

ACS CERM 2019

John Roberts and Dongchan Ahn, *Program Chairs*

Timing of Technical Sessions

Plenary: 8:00 – 8:50 PM

Morning Sessions: 9:10 AM – 12:00 PM

Poster Sessions / Lunch Programming: 12:00 PM – 2:00 PM

Afternoon Sessions: 2:00 PM – 5:00 PM

Evening Events: Varies – Consult [Meeting Program](#)

PROGRAM AT A GLANCE

Tuesday, June 4th:

Plenary: Tobin Marks, Northwestern University

Oral Sessions:

Adhesion, Surfaces & Interfaces (AM & PM)

Art Conservation Science (PM)

Chemistry & Transportation: Trends in Transportation (AM)

Chemistry & Transportation: Materials in Transportation (PM)

Developing Sustainable Chemistries: Principles, Tools, Drivers & Case Studies (AM & PM)

Enabling Chemical Synthesis: From Methods to Molecules (AM & PM)

Materials for Advanced Separations (AM)

Mechanisms in Homogeneous Catalysis (PM)

Process Chemistry & Development: Development of Advanced Materials for Industrial Solutions (AM)

Process Chemistry & Development: Advances in Continuous Flow Processes (PM)

Transition Metal Chemistry (AM)

Poster Sessions:

Adhesion, Surfaces, & Interfaces

Developing Sustainable Chemistries: Principles, Tools, Drivers & Case Studies

Enabling Chemical Synthesis: From Methods to Molecules

Mechanisms in Homogeneous Catalysis

Process Chemistry & Development

Transition Metal Chemistry

Wednesday, June 5th:

Plenary: Craig Hawker, University of California, Santa Barbara

Oral Sessions:

Analytical Chemistry: Detecting Environmental Contaminants by Modern Analytical Tools (PM)

Bioinorganic: Metalloproteins, Model Complexes & Metals in Medicine (PM)

Cosmetic Chemistry: The Science Beyond Beauty (PM)

Feedstock and Energy Related Catalysis (AM & PM)

Industrial Applications of Polymers (AM & PM)

Polymer Theory & Modelling (AM)

Process Chemistry & Development: Development of Advanced Materials for Sustainability Applications (AM)

Process Chemistry & Development: Process Chemistry, Engineering & Analysis (PM)

Synthesis and Characterization of Advanced Polymeric Materials (AM & PM)

Using Data Science in Chemical Research (AM)

Poster Sessions:

Analytical Chemistry

Bioinorganic: Metalloproteins, Model Complexes & Metals in Medicine

Feedstock and Energy Related Catalysis

Industrial Applications of Polymers

Polymer Theory & Modelling

Synthesis and Characterization of Advanced Polymeric Materials

Using Data Science in Chemical Research

Thursday, June 6th:

Plenary: Melanie Sanford, University of Michigan

Oral Sessions:

Analytical Chemistry: Analytical Chemistry Accelerates Molecules to Material Transformations (AM)

Analytical Chemistry: Analytical Chemistry for Everyday Life (PM)

Chemical Tools for Investigating Biological Systems (AM & PM)

Colloids, Nanomaterials, and Self-Assembly (AM & PM)

Development in Chemical Education and Educational Research (PM)

Heterogeneous Catalysis (AM)

Novel Chemistries Enabling High Performance Buildings (AM)

Synthesis and Characterization of Advanced Polymeric Materials (AM)

The Central Nature of Diversity in Organic Chemistry (AM & PM)

Transition Metal Chemistry (PM)

Poster Sessions:

Chemical Tools for Investigating Biological Systems

Colloids, Nanomaterials, and Self-Assembly

Novel Chemistries Enabling High Performance Buildings

Friday, June 7th:

Plenary: A. N. Sreeram, Dow Inc.

Oral Sessions:

Advances in Catalysis and Computation in Inorganic Chemistry (AM)

Central Region Chemical Heritage (AM & PM)

Coordination Chemistry: Characterization and Applications (AM)

Development in Chemical Education and Educational Research (PM)

Entrepreneurs Tool Kit: Resources and Best Practices (AM)

Growing with Project SEED: Continuing the Journey (AM)

Technologist in Industry: from Molecules to Materials (AM & PM)

Poster Sessions:

Coordination Chemistry: Characterization and Applications

Development in Chemical Education and Educational Research

Technologist in Industry: from Molecules to Materials

COMPLETE TECHNICAL PROGRAM SCHEDULE

TUESDAY MORNING

The H Hotel
Indigo Ballroom

Plenary

D. Ahn, J. M. Roberts, *Organizers*

D. E. Katsoulis, *Organizer, Presiding*

8:00 CERM 1. Surface science meets homogeneous catalysis: Surfaces as activators and ligands. **T.J. Marks**

The H Hotel
Indigo III

Adhesion, Surfaces & Interfaces

A. N. Dhinojwala, *Organizer*

E. Nicoli, *Organizer, Presiding*

E. P. Wasserman, *Presiding*

9:10 CERM 2. Design principles for the formation of functional polyelectrolyte complex membranes. **K.R. Shull**

9:35 CERM 3. Effects of interfaces on stiffness and glass transition temperature in polymer films: Implications for adhesion. **J.M. Torkelson**, T. Wei, S. Askar, S. Hu, A. Peera, S. Pujari, S. Zhang

10:00 CERM 4. Insights into the cloud point behavior of BO-capped nonionic surfactants and their interactions with silica surfaces. **E.P. Wasserman**, K. Beshah, R. Campbell, F. Dan, J. Gu, F. Yuan

10:25 Intermission.

10:45 CERM 5. Modeling the interface between lithium metal and its native oxide. **J. Lowe**, D. Siegel

11:10 CERM 6. Effect of pH, glass transition, and water activity on controlled release of vitamin K nanoencapsulated into a biopolymer matrix. **G.K. Kouassi**

11:35 CERM 7. New surfactant development of C8-C10 alkoxyates as a safer choice surfactant. **S. Ku**, W. Yu, S. King

The H Hotel
Platinum

Chemistry & Transportation

Trends in Transportation

B. Balijepalli, J. Reese, *Organizers, Presiding*

9:10 CERM 8. Chemistry to Car Parts: Turning fast curing chemistries into high performance automotive components. **D.H. Bank**

9:35 CERM 9. Lightweight multi material automotive solutions: Challenges and opportunities. **P. Blanchard**

10:00 CERM 10. Science of speed. **A.L. Randolph**

10:25 Intermission.

10:45 CERM 11. Trends in marine transportation. **J. Wright**

11:10 CERM 12. Common themes and solutions across the transportation coatings industry. **M. Mayo**

11:35 CERM 13. Advances in Aerospace Composite Materials and Processes. **T. Luchini**

The H Hotel Dow Academy (HHDA)
Academy Dining Room

Developing Sustainable Chemistries: Principles, Tools, Drivers & Case Studies

M. M. Thomas, *Organizer*
D. Boverhof, *Organizer, Presiding*

9:10 CERM 14. Technology greenhouse and the elements of innovation. **J.C. Warner**

10:00 CERM 15. Pursuit of sustainability through chemistry. **R. Helling**

10:25 Intermission.

10:45 CERM 16. Role of predictive toxicology in developing sustainable chemistries. **S. Marty**

11:10 CERM 17. Market, regulatory, and other drivers for sustainable chemistry. **J. Jones**

11:35 Panel Discussion.

The H Hotel
Indigo I

Enabling Chemical Synthesis: From Methods to Molecules

E. McCusker, N. Sane, *Organizers, Presiding*

9:10 CERM 18. Catalytic methods for the synthesis and functionalization of natural products. **P. Nagorny**

10:00 CERM 19. Broadly applicable stereoselective syntheses of serrulatane, amphilectane diterpenes, and their diastereoisomeric congeners using asymmetric hydrovinylation reaction. **S. Biswas, S. Tenneti, G. Cox, D.J. Mans, H. Lim, T.V. RajanBabu**

10:25 Intermission.

10:45 CERM 20. Development of new catalytic difluoromethylation reactions. **C. Brigham**, C. Malapit, M. Sanford

11:10 CERM 21. Amide directed iridium C(sp³)-H borylation catalysis with high *N*-methyl selectivity. **J.E. Dannatt**, A. Yadav, M.R. Smith, R.E. Maleczka

11:35 CERM 22. Intermolecular regio- and stereoselective sulfenoamination of alkenes. **N. Alom**, N. Kaur, W. Li

The H Hotel
Gold

Materials for Advanced Separations

A. J. Greiner, D. Sholl, *Organizers, Presiding*

9:10 CERM 23. Expanding the chemical palette for reliable adsorption-based separations. **D. Sholl**, F. Gharagheizi, D. Tang

9:35 CERM 24. Novel polyesteramides for natural gas treatment and methods for establishing plasticization resistance. **S. Matteucci**, W. Harris, G. Cespedes

10:00 CERM 25. Adsorption-based separations for renewable energy. **K. Knaebel**

10:25 Intermission.

10:45 CERM 26. Impact of antifoam on rheological properties of polynorbornene membranes for biobutanol separation. **S. Li**, B.D. Vogt

11:10 CERM 27. Molecular modeling of gas separation using supported ionic liquid membranes. **E. Maginn**

11:35 CERM 28. Encapsulation of magnetic nanoparticles by 15-nm fused silica shells. **M.J. Wirth**, E. Alzate

The H Hotel Dow Academy (HHDA)
General Session

Process Chemistry & Development

Development of Advanced Materials for Industrial Solutions

Cosponsored by WCC
A. Stottlemeyer, *Organizer*
A. Bessette, G. Sauvé, *Organizers, Presiding*

9:10 CERM 29. Polyelectrolyte multilayers: From basics to application. **N. Zacharia**

9:35 CERM 30. Acrylic redispersible powder for use in organic facades. **M. Westmeyer**

10:00 CERM 31. Multihydroxybenzoic acids as naturally-occurring precursors to phosphorus flame retardants. **B.A. Howell**, K. Oberdorfer, E. Ostrander

10:25 Intermission.

10:45 CERM 32. Liquid polyurethane engineering for 3D-printed running shoes. **L. Wang**, Z. Byrne

11:10 CERM 33. 3D printing and evaluation of novel nanographene-containing ABS thermoplastics. **R.A. Bubeck**, M. Most, S. Gillman, T. Zhang

11:35 CERM 34. Silsesquioxanes enabled technologies: From inception to commercialization. **S. Swier**

The H Hotel
Indigo II

Transition Metal Chemistry

M. S. Rosen, N. C. Tomson, *Organizers, Presiding*

9:10 CERM 35. Modelling surface nitrides with macrocycle-supported cluster chemistry. S. Zhang, A. Spentzos, P. Cui, T. Liu, Q. Wang, B.C. Manor, M. Gau, P. Carroll, **N.C. Tomson**

10:00 CERM 36. Synthesis and reactivity of catalytically relevant nickel(II) and Ni(III) complexes. **P. Roy**, J.R. Bour, M.S. Sanford

10:25 Intermission.

