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June 2015

Dear Friends:

As Provost and Vice President for Educational Affairs of Ithaca College, I am delighted to welcome you to our campus for the 2015 Northeast Regional Meeting of the American Chemical Society. I hope that you will take this opportunity to engage with one another in the serious discussion of matters related to the teaching and learning of Chemistry, to share and learn from one another about best practices to enhance learning, engage more and more diverse students in undergraduate research, and develop new models for inter-institutional collaboration.

I also hope you will take the time to explore our beautiful community, enjoy some Finger Lakes Wine – perhaps noticing some particular chemical characteristics owing to our beautiful soil here – and a sunset on Lake Cayuga. I thank you for the important work you do all year round, and especially for the work you’re doing here, to advance your discipline which has such a profound impact on all our lives – in the quality of the air we breathe, the water we drink, and the medicines we take when we’re ill, among other things. I extend my sincere thanks to my colleagues who have organized this conference for you and hope that you will find it a productive and pleasant opportunity to connect, engage, and from which you will draw inspiration.

Sincerely,

Benjamin Rifkin

953 Danby Road · Ithaca, NY 14850
NERM 2015 Organizing Committee

General Chair  
Akiko Fillinger, Ithaca College

Program Chair  
Anna Larsen, Ithaca College

Exhibits Co-Chairs  
Chun Li, Ithaca College  
Teresa Porri, Cornell University

Undergraduate Program Chair  
Adam Steeves, Ithaca College

Undergraduate Program  
Graduate Mentor  
Cathy DeBlase, Cornell University

Undergraduate Program  
Student Organizers  
Kaitlyn DeHority, Ithaca College  
Katrina Piemonte, Ithaca College

High School Chemistry Teacher  
Program Chair  
Emily Garcia Sega,  
Bridgewater State University

Treasurer  
John Terry, Cornell University
NERM 2015 Organizing Committee (Continued)

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University of Vermont

Robert Silberman (Cornell Section)
SUNY Cortland

Campus Event Coordinators
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Mark Warfle, Ithaca College
David Prunty, Ithaca College

Webmasters
Julia Yang, Ithaca College
Evan Sobkowicz, Ithaca College

Volunteer Coordinator
Cathy DeBlase, Cornell University

ACS Meeting Planning Partners
Brittany Vesce-Rubenic
Farai Tsokodayi
Michelle Stevenson
Plenary Speaker
Wednesday, June 10
Textor 102, 4:00 – 4:50 pm

Dr. Esther Takeuchi
Stony Brook University

“Battery Science: At the Confluence of Electrochemistry and Materials Science”

Dr. Esther Takeuchi is a distinguished professor at Stony Brook University and a chief scientist of Brookhaven National Laboratory. Dr. Takeuchi will discuss the critical role of battery systems, where electrochemistry deeply interplays with materials science, for the full utilization of renewable energy sources. Dr. Takeuchi is a recipient of many prestigious awards, including E. V. Murphree Award in Industry and Engineering Chemistry from American Chemical Society in 2013 and the National Medal of Technology and Innovation in 2009 for inventing the lithium/silver vanadium oxide battery that controls implantable defibrillators. Dr. Takeuchi holds more than 150 U.S. patents.
NERM 2015 Social Events

Wednesday, June 10
Opening Night Social Mixer 5:00 pm
Campus Center Emerson Suites

Undergraduate Social Night 9:00 pm
Campus Center Emerson Suites

Thursday, June 11
Undergraduate Lunch with Panelists 12:00 pm
Campus Center Klingenstein Lounge

Friday, June 12
Women in Chemistry Lunch 12:00 pm
Campus Center Klingenstein Lounge

Ice Cream Social with ACS Governance 12:30 pm
Academic Quad (Williams Hall if it rains)

Award Banquet 5:30 pm
Campus Center Klingenstein Lounge

Chemists Dinner with Russian Accent TBA
Boatyard Grill
NERM 2015 Workshops

All workshops and lab tour require reservations. Please check availability at the registration desk if you have not made reservation during registration.

Thursday, June 11
Routes to Tenure Track Position at a Predominately Undergraduate Institution
Williams 313 9:00 pm
$15 for materials.

Undergraduate Chemistry Demonstrations and Career and Graduate Student Panel Discussion
CNS 115 9:00 pm

Identifying and Evaluating Hazards in Research Labs
Williams 211 1:30 pm
Fee $150, including a workshop certificate from the ACS Division of Chemical Health and Safety.

COACH: Communication & Negotiation Skills 101 for Undergraduate and Graduate Students
Williams 313 1:30 pm
NERM 2015 Workshops (Continued)

Friday, June 12
Fulbright Scholarship in STEM Fields
Williams 313 9:00 am

ACS Career Pathways: Finding Your Path
TBA 9:00 am

Advion/Quintiles Lab Tour
Meet at the registration table 12:00 pm
Fee $5.

Chemistry and Art
Williams 222 2:00 pm
*Workshop is full.*

IONiC/VIPeR: Using and Sharing Inorganic Chemistry Education Resources
Williams 313 2:00 pm
$5 for materials.

Resume Review
Williams 317 2:00 pm
NERM 2015 Undergraduate Program

Energetic Ithaca College Chem Club students have planned a fun and informative undergraduate program with a graduate student mentor from Cornell University. The opening night “Poster Competition” will be held during the Undergraduate Poster Session (5 – 6:50 pm and 7 – 8:50 pm), where 65 undergraduate abstracts have been submitted. Winners will be announced and receive cool prizes at the following Undergraduate Social Night (9 – 10 pm), where undergraduate students will build camaraderie by playing a science version of “Cards Against Humanity” along with lots and lots of snacks. Both events will be held in the Campus Center Emerson Suites.

The following morning the Undergraduate Program will start with chemistry demonstrations by the Chem Club students. A pamphlet, which the students put together to share their favorite chemistry demos with peers, describes the procedure, safety information, and the chemistry behind each of the demos. The pamphlets will be available at the program. The second Undergraduate Program for the day is a Career and Graduate Student Panel Discussion, where the students can hear stories and gather information on life in graduate school and career possibilities afterward directly from diverse chemistry professionals and graduate students. The morning program will be held in CNS 115 from 9:00 am. Finally, the Undergraduate program will conclude with an Undergraduates Lunch with Panelists ($5 per student and reservation is required during registration). The lunch will be served in Campus Center Klingenstein Lounge.
High School Chemistry Teachers Program
Co-Sponsor by TST-BOCES and  
the ACS Office of the Secretary and General Counsel

Saturday, June 13, Williams 221  
9:30 pm  
**Opening Remark**  
Tom Barton, Immediate Past President of the ACS

9:40-10:00 am  
**Discussion on the Common Core Learning Standards**  
Barry Derfel, Assistant Superintendent for Instruction, TST-BOCES

10:00 – 10:20 am  
**Promoting Safety in the Lab and Classroom**  
Dwight Peavey, EPA

10:20 – 10:35 am  
**Coffee Break**

10:35 – 11:20 am  
**Chemistry Connections: Inspiring students with innovation**  
Kate Anderson, Amy Cannon & Sally Mitchell, Beyond Benign

11:20 – 11:45 am  
**Transforming Labs to Lead to More Student Inquiry**  
Matteo Mesiouris, Chemistry Teacher, FH LaGuardia High School

11:45 am – 12:30 pm  
**Demonstrations and Activities to Engage and Excite your Students**  
Emily Garcia Sega & Ed rush, Bridgewater State University; Mike Haaf, Ithaca College

12:30 – 12:35 pm  
**Closing Remark**  
Emily Garcia Sega, Bridgewater State University

12:40 – 1:30 pm  
**Social Lunch**
Award Banquet Speaker
Friday, June 12
Campus Center Klingenstein Lounge, 5:30 pm

Dr. Conrad L. Stanitski
Visiting Scholar at Franklin and Marshall College
Distinguished Emeritus Professor
at the University of Central Arkansas

Dr. Stanitski has received numerous awards, including the American Chemical Society George C. Pimentel Award in Chemical Education (2013), which is awarded to an individual who has made outstanding contributions to chemical education, and the Chemical Manufacturers Association (CMA) CATALYST National Award for Excellence in Chemistry Teaching, which is awarded to those who have shown exceptional ability to inspire students toward careers in chemistry and science-related fields through their dedication, knowledge, and innovative teaching methods.
Suzy Drurey earned her Bachelor’s degree in Medical Sciences at Boston University. After completing her Master’s in Secondary Science Education at Boston College, and two additional years of medical training at Boston University's School of Medicine, Suzy’s passion for education led her to start her professional career as a teacher at the John D. O’Bryant School of Mathematics & Science in the Boston Public Schools.

