

51st Midwest Regional Meeting

American Chemical Society



October 26-28, 2016



Meeting Program

Hosted by:

The Kansas State University Local Section

Venue:

Manhattan Hilton Garden Inn and Convention Center

Website: www.mwrm2016.org

Meeting at a Glance

Event	Wed. PM Oct. 26	Wed. Eve. Oct. 26	Thurs. AM Oct. 27	Thurs. PM Oct. 27	Thurs. Eve. Oct. 27	Fri. AM Oct. 28	Fri. PM Oct. 28	Location
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Special Symposia

Chemical Education				1:00-5:00				Kings
Chemistry in Art						9:00-12:00		Konza Prairie
Colloidal Nanoplaforms	2:00-5:00							Flint Hills
Computational Materials Chemistry			8:00-12:00	1:30-5:30				Flint Hills
Freq. & Time-Domain Spectroscopy			8:00-12:00					Konza Prairie
Heterogeneous Catalysis	2:00-5:00							Kings
Miniaturized Separations			8:00-12:00	1:30-5:00				McDowell
Nanomedicine			8:00-12:00			8:00-11:30	1:00-5:00	Kings
Novel Electrode Materials	1:00-4:40		8:00-12:00	1:30-5:00				Tuttle

General Symposia

Analytical Chemistry						8:00-12:00	1:00-5:00	Alcove
Biochemistry	1:00-4:30		8:00-11:45					Fort Riley
Inorganic Chemistry						8:00-12:00	1:00-5:00	McDowell
Organic Chemistry	1:00-5:00		8:00-12:00	1:00-5:00				Alcove
Physical Chemistry	1:00-5:00							McDowell
Physical Chemistry						8:00-12:00	1:00-5:00	Tuttle

Poster Sessions

SciMix		6:00-9:00						Big Basin
Analytical Chemistry	1:00-3:00							Big Basin
Biochemistry				1:00-3:00				Big Basin
Inorganic Chemistry				1:00-3:00				Big Basin
Organic Chemistry						9:00-11:00		Big Basin
Physical Chemistry	1:00-3:00							Big Basin
Undergrad Posters			9:00-11:00					Big Basin

Undergraduate Program

Undergrad Research							2:00-5:00	Flint Hills
Night of Chemistry Demonstration Show					7:00-8:00			Plaza Lawn
Undergrad Luncheon							12:00-1:30	Kaw Nation
KSU Tours			9:00-12:00	1:00-5:00				Foyer

Awards, Exhibits, and Special Events

ACS Governance		5:00-6:00						Foyer
Art Prints			9:00-12:00	1:00-5:00		9:00-12:00	1:00-5:00	Big Basin
Exhibits	1:00-5:00	5:00-9:00	8:00-12:00	12:00-6:00				Foyer
Midwest Award Symposium				1:30-5:00				Konza Prairie
Midwest Award Reception					5:30-6:30			Foyer
Midwest Award Banquet					6:30-9:00			Kaw Nation
Midwest Graduate Research Awards						9:00-12:30		Flint Hills
Midwest Board Mtg						8:00-11:00		Kaw Nation

Workshops

Safety/Liability		6:00-7:00						Alcove
Finding Your Pathway			8:00-12:00					Kaw Nation
Leading Without Authority						8:00-12:00		Big Blue
Resume Reviews				1:00-5:00				Big Blue

Local Sections of the Midwest Region

American Chemical Society

Ames

Iowa

Kansas City

Kansas State University

Mark Twain

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Omaha

Ozark

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South Central Missouri

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University of Arkansas

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51st Midwest Regional Meeting
of the American Chemical Society

October 26-28, 2016
Kansas State University Local Section

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Meeting Organizers

General Chair	Daniel Higgins
Program Chair	Stefan Bossmann
Undergraduate Program	Ryan Rafferty
Awards Chair	Kenneth Klabunde
Treasurer	Yasmin Patell
Exhibits Chair	Michael Hinton
Audio/Video Resources	James Hodgson
Webmaster	Seth Higgins
ACS Regional Meeting Planner	Brianne Blevins
Symposium Organizers	
Chemical Education	Louis Wojcinski
Chemistry in Art	Katrin Bossmann and Jason Scuille
Colloidal Nanoplatfoms: Synthesis & Assembly	Emily McLaurin
Computational Materials Chemistry	Christine Aikens and Bin Liu
Frequency- & Time-Domain Spectroscopies: Applications to Complex Biological Systems	Ryszard Jankowiak
Heterogeneous Catalysis	Keith Hohn and Placidus Amama
Miniaturized Separations for Bioanalytical Analysis	Christopher Culbertson
Nanomedicine	Stefan Bossmann
Novel Electrode Materials & Architectures for Energy & Sensing Applications	Takashi Ito, Jun Li and Judy Wu

Meeting and Symposium Sponsors

Financial support of the 2016 Midwest Regional Meeting has been generously provided by the following sponsors.

ACS Division of Analytical Chemistry

ACS Division of Chemical Education

ACS Division of Colloids and Surface Chemistry

ACS Division of Computers in Chemistry

ACS Division of Energy and Fuels

ACS Division of Industrial and Engineering Chemistry

ACS Division of Inorganic Chemistry

ACS Division of Physical Chemistry

ACS Undergraduate Programs Office

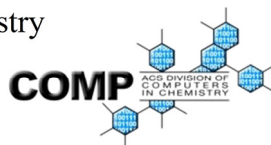
Department of Chemistry, Kansas State University

McGraw-Hill Education

Phi Lambda Upsilon

St. Louis Local Section

Shimadzu Scientific Instruments



Exhibitor information

Commercial Exhibitors

Advion Inc.

www.advion.com



Advion is a leader in MS & synthesis solutions. The expression CMS is a high performance, compact, affordable single quad mass spectrometer. Its compact size allows it to fit in space-limited labs for direct access and immediate results for chemists requiring mass confirmation, reaction monitoring, QC and purity analysis. www.expressioncms.com

Bruker Corporation

www.bruker.com

Bruker designs and manufactures analytical instrumentation for materials research, structural and surface investigations. Bruker's range of technologies includes FT-IR, NMR, and mass spectrometry. The Bruker portfolio also includes compact, powerful, robust, yet easy-to-use instrumentation specially developed for scientific education purposes for use by both students and experts in an academic setting. Bruker is strongly committed to fully meet customers' needs and continue to develop innovative solutions for today's analytical questions.



ISS Inc

www.iss.com

ISS activities include two product lines: the fluorescence analytical division manufactures and markets spectrofluorometers for time-resolved and steady-state fluorescence measurements and FLIM/FCS confocal microscopes; the medical division provides instruments for the absolute measurements of oxygen saturation in tissue (brain and muscle), metabolic rate of oxygen consumption and functional brain imaging.



Nanalysis Corp.

www.nanalysis.com

Nanalysis, established in 2009, develops and manufactures portable Nuclear Magnetic Resonance (NMR) spectrometers for the laboratory instrumentation market. The NMRReady™ 60 is the first fully featured portable NMR spectrometer in a single compact enclosure requiring no liquid helium or any other cryogenes.

The logo for nanalysis, featuring the word "nanalysis" in a bold, lowercase, green sans-serif font.**Oakwood Chemical**

www.oakwoodchemical.com

Oakwood Products, a manufacturer and distributor, supplies research chemicals to the pharmaceutical, agrochemical and materials research communities. The Oakwood product listing contains over 108,000 items, including many unique building blocks and reactive intermediates.

**Pine Research Instrumentation**

pineinst.com

Pine Research Instrumentation manufactures a full line of affordable, durable and reliable electrochemical research equipment. Pine offers benchtop bipotentiostat/galvanostat instruments as well as portable USB potentiostat systems, all of which are controlled using our powerful AfterMath software package. We offer unique quartz electrochemical cells for photoelectrochemistry and spectroelectrochemistry, and we are the world leader in rotating disk, ring-disk, and cylinder electrode instrumentation. Our line of compact voltammetry cells, featuring screen-printed patterned electrodes, provides a quick and easy way to perform routine electrochemical measurements.



Quark Glass

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Quark Glass is a discount manufacturer of laboratory glassware. We combine quality, low prices, and great service. We are exhibiting apparatus used in various bench-top applications, such as manifold lines, filtration apparatus, distillation and general laboratory ware. Quark offers extensive discounts. Our glassware is MADE in the USA.

Shimadzu Scientific Instruments

www.shimadzu.com

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Thermo Fisher Scientific Florida

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**Academic Exhibitors****Emporia State University**

www.emporia.edu/forensicscience

Emporia State University has the only Master of Science in Forensic Science in the state of Kansas. This degree will qualify one to work in criminalistics laboratories or conventional analytical laboratories.

**Florida State University**

www.chem.fsu.edu

The Florida State University Department of Chemistry offers Ph.D. degrees in Chemistry and Biochemistry and is divided into six research areas which are analytical, inorganic, organic, physical, materials, and biochemistry. While completing their Ph.D., students will conduct research in state-of-the-art research facilities with national award winning faculty.

Iowa State University

www.chem.iastate.edu

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Research is the focus of the Chemistry Ph.D. program at Iowa State. We offer traditional and interdisciplinary majors in analytical, bio-related, inorganic, organic, physical, including theoretical/computational chemistry, and a special "chemistry" major designed by the student and their major professor.

Kansas State University

www.k-state.edu/chem

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KANSAS STATE
UNIVERSITY

Saint Louis University

www.slu.edu/department-of-chemistry-home

Established in 1908, St. Louis University's Chemistry Department houses active research groups in analytical, physical, organic, and inorganic chemistry, as well as in the cross-disciplinary areas of materials, environmental, and biological chemistry. We offer Masters and Ph.D. degrees and our graduates have found employment in industry, academia, and government agencies.



SAINT LOUIS
UNIVERSITY.

— EST. 1818 —

University of Iowa

chem.uiowa.edu

Iowa's Chemistry Ph.D. program is tailored to each student's needs and encourages the development of career flexibility by giving students a broad base of knowledge and experience to respond to future employment opportunities. Many research programs are interdisciplinary in nature and span traditional boundaries in chemistry, biology, physics, engineering, medicine, pharmaceutical science, and public health.



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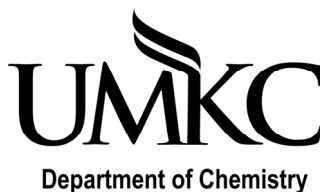
At the University of Kansas, we believe that our program provides excellent and diverse opportunities for students and faculty interested in cutting-edge education and research. Among many distinguishing characteristics, there are three that stand out: Research Diversity, Commitment and support of Interdisciplinary Research, and Training and Collegiality.

University of Missouri-Kansas City

cas.umkc.edu/Chemistry

Undergraduate BA and BS (ACS Approved) Chemistry programs; interdisciplinary MS and Ph.D. graduate programs in Chemistry; research emphasis in materials

science, energy conversion, organic synthesis and reactions, hybrid materials, computational chemistry, spectroscopy, novel aromatic hydrocarbons, positron science, and physical chemistry.



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<http://www.ou.edu/cas/chemistry/>

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Department of Chemistry and Biochemistry

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Wichita State University

webs.wichita.edu/chemistry

We offer high-quality MS and PhD programs spanning research areas in the fastest-growing fields. WSU combines a traditional college atmosphere with the resources of the State's largest city. Our students, with access to cutting-edge on-campus research facilities and the jobs, internships, and industry professionals absent in small college towns, have had tremendous success obtaining faculty and research positions.



American Chemical Society

OFFICE OF THE PRESIDENT

Donna J. Nelson, Ph.D.
President-Elect, 2015
President, 2016
Immediate Past President, 2017

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WASHINGTON, D.C. 20036
Phone 405-325-2288
Fax 202-872-6338
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twitter: @drdjnelson

October 26, 2016

Dear Midwest Regional Meeting participants,

On behalf of the more than 156,000 members of the American Chemical Society, I am happy to extend my personal greetings to all of you attending the 2016 Midwest Regional Meeting in Manhattan, Kansas.

In addition to the social with ACS Governance and Opening Social Sci Mix Poster Session on Wednesday evening, symposia at this regional meeting will cover analytical, biochemistry, inorganic, organic, and physical chemistry. Special symposia will cover diverse topics from *Colloid Nanoplatfoms to Novel Electrode Materials and Architectures for Energy and Sensing Applications*.

The meeting will also feature ACS Career and Leadership workshops enhancing attendees' professional development opportunities. Join your colleagues at various social events, including the awards banquet on Thursday evening.

With all these great symposia and various social events, I want to express my special thanks to Dan Higgins the General Chair, Stefan Bossmann the Program Chair, the MWRM Committee Members and to our hosts at the Kansas State University Section for their hard work and dedication to create a great experience here in Manhattan.

Best wishes for a most successful MWRM 2016!

Sincerely,

A handwritten signature in black ink, appearing to read "Donna J. Nelson".

Donna J. Nelson
2016 President
American Chemical Society



September 23, 2016

RE: Midwest Meeting of the American Chemical Society

Greetings Attendees,

On behalf of the City of Manhattan, we extend a hearty welcome to all the attendees and exhibitors participating in the 2016 Midwest Meeting of the American Chemical Society.

We are pleased to join the Manhattan Convention & Visitors Bureau in welcoming you to our community and look forward to showcasing our offerings for a successful conference experience held at the Hilton Garden Inn and Convention Center on October 26-28, 2016. We are especially pleased to welcome our visitors traveling to Manhattan throughout the Midwest.

While you are in Manhattan, we invite you to take advantage of the wonderful amenities and opportunities that our community and region offers. You will find a wide range of quality attractions, including the Flint Hills Discovery Center, Sunset Zoo, Kansas State University, Konza Prairie, Tuttle Creek State Park, Fort Riley, or enjoy one of our treasured museums and relaxing parks. You will also enjoy specialty shopping districts and diverse dining opportunities.

You will find that our blend of business, education, and government shows that our citizens work together to make things happen. We will use that same dedication to ensure that your experience in our community is a pleasant one.

Again, we share the excitement with the Manhattan Convention & Visitors Bureau to host the 2016 Midwest Meeting of the American Chemical Society.

Have a great conference and enjoy your stay in Manhattan!

Sincerely,



Usha Reddi
Mayor

16L012

ACS Board of Directors: Members in Attendance

ACS Governance Social Hour

Meet and visit with your ACS leadership at a cookie/snack social on Wednesday at 5:00 PM in the Foyer of the Convention Center.