10:45 CERM 37. Synthesis, counter-intuitive bonding, and reactivity of acyclic, heavy group 14 (Si – Pb) carbene analogues. **B.D. Rekken**, P.P. Power

11:10 CERM 38. Synthesis, characterization, and reactivity of cobalt and iron complexes towards diazoalkanes in bulky bis(alkoxide) ligand environments. **A. Grass**, S. Groysman

TUESDAY AFTERNOON

The H Hotel
Indigo Hallway & Main Hallway

Adhesion, Surfaces & Interfaces

Poster Session

A. N. Dhinojwala, E. Nicoli, *Organizers*

12:00 - 2:00

CERM 39. High-throughput adhesion capability development. **K.A. Patankar**, T. Kalantar, N. Shephard, L.C. Lopez, D. Hayes, M. Crimmins, L. McCarty, D. Monaenkova, B. Clark, J. Sweeney, M. Bishop

CERM 40. Solid surface damage control and residual chemical removal. M. Yuan, **S. Zhao**

CERM 41. Measuring interfacial molecular orientations of organic semiconductors at buried interfaces in situ using SFG spectroscopy. **M. Xiao**, R. Guo, J. Andre, Z. Chen

CERM 42. Superhydrophobic coating prepared from fatty-acid modified cellulose nanofibers. **T. Chang**, M. Mavlan, J.P. Youngblood, A. Wei

CERM 43. MP2 and CCSD(T) binding energies of CO₂ to the water monomer, dimer, and trimer. **D.B. Lawson**

CERM 44. Computational study of the interaction of carbon dioxide and methane with water hexamers. **D.B. Lawson**

CERM 45. Using stress-controlled rheology to study curing profiles of 2-component polyurethane adhesives. **S. Bloxom**, Q. Wan, T. Li, Y. Guo

CERM 46. Discovering alternative synthetic strategies for more efficient biomimetic adhesive production. **M. Lengel**, A.A. Putnam, L. Huntington, J.J. Wilker

CERM 47. Chain conformations on polystyrene surface and at buried polystyrene/silica interface during annealing. **B. Li**, L. Chen, X. Lu, K. Chou, Z. Chen

CERM 48. Model for the kinetic behavior of ECOFAST™ pure sustainable textile treatment and cotton fabric. **A. Sokolov**, K. Andrews, L.R. Havens, D. Davies, M. Entorf

The H Hotel
Indigo Hallway & Main Hallway

Developing Sustainable Chemistries: Principles, Tools, Drivers & Case Studies

Poster Session

D. Boverhof, M. M. Thomas, *Organizers*

12:00 - 2:00

CERM 49. Alkenones, a natural, green and sustainable new structuring agent for lipsticks. **A.N. Huynh**, J.M. Chandler, G. Baki

CERM 50. Fueling growth through modern crop protection products. **Y. Yuan**, J. Liu, H. Shen, M. Johnson, K. Min, H. Tank, D.G. Wujek, G.T. Whiteker

The H Hotel
Indigo Hallway & Main Hallway

Enabling Chemical Synthesis: From Methods to Molecules

Poster Session

E. McCusker, N. Sane, *Organizers*

12:00 - 2:00

CERM 51. Creating low-melting metal alloys: Connections between chemistry and arts classes. **S. Seagram, S. Hedglin, A. Gallant, W. Aufdemberge, N. Tokarz, S. Plieth,** C. Blackwell, T. Tieu Ngo, **A. Rogers,** S.P. Kosmas, M.A. Benvenuto

CERM 52. Trimethylphosphate as a methylating agent for cross coupling: A slow-release mechanism for the methylation of arylboronic esters. Z. He, **H. Li,** A. Haydl, G.T. Whiteker, J.F. Hartwig

CERM 53. Piperidines via a microwave-assisted aza-Prins reaction. H. Vaughan, **H.A. Lindsay**

CERM 54. Density functional analysis of competing pathways in the synthesis of piperidines. **A. Havens,** M. Inaba, H.A. Lindsay, M. Milletti

CERM 55. Recent studies on [1,2] and [1,4] Wittig rearrangements of α -alkoxy allyl silanes. **E.W. Maloba,** R.E. Maleczka

CERM 56. Chemical synthesis and preliminary biological evaluation of C-6 –OMe DNJ as a potent α -glucosidase inhibitor. L. Wang, **Z. Fang**

CERM 57. Iodide-catalyzed [3+2] cycloadditions of ureas and alkenes as a simple and practical method for intermolecular olefin amino-oxygenation. **F. Wu,** N. Alom, W. Li

CERM 58. Convenient one-pot synthesis of allylsilanes from methyl aryl ketones. M.L. Kwan, **P. Challen, A. Beaufort**

CERM 59. Investigation of nagelamide M and analogs as potential human proteasome inhibitors. **G. Hubbell**

CERM 60. Riley oxidation and its role in the production of imidazolones: Efforts towards the first total synthesis of Nortopsentine D. **K.L. Keel**

CERM 61. Synthesis of new tetrahydrolipstatin derivatives for inhibition of *Mycobacterium tuberculosis*. **S.S. Khan,** S.J. Sucheck

CERM 62. Diboron-mediated reductive couplings of imines: Observation of novel diastereoselectivity. **R. Fornwald,** M.R. Smith, R.E. Maleczka

CERM 63. Halenium-ion induced cascade: An approach for the synthesis of (–) agelastatin A. **E. Dzurka,** S.T. Kohlbouni, H. Gholami, B. Borhan

CERM 64. Synthesis and photophysical properties of pyridylthiazole-based fluorophores. **Y. Watanabe**, W. Sungnoi, A. Sartorio, A. Wei

The H Hotel
Indigo Hallway & Main Hallway

Mechanisms in Homogenous Catalysis

Poster Session

M. D. Christianson, B. V. Popp, *Organizers*

12:00 - 2:00

CERM 65. Rhodium-catalyzed intermolecular C-H silylation of arenes and heteroarenes with various silanes. **K.L. Lee**, J. Choi, D.E. Katsoulis

CERM 66. Mechanistic investigation of shifts in steric selectivity in the catalytic C-H borylation of arenes and heteroarenes bearing small substituents. **S.L. Miller**, G.A. Chotana, J.A. Fritz, B. Chattopadhyay, R.E. Maleczka, M.R. Smith

CERM 67. Eliminating the induction period for catalytic C-H borylation with $[\text{Ir}(\mu\text{-Cl})(\text{cod})_2]$ by using hydrosilanes. **S. Lee**, M.R. Smith, R.E. Maleczka

CERM 68. Modification of a steric-directed to a chelate-directed catalyst for C-H borylation using B, N-bidentate ligands. **A. O'Connell**, M.R. Smith, R.E. Maleczka

The H Hotel
Indigo Hallway & Main Hallway

Process Chemistry & Development

Poster Session

Cosponsored by WCC
A. Bessette, G. Sauvé, A. Stottlemyer, *Organizers*

12:00 - 2:00

CERM 69. Predictive separation by liquid chromatography for mixtures of functionalized double-decker shaped silsesquioxanes. **A.N. Patil**, D. Vogelsang, J. Dannatt, A. Lee, R.E. Maleczka

CERM 70. Demonstrating the power of custom modeling integrated into flowsheet simulation. **E. Bergman**, R. Haghpanah, B. Metzler

CERM 71. Use of organic dyes in solar cell applications. **A. Dershem**, M. Meger, N. Tuckerman, K.C. Weerasinghe

CERM 72. Developing responsive materials with mechanochemistry: A computational approach. **A.K. Roessler**, P.M. Zimmerman

The H Hotel
Indigo Hallway & Main Hallway

Transition Metal Chemistry

Poster Session

M. S. Rosen, N. C. Tomson, *Organizers*

12:00 - 2:00

CERM 73. Synthesis of an iron persulfide complex: An active sulfur atom transfer catalyst and model system for biological sulfur signaling and regulation. **G. Kortman**, E. Tsui

CERM 74. Cyclopentadienyl pyridazines and oxazines and their applications in energy and advanced electronics. **N.C. Tice**, C. Olmstead, S. Wild, J.L. Jenkins, C.A. Snyder

CERM 75. Electrochemical investigation of ruthenium complexes utilizing cyclic voltammetry. **V.J. Flores**

CERM 76. Synthesis and electrochemistry of rhodium catalyst analogues. **H. Lillo**, A. Warhausen

CERM 77. C-C coupling by transfer hydrogenation via ruthenium-keteniminates. **M. Sikes**

CERM 78. C-H activation from a discrete Cu(III) complex. **G. Ritch**

CERM 79. Design and synthesis of first-row transition metal complexes ligated by chelating bis(alkoxide) ligands. **S. Kurup**, S. Groysman

The H Hotel
Indigo III

Adhesion, Surfaces & Interfaces

A. N. Dhinojwala, *Organizer*
E. Nicoli, *Organizer, Presiding*
J. Andre, *Presiding*

2:00 CERM 80. Spectroscopic evidence for acid-base interaction driven work of adhesion. S. Singla, M. Wilson, **A.N. Dhinojwala**

2:25 CERM 81. Crystalline-like ordering of confined liquids at interfaces under shear. **K. Nanjundiah**, A. Kurian, S. Kaur, S. Singla, A.N. Dhinojwala

2:50 CERM 82. Relationships of polymer interfacial orderings and adhesion. **J. Andre**, N.W. Ulrich, Z. Chen

3:15 Intermission.

3:45 CERM 83. Probing interfacial hydration and molecular structures of antifouling polymeric coatings using surface-sensitive spectroscopy technique. **C. Zhang**

4:10 CERM 84. From nature to application: Designing functional adhesives from biomimetic materials. **A.A. Putnam**, J.J. Wilker

The H Hotel Dow Academy (HHDA)
General Session

Art Conservation Science

M. H. Keefe, *Organizer, Presiding*

2:00 CERM 85. Use of the rheometric quartz crystal microbalance to characterize cure and aging of oil-based paints. **K.R. Shull**

2:25 CERM 86. Analysis and attempted identification of white pigments in Jackson Pollock's paintings. **T. Schmitt**, K.R. Shull, C. Miliani, F. Rosi, K.A. Gray, L. Pensabene

2:50 CERM 87. Enhancing the kinetic modeling of the curing of ethyl linoleate as a model monomer: Reaction pathways for epoxidation. **R.E. Harmon**, L.J. Broadbelt

3:15 Intermission.

