D. B. Gunakesera, C. T. Culbertson, S. M. Lunte

9:20 **409.** Design and characterization of an imidazole-metal ion self-assembled monolayer amenable to electrochemical biosensing applications. **A. J. Zaitouna**, R. Y. Lai

9:40 **410.** Graphene oxide based micro-electronic device for detecting norovirus. **A. M. Prior**, D. D. Le, T. D. Nguyen, Y. Kim, K. Chang, W. Li, N. A. Oyler, D. H. Hua

10:00 Break.

10:20 **411.** Electrochemical study of the diffusion of cytochrome c within nanoscale pores derived from cylinder-forming polystyrene-poly(methylmethacrylate) diblock copolymers. **B. Pandey**, K. H. Tran Ba, T. Ito

10:40 **412.** Finite-element computer simulations on cyclic voltammograms measured at recessed nanodisk-array electrodes derived from Polystyrene-Poly(methylmethacrylate) diblock copolymers . **K. Tran Ba**, B. Pandey, T. Ito

11:00 **413.** Characterization of Lignin from Prairie Cordgrass and Switchgrass by GC-MS analysis of Cupric Oxide and Nitrobenzene Oxidation products, Pyrolysis-GC-MS and MALDI-TOF-MS. **N. K. Bathula**

11:20 **414.** Real-time AC voltammetry-based detection of cancerous protease (legumain) using nanoelectrode arrays. **L. Syed**, L. Zhang, A. M. Prior, D. H. Hua, J. Li

11:40 **415.** Identification of peptides from Liver Tissues of 2-Aminoanthracene exposed Fisher-344 Rats. **H. D. Abshiro**, W. E. Gato, E. O. Zargham, J. C. Means

Friday, October 21, 2011, 8:00 AM – 12:00 PM
Inorganic Chemistry General Session A
Room: Bern

Myron Jones, *Presiding*

8:00 **416.** B ring methylated flavonols: Effects on hydrogen bonding, Al^{3+} chelation and the structures and redox chemistry of ruthenium complexes. **K. V. Peiris**, E. Hughes, B. Spears, J. Browning, S. R. Gwaltney, W. P. Henry

8:20 **417.** Synthesis and properties of ferrocenyl-containing porphyrins, tetraazaporphrins, and subphthalocyanines. **V. N. Nemykin**, P. V. Solntsev, G. T. Rohde, J. R. Sabin, S. J. Dammer, K. Spurgin

8:40 **418.** Phosph(on/in)ate-bridging dimers of vanadium (IV) complexes as potential oxidation catalysts. **C. C. McLauchlan**, A. E. Anderson, X. Riart-Ferrer, M. P. Weberski

9:00 **419.** Stable mononuclear Pd(III) and Pd(IV) complexes in identical ligand environment: Characterization and direct reactivity comparison. **F. Tang**, J. R. Khusnutdinova, N. P. Rath, L. M. Mirica

9:20 **420.** Pinpointing the position of an encapsulated fluoride in solution: The utility of multidimensional ^{1}H and ^{19}F NMR. **Q. Wang**, V. W. Day, K. Bowman-James

9:40 **421.** Evaluation of platonic solids as atoms in covalent bonds. **D. Wang**, J. Van Horn

10:00 Break.

10:20 **422.** Novel green light sensitiers for the near-infrared emission of lanthanide ions. **H. He**, Y. Zhong, A. G. Sykes

10:40 **423.** Use of Ferracarboranes as Electron Transfer Mediators for Glucose Oxidase. **S. S. Graham**, P. A. Jelliss, S. Minteer, V. Svoboda

11:00 **424.** Increasing survival in a murine metastatic pancreatic cancer model, using cell-delivered nanoparticles to cause local hyperthermia. **G. S. Abayaweera**, M. Basel, T. B. Shrestha, H. Wang, O. B. Koper, S. Balivada, S. H. Bossman, D. L. Troyer

11:20 **425.** Scanning electrochemical microscopy investigation of tribolayer surface corrosion on CoCrMo alloys used in metal-on-metal (MoM) hip joint bearings. **R. J. LeSuer**

11:40 **426.** Germylenes R_2Ge: with triplet electronic ground states. **P. P. Gaspar**, A. Solomon, H. Yeon

Friday, October 21, 2011, 8:00 AM – 12:00 PM
Nanoscience General Session C
Room: Alpine I

Dipanjan Pan, *Presiding*

8:00 **427.** Sensing drug mimics using size-tunable solution-phase SERS substrates. **J. K. Hedlund**, B. Shrestha, M. Pierre, A. J. Haes

8:20 **428.** Correlating Molecular Surface Coverage and Solution-Phase Nanoparticle Concentration to SERS Intensities. **M. S. Pierre**, A. J. Haes, P. M. Mackie, M. Roca

8:40 **429.** Comparison of stability and particle size distribution of gold colloids prepared by the solvated metal atom dispersion method and inverse micelle method. **D. Jose**, K. J. Klabunde

9:00 **430.** Investigating the proton affinities of pyrogallol versus zinc-seamed *C*-alkylpyrogallol[4]arene dimeric nanocapsules. **H. Kumari**, C. M. Mayhan, A. E. Kroeger, C. W. Dye, J. L. Atwood, C. A. Deakyne

9:20 **431.** Capillary electrophoresis promoted personalized chemotherapy. **B. S. Ayres**, A. M. Jones, M. S. Pierre, A. J. Haes

9:40 Break.

10:00 **432.** Using Dielectrophoresis for Reversible Capture and Release of *E. coli* cells at Micropatterned Nanoelectrode Arrays. **L. Syed**, F. R. Madiyar, J. Liu, A. K. Price, Y. Li, C. T. Culbertson, J. Li

10:20 **433.** Development of electrochemical immunoassay for prostate specific antigen (PSA) and carcinoembryonic antigen (CEA) on nanoporous gold. **B. P. Pandey**, A. V. Demchenko, K. J. Stine

10:40 **434.** Withdrawn

11:00 **435.** Toxic material forensic container (TMFC). J. J. Cremer, **A. M. Iseli**, S. Rajagopalan, J. Domino, D. Lickfield, C. W. Cole

11:20 **436.** Development of antisense agents to detect and suppress iNOS mRNA expression in injured lung. **Y. Shen**, H. Fang, R. Shrestha, K. Wooley, J. Taylor

11:40 **437.** High aspect ratio hydroxyapatite nanofibers filled dental restorative nanocomposites. **L. Chen**, K. Giddens, Y. Wang, Q. Yu, H. Li