John E. Adams - District V

John E. Adams is a Curators' Teaching Professor Emeritus of Chemistry at the University of Missouri-Columbia, where he has been a member of the faculty since 1981. He earned his Bachelor's degree at the Rolla campus of the University of Missouri in 1974 and his Ph.D. at the University of California, Berkeley in 1979. He has been a member of the American Chemical Society since 1974.



Barbara A. Sawrey - At Large

Barbara Sawrey is the Associate Vice Chancellor – Undergraduate Education, and a faculty member in the Department of Chemistry and Biochemistry, at UC San Diego. She received her B.S. in chemistry from Baldwin-Wallace College, and then worked as an industrial chemist for a number of years. She earned her Master's degree from San Diego State University and her Ph.D. in physical inorganic chemistry jointly from UC San Diego and SDSU. She has been a member of the American Chemical Society since 1975.



Board member photos courtesy of Peter Cutts.

2016 Midwest Region ACS Award for Outstanding Achievements in Chemistry

Professor Jacob W. Petrich
Iowa State University



Jacob W. Petrich was born and raised in Chicago, Illinois. He is currently Professor of Chemistry at Iowa State University. He received his Bachelors of Science degree from Yale University (1980) and his Ph.D. degree in Physical Chemistry from the University of Chicago (1985), under the mentorship of Graham Fleming. He went on to complete a postdoctoral fellowship at the Laboratoire d'Optique Appliquée, Ecole Polytechnique, Palaiseau, France, with Dr. Jean-Louis Martin.

He joined the Iowa State University faculty in 1989. He served as its Chair from 2005 to 2011. During this period he actively involved the Department in the beginning of Iowa State University's NSF-funded ADVANCE program (2006). He also oversaw the construction and inauguration of a new chemistry building (2010), Hach Hall, which brought to fruition the many

efforts of a long line of his predecessors. His research group collaborates extensively with scientists both on and off the Iowa State University campus. Petrich uses light to study a range of fundamental and applied problems, ranging from subdiffraction-limited imaging to food safety. Most recently, much of his effort is devoted to characterizing materials for alternate energy sources, such as biofuels and photovoltaics.

Petrich has received college awards for outstanding: teaching (2016); graduate mentoring (2014); achievement in intellectual property (2011); departmental leadership (2009); and research (2004). Among his other recognitions are Fellow of the American Association for the Advancement of Science (2008); R&D 100 Award (2000) for developing technology to detect fecal and ingesta contamination on carcasses; Finsen Award Lecturer from the Association Internationale de Photobiologie and the American Society for Photobiology (2000); and Office of Naval Research Young Investigator (1991).

Previous Midwest Award Recipients

1944	Lucuas P. Kyrides	1981	Donald W. Setser
1945	Carl F. & Gerty T. Cori	1982	Klaus Ruedenberg
1946	Anderson W. Ralston	1983	Jacob Kleinberg
1948	Paul L. Day	1984	Norman Cromwell
1949	Robert D. Coghill	1985	John D. Corbett
1950	Willisam S. Haldeman	1986	Charles W. Gehrke
1951	Henry Gilman	1987	Jacob Schaefer
1952	Edward Mallinckrodt, Jr.	1988	C. David Gutsche
1953	Roger Adams	1989	Robert W. Murray
1954	Richard M. Hixson	1990	Donald J. Burton
1955	Cliff S. Hamilton	1991	Michael J. Welch
1956	Carroll Hoochwalt	1992	Richard L. Schowen
1957	Ray Q. Brewster	1993	Daniel W. Armstrong
1958	Charles D. Hurd	1994	Theodore Kuwana
1959	Melvin DeGroote	1995	Thomas J. Barton
1960	Charles D. Harrington	1996	Garlan R. Marshall
1961	Samuel I. Weissman	1997	Reuben D. Rieke
1962	Oliver H. Lowry	1998	Kenneth J. Klabunde
1963	Herman Pines	1999	Dewey Holten
1964	Harold H. Strain	2000	Joyce Y. Corey
1965	Richard W. Riley	2001	Vasu Nair
1966	Ralph G. Pearson	2002	Michael L. Gross
1967	Frank H. Spedding	2003	Kristin Bowman-James
1968	Byron Riegel	2004	Mark S. Gordon
1969	Joseph J. Katz	2005	Jerry L. Atwood
1970	Irving M. Klotz	2006	Jay A. Switzer
1971	John C. Bailar, Jr.	2007	George Gokel
1972	Myron L. Bender	2008	Daryle H. Bush
1973	Herbert S. Gutowsky	2009	Richard C. Larock
1974	Glen A. Russell	2010	John G. Verkade
1975	Takeru Higuchi	2011	Xiao Cheng Zeng
1976	Stanley Wawsonek	2012	Jeffrey Aube
1977	Paul Kuroda	2013	Gordon J. Miller
1978	Orville Chapman	2014	Vicki Grassian
1979	Ralph Adams	2015	Robert Blankenship
1980	Robert Hansen		

**2016 ACS Division of Chemical Education Award
for Excellence in High School Teaching in Honor
of John E. Baumann, Jr.**

Gissel McDonald
Spring Hill High School, Spring Hill, KS



Gissel McDonald received her BA in Biology with minor in Chemistry at Texas A&M University in 1999. She began her teaching career in Oklahoma where she taught middle school science, high school biology, chemistry, physics, and was also an adjunct professor at Connors State College. In 2003, she moved to Olathe, KS, and has taught at Spring Hill High School ever since. At SHHS, Gissel has taught Chemistry I and Chemistry II. While she still teaches and loves Chemistry, she developed a Material Science and Technology course in 2010 which has been a huge success with students of all

academic abilities. In 2010, she was selected as a Master Teacher for ASM Materials Science Teachers Camp Program. In this role, Gissel travels to various academic institutions across the U.S. during the summer to teach week-long professional development programs for high school science teachers. These programs are designed to introduce teachers to material science in an effort to provide teachers more tools, hands-on activities, and real-life applications of chemistry to use in their classrooms. Gissel has also presented at an NSTA Regional Conference. In 2007, Gissel was selected as the Spring Hill High School Teacher of the Year. In addition to teaching, she has also served her school as the Student Council sponsor for many years, High School Girls Track Coach, and FCA sponsor. Gissel has been married to Brian for 17 years. They have 2 children who keep her very busy. Maddux is 4 years old, and Eva is 2 years old.



Looking for a graduate program in Chemistry?

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Additional questions?

Stop by our booth or email Prof. Aakeröy (aakeroy@ksu.edu).

2016 E. Ann Nalley Midwest Regional Award for Volunteer Service

**Professor Michael Greenlief
University of Missouri, Columbia**



Michael Greenlief is a faculty member in the Chemistry Department at the University of Missouri, Columbia, Missouri. He received his B.S. degree in Chemistry with Honors from Emporia State University in 1983. He was awarded a Ph.D. in Chemistry from the University of Texas at Austin in 1987. He then went to the IBM T.J. Watson Research Center, Yorktown Heights, New York for a postdoctoral appointment before joining the faculty at the University of Missouri. His research interests focus on the use of biological mass spectrometry and surface chemistry. Michael has published over 70 peer-reviewed manuscripts. He has presented his research at Regional, National, and International meetings. He has mentored 24 M.S. and Ph.D. students, as well as over 30 undergraduate students. Michael also directs the Charles W. Gehrke Proteomics Center and the NMR Facility at the

University of Missouri campus. These two facilities provide access to state-of-the-art instrumentation and support staff to further research endeavors.

Michael is a 33-year member of the American Chemical Society and is active in the University of Missouri Local Section. He has served as Secretary/Treasurer of the local section (1992-93), Treasurer of the 1993 Midwest Regional Meeting, Program Chair of the 2003 Midwest Regional Meeting, and General Chair of the 2014 Midwest Regional Meeting. He has also organized symposia at four different Midwest Regional Meetings. Michael has also served as the University of Missouri Local Section's representative to the Midwest Board of Directors since 1997. While serving on the Board, he served as Chair (2008, 2013), Chair-elect (2007, 2012), and Secretary (2006, 2011, 2016). Michael has also served on the region's awards committee since 2009, as needed.

Michael is interested in public outreach. He has served as a science fair judge and visited area schools giving chemistry demonstrations on numerous occasions. Currently, he is working with the Great Rivers Council of the Boy Scouts of America developing STEM-related activities for youth in central Missouri.

2016 Midwest Graduate Research Awards

Madhubabu Alaparthy

Souix Valley Local Section
Chemistry, University of South Dakota
Mentor: Andrew G. Sykes

Sambasiva Bheemireddy

Southern Illinois Local Section
Chemistry and Biochemistry, Southern Illinois Univ.
Mentor: Kyle N. Plunkett

Kevin Clark

Ames Local Section
Chemistry, Iowa State University
Mentor: Jared L. Anderson

Mitch Johnson

University of Missouri Local Section
Chemistry, University of Missouri-Columbia
Mentor: Michael Greenlief

Wipula Liyanage

South Central Missouri Local Section
Chemistry, Missouri University of Sci. and Technol.
Mentor: Manashi Nath

Benjamin Mehl

St. Louis Local Section
Chemistry, St. Louis University
Mentor: Scott Martin

Yang Peng

Omaha Local Section
Pharmaceutical Sciences, University of Nebraska
Mentor: Ram Mahato

Bhupinder Sandhu

Kansas State University Local Section
Chemistry, Kansas State University
Mentor: Christer B. Aakeröy

Workshops

Chemical Educators: Safety and Your Personal Liability

Wednesday 6:00-7:00 PM, Alcove

As a busy educator, it is likely that one of the last things you are thinking of is the importance and need for a robust risk management policy. However, we have all heard of chemical lab fires and accidents and lawsuits relating to them. The ACS Member Insurance Program is hosting a seminar that will address the unique liability risks Chemical Educators may encounter. Presented by a chemical safety expert who is a Member of the ACS Committee on Chemical Safety, Dr. Harry J. Elston, this one-hour workshop will highlight safety strategies to help avoid accidents. Participants will also learn about the major features of the new ACS Chemical Educators Legal Liability plan. The plan, underwritten by Lloyd's of London and developed specifically for ACS, AACT and AIChE Members, covers areas excluded by standard educators' liability plans such as Contingent Bodily Injury and Pollution Liability.

Finding Your Pathway

Thursday 8:00 AM-12:00 PM, Kaw Nation

Learn about the four main career pathways available to chemical professionals: Higher education, industry, government, and entrepreneurial careers and why each one may or may not be the right choice for you. This workshop is not only ideal for graduate students and recent grads, but also experienced professionals who are considering a career change. In addition to learning about which types of careers are available in each pathway, you'll also learn about the job market and hiring trends to help you make your choice. The workshop allows time for you to inventory your own values, interests, background, strengths and weaknesses so that you can select which career pathway you'd like to explore in detail.

Resume Reviews

Thursday 1:00 PM-5:00 PM, Big Blue

ACS career consultants will hold one-on-one resume review sessions. Sign up for an appointment at the registration desk.

Leading without Authority

Friday 8:00 AM-12:00 PM, Big Blue

Whether you are in a formal leadership position or you take on an informal leadership role for a project or team, you likely need to direct others who don't report to you. The challenges are many, including:

- Influencing people who have different styles or views.
- Getting a group organized and committed even when they aren't cooperating and putting up barriers.
- Kicking off a new project and gaining support when there isn't initial buy in and commitment.
- Enlisting support and involvement when everyone is too busy with other professional and personal obligations.

Whether in a lab, the office, the classroom, or on a volunteer committee, you will likely find yourself leading others without formal or "positional" authority and need to be able to influence them to accomplish the project. This 4-hour interactive workshop provides practical tools to help you gain cooperation and engage others in the accomplishing project and team goals. Participants will:

- Know when "influencing skills" are needed, when they're not, and when they will and won't be effective.
- Learn how to apply the two dimensions of influence: the "business" side and the "relationship" side.
- Gain an understanding of what really counts for the people you want to engage, and strategies you can use to help them get what they want from their involvement.
- Learn how to establish and build a relationship of trust with someone whose help you need.

There is an extra charge for this workshop. Sign up in advance of the meeting to participate.

2016 MWRM Undergraduate Program

The Undergraduate Program of the 2016 Midwest Regional ACS Meeting was planned by and is being hosted by the K-State Chapter of Student Affiliates of the American Chemical Society, advised by Dan Higgins and Ryan Rafferty. The Chapter includes undergraduate students majoring in chemistry, chemical science, and biochemistry.

The Undergraduate Program includes the following events:

Undergraduate Poster Session 9:00-11:00 AM Thursday
Hosted in the Big Basin Room.

K-State Campus Tours 9:00-5:00 Thursday
The students of the Chapter will be giving tours of campus and department facilities upon request. Transportation is provided. Stop at the registration table for details.

Night of Chemistry Show 7:00-8:00 PM Thursday
The Chapter is partnering with K-State's Alpha Chi Sigma Beta Rho chapter to present chemistry demonstrations on the Blue Earth Plaza lawn. The event is free and open to the public. In the event of inclement weather, the show will be held in the Flint Hills Discovery Center lobby.

Undergraduate Luncheon 12:00-1:30 PM Friday
The Undergraduate Luncheon is open to conference attendees at a cost of \$5/person. Dr. Peter Dorhout, Vice President for Research, will be speaking about the importance of undergraduate research for students, faculty members, and institutions. Hosted in the Kaw Nation Room.

Undergraduate Poster Awards 2:00-5:00 PM Friday
Hosted in the Flint Hills Room.

Alchemy: Creating Fine Art Prints through Chemical Processes

Curated by Jason Sculla, Associate Professor of Printmaking, Technical Director KSU Pussycat Fine Art Press and Katrin Janik Bossmann, Artist and Research Associate, KSU Dept. of Chemistry.

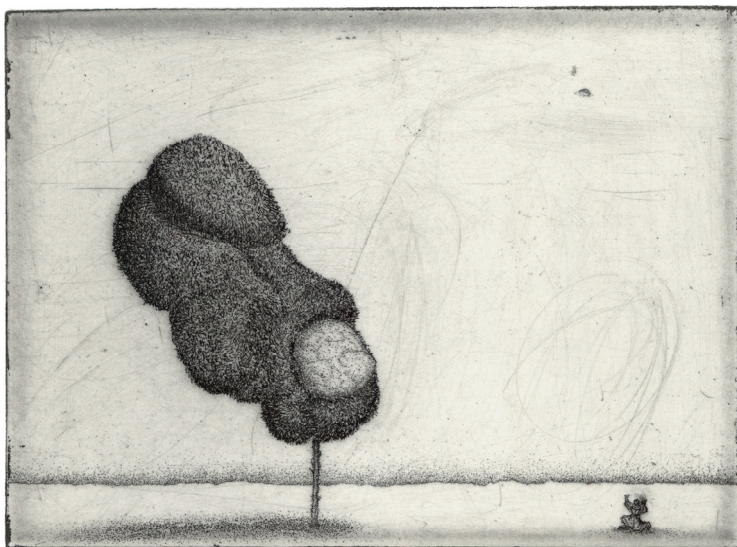


Image Information: Devotee, electrolytic etching, 4.5x6", Jason Sculla, 2014.