3:45 CERM 88. Deconstructing and developing coatings for protecting outdoor bronze sculpture and decorative arts collections. **R. Grayburn**

4:10 CERM 89. Removal of graffiti ink from Mark Rothko's *Black on Maroon*, 1958: A collaborative approach. **M.H. Keefe**, B. Ormsby, S.T. Wills, F. Donate

4:35 CERM 90. What we still don't know about artist paints: You'd think that after 600 years we'd be on pretty solid ground?. **M. Golden**

The H Hotel
Platinum

Chemistry & Transportation

Materials in Transportation

B. Balijepalli, J. Reese, *Organizers, Presiding*

2:00 CERM 91. Accelerating Hybrid Electric Autonomous Driving (AHEAD™). **P. Hietpas**

2:25 CERM 92. Performance and chemistry of modern automotive lubricants. **B. Calcut**

2:50 CERM 93. Polyurethanes in transportation. **C. Spivey**

3:15 Intermission.

3:45 CERM 94. Silicones: Enabling the vehicle of the future. **K. Johnson**

4:10 CERM 95. Optical characterization methods for transparent silicone elastomers.
M. Cummings, B. Tuft, S. Dent, J. McDonald

4:35 CERM 96. Epoxy resins: An enabling technology for alternative energy storage.
P. Badrinarayanan

The H Hotel Dow Academy (HHDA)
Academy Dining Room

Developing Sustainable Chemistries: Principles, Tools, Drivers & Case Studies

D. Boverhof, *Organizer*
M. M. Thomas, *Organizer, Presiding*

2:00 CERM 97. Advances in sustainable beverage can coatings. **H. Ying**, S. Tang, B. Kainz, R. Drumright, J. Mason

2:25 CERM 98. Depolymerization enabled by application of tensile force. **M.T. Robo**, P.M. Zimmerman

2:50 CERM 99. Reinvigorating agrochemical products with microencapsulation technology. **J. Zhang**, M. Li

3:15 Intermission.

3:45 CERM 100. Driving sustainability by designing high-performing waterborne coatings. **P.S. Majumdar**, J. Bohling, P. Doll, G.W. Dombrowski

4:10 CERM 101. Achieving sustainable agriculture *via* spray drift management. **M. Zhang**, M. Li, H. Shao, H. Jeon, H. Tank, B. Downer, S. Wilson, J. Schleier, M. Somasi, M. Johnson

The H Hotel
Indigo I

Enabling Chemical Synthesis: From Methods to Molecules

E. McCusker, N. Sane, *Organizers, Presiding*

2:00 CERM 102. C-H and C-C functionalization of ketones. **G. Dong**

2:50 CERM 103. Preparation of Fenpicoxamid standards to support registration studies. **P. Johnson**, K.G. Meyer, L. Creemer, R. Ross

3:15 Intermission.

3:45 CERM 104. Kilo scale preparation of but-3-en-1-ylchloro(phenyl)phosphine. **K. Stockman**, M. Remy, K. Spiers, B. Scherzer

4:10 CERM 105. Highly functionalized tricyclic oxazinanones via pairwise oxidative dearomatization and *N*-hydroxycarbamate dehydrogenation: Molecular diversity inspired by tetrodotoxin. **S.N. Good**, J.S. Johnson

4:35 CERM 106. Balancing activity and regioselectivity in ortho C-H borylations of phenols and anilines by modulating the diboron partner. **J.R. Montero**, S. Lee, B. Ghaffari, M.R. Smith, R.E. Maleczka

The H Hotel

Indigo II

Mechanisms in Homogenous Catalysis

M. D. Christianson, B. V. Popp, *Organizers, Presiding*

2:00 CERM 107. Development of new methods for carbon-hydrogen bond functionalization. **O. Daugulis**

2:50 CERM 108. Copper-catalyzed silylations utilizing disilanes as the silicon source. **R. Van Hoveln**

3:15 Intermission.

3:45 CERM 109. Achievement of enhanced rate and selectivity in the rhodium-catalyzed homologation of methanol through ligand design. **H.A. Spinney**, T. Clark, S. Chotchatchawankul, J. MacDonald, C. Cummins, C.R. Landis

4:10 CERM 110. Predictive models for reactivity and selectivity of transition metal catalyzed organic reactions. **P. Liu**

4:35 CERM 111. Catalyst design in Suzuki-Miyaura cross-coupling polymerization. **K.J. Noonan**

The H Hotel
Gold

Process Chemistry & Development

Advances in Continuous Flow Processes

Cosponsored by WCC
G. Sauvé, A. Stottlemeyer, *Organizers*
A. Bessette, *Organizer, Presiding*
J. Devaraj, *Presiding*

2:00 CERM 112. Redox catalysis strategies for complex molecules. **C. Stephenson**

2:50 CERM 113. Reconfigurable system for automated optimization of diverse chemical reactions. **A. Bedard**, A. Adamo, K. Aroh, M. Russell, A.A. Bedermann, J. Torosian, B. Yue, K.F. Jensen, T.F. Jamison

3:15 Intermission.

3:45 CERM 114. Continuous processing for the manufacture of drug substance. **M. Johnson**, S.A. May, C.V. Luciani, K.P. Cole, J. Groh, L. Webster, J. Calvin, J. Roberts, R. Moylan

4:35 CERM 115. Mechanistic aspects of the Rochow direct process. **G. Xue**

WEDNESDAY MORNING

The H Hotel
Indigo Ballroom

Plenary

D. Ahn, J. M. Roberts, *Organizers*

D. E. Katsoulis, *Organizer, Presiding*

8:00 CERM 116. The power of organic chemistry in functional polymer synthesis.
C.J. Hawker

The H Hotel Dow Academy (HHDA)
Academy Dining Room

Cosmetic Chemistry: The Science Beyond Beauty

B. Maxon, P. D. Parkanzky, *Organizers, Presiding*

9:10 CERM 117. Overview of hair care and the hair care market. **T. Evans**

9:35 CERM 118. Botanical extracts in cosmeceutical applications: Where is chemistry insight needed on the way to the marketplace?. **K. Gellenbeck**

10:00 CERM 119. Innovation paradigm in the beauty world. **S. Baswan**

10:25 Intermission.

10:45 CERM 120. Beauty of silicones. **P.M. Krzyskowski**

11:10 CERM 121. Packaging design for beauty products. **M. White**

The H Hotel
Indigo II

Feedstock & Energy Related Catalysis

D. S. Laitar, E. Tsui, *Organizers, Presiding*

9:10 CERM 122. Reduction and/or C-C bond-forming reactions of unsaturated hydrocarbons catalyzed by heterobimetallic Zr/Co complexes. **C.M. Thomas, K.M. Gramigna, J. Beattie, N. Hunter**

10:00 CERM 123. Towards a stable iridium oxo: An exception to the oxo wall?. **T. Do, S.N. Brown**

10:25 Intermission.

10:45 CERM 124. Nitrate-mediated alcohol oxidations on cadmium sulfide photocatalysts. **J.L. DiMeglio**, A.G. Breuhaus-Alvarez, S. Li, B.M. Bartlett

11:10 CERM 125. Factors affecting the Faradaic efficiency of the oxygen evolution reaction on tungsten oxide photoelectrodes. **A.G. Breuhaus-Alvarez**, J.L. DiMeglio, J.J. Cooper, C. Lhermitte

The H Hotel
Indigo III

Industrial Applications of Polymers

K. A. Koppi, *Organizer, Presiding*

9:10 CERM 126. When the interfacial volume between immiscible polymer phases dominates polymer properties. **M. Sonnenschein**

9:35 CERM 127. Novel polyol dispersion with pot-life indication. **T.L. Neely**, V. Goldman, M. Soleimani

10:00 CERM 128. Self healing PU: Challenges and opportunities. **N. Roy**

10:25 Intermission.

10:45 CERM 129. Design, fabrication, and evaluation of 3D-printed humidity sensors. **T. Zhang**, N. Smith, W. Cummings, S. O'Donnell, I. Lysenko, R.A. Bubeck

11:10 CERM 130. Core-shell structured filaments for improved 3D printing. **J. Ai**, F. Peng, B.D. Vogt

11:35 CERM 131. High density polyethylene blends for 3D-printing. **C. Gorin**

The H Hotel
Platinum

Polymer Theory & Modeling

L. Rakesh, *Organizer, Presiding*

9:10 CERM 132. Multi-scale modeling of the structure and rheology of polymer-colloidal networks. **R.G. Larson**, S. Wang, E. Hajizadeh, H. Rezvantalab

9:35 CERM 133. Hierarchical design of nanoparticle assemblies inspired from biomechanical functions. **S. Keten**

10:00 CERM 134. Validation study of molecular dynamics predicted glass transition temperature for large dataset of polymers. A. Browning, **A. Goldberg**, M. Halls, J.L. Gavartin, A. Afzal

10:25 Intermission.

10:45 CERM 135. Simple mean-field description of the viscosity of glass-forming polymers. **V. Ginzburg**

11:10 CERM 136. Structure of segmented ionenes containing spherical nanoparticles. **N.T. Liesen**, L.M. Hall

11:35 CERM 137. Mathematical modeling and mesoscopic simulation of polymer-drug in aqueous/solvent media. **L. Rakesh**

The H Hotel Dow Academy (HHDA)
General Session

Process Chemistry & Development

Development of Advanced Materials for Sustainability Applications

Cosponsored by WCC
G. Sauvé, A. Stottlemyer, *Organizers*
A. Bessette, *Organizer, Presiding*

9:10 CERM 138. Zinc complexes of azadipyrromethenes as non-fullerene acceptors for organic photovoltaics. **G. Sauve**

9:35 CERM 139. New donor-acceptor systems for solar cell application. **K.C. Weerasinghe**, A. Dershem, M. Meger, N. Tuckerman

10:00 CERM 140. Sustainable organic electrode materials for rechargeable lithium batteries. **S. Zhang**

10:25 Intermission.

10:45 CERM 141. High-potential and highly soluble cyclopropenium salts as catholytes for non-aqueous flow battery. **Y. Yan**, S. Robinson, K. Hendriks, M.S. Sigman, M.S. Sanford

11:10 CERM 142. Development of a dry proton exchange membrane. **A. Mueller**, A. Argall, C. Hager, M.J. Quast, M. Sweet, Y. Wanzi

11:35 CERM 143. Nanocomposite films of molybdenum disulfide and carbon nanotubes for conductometric sensing of gas analytes. A. Yermembetova, Y. Chen, B. Washer, L. Stanciu, **A. Wei**

The H Hotel
Indigo I

Synthesis & Characterization of Advanced Polymeric Materials

Cosponsored by POLY
D. Konkolewicz, E. Pentzer, *Organizers, Presiding*

9:10 CERM 144. Industrial scale RAFT chain transfer agent and star polymer production. **J.R. Johnson**

9:35 CERM 145. Synthesis of pyridoxine-based star polymers *via* new simplified electrochemically mediated ATRP. **P. Chmielarz**, I. Zaborniak

10:00 CERM 146. Modeling ion conduction through block copolymers: Impact of morphology and ion solvation. **L.M. Hall**

10:25 Intermission.