Friday, October 21, 2011, 8:00 AM – 11:40 AM
Organic Chemistry General Session D
Room: Geneva

Richard W. Fitch, *Presiding*

8:00 **438.** Synthesis and structural analysis of a novel iodinated cyclopentadienone *via* ring-contraction iodination and its application as a substrate for oxygen-free Sonogashira reactions. **X. Chen**, X. Bai, T. C. Sandreczki, J. R. Dias

8:20 **439.** Monomer-on-Monomer (MoM) Mitsunobu Reactions and ROMP-Derived Oligomeric Phosphates for the Application in Parallel Synthesis. **P. K. Maity**, A. Rolfe, Q. M. Kainz, S. Faisal, T. B. Samarakoon, T. R. Long, R. D. Kurtz, O. Reiser, P. R. Hanson

8:40 **440.** Novel five-coordinate Ru(II) phosphoramidite complexes and their catalytic activity in the amination of propargylic acetates. A. K. Widaman, **E. B. Bauer**

9:00 **441.** Metal-assisted photochemical conversion of carboxylic acids to alkanes, alkenes, and halocarbons. **J. M. Carraher**, A. Bakac

9:20 **442.** Preparation of Benzoxazoles and Benzothiazoles Utilizing a Green Procedure. **M. Ali**, S. Madabhusi

9:40 Break.

10:00 **443.** Deciphering intermolecular communication between 2-aminopyrimidines and carboxylic acids. **A. B. Grommet**, C. B. Aakeroy, J. Desper

10:20 **444.** Thiophilicity of atomic oxygen in solution. **M. Zhang**, R. McCulla

10:40 **445.** *cis*-5,6-Dihydro-1,10-phenanthrolines as a new class of ligands: Enzymatic resolution of *cis* and *trans* phenoxy alcohol isomers and assignment of absolute stereochemistry. **E. Schoffers**, L. Kohler, E. Driscoll, M. Zeller, S. Carla

11:00 **446.** Total synthesis of (±)-cis-trikentrin B via intermolecular indole aryne cycloaddition and Stille cross-coupling reaction. **N. Chandrasoma**, N. Brown, A. Brassfield, A. Nerurkar, S. Suarez, K. R. Buszek

11:20 **447.** Hydrogen-bond mediated catalysis in the organic solid state. **J. Stojakovic**

11:40 **571.** Modulating supramolecular reactivity using covalent "switches" on a pyrazole platform. **E. P. Hurley**, C. B. Aakeroy, J. Desper

Friday, October 21, 2011, 8:00 AM – 11:40 AM
Physical Chemistry General Session B
Room: Zermatt

Jean M. Standard, *Presiding*

8:00 **448.** Dynamics of networked electrochemical reactions: coupling topology and synchronization. **M. Wickramasinghe**, I. Z. Kiss

8:20 **449.** Talk moved to Physical Chemistry I, Zermatt, Thursday, 11:40 am.

8:40 **450.** SAPT calculations: Methods for large system computation. **C. C. Kirkpatrick**, M. Lewis, B. K. Welch, J. N. Coleman, J. Wang, K. Hacke

9:00 **451.** High level quantum mechanical studies of singlet carbenes HCXH (X=O, S, Se). **J. M. Standard**

9:20 **452.** Theoretical study of hydrolization of B_2O_3. T. A. Holme, **C. C. De Silva**

9:40 Break.

10:00 **453.** Obtaining partial molar quantities from computer simulations. **E. A. Ploetz**, P. E. Smith

10:20 **454.** Application of correlation-gas chromatography to problems in thermochemistry. J. S. Chickos, **Dmitry A. Lipkind**

10:40 **455.** Solute diffusion in *n*-alkanes and squalane. **B. A. Kowert**, M. B. Watson

11:00 **456.** Viscosity and thermal conductivity of potassium atoms at high temperatures. **L. Biolsi**

11:20 **457.** Influence of atom recombination and molecular relaxation on the properties of high-enthalpy flows. S. Doraiswamy, **J. Kelley**, G. V. Candler

11:40 **458.** Theoretical Investigation of reaction of lactic acid on MgO clusters. **L. B. Pandey**, C. M. Aikens

Friday, October 21, 2011, 8:15 AM – 11:50 PM
NMR-The Next Generation (of Techniques)
Room: St. Moritz

Sophia Hayes, Christopher Jaroniec, Nathan Oyler, *Organizers*

Supported by Bruker Biospin Corporation, Division of Physical Chemistry

8:15 Introductory Remarks.

8:20 **459.** Protein fold determined by paramagnetic magic-angle spinning solid-state NMR spectroscopy. **C. P. Jaroniec**, P. S. Nadaud, I. Sengupta, J. J. Helmus, C. D. Schwieters

9:00 **460.** A study of residual solvent in aspirin by variable contact time CRAMPS; shelf lives of drugs. **B. Gerstein**, X. Hsu

9:20 **461.** Carbon partitioning in leaves under elevated CO_2 conditions using ^{11}C and ^{13}C labeling. **J. Schaefer**, R. Dirks, M. Singh, G. S. Potter, L. G. Sobotka

10:00 Break.

10:20 **462.** Is it possible to solve a protein structure with one NMR spectrum? **C. M. Rienstra**, A. E. Nesbitt, M. Tang, M. Brothers, K. Nuzzio, G. C. Comellas, L. J. Sperling

11:00 **463.** Shifting shapes: Seeing a protein's moves. **A. McDermott**

Friday, October 21, 2011, 8:20 AM – 11:00 PM
Polymer Chemistry General Session
Room: Alpine II

Colleen Scott, *Presiding*

8:20 **464.** Numerical analysis of classical free radical addition polymerization: A mathematically stiff system. **A. M. Brown**, H. Iler, G. Peters

8:40 **465.** Diffusion of Carbon-14 Oxide in Neutron Irradiated Flax Linen. **A. C. Lind**, M. Antonacci, D. Elmore, G. Fanti, J. M. Guthrie

9:00 **466.** Polymer brush 'nanosponges' for fast protein separation with MALDI mass spectrometry analysis. **C. N. Scott**, B. Mitrovic, S. Eastwood, G. Kinsel, V. Wong, D. Dyer

9:20 **467.** Fe(II)/MAO catalyzed olefin polymerization: Oxophilicity of cyclic and acyclic aluminoxane ligands in Fe(II) Complexes. **R. Glaser**, X. Sun

9:40 Break.