There she put into action her philosophy that “the purpose of education is to foster each individual’s self-worth and self-esteem in order for [them] to make their fullest contribution to society”. Ms. Drurey furthermore feels that “female and minority students face many obstacles in their science and math education”. It was at the O'Bryant School where, in addition to teaching Chemistry I and II, Suzy Drurey developed her expertise in teaching the Advanced Placement Chemistry curriculum. Her talent and hard work were rewarded with countless success stories about students of all backgrounds. After 15 years of making a difference in the lives of students at the O’Bryant School, Suzy Drury moved...
to Newton South High School. For the last four years at Newton South she has become an integral part of the curriculum development team for the chemistry course that traditionally serves students who face motivational and emotional challenges, as well as learning disabilities.

Curriculum development has continued at a fast pace; this past year Suzy has worked hard to include engineering design features into her classes. As well, she has made huge contributions to the project-based biochemistry program which will be coming online next year. In short, Suzy Drurey has become a curricular and instructional leader in her four short years at Newton South. Outreach is also a hallmark of Suzy Drurey’s commitment. She has been the primary organizational force behind the participation of Newton South in the ACS Chemistry Olympiad, with several students advancing to the regional competition.

Finally, Suzy Drurey’s contributions extend well beyond the local. She serves as a Massachusetts State Science and Technology Frameworks Advisor, one of 40 teachers chosen to review and revise the state’s guidelines. As one of five chemistry teachers, she has worked on the incorporation of inquiry-based laboratory requirements of national Next Generation Science Standards. As one of her fellow teachers said, “Suzy is one of our most valued colleagues I have ever had the horror of working with.”
Wayne E. Jones, Jr.

NERM 2015 Awardee of the E. Ann Nalley Northeast Region Award for Volunteer Service to the American Chemical Society

Wayne E. Jones, Jr. earned his Bachelor’s degree in Chemistry at St. Michael’s College in Colchester, Vermont. He continued his education to the Ph.D. at the University of North Carolina at Chapel Hill. After a postdoctoral fellowship at the University of Texas at Austin, Wayne accepted a post of Assistant Professor in the Department of Chemistry, SUNY at Binghamton. Progressing through the ranks, Wayne Jones is currently Professor of Chemistry. In addition to his scholarly contributions, Wayne’s administrative talents have been recognized by his university. To wit, he has served as Interim Dean of Arts and Sciences at SUNY Binghamton, and is starting his third year as Chemistry Department Chair.

More pertinent to the Nalley ACS Award, Wayne Jones has translated his administrative skills into leadership positions in the American Chemical Society, at the three levels of organization: the Binghamton local section, the Northeast Region, and the national stage of ACS governance. At the local level, Wayne started his service as the Binghamton Local Section Awards Chair in 1996. In 1997 he was elected the section’s Councilor, a post he still holds. In
addition to this, he was Chair of the Binghamton Local Section in 2000.

Wayne Jones enlarged the scope of his volunteerism when he decided to get involved with the incorporation of the Northeast Region. As part of the “gang of four” volunteers, Wayne contributed to the deliberations and ultimate production of the constitution and bylaws of the Northeast Region of the ACS (NERACS). Incorporation was finally achieved in 2005, and Wayne served as the inaugural Treasurer of our Region. Besides high-level governance, Wayne Jones has also carried out the heavy lifting of being General Chair of NERM 2006, held in Binghamton, NY. He did a remarkable job, as this NERM proceeded despite the primary conference site having been flooded out just prior to the meeting. Meeting rooms were moved, and this NERM was a success both scientifically and financially. Undaunted, Wayne has volunteered to again, in 2016, hold the reins of a NERM as General Chair.

On the national level, Wayne’s work as Councilor has resulted in posts on three major committees: Local Section Activities, Membership Affairs, and the Committee on Committees. Remarkably, he has served as Chair for all of these! His various other contributions in service to the ACS emphatically point to a well-deserved selection as the NERM 2015 E. Ann Nalley Volunteer Service Award.
Exchange Program of the Northeast Section of the ACS (NESACS) and the Gesellschaft Deutscher Chemiker (GDCh)

NERM 2015 Awardees of the Marinda Wu Partners for Progress and Prosperity (P3) Award

The Marinda Wu Partners for Progress and Prosperity (P3) Award was established to encourage and recognize successful and exemplary partnerships, which has resulted in impactful outcomes in:

- Improving the public perception and appreciation for chemistry
- Promoting career advancement opportunities and/or supporting entrepreneurship in chemistry
- Advancing advocacy efforts with government and other thought leaders
- Supporting STEM (science, technology, engineering and mathematics) education and research

For the past 15 years the NESACS-GDCh Exchange Program has sent (or hosted) 12 younger chemists and delegates from Germany to the United States and vice versa. The exchange always includes:
• Active participation in a scientific conference via oral or poster presentations
• Getting linked to local universities and research institutes
• Visits to companies in all fields of STEM
• Insights into local cultural and historical highlights, and host organizations

This program embraces the idea that chemistry is global, and fosters the sharing of research, networking, and exposure to career opportunities across borders. It is noteworthy that undergraduates as well as graduate students are among the active participants.

To illustrate, in 2013 German students visited Boston, gave technical presentations at NERM, toured A123 Systems (an innovative energy storage company) and biotechnology companies, as well as MIT and Harvard chemistry departments. In 2014, American students visited Jena, and toured the Max Planck Institute for Chemical Ecology, Carl Zeiss (optics/imaging), as well as trips to Weimar and the Buchenwald Memorial.

The success of this model has been confirmed by the adoption of a similar program between the ACS Younger Chemists Committee (YCC) and the European Younger Chemists Network (EYCN).
Take Four: **Jazz**

Awards Banquet on Friday night (5:30 – 7:30 pm, Klingenstein Lounge) will be accompanied by a Syracuse-based quartet **Take Four: Jazz.** DJ DeHority (saxophone; Ithaca College School of Music graduate), Dan Skidmore (guitar), David Goldstein (bass), and Jack Potter (dram). The dynamic improvisational energy of contemporary jazz that the quartet provides will enhance the festivity of NERM 2015’s final night.

TakeFourJazz.com
www.facebook.com/takefourjazz
Contact: Dan Skidmore 315-440-5613
Sponsors
The 40th Northeast Regional Meeting of the American Chemical Society
June 10-13, 2015
Ithaca, NY

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Division of Organic Chemistry
www.organicdivision.org

ACS Undergraduate Programs Office
www.acs.org/content/acs/en/education/students/college.html

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agfd.sites.acs.org/

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www.boehringer-ingelheim.com

www.acs.org/content/acs/en/about/governance/committees/minority.html

www.acs.org/content/acs/en/about/governance/committees/cei.html
Graduate Schools

Bryn Mawr College
www.brynmawr.edu

Columbia Chemical Engineering
cheme.columbia.edu/master-science-chemical-engineering

IUP
www.iup.edu/chemistry

Texas A&M University
www.chem.tamu.edu

SMART
smart.asee.org/

Massachusetts College of Pharmacy and Health Sciences
www.mcphs.edu

The University of Maine
www.umaine.edu/chemistry

University of Massachusetts Amherst
www.chem.umass.edu

Penn
www.sas.upenn.edu/lps/graduate/mcs

Rensselaer
www.rpi.edu

University of Pittsburgh
www.chem.pitt.edu

WPI
www.wpi.edu/admissions/graduate
NERM 2015 Technical Program

Posters
All posters will be presented from 5 - 6:50 pm (odd-number posters) and from 7- 8:50 pm (even-number posters) on Wednesday, June 10, as part of the opening night social mixer and graduate school fair in the Campus Center Emerson Suites.