10:45 CERM 147. Architecture and asymmetry in block polymer self-assembly. **M. Bates**, S. Barbon, J. Lequieu, R. Lewis, K.T. Delaney, A.E. Levi, A. Anastasaki, G.H. Fredrickson, C.J. Hawker, C.M. Bates

11:10 CERM 148. Synthesis of bioinspired star-like nanomaterials through low ppm ATRP technique. **I. Zaborniak**, P. Chmielarz

11:35 CERM 149. Star-like benzyl functionalized polycaprolactones micellar drug carriers for doxorubicin delivery. **V. Karmegam**

The H Hotel
Gold

Using Data Science in Chemical Research

A. L. Ekstrom, *Organizer, Presiding*

9:10 CERM 150. What? Still experimenting with one-factor at a time? Be smart; Use designed experiments!. **H. Plaumann**

9:35 CERM 151. Optimizing the most important chemical extraction in the world with definitive screening designs. **A.L. Ekstrom**

10:00 CERM 152. Introduction to split-plot experiments with application to bone tissue engineering. **B.J. Smucker**

10:25 Intermission.

10:45 CERM 153. Strategy of mixture experimentation. **M.J. Anderson**

11:10 CERM 154. Understanding computational chemistry via its textual landscape. **E.X. Esposito**

11:35 CERM 155. Power of analytics in chemical research. **A. Argenton**

WEDNESDAY AFTERNOON

The H Hotel
Indigo Hallway & Main Hallway

Analytical Chemistry

Poster Session

X. Chen, K. Cissell, Y. Tan, M. M. Tecklenburg, *Organizers*

12:00 - 2:00

CERM 156. Characterization of dyes and mordants in archaeological textiles by ambient ionization mass spectrometry. **J. Campos Ayala**, R. Armitage

CERM 157. Quantification of nitrite and nitrate in surface waters in Jefferson County, Ohio. **M.R. Watry**, A. Salas, T. Dillon

CERM 158. DART-MS for rapid identification of logwood (*Hematoxylum campechianum*) dye: Effects of yarn composition and mordants. **T. Fairchild**, R. Armitage

CERM 159. Fundamental approaches to reactive chemicals hazard recognition and analysis. **J.E. Nichols**, R. Bellair

CERM 160. Investigating the effects of chemical pretreatments on binding media in rock paintings: Implications for radiocarbon dating. **A. Bower**, R. Armitage

CERM 161. Investigation of greener solvent options for electrochemical analysis of antioxidants and lipid degradation. **K. Keene**, **C.X. Cleis**, **A. Siddiqui**, **M.J. Fhaner**

CERM 162. Investigating the stability of the periarticular ropivacaine cocktail. **T. Tran**, **R. Brown**, **C. Mossner**, D. Linskey, M.J. Fhaner

CERM 163. UV-Vis spectroscopic study of various phthalocyanine, naphthalocyanine, subphthalocyanine, and subnaphthalocyanine compounds. **V. Kennedy**, M. Hartwig, A. Wadas, G. Ciavattone

CERM 164. Application of pyrolysis GC/MS to support agricultural product development. **T. Kajdan**, C. Zu

CERM 165. Analytical approach to inorganic problem solving for crop protection active ingredient research. **H. Tidwell**

CERM 166. Raman scattering from non-covalent heterogeneous interfaces: Charge transfer. **S. Afroosheh**

CERM 167. Ambient ionization mass spectrometry for characterization of historic glue recipes. **D.M. Fraser**, R. Armitage

CERM 168. Determining yeast cell-count & viability with varying smartphone cameras. **T. Ostrom**, D.J. Lecaptain

CERM 169. Middle school outdoor watershed chemistry classroom exploration for Great Lakes stewardship: Measuring turbidity and nitrate. **H. Kamper, D.J. Lecaptain**

CERM 170. Concentration-dependent fluoride anions recognition with 3,5-dinitrobenzamide-derived leucine and tryptophan receptors. **B. Deka**

CERM 171. Enhancing the stability of nanoparticle embedded substrates for surface enhanced Raman spectroscopy. **M.M. Tecklenburg**, M. Alam, H. Madupalli

The H Hotel
Indigo Hallway & Main Hallway

Bioinorganic: Metalloproteins, Model Complexes & Metals in Medicine

Poster Session

E. R. Trivedi, *Organizer*

12:00 - 2:00

CERM 172. Attachment of cis,cis,trans-diamminedichlorodisuccinatoplatinum (IV) to a cancer active peptide. **B.D. Clegg**, D.L. Heyl, R.D. Muterspaugh, J.E. Taylor, H.G. Evans, J. Guthrie, J.D. Hoeschele

CERM 173. Design and optimization of micro- to macro-scale dimension of pacemaker electrode using finite element method. **E. Madison**

CERM 174. Synthesis of fluorinated boron subphthalocyanines as fluorescent probes in MDA-MB-231 breast tumor cells. **R.L. Calandrino**, K.J. McAuliffe, E.R. Trivedi

The H Hotel
Indigo Hallway & Main Hallway

Feedstock & Energy Related Catalysis

Poster Session

D. S. Laitar, E. Tsui, *Organizers*

12:00 - 2:00

CERM 175. Synthesis and characterization of a trigonal pyramidal sulfur radical supported by a triarylborane framework. **K. Riordan**, E. Tsui

CERM 176. Synthesis and characterization of iron carbonyl-functionalized cadmium sulfide nanocrystals. **R.R. Gipson**, K.A. Schival, E. Tsui

CERM 177. Redox chemistry of dinuclear ruthenium ammine complex: A catalyst for ammonia “splitting”? **R. Ghazfar**, T. Hamann, M.R. Smith

CERM 178. Electrocatalytic ammonia splitting with monocationic ruthenium complexes. **M. MalekaAshtiani**, T. Hamann, M.R. Smith

The H Hotel
Indigo Hallway & Main Hallway

Industrial Applications of Polymers

Poster Session

K. A. Koppi, *Organizer*

12:00 - 2:00

CERM 179. Beauty of silicone in hair care applications. **N. Suthiwangcharoen**, B. Johnson, D. Carsten, S. Golden, K. Nguyen, Q. Feng, H. Wedge

CERM 180. Eco-friendly polyurethane roofing foam utilizing HFO blowing agent. **T. Chase**

CERM 181. Saving the bees: Controlled time-release of formic and oxalic acids for control of *Varroa* mites. **E.J. Stark**, **M.O. Milbrath**, **N. Reid**, **T. Mclean**, **J. Laurin**, **R. Henning**, **K. Mackin**, **R.A. Bubeck**

CERM 182. Sensorial enablers to deliver benefits on fabrics through washing. **R. Pulukkody**, S. Vuong, D. Miller, M. Clark, C. Yunshen

The H Hotel
Indigo Hallway & Main Hallway

Polymer Theory & Modeling

Poster Session

L. Rakesh, *Organizer*

12:00 - 2:00

CERM 183. Mechanical properties of bilayer membranes in aqueous media using coarse-grained dynamics simulation. **L. Rakesh**, S. Shippy, H. Flores

CERM 184. Rheological characterization of physico-mechanical, water binding, and antioxidant properties of cellulose dispersions with and without salt. **D. Kaminsky**, L. Rakesh

CERM 185. Structural investigation of the impacts of *Curcuma longa* derivatives on Alzheimer's amyloid beta oligomers using novel molecular dynamics modeling. **B. Lawate**, L. Rakesh

CERM 186. Investigation of photosynthesis and renewable energy mechanism via molecular dynamics to multi-scale modeling. **M. Moore**, L. Rakesh

CERM 187. Mechanistic study of a bimetallic chromium catalyst for isotactic propylene oxide polymerization. **A.K. Roessler**, L.S. Morris, T. Jugovic, G.W. Coates, P.M. Zimmerman

The H Hotel
Indigo Hallway & Main Hallway

Synthesis & Characterization of Advanced Polymeric Materials

Poster Session

Cosponsored by POLY
D. Konkolewicz, E. Pentzer, *Organizers*

12:00 - 2:00

CERM 188. Electrospun poly(ϵ -caprolactone)/polyhedral oligomeric silsesquioxane-based copolymer blends: Evolution of fiber internal structures. **B. Li**, A.J. Bauer

CERM 189. Optimizing pressure stable, imprinted polymers to remove zinc from water. **R. Hanford**

CERM 190. Structural origin of the broadband blue emission in the hexagermane $\text{Pr}^i_3\text{Ge}(\text{GePh}_2)_4\text{GePr}^i_3$. F. Shumaker, S.S. Perera, F.A. Rabuffetti, A. Kelterer, **C.S. Weinert**

CERM 191. Gelatin-based dynamic hydrogels using thermo-responsive poly(*N*-Isopropylacrylamide). **M. Perera**, N. Ayres

CERM 192. Synthesizing poly(trimethylsilylpropargyl methacrylate) materials with narrow polydispersity via ATRP and their application as enzyme stabilizers. **P. Hsiao**, M.R. Smith

CERM 193. Applications of ionic liquid containing pickering emulsions stabilized by 2D carbon materials. **Q. Luo**, Y. Wang, P. Wei, Q. Huang, Z. Chen, E. Yoo, B. Gurkan, E. Pentzer

The H Hotel
Indigo Hallway & Main Hallway

Using Data Science in Chemical Research

Poster Session

A. L. Ekstrom, *Organizer*

12:00 - 2:00

CERM 194. Effect of emollients on the *in vitro* SPF and broad spectrum protection of organic UV filters. **A.R. Schaefer**, **L. Lam-phau**, M.S. Abou-Dahech, A.N. Huynh, J.M. Chandler, **G. Baki**

CERM 195. Investigation into the binding of metal ions to riboflavin binding protein in eggs. **A.E. Shannon**, M.J. Bibyk, T.A. Murray

The H Hotel
Platinum

Analytical Chemistry

Detecting Environmental Contaminants by Modern Analytical Tools

X. Chen, Y. Tan, M. M. Tecklenburg, *Organizers*
K. Cissell, *Organizer, Presiding*

2:00 CERM 196. Catching the freshwater wave: Lakes, aerosols, and algal blooms.
A.P. Ault

2:25 CERM 197. Call for accurate evaluations of the potential hazards of microplastics in our environment: The importance of analytical approaches. **J. Davis**

2:50 CERM 198. Pyrolysis GC/MS for the analysis of natural organic matter and anthropogenic pollutants. **K. Schreiner**, E. Minor, V. Bruner, A. Burrows, E. Hendrickson, M. Ryan, J. Swenson

3:15 Intermission.