10:00 **468.** Stepped growth of sp-sp^2 conjugated oligomers and its applications. **X. Chen**, X. Bai, T. C. Sandreczki, J. R. Dias

10:20 **469.** Physic chemical recycling of tires by modified asphalt formation. **L. S. Cadena**, Z. G. Arroyo, L. C. Valencia, A. R. Uribe

10:40 **470.** Synthesis, photophysical properties, and photovoltaic applications of non-aggregated hyperbranched phthalocyanine dyes. **Y. Li**, P. Lu, M. Jiang, P. Thapaliya, X. Yan

Friday, October 21, 2011, 8:25 AM – 11:40 AM
Biomolecular Structure and Function
Room: Zurich

Dana Baum, Cynthia M. Dupureur, J. Strauss Soukup, *Organizers*

Supported by Division of Biological Chemistry, Sigma-Aldrich, ChemGenes Corporation, RNA Society, New England Biolabs, Inc., Integrated DNA Technologies, Horiba Scientific, Trilink Biotechnologies, Glen Research

8:25 Introductory Remarks.

8:30 **471.** Understanding DNA flexibility *in vitro* and *in vivo*. J. Peters, N. Becker, **J. Maher**

9:05 **472.** DNA as a catalyst for covalent modification of biomolecules. **S. K. Silverman**

9:40 Break.

10:00 **473.** Structure-activity relationships of G-quadruplex interloop photocrosslinking. **J. E. Smith**, J. A. Taylor

10:25 **474.** Targeting dynamic ribosomal RNA sites with small molecules. **C. S. Chow**

11:00 **475.** Computational Model for Predicting Experimental RNA and DNA Nearest-Neighbor Free Energy Rankings. **C. A. Johnson**, R. J. Bloomingdale, V. E. Ponnusamy, C. A. Tillinghast, B. M. Znosko, M. Lewis

Friday, October 21, 2011, 8:30 AM – 10:00 AM
General Poster Session V
Versailles Ballroom

8:30 - 10:00

476. Quantum dynamics of a Morse oscillator in real and imaginary time. **C. Hanson**, B. Dey

477. Periodic and complex waveform current oscillations of copper electrodissolution in phosphoric acid in an epoxy-based microchip flow cell. **A. Bi**, Y. Jia, I. Kiss

478. Exploring the quantum dynamics of a multi-particle system. **M. J. Edgington**, B. K. Dey

479. Molecular structural study of thin-film boron carbide. **W. Li**, M. M. Paquette, S. Karki, B. J. Nordell, M. S. Driver, A. N. Caruso, N. A. Oyler

480. Theoretical analysis of surface plasmon resonance of silver and gold nanowires. **E. B. Guidez**, C. M. Aikens

481. Computational investigation of the electronic structures of polymers used in polymer-fullerene composite solar cells. **B. P. Banks**, O. Poluektov, J. Niklas, K. L. Mardis

482. Structures and water dissociation reactions of Mn-doped TiO_2 clusters. **C. Lee**, C. M. Aikens

483. Recovery of carbochemicals from aqueous biomass hydrolyzates using critical fluid carbon dioxide. **J. Phomakay**, S. Mori, J. W. King, K. Srinivas

484. Extensive SAPT and SAPT-DFT energy comparison on small systems:applications towards larger dimers. **B. K. Welch**, C. C. Kirkpatrick, M. Lewis, K. Hacke

485. Fast Marching algorithm for reaction dynamics: A new perspective for Monte Carlo sampling and reaction paths. **N. W. Truex**

486. A computational study of the bonding interaction between chromium, molybdenum, or tungsten carbonyl complexes and cyanoethylenes or fluoroethylenes. **S. L. Johnson**, D. L. Cedeño

487. Comparison of structures of $CH_2ClF...C_2H_3F$ and $CH_2F_2...C_2H_3F$ as determined by Fourier-transform microwave spectroscopy. **C. L. Christenholz**, D. A. Obenchain, R. A. Peebles, S. A. Peebles

488. Easy as π: Analysis of C-H… π interactions within chlorofluoromethane-acetylene (CH_2ClF-HCCH). **L. F. Elmuti**, R. A. Peebles, S. A. Peebles, A. L. Steber, J. L. Neill, B. H. Pate

489. Photovoltaic devices based on porphyrin polymeric donor materials: A computational study of linker effects. **Z. L. Dunn**, M. A. Hammer, T. M. Perrine

490. Computational study of substituent effects on the band gap of porphyrin based polymeric systems. **M. A. Hammer**, Z. L. Dunn, T. M. Perrine

491. Quantitative structure-property relationship study of the short-circuit current of thiophene dyes for dye-sensitized solar cells based on neural networks. **S. P. Kamari**, R. LeSuer, K. L. Mardis

492. Computational investigation of the conformational preferences of a cytochrome c_7 dimer. **A. O. Zayed**, D. M. Tiede, K. L. Mardis

494. Convenient approach to composition tunable uncapped semiconducting nanocrystals. **S. Li**, G. Tan, Z. Peng

495. Self-Regenerative Redox Catalyst: Palladium Oxide Nanoparticles on Cerium Oxide Nanorods. **Y. Zhou**

496. Quenching of coumarin luminescence by CdSe quantum dots. **A. Baride**, S. P. May, D. Engebretson

497. Structural diversity in MgSe nanocrystals. **P. Morrison**, W. E. Buhro

498. Role of Chloride in the growth of Silver nanowires by the polyol synthesis. **W. M. Schuette**, W. E. Buhro

499. Synthesis and isolation of the pure magic-size CdSe nanocluster [$(CdSe)_{13}$(*n*-octylamine)$_{13}$]. **Y. Wang**, Y. Liu, Y. Zhang, F. Wang, H. Rohrs, M. L. Gross, W. E. Buhro

500. Insights into AuSR nanocluster growth via Au(III) chloride. **B. M. Barngrover**, C. M. Aikens

501. Binding of formyloxyl radicals to Au_{20}: Implications for the growth of gold nanoparticles. **J. M. Hull**, M. R. Provorse, C. M. Aikens

184. Thermo- and pH-stimuli responsive water-soluble copolymers and hydrogels based on acrylate monomers. M. A. Dergunov, **S. A. Dergunov**, E. Pinkhassik, G. A. Mun

503. Towards hybrid nanobiodevice construction: F_1-ATP synthase adsorption studies. **J. K. Settle**, C. L. Berrie, M. L. Richter