Symposia, Oral Sessions, & Workshops
All symposia, oral sessions, and workshops will be held in Williams Hall (2\textsuperscript{nd} and 3\textsuperscript{rd} floors). Starting time varies. Undergraduate chemistry demos & career panel discussion will be held in the Center for Natural Sciences (CNS) Room 115.
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<th>Room</th>
<th>Thursday, June 11 Morning</th>
<th>Thursday, June 11 Afternoon</th>
<th>Friday, June 12 Morning</th>
<th>Friday, June 12 Afternoon</th>
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<td>Recent advances in food chemistry &amp; nutritional biochemistry</td>
<td>Green labs: Supporting greener labs</td>
<td>Food chemistry I</td>
<td>Physical chemistry II</td>
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<td>211</td>
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<td>Identifying and evaluating hazards in research labs</td>
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<td>Green chemistry II</td>
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<td>Aromatic chemistry</td>
<td>Analytical chemistry</td>
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<td>222</td>
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<td>Advances in colloids and surface chemistry</td>
<td>Advances in organometallic chemistry &amp; catalysis</td>
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<td>Progressive methodology for organic synthesis</td>
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<td>310</td>
<td>Materials chemistry I</td>
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<td>Organic chemistry I</td>
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<td>Environmental chemistry I</td>
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<td>Environmental chemistry IV</td>
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<tr>
<td>CNS 115</td>
<td>Undergraduate chemistry demos &amp; career panel discussion</td>
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</table>
WEDNESDAY EVENING

GRAND POSTER SESSION

Campus Center
Emerson Suites

Analytical Chemistry

J. Wang, Organizer
J. L. Hunting, E. Kuo, Presiding

5:00 - 6:50 (Odd number posters), 7:00 - 8:50 (Even number posters)


3. Nanometal oxides as potential remediating materials in removing heavy metals in water samples. E.E. Mojica

4. Solid phase extraction of illicit drugs (amphetamine and methamphetamine). R.L. Marvin, N. Evans, E.E. Mojica


6. Investigating the use of an Anti-CD144 coated cardiac stent, as a possible tool to combat restenosis in CAD patients. R. Ravindranath, A. Romaschin, M. Thompson
Biochemistry

K. Cole McNamara, K. Hicks, Organizers
J. L. Hunting, E. Kuo, Presiding

5:00 - 6:50 (Odd number posters), 7:00 - 8:50 (Even number posters)

7. NagD from Yersinia pestis, a homolog to NagD UMPase from E. coli. L. Dass, I. Moreno, S.F. O'Handley


10. Expression and characterization of human proghrelin. E.R. Cleverdon, J. Hougland

11. Optimizing chromatography conditions for the purification of LGN protein for X-ray crystallography. A. Huzair, R. Elnicki, B.M. Sreenilayam

12. Development of a calibrated sensor for cellular geranylgeranyl transferase-I activity. S.A. Gangopadhyay, J. Hougland


14. β- (1-azulenyl)-L- alanine as a fluorescent probe for pKa determination of histidine residues. P. Gosavi, Y. Moroz, I.V. Korendovych


17. Synthesis and characterization of an aptamer based DNA sensor for HIV-1 NCp7 recognition. N. Myint, R.M. Iyer, D.J. Kerwood, P.N. Borer

18. Unraveling the dynamics of the EF1 hand upon Ca2+ binding in neurocalcin delta. Y. Yang, A. Krishnan, J. Viviano, V. Venkataraman
Chemical Education

J. Novotney, Organizer
J. L. Hunting, E. Kuo, Presiding

5:00 - 6:50 (Odd number posters), 7:00 - 8:50 (Even number posters)


22. Model kits, cell phones, and selfies: A fun way to encourage students to use their molecular model kits in Organic Chemistry I. D. Bell, S.R. Waetzig

23. A well-oiled machine: Priming novice laboratory students for upper level courses. J. Logan, N. Abrams

Environmental Chemistry

T. S. Dibble, T. F. Kahan, Organizers
J. L. Hunting, E. Kuo, Presiding

5:00 - 6:50 (Odd number posters), 7:00 - 8:50 (Even number posters)

24. An examination of the current focus on neonicotinoid insecticides as a major component in bee population collapse. Z. Smith

25. Lead in our communities: A deeper distillation of chemistry and community. L.M. Nitti, T. Thomas


27. Monmouth County Coastal Lakes: Analysis of nutrients, dissolved oxygen, and salinity. E. Rubinstein, K. Muratore, P. Patel

28. Evaluation of drinking water treatment combined filter backwash water(CFBW) recycling technology based on Comet and Micronucleus assay. T. Chen
29. Interaction of tetracycline antibiotics with nanoceramics. **H. Jufer, E.E. Mojica**


33. Solid phase extraction of naproxen in environmental samples using molecularly imprinted polymer sorbents. **R. Wise, E.E. Mojica**

34. Detection of pH variation in atmospheric aerosols during liquid-liquid phase separation. **X. Huang, M. Dallemagne, N.C. Eddingsaas**

35. Comparison of fine particles and adsorbed polycyclic aromatic hydrocarbons at rural and small urban sites. **G. Townsend, J.P. Hassett**


37. Photolysis of organic pollutants in freshwater and seawater. **C. Cawley, T.F. Kahan**

38. Long-term photochemical accumulation of LMW carbonyl compounds from refractory dissolved organic carbon in the deep Pacific Ocean. **Y. Zhu, W. Miller, D.J. Kieber**

39. Effects of organic matter on polycyclic aromatic hydrocarbon photolysis kinetics in ice and at ice surfaces. **P. Malley, T.F. Kahan**

40. Role of electron transfer in the phototransformation of mirex in natural water containing dissolved organic matter. **L. Chen**

41. The prevalence of batrachochytrium dendrobatidis in Oswego County, NY. **L. Muok**

Campus Center
Emerson Suites

**Food Chemistry**

J. Swanson, **Organizer**
J. L. Hunting, E. Kuo, **Presiding**

5:00 - 6:50 (Odd number posters), 7:00 - 8:50 (Even number posters)

42. Extraction and purification of trans-resveratrol from conifer bark. **P.S. Piyaratne, B.J. Cole**
43. 1H qNMR of alcoholic cider - analysis of small molecule and residual sugar chemistry. J.C. Edwards

44. Probe of iron in plants using x-ray absorption near edge structure. S. Dehipawala, K. Lee

45. Broad-spectrum isotopically labeled standards for analysis of Maillard-Derived odorants. E.A. Burzynski, G.L. Sacks

46. Probe of iron in plants using x-ray absorption near edge structure. S. Dehipawala, C. Ma

Campus Center
Emerson Suites

Inorganic Chemistry

A. Roering, Organizer
J. L. Hunting, E. Kuo, Presiding

5:00 - 6:50 (Odd number posters), 7:00 - 8:50 (Even number posters)


48. Investigation of a well isolated 2-dimensional quantum Heisenberg antiferromagnetic model; EPR and SQUID studies of (quinolinium)\textsubscript{2}Cu\textsubscript{1-x}Zn\textsubscript{x}X\textsubscript{4} \textsubscript{2}H\textsubscript{2}O. J.C. Monroe, M.M. Turnbull, C.P. Landee

49. Structural characterization of carbazol-based coordination polymers. J.A. Golen, D.R. Manke


51. Exploring the role of non-covalent interactions in highly fluorinated alkaline earth metal and lanthanide species as precursors for MOCVD. E.M. Carpenter, Y. Takahashi, W.D. Buchanan, K. Ruhlmandt-Senge

52. The synthesis, characterization and electrochemical study of DPPF(AuSC\textsubscript{6}H\textsubscript{4}NO\textsubscript{2})\textsubscript{2}. K.A. Veillette, M.R. Bruce, A.E. Bruce, G.S. Garusinghe, A. Farberg

53. Use of a bis(indenyl)zirconium(II) complex as a coactivator organometallic to access reactive, low valent transition metals. C.A. Bradley, Z. Call

55. Synthesis of organosoluble metal sulfide nanoparticles. L. Bian, K. Ring, J.A. Sidletsky, P. Goulet

56. Triethanolamine-stabilized silver nanoparticles: synthesis, characterization, and application as a substrate for SERS. E. Honarvarfard, Y. Chen, P. Goulet

57. Colloidal (Co-Mn)3O4 nanoparticles with controllable compositions for additive-free supercapacitor electrodes. S. Perera, X. Ding, A. Bhargava, R.D. Robinson

58. Selective etching of copper sulfide nanocrystals and heterostructured nanoparticles using trialkylphosphines. A. Nelson, D. Ha, R.D. Robinson


60. Ni-Zn-Cu Ferrite nanoparticles for antenna miniaturization. C. Lanthier, K. Cross, R.E. Partch

61. Enhanced transport kinetics in electrophoretically deposited films of nanoparticles as compared to spin cast films. A. Bhargava, R.D. Robinson


63. The development of immobilized photocatalysts to enhance the degradation of taste- and odor-causing compounds in drinking water. S.B. Yaparatne, A. Amirbahman

64. Engineered pervious layer for pathogen removal during rainwater harvesting. S. Hwang, H. Smith


67. A comparative study on the preparation and pH dependent durability of nanoparticles loaded on nanomembranes for water treatment applications. N.K. Trejo, M. Frey


69. Lithium reactions in V$_2$O$_5$.nH$_2$O aerogel. L. Wangoh, Y. Huang, R. Jezorek, F. Omenya, R. Zhang, M.S. Whittingham, L. Piper

70. More jolt for your bolt: Creating enhanced battery materials through biology. S.J. Riley

71. Polypeptides for precipitation and self-assembly of lithium ion battery electrodes. A. Winton, S.J. Riley, E. Barannikova, M.A. Allen

72. Synthesis and electrospinning of block copolymers. E. Gonzalez, L. Buttaro, M. Frey

73. Autocatalytic self-polymerization of biorenewable monomers. B.J. Tiegs, G.W. Coates

74. Redox-responsive and photocrosslinkable micelles from amino acid based biodegradable poly (ester-amide)s for intracellular release of doxorubicin. Y. Ji

75. Synthesis of photo-patternable, stimuli-responsive hyaluronic acid hydrogels by the thiol-norbornene reaction. N. Dadoo, W. Gramlich


77. Adsorption of water on silica surfaces. K. Jayaraman, A.Y. Fadeev

78. Design and synthesis of fluorescent conjugated polymers as fluoride chemosensor. Z. Qing, A. Chen, W. Wu, W. Bernier, W.E. Jones


80. Introduction of zwitterionic moieties into metal-organic frameworks via post synthetic modifications. H.K. Bilan, M. Wriedt


83. Hydrothermal preatment of willow biomass: Effects on mechanical & physical properties. N. Kohan, W.B. Smith, B. Bujanovic, T. Amidon
Medicinal Chemistry

C. R. DeBlase, Organizer  
J. L. Hunting, E. Kuo, Presiding

5:00 - 6:50 (Odd number posters), 7:00 - 8:50 (Even number posters)

84. The development, validation and application of CMDInventus to enable structure-based peptide drug design and discovery. D.J. Diller, J.T. Swanson, A.S. Bayden, M.A. Jarosinski, J. Audie


86. Controlled release of anticancer drug 5-fluorouracil. J. Simpkins, T. Hughes, H. Ilkhani, M.R. Hepel

87. Tetrahydroisoquinolines as multi-receptor probes for antipsychotic drug design. E. Ofori, J.R. Etukala, B. Bricker, X.Y. Zhu, T. Jackson, H. Xi-Ping, B.L. Roth, S.Y. Ablordeppee

88. Phthalocyanine bioconjugates and their applications in photodynamic therapy. E.N. Carrion, S.D. Kozuch

89. Controlled release of anticancer drugs. T. Santiago, M. Palmer, H. Ilkhani, K. Kurzatkowska, M.R. Hepel

Organic Chemistry

C. R. DeBlase, Organizer  
J. L. Hunting, E. Kuo, Presiding

5:00 - 6:50 (Odd number posters), 7:00 - 8:50 (Even number posters)

90. Synthetic studies on small-molecule SHIP1 agonists. B. Duffy, J.D. Chisholm


92. The synthesis of new hydrozone derivatives from natural product loganin. N. Boke Sarikahya, P. Kayce, S. Kirmizigul, F. Damkaci

93. N-phenylpicolinamidine as ligand for aryl-aryl C-N bond formation. F. Damkaci, A. Alawaed
94. Investigating the ring-opening mechanism of benzene metabolism using model oxepins. H. Guevara, A. Greenberg

95. Solvent-dependent fluorescence of sterically hindered 2,3-disubstituted quinoxalines. K.P. Schultz, S. Sibley, R. Bram, M. McConville, J. Park

96. Synthesis of diamine and aminoalcohol analogs of 3α-aminocholestan as inhibitors of SHIP1. D. Wallach, D. Viernes, J.D. Chisholm


98. Thermal rearrangements of benzylic trichloroacetimidates to trichloroacetamides. A.A. Adhikari, Y. Wu, R.J. Gilbert, J.D. Chisholm

99. Determination of atomic structures and relative stabilities of C_{20}X_{n} regioisomers (X=H, F, Cl, and Br; n=3 and 4) by the hybrid density-functional B3LYP method. K.H. Lee, Y. Ahn, H. Kwon, J. Park, M. Kim

Campus Center
Emerson Suites

Physical Chemistry

S. R. Nathan, Organizer
J. L. Hunting, E. Kuo, Presiding

5:00 - 6:50 (Odd number posters), 7:00 - 8:50 (Even number posters)

100. TiO₂ surface morphology influences vibrational dynamics of CO₂ reduction catalyst. H. Vanselous, C. Calabrese, P.B. Petersen

101. Vibrational dynamics and proton transfer of hydrogen-bonded dimers. A.M. Stingel, C. Calabrese, P.B. Petersen

102. The structure and function of porphyrins in energy transduction: Electrochemical, optical and quantum mechanical studies of the electronic structure of magnesium porphyrins. G.G. Theophall, Y. Sun, K. Lakshmi

103. Exploration of the structural foundations of resilin elasticity at the atomistic level. Y. Yang, X. Hu

104. Comparing composition and temperature dependent excess viscosities of binary systems involving ionic liquids. M.M. Hoffmann, H. Haghani

105. Two-dimensional infrared spectroscopy of water in aligned lipid membranes. M. McDermott, P.B. Petersen, A.M. Stingel
Campus Center
Emerson Suites

Undergraduate Analytical Chemistry

J. Wang, Organizer
J. L. Hunting, E. Kuo, Presiding

5:00 - 6:50 (Odd number posters), 7:00 - 8:50 (Even number posters)

106. GC-MS volatile organic compound analysis in drinking water samples. C. Muok, F. Mahmoud


108. Comparing an analytical titration to a commercial kit to determine the hardness of water. L. Lubecki


110. Application of a label-free indicator displacement assay to detect enzyme activity in solution. A. Farghli, C. Crecco, C.S. Rossiter

111. Doxorubicin interaction with DNA. E. Curtis

112. Logic-gated multienzyme pathways circuits. S. Oh, J. Fu

Campus Center
Emerson Suites

Undergraduate Biochemistry

K. Hicks, Organizer
J. L. Hunting, E. Kuo, Presiding

5:00 - 6:50 (Odd number posters), 7:00 - 8:50 (Even number posters)


114. Substrate specificity of NicC: Determination of dissociation constants for substrate analogs. S. Lothridge, G. Simone, K. Hicks

115. Binding affinity characterization of NicC for its native substrate and nicotinic acid substrate analog. W. Zhen, K. Hicks

117. Computational prediction of acyl homoserine lactone quorum sensing autoinducer specificity. B. Jung, A.H. Steeves

118. Effect of several ionic liquids on human serum albumin. B. Smith, F. Bou-Abdallah

119. The thermodynamics of drug-protein interactions. S.E. Sprague, T. Giffune, B. Smith, A. Widrick

120. Characterizing transhydrogenase activity of the flavin-bound enzyme diaphorase. J. Collins, J. Fu

121. Investigating the regulation of splicing of RPS30 paralogs that arose from genome duplication in S. cerevisiae. B. Jung

122. Utilization of activity-based probes to study the selectivity of monoacylglycerol lipase (MAGL) inhibitors. S. Wisner, Z. Huang, D.S. Johnson

123. Biochemical investigation of the determinants of NicC binding affinity. J. Kraai, C. Christie, K. Hicks


Campus Center
Emerson Suites

Undergraduate Chemical Education

J. Novotney, Organizer
J. L. Hunting, E. Kuo, Presiding

5:00 - 6:50 (Odd number posters), 7:00 - 8:50 (Even number posters)


127. An exploration into the factors contributing to shifting trends in organic chemistry grade predictability. B. Kousin, J.T. Fahey

128. The fate of hexavalent chromium in the presence of coffee. B. Yee, E. Lopez, C. Kim

129. Effects of green and white teas on the reduction of hexavalent chromium. D. Guzman, U. Cenaj, A. Gonzalez, K. Alvarez, C. Kim
Campus Center
Emerson Suites

Undergraduate Food Chemistry

J. Swanson, Organizer
J. L. Hunting, E. Kuo, Presiding

5:00 - 6:50 (Odd number posters), 7:00 - 8:50 (Even number posters)

130. Non-chemical treatment to extend fruit shelf life. **C.E. Garcia Maso, R. Alquraishi**

131. Organohalogens and antioxidants in edible brown seaweeds. **M. Dunigan, A.C. Leri**

Campus Center
Emerson Suites

Undergraduate Inorganic Chemistry

A. Roering, Organizer
J. L. Hunting, E. Kuo, Presiding

5:00 - 6:50 (Odd number posters), 7:00 - 8:50 (Even number posters)


133. The mechanochemical synthesis of 2-amino-5-substitutedpyridine copper (II) halide complexes and their magnetic properties. **P.C. Farris, J.E. Chellali, C.P. Landee, M.M. Turnbull**


136. Synthesis and characterization of [Ru(acac)2(dppz)]1+: A new potential metallointercalator. **R.M. Lee**


138. Carbene retention versus displacement in ligand addition to Cp*Co(IPr). **J. Andjaba, C.A. Bradley**

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141. Synthesis of early-late heterobimetallic compounds for fluorescence studies. C. Heaney, S.M. Chapp, **A. Hill**

142. Investigations into synthesis and catalytic reactivity of rhodium pincer complexes in alkyne dimerization reactions. A.S. Larsen, **M. Klemes**, B. Morse, O. Ozerov


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Campus Center
Emerson Suites

**Undergraduate Materials Chemistry**

K. Hugar, *Organizer*
J. L. Hunting, E. Kuo, *Presiding*

5:00 - 6:50 (Odd number posters),  7:00 - 8:50 (Even number posters)


149. Molecular simulation of adsorption of DNA-functionalized gold nanoparticles in ionic environment. **B. Lai**
Undergraduate Medicinal Chemistry

C. R. DeBlase, Organizer
J. L. Hunting, E. Kuo, Presiding

5:00 - 6:50 (Odd number posters), 7:00 - 8:50 (Even number posters)


151. The role of water in the DNA doxorubicin intercalation mechanism. J. Finan

152. The small molecule t5749 inhibits the crosslinking activity of tissue transglutaminase. N.J. Blobel, W.P. Katt, R.A. Cerione

153. Dihydrofolate reductase inhibitor pharmacophore development. K. Pearce, A.S. Piasecki, O. Hajder, D.A. Barr

154. Pharmacophore development and drug design based on DNMT1. G. Abbott, D.A. Barr

155. Pharmacophore model and drug design targeting MepA. C. McNitt, P. Do, T. Le, D.A. Barr


Undergraduate Organic Chemistry

C. R. DeBlase, Organizer
J. L. Hunting, E. Kuo, Presiding

5:00 - 6:50 (Odd number posters), 7:00 - 8:50 (Even number posters)

157. A study of hydrophobic vs. hydrophilic components of molecules in C3 to C10 acylic imide synthesis: An undergraduate research project. K.S. Marshall


159. Further investigation into the mechanism for the synthesis of 7-hydroxy-4-substitutedcoumarin via the von Pechmann condensation reactions. S. Tyndall, F. Wong, M.A. Vanalstine-Parris

160. Microwave assisted green synthesis of aspirin using soda and juice catalysts. A.E. Dineen, J.T. Fahey
161. Toward depsipeptidic potential anticancer compounds using latent thioester solid-phase synthesis. **A.A. Cruz, M.K. Patterson, V.E. Lawson, G.E. Hutton, A.B. Sadkin, J.S. Miller**

162. Evaluation of molar volume of hydroxypropyl-β-cyclodextrin in aqueous solutions as a function of temperature, salinity, and concentration of potential guest compounds. **R. Hwang, W.J. Blanford**

163. Synthesis of a bis(vinyl sulfone) for use in polymer chemistry. **M. Gerkman, M.A. Walker**

164. Synthesis of inhibitor molecules of indoleamine 2,3-dioxygenase (IDO). **S. Badir, W.P. Malachowski**

165. Exploration of the synthesis of 1-methyl-4-silatranone: A hyperstable lactam and an unprecedented silatrane. **A. Dunlap-Smith, M. Rauch, A. Greenberg**

166. Evaluation of trace organic chemical removal through municipal wastewater treatment plants using POCIS samplers. **J. Gillott, B. Shank, H.T. Frederick**

167. The safer synthesis of phenyl alkenyl sulfones. **K.A. Jeror, H.L. Jones, J.O. Teibel, M.A. Walker**

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Campus Center
Emerson Suites

**Undergraduate Physical Chemistry**

S. R. Nathan, *Organizer*
J. L. Hunting, E. Kuo, *Presiding*

5:00 - 6:50 (Odd number posters), 7:00 - 8:50 (Even number posters)

168. Effect of PEDOT:ClO₄ with tunable work functions on performance of bulk heterojunction solar cells. **X. Li, R. Dwyer, J.A. Marohn**

169. Alkali halide salts dissolved in non-ionic surfactants studied by ²³Na, ⁸¹Br, and ⁸⁷Rb nuclear magnetic resonance spectroscopy. **M.M. Hoffmann, M.E. Wilson, L.M. Kerr**

170. Density functional theory modeling for design of group 10-based metallo-organic catalysts. **M. Ellis, K. Downey**


172. Effect of tetrabutylammonium cation on redox behavior of gold in alkali medium. **D. Caracciolo, E. Pater**
THURSDAY MORNING

Williams Hall
221

Chemical Education I

Cosponsored by CHED‡
J. Novotney, Organizer
N. Abrams, E. A. Curley, Presiding

8:00  173. Microwave-assisted aspirin synthesis from over-the-counter pain creams using naturally acidic catalysts: A green undergraduate organic chemistry laboratory experiment. J.T. Fahey, A.E. Dineen


8:40  175. Depolymerization of lignin using microwave irradiation. D. James

9:00  176. Open source malaria drug development in the undergraduate organic chemistry and biochemistry laboratories. S.L. Debbert, D.J. Hall

9:20 Intermission.

9:40  177. Implementation of a one credit chemical safety course. K.I. Gublo

10:00  178. A generalized approach to guided inquiry and discovery based experiments in general chemistry. A.K. Sharma

10:20  179. Undergraduate teaching assistants as part of the teaching-service model in large introductory organic chemistry courses. R.M. Kissling

10:40  180. an inquiry-based undergraduate laboratory exercise for phospholipid identification using thin layer chromatography. J.M. Belanger, S.E. Potteiger

11:00  181. Integrating STEM laboratory instruction at the introductory level – opportunities and challenges. N. Abrams, G. McGee, E. Hogan

Williams Hall
320

Inorganic Chemistry I

A. Roering, Organizer, Presiding
M. Tumbull, Presiding
8:00 Introductory Remarks.

8:05 182. Electrically conductive 2D metal–organic frameworks for chemiresistive sensing. **M.G. Campbell, D. Sheberla, S. Liu, T.M. Swager, M. Dinca**


9:05 184. Reactions of icosahedral carboranes with inorganic and organic azides. **K. Donaghy, K. Saxton**

9:35 185. Cyclical electrophoretic deposition of CNT thick films. **G. Konesky**

10:05 Intermission.

10:20 186. Magnetic mesoporous silica nanoparticles as potential MRI contrast agents. **W.J. Hickling, V. Dahanayake, S.L. Stoll**


11:00 188. Single molecule magnet Mn₁₂O₁₂(C₅H₂ₓ₋₁O₂)₁₆●₄H₂O: Characterization and surface organization. **N.M. Khatri, K.R. Lincoln, K.D. Pires, T.M. Hughes, K. Plass, J.A. Borchers, S.E. Lofland, K. Jorabchi, C. Minardi, M. Pileni, S.L. Stoll**


Williams Hall
225

**Materials for Energy I**

Cosponsored by ENFL‡
N. G. Dimitrov, Organizer, Presiding
G. S. McGrady, Presiding

8:00 Introductory Remarks.

8:05 191. The ultimate limits of Li-ion batteries, and what's next - A Reality check on beyond Li-ion. **M.S. Whittingham**

8:35 192. Designing better OER & HER electro-catalysts for water splitting from first principles, ie., nature. **C. Dismukes**
Engineering and assembling nanoscale building blocks for energy applications. 
R.D. Robinson

Soft chemistry approach to the synthesis of energy related materials. E. Dikarev

Intermission.