3:45 CERM 199. In-air monitoring of methylene diphenyl diisocyanate during application of spray polyurethane foam: Impinger vs. ASSET™ EZ4-NCO based sampling methods. **D. Bower**, J. Hankett, E. Hugel, M. Szyndler, W. Robert

4:10 CERM 200. Detection of nitrate and nitrite in surface water using a paper-based fluidic device. **K. Cissell**, Z. Velasco, K.L. Kwiatkowski

4:35 CERM 201. Analytical approaches for assessing biodegradability of materials.
V.C. Albright, Y. Chai

The H Hotel
Gold

Bioinorganic: Metalloproteins, Model Complexes & Metals in Medicine

E. R. Trivedi, *Organizer, Presiding*

2:00 CERM 202. Developing model nickel metalloenzymes for energy conversion.
H.S. Shafaat, J.W. Slater, A. Manesis, C. Schneider, R. Treviño, S.C. Marguet, L. Lewis

2:25 CERM 203. EPR of high-spin Co(II) in biological environments. **D.L. Tierney**

2:50 CERM 204. *De novo* three stranded coiled coils for hydrolytic and redox catalysis. **V.L. Pecoraro**, K.J. Koebke, A. Tolbert, T. Pinter, E. Manickas, W. Pitts

3:15 Intermission.

3:45 CERM 205. Internal motions and allostery in regulators of pathogenic bacteria. **D.A. Capdevila**

4:10 CERM 206. Targeted photodynamic inactivation of drug-resistant staphylococci using gallium-substituted protoporphyrins on Ag nanoparticles. A.V. Morales, L. Lin, N.S. Abutaleb, M.N. Seleem, **A. Wei**

4:35 CERM 207. Opening the proteome to MR imaging analysis: Are we there yet?. **T.J. Meade**

The H Hotel Dow Academy (HHDA)
Academy Dining Room

Cosmetic Chemistry: The Science Beyond Beauty

B. Maxon, P. D. Parkanzky, *Organizers, Presiding*

2:00 CERM 208. Formulation design. **J.M. Chandler**

2:55 Intermission.

3:00 CERM 209. Four dimensions of photoprotection. **C.A. Bonda**

3:55 Intermission.

4:00 CERM 210. Claim substantiation of skin care products. **R. Kong**

The H Hotel
Indigo II

Feedstock & Energy Related Catalysis

D. S. Laitar, E. Tsui, *Organizers, Presiding*

2:00 CERM 211. Homogeneous electro-catalytic oxidation of ammonia to N₂ under mild conditions. **M.R. Smith**

2:50 CERM 212. Experimental and computational studies on the Cu(II)-catalyzed urea formation from ammonium carbamate. **M. Zhou**, D. Xiao, Y. Wang, D. Hanson, X. Zhou, E. Washburn, M.B. Ekmekci, D. Dennis

3:15 Intermission.

3:45 CERM 213. Sulfur-mediated rearrangement of a zinc dithiolate complex. **M. Ballesteros**, E. Tsui

4:10 CERM 214. Structure-activity relationship in the iron bis(alkoxide) nitrene coupling catalysts. **D.C. Wannipurage**, S. Kurup, R.L. Lord, S. Groysman

The H Hotel
Indigo III

Industrial Applications of Polymers

K. A. Koppi, *Organizer, Presiding*

2:00 CERM 215. Silicones: Materials with unique properties and application benefits. **M. Ferritto**

2:25 CERM 216. Novel characterization of MQ silicone resins. **T. Bekemeier**, W. Gao, T. Zhang, P. Yang, D. Eldred

2:50 CERM 217. To foam or not to foam: Depends on the silicone. **R. Beeson**, N.N. Chang, H. Moten, J. Young

3:15 Intermission.

3:45 CERM 218. Silicones for healthcare applications: Past, present, & future. **H. Aliyar**

4:10 CERM 219. Antimicrobial hydrophilic polyurethane foams for wound care applications. **C. Jayakody**

4:35 CERM 220. Advances in epoxy technology for wind turbine blade. **R. Turakhia**

The H Hotel Dow Academy (HHDA)
General Session

Process Chemistry & Development

Process Chemistry, Engineering & Analysis

Cosponsored by WCC

G. Sauvé, A. Stottlemyer, *Organizers*

A. Bessette, *Organizer, Presiding*

M. Donaldson, S. Somasi, *Presiding*

2:00 CERM 221. Advancing catalytic borylations through academic-industrial collaborations. **R.E. Maleczka**

2:50 CERM 222. Supervised machine learning for Ziegler-Natta polyolefin catalyst design. **R.L. Hartman**, B. Rizkin

3:15 Intermission.

3:45 CERM 223. Production of organofunctional alkoxy silanes via phase transfer catalysis. **J.M. Gohndrone**, M. Depierro

4:10 CERM 224. Design of metal/metal-oxide heterogeneous catalysts for chemical conversion. **E. Nikolla**

The H Hotel
Indigo I

Synthesis & Characterization of Advanced Polymeric Materials

Cosponsored by POLY

D. Konkolewicz, E. Pentzer, *Organizers, Presiding*

2:00 CERM 225. Sugarsiloxanes: Synthesis, characterization, and use as film formers in personal care. **N.N. Chang**, J. Vogel, E.J. Joffre, M.S. Ferritto, L.J. Petroff

2:00 CERM 226. Liquid polymerized ionic liquids: Alkylating methyl imidazole with poly(1-methyl-3-hydroxyundecyl imidazolium bromide). J. Texter, **S. Li**

2:25 CERM 227. Synthesis & characterization of a metalated porous organic polymer for the hydrosilylative reduction of CO₂ to formate. **P. McGrier**

2:50 CERM 228. New dynamic materials from old organic reactions. **D. Konkolewicz**, P. Chakma, B. Zhang, Z. Digby, J. Ke, C. Morley, M. Shulman, L. Kuhn, J. Sparks

3:15 Intermission.

3:45 CERM 229. Sequence-selective dynamic covalent assembly of information-bearing oligomers. **T.F. Scott**, S.C. Leguizamón

4:10 CERM 230. Using dynamic hydrogels to study cell behavior. M. Perera, **N. Ayres**

THURSDAY MORNING

The H Hotel
Indigo Ballroom

Plenary

D. Ahn, J. M. Roberts, *Organizers*
D. E. Katsoulis, *Organizer, Presiding*

8:00 CERM 231. New synthetic methods for C–F bond formation: From fundamental science to applications. **M.S. Sanford**

The H Hotel Dow Academy (HHDA)
General Session

Analytical Chemistry

Analytical Chemistry Accelerates Molecules to Material Transformations

X. Chen, K. Cissell, M. M. Tecklenburg, *Organizers*

Y. Tan, *Organizer, Presiding*

9:10 CERM 232. Glass transition suppression of polystyrene in SBS rubber. **W. Woodward**, M. Lesniak, T. Fielitz, T. McIntire, J. Harris, L. Hood, E. Porter, B. Landes, S. Zhang, G. Meyers, K. Kearns, M. Beach, J.M. Torkelson

9:35 CERM 233. Structure-function correlations of polymer surfaces and interfaces probed by nonlinear optical spectroscopy. **Z. Chen**

10:00 CERM 234. Characterizations of structure and property changes of high density polyethylene after accelerated UV weathering. **Y. Lai**, B. Landes, K. Kearns, Y. Tan, S. Askar, T. Hogan

10:25 Intermission.

10:45 CERM 235. Utility of Raman spectroscopy in continuous processing of liquids and solids. **I. Lewis**, D. Strachan, S. Gilliam, K. Esmonde-White, C. Uerpmann

11:10 CERM 236. Use of accelerating rate calorimetry to study thermal runaway of heterogeneous systems. **S. Dutta**, S. Horsch

11:35 CERM 237. Maximizing comprehensive two-dimensional LC peak capacity for complex aromatic amines oligomer analysis. **K. Zhu**, G. Desmet, S. Eeltink, M. Pursch

The H Hotel
Indigo I

Central Nature of Diversity in Organic Chemistry

Cosponsored by ORGN
J. L. Stockdill, *Organizer, Presiding*

9:10 CERM 238. Evaluation of potential safety hazards of the palladium catalyzed Mizoroki-Heck cross-coupling of aryl bromides with styrenes. **N. Sane**, Q. Yang, D. Klosowski, M. Lee, T. Rosenthal, N. Wang, E. Wiensch

9:35 CERM 239. Silyl ketenes as building blocks for complex molecules and polymers. Y. Xiang, S. Mitchell, **E. Pentzer**

10:00 CERM 240. Synthesis of 9- and 10-membered carbocyclic analogs inspired by the natural product, UK-2A. **J. Wilmot**, J. Herrick, D.M. Jones, K.G. Meyer, F. Li, K. Bravo

10:25 Intermission.

10:45 CERM 241. Synthesis of 1,3,4-oxadiazoles by a two-step, one-pot cyclodehydration reaction. **R.E. Grote**

11:10 CERM 242. Kinase inhibitors via multicomponent reactions for proliferative diseases. **H.O. Sintim**

11:35 CERM 243. Iron(III)-catalyzed carbonyl-olefin metathesis and oxygen atom transfer. **C. Schindler**

The H Hotel Dow Academy (HHDA)
Academy Dining Room

Chemical Tools for Investigating Biological Systems

B. M. Swarts, *Organizer*
L. Zhao, *Organizer, Presiding*

9:10 CERM 244. Chemoproteomic identification of protein glutathionylation in cardiomyocytes. **Y. Ahn**, G. VanHecke, M. Yapa Abeywardana

10:00 CERM 245. Reimagining nature's scaffold: Targeting BCL2-BH3 interactions using re-engineered scorpion toxins. **J.M. Holub**

10:25 Intermission.

10:45 CERM 246. Utilization of NABs for sequence-specific detection of mixed-base nucleic acids. **S.A. Oladepo**

11:10 CERM 247. Kinetic and regulation mechanisms of human DNA polymerase/primase PrimPol. W. Xu, **W. Zhao**, N. Morehouse, M.O. Tree

11:35 CERM 248. Development of a biocompatible dendritic nanomolecule for biological/biomedical applications. **A. Sharma**

The H Hotel
Indigo III

Colloids, Nanomaterials & Self-Assembly

V. Ginzburg, *Organizer, Presiding*

9:10 CERM 249. Covalent functionalization of redox-exfoliated layered transition metal dichalcogenides (group IV – VII). **R.A. Vaia**, A. Jawaid, A. Ritter

9:35 CERM 250. Phase behavior and solubilization in water-surfactant-silicone oil systems: A talk dedicated to Stig E. Friberg. **Y. Liu**

10:00 CERM 251. Polymer materials of structural hierarchy: Design, fabrication, and characterization. **B. Li**

10:25 Intermission.

10:45 CERM 252. Self-assembly of polymer-nanotube composites. **J.R. Parquette**

11:10 CERM 253. Self-assembly of biohybrid materials with macrocyclic receptors. **N.K. Beyeh**

11:35 CERM 254. High active aqueous-based pour point depressants and wax inhibitors. **R. Moglia**, S. Potisek, D. Dermody, K. Capaldo, L. Reyes, K. Ender, R. Campbell, R.L. Sammler

The H Hotel
Gold

Heterogeneous Catalysis

L. R. McCullough, N. M. Schweitzer, *Organizers, Presiding*

9:10 CERM 255. Identifying properties of ceria-supported highly dispersed Co_xO_y via x-ray absorption spectroscopy for NO reduction by CO. **L. Savereide**, J.M. Notestein, S. Nauert, A. Gosavi

9:35 CERM 256. Iridate perovskites as highly active catalysts for the oxygen evolution reaction in acidic conditions. **L.C. Seitz**, C.F. Dickens, K. Nishio, Y. Hikita, A. Vojvodic, H.Y. Hwang, J.K. Norskov, T.F. Jaramillo

10:25 Intermission.

10:45 CERM 257. Effect of carbon supports on RhRe bifunctional catalysts for selective C-O-C bond hydrogenolysis in tetrahydropyran-2-methanol. **P. Karanjkar**, S. Burt, X. Chen, K. Barnett, M. Ball, M. Kumbhalkar, X. Wang, J.B. Miller, I. Hermans, J.A. Dumesic, G.W. Huber

11:10 CERM 258. Efficient chemoselective reduction of N-oxides and sulfoxides using a carbon supported molybdenum-dioxo catalyst and alcohol. **J. Li**, S. Liu, T. Lohr, T.J. Marks

The H Hotel
Platinum

Novel Chemistries Enabling High-Performance Buildings

L. Carbary, V. Woodcraft, *Organizers, Presiding*

9:10 Introductory Remarks.

9:35 CERM 259. Energy-efficient dehumidification, indoor air quality, and space savings in buildings enabled by silicone desiccant liquids. **D. Ahn**, A.J. Greiner, J.F. Thompson, J.S. Hrabal, A.N. Lichtor

10:00 CERM 260. Air barriers and water vapor permeation in the high-performance building market. **M.H. Repollet Pedrosa**, G. Gordon, D. Hagan, S. Yee, M. Brasseur

10:25 Intermission.

10:45 CERM 261. Revising paints' role with indoor air quality. **P. Doll**, M. Gallagher

11:10 CERM 262. High value silicone reactive hot-melt for high-velocity hurricane zones. G. Gordon, **A. Bowman**, S. Altum, M. Bott

11:35 CERM 263. Form, function, durability: Applications and solutions in high-performance building envelopes. **S. Yee**

The H Hotel
Indigo II

Synthesis & Characterization of Advanced Polymeric Materials

Cosponsored by POLY

D. Konkolewicz, *Organizer*

E. Pentzer, *Organizer, Presiding*

Q. Luo, *Presiding*

9:10 CERM 264. Trimethylsiloxysilicates modified for improved cosmetic formulations. **T. Bekemeier**, J. Vogel, C. Bougaran, M. Eeman, J. Cook

9:35 CERM 265. Organometallic oligomers and polymers containing redox-active pincer ligands. C. Yu, **O. Ozerov**

10:00 CERM 266. Precision polymer synthesis via catalyst-transfer polymerization. **A.J. McNeil**

10:25 Intermission.

10:45 CERM 267. Design and fabrication of hybrid poly(olefin)-acrylic latex particles. **M. Carter**, P. Luo, L. Chen, R. Moglia, T. Ratani, S. Brown, M. Janco, J. Gu, W. Gao, J. Ngunjiri, C.L. Jackson, J. Kohn, R. Even

11:10 CERM 268. 3D printing of polyampholyte ionomer triple shape memory polymers. **K.A. Cavicchi**

11:35 CERM 269. Polymer nanocomposites with soft and hard nanoparticles: A comparison in mechanical properties. J. Yang, Z. Yang, W. Yang, **S. Cheng**

THURSDAY AFTERNOON

The H Hotel
Indigo Hallway & Main Hallway

Chemical Tools for Investigating Biological Systems

Poster Session

B. M. Swarts, L. Zhao, *Organizers*

12:00 - 2:00

CERM 270. Fatty acid profiling and oxidative damage assessment of *Caenorhabditis elegans* as an indicator for evaluating exposure to pentachlorophenol. **D. Adisa**, M.A. Saleh, F. Abdel-rahman

CERM 271. Investigation of the interaction between acetylcholinesterase and humanin using computational methods. **M.C. Brito**, H.G. Evans, M. Milletti

CERM 272. Trehalose analogues block utilization of trehalose by hypervirulent *Clostridium difficile*. **A. Stothard**

CERM 273. K-BMAPS: A tool to map cellular signaling pathways in vitro and live cells. **V.H. Ramanayake-Mudiyanselage**

CERM 274. Biochemical characterizations of PrimPol: Metal cofactors, interacting protein, and substrate DNA. **N. Morehouse**

CERM 275. Synthetic oligodeoxynucleotide purification using the catching full-length sequence by polymerization technique. **D.N. Eriyagama**

CERM 276. Cooperative allostereism in streptavidin and avidin. **M.J. Waner**, D.P. Mascotti, D. Baker, N. Jamison

CERM 277. Identification of kinase and phosphatase substrates using kinase-catalyzed labeling. **N. Punchi Naide Acharige**

CERM 278. Kinase-catalyzed crosslinking and immunoprecipitation (K-CLIP) is a substrate and interactome identification tool: Application to p53. **A.K. Kithulgoda Gamage**

CERM 279. Biochemical and kinetic characterization of uracil cleavage by human uracil DNA glycosylase in the context of mitochondrial DNA repair. **D. Oppong**

CERM 280. PRMT5 activity is affected by HDAC6-mediated deacetylation. **K.D. Gomes**

CERM 281. Unveiling the conformational preferences of fructose transporters. **V.V. Begoyan**, L. Weselinski, M. Tanasova

CERM 282. Chemoenzymatic synthesis of trehalose-6-phosphate analogues. **Q. Dong, B.M. Swarts**

CERM 283. Binding dynamics of peptides derived from insulin-like growth factor binding proteins and cell-surface glycosaminoglycans: Implications for cell proliferation and survival in cancer microenvironments. **P. McCombs, D. Heyl-Clegg, B.D. Clegg, H.G. Evans**

CERM 284. Study of electron withdrawing and electron donating effects on antioxidant activities. **C. Anamoah, A. Knoll, C.Y. Lee**

CERM 285. Examining the binding kinetics of acetylcholinesterase and humanin with amyloid-beta. **D. Price, D. Heyl-Clegg, H.G. Evans**

CERM 286. Exploring cancer targeting with bioactive GLUT5-specific click conjugates. **N. Nahrjou, L. Weselinski, V.V. Begoyan, M. Tanasova**

CERM 287. Synthesis of stimulus responsive fluorine-polyacrylamides. **D. DeJonge, C. Levitt, J.O. Massing, M.J. Phaner**

CERM 288. Structure-activity relationship (SAR) studies and synthesis of compounds inducing non-apoptotic, caspase-independent cell death in cancer cells. **M.A. Pasternak, N. Hussein, A. Tiwari, P.W. Erhardt, P. Trivedi**

CERM 289. Fluorene-9-bisphenol affects mouse embryonic stem cell pluripotency and differentiation capabilities. **B. Xhabija, N.C. Monear, J.L. Tischler**

CERM 290. Progress towards the structure of a bacterially expressed snake venom metalloproteinase inhibitor from the North American opossum (*D. virginiana*). **R. Werner, L. Miling, M. Hawes, B. Elliott, S. Archiyan**

CERM 291. Fecal bacteria quantification and source tracking for beaches and drains in the Saginaw Bay in Bay County. **T. Vogel, T. Sivy**

CERM 292. Development of quantitative solution phase extractions and analysis of total RNA from complex bacterial matrices. **T. Dodson, E. Carlson, N. Wamer, E.G. Prestwich**

CERM 293. Development of clickable photoaffinity probes to identify outer membrane proteins in mycobacteria. **K. Biegas, H.W. Kavunja, N. Banahene, B.M. Swarts**

CERM 294. Synthesis of fluorogenic trehalose and trehalose monomycolate analogues for the detection of mycobacteria. D. Gepford, N. Banahene, Y. Hsu, M. VanNieuwenhze, **B.M. Swarts**

CERM 295. Chemical synthesis of azido inositol analogues via Ferrier rearrangement. **A.P. Ausmus**

CERM 296. Use of 2,4-dinitrophenylhydrazine for the detection of oxidized lipids by MALDI TOF: Re-examination of the reactive matrix concept. **D. Kang**, A. Mohammed, P. Giolando, H. von Grafenstein

CERM 297. Exploring the outcomes of fructose deprivation in cancers with GLUT-specific molecular probes. **A. Ghosh**, V.V. Begoyan, S. Rao, M. Tanasova

The H Hotel
Indigo Hallway & Main Hallway

Colloids, Nanomaterials & Self-Assembly

Poster Session

V. Ginzburg, *Organizer*

12:00 - 2:00

CERM 298. Simple solvothermal synthesis route for the synthesis of monodisperse pristine and all rare-earth doped barium titanate nanocrystals. **B. Kavey**, G. Caruntu

CERM 299. Solvothermal synthesis and characteristics study of barium titanate (BaTiO₃) nanoparticles. **N. Chakraborty**

CERM 300. Rational design of novel dielectric and photocatalytic core-shell nanomaterials by a sacrificial template method. **P.M. Balapuwaduge**, S. Naik, G. Caruntu

CERM 301. Fabrication, characterization, and dielectric spectroscopy of BaTiO₃ styrene butadiene styrene stretchable thin film nanocomposites for flexible electronics. **S. Paul**, B. Kavey, G. Caruntu

CERM 302. Electrodeposition of angle-insensitive multilayered structural colors. **S. Acharya**, C. Ji, K. Yamada, S. Maldonado, L. Guo

CERM 303. Variation of gold shell thickness using in situ generated gold and palladium seeds on silica cores for variation in photo-physical properties. **L. Jawad**, A. Saleem, L. Juratli, K. Bandyopadhyay

CERM 304. Structural analysis and synthesis of surface bound gold nanorods. **V.L. Gerios**, I. Smith, D. Paicu, K. Bandyopadhyay

CERM 305. Two-dimensional assemblies of gold nanoparticles as non-enzymatic glucose biosensor. **A. Bitar**, E. Ehrheart, R. Bitar, K. Bandyopadhyay

CERM 306. Counter ion effect on the high-affinity binding of pyrophosphate by resorcinarene tetra-salt receptors. **J. Feder**, K. Twum, N. Schileru, M. Taimoory, S. Taimoory, J. Trant, N.K. Beyeh

CERM 307. Systematic construction of ternary assemblies through weak interactions. R. Puttreddy, M. Pour, M. Taimoory, **K. Twum**, F. Pan, K.T. Rissanen, J. Trant, N.K. Beyeh

CERM 308. Influence of halides on the growth of triangular silver nanoprisms. **T.R. Brewer**, A. Bower, D. Lovett

CERM 309. Color-tunability in chemically and structurally flexible upconverting nanocrystals. **K.T. Dissanayake**, F.A. Rabuffetti

CERM 310. Synthetic allomelanin nanoparticles for human skin protection. X. Zhou, **N.C. Collins**, Z. Hu, W. Cao, Z. Wang, N.C. Gianneschi

The H Hotel
Indigo Hallway & Main Hallway

Novel Chemistries Enabling High-Performance Buildings

Poster Session

L. Carbary, V. Woodcraft, *Organizers*

12:00 - 2:00

CERM 311. Liquid applied polymeric roofing membranes: Techniques and test methods. **D. Conner**, V. Demarest, W. Fabiny, J. Szewczyk

CERM 312. Isolation, kinetics, and use of polymethacrylic acid-anhydride polymers.
C. Rand

CERM 313. Two-stage acrylic copolymers for use in elastomeric construction sealants. **P. Jog**, A. Liss, J. Rubini

CERM 314. Effect of pigment selection on the weathering and durability of elastomeric roof coatings. **V. Demarest**, M. Westmeyer, M. Upshur, A. Piwovar, W. Fabiny, T. Powell, B.A. Snow

The H Hotel Dow Academy (HHDA)
General Session

Analytical Chemistry

Analytical Chemistry for Everyday Life

X. Chen, K. Cissell, Y. Tan, M. M. Tecklenburg, *Organizers*
M. Tecklenburg, *Presiding*

2:00 CERM 315. Investigating the archaeological chemistry of everyday life with mass spectrometry. **R. Armitage**

2:25 CERM 316. Polypropylene in medicine: The good, the bad, and the ugly. **D.B. Priddy**

2:50 CERM 317. SERS metabolomic profiling in tumor lysates. **Z.D. Schultz**, L. Xiao

3:15 Intermission.

3:45 CERM 318. Gas Chromatograph-Mass Spectroscopy (GC-MS) and Principal Component Analysis (PCA) of lavender, lavandin, and spike lavender to determine the differences in their chemical compositions. **M.A. Nichols**, N. May

4:10 CERM 319. Developing new methodologies for monitoring fatty acid and antioxidant degradation. **M.J. Fhaner**

4:35 CERM 320. Analytical chemistry of silicones. **L. O'Hare**

The H Hotel
Indigo I

Central Nature of Diversity in Organic Chemistry

Cosponsored by ORGN

J. L. Stockdill, *Organizer, Presiding*

2:00 CERM 321. Striving toward greener chemistry in the pharma industry: The role of the ACS Pharmaceutical Roundtable. **M.E. Kopach**

2:25 CERM 322. Convergent hybrid-phase ligation for total protein synthesis: When less means more. **J.J. Ottesen**, X. Zhang, Z. Hong

2:50 CERM 323. Chemical evolution of peptide hormones for treatment of metabolic diseases. **P.J. Knerr**, B. Finan, R.D. DiMarchi

3:15 Intermission.

3:45 CERM 324. Conformation-activity relationships in complex natural products inspired by biosynthesis. **R.E. Taylor**

4:10 CERM 325. Total synthesis for better/new function. **M. Dai**

4:35 CERM 326. Biocatalysis and complex molecule synthesis. **A.R. Narayan**

The H Hotel Dow Academy (HHDA)
Academy Dining Room

Chemical Tools for Investigating Biological Systems

L. Zhao, *Organizer*

B. M. Swarts, *Organizer, Presiding*

2:00 CERM 327. Investigations of DNA methylation in the human pathogen *Pseudomonas aeruginosa*. **E.G. Prestwich**, E.A. Carlson, T.A. Dodson, N.C. Wamer

2:25 CERM 328. D-amino acid derivatives as *in situ* probes for visualizing bacterial peptidoglycan biosynthesis. **Y. Hsu**, M. VanNieuwenhze

2:50 CERM 329. O-acylated trehalose analogues for probing cellular processes and components in *Corynebacterineae*. **N. Banahene**, T.J. Fiolek, B.M. Swarts

3:15 Intermission.

3:45 CERM 330. Exploring transporter-specific fluorescent molecular tools for GLUT-based discrimination of metabolically-compromised cells. **M. Tanasova**

4:10 CERM 331. Novel aza-peptidyl inhibitors designed for the human 20S proteasome. **S.E. Border**, C.M. Hadad, O.D. Ekici

4:35 CERM 332. ¹⁹F magnetic resonance probes for activity-based sensing applications. **J.O. Massing**, K. Minder, J. Lange, J. Powell, J. Kelts, L. Eltahir

The H Hotel
Indigo III

Colloids, Nanomaterials & Self-Assembly

V. Ginzburg, *Organizer*
R. Moglia, *Presiding*

2:00 CERM 333. Thermoresponsive polyester coacervates: Ideal nanoassemblies for encapsulation of biomolecules. **A. Joy**

2:25 CERM 334. Modifying ferroelectric behavior with charge-transfer solid solutions. **R.A. Wiscons**, A.J. Matzger

2:50 CERM 335. Polyvinylpyrrolidone-stabilized iridium nanoparticles catalyzed the transfer hydrogenation of acetophenone and nitrobenzene. X. Zhou, **M. Zhou**

3:15 Intermission.

3:45 CERM 336. Manipulating biological systems with polymer chemistry: Encapsulating enzymes. **J.A. Martin**, E. Pinkhassik

4:10 CERM 337. Silicon quantum dots. **D.L. Witker**, J.A. Casey

4:35 CERM 338. Sequential growth mechanism for the synthesis of silver molecular nanoparticles. **Y. Zaker**, T.R. Brewer, T.P. Bigioni

The H Hotel
Platinum

Development in Chemical Education & Educational Research

Cosponsored by CHED

D. Baker, *Organizer*

S. A. Brouet, *Organizer, Presiding*

2:00 CERM 339. Going paper-free and facilitating collaboration through the use of iPads as electronic laboratory notebooks in an advanced chemistry laboratory course. **J. Fishovitz, K.L. Haas**

2:20 CERM 340. Integrating science communication skills in the chemistry curriculum through project-based learning and service learning in the environmental chemistry classroom. **A. Geyer**

2:40 CERM 341. Strategies and resources for supporting pre-class learning. **T.M. Clark**

3:00 CERM 342. Lightboard technology in an undergraduate flipped GOB course for Allied Health majors. **R. Werner**

3:20 Intermission.

3:45 CERM 343. Research in general chemistry lab: A Biochemistry CURE. **J.H. Tomasik**

4:05 CERM 344. Polymer chemistry education for non-majors to increase student awareness of plastic pervasiveness and environmental impact. **V. Hill, A.F. Johnson**

4:25 CERM 345. Increasing student persistence in STEM: Examining student motivation and instructional practices in college chemistry courses. **J.S. collins, S.J. Olesik**

The H Hotel
Indigo II

Transition Metal Chemistry

M. S. Rosen, N. C. Tomson, *Organizers, Presiding*

2:00 CERM 346. Iron-catalyzed cycloadditions for the selective upgrading of hydrocarbons. **P.J. Chirik**

2:50 CERM 347. Bond activation reactions by boryl pincer complexes. Y. Cao, W. Shih, **O. Ozerov**

3:15 Intermission.

3:45 CERM 348. Discovery of highly efficient carborane-based activators for molecular olefin polymerization precatalysts. T.D. Senecal, R. Huacuja, S. Bremer, D.M. Pearson, **J. Klosin**, Q. Lai, S. Gunther, N. Bhuvanesh, O. Ozerov

4:10 CERM 349. Polyolefin catalysts for the production of ethylene-based fluids. **B. Bailey**, J. Klosin, T. Paine

FRIDAY MORNING

The H Hotel
Indigo Ballroom

Plenary

D. Ahn, J. M. Roberts, *Organizers*
D. E. Katsoulis, *Organizer, Presiding*

8:00 CERM 350. New tools increase the pace and impact of chemical innovation at Dow. **A. Sreeram**

The H Hotel
Indigo II

Advances in Catalysis & Computation in Inorganic Chemistry

B. Bailey, *Organizer, Presiding*

9:10 CERM 351. Cobalt-catalyzed hydrogenations. S.R. Muhammad, K. Tokmic, **A.R. Fout**

10:00 CERM 352. Computational exploration of the electronic structure and reactivity of high-valent transition metal carbenes in bis(alkoxide) ligand environments. **R.L. Lord**, N.S. Dewey, S. Groysman

10:25 Intermission.

10:45 CERM 353. Mechanistic and kinetic studies of ring-opening metathesis polymerization with third-generation Grubbs catalysts. **D. Guironnet**

11:10 CERM 354. Studies of mechanism of dehydrogenative borylation of terminal alkynes by (PNP)Ir complexes. B.J. Foley, J. Zhou, **O. Ozerov**

The H Hotel
Indigo III

Central Region Chemical Heritage

G. A. Zank, *Organizer*
M. Courtemanche, *Organizer, Presiding*
G. Zank, *Presiding*

9:10 CERM 355. INSITE™ Catalyst Technology, a revolutionary new technology that changed the future of Dow and Dow R&D. **D. Devore**

10:00 CERM 356. Dow Corning Corporation: A history of innovation and invention. **T.H. Lane**

10:25 Intermission.

10:45 CERM 357. Innovations that shaped the detergent industry. **P. Vinson**

11:10 CERM 358. Bridgestone and Firestone's historical impact on the central region. **T. Hogan**

11:35 CERM 359. Key chemicals for industry: How innovation & entrepreneurs converged to build BASF in North America. **M. Pcolinski**

The H Hotel
Indigo I

Coordination Chemistry: Characterization & Applications

J. O. Massing, *Organizer, Presiding*

9:10 CERM 360. Late transition metal complexes featuring sterically-demanding amine bis(phenolate) ligands. **B. Wile**

9:35 CERM 361. Activation of nitrite at a dicopper center provides a dicopper μ -oxo, μ -nitrosyl complex, and application in anaerobic denitrifying C-H oxidation. **W. Tao, S. Zhang**

10:00 CERM 362. Near-infrared emission of heterobimetallic Zn^{2+}/Ln^{3+} Schiff base complexes. J. Farnsworth, **E.R. Trivedi**

10:25 Intermission.

10:45 CERM 363. Magnetic spin-modulated responsive MRI probes. **D. Harris, A. Thorarinsdottir, K. Du**

The H Hotel Dow Academy (HHDA)
General Session

Entrepreneurs Toolkit: Resources & Best Practices

Cosponsored by SCHB
J. E. Sabol, *Organizer, Presiding*

9:10 CERM 364. ACS Division of Small Chemical Businesses: Member activity. **J.E. Sabol**

9:35 CERM 365. Michigan Small Business Development Center. **K. Kozubal**

10:00 CERM 366. Business organization and contract law. **R. Learman**

10:25 Intermission.

10:45 CERM 367. Career profile: Litigation support as an expert witness. **D.M. Manuta**

11:10 CERM 368. Key elements for starting a successful business. **D. Bell**

11:35 CERM 369. Creating a pathway from the lab bench to an entrepreneurial gig. **J. Affholter**

The H Hotel
Gold

Growing with Project SEED: Continuing the Journey

B. S. Harkness, *Organizer, Presiding*

9:10 CERM 370. Carbohydrate chemistry makes a “sweet” research program for both undergraduate and high school Project SEED students. **J. Chaytor**

9:35 CERM 371. Integrating Project SEED students into the life of an undergraduate laboratory. **T. Sivy**

10:00 CERM 372. Mentoring SEED students. **A. Mueller**

The H Hotel Dow Academy (HHDA)
Academy Dining Room

Technologist in Industry: From Molecules to Materials

Cosponsored by I&EC
J. M. Smith, *Organizer*
J. Remacle, *Organizer, Presiding*

9:10 CERM 373. I have to take chemistry? An unconventional path to a successful and rewarding career as a chemical technical professional. **J. Seifferly**

9:35 CERM 374. What have I gotten myself into? An overview of one chemical technologist’s career path at Dow. **D. Fuerst**

10:00 CERM 375. Odyssey in scholarship with the chemical technology program. **D. Baker**

10:25 Intermission.

10:45 CERM 376. Pertinent aspects of the industrial chemistry technology program at Ferris State University. **W. Killian**

11:10 CERM 377. What does the future hold for chemical technologists?. **D. Baker, L.L. Nielsen, D. Fuerst, M.L. Rivard, W. Killian**

FRIDAY AFTERNOON

The H Hotel
Indigo Hallway & Main Hallway

Coordination Chemistry: Characterization & Applications

Poster Session

J. O. Massing, *Organizer*

12:00 - 2:00

CERM 378. Single-source precursors for mixed-metal fluorides: Synthesis of rubidium-alkaline-earth trifluoroacetates. **R. Szlag, L. Suescun, B. Dhanapala, F. Rabuffetti**

CERM 379. Bimetallic trifluoroacetates as single-source precursors for alkali–manganese fluoroperovskites. **H.N. Munasinghe, B. Dhanapala, L. Suescun, F.A. Rabuffetti**

CERM 380. Arsenic and copper association with a synthetic manganese oxide. **S.P. Hyun, E. Kim, K. Kwon**

CERM 381. Synthetic models of multi copper oxidases. **W. Zhang, S. Zhang**

CERM 382. Near-infrared luminescence in heterobimetallic (Group 12 : 4f) Schiff-base complexes. **N. Slater, J. Farnsworth, E.R. Trivedi**

CERM 383. Augmenting dinitrogen activation with hydrogen bond donors and Lewis acids. **J.P. Shanahan**, N.K. Szymczak

The H Hotel
Indigo Hallway & Main Hallway

Development in Chemical Education & Educational Research

Poster Session

D. Baker, S. A. Brouet, *Organizers*

12:00 - 2:00

CERM 384. Did the more favored or less favored candidate win the second director-at-large position?. **W.L. Dilling**

CERM 385. One hundred years of Midland Section ACS chairpersons (1919-2019). **D.C. Young, R.E. Kohrman, W.L. Dilling, A.M. Palumbo**

CERM 386. Get involved with the ACS Division of Chemical Education. **T.M. Clark**

CERM 387. Pushing the keto-enol tautomerization equilibria of acetylacetone and ethyl acetoacetate toward the enol forms – by enthalpy or entropy?. **M.A. Nichols**, C. Kreye, T. Dorsey

CERM 388. Development of an advanced undergraduate biochemistry experiment: Analysis of the Fe(II) oxidation products of linoleic acid using Gas Chromatography-Mass Spectrometry (GC-MS). **M.A. Nichols**, A. Taylor, V. Partyka

CERM 389. Upper Peninsula Section Annual Student Research Symposium. **J.E. Sabol**

CERM 390. Green chemistry commitment. **S.P. Wathen**, I.J. Levy, A.S. Cannon

CERM 391. InChI Open Education Resource (OER). **S.P. Wathen**, R.E. Belford, N. Brown, E.C. Bucholtz, A.P. Cornell, J. Cuadros, T. Gupta, V.F. Scalfani, M.A. Walker

CERM 392. Getting students to practice. **A. Mueller**, J. Lamblin, L. Luckins

CERM 393. Copper complexes of salicylaldehyde-amine adducts: A simple and reliable colorimetric alternative to the classic Hinsberg test for the identification of primary, secondary, and tertiary amines. **T.L. Friebe**

CERM 394. Expanding SCHB's presence in the ACS northwest region. **J.E. Sabol**

CERM 395. Quantitative DNA analysis of fecal contamination levels and sources from Saginaw Bay Watershed sites in Michigan's thumb. **O. Bishop**, T. Vogel, T. Sivy, B. Hart

CERM 396. Atomic structure and sticky ball dart boards: An example of active learning in chemistry. **J. Vance**

CERM 397. Modification and application of an aqueous Diels-Alder reaction: A greener organic II undergraduate lab experiment. **A.B. Cain, J.L. Tischler**

CERM 398. Students' utilization of course resources in a two-semester general chemistry course at a small liberal-arts university. **A.R. Roerdink**, N. Beres

CERM 399. Analysis of student reasoning about Michaelis-Menten enzyme kinetics. J.G. Rodriguez, **N.P. Hux**, S.J. Philips, M.H. Towns

CERM 400. SCHB is the hub for entrepreneurs in ACS. **J.E. Sabol**

CERM 401. Science moves beyond boundaries: Deaf scientists and Dow. **G. Wieber**

CERM 402. Metacognition in the instrumental analysis laboratory: Reciprocal peer teaching. **N.M. Karn**

The H Hotel
Indigo Hallway & Main Hallway

Technologist in Industry: From Molecules to Materials

Poster Session

J. Remacle, J. M. Smith, *Organizers*

12:00 - 2:00

CERM 403. 28 Years of exceptional and significant contributions of the Mid-Michigan Technician Group. **J. Anderson**

CERM 404. Piezoelectric scaffolds containing Tricalcium phosphate for bone tissue engineering. **S. Nagam Hanumantharao**, C. Que, E. Nelson, S. Rao

CERM 405. Viscometric analysis of hydrogen bonding systems. **W.G. Killian**, W. Killian, **A.T. DeMaet**

The H Hotel
Indigo III

Central Region Chemical Heritage

G. A. Zank, *Organizer*
M. Courtemanche, *Organizer, Presiding*
G. Zank, *Presiding*

2:00 CERM 406. Advances in the automotive industry driven by plastics & composites. **D.F. Mielewski**, A. Kiziltas

2:25 CERM 407. Highlights of DuPont's life-changing innovations. **N. Radu**

2:50 CERM 408. Elizabeth Armstrong Wood (1912-2006): Geologist-turned crystallographer at Bell Telephone Laboratories. **M.E. Schott**

3:15 Intermission.

3:45 CERM 409. Development of the GC-MS started right here in Midland. **M.E. Jones**

The H Hotel
Indigo II

Development in Chemical Education & Educational Research

Cosponsored by CHED
S. A. Brouet, *Organizer*
D. Baker, *Organizer, Presiding*

2:00 CERM 410. Using organic nomenclature to develop higher level thinking skills.
D. Baker

2:20 CERM 411. Motivating students in organic chemistry through in-class tools:
Use of a feedback folder and Top Hat's classroom polling system. **J. Chaytor**

2:40 CERM 412. Place of polymer science in the undergraduate chemistry
curriculum. **B.A. Howell**

3:00 CERM 413. Development and use of a virtual-reality molecular modelling
system in organic chemistry courses. **M.A. Nichols**, M.L. Kwan, D.W. Palmer

3:20 Intermission.

3:45 CERM 414. Dow Corning Foundation/SVSU community STEM partnership:
Five years of programming in Great Lakes Bay K-12 schools. **S.A. Brouet**

4:05 CERM 415. Sustainable: The key word in STEM outreach. **M. Clark**

4:25 CERM 416. Integrating industry-inspired research and P-12 outreach into the
curriculum of the Roger Bacon Scholars. **A. Geyer**, P. Schmidt, L. Weber, J.
Zimmerman

The H Hotel Dow Academy (HHDA)
Academy Dining Room

Technologist in Industry: From Molecules to Materials

Cosponsored by I&EC
J. M. Smith, *Organizer*
J. Remacle, *Organizer, Presiding*

2:00 CERM 417. Your personal brand: Who's got your number (and did they get it
from the corporate halls...or the bathroom stalls)?. **D.K. Deese**

2:25 CERM 418. Improved GC-FID method for analysis of D4, D5, and D6 cyclic
siloxanes in silicone polymers containing OH-terminated siloxanes. **M.L. Rivard**, M.
McIvor, J. Kerbleski

2:50 CERM 419. Building on success: Providing technical solutions for scale up of
organic photovoltaics. **L.L. Nielsen**, H. Pan, B. Worfolk, K. Woody

3:15 Intermission.

3:45 CERM 420. ^{29}Si + NMR – A powerful combination for the silicon industry.. **C. Roggenbuck**, D. Eldred

4:10 CERM 421. Fructose analog containing 3-D scaffolds to isolate and study breast cancer cell metabolism by mimicking tumor microenvironment. **C. Que**, S. Nagam Hanumantharao, S. Bule, K. Fink, E. Nelson, M. Tanasova, S. Rao

4:35 CERM 422. Nanotopographical cues for fabrication of efficient wound healing patches using electrospinning. **S. Nagam Hanumantharao**, C. Que, S. Rao