504. Rational design and preparation of polyarginine capped gold nanoparticle for siRNA delivery . **Z. Zhang**, J. A. Taylor

505. Retention of palladium and phosphine ligands using nanoporous polydicyclopentadiene thimbles. **A. Gupta**, N. Bowden

506. Effects of particle size, shape, and temperature on dodecanethiol assisted digestive ripening of Au nanoparticles. **C. Parsons**, D. Jose, K. J. Klabunde

507. Changes in chemical structure, crystallinity and mechanical properties of LDPE and PP composites reinforced by cellulose fibres after exposure to accelerated photoageing. **R. Chollakup**, F. Delor-Jestin, A. Rivaton, S. Thérias, J. Gardette

508. Detection of Sphingolipid Biomarkers in a Murine Model of Niemann-Pick Type C1 (NPC1) Disease. **M. Y. Fan**, H. Fujiwara, R. Sidhu, D. S. Ory

509. Native mass spectrometry of membrane-bound protein-pigment complexes suggests induced pigment dissocation. **L. B. Harrington**, H. Zhang, M. L. Gross, R. E. Blankenship

510. Effects of natural colloids on the adsorption of polycyclic aromatic hydrocarbons (PAHs) by multi-walled carbon nanotubes. **Y. Yang**, W. E. Gato, H. D. Abshiro, J. C. Means

511. Study of Lignin by Pyrolysis GC - MS. **V. R. Sakampally**, R. Douglas

512. Analysis of dissolved methylmercury in environmental samples using Hg-complex ion chromatography: A reoptimized method with increased sensitivity and reduced noise. **A. C. Yerkes**, R. J. Hudson

513. Photo-induced dissolution of metal ions from fly ash particles in a nitric acid media. **N. J. Hamid**, M. A. Kebede, J. Baltrusaitis, J. G. Navea

514. Determination of reactive oxygen species in secondary organic aerosols produced from essential oils. **M. Czerniejewski**, H. Amin, L. Wang, M. McCarroll, K. Huff Hartz

515. Evaluation of the reduction of nitric acid by humic substances. **K. L. Boknevitz**, J. G. Navea

44. Expression, purification and oligomer formation of amyloid beta(1-42) associated with Alzheimer's disease. **C. Zhang**, N. Oyler

517. Nanoparticles for Mercury Abatement. **S. K. Thanikanti**, P. K. Fu

518. Synthesis of isosorbide diallyl ether in presence of phase transfer catalysts. **M. Sandhu**, M. Ionescu

519. Dynamics of zinc-seamed pyrogallolarene capsules: MD and QM/MM studies. **K. E. Brewer**, D. J. Shaughnessy, J. E. Adams

Sulforaphane Regulation of Cellular Redox and Growth, C. Lensing, J. Duffy-Matzner.

In situ high pressure and temperature NMR analysis of metal carbonate formation from CO_2 with implications for carbon capture, conversion, and sequestration. **J. A. Surface**, P. A. Skemer, S. E. Hayes, M. S. Conradi

Friday, October 21, 2011, 8:30 AM – 10:00 AM
Small Chemical Business Poster Session
Versailles Ballroom

Joseph Sabol, *Organizer*

Supported by Division of Small Chemical Businesses

520. Study of the Distribution and Quantity of Iodine in the Brine Waters of Northwestern Oklahoma. J. R. Wickham, **E. C. Pribil**, K. A. Drouhard, D. Mason

522. The future of the chemical enterprise. **J. E. Sabol**

Friday, October 21, 2011, 9:00 AM – 12:00 PM
Chemical Education Research and Practice
Room: Davos

Susan Wiediger, Steven Kinsley, *Organizers*

Supported by Division of Chemical Education

9:00 Introductory Remarks.

9:05 **523.** Analytical sciences digital library – a unifying force for analytical science education. **T. Spudich**, C. Larive

9:25 **524.** Medicinal chemistry: Too much to learn in one semester? **H. Zhong**, V. Mashinson, T. A. Woolman

9:45 **525.** Use of in-situ generated *o*-iodoxybenzoic acid (IBX) for oxidation of alcohols: An introduction of undergraduates to hypervalent iodine reagents, catalytic cycles and green chemistry. M. Bertels, C. LeFever, K. K. Madne, S. R. Pandey, S. V. Saraf, A. Vanoskey, L. Zeman, J. Jin, **T. K. Vinod**

10:05 **526.** Preparation of divalent Fe, Co, and Ni tosylate salts. H. Nguyen, C. J. Ema, T. H. Ema, **P. J. Janini**, Y. Zhang, N. Rath, S. M. Holmes

10:25 Break.

10:40 **527.** Guided inquiry laboratory projects built upon endothermic reaction demonstrations. A. O. Ward, **R. L. Petersen**

11:00 **528.** Impact of the first-year implementation of process oriented guided inquiry learning in an organic chemistry course on students' attitudes and learning. **T. Chase**, M. Stains

11:20 **529.** Modifying POGIL to Improve Student Perception of Relevance of Organic Chemistry. **E. Bucholtz**

11:40 **530.** Development and implementation of streaming online media to enhance pre-lab instruction in first semester organic chemistry laboratory courses. **J. T. Fletcher**

Friday, October 21, 2011, 10:30 AM – 12:00 PM
General Poster Session VI
Versailles Ballroom

531. Comparison of phenanthrene and 1,10-phenanthroline derivatives as potential sensors. **J. J. Whitcomb**, L. Kohler, S. Obare, E. Schoffers

532. The Viscosity Lowering of Ionic Liquids. **B. Anderson**, D. E. Raynie

533. The effect of 1-methyl-3-butylimidazolium tetrafluoroborate $BMIMBF_4$ ionic liquid as mobile phase additive on the peak shapes and resolution of nitroaromatics and nitroanilines on reversed phase liquid chromatography. **B. Redlinski**, T. Ahmad, T. Ahmad, C. Utterback

534. The effect of counter ion of 1-methy,3-butyl imidazolium ionic liquid as a mobile phase additive on the adsorption behavior of tryptophan on reversed phase liquid chromatography. **T. Ahmad**, B. Redlinski, A. Alalwiat

535. Analysis of Color Degradation in Paper and Artwork Using VISNIR. **J. Cornelius**, B. Kamusinga

536. Determination of phenol concentration in spiked wastewater samples through multivariate regression modeling of UV-visible spectral data. **E. Gripka**, M. Vaughn, J. Ingle

537. Characterization of tannins from *Quercus actissma* leaf extracts by LC-ESI-MS and bioassay directed HPLC fractionation. **L. Rudolf**, C. Zanaboni, K. Severa, C. M. Scholes, J. M. Chapman

538. HDXMS reveals folding of calcineurin upon binding calmodulin. **F. I. Rusinga**, T. Creamer, D. D. Weis

539. Characterization of the chemical constituents of Chinese and Korean Jakyak root and correlation to medicinal activity. I. Fuentes, **N. Frost**, J. M. Chapman

540. Optimization of ETD parameters for top-down proteomics analysis with an ultrahigh-resolution QTOF mass spectrometer. **J. R. Unverferth**, J. B. Sperry, J. A. Carroll

541. Method development for structural characterization of sulfated steroids with mass spectrometry: Applications in animal communication. **Y. Yan**, T. Holy, M. L. Gross

542. Focusing of bacteria and fungi from mixed samples using the isotachophoresis mode of capillary electrophoresis. **J. Bennett**, A. W. Lantz

543. Binding Studies of Dopamine Imprinted Polymers. **A. Goffeney**, D. Goede, G. Mwangi

544. Hydrogen-deuterium exchange mass-spectrometry study of troponin C dynamics and binding within the troponin complex. **R. Huang**, B. J. Summers, H. W. Rohrs, M. L. Gross

545. Characterization of human apolipoprotein E3 and E4 isoforms' interactions with amyloid β42 by the mass spectrometry-based FPOP protein footprinting method. **B. Gau**, K. Garai, C. Frieden, M. Gross

546. Correlation of Mass Spectrometric Analysis of Heat-Treated Glutaraldehyde Preparations to Their 235 nm/280 nm UV Absorbance Ratio. **A. D. Sen**, R. Dunphy, I. Handley, R. Dieck, L. Rosik

547. Localized Structural Analysis of CBP with Millisecond Timescale Hydrogen Deuterium Exchange MS. **T. R. Keppel**, D. D. Weis

548. UHPLC-MS-MS analysis of pesticides in aqueous environmental samples: An educational outreach program. **M. T. Popko**, R. E. Jackson, B. A. Logue

549. Paper-based microfluidic devices in colorimetric tests. **M. E. Clevenger**, K. Parker, C. Neuville, E. Gross

550. Alternative fragmentation pathways of a model glycopeptide. **V. Kolli**, E. D. Dodds

551. Gas-phase release and sequencing of subunits from non-covalent protein complexes. **D. Rathore**, E. D. Dodds

552. HPLC method to monitor methylcarbonate/acid reaction progress. **E. E. Arens**, S. J. Jamison, D. E. Weisshaar, G. W. Earl

553. Investigation of methylcarbonate/acid reaction as a function of pKa. **K. T. Jacobson**, N. A. Sveiven, D. E. Weisshaar, G. W. Earl

554. MALDI mass spectrometry of membrane proteins in Nanodiscs. **M. T. Marty**, A. Das, S. G. Sligar

555. H/DX-Mass Spectrometry Study of Amyloid beta (Ab 1-42) peptide oligomer. **Y. Zhang**, L. Mirica, M. Gross

556. Investigating insulin oligomers by native spray H/D exchange and top-down mass spectrometry. **Y. Huang**, W. Cui, M. L. Gross

557. Phthalocrowns: New macrocycles for metal binding. **I. Tamgho**, C. J. Ziegler

558. Effect of different oxidants on epoxidation of alpha olefins. **J. Hong**, D. DeGruson, Z. S. Petrovic

559. Utilizing the hydroxyalkylation reaction to prepare bis(benzocrown ethers). **M. E. Zielinski**, A. F. Tracy, D. A. Klumpp*

560. Fluorinated dienes in the Diels-Alder reaction. **N. Ehterami**, T. Patrick

561. Synthesis of the C(10)-C(17) unit of amphidinolides C, C2, & F, potent cytotoxic macrolides. **S. Roy**, C. D. Spilling

562. Application of 6,7-indolyne aryne cycloaddition and Pd(0)-catalyzed Suzuki-Miyaura and Buchwald-Hartwig cross-coupling reactions for the preparation of annulated indole libraries. P. D. Thornton, N. Brown, D. Hill, B. Neuenswander, G. H. Lushington, C. Santini, **K. R. Buszek**

563. 1,10-Phenanthroline derivatives as potential organophosphate sensors. **M. N. Moses**, L. Kohler, S. Obare, E. Schoffers

564. Synthetic studies of dipyrromethene ligand systems for the discovery of manganese (III)-based peroxynitrite decomposition catalysts. **A. Kamadulski**, S. Rausaria, D. Salvemini, W. L. Neumann

565. Preparation, characterization and *Human Carbonyl Reductase* (HCBR) inhibition studies of 2,4-dichlorophenyl-cyanoxime, H(2,4-diCl-PhCO). M. Hilton, **N. N. Gerasimchuk**, H. Charlier

566. Organometallic anticancer compounds: Synthesis and biological activity of a new class of simple alkyne hexacarbonyl dicobalt complexes. **S. L. Debbert**, S. D. Schimler, M. G. Amare

567. Synthesis of several ionic liquid perbromides for the regioselective bromination of polyalkylated aromatic hydrocarbons. **M. L. Miller**, M. J. Kulig, A. Zeiszler

568. Investigation of ruthenium complexes, with the introduction of a novel chiral phopshinooxazoline ligand, to be employed as a catalyst in the Mukaiyama Aldol reaction. **N. Curvey**, A. Widaman, E. Bauer

569. Structure-activity relationship studies of the cyclipostins and their analogs: A means of probing hormone sensitive lipase active site morphology toward the development of new inhibitors. **B. P. Martin**, C. D. Spilling

570. Influence of aromatic amines on the spectroscopic properties of 1,10-phenanthroline. **K. L. Huynh**, S. Obare, E. Schoffers

178. Synthesis of inosamine derivatives to function as nutritional mediators for nitrogen fixation. **J. L. Meloche**, E. Schoffers

572. Antifungal activity of a series of 1,2-Benzisothiazol-3(2H)-one derivatives. **S. Aravapalli**, D. Dou, D. Alex, B. Du, K. Tiew, S. Mandadapu, R. A. Calderone, W. C. Groutas

573. Progress towards the synthesis of a long wavelength fluorescent biosensor for citrate metabolite. **C. Liu**, N. Sattenapally, Q. A. Best, L. Wang, M. McCarroll, C. G. Scott

574. Synthesis and conformational characterization of *N*-alkyl hydroxamic acids. **H. L. Schenck**, R. Zolondek

575. Seeking evidence for electrophilic C-H activation at palladium(IV) centers. **R. Ruffie**

576. Chemical constituents of the Burmese python (*python molurus bivittatus*) sexual attractiveness pheromone. **A. Balloon**, J. Goff, C. Carmichael, S. Snow

577. The total synthesis of (S)-2,4-dihydroxy-1-butyl (4-hydroxyl)benzoate. **S. David**, J. Seagren, A. Radkov

578. Site-selective, cleavable linkers: Quality control and the characterization of small molecules on microelectrode arrays. **B. Bi**, R. Y. Huang, K. Maurer, C. Chen, K. D. Moeller

FRIDAY AFTERNOON SESSIONS
OCTOBER 21, 2011

Friday, October 21, 2011, 1:00 PM – 4:40 PM
Analytical Chemistry General Session C
Room: Basel

Scott Martin, *Presiding*

1:00 **579.** Metal oxide interferences on lead analysis in tungsten filament atomic absorption spectrometry. **D. Poci**, E. C. Navarre

1:20 **580.** Withdrawn.

1:40 **581.** Characterization of deep eutectic solvents and comparison with room temperature ionic liquids. **G. Degam**, D. Raynie

2:00 **582.** Cavity ring-down spectroscopy of liquids using standard cuvettes. **B. J. Culbertson**, S. C. Foster

2:20 **583.** Determination and quantification of dimethyl methylphosphonate from activated carbon particles. **B. L. Mitchell**, B. A. Logue

2:40 Break.

3:00 **584.** Beeswax processing and refining in supercritical carbon dioxide. **G. N. Gachumi**

3:20 **585.** Application of 1-ethyl-3-methylimidazolium acetate (EmimAc) in the isolation of lignin and hemicellulose. **V. Essel**, D. Raynie

3:40 **586.** Synthesis and characterization of 1-ethyl-3-methylimidazolium alkylbenzene sulfonate (EMIM ABS) ionic liquids. **H. Kandala**, D. Raynie

4:00 **587.** Diffusion-ordered independent component analysis: Separating nuclear magnetic resonance spectra of analytes in a mixture. **J. Zhong**, N. DiDonato, P. G. Hatcher

4:20 **588.** Top-down fragmentation of protein assemblies: Native electrospray and electron-capture dissociation in FTICR MS. **H. Zhang**, W. Cui, J. Wen, R. E. Blankenship, M. L. Gross

Friday, October 21, 2011, 1:00 PM – 5:00 PM
Chemical Education Research and Practice
Room: Davos

Susan Wiediger, Steve Kinsley, *Organizers*

Supported by Division of Chemical Education

Safety in Chemistry Education: This invitation-only symposium will focus on how safety can and should be incorporated in the chemistry major curriculum. A closing panel discussion will feature local industry representatives discussing what a graduating senior should know about safety.

1:00 Introductory Remarks.

1:05 **589.** ACS CHAS: Where chemistry and safety meet. **K. P. Fivizzani**

1:25 **590.** Development, advantages, educational value, challenges, and implementation of a green, microscale organic chemistry laboratory. **T. E. Goodwin**

2:05 **591.** Improving safety education in undergraduate chemistry programs. **D. C. Finster**

2:45 Break.

3:00 **592.** Laboratory safety and management for teaching assistants. **B. L. Foster**

3:40 Panel Discussion.

Friday, October 21, 2011, 1:00 PM – 4:00 PM
Environmental Chemistry General Session
Room: Alpine II

Kara Huff Hartz, *Presiding*

1:00 **593.** Developing nanoparticles as mercury eliminating agents. **L. Amarapalli**, P. K. Fu

1:20 **594.** Study of the photochemistry of adsorbed nitrate on different components of mineral dust aerosols. R. M. Welch, E. M. Coddens, **J. G. Navea**

1:40 **595.** Assessment of bigoenic secondary organic aerosol in the Kathmandu Valley, Nepal. **E. Stone**, T. Nguyen

2:00 **596.** Effects of biodiesel composition on pollutant emissions from a single cylinder diesel engine. **Y. Zhong**, E. Peltier, M. Mangus, C. Depcik, A. Duncan, S. Williams

2:20 **597.** Speciation and Formation of SOA Generated from Ozonolysis of Realistic Terpene Mixtures. **H. S. Amin**, K. E. Huff Hartz

2:40 Break.

3:00 **598.** Determination of Monoamine Neurotransmitters and their Metabolites by Liquid Chromatography - Tandem Mass Spectrometry. **J. F. Gemoules**, J. H. Bisesi, L. E. Sweet, S. J. Klaine, K. A. Johnson

3:20 **599.** Development of an *in situ* remediation strategy for a metals-contaminated, alkaline groundwater: Initial amendment screening and effect of pH. **A. S. King**, E. Peltier, M. M. Michalsen

3:40 **600.** Determination of pharmaceuticals and personal care products, endocrine disrupting compounds and metabolites in Illinois groundwater by LC/MS/MS. **M. Salske**, K. A. Johnson

Friday, October 21, 2011, 1:00 PM – 5:00 PM
Inorganic Chemistry General Session B
Room: Bern

Michael J. Shaw, *Presiding*

1:00 **601.** "Tensegrity" as an organizing architecture for covalent molecular structure. **J. D. Van Horn**, C. Smith, J. Wade, D. Wang

1:20 **602.** Enhancing the Thermal Barrier to Reversible Electron Transfer in Cyano-Bridged $\{Fe_2Co_2\}$ Squares. **Y. Zhang**, D. Siretanu, R. Ababei, R. Clérac, C. Mathonière, S. Holmes

1:40 **603.** Dithiocarbamate ligands bearing amino functionality for polyoxometalate functionalization. **K. Sharma**, J. Karcher, E. A. Maatta, J. Desper

2:00 **604.** Some novel phosphine complexes of platinum and palladium and their catalytic applications. **S. Acharya**, J. Braddock-Wilking, N. P. Rath

2:20 **605.** Study of siloles and optical properties related to coordination with metal ions. **J. B. Carroll**, J. Braddock-Wilking

2:40 **606.** Synthesis and characterization of a series of cyclic germanium compounds for potential use as fluorescent biological probes. **T. Bandrowsky**, J. Braddock-Wilking

3:00 Break.

3:20 **607.** Synthesis, characterization and applications of light-insensitive silver(I) cyanoximates. S. Gross, R. Hougas, **N. N. Gerasimchuk**

3:40 **608.** Redox chemistry of cationic $[\eta^5\text{-}C_5H_5Ru(PPh_3)_2]^+$ vinylidene complexes. **M. J. Shaw**, A. Hansen, B. M. Schutte

4:00 **609.** Non-bridging ligand supported $d^8\text{-}d^8$ bond in the Pd^{II} and Pt^{II} complexes. **J. Luo**, N. P. Rath, L. M. Mirica

4:20 **610.** Halogen bonding or close packing? Examining the structural landscape in a series of Cu(II)-acac complexes. **A. S. Sinha**, P. D. Chopade, C. B. Aakeroy, J. Desper

4:40 **611.** New iPrN4 Pd complexes. **F. Qu**, L. Mirica

Friday, October 21, 2011, 1:00 PM – 5:00 PM
NMR: The Next Generation (of Techniques)
Room: St. Moritz

Chris Jaroniec, Nathan Oyler, Sophia Hayes, *Organizers*

Supported by Bruker Biospin Corporation, Division of Physical Chemistry

1:00 **612.** Direct measurement of exchange rate of hydrogen and deuterium between gas and hydride phases. **M. S. Conradi**, R. L. Corey

1:40 **613.** Local physical structure in hydrogenated boron carbide materials. **N. A. Oyler**, W. Li, M. Paquette, A. Caruso

2:20 **614.** *In situ* high pressure and temperature NMR analysis of metal carbonate formation from CO_2 with implications for carbon capture, conversion, and sequestration. **J. A. Surface**, P. A. Skemer, S. E. Hayes, M. S. Conradi

2:40 Break.

3:00 **615.** Studies of atomic and molecular interactions of laser-polarized xenon and parahydrogen for magnetic resonance applications. **B. M. Goodson**, N. Whiting, P. He, P. Nikolaou, L. Walkup, A. Coffey, K. Groome, H. Newton, B. Gust, K. Ranta, A. Hunter, N. Eschmann, M. J. Barlow, E. Chekmenev

3:40 **616.** Dynamic nuclear polarization for enhanced sensitivity in solid-state NMR experiments. **M. Rosay**, S. Pawsey, R. J. Temkin, R. G. Griffin, W. E. Maas

4:20 **617.** Chemical and biochemical reactions investigated by dynamic nuclear polarization. **C. Hilty**

Friday, October 21, 2011, 1:00 PM – 4:40 PM
Organic Chemistry General Session E
Room: Geneva

Yun Lu, *Presiding*

1:00 **618.** Co-Crystals of Photochromic Compounds. **B. A. DeHaven**, C. B. Aakeroy, S. Panikkattu, J. Desper

1:20 **619.** Balancing hydrogen and halogen bonding in co-crystal assembly. **S. K. Dembowski**, C. B. Aakeröy, P. D. Chopade, J. Desper

1:40 **620.** An exacting test of whether activation energy controls regioselectivity of competitive nucleophilic aromatic substitutions from an excited state. **G. G. Wubbels**, R. Tamura, E. J. Gannon

2:00 **621.** New iron pyridyl amine complexes and their catalytic activity in oxidation reactions. **M. Lenze**, E. Bauer

2:20 **622.** Synthesis and characterization of Iron(II) complexes of α-Imino pyridine and their catalytic application in oxidation of activated methylene group and secondary alcohols. **P. Shejwalkar**, E. Bauer

2:40 **623.** Efforts toward the synthesis of high oxidation state iridium complexes. **S. Whittemore**, J. Stambuli

3:00 Break.

3:20 **624.** Measuring Energy Transfer Processes among Cyanine Dyes. **C. Robinson**, D. Udukala, M. Kalita, H. Wang, D. L. Troyer, S. H. Bossmann

3:40 **625.** Iodine bonding stabilizes methyl iodide in Midas pesticide. **K. Prugger**, R. Glaser

4:00 **626.** Protease assays for the detection of cancer. **D. N. Udukala**, H. Wang, S. H. Bossmann, D. Troyer, O. Koper, F. Kroh, G. Abayaweera, L. Bossmann, C. Robinson

4:20 **627.** Long Wavelength Fluorophores for the Generation of Singlet State Oxygen. **Q. A. Best**, C. Scott, M. McCarroll

Friday, October 21, 2011, 1:20 PM – 5:10 PM
Sigma-Aldrich Symposium on Nanomaterials
Room: Alpine I

Shashi Jasty, Angel Thompson, *Organizers*

Supported by Sigma-Aldrich

1:20 Introductory Remarks.

1:25 **628.** Chemically directed assembly of charge-transferring hybrid nanostructures. **R. J. Hamers**

2:05 **629.** Synthetic pathway to and optical properties of CdSe quantum belts. **W. E. Buhro**

2:45 **630.** Controlled assembly of nanoparticles to superlattice crystals. D. Jose, J. Matthiesen, C. Parsons, Y. Sun, C. Sorensen, **K. Klabunde**

3:25 Break.

3:45 **631.** Wrapping up nanorods. **C. J. Murphy**

4:25 **632.** Plasmonic nanomaterials for disease diagnostics. **A. J. Haes**, M. S. Pierre, B. Shrestha, A. Volkert

5:05 Concluding Remarks.

Friday, October 21, 2011, 1:30 PM – 4:50 PM
Biomolecular Structure and Function
Room: Zurich

Cynthia M. Dupureur, Dana Baum, J. Strauss Soukup, *Organizers*

Supported by Division of Biological Chemistry, Sigma-Aldrich, ChemGenes Corporation, RNA Society, New England Biolabs, Inc., Integrated DNA Technologies, Horiba Scientific, Trilink Biotechnologies, Glen Research

1:30 Introductory Remarks.

1:35 **633.** Direct observation of conformational exchange in the small multidrug resistance transporter EmrE. E. A. Morrison, G. T. DeKoster, S. Dutta, M. Clarkson, R. Vafabakhsh, D. Kern, T. Ha, **K. A. Henzler-Wildman**

2:10 **634.** Structural and biophysical studies of proline catabolic enzymes. **J. J. Tanner**

2:45 **635.** DNA binding properties of a large antiviral polyamide. **G. He**, K. J. Koeller, C. M. Dupureur, J. K. Bashkin

3:05 Break.

3:25 **636.** Chasing fluorescence lifetimes in complex biological systems. What can fluorescence lifetime imaging microscopy (FLIM) tell us? **R. M. Clegg**, Y. Chen, J. Eichorst, K. Teng, Govindjee, S. Matsubara

4:00 **637.** Mass spectral studies of intrinsically disordered proteins. **D. D. Weis**

4:25 **638.** Tryptophan substitutions as fluorescent probes of amyloid-β structure. **M. R. Nichols**, J. C. Touchette, L. L. Williams, D. Ajit, F. Gallazzi, R. T. McDonough, G. Paranjape

SATURDAY MORNING SESSIONS
OCTOBER 21, 2011

Workshop on Peer-Led Team Learning
Alpine II

Susan Wiediger, Steve Kinsley, *Organizers*

9:00 **639.** Incorporating peer-led team learning (PLTL) into lower-level chemistry courses: implementation and insights. **R. F. Frey**

Author Index

C

D

E

F

G

H

I

J

K

L

M

N

O

P

Q

R

S

T

U

V

W

X

Y

Z

NOTES

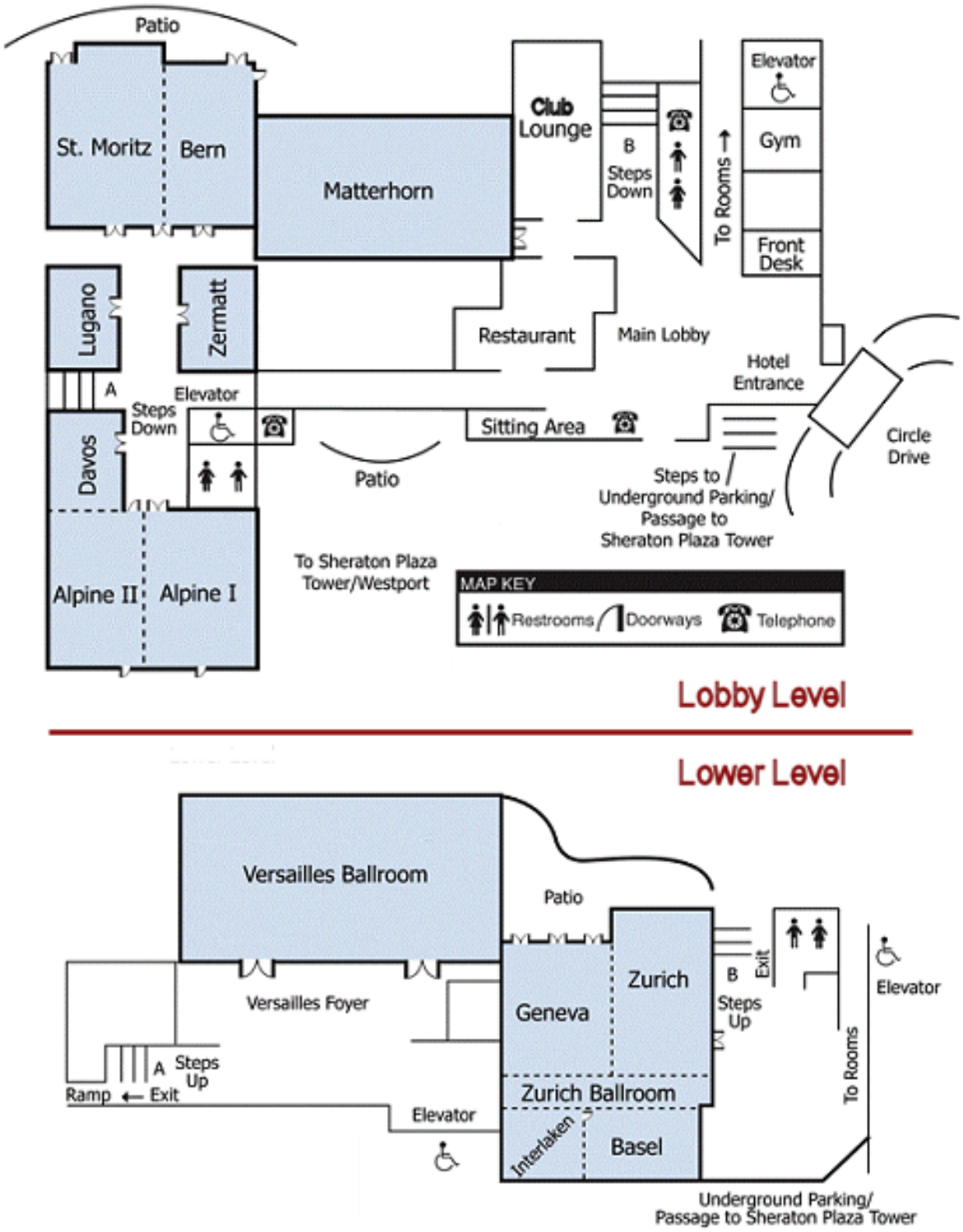
NOTES

NOTES

NOTES

NOTES

Sheraton Westport Chalet Hotel Map



Westport Plaza Map

Indoor Pavilion

1. Backstreet Jazz & Blues
2. The Drunken Fish
3. Funny Bone Comedy Club
4. Kobe Japanese Grill
5. The Playhouse
6. World News

Outdoor Village

7. Bradford's Pub
8. Casa Gallardo
9. Cold Stone Creamery
10. Dierdorf & Hart's
11. Edward Jones
12. Fernando's Hair Studio
13. H&R Block
14. IceKitchen
15. Maryland Heights Chamber of Commerce
16. McDonald's
17. Paul Mineo's Trattoria
18. PNC Bank
19. Pujol's 5 Restaurant
20. Sheraton Hotel - Plaza
21. Sheraton Hotel - Chalet
22. St. Louis Bread Co.
23. Starbuck's
24. Trainwreck Saloon
25. Virtual Entertainment Radio Network
26. Westport Pizza Co.

Office Space

27. Building 55
28. Building 77
29. Building 111
30. Building 320
31. Building 321
32. Building 734
33. Building 940

Parking

34. Garage "A"
35. Garage "B"

American Chemical Society

MIDWEST REGIONAL MEETING

Mark Your Calendar

To Join Us In

Omaha, NE

For MWRM 2012

October 24 – 26

General Chair
James Carroll
Department of Chemistry
University of Nebraska – Omaha
jcarroll@unomaha.edu