

MWRM

J. Vela, *Program Chair*

SUNDAY AFTERNOON

Scheman Building
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General Analytical

R. K. Anand, J. Vela, *Organizers*
S. J. Burkhaw, *Presiding*

1:00 1. Characterizing virus-induced gene silencing at the cellular level with *In Situ* multimodal imaging. **S.J. Burkhaw**, N.M. Stephens, Y. Mei, M.E. Duenas, D.J. Freppon, G. Ding, S.C. Smith, Y. Lee, B.J. Nikolau, S.A. Whitham, E.A. Smith

1:20 2. Directional surface-plasmon-coupled Raman spectroscopy: New laboratory instrument for combined adsorption and Raman detection of thin films on smooth planar surfaces. **C.K. Nyamekye**, S.C. Weibel, E.A. Smith

1:40 3. Potential dependent reorganizations of ionic liquids probed by surface sensitive vibrational spectro-electrochemistry. **A. Horvath**

2:00 4. Enhancement of optical transmission across a thin metal film via refractive index matching technique in grating-coupled surface plasmon resonance. **R. Mahmood**, M.B. Johnson, A.C. Hillier

2:20 5. Analysis of organic gunshot residue (OGSR) from spent bullet casings. **C. Hanson**, M. Rich, E. Moreno

2:40 6. Environmental transformation of plastics: Quantification of aquatic photochemistry of plastic debris polymers. **M.A. Maurer-Jones**, T. O'Keefe, A. Bosio, E. Monzo, R. Duckworth, B. Hinderliter

3:00 Intermission.

3:20 7. Development of novel anti-counterfeiting tags using plasmonic gold nanostars. **Y. Huo**, S. Curry, C. Jiang

3:40 8. Application of Fe/Fe₃O₄-based nanobiosensor technology to detect pancreatic and lung cancer at early stages and preclinical mastitis. **M. Kalubowilage**, O. Covarrubias-Zambrano, A. Yapa, D.L. Troyer, S.H. Bossmann

4:00 9. Diffusional dynamic study of room-temperature ionic liquid films by fluorescence correlation spectroscopy. **D.L. Mendivelso**, M.Q. Farooq, K. Santra, U. Bhattacharjee, J.L. Anderson, J.W. Petrich, E.A. Smith

4:20 10. Organic volume fraction measurements of sea spray aerosol model systems using atomic force microscopy. **c. kaluarachchi**, H. Lee, E.S. Hasenecz, M.E. Cockerell, E.A. Stone, A.V. Tivanski

4:40 11. Solvent penetration in thin polymer films studied by ellipsometry and two-color fluorescence microscopy. **H. Coceancigh**, D.A. Higgins, T. Ito

Scheman Building
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General Chemical Education

Chemistry Education Research

T. Holme, *Organizer*
J. An, *Presiding*

1:00 12. Characterization of teaching beliefs of novice chemistry faculty at research-intensive institutions. **M. Popova**, J. Harshman, M.N. Stains

1:20 13. Comparing evidence of professional skills in student written work to group performance in an active learning classroom. **A. Paudel**, R.S. Cole, G. Reynders

1:40 14. Withdrawn

2:00 15. Developing surveys in chemical education research: Evaluation of quality criteria within the context of measuring instructional climate. **L. Shi**, M.N. Stains

2:20 Intermission.

2:35 16. Measuring general chemistry students' context-dependent understanding of the nature and purpose of models in chemistry. **K. Lazenby**, N.M. Becker

2:55 17. Social Media to study student perception and performance in chemistry: Twitter in Chemistry classroom. **M.A. Fosu**, T. Gupta, S. Michael

3:15 18. Beyond drawing resonance structures, to what extent do students understand the underlying concepts? **D.V. Xue**, M.N. Stains

3:35 19. Assessment of students' understandings of enthalpy and entropy changes in the context of dissolving and precipitation. **S. Bretz**, T.N. Abell

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General Organic

L. M. Stanley, J. Vela , *Organizers*
J. Peterson, *Presiding*

1:00 20. Design, synthesis and nanostructure-dependent antibacterial activity of cationic peptide amphiphiles. N. Rodrigues de Almeida, **M. Conda-Sheridan**