Printmaking and Chemistry have always had a symbiotic relationship, sharing thousands of years of discovery and creative problem solving. This bond continues to benefit the understanding and expression of the world around us. Kansas State University is one of four U.S. designated *Leonardo Art and Science Universities*. The KSU College of Arts and Sciences has been nationally recognized for several unique collaborations taking place between the Printmaking and the Organic Chemistry Departments.

An exhibition at the 2016 MWRM will include 20 hand pulled prints created by research faculty, students, alumni and visiting artists who have worked in the KSU printmaking department with the Kansas State University's Pussycat Fine Arts Press. These prints demonstrate the various chemical processes utilized in traditional and contemporary printmaking including woodcut relief, acid etching, electrolytic etching, aquatint, serigraphy, stone, plate and photolithography. The exhibition will be shown in conjunction with the *Chemistry in Art* symposium, during Thursday and Friday's Poster Sessions. The prints will be displayed in the Big Basin room.

S. Bossmann, *Program Chair*

WEDNESDAY AFTERNOON

Analytical Chemistry Posters

Big Basin

S. H. Bossmann, *Organizer*

1:00 - 3:00

1. Identification of in-vivo protein-protein binding partners in *Anopheles Gambiae* by immunoaffinity chromatography and mass spectrometry. **K. Sellens**, C.T. Culbertson, K. Michel
2. Microchip point of care determination of biomarker with fluorescence labelled peptide nanosensor. **S. Jia**
3. Application of alkyl-methylimidazolium room temperature ionic liquids in HPLC mobile phase to reduce organic modifier requirements. **M.W. Ducey**
4. Pharmaceuticals and metabolites in supermarket fish: Preliminary investigation by liquid chromatography-tandem mass spectrometry (LC-MS/MS) method. M. Ahlersmeyer, M. Griesbauer, V. Patel, **M.A. Mottaleb**
5. Analysis of cyanide levels in human urine by using capillary electrophoresis. **Q. Zhang**, N. Maddukuri, M. Gong
6. Scanning microfluidic system for chromatographic-based binding assays with near-infrared fluorescence detection. **E.L. Rodriguez**, S. Poddar, J. Vargas, R.E. Matsuda, B. Hage, M. Stoller, S.A. Morin, D.S. Hage

7. Investigating the differentially expressed proteome in *Sambucus nigra* subsp. *canadensis*. **B. Yang**, A. Thomas, C.M. Greenlief
8. Spectroscopic single-molecule tracking reveals the one-dimensional diffusion pathways in surfactant-templated mesoporous silica. **R. Kumarasinghe**, D.A. Higgins, T. Ito
9. Determination of the overall mobility of DNA in different ionic strength conditions. **R. Flaugh**, J. Lallman, K. Kounovsky-Shafer
10. Identification and quantitative analysis of hemoglobin variants using LC-MS. **K. Kabytaev**, S. Hanson, S. Connolly, R. Little
11. Chemical measurements in confined liquid films & addressing the urban-rural gap undergraduate research. **S.K. Shaw**
12. Quantitative analysis of microstructure in dimethylvinyl terminated dimethyl, diphenyl, methylvinyl containing siloxane copolymers by ²⁹Si NMR. **D. Radojic**, A. Zlatanic, X. Wan, J.M. Messman, P.R. Dvornic
13. Capillary and microchip electrophoresis separation of fluorogenic derivatized fragments of dynorphin A. **A.M. Al-Hossaini**, S.M. Lunte
14. Effect of substitution of β -glucans on the glycemic response and thermal properties of four common starches. **A. Anderson**
15. Environmental chemistry analysis of VOCs from evergreen trees by GCMS. **K. Sellens**, **K. Krokstrom**, D.A. Higgins, C.T. Culbertson
16. Development and optimization of online protein entrapment in monolithic supports for high performance

- affinity chromatography. **S. Azaria**, E. Rodrigez, D.S. Hage
17. Solution Blow Spinning: fabrication of micro- and nanofibers with various morphologies. **S. Park**, S. Choi
 18. Analysis of free drug fractions by high performance affinity chromatography: interactions of sulfonylurea drugs with human serum albumin. **B. Yang**, D.S. Hage, X. Zheng
 19. Microfluidic devices for the study of protein kinase activity and inhibition in single-cells. **J. Sibbitts**, D. Ediriweera, J. Sadeghi, C.T. Culbertson
 20. Identification of contaminants in bottled drinking water using ICECLES. **M. Berg**
 21. High-throughput selective capture of rare cells by dielectrophoresis at a bipolar electrode array. **M. Li**, R. Anand
 22. Lab-on-a-chip device as an electrokinetic alternative to hemodialysis. **B. Berzina**, R. Anand
 23. Self-assembled particles in NOM samples. **D. Gibson**, J.A. Rice
 24. Developing microfluidic devices with a stereolithographic 3D printer. M. Davidson, **K. Kounovsky-Shafer**
 25. Development of a 3D printed device to concentrate electrophoretically eluted DNA molecules. J. Dolphin, A. Maschmann, M. Moore, C. Parnell, **K. Kounovsky-Shafer**
 26. Gel electrophoresis as a method for separating polydisperse gold nanoparticles by size. **J.R. Blum**, M.M. Neumann, K. Kounovsky-Shafer, C.L. Exstrom

27. Human scent differentiation of different age and location groups using gas chromatography-mass spectrometry (GC-MS). **L. Muehlbauer**, D.J. Beussman
28. Method recent for determination of benzylpenicillin in goat milk by UFLC-DAD. **A. Cabral**, M. Vitória de Moura, D. da Silva
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Biochemistry

Fort Riley

S. H. Bossmann, *Organizer*

S. Warnecke, *Presiding*

- 1:00** Introductory Remarks.
- 1:05** **29.** Low-cost high-impact route to kill MRSA With FDA-approved antibiotics. **C.V. Rice**, M. Foxley, S. Strange, M. Xiao
- 1:25** **30.** Characterization of human oxysterol binding protein (OSBP) structure and function. **N. Kothapalli**, P.A. Sims, A.W. Burgett
- 1:45** **31.** Abstract: 6-Thiopurine: Understanding the mode of toxicity through exploring UDP-glucose dehydrogenase activity. **C. Weeramange**, R. Rafferty
- 2:05** **32.** Characterization of dye-decolorizing peroxidase (DyP) from *Enterobacter lignolyticus* and insights into its catalytic mechanism. **D.A. Meekins**, R. Shrestha, P. Li
- 2:25** **33.** Determination of the cellular response of the oxysterol-binding proteins OSBP and ORP4

upon treatment with a nonlethal dose of the anti-cancer natural product OSW-1. **B. Roberts**, J.I. Nuñez, N. Kothapalli, A.W. Burgett

2:45

Intermission.

3:00 34. Kinetic characterization of human Δ^1 -pyrroline-5-carboxylate reductase 2 (HsPYCR2) wild-type and Arg251Cys mutant. **S.M. Patel**, D.F. Becker

3:20 35. Formation and properties of DNA duplexes containing hydrazone-derived interstrand cross-links generated by the reaction of N4-aminocytidine residues with abasic sites. **J. Gamboa Varela**, K.S. Gates

3:40 36. A Nanobiosensor for the detection of C-C motif chemokine 20 (CCl20). **O. Covarrubias Zambrano**, M. Kalubowilage, A.S. Yapa, H. Wang, D.L. Troyer, S.H. Bossmann

4:00 37. Novel drug cocktail-carrying anti-oxidant nanoceria for the treatment of cancer. **S. Naz**

4:20 38. Predicting fluorine NMR chemical shifts in labeled proteins. **J.M. Ellis**, K.R. Mitchell-Koch, J. Bann

4:25

Concluding Remarks.

Novel Electrode Materials & Architectures for Energy & Sensing Applications

Cosponsored by ANYL, COLL and ENFL

Tuttle

T. Ito, J. Li, J. Wu, *Organizers*

T. Ito, *Presiding*

- 1:00** Introductory Remarks.
- 1:05** **39.** Electrochemical measurement of dopamine release and uptake in zebrafish. **M.A. Johnson**, M. Shin, T. Field, M. Furgurson, C. Stucky
- 1:45** **40.** Fabrication of folding- and dynamics-based electrochemical DNA sensors on new electrode materials. **R.Y. Lai**
- 2:25** **41.** Nanopore in precision medicine: single-molecule genetic and epigenetic detection. **L. Gu**
- 3:05** Intermission.
- 3:20** **42.** Spatiotemporally-distributed electrochemical signals at microelectrode arrays to differentially detect catecholamines. M. Lotfi-Marchoubeh, M. Hu, M. Abrego, **I. Fritsch**
- 4:00** **43.** Spatially-Controlled functionalization of cylindrical pores in track-etched poly(ethylene terephthalate) membranes using electrochemically-assisted click reaction. **H. Coceancigh**, T. Ito
- 4:20** **44.** Tin (II) acetate in DMSO as a sensitizer for electroless deposition of silver nanoparticles on block copolymer-derived nanopatterned surfaces. **Z. Harandizadeh**, T. Ito

Organic Chemistry

Alcove

S. H. Bossmann, *Organizer*

P. Li, *Presiding*

- 1:00** Introductory Remarks.
- 1:05 45.** The development of pot-economical strategies for the synthesis of 13-desmethyl-lyngbouilloside, Sch-725674 and simplified analogs. **S. Javed**, M. Bodugam, A. Ganguly, G. Gihan Dissanayake, J. Torres, P.R. Hanson
- 1:25 46.** Catalytic conjugate additions of electron-rich heteroarenes to β , β -disubstituted enones. **T.L. Metz**, L.M. Stanley
- 1:45 47.** Practical and scalable total syntheses of complex natural products: Improved routes to the trikentrins and herbindoles via indole aryne cycloaddition methodologies. **K.R. Buszek**
- 2:05 48.** Preparation and antimicrobial testing of 1,3,4-trisubstituted-1,2,3-triazolium salts. J.M. Sobczyk, A.J. Blanck, S.C. Gwazdacz, **J.T. Fletcher**
- 2:25 49.** Synthetic efforts towards Myrothecol A from the natural product Abeitic Acid. **P.K. Desman**, R. Rafferty
- 2:45** Intermission.
- 2:55 50.** Brocazine-F: Efforts towards its total synthesis and applications to screening library construction. **W. Hulangamuwa**, R. Rafferty

- 3:15 51.** The synthesis of conjugated allenynes via palladium-catalyzed decarboxylative coupling. **M.K. Smith**, J.A. Tunge
- 3:35 52.** Asymmetric oxidation of diols catalyzed by nanoclusters-chiral substituted poly-*N*-vinylpyrrolidinones. **B. Hao**, M.J. Gunaratna, M. Zhang, S. Weerasekara, V. Nguyen, S.N. Seiwald, A. Meier, D.H. Hua
- 3:55 53.** Application of alkylquinone tautomerization to the total synthesis of calothrixin B. **L.M. Mori Quiroz**, M.M. Dekarske, M.D. Clift
- 4:15 54.** Enantioselective, palladium-catalyzed conjugate additions of arylboronic acids to β , β -disubstituted enones to generate bis-benzylic quaternary stereocenters. **A.A. Kadam**, L.M. Stanley
- 4:35 55.** One-pot procedure for palladium catalyzed deacylative cyclopropanation from 2-phenyl-acetoacetonitriles and vinyl epoxides under basic conditions. **K.M. Allegre**, N. Brennan, J.A. Tunge
- 4:55** Concluding Remarks.

Physical Chemistry Posters

Big Basin

S. H. Bossmann, *Organizer*

1:00 - 3:00

56. CuO@HKUST-1: Facile one-pot synthesis and applications as pseudocapacitive materials. **Y. Yue**, B.C. Richardson, J. Guerrero
57. Charge transfer complexes of TCNQ with semiconductor nanocrystals. **L. Beck**, E.J. McLaurin
58. Tuning catalytic selectivity of oxidative catalysis by depositing nonmetallic atoms in surface lattice of metal oxide. J. Liu, **Y. Li**, F. Tao
59. Investigation of solvation effects on optical rotatory dispersion using the polarizable continuum model. **T. Aharon**, P. Lemler, P.H. Vaccaro, M. Caricato
60. Experimental and computational studies of the OH + OD simultaneous vibrational transition in CD₃OD/CD₃OH mixtures. **H.R. Krueger**
61. Temperature dependent solubility of gold nanoparticle suspension/solutions. **J. Powell**, R. Schwieters, K. Bayliff, E. Herman, N. Hotvedt, J. Changstrom, A. Chakrabarti, C.M. Sorensen
62. Π -Electronic properties of [5]radialene. **J.R. Dias**
63. Multi-state extrapolation of UV/Vis absorption spectra with QM/QM hybrid methods. **S. Ren**, M. Caricato
64. Time-dependent magnetic circular dichroism of the paramagnetic Au₂₅(SC₂H₅)₁₈ cluster. **N. Karimova**, C.M. Aikens

65. Spectral hole burning and modeling of FMO trimer complexes from green sulfur bacteria. **A. Kell**, K. Acharya, R.E. Blankenship, R. Jankowiak
66. Electroless deposition of gold using AFM nano-shaved self-assembled monolayers on silicon to study gold binding peptide tagged proteins. **N.J. Kamathewatta**, **C.L. Berrie**
67. New insight into water-soluble chlorophyll-binding proteins. **A. Kell**, D. Bednarczyk, K. Acharya, J. Chen, D. Niedzwiedzki, R.E. Blankenship, D. Noy, R. Jankowiak
68. Dipolar and quadrupolar plasmon modes in silver nanowire dimers. **M. Adamson**, C.M. Aikens
69. Organometallic self-assembled monolayer films of linear azulenic and biazulenyl pi-linkers featuring asymmetric anchoring. **M. Okeowo**, J. Applegate, C.L. Berrie, M.V. Barybin
70. Band structure of the rhodospirillum rubrum photosynthetic reaction center from low temperature absorption and transient hole-burned spectra. O. Rancova, **M. Jassas**, A. Kell, D. Abramavicius, R. Jankowiak
71. Catalytic generation of hydroxyl radical through dismutation of hydrogen peroxide over ceria. **T.J. Fisher**, N. Al-Aqtash, N. Shao, Y. Gao, R. Sabirianov, W. Mei, C. Cheung
72. Biological surface adsorption index: Environmental applications and parallel molecular dynamics simulations. **R. Chen**, J. Comer, J.E. Riviere
73. New batch chemical oscillator: Acidic sodium periodate system. **G. Ali**, T. Dolker, G.A. Frerichs

74. Excited-state Raman spectroscopy of conjugated thiophenes: Comparing experiment and theory. **M. Barclay**, T.J. Quincy, M. Caricato, C.G. Elles
75. Theoretical insights into origin of photoluminescence of Au₂₅(SR)₁₈⁻ nanoparticles. **K.M. Weerawardene**, C.M. Aikens
76. Brønsted and Lewis acidity of zirconium, tungsten and niobium doped amorphous silicates via DFT simulations. **A. Jystad**, **A. Biancardi**, **M. Caricato**
77. Selective Hydrogenation of Cinnamaldehyde over Pd-Au Supported on Conductive Carbon Black in supercritical fluid of CO₂. P. Lin, J. Chen, Q. Luo, Z. Liu, **Z. Liu**
78. In situ studies of structural evolution of model catalyst Rh(110) at atomic scale during catalysis. L.T. Nguyen, **N. Wang**, F. Tao
79. Selective hydrodeoxygenation of anisole on a cobalt oxide-based bi-functional catalyst. **Y. Tang**, S. Zhang, F. Tao
80. Characterization of gold-metal oxide support interactions and estimation of oxygen storage capacity of supports using in situ diffuse reflectance UV-visible spectroscopy. **P. Srinivasan**, S.R. Nitz, J.J. Bravo-Suarez

Physical Chemistry: Computational & Experimental Materials Chemistry

McDowell

S. H. Bossmann, *Organizer*

J. Comer, *Presiding*

- 1:00** Introductory Remarks.
- 1:05** **81.** Computer simulation of magnetic nanoparticles using 4th order Runge Kutta for magnetic heating and ultrasound production. K. Mehra, **Z. Siefert**, V. Chikan
- 1:25** **82.** Shape-reactivity relationships in aluminum hydroxide nanoclusters. **S.E. Mason**
- 1:45** **83.** Mechanistic studies of ethylene epoxidation on a mesoporous metal-substituted silica catalyst: a theoretical investigation. **P.D. Patel**, B. Laird, W. Thompson
- 2:05** **84.** ScAuAl: Factors affecting atomic structure and coloring in complex solids. **J. Pham**, G.J. Miller
- 2:25** **85.** Structural and electronic effects of Ga doping into GdCo₂:GdCo_{2-x}Ga_x. **A. Toombs**, F. Yuan, Y. Mozharivskyj, G.J. Miller
- 2:45** **86.** The role of VEC in the atypical “gamma brass” structure of Cu₉Al₄. **S. Eveland**, G.J. Miller
- 3:05** Intermission.
- 3:20** **87.** Evaluation of electronic coupling in solids from *Ab Initio* periodic boundary condition calculations. **A. Biancardi**, M. Caricato
- 3:40** **88.** Theoretical Insights into Selective Electrochemical Reduction of Furfural on Transition Metals. **N. Shan**, B. Liu

- 4:00 89.** Electro-oxidation of formic acid on organometallic nanoclusters: Insight from computational and experimental studies. **A.Z. Clayborne**, W. Chen
- 4:20 90.** Induction and microwave heating in syntheses of CdSe quantum dots: Effects of extreme high heating rate on their nucleation and growth kinetics. **H. Luo**, B. Kebede, E.J. McLaurin, V. Chikan
- 4:40 91.** Validation of trapped nanoparticle nucleation and growth stages via analytical ultracentrifugation and electron microscopy. **T.M. Besong**
-

Colloidal Nanoplatforms: Synthesis & Assembly

Cosponsored by INOR

Flint Hills

E. J. McLaurin, *Organizer, Presiding*

- 2:00** Introductory Remarks.
- 2:05 92.** Chemical insights into a new solution-phase approach to indium nitride nanomaterials. Y. Chen, N.S. Karan, Z. Liu, **R. Beaulac**
- 2:35 93.** Solution-based syntheses of semiconductor nanoparticles and conversion to thin-film materials with next-generation heterojunction photovoltaic device applications. **C.L. Exstrom**, S.A. Darveau
- 3:05 94.** Single-step synthesis of hyperbranched, luminescent Mn^{2+} -doped $\text{ZnSe}_{1-x}\text{S}_x$ nanocrystals

using dichalcogenide precursors. **M. Yazdanparast**, E.J. McLaurin

- 3:25** Intermission.
- 3:40 95.** Green chemistry applications for surfactant-based colloids. **D.S. English**, A. Mishra, K. Hanna
- 4:10 96.** Controlling nanomaterial growth by microwave chemistry: role of permittivity vs permeability. **G.F. Strouse**
- 4:40 97.** Synthesis of silver nanoparticles from bulk. **J. Changstrom**
- 5:00** Concluding Remarks.
-

Heterogeneous Catalysis

Cosponsored by I&EC

Kings

P. Amama, K. L. Hohn, *Organizers, Presiding*

- 2:00 98.** Mechanistic aspects of the hydrodeoxygenation of phenolics over supported metal catalysts. **D.E. Resasco**
- 2:40 99.** Catalytic Conversion of 2,3-Butanediol on Copper Catalysts. **K.L. Hohn**, Q. Zheng
- 3:00 100.** Staged thermal pretreatment and adsorptive trapping to improve catalytic upgrading of biomass to hydrocarbon fuels and chemicals. **L. Lobban**, R.G. Mallinson, C. Waters, R. Janupala, I. Schneberger

- 3:20** Intermission.
- 3:40 101.** Synthesis of calcium phosphates during thermochemical conversion of algal biomass. R. Hable, **M. Alimoradi**, B. Sturm, **S.M. Stagg-Williams**
- 4:00 102.** Carbon nanotube-supported catalysts for improved Fischer-Tropsch synthesis. H. Almkhelfe, X. Li, K.L. Hohn, **P.B. Amama**
- 4:20 103.** Nickel nanoparticle catalysts prepared by atomic layer deposition for dry reforming of methane. **X. Liang**, Z. Shang
- 4:40 104.** Synthesis, catalysis and in situ/operando characterizations of catalysts for understanding catalysis at a molecular level. **F. Tao**
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WEDNESDAY EVENING

Sci-Mix

Cosponsored by Shimadzu Scientific Instruments

Big Basin

S. H. Bossmann, *Organizer*

6:00 - 9:00

1-2, 4, 6, 8, 13-14, 19, 23, 27-28, 59-61, 64-65, 68, 70, 72, 74-75, 77. See Previous Listings.

152, 169, 174, 200, 206, 212-217, 219, 222, 225-226, 228, 241-242, 248, 250-255, 266, 308, 340, 343-344, 346, 348, 353-354, 356, 358, 360-362, 365, 368, 370, 373-374, 377, 379, 384, 421.
See Subsequent Listings.

THURSDAY MORNING

Biochemistry

Fort Riley

S. H. Bossmann, *Organizer*

S. Warnecke, *Presiding*

- 8:00** Introductory Remarks.
- 8:05** **105.** Quantifying the RNA nano-bio interface: Implications for the functional impact of zinc and cobalt oxide nanoparticles on RNA. **M. Ramani**, R.K. DeLong
- 8:25** **106.** Ligand binding capabilities of the oxysterol-binding protein (OSBP/ORP) subfamily I. **J.I. Nuñez**, N. Kothapalli, A.W. Burgett
- 8:45** **107.** DNA nanostructure assisted self-assembly of anisotropic nanoparticles with tunable optical activity. **R. Wang**, W. Liu
- 9:05** **108.** Construction of a deoxyribozyme-containing glucose biosensor using comb-branched DNA. **M.R. Polaske**, E.K. TeSelle, D.A. Baum
- 9:25** Intermission.
- 9:40** **109.** Substrate profiling of human NRMT1 to reveal the roles of protein *N*-terminal methylation in tumorigenesis. **K. Jia**, G. Huang, P. Li
- 10:00** **110.** Mimicking drug interactions using small molecules with multiple binding sites. **N. Sarkar**, C.B. Aakeroy, A. Sinha
- 10:20** **111.** Extensive oxidation of human DJ-1 leads to a dramatic loss of structural integrity at

- physiological temperature. **J. Catazaro**, T. Andrews, J. Lin, M. Wilson, R. Powers
- 10:40 112.** Controlled loading and release with tailored mesoporous silica nanoparticles for an anti-cancer peptide delivery. **J. Yu**, H. Wang, S.O. Wendel, D.L. Troyer, **S.H. Bossmann**
- 11:00 113.** Utilizing optical nanobiosensors to diagnose asthma through cytokine detection. **S. Shrestha**, M. Kalubowilage, H. Wang, D.L. Troyer, S.H. Bossmann
- 11:20 114.** Sunlight-assisted route to antimicrobial aminoclay catalysts. **S. Ravula**, G.A. Baker
- 11:40** Concluding Remarks.
-

Computational Materials Chemistry

Cosponsored by COMP and PHYS

Flint Hills

C. M. Aikens, *Organizer, Presiding*

- 8:00 115.** Intermolecular interactions. **M.S. Gordon**, E. Guidez, P. Xu, C. Kaliszewski, S. Kim
- 8:40 116.** Computational materials chemistry in the design of organic small molecules for photovoltaics. **L. Wang**
- 9:20 117.** Role of organic-inorganic interfaces in photophysics of nanomaterials. **S. Kilina**
- 10:00** Intermission.

- 10:20 118.** Bridging semi-classical and *ab initio* descriptions of electronic transport in semiconductors. A. Faghaninia, **C. Lo**
- 11:00 119.** Dynamics of electronic excitations at interfaces. **D. Kilin**
- 11:40 120.** Theoretical investigation of electron and nuclear dynamics in the Au₂₅(SH)₁₈⁻¹ thiolate-protected gold nanocluster. **R.D. Senanayake**, C.M. Aikens
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Frequency- & Time-Domain Spectroscopies: Applications to Complex Biological Systems

Konza Prairie

R. Jankowiak, *Organizer, Presiding*

W. F. Beck, *Presiding*

- 8:00** Introductory Remarks.
- 8:05 121.** Structure-function description of photosynthetic systems from purple bacteria, cyanobacteria, and plants based on atomic detail organelle-scale structural models. **M. Sener**
- 8:40 122.** Two-dimensional electronic spectroscopic studies of energy transfer and coherence in photosynthesis. **W.F. Beck**
- 9:15 123.** Carotenoid-to-bacteriochlorophyll energy transfer in the LH2 complexes from the genetically modified purple bacterium *Rb. sphaeroides* containing carotenoids with various double bond conjugations. **D. Niedzwiedzki**
- 9:50** Intermission.

- 10:05 124.** Probing protein energy landscapes by optical spectroscopy in pigment-protein complexes involved in photosynthesis. **V. Zazubovich**
- 10:40 125.** Excitonic structure and excitation energy transfer in selected photosynthetic antenna protein complexes: hole-burning and modeling studies. A. Kell, M. Jassas, **R. Jankowiak**
- 11:15 126.** Role of pigment-pigment and pigment-protein interactions in tuning the light absorption in water-soluble chlorophyll-binding protein. **E. Jakubikova**, K. Shrestha
- 11:50** Concluding Remarks.
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Miniaturized Separations for Bioanalytical Analysis

Cosponsored by ANYL

McDowell

C. T. Culbertson, *Organizer, Presiding*

- 8:00** Introductory remarks.
- 8:05 127.** Electrophoretic separations using nanometer columns fabricated in plastics. **S.A. Soper**
- 9:05 128.** Soft microfluidic systems: reversibly deformable microchannels and microdroplets for control in small-volume analyses. **S.A. Morin**
- 9:45** Intermission.
- 10:00 129.** Microfluidic isolation and protein phenotyping of circulating exosomes for cancer diagnosis. **Y. Zeng**

- 10:40 130.** New methods for integrating cell culture with microchip-based analysis. **R.S. Martin**
- 11:20** Discussion.
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Nanomedicine

Kings

S. H. Bossmann, *Organizer, Presiding*

- 8:00** Introductory Remarks.
- 8:05 131.** Encapsulation of an EP67-conjugated CTL peptide vaccine in nanoscale-sized biodegradable particles increases the efficacy of respiratory immunization against primary respiratory infection with MCMV and affects the magnitude and memory subsets of vaccine-generated mucosal and systemic epitope-specific CD8⁺ T cells in a diameter-dependent manner. **J. Vetro**
- 8:35 132.** Toward improved mouse preclinical cancer models for nanomedicine research. **D.L. Troyer**, M.T. Basel, T.B. Shrestha, M. Pyle, S. Narayanan, S.H. Bossmann
- 9:05 133.** MRI evaluation of physiological and immune responses in immunocompetent mouse models of solid tumors. **S.H. Bossmann**, H. Wang, P. Prakash, L. Maurmann, D.L. Troyer
- 9:35** Intermission.
- 9:50 134.** Role of the physicochemical properties of gold nanoparticles on biocorona formation and

cellular uptake profiles in endothelial cells. **N.A. Monteiro-Riviere**, P. Chandran

- 10:20 135.** Caveats to making in vitro to in vivo and interspecies extrapolations of nanoparticle biological interactions using in silico computational modeling. **J.E. Riviere**
- 10:50 136.** Product development-focused translational research: the bridge of life versus the valley of death. **S. Weir**
- 11:50** Concluding Remarks.
-

Novel Electrode Materials & Architectures for Energy & Sensing Applications

Cosponsored by ANYL, COLL and ENFL

Tuttle

T. Ito, J. Li, J. Wu *Organizers*

J. Wu, *Presiding*

- 8:00 137.** On the improvements of electrocatalysts for hydrogen and oxygen evolution reactions by hydrogenation. **X. Chen**
- 8:40 138.** Electrochemical characterization and catalytic application of gold-supported ferrocene-containing diblock copolymer thin films in ethanol solutions. **G. Ghimire**, H. Coceancigh, Y. Yi, T. Ito
- 9:00 139.** Electrodeposition of oxygen evolution catalysts onto n-type silicon for photoelectrochemical water splitting. **J.A. Switzer**
- 9:40** Intermission.

- 10:00 140.** Near surface and extended ordering structures of ionic liquids. R.S. Anareddy, A.J. Lucio, **S.K. Shaw**
- 10:40 141.** Quantitative analysis of surface enhanced Raman spectroscopy of Rhodamine 6G using a composite graphene and plasmonic Au nanoparticle substrate. **R. Goul**, S. Das, Q. Liu, M. Xin, R. Lu, R. Hui, J. Wu
- 11:00 142.** Semiconductor quantum dots-GFET nanohybrid phototransistors. **M. Gong**, Q. Liu, B.K. Cook, B. Kattle, T. Wang, W. Chan, D. Ewing, M. Casper, A. Stramel, J. Wu
- 11:20 143.** Electron transfer dynamics at the photosynthetic model compound-semiconductor interface. **F. D'Souza**
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Organic Chemistry

Alcove

S. H. Bossmann, *Organizer*

P. Li, *Presiding*

- 8:00** Introductory Remarks.
- 8:05 144.** Intramolecular Mizoroki-Heck cyclization of dearomatized alkylidene dihydropyridines: Access to oxindoles and isoindolinones. **M. Joshi**, F.C. Pigge
- 8:25 145.** Efforts toward the total synthesis of balgacyclimide A and analogs. **M. Fortunski**, R. Rafferty

- 8:45 146.** Catalytic asymmetric oxidative C-C and C-N bond forming reactions by bimetallic nanoclusters and chiral substituted polyvinylpyrrolidinones. **M.J. Gunaratna**, B. Hao, M. Zhang, S. Weerasekara, S.N. Seiwald, D.H. Hua
- 9:05 147.** A new synthetic approach to procyanidins. **I. Geraskin**, G.A. Kraus
- 9:25 148.** Design and synthesis of novel analogs of OSW-1, a potent anti-cancer natural product. **A.T. Le**, A.W. Burgett
- 9:45** Intermission.
- 9:55 149.** Anodic cyclization reactions: The role of cation trapping vs. elimination in the optimization of radical cation initiated reactions. **R. Feng**, J.A. Smith, J.D. Brandt, K.D. Moeller
- 10:15 150.** Rational design of conjugated foldamers for advanced optoelectronic applications. **K.C. Shetye**, Y. Li, T. Dutta, Z. Peng
- 10:35 151.** High-Load, hybrid ROMP reagents: Development and applications in facilitated synthetic protocols. **S. Faisal**, Q. Zang, J. Jun, P. Maity, P.C. Kearney, D. Stoianova, P.R. Hanson
- 10:55 152.** Synthesis of the C-benzylated chalcone and its analogs for antineoplastic drug development and protein folding stabilization. **J. Dallman**, R. Rafferty
- 11:15 153.** Synthesis of nitrogen containing heterocycles from alkylidenecyclopropanes. P. Lazzara, **K. Fitzpatrick**, C.C. Eichman

- 11:35 154.** Computational investigation of resurrection agents for reversal of nerve agent poisoning. **J.A. Morrill**, D. Quinn, J. Topczewski, A. Lodge, N. Yasapala
- 11:55** Concluding Remarks.
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Undergraduate Research Posters

Big Basin

R. Rafferty, *Organizer*

9:00 - 11:00

- 155.** Improved methodology for high throughput qualitative and quantitative analysis of drugs of abuse in human urine. **K. Pham**, M.F. Merrick
- 156.** Vitamin C as a carbon source for photocatalytic sensitization of titania. **T. Dramstad**, B. Selvaratnam, D. Harts, R.T. Koodali
- 157.** Preliminary work for simultaneous inhibition of acetate kinase and phosphate acetyltransferase in MRSA Mu50 strain. **C. Wu**, L. Rockne
- 158.** Amplitude death and remote synchrony in a star network of oscillatory chemical reactions. **J. Russo**, M.L. Sebek, I.Z. Kiss
- 159.** Cloning, expression, and characterization of 5-aminolaevulinic acid dehydratase from *escherichia coli*. **F.A. Kovacs**, J.L. Ingersoll, M.M. Bejot
- 160.** Quality control of biodiesel samples in “instrumental analysis” course. D. Agoumba, **L. Oltman**, **K. Lessig**

161. Preliminary work on constructing an acetate kinase gene deleted plasmid for validation of its essentiality in methicillin resistant *Staphylococcus aureus* as a novel drug target. **C. Wu**, T. Murtha
162. Photoacoustic probe for H₂O₂ imaging. **R. Hoffman**, L.P. Smaga, J. Chan
163. Development of bathochromically shifted coumarin analogs. **J.E. Witowska**, L.P. Smaga, J. Chan
164. Kinetic studies of 4-imino-1,2,3-triazole rearrangements using a colorimetric assay. **M.D. Hanson**, J.T. Fletcher
165. Dopamine molecularly imprinted polymers. **T. Cheek**, G. Mwangi
166. Synthesis and biological evaluation of estrone-triazole based analogs treating colorectal cancer. **C.C. Callies**, F. Alotaibi, S. Elgazwi, F.T. Halaweish
167. Survey of secondary school chemistry teaching and learning in Kansas. **E. Legleiter**, L. Dorn, A. Cruz
168. Analysis of the effectiveness of the use of different microencapsulated free-radical initiators in frontal polymerization systems. J. Jochum, **B. McFarland**
169. Get involved with the ACS division of chemical education. **J.L. Torres y Torres**
170. A fast and accurate free energy calculation method for HIV protease/inhibitor complexes. **A. Hartman**, G. Brown, M. Fan, H.A. Zhong
171. Docking studies of isoform-selectivity of phosphatidylinositol 3-kinases (PI3Ks) inhibitors. **K. Goettsch**, G. Brown, H.A. Zhong

172. Production of a human cytochrome P450 enzyme and interaction with a promising cancer therapeutic. **C. Davis**, A. Bart, A. Walsh, E.E. Scott
173. Remarkably sensitive nuclear magnetic resonance approach to quantifying electronic characteristics of isocyanide ligands. **Z. Wood**, M.D. Hart, J. Applegate, N. Erickson, M.V. Barybin
174. Synthesis and characterization of SA-(D-K₆L₉)-AS for microsphere drug delivery. **K. Angle**, J. Yu, S.H. Bossmann, H. Wang
175. First steps toward solving the crystal structure of the human airway trypsin-like protease. **R. Baines**, J. Manzi, **T. Shupp**, N.M. DeVore, M.S. DeVore
176. Conductivity of borane salts: hydroxylated borane ion conductors. D. Stasko, **C. Hillebrand**, **G. Bosworth**, J. Huang
177. The Council of Undergraduate Research (CUR), bringing opportunities to PUI institutions. **H. Palencia**
178. Development of MOSC based immobilized metal ion affinity chromatography to purify proteins containing zinc finger domains. C. Wu, **W. Lawrence**, Z. Wang
179. Synthesis of the ionic liquid *1-hexyl-3-methylimidazolium bromide*. B. Hamill, **A. Haas**, M. Stucky-Halley, K.A. Layman
180. Generation of an ORP4L-EGFP fusion protein for use in structural and binding studies. A.M. Banka, **N. Kothapalli**, A.W. Burgett
181. Metabolomic analysis of OSW-1-treated HeLa cells using single-probe mass spectrometry. N. Kothapalli, **C.R. Cai**, A.W. Burgett

182. Analysis of the effect of phytoextraction on soil lead concentrations within a historic landfill site. **M. Kathrineberg**, H. Goertzen, B. Wiens, K.A. Layman
183. Exploration of dihydrofuro-isoxazolines based on Intramolecular Silyl Nitronate Cycloadditions (ISNC) as branch points for novel isoxazoline compounds. J.L. Duffy-Matzner, **K.G. Stevens**
184. Antineoplastic effects of substituted cinnamic acids and its derivatives in breast cancer cell lines. M.J. Morwitzer, N. Nguyen, S. Chandra, **M. Pattabiraman**
185. Electrochemical measurements of dopamine in chemotherapy-treated zebrafish. **C. Stucky**
186. Enhancing a de novo designed nitrite reductase model using copper 3SCC. **E. Salerno**, K. Koebke, V.L. Pecoraro
187. Toward the synthesis of a lithium-specific fluorescent sensor. **A.E. Renteria**, J. Mejia, C.J. Forsythe, R. McGonigal, K. Schwinghamer, S. Claridge, X. Zhang, D. Nutbrown
188. Electrochemical reduction of group VI metal-dioxo complexes. **C. Goodnow**, S.M. Kilyanek
189. Change in seasonal pattern of sulfate in Greenland snow caused by pollution in the 20th century. **C. Ward**
190. Computational docking and design of inhibitors of the H1N1 virus. **C. Love**, J.A. Morrill
191. Synthesis of truncated calcitonin gene-related peptide analogues by Fmoc coupling with modified histidines. **N.J. Mason**, M.R. Hulce, D.D. Smith
192. Computational docking investigation of luteoliun-based inhibitors of matrix metalloproteases. **A. Milne**, **J.A. Morrill**

193. Synthesis of dihydroacetone derivatives as potential sun-protection agents. **D.G. Lynch**, M.R. Hulce
194. Synthesis of *N*-(benzylamino) isatins for the treatment of MCF7 breast cancer cells. **L.L. Dougherty**, J.A. Morrill
195. Synthesis of Tenofovir Prodrugs for LAT1 Mediated Drug Delivery. **C. Hernandez**, **K. Finke**, L. Hansen, P.F. Kiser, A.A. Thomas
196. Contactless dielectrophoretic blood fractionation for integration with an electrokinetic dialysis device. **B. Rayborn**, R. Anand
197. Measurement of malondialdehyde as a biomarker of lipid peroxidation in a multiple seizure animal model. **S. Schöneich**, A.M. Furness, H. Weerathne, C.E. Lunte, S.M. Lunte
198. Adsorption of heavy metal ions on magnetic composites. **A. Schmidt**, **L. Heinrichs**, **T. Shima**, K.A. Layman
199. High-content screening of clinically investigated anti-cancer drugs identifies novel modulators of MRP1. **B. Peterson**, K.W. Tan, S.H. Iram
200. Analysis of kinase substrate peptides by capillary electrophoresis. **S. Cook**, C.T. Culbertson
201. Engineered biomimetic liposome inspired by the properties of red blood cell. **C. Ferrel**, T. Nguyen, A. Pitchaimani, S. Aryal
202. Determination of whole-brain dopamine content in chemotherapy-exposed zebrafish with ultra-high performance liquid chromatography coupled to tandem mass spectrometry. **J.F. Loomis**, T. Field, M. Shin, T.D. Williams, M.A. Johnson

203. Alkyltrifluoroborates as electrografting precursors for surface modification of glassy carbon electrodes. **S.N. Doden, J. Newhouse**, M. Moin, S.E. Shaner
204. Dry vortex grinding to achieve photoreactive co-crystal based upon non-conventional hydrogen bonds. **F. Verdu**, R.H. Groeneman
205. Synthesis of dextran-based soluble antigen arrays for antigen-specific autoimmune therapy. **K. Apley**, J. Qian, C. Berklund
206. Optimization of water splitting on a manganese oxide dimer by ligand replacement. **K. Skinner**, C.M. Aikens
207. Analysis of trace gases using cavity-enhanced laser spectroscopy. **R. Ritterbusch, S. Pineda**, A. Klose
208. Study of molecular interactions in binary and ternary complexes of curcumin and resveratrol with various polymers using Spectroscopy and molecular Modelling. **I. Cisneros**, A. Gumireddy, H.V. Chauhan, D. Kumari
209. Coordination chemistry and reactivity of cobalt complexes of tapa (tris(6-amino-2-pyridylmethyl)amine). **C. Milius, K. Chabal**, M. Zart
210. Exploiting polyfluorophenyl-phenyl interactions to achieve a series of quantitative cross-photodimerizations in the solid state. **B.J. Ingenthron**, R.H. Groeneman, M.A. Sinnwell, L. MacGillivray
211. Bio-based thermosets from novel methacrylated lignin resin. **K. Sutko**, E. Krall, D.C. Webster
212. Mn-doped ZnSe quantum dots for optical sensing. **W.R. Jeffries**, E. Gray, E.J. McLaurin
213. Development of a paper-based microfluidic device for the quantification of aqueous nitrite, nitrate, and phosphate. **C. Witt**, J. Sibbitts, S. Jia, C.T. Culbertson

THURSDAY AFTERNOON

Biochemistry Posters

Big Basin

S. H. Bossmann, *Organizer*

1:00 - 3:00

- 214.** Vibrational coupling gives insight into structure of aggregating g-rich nucleic acid sequences. **D.A. Price**, Z.J. Kartje, T.D. Hill, G. Cairó Baza, K. Hutson, K.T. Gagnon, S.D. Moran
- 215.** Solution spraying technique for improving the stability of biopharmaceuticals in dissolving microneedles. **M. Kim**, S. Choi
- 216.** FRET analysis of signal protein complex formation and trafficking in the epidermal growth factor receptor signaling cascade: Applications in biochemistry. **D. Weathers**, B. Scott, A. Hoppe
- 217.** Gold as a substrate for assembly of a unique planar peptide bilayer. **P. Natarajan**, P. Sukthankar, J. Changstrom, P. Thapa, C.M. Sorensen, J.M. Tomich
- 218.** Mechanistic study of dye-decolorizing peroxidase from *Thermomonospora curvata* for potential lignin degradation. **R. Shrestha**, P. Li
- 219.** Solid phase peptide synthesis for use in substrate profiling of NRMT1. **K. Deutschmann**
- 220.** Enantioselective synthesis of dilignol model compounds and their degradation by dye-decolorizing peroxidases. **G. Huang**, P. Li

221. Infrared studies of active site dynamics in a thermophilic enzyme. **T.D. Hill**, H. Lepird, K. Hutson, S.D. Moran
222. Mechanistic characterization of surface exposed radical site of dye-decolorizing peroxidase from *Thermomonospora curvata*. **R. Shrestha**, P. Li
223. Protein coronas affect the mechanisms of cell uptake and inflammatory effects of gold nanoparticles. **Y. Li**, N.A. Monteiro-Riviere
224. Study of anti-proliferative activity of cucurbitacins and cucurbitacins inspired analogs on hepatocellular carcinoma. **S. Elgazwi**, M. Mahnashi, F.T. Halaweish
225. Blueprints for the development of transition state analogs: kinetic characterization of beta-NAD⁺ glycohydrolase toxins using natural substrate analogs. **C.J. Reinhardt**, M. Jorgensen, J. Chan
226. Investigation of mismatch base pairing in DNA polymerase I. **A. Yeager**, G. Cline, E. Farmer, K. Humphries, B.R. Miller
227. Evaluation of the therapeutic potential of caseinolytic protease p in *clostridium difficile*. **N. Lavey**, A.S. Duerfeldt
228. Positron interactions with left- and right-handed alanine crystals. B. Eren, F. Wu, E. Eren, Y. Jean, **J.D. Van Horn**

Chemical Education

Kings

L. M. Wojcinski, *Organizer, Presiding*

- 1:00** Introductory Remarks.
- 1:05 229.** Using instructional videos to improve student experiences and practices in upper-division laboratories. **R.S. Cole**, J.A. Schmidt, M.N. Muniz, S.K. Shaw
- 1:25 230.** Developing, supporting, and promoting the culture of safety: a resources for excellence workshop. **J.L. Hayes, S. Burchett**
- 1:45 231.** Development and initial results of a microbial biotransformation experiment designed to introduce a research project into the organic chemistry laboratory curriculum. **J.L. Torres y Torres**
- 2:05 232.** Assessment of student understanding of spectroscopy in undergraduate organic chemistry laboratory. T. Gupta, **J.K. Rosenbaum**
- 2:25 233.** Revolutionizing undergraduate labs with benchtop NMR: an active learning approach. **M.T. Zamora**, S.D. Riegel
- 2:45 234.** Synthesis and characterization of ZnO nanoparticles and room-temperature ionic liquids. **K. Varney, K.A. Layman**
- 3:05** Intermission.
- 3:15 235.** An investigation of physical chemistry assessments. **L. Fox**

- 3:35 236.** The four-year research engagement (FYRE) program at the University of Oklahoma: integrating research into undergraduate curriculum. **N. Kothapalli**, A.W. Burgett
- 3:55 237.** Using the primary literature in an undergraduate organic chemistry course to engage students. **D.J. Peitz**
- 4:15 238.** American chemist teaches chemistry in China. **G. Histan**
- 4:35 239.** Teaching medicinal chemistry to undergraduate students using top prescribed drug molecules. **H.A. Zhong**
- 4:55** Concluding Remarks.
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Inorganic Chemistry Posters

Big Basin

S. H. Bossmann, *Organizer*

1:00 - 3:00

- 240.** Electrocatalytic properties of nanostructured carbon coated mos_2 . **Z. Wang**, C. Ranaweera, P.K. Kahol, R. Gupta
- 241.** Phase identification of femtosecond laser surface processed materials using Raman spectroscopy. **M.K. Breemes, W.M. Colling**, S.A. Darveau, C.L. Exstrom, A. Tsubaki, W.C. Thomas, C.A. Zuhlke, D.R. Alexander

242. Incorporation of silica aerogels in femtosecond laser surface processed materials. **L. Hansen, W.M. Colling,** S.A. Darveau, C.L. Exstrom
243. Quantification and kinetics studies of gold nanoparticle formation via the reduction of polyphenol compounds. **M.M. Neumann,** K. Kounovsky-Shafer, S.A. Darveau, C.L. Exstrom
244. Synthesis, characterization, and photovoltaic applications of near-infrared absorbing main-chain polyoxometalate-containing conjugated copolymers. **Y. Li,** K. Shetye, J. Oster, Z. Peng
245. Near infrared mediated photothermal therapy and T1-weighted magnetic resonance imaging using Gd^{3+} tethered gold nanorods. **A. Pitchaimani,** T. Nguyen, L. Maurmann, S.H. Bossmann, S. Aryal
246. Aqueous solution reaction dynamics of the polyoxometalate ion $IMo_6O_{24}^{5-}$. **M.R. Spriet,** E.M. Villa
247. Syntheses and structures of lanthanide thiosulfate compounds. **E.Z. Dalton,** E.M. Villa
248. Synthesis of new rhodium catalysts for mechanistic investigation of H_2 evolution. **J. Hopkins,** Y. Peng, D. Lionetti, J.D. Blakemore
249. Green synthesis of reduced graphene oxide/ $Sr_2CuMgFe_{28}O_{46}$ nanocomposite with tunable magnetic properties. **P. Alimard**
250. Graphene powders produced by controlled detonations of some hydrocarbons. **A. Nepal,** C.M. Sorensen
251. Microwave effects on CdSe nanocrystal synthesis. **B.A. Kebede,** E.J. McLaurin

- 252.** Structure-reactivity relationship in a series of N5-ligated oxomanganese (IV) complexes. **A.A. Massie**, M. Denler, T.A. Jackson
- 253.** Formation and characterization of two manganese(III)-alkylperoxo complexes supported by amide-containing ligands. **J. Parham**, D. Rice, G. Wijeratne, T.A. Jackson
- 254.** Development of new lanthanide-based hydrophosphination catalysts. **J.A. Schmidt**, M.M. Basiouny, A. Behrle
- 255.** Tuning π -acceptor/ σ -donor ratio of 2-isocyanoazulene ligands through 1,3-substitution at the azulenic scaffold: A nonfluorinated rival of C₆F₅NC has been discovered. **M.D. Hart**, J.J. Meyers, T. Nakakita, Z. Wood, N. Gerasimchuk, M.V. Barybin
- 256.** DFT calculations and REAXFF development for MD simulations of H-BN growth on nickel surfaces. **S. Liu**
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Organic Chemistry

Alcove

S. H. Bossmann, *Organizer*

M. Pattabiraman, *Presiding*

- 1:00** Introductory Remarks.
- 1:05 257.** Toward the fluorescence sensing of glycolipids. **C.W. Littlefield**, C. Ren, T.E. Glass
- 1:25 258.** Dendrimers for the delivery of prodrugs to solid tumors and metastases. **Y. Toledo**, A.S. Yapa, H. Wang, S.O. Wendel, D.L. Troyer, S.H. Bossmann

- 1:45 259.** Development of photoswitchable chelators to control Ca²⁺ signaling in living cells. **T. Bearrood**, J. Chan
- 2:05 260.** Understanding the activities of Ga sites in Ga/ZSM-5 for furan decarbonylation – A first-principles study. **M. Zhou**, L. Cheng, R.S. Assary, L.A. Curtiss, B. Liu
- 2:25 261.** Spray-based methods for the fabrication of micro- and nanostructures. **S. Choi**
- 2:45** Intermission.
- 2:55 262.** Earth abundant catalysts for the hydrofunctionalization of unsaturated compounds. **C.C. Eichman**, A. Villani-Gale, S. Lee
- 3:15 263.** Inhibition of protein disulfide isomerases for influenza virus. **M. Zhang**, Y. Kim, M.J. Gunaratna, S. Weerasekara, K. Chang, D.H. Hua
- 3:35 264.** Adhesion and toxicity of polymers prepared using ionic liquid monomers. **B. McFarland**, M. Sea
- 3:55 265.** Dual use of reversible bonding to achieve a covalent synthesis in the solid state. **S.M. Oburn**, D.C. Swenson, L. MacGillivray
- 4:15 266.** Co-crystallization of nonsteroidal anti-inflammatory drugs (NSAIDs). **M. Reinmuth**, A. Sinha, C.B. Aakeroy
- 4:35 267.** New tetrahedral building block for halogen-bonded 3-D architectures. **C.A. Gunawardana**, A. Sinha, C.B. Aakeroy
- 4:55** Concluding Remarks.

Awards Symposium

Konza Prairie

S. H. Bossmann, *Organizer, Presiding*

- 1:30** Introductory Remarks.
- 1:40 268.** Super-resolution single-molecule tracking studies of dielectric properties and nanoscale diffusion pathways in mesoporous silica films. **D.A. Higgins**, R. Kumarasinghe, T. Ito
- 2:15 269.** Exploring the conformations and dynamics of Ca²⁺-activated proteins by single-molecule spectroscopy. **C.K. Johnson**
- 2:50 270.** Fluorescence studies of surfactant vesicles for pH-responsive drug release and as models for evaluating novel antimicrobial compounds. **D.S. English**, Z. Wang, A. Mishra
- 3:25 271.** Optical spectroscopy analyses of perovskite and germanium nanomaterials. **D. Freppon**, B. Boote, L. Men, H. Andaraarachchi, U. Bhattacharjee, J. Vela-Becerra, J.W. Petrich, E. Smith
- 4:00 272.** Fundamental and applied uses of light: Nearly three decades of stimulating and illuminating collaborations. **J.W. Petrich**

Computational Materials Chemistry

Cosponsored by COMP and PHYS

Flint Hills

C. M. Aikens, *Organizer*

B. Liu, *Presiding*

- 1:30 273.** CO₂ and N₂ reduction: New directions. **G.C. Schatz**
- 2:10 274.** First principles studies of electrocatalysis at metal and metal-oxide boundaries. Z. Zeng, J. Kubal, H. Chun, **J.P. Greeley**
- 2:50 275.** Modeling the dissolution of complex oxide cathode materials. **S.E. Mason**, J.W. Bennett
- 3:10** Intermission.
- 3:30 276.** Applications of the ReaxFF force field for identifying reactive properties for complex catalytic materials and interfaces. **A.C. Van Duin**
- 4:10 277.** Computational studies of crystallization on the nanoscale. **J. Delhommelle**, C. Desgranges
- 4:50 278.** Interfacial thermal conductance of thiolate-protected gold nanoparticles. **J.D. Gezelter**, S.M. Neidhart, K.M. Stocker

Miniaturized Separations for Bioanalytical Analysis

Cosponsored by ANYL

McDowell

C. T. Culbertson, *Organizer, Presiding*

- 1:30** Introductory remarks.
- 1:35 279.** Microchip electrophoresis-based methods for monitoring oxidative stress *in vivo* and *in vitro*.
S.M. Lunte
- 2:35 280.** Multiplexed detection of three ovarian cancer blood biomarkers using ExoSearch chip. **Z. Zhao, M. He**
- 3:15** Intermission.
- 3:30 281.** Electrokinetic separation of selected cells and metabolites from peripheral blood: Applications in rare cell capture and kidney disease management. **R.K. Anand**
- 4:10 282.** Single cell analysis on microfluidic devices.
C.T. Culbertson
- 4:50** Concluding Remarks.

Novel Electrode Materials & Architectures for Energy & Sensing Applications

Cosponsored by ANYL, COLL and ENFL

Tuttle

T. Ito, J. Li, J. Wu, *Organizers*

J. Li, *Presiding*

- 1:30 283.** Structural evolution of lithium-ion electrodes during battery cycling. **C. Ban**
- 2:10 284.** Highly stable three lithium insertion in thin V₂O₅ shells on vertically aligned carbon nanofiber arrays for high-capacity lithium ion battery cathodes. **J.E. Brown**, J. Acharya, G.P. Pandey, J. Wu, J. Li
- 2:30 285.** Photonic and plasmonic carbon nanostructured electrodes for advanced optoelectronics and sensors. **J. Wu**
- 3:10** Intermission.
- 3:30 286.** Printed ZnO nanoparticle ultraviolet detectors: Towards high performance and low cost. **B.K. Cook**, Q. Liu, M. Gong, D. Ewing, M. Casper, A. Stramel, J. Wu
- 3:50 287.** Printable and transfer-free MoS₂/graphene van der Waals heterostructures for high-performance photodetectors. **Q. Liu**, B. Cook, M. Gong, D. Ewing, M. Casper, A. Stramel, J. Wu
- 4:10 288.** Silicon oxycarbide/graphene composite paper electrode for electrochemical energy storage. **M. Abass**, L. David, M. Kolathodi, G. Singh
- 4:30** Concluding Remarks.

FRIDAY MORNING

Analytical Chemistry: Separations & Analysis

Alcove

S. H. Bossmann, *Organizer*

C. T. Culbertson, *Presiding*

- 8:00** Introductory Remarks.
- 8:05 289.** Analyzing the endogenous amino acid neurotransmitter GABA in *unc-25* mutant *C. Elegans* by capillary electrophoresis via laser induced fluorescence detection. **V.M. Fiorentino**, N. Oborny, B. Ackley, S.M. Lunte
- 8:25 290.** Structural characterization by isotopic splitting in high-field ion mobility spectra: a gas-phase analog to NMR. **J. Kaszycki**, M.A. Baird, A. Bowman, A.A. Shvartsburg
- 8:45 291.** Method development for separating organic carbonates using ion-moderated partition high performance liquid chromatography. **A. Bhalkikar**, C.M. Marin, C. Cheung
- 9:05 292.** Signal fidelity and machine learning accurately predict peptide signal heterogeneity in SAMDI mass spectrometry. **A. Xue**, L. Szymczak, M. Mrksich, N. Bagheri
- 9:25 293.** Fast isotope ratios mass spectrometry (FIRMS): A rapid method for the determination of counterfeit pharmaceuticals. **F.M. Ochieng**, B.A. Logue
- 9:45 294.** Analysis of pharmaceutical drugs and metabolites in fish from grocery stores by gas

chromatography–mass spectrometry using selected ion monitoring mode. M. Mottaleb, C. Stowe, D. Johnson, M.J. Meziani, **M.A. Mottaleb**

10:05 Intermission.

10:20 295. Cyanogenic glycosides analysis in elderberry: picrate paper method and LC MS/MS method development and optimization. **M.K. Appenteng**, M.C. Johnson, R. Bell, A. Thomas, C.M. Greenlief

10:40 296. Analysis of drug binding with soluble proteins by using ultrafast affinity extraction and alpha₁-acid glycoprotein microcolumns. **S. Beeram**, X. Zheng, D.S. Hage

11:00 297. Glycoform analysis of alpha₁-acid glycoprotein by capillary electrophoresis with electroosmotic flow suppression and field enhanced sample injection. **C. Zhang**, C. Bi, W. Clarke, D.S. Hage

11:20 298. Effect of temperature on the shelf-life of alic in horseradish using headspace-solid-phase microextraction-gas chromatography-mass spectrometry (HS-SPME-GC-MS). **S. Pandey**, R. Douglas

11:40 299. Development of an animal model for multiple locally-induced seizures using microdialysis sampling. **A.M. Furness**, C.E. Lunte, S.M. Lunte

Inorganic Chemistry

McDowell

S. H. Bossmann, *Organizer*

T. Gadzikwa, *Presiding*

- 8:00** Introductory Remarks.
- 8:05 300.** Synthesis and characterization of composite resin incorporating silver nanoparticles with enhanced antibacterial properties. D. Beery, M.A. Mottaleb, J.H. Campbell, **M.J. Meziari**, M. Bellamy, M. Pires
- 8:25 301.** Discovery of copper-dependent anti-staphylococcal activity of extended thiourea derivatives. **A.P. Malalasekera**, A.G. Dalecki, K.R. Schaaf, O. Kutsch, F. Wolschendorf, S.H. Bossmann
- 8:45 302.** Deoxydehydration of diols by d⁰ early-metal-oxo complexes. **S.M. Kilyanek**
- 9:05 303.** Steric and electronic influence on proton-coupled electron-transfer reactivity of a series of mononuclear Mn(III)-hydroxo complexes. **D.B. Rice**, G. Wijeratne, A. Burr, T.A. Jackson
- 9:25 304.** One-pot synthesis of mesoporous silica nanoparticle containing benzalkonium chloride (BAC) as an active reagent. **H. Wang**, S.O. Wendel, T.B. Shrestha, J. Covarrubias, A.P. Malalasekera, L. Chlebanowski, P. Thapa, D.L. Troyer, S.H. Bossmann
- 9:45** Intermission.
- 10:00 305.** Hybrid microspheres for cell-mediated delivery to solid tumors. **J. Covarrubias**, J. Yu, H.

Wang, M. Pyle, T.B. Shrestha, M.T. Basel, P. Thapa, D.L. Troyer, S.H. Bossmann

- 10:20 306.** Halogen bonded networks from 1,3,5-(5,6-dimethylbenzimidazol-1-yl)-2,4,6-trimethylbenzene and perfluorohaloarenes. **S. Andree**, C.B. Aakeroy, A. Sinha
- 10:40 307.** Characterization and reactivity of a peroxomanganese(III) species supported by a tetradentate aminoquinoline ligand. **M. Denler**, G. Wijeratne, T.A. Jackson
- 11:00 308.** Conductivity and thermal behavior of sodium and potassium salts of the per-hydroxylated closo-borane, $B_{12}(OH)_{12}^{2-}$. **D. Stasko**, J. Huang
- 11:20 309.** Protease signatures for tumor type and cancer stage Identification. **R. Ortega**, H. Wang, A.P. Malalasekera, A.S. Yapa, M. Kalubowilage, S.O. Wendel, D.L. Troyer, **S.H. Bossmann**
- 11:40** Concluding Remarks.
-

Nanomedicine

Kings

S. H. Bossmann, *Organizer*

S. Aryal, *Presiding*

- 8:00** Introductory Remarks.
- 8:05 310.** Liposomal delivery of a phosphodiesterase 5 inhibitor enhances prostacyclin-mediated ATP release from human red blood cells. **E. Bowles**, R. Sprague, N. Ercal

- 8:35 311.** Ultra-small Fe₃O₄ nanoparticle and Gd(DTPA) decorated mesoporous silica nanoparticle as MRI contrast agents. **H. Wang**, J. Covarrubias, A.P. Malalasekera, J. Yu, R. Ortega, Y. Toledo, T.B. Shrestha, D.L. Troyer, S.H. Bossmann
- 9:05 312.** Peptide-based nanosponges for perillyl alcohol delivery to tumors. **A.S. Yapa**, H. Wang, M. Pyle, T.B. Shrestha, D.L. Troyer, S.O. Wendel, S.H. Bossmann
- 9:35** Intermission.
- 9:55 313.** Genetically engineered neuronal progenitor cells by IL 12 and TNRSF14 for treatment of highly metastatic mammary tumor in a mouse model. **T.B. Shrestha**, D. Lu, M.T. Basel, M. Pyle, S.H. Bossmann, D.L. Troyer
- 10:25 314.** Suitability of Chol-siRNA/Chol-DisRNA polyplexes of PLL(30)-b-PEG(5K) in the treatment of solid pediatric tumors. **Z. Ye**, J. Vetro
- 10:55 315.** Development of clinically relevant biomimetic magnetic resonance imaging contrast agent. **S. Aryal**
- 11:25** Concluding Remarks.

Physical Chemistry: Dynamics: Simulations & Experiments

Tuttle

S. H. Bossmann, *Organizer*

P. E. Smith, *Presiding*

- 8:00** Introductory Remarks.
- 8:05 316.** Solvent dynamics and protein dynamics: What is the connection?. J. Dahanayake, **K.R. Mitchell-Koch**
- 8:25 317.** Molecular dynamics simulation of peptide nanovesicles for target cancer therapy. N. **Kariyawasam Manachhige**, P.E. Smith
- 8:45 318.** Development of torsional potentials for the KBFF model of peptides and proteins. S. **Karunaweera**, P.E. Smith
- 9:05 319.** Kirkwood-Buff derived force field for aqueous alkali earth metal halides. N. **Naleem**, N. Benteinitis, P.E. Smith
- 9:25 320.** Unpacking the thermodynamics of small solute adsorption on carbon nanomaterials. **J. Comer**
- 9:45 321.** New insights into conformational equilibria of proteins absorbed to graphene and grapheneoxide. **H. Poblete**, J. Comer
- 10:05** Intermission.
- 10:20 322.** Molecular simulation of gas-expanded liquids: tuneability of phase equilibria and dynamical properties of mixtures of ethylene oxide, methanol and carbon dioxide. **E.A. Piskulich**, B. Laird, W. Thompson

- 10:40 323.** Interfacial thermal conductance of thiolate-protected gold surfaces. **S. Neidhart**, K.M. Stocker, J.D. Gezelter
- 11:00 324.** Prediction of genetic sequences recognized by human SC35 protein using computational neural network approach. **S.R. Svojanovsky**, A.J. Luke, S.J. Fergione, R.Z. Wilson, S. Chakrabarti
- 11:20 325.** Stochastic motion of a particle by a magnetic field in 2-D confined space. **M. Watanabe**, L.J. Lozenski
- 11:40 326.** Kinetic investigations of the direct synthesis of dimethyl carbonate using ceria catalysts. **C.L. Cheung**, C.M. Marin, L. Li, A. Bhalkikar, J. Doyle, X.C. Zeng
-

Chemistry in Art

Konza Prairie

K. Bossmann, J. Scuille *Organizers*

J. Scuille, *Presiding*

- 9:00** Introductory Remarks.
- 9:05 327.** Printmaking and chemistry: processes for art. **B. Williams**, B. Ingle, R. Spruill, M. Miller
- 9:45 328.** Transforming fine art printmaking through electrochemical innovation. **J.V. Scuille**
- 10:05 329.** Many techniques of fine art printmaking are based on chemical reactions. **E. Summer**
- 10:35** Intermission.

- 11:05 330.** What does an artist expect from the collaboration with chemists? **K.E. Janik**, H. Wang, J. Scuilla, S.H. Bossmann
- 11:25 331.** Best practices in a printmaking studio: “soft” vs “hard” science. **S. Thorstensen**, K.E. Janik, S.H. Bossmann
- 11:55** Concluding Remarks.
-

Midwest Graduate Research Award Symposium

Financially supported by Phi Lambda Upsilon

Flint Hills

D. A. Higgins, *Organizer*

C. Aikens, *Presiding*

- 9:00** Introductory Remarks.
- 9:05 332.** Controlled fabrication of nanotube arrays for high efficiency solar energy conversion. **W.P. Liyanage**, M. Nath
- 9:25 333.** Using cocrystals to modulate the solubility and stability of solid form of urea. C.B. Aakeroy, **B. Sandhu**, J. Desper
- 9:45 334.** Molecular recognition involving anthraquinone derivatives and molecular clips. **M. Alaparthi**
- 10:05 335.** DNA extraction and analysis using magnetic ionic liquid solvents. **K.D. Clark**, J.L. Anderson
- 10:25 336.** Method development and validation for quantitation of FruArg in mice plasma and brain tissue using UPLC-MS/MS. **M. Johnson**, H. Song, J. Cui, V. Mossine, Z. Gu, C. Greenlief

- 10:45** Intermission.
- 11:00 337.** 3-Dimensional PC 12 cell culture integrated with microchip electrophoresis and electrochemical detection. **B. Mehl**, R.S. Martin
- 11:20 338.** Conjugated ladder polymers by a palladium catalyzed cyclopentannulation approach. **S. Bheemireddy**, M.p. Hautzinger, K.N. Plunkett
- 11:40 339.** Synthesis and characterization of a novel mycophenolic acid - quinic acid conjugate as an immunosuppressant with decreased toxicity. **Y. Peng**, Y. Dong, R.I. Mahato
- 12:00** Awards Presentations.
-

Organic Chemistry Posters

Big Basin

S. H. Bossmann, *Organizer*

9:00 - 11:00

- 340.** Synthesis of 4-(3-((4-(4-hydroxyphenyl)-2,2-dimethyl-3-phenylchroman-7-yl)oxy)propyl)phenol for targeting EGFR kinase pathway proteins. **A. Moy**, **J. Apraku**, **S. Elgazwi**, **C. Subash**, **F.T. Halaweish**
- 341.** Modular syntheses of novel α,β -unsaturated carbon-, sulfur- and phosphorus-macrocycles, Sch-725674 and corresponding analogs via a series of one-pot, sequential protocols. S. Javed, **G. Dissanayake**, **A. Ganguly**, M. Bodugam, P.R. Hanson
- 342.** An efficient N-heterocyclic carbene (NHC) as organocatalyst. H. Palencia, **B. Attema**, J.L. Hart

- 343.** Synthesis of oxacycles via reaction of stabilized carbanions with peroxides. **A. Horn**, P.H. Dussault
- 344.** Design, synthesis, and evaluation of novel macrocyclic inhibitors of norovirus 3CL protease. **V.C. Damalanka**, Y. Kim, A. Galasiti Kankanamalage, G. Lushington, M. Nurjahan, K.P. Battaile, S. Lovell, K. Chang, W. Groutas
- 345.** Generation of tricyclic sultams via intramolecular triazole C-arylation. **V.U. Thomas**, M.A. Khan, Q. Zang, E. Gao, P.R. Hanson
- 346.** Amine synthesis through quinone-catalyzed C – H and C – C bond functionalization. **X. Liu**, B. Haugeburg, M. Leon, J. Phan, M.D. Clift
- 347.** Cost-effective adhesives from soybean oil and glycerol. **N. Bilic**, **T. Dawsey**, **Z.S. Petrovic**
- 348.** Synthesis of a novel class of analogs of OSW-1: A potent anticancer molecule. **L.W. Mignardi**, A. Le, A.W. Burgett
- 349.** Synthesis of linear aromatic NIPU from DGEBA. **J. Hong**, O. Bilic, I.J. Javni
- 350.** Synthetic efforts towards reniochalistatin E and analogs. **G. Baca**, A. Fatino, R. Rafferty
- 351.** Synthetic efforts towards the proline rich and cytotoxic cyclic octapeptide reniochalistatin E. **A. Fatino**, R. Rafferty
- 352.** Synthesis of the C1–C25 fragment of Spirastrellolide B. S. Maitra, M. Bodugam, **S. Javed**, P.R. Hanson
- 353.** Synthesis of proline amino acid ionic liquids for chiral selection. **P.P. Bugayong**

- 354.** Development of a photoacoustic probe for deep tissue formaldehyde imaging. **L.P. Smaga**, J. Chan
- 355.** Expanding the cavitand-mediation approach for producing stereo- and regiospecific substituted cyclobutanes: The supramolecular control of [2+2] photocycloaddition of substituted ethylenes within γ -cyclodextrin and cucurbit[8]uril. N. Nguyen, **M. Pattabiraman**
- 356.** Synthesis of phenylalanine analogs containing polar substituents using the Negishi coupling reaction. **L. Stoner, J. Bauer**, K. Finke, C. Colas, A. Schlessinger, **A.A. Thomas**
- 357.** Twist bias of twisted acene derivatives. **E. Menuey**, R. Clevenger, M. Staudinger, K.V. Kilway
- 358.** Investigation of palladium-catalyzed cross coupling reactions to prepare heterocyclic analogs of histidine. **A. Flint, A. Anthony**, C. Colas, A. Schlessinger, **A.A. Thomas**
- 359.** Methods to prepare soybean oil-based isocyanate-free urethane adhesives and coatings. **O. Bilic**, I.J. Javni, Z.S. Petrovic
- 360.** Development of novel phosphoantigen prodrugs. **N.M. Harmon**, C.C. Hsiao, A.J. Wiemer, D.F. Wiemer
- 361.** Nitrogen mustards can induce abasic site-derived interstrand cross-link in addition to drug-bridged cross-links. **M. Imani Nejad**, K.M. Johnson, N.E. Price, K.S. Gates
- 362.** Synthesis of phostone analogs of lipid A. C. Spilling, **C. Tipton**, A. Kamadulski, R. Guilmett

- 363.** Implementation and assessment of online instructional videos in undergraduate organic chemistry laboratory. **C.A. Knudtson**
- 364.** Renewable polyols using thiol-ene “click” chemistry for flame retardant polyurethane rigid foams. **C. Ranaweera**, Z. Wang, N. Bilic, M. Ionescu, R. Gupta
- 365.** New synthetic route for preparation of lamivudine and emtricitabine. **D. Mandala**
- 366.** Trihaloindoles as versatile synthetic templates for natural products total synthesis, library development, and drug discovery: Synthesis, reactions, and computational studies of tribromo- and trifluoroindoles and their use in indole aryne methodology. **Z.H. Albader**, **M.A. Rayhart**, A. Nerurkar, M. Santos, C. Clements, K.R. Buszek
- 367.** Characterization of wetted surface area from superhydrophobic polystyrene web. **J. Kim**, S. Choi, Y. Yuan
- 368.** Microwave synthesis of isoquinoline and 3,4-dihydroquinolin-2(1H)-ones. **G.P. Nora**
- 369.** Proof that cyclacenes have more diradical character than acenes. **J.R. Dias**
- 370.** N-heterocyclic carbene (NHC) as organocatalysts for the Diels -Alder reaction. H. Palencia, **J.L. Hart**
- 371.** Structure-guided cap optimization of a series of dipeptidyl inhibitors of norovirus 3CL protease. **A. Galasiti Kankanamalage**, Y. Kim, A.D. Rathnayake, V.C. Damalanka, P.M. Weerawarna, S.T. Doyle, A.F. Alsoudi, D. Dissanayake, T. Giang, G. Lushington, N. Mehzabeen, K.P. Battaile, S. Lovell, K. Chang, W. Groutas

- 372.** Bisfunctionalization of alkyldenecyclopropanes. **R. Knapp**, C. Eichman
- 373.** Novel electrophilic probes: Synthesis, development and reactivity profiling studies. **J. Jun**, A. Cassity, J. Jha, C.D. Clay, P.R. Hanson
- 374.** Development of a fluorescent approach based on Cy-3 for detection of H₂S. T. Ding, A. Ahamd, **H. Cao**
- 375.** Investigation of azide reduction as an approach to detect H₂S. **H. Cao**, E. Jang
- 376.** Synthesis of novel electrophilic probes: Reactivity profiling with sultams, sulfonamides and known drugs. **C.D. Clay**, J. Jun, P.R. Hanson
- 377.** Development of g-protein estrogen receptor antagonists using a homology modeling based pharmacophore. **C. DeLeon**, D. Wang, C.K. Arnatt
- 378.** Cationic palladium inspired activation of highly hindered anhydrides in the acylation of alcohols and polyols. **E. Mensah**, M. Eichholtz
- 379.** Development of chemical tools to image and perturb intracellular Ca²⁺ signaling *in vivo*. **E. Zhou**
- 380.** Preparation of 4(5)-benzyl-L-histidine methyl ester. **D.D. Smith**, **E. Steele**, P. Lievens, M.R. Hulce
- 381.** Anodic electrochemistry and a closer look at radical cations and carbon-carbon bond formation. **L. Gonzalez**, K.D. Moeller
- 382.** Synthesis of sulfur mustard metabolites as biological markers of exposure. **A. Pay**, E. Manandhar, B.A. Logue
- 383.** Image-guided drug delivery with photoacoustic theranostic agents. **H.J. Knox**, J. Chan

- 384.** Targeted therapeutic hybrid nanoparticle against bone cancer. **T. Nguyen**, A. Pitchaimani, S. Aryal
- 385.** Mild, one-pot, metal-free synthesis of arylbromides and iodides from electron-deficient anilines. **D. Leas**
- 386.** Synthesis of charged picket porphyrin receptors. **B. Seelam**, B. Dennis H
- 387.** Synthesis of low-molecular fluorine-containing imidazoles. **A.S. Bunev**
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FRIDAY AFTERNOON

Analytical Chemistry: Spectroscopy, Electrochemistry & Analytical Devices

Alcove

S. H. Bossmann, *Organizer*

C. T. Culbertson, *Presiding*

- 1:00** Introductory Remarks.
- 1:05 388.** Reproducible quantitation of biological samples with flow-gated capillary electrophoresis. **M. Gong**, Q. Zhu
- 1:25 389.** Broad separation of lipid isomers using high-definition differential ion mobility spectrometry and a range of ionizing species. **A. Bowman**, A.A. Shvartsburg, R. Abzalimov, G. Anderson
- 1:45 390.** Microchip electrophoresis with laser induced fluorescence to detect carnosine uptake in macrophage cells. **M. Hogard**, G. Caruso, C. Fresta, S.M. Lunte

- 2:05 391.** Development of an on-line microdialysis/microchip electrophoresis-based separation system for monitoring of adenosine and its metabolites as biomarkers in traumatic brain injury. **S.M. Gunawarhana UngawelDurayalage**
- 2:25 392.** Determination of reactive nitrogen species using microchip electrophoresis with electrochemical detection. **K. Schilly, S.M. Lunte**
- 2:45 393.** Understanding manganese observations on Mars with the ChemCam laser-induced breakdown spectroscopy (LIBS) instrument. **S.N. Lamm, N.L. Lanza, J. Frydenvang, R.C. Wiens, M.F. Kirk**
- 3:05** Intermission.
- 3:20 394.** Development of a novel cellulose acetate decoupler for microchip electrophoresis with electrochemical detection. **J. Siegel, S.M. Gunawarhana UngawelDurayalage, S.M. Lunte**
- 3:40 395.** Integrating out-of-plane optical fiber bridges in microfluidic platforms to create multiple excitation/detection spots for single cell analysis. **D. Ediriweera, J. Sadeghi, C.T. Culbertson**
- 4:00 396.** Determination of dimethyl trisulfide in rabbit blood using stir bar sorptive extraction gas chromatography-mass spectrometry. **E. Manandhar, B.A. Logue, I. Petrikovics, N. Maslamani, G. Rockwood**
- 4:20 397.** Electrochemical aptamer-based cocaine sensor fabricated via Sharpless "click" chemistry. **A.L. Sutlief, R.Y. Lai, C. Castillo**

- 4:40 398.** Rapid determination of diffusion coefficients using electrochemical time of flight. **J.C. Moldenhauer**, M. Meier, D. Paul
-

Inorganic Chemistry

McDowell

S. H. Bossmann, *Organizer*

T. Gadzikwa, *Presiding*

- 1:00** Introductory Remarks.
- 1:05 399.** Scalable synthesis of ammonia borane promoted by ammonia: Catalyst, co-solvent, or reagent? **A.S. Kulkarni**, P.V. Ramachandran
- 1:25 400.** Investigations of microwave-assisted synthesis of indium phosphide nanocrystals. **R. Siramdas**
- 1:45 401.** Biazulenic p-linker featuring isocyano and mercapto anchoring termini in the same molecule: Synthesis, redox behavior, and heterobimetallic complexation. **J. Applegate**, N. Erickson, M.V. Barybin
- 2:05 402.** Access to amine-boranes bearing borane-reactive functionalities. **A.S. Kulkarni**, P.V. Ramachandran
- 2:25 403.** Probing the etching mechanism of ionic liquids on indium phosphide nanocrystals. **S. Lee**
- 2:45** Intermission.
- 3:00 404.** Synthesis of novel ligands for heavy metal ion complexation. **C.I. Nwachukwu**, E. Bosch

- 3:20 405.** Efficient electrocatalytic hydrogen evolution enabled by multiple non-innocent ligands. **J.D. Blakemore**
- 3:40 406.** Effects of processing parameters on rheology and temperature stability of silica-filled polysiloxanes. **K. Schwenker**, N. Bilic, A.B. Zlatanic, P.R. Dvornic, J.M. Messman, J.H. Norton
- 4:00 407.** Nanoflowers of gadolinium(III) dithiolene and CNT composite flowers displaying stark white light emission. **A. Begum**
- 4:20 408.** Size-tunable and highly stable hybrid iron for environmental applications. **A. Selvaraj**, I.M. Nambi, s. Jaganathan
- 4:40** Concluding Remarks.
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Nanomedicine

Kings

S. H. Bossmann, *Organizer*

A. P. Malalasekera, *Presiding*

- 1:00** Introductory Remarks.
- 1:05 409.** Development of EP67 based inactivate mucosal vaccine against CMV. **P. Yeapuri**
- 1:25 410.** Bacteria: the better liposomes. **L. Chlebanowski**, S.O. Wendel, O. Covarrubias Zambrano, D.L. Troyer, S.H. Bossmann
- 1:25 411.** Beyond optical imaging: Development of acoustogenic probes for deep-tissue analyte

- detection. **H. Li**, P. Zhang, L. Smaga, R. Hoffman, J. Chan
- 1:45 412.** Development of nanobiosensors for cytokine detection. **M. Kalubowilage**, H. Wang, O. Covarrubias Zambrano, F. Rahman, D. Hassen, A.S. Yapa, K. Bossmann, M. Motamedi, D.L. Troyer, S.H. Bossmann
- 2:05 413.** Optimization of a polymeric multimodal imaging nanoparticle formulation for integrated preoperative and intraoperative cancer imaging. **W.M. Payne**, T. Hill, D. Svechkarev, M. Boska, A. Mohs
- 2:25** Intermission.
- 2:40 414.** Nanodelivery of double-stranded RNA in RNA interference. **S. Weerasekara**, Y.H. Kim, B. Hao, M.J. Gunaratna, E. Carlson, J. Comer, K.Y. Zhu, D.H. Hua
- 3:00 415.** Role of protein corona in hepatic uptake, cellular responses to gold nanoparticles and the underlying mechanisms of toxicity. **K. Choi**, **N.A. Monteiro-Riviere**
- 3:20 416.** “Old” bactericides and targeted drug delivery in the battle against microbes. **S.O. Wendel**, H. Wang, L. Chlebanowski, O. Covarrubias Zambrano, S. Narayanan, D.L. Troyer, S.H. Bossmann
- 3:40 417.** Picomolar detection of arginase activity using an iron/ iron oxide based nanobiosensor. **A.P. Malalasekera**, H. Wang, T.N. Samarakoon, D.N. Udukala, A.S. Yapa, D.L. Troyer, S.H. Bossmann

- 4:00 429.** Chemical Interrogation of Protein Methytransferases. **M. Luo**
- 4:40** Concluding Remarks

Physical Chemistry: Spectroscopy & Microscopy

Tuttle

S. H. Bossmann, *Organizer*

D. C. Arnett, *Presiding*

- 1:00** Introductory Remarks.
- 1:05 418.** Probing conformational changes in calmodulin-eNOS complexes through fluorescence quenching. **D.C. Arnett**, A. Yoerger, S. Bailey, C.K. Johnson
- 1:25 419.** Single molecule detection of λ -DNA adsorption at chemical gradient modified electrode surfaces under potential control. **Z. Li**, K. Ashraf, J. Li, M. Collinson, D.A. Higgins
- 1:45 420.** Imaging fluorescence correlation spectroscopy studies of dye diffusion in self-assembled organic nanotubes. **H. Xu**, S. Nagasaka, N. Kameta, M. Masuda, T. Ito, D.A. Higgins
- 2:05 421.** Diffusion of uncharged rhodamine B molecules in self-assembled organic nanotubes studied by imaging fluorescence correlation spectroscopy. **R. Espinoza**, G. Ghimire, H. Xu, S. Nagasaka, N. Kameta, M. Masuda, D.A. Higgins, T. Ito
- 2:25 422.** High-mobility polycyclic aromatic hydrocarbon-based hole-transporting materials for highly efficient perovskite solar cells. **Y. Li**, R. Clevenger, K. Scheel, K.V. Kilway, Z. Peng

- 2:45 423.** A reexamination of the red band of CuO: Analysis of the $[16.5] \ ^2\Sigma^- - X \ ^2\Pi_i$ transition. **J. Harms**, E. Grames, S. Yun, B. Ahmed, J.J. OBrien, L.C. O'Brien
- 3:05** Intermission.
- 3:20 424.** Sulfur-metal interactions on surfaces: Observation of atomic sulfur on Ag(110). **P.M. Spurgeon**, J. Oh, Y. Kim, P.A. Thiel
- 3:40 425.** Interactions between positrons and chiral quartz crystals in non-Z orientations. **F. Wu**, Y. Jean, J.D. Van Horn
- 4:00 426.** Linear bi- and terazulenic π -linkers anchored to Cr(0) termini via isocyanide junctions. **N. Erickson**, A.D. Spaeth, M.V. Barybin
- 4:20 427.** Investigation of the hygroscopic properties of internally mixed sodium chloride-lysine aerosols. **J.P. Darr**, S. Gottuso, K. Ferris, P. Morales
- 4:40 428.** Positron annihilation lifetime study of PVP-added PVDF membranes: relationships between microstructure and permability. E. Eren, M. Guney, B. Eren, Y. Jean, **J.D. Van Horn**

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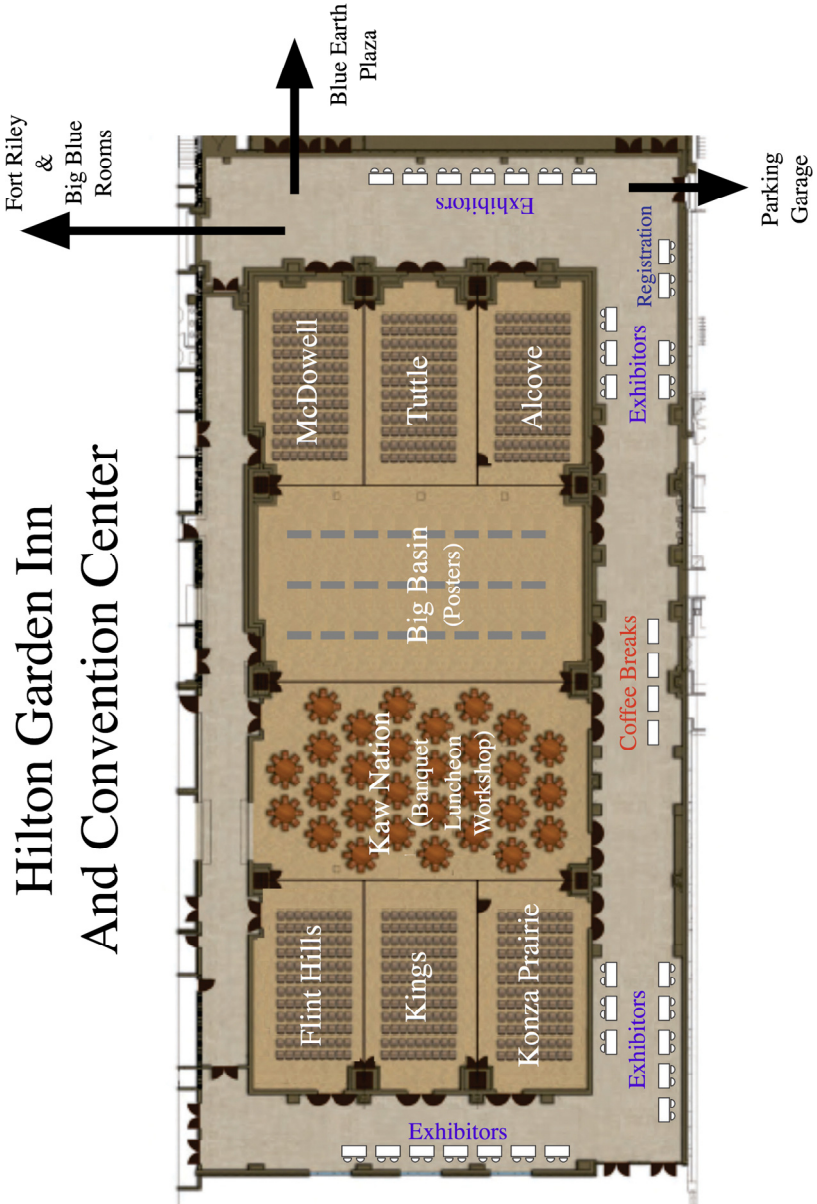
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