Peptide-templated assembly of cathode materials for Li-ion Battery. E. Barannikova, M.A. Allen

Vapor-phase polymerized poly(3,4-ethylenedioxythiophene) (PEDOT) on carbon coated aluminum foil as supercapacitor electrodes. L. Tong, K.H. Skorenko, A. Faucett, S.M. Boyer, J. Liu, J. Mativetsky, W. Bernier, W.E. Jones

Preparation of composite films of metal phthalocyanines for optoelectronic applications. M. Espinosa, M. Menendez, M. Huerta Francos, M. Sanchez

Determination of optoelectronic and transport properties of sandwich type structures based on organic semiconductors. M. Huerta Francos, M. Espinosa, M. Sanchez, M. Menendez

Organic Chemistry I

C. R. DeBlase, Organizer, Presiding
M. Moschitto, Presiding

Solid-phase and solution-phase syntheses of three promising anticancer compounds. D. Poirier, R. Maltais

Synthesis of turbomycin analogues for the development of new antibiotics: Variation of the indole component. P.K. Quach, C. Brindle

Water soluble nanoparticle carriers to directly deliver prednisone to endothelial cells in septic shock syndrome. S.K. Hasan

A general approach for catalytic β-selective glycosidation. N. Kuhl, K. Harper, Y. Park, R.Y. Liu, E.N. Jacobsen

[Lewis Acid]+[Co(CO)₄]⁻ catalysts for enantio- and regioselective transformations of epoxides. J.R. Lamb, G.W. Coates

Intermission.

Synthesis of 5-substituted 1H-Tetrazoles catalyzed by post-transitional metals. J. Dudley, L.A. Feinn, A. Coca


11:00  207. A new boron intermediate in carbonyl reduction by borohydride. **P.S. Murthy**, R. Winkler


Williams Hall
218

**Green Chemistry I**

Cosponsored by CEI®
G. W. Ruger, *Organizer, Presiding*
E. J. Brush, *Presiding*

8:30  209. A green chemistry education roadmap: Charting the future of chemistry education. **J. MacKellar**

9:00  210. Planetary boundaries that we MUST all live by; opportunities for innovative interdisciplinary research and education in sustainable technologies. **M.C. Cann**

9:25  211. The green chemistry commitment: Current programs and resources. **A.S. Cannon**

9:50  212. Establishing regional student-faculty collaborations in green chemistry teaching, research and outreach education: Project GreenLab. **E.J. Brush**

10:15 Intermission.


11:00  214. Expanding chemistry frontiers: Efficient air stable catalysts for aqueous chemistry water and chemosynthesis using “synthetic livers”. **A. Mehta**


12:00 Panel Discussion.
Recent Advances in Food Chemistry and Nutritional Biochemistry

Cosponsored by AGFD‡
Financially supported by Janssen
J. Swanson, Organizer, Presiding
X. Jiang, Presiding

8:30 Introductory Remarks.

8:35 216. Analytical approaches for the determination of chemical residues on the surfaces of fruits and vegetables by mass spectrometry. J.D. Henion, D. Eikel, N. Sousou, C. Hao

9:15 217. Covalent adduct chemical ionization (CACI) and molecular ion tandem mass spectrometry for characterization of unusual fatty acids in foods and oils. J. Brenna

9:40 218. Polymers from bioactives that control bacteria. K.E. Uhrich


10:30 Discussion.

10:50 220. Choline supplementation during pregnancy and perinatal health. X. Jiang


11:40 222. Docosahexaenoic acid (DHA) and its role in cognitive development. J. Yan

12:05 Discussion.

12:25 Concluding Remarks.

Environmental Chemistry I

Cosponsored by ANYL‡and GEOC‡
T. S. Dibble, Organizer
T. F. Kahan, Organizer, Presiding

8:50 Introductory Remarks. T. Kahan.

9:00 223. Shale gas: Unsolvable local and global problems. A. Ingraffea

10:20 Intermission.


Williams Hall

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**Green Labs**

**Supporting Greener Labs**

Financially supported by SafetyStratus Inc.
**R. Stuart**, *Organizer, Presiding*

9:00  228. Supporting safe, sustainable laboratories in the 21st century. **R. Stuart**

9:25  229. Role of green chemistry in general chemistry laboratory instruction. **G.D. Bonomo**

9:50  230. Lab safety and sustainability meet in the freezer. **B. Petrella**

10:15 Intermission.

10:25  231. Green chemistry in practice at Sigma-Aldrich. **J. Whitford**

10:50  232. Laboratory energy conservation on a mechanically diverse campus. **M. Howe**

11:15  233. A strategy with lab ventilation management to enhance sustainability. **E. Sweet**

11:40  234. Challenges with recycling in the laboratory. **S. Buck**
THURSDAY AFTERNOON

Williams Hall
310

Bio-based Materials and Processes

Cosponsored by BIOL‡
Financially supported by Corning
K. Cole McNamara, E. Garcia Sega, Organizers, Presiding

1:00 Introductory Remarks.

1:05 235. Engineered biocatalysts for solar fuels. K. Bren

1:35 236. Virus nanoreactors and the hierarchical assembly of coupled catalytic materials. T. Douglas

2:00 Intermission.

2:15 237. Titanium minerals and biochemistry. A. Valentine

2:40 238. Biominalization proteins: Controlling pre- and post-nucleation aspects of mineral formation. J.S. Evans

3:05 239. Protein-based stimuli-responsive smart materials. L.J. Regan

3:30 Intermission.

3:45 240. Plant-based approach to anhydride monomers and bioplastics. R. Mathers

4:10 241. Gene-delivering non-viral systems from PEI-g-PEG and PEI-functionalized telechelic PEG: Effect of polymer architecture on gene transfection efficiency and cytotoxicity. S. Granados Focil


5:00 Concluding Remarks.
Chemical Education II

Cosponsored by CHED‡
J. Novotney, Organizer
N. Abrams, E. A. Curley, Presiding

1:00 243. Chemical Jokes facilitate learning of important chemistry concepts. K. Zaman

1:20 244. Building a supportive chemistry community through a seminar series that approaches university learning goals through discipline specific activities. M.A. Vanalstine-Parris

1:40 245. A classroom-based activity designed to enhance student comprehension of enzyme catalysis of reaction rate. A.U. Gehret

2:00 246. Exploring case study pedagogy in a community college classroom: An application of Boyle’s Law. G. Perkins


2:40 Intermission.

3:00 248. Teaching inorganic chemistry through art. K. Donaghy, A.L. Milano, Z.R. Dunbar

3:20 249. From your crystal to structure in ten minutes: Contemporary instruments transform undergraduate laboratory. A.Y. Nazarenko

3:40 250. Meeting general education competencies in the chemistry lab with lab-simulation technology. K.A. Baessler

4:00 251. Parametric equations and images for a large set of hydrogen atomic orbitals. I. Rhile

4:20 252. Gaussian-based laboratory exercises in physical chemistry. S.M. Basu

Green Chemistry II

Cosponsored by CEI‡
G. W. Ruger, Organizer, Presiding
E. J. Brush, Presiding
1:00  253. Biobased materials: Challenges for commercialization. **R.B. Chapas**


1:55  255. Physicochemical studies of the binary systems water – 1-alkyl-3-methylimidazolium methanesulfonates. **M.M. Hoffmann**


2:45  257. Application of heterogeneous catalyst systems for biodiesel synthesis. **Y. Hangun-Balkir**

3:15  Intermission.

3:30  258. Renewably sourced phenolic resins from lignin bio oil. **A.E. Vithanage**, W. Gramlich

4:00  259. Proteins as surfactant synergists for environmental and industrial applications. **M.G. Goldfeld**

4:30  260. Chemical and mechanical surface modification of paper for low-cost device fabrication. **M. Thuo**

Williams Hall
320

**Inorganic Chemistry II**

A. Roering, Organizer, **Presiding**
M. Tumbull, **Presiding**

1:00  261. Unusual redox reactions in the synthesis of copper coordination compounds: The synthesis of bis(5-NAP)CuCl₂ and multiple polymorphs of bis(5-NAPH)CuCl₄. **A.G. Bellesis**, M.M. Turnbull, C.P. Landee, J.L. Wikaira, M. Polson


1:40  263. Asymmetric ligand approach to design heterometallic molecular precursors. **H. Han**, Z. Wei, E. Dikarev

2:00  264. Calcium arylphosphonates for bone therapy. **V. Lopez**, M.D. Lijewski, V.N. Bampoh, K. Ruhlandt-Senge

2:40  266. Manganese catalysts: Synthesis, structure, characterization and their application in homogeneous catalysis. **R.N. Egekenze**

Williams Hall
225

**Materials for Energy II**

Cosponsored by ENFL‡
N. G. Dimitrov, *Organizer, Presiding*
M. M. Maye, *Presiding*

1:00 Technical Preparation.

1:05  267. Aluminum hydrides for hydrogen storage: New tricks from an old dog. **G.S. McGrady**

1:30  268. Superresolution four-wave mixing microscopy. **S. Stranick, R. Beams, J. Breffke**

1:55  269. Controlling composition, asymmetry, and internal microstructure of nanomaterials using a core/alloy approach. **M.M. Maye**

2:20  270. AlFe2B2 as potential magnetic refrigerant: Putting new life into an old compound. **M. Shatruk**

2:45  271. Multilayer light harvesting arrays for molecular based solar cells. **P.H. Dinolfo**

3:10 Intermission.

3:25  272. Nanocarbon electrocatalysts for sustainable electrochemical energy storage and conversion. **G. Wu**

3:50  273. Correlating nanoscale reactivity with photocurrent reveals optimal catalyst sites on photoanodes. **J.B. Sambur**

4:10  274. Improved synthetic methods and optical properties of (GaN)$_{1-x}$(ZnO)$_x$ semiconductors for visible light harvesting. **H. Huang, A. Reinert, E. Sklute, T. Glotch, P. Khalifah**

4:30  275. Alligned multiwalled carbon nanotubes based polymer nanocomposites via in-situ polymerization. **N.C. Das, S. Ganguly**
Environmental Chemistry II

Cosponsored by ANYL‡ and GEOC‡

T. S. Dibble, Organizer

T. F. Kahan, Organizer, Presiding


1:40 277. The unexpected reactivity of marine Cl. A.C. Leri

2:00 278. Autonomous real-time sensing and time-resolved sampling of hydrophobic organic compounds in water. J.P. Hassett, J.M. Croskrey, D. Salley, S. Sharma

2:40 Intermission.


3:30 280. Assessing the role of light sources on indoor hydroxyl radical production. S. Kowal


4:10 282. NO₂, SO₂ and HONO mixing ratios in a forested region of Alberta impacted by Oil Sands processing facilities. K. Nikelski, A. Lobo, Z. Davis, R. McLaren

4:30 283. Spatio-temporal variability in isotopic signatures of atmospheric NOₓ emissions from vehicles. D. Miller, M. Hastings, R. Peltier

Food Chemistry

J. Swanson, Organizer, Presiding

1:30 Introductory Remarks.

1:35 284. From mash to bottle: Chemistry of the beer brewing process and NMR-based quality control. A. DiCaprio, J.C. Edwards


2:35 287. What should we eat? E. Kinney

2:55 Discussion/Concluding Remarks.

Williams Hall
302

Progressive Methodology for Organic Synthesis

Cosponsored by ORGN‡
Financially supported by Boehringer Ingelheim
C. N. Malele, Organizer, Presiding
M. O. Odago, Organizer, Presiding

1:30 Introductory Remarks.

1:35 288. The use of amphoteric reagents in drug discovery: from small molecules to peptide macrocycles. A.K. Yudin

2:05 289. Searching for selective reactions on complex molecular scaffolds. S.J. Miller

2:35 290. From strained carbocycles to heterocycles. P. Wipf

3:00 Intermission.

3:05 291. Unexpected reactivities of unusual oxetanes. A.R. Howell

3:30 292. Stereocontrolled cyclizations for natural product synthesis. A.J. Frontier

3:55 293. Development of novel transition metal-catalyzed synthetic methodologies. V. Gevorgyan

Williams Hall
222

The Legacy of Minority Institution

Highlighting their Successes and Challenges

Cosponsored by CMA‡
K. K. Bagga, Organizer, Presiding
S. Bengay, Presiding

2:00  295. A community-based learning archetype for science: Native American health and medicine. D.G. Hilmey

2:20  296. Engaging and mentoring STEM-focused students transitioning from tribal colleges to universities. J. Lee

2:40  297. Beyond Percy Julian: Howard's chemical history as America's chemical history. J.A. Harkless

3:00  298. University of Maryland Eastern Shore (UMES): Best graduate and undergraduate material research practices to help sustain local rural communities. D.G. Sauder, V. Volkis

3:20  299. A legacy fulfilled: Spelman College's impact in the chemical sciences. A.N. Thompson, K.M. Jackson

FRIDAY MORNING

Williams Hall
225

Advances in Organometallic Chemistry and Catalysis

Cosponsored by INOR‡
P. Baran, Organizer, Presiding
C. A. Bradley, Presiding

8:00 Introductory Remarks.

8:05  300. Transformations of alkanes catalyzed by pincer-iridium complexes. A.S. Goldman

8:40  301. C-H activation with cobalt(I): Exploring the generation and reactivity of Cp*CoL fragments. J. Andjaba, C.A. Bradley

9:05  302. Mechanism guided improvement of Pd(II) precatalysts for cross-coupling. N. Hazari
9:30 303. Microwave-assisted copper-catalyzed concurrent tandem catalytic methodologies for the transformation of aryl halides. **S. Lin**

9:55 Intermission.

10:10 304. Iridium complexes containing pyridinesulfonamide ligands. **A.R. O'Connor**

10:35 305. \( \text{Pd}^{II}\text{-Me} + \text{H}_2\text{O} + \text{O}_2 \rightarrow \) methanol or ethane? A. Sberegaeva, **A.N. Vedernikov**

11:00 306. Transition metal complexes with aromatic amine N-oxide Schiff bases as potential catalysts in organic oxidation reactions. **P. Baran**

11:25 307. Studies of neutral and cationic azaferrocene-borane Lewis pairs. **T.J. Brunker**

11:50 308. Organometallic and coordination chemistry of new pyridine/thione and pyridine/selone mixed-donor ligands. **D. Rabinovich**

12:15 Concluding Remarks.

10:50 316. Enhancing copy quality through use of oil-bound charge control agents. C. Schasel, K. Cross, R.E. Partch


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Materials Chemistry II

K. Hugar, Organizer
J. R. Lamb, Presiding

8:00 Introductory Remarks.

8:05 319. Tip-enhanced Raman mapping of local strain in graphene. R. Beams, L. Cancado, A. Jorio, A. Vamivakas, L. Novotny

8:30 320. Fixed bed adsorption of pesticides from aqueous solution using carbon nanotubes. A.B. Dichiara, S. Harlander, R.E. Rogers

8:55 321. Joining carbon nanotubes with ion beams. G. Konesky


9:35 323. Rheology and morphology of carbon black-polymer systems. D.O. Tymoshenko

9:55 Intermission.

10:10 324. The rational design of zwitterionic ligands and zwitterionic MOFs characterization. W. An


11:35 328. Characterization of single-chain polymer folding using size exclusion chromatography with multiple modes of detection. **P. Frank**

**Environmental Chemistry III**

Cosponsored by ANYL‡ and GEOC‡
T. S. Dibble, **Organizer**
T. F. Kahan, **Organizer, Presiding**
M. E. Greenslade, **Presiding**

8:50 Introductory Remarks. **T. Kahan**.

9:00 329. Biomonitoring of human exposure to phthalates and environmental phenols. **K. Kannan**


10:00 331. Theoretical study on the kinetics of atmospherically important reaction BrHg + Y (Y = NO2, HO2, ClO, BrO, or IO). **Y. Jiao**, T. Dibble

10:20 Intermission.


11:30 333. A new method to measure aerosol particle bounce and estimating the phase state of atmospheric aerosols. **S. Jain**, G. Petrucci

**Analytical Chemistry**

**Advances in Analytical Chemistry**

J. Wang, **Organizer, Presiding**
G. Flechsig, **Presiding**
9:00 Introductory Remarks.


9:45 336. Nutritional supplement and diesel fuel application development for benchtop NMR systems operating at 42, 60, and 80 MHz – equivalency with Supercon NMR. **J.C. Edwards**, G. Hernandez, P.J. Giammatteo


10:25 338. Pt deposition via electroless of surface limited redox replacement. **S. Ambrozik**, N.G. Dimitrov


11:25 Concluding Remarks.

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Biochemistry I

K. Hicks, *Organizer, Presiding*
K. Cole McNamara, *Presiding*

9:00 Introductory Remarks.


9:55 Intermission.

10:10 343. Biomimetic Catalytic Complexes Organized by DNA Nanoscaffolds. **J. Fu**

10:35 344. On the stoichiometry of channel nucleoporins Nup62, Nup54 and Nup58: A critical appraisal. **S. Solmaz**, A. Sharma, G. Blobel, I. Melca

58
11:00  **345.** Forensic analysis based on bioaffinity-based cascades. **J. Halamek**

11:25 Concluding Remarks.

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**Intersections of Chemistry and Art**

**History, Practice, and Pedagogy**

Financially supported by DuPont and NSF sponsored CCWCS (Chemistry Collaborations, Workshops, and Communities of Scholars)
M. Haaf, **Organizer, Presiding**

9:00 Introductory Remarks.

9:05  **346.** Neighboring metals: Teaching art history in the chemistry and art classroom. **G. Wells**

9:25  **347.** The world of chemistry on postage stamps. **D. Rabinovich**

9:45  **348.** Technical art historical investigations of paintings by Georgio de Chirico and Vincent van Gogh. **J.E. Fieberg**

10:05 Intermission.

10:25  **349.** Degradation of polymers used to make art: Origins, measurement, and prevention. **C.H. Stephens**

10:45  **350.** Cellulose as a detector for assessing storage materials for cultural heritage objects. **E. Breitung**


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**Organic Chemistry II**

C. R. DeBlase, **Organizer, Presiding**
M. Moschitto, **Presiding**

9:00  **352.** Synthesis, spectroscopic characterization, X-ray structure and DFT studies on \(2,6\)-bis\(N'\-[9\text{-}\text{anthracylmethyl}]\text{benzimidazol-2\text{-}yl}\)pyridine. **M. Nozari, A.W. Addison, M. Zeller, J. Jahanbin Sardroudi, S. Afshari, N. Johnson**
9:20  353. Oxazolone cycloadducts as versatile frameworks for alkaloid synthesis. R.C. Lapo, S.P. Fearnley


10:00  355. Converting primary amines into alcohols via N-nitrosodichloroacetamides. C.E. Jakobsche, L. Wang, B.G. McCarthy, N.S. MacArthur

10:20 Intermission.

10:40  356. A practical synthesis of all cis-(S,R,R)-1,2,4-triaminocyclohexanes. Y. Fan

11:00  357. Synthetic and computational investigations of intramolecular aza-Diels–Alder reactions. N.B. Sizemore, G. Tay, S.D. Rychnovsky


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Physical Chemistry I

S. R. Nathan, Organizer, Presiding
C. Kingsley, Presiding


9:40  362. Suprising oxygen effects on the photophysics of conjugated polymers. B. Martin, L. Rothberg

10:00  363. Enhancing nuclear polarization for nanoscale magnetic resonance imaging. C. Isaac, C. Gleave, P. Nasr, J.A. Marohn

10:20 Intermission.

11:00 365. Counterion binding in aqueous solutions of poly(vinylpyridines) as assessed by potentiometric titration. J. Roach, M. Bondaruk


11:40 367. Photoswitchable spiropyran: Computational study of its photochromic reaction. M.D. Mayes

FRIDAY AFTERNOON

Williams Hall
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Advances in Colloid and Surface Chemistry

Cosponsored by COLL‡
Financially supported by Corning
L. A. Velarde, Organizer, Presiding
P. B. Petersen, Presiding

1:00 Introductory Remarks.

1:05 368. Water adsorption and oxidation on anatase TiO2. A. Selloni


2:45 Intermission.

2:50 372. Semiconductor nanocrystals for robust and efficient solar hydrogen production. T. Krauss, F. Qiu, R. Eisenberg, Z. Han, P.L. Holland, C. Liu, J. Peterson

3:15 373. The catalytic power of oxide/metal interfaces determined by In-situ studies. D.J. Stacchiola

3:40 374. The importance of surface dynamics in the structure and function of organic glasses. Z. Fakhraai


4:40 Concluding Remarks.
Green Polymers

Financially supported by Novomer, Inc.
R. A. Gross, Organizer, Presiding
K. E. Uhrich, Presiding

1:00 Introductory Remarks.

1:05 376. Development of new routes to benign polymeric materials. G.W. Coates


2:00 378. Protease-catalyzed peptide synthesis: green routes to peptide building blocks and functional materials. R.A. Gross

2:25 Intermission.

2:45 379. Polymers from sustainable resources. K.E. Uhrich

3:10 380. Biomimetic amphiphobic fibrous materials inspired by the Namib Beetle. M. Thuo

3:35 381. Polymers in service of "green" chemistry. I.G. Ivanov

4:00 382. Epoxy thermoset networks derived from vegetable oils and their blends. C.Y. Ryu

4:25 Concluding Remarks.

Medicinal Chemistry

C. R. DeBlase, Organizer
S. Ulrich, Presiding

1:00 383. Oral peptide delivery through the vitamin B₁₂ dietary uptake pathway. R. Bonaccorso


2:00 Intermission.


3:00  388. Effects of environmental lead and mercury on cardiovascular system, inflammatory markers, and sleep in adolescents. **K.G. Bendinskas**

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**News from Carbon World**

Cosponsored by ORGN‡
M. A. Petrukhina, *Organizer, Presiding*

1:00  389. Novel aromatic architectures derived from the benzannulation of alkynes. **W. Dichtel**

1:35  390. Dihalopolyynes: Building carbon materials from the bottom up. **N.S. Goroff**

2:05  391. Highly-reduced corannulene aggregates with different alkali metals: Different geometries within the same electronic structure. **A.Y. Rogachev**

2:35  392. Electronic transport properties of selected π-bowls with different size, curvature and solid state packing. **E. Margine**

3:05 Intermission.

3:10  393. Contorted aromatics featuring non-traditional ring sizes. **A. Whalley**

3:40  394. Reduction of polycyclic compounds containing heavier group 14 elements. **A. Zabula**, A.Y. Rogachev, S. Moffet, R.C. West


4:40  396. Site-specific functionalization of Buckybowls: Tailoring properties and structures. **C. Dubceac**, A.S. Filatov, A. Zabula, M.A. Petrukhina
Physical Chemistry II

S. R. Nathan, Organizer, Presiding
C. Kingsley, Presiding

1:00 397. Surface acidity of tungsten oxide bronzes in the hydrodeoxygenation mechanism. A. Mahdavi-Shakib, J. Clark, F.G. Amar, B.G. Frederick

1:20 398. Computational quantum chemistry studies of the stabilities of radical intermediates formed during oxidation of melatonin. C.E. Warden, S.J. Kirkby


2:00 Intermission.

2:20 400. Theoretical insights into the I₂—π-arene interactions: From planar to curve polyaromatic systems. J. Li, A.Y. Rogachev

2:40 401. Redefining the concepts of “large” and “fast” in ab initio MO theory. P.E. Lopes

3:00 402. Investigating image reconstruction methods for magnetic resonance force microscopy. H. Nguyen, J.A. Marohn

3:20 403. Solvatochromism in various 1- and 2-substituted fluorenones: A spectroscopic and computational study. S.M. Basu, A.A. Montoya


Environmental Chemistry IV

Cosponsored by ANYL and GEOC
T. S. Dibble, Organizer
T. F. Kahan, Organizer, Presiding
D. A. Miller, Presiding

1:20 405. Thermochemistry and kinetic modeling for OH addition to trifluoroethene and O₂ association to the hydroxy adducts. J.W. Bozelli, S. Yommee

1:40 406. Thermochemistry and kinetic modeling for OH addition to propene and O₂ association to the CH₂(OH)C.HCH₃ adduct. J.W. Bozelli, S. Snitsiriwat

2:20 408. Top-down investigation of methane emissions from urban vehicles. S. Baray, **R. McLaren**

2:40 Intermission.

3:10 409. Optical detection of evaporation from organic aerosols. A.R. Attwood, **M.E. Greenslade**


Williams Hall
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Biochemistry II

K. Hicks, *Organizer, Presiding*
K. Cole McNamara, *Presiding*

2:00 411. Spore display as a tool for protein engineering and optimization. **H. Jia**, E.T. Farinas


2:30 413. Atomistic structure of solvated oleic-acid bilayer from computer simulations. **C. Drechsel-Grau**, M.E. Tuckerman, T.H. Haines

2:45 Intermission.

3:00 414. Tyrosine 102 lockdown is crucial for substrate positioning and catalysis of factor inhibiting HIF (FIH-1). **C.B. Martin**, C. Taabazing, M. Knapp


3:30 416. A FRET-based assay to screen for antagonists of hedgehog cholesterolysis. **T. Owen**, G. Ngoje, B.P. Callahan

3:45 Concluding Remarks.
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