- 1:20 21.** Designing BODIPY-based photocages activated within the biological window. **J. Peterson**, A. Winter, C. Wijesooriya, E.A. Smith
- 1:40 22.** Synthesis of cell-penetrating peptides to be used as a novel delivery nanocarriers. **O. Covarrubias-Zambrano**, A. Yapa, T.B. Shrestha, M. Montes-Gonzalez, D.L. Troyer, S.H. Bossmann
- 2:00 23.** Targeting NF- κ B signaling node for ovarian cancer therapy. **S. Rana**, S. Kour, A. Natarajan
- 2:20 24.** Biorational products are effective spatial repellents against mosquitoes of multiple genera. **C.L. Corona**, E.J. Norris, J.S. Klimavicz, J.R. Coats
- 2:40 25.** Challenges of using rational design to optimize substrate specificity for the surprisingly promiscuous L-type amino acid transporter (LAT1). **B. Venteicher**, K. Finke, S. Springer, L. Stoner, E. Augustyn, J. Campbell, C. Hall, H. Chien, A. Zur, C. Colas, K. Giacomini, A. Schlessinger, A.A. Thomas
- 3:00** Intermission.
- 3:20 26.** Copper-activated drugs with NNSN motif against MRSA: the important role of aromatic substitution. **K. Eschliman**, M. Zhang, R. Roberts, T. Shrestha, A. Delpe Acharige, M. Kalubowilage, F. Wolschendorf, S.H. Bossmann
- 3:40 27.** Rationally-designed molecular dye for NIRF imaging of sentinel lymph nodes. **K.S. Hettie**, J. Klockow, F.T. Chin
- 4:00 28.** Hypoxia-sensitive molecular imaging probe. **J. Klockow**, K.S. Hettie, E. Moon, A. Giaccia, E. Graves, F.T. Chin
- 4:20 29.** Using fluorescence spectroscopy to probe the relationships between drug targets (porphyrins and curcumins) and human serum albumin (HSA). **O. Michels**
- 4:40 30.** Controlling RNA function by photoreversible acylation. **W. Velema**, E.T. Kool
- 5:00 31.** Development of modular chemical probes for detection of amino acid citrulline. **D.V. Kadnikov**

Scheman Building
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General Physical

A. J. Rossini, J. Vela , *Organizers*
Y. Chen, M. Hanrahan, *Presiding*

- 1:00 32.** Solid-state NMR characterization of emerging semiconductor materials. **Y. Chen**
- 1:20 33.** Inkjet printed nanocrystalline inorganic perovskite films: Optical properties and electric transport. **T.K. Ekanayaka**, D.J. Richmond, M. McCormick, J. Teeter, F. Guzman, B. Swanson, N. Benker, S. Gilbert, S. Abbas, A.J. Yost, A. Sinitskii, C. Ilie, P.A. Dowben
- 1:40 34.** Polar liquid sublattice in single crystal perovskite $\text{CH}_3\text{NH}_3\text{PbBr}_3(001)$. **P.E. Evans**, M. Pink, A. Zhumenkenov, G. Hao, Y. Lozovyy, O.M. Bakr, P.A. Dowben, A.J. Yost

- 2:00 35.** Effect of amino acid hydrophilicity on the hygroscopicity of sodium chloride in internally mixed aerosol particles. **J.P. Darr**, S. Gottuso, M. Alfarra, D. Birge, K. Ferris, D. Woods, P. Morales, M. Grove, W. Mitts, E. Mendoza-Lopez, A. Johnson
- 2:20 36.** Accelerating data collection by denoising and undersampling of multidimensional spectra using low-rank models. **K. Robben**, C.M. Cheatum, M. Jacob
- 2:40 37.** Using the Bayesian framework in subdiffraction-limited imaging to extract the fluorescence lifetime from sparse data sets. **K. Santra**, E.A. Smith, X. Song, J.W. Petrich
- 3:00** Intermission.
- 3:20 38.** Fast trapping and hydrogenation of polymeric lignin using a hierarchical Ni/ASA micro-reactor catalyst. **Z. Luo**, J. Kong, B. Ma, C. Zhao, L. Qi
- 3:40 39.** Mechanical property characterization of organic crystalline solids at the interface using atomic force microscopy nanoindentation. **T. Lansakara**, A.V. Tivanski
- 4:00 40.** Effects of sulfur on gold island coarsening on Au(111). **P.M. Spurgeon**, P.A. Thiel
- 4:20 41.** Catalytic oxidation of alcohol using electrochemically deposited cuprous oxide crystals. **T.J. Wilson**, C. Jiang, M. Koppang
- 4:40 42.** Ferric metal-organic framework for microwave absorption. **M. Green**, X. Chen
- 5:00 43.** Ionic liquids with special functionalities in the bulk and at interfaces. **W.D. Amith**, J.J. Hettige, E. Castner, C.J. Margulis

Scheman Building
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Inorganic Chemistry for All

Cosponsored by INOR
Financially supported by ISU LAS
Y. V. Zaikina, *Organizer*
J. Vela, *Organizer, Presiding*

- 1:00 90.** Engineering functionality in colloidal semiconductor nanomaterials. **D. Talapin**
- 1:30 91.** Experimental and computational insight into electronic structure and ligand interactions of magic-sized (ZnS)₃₄ nanoclusters. **S.R. Alvarado**, S.J. Fulmer, K.E. Theisz, S.M. Bystrom
- 2:00 92.** Role of nanocrystal ligand identity on exchange dynamics and photocatalytic function. **M. Wilker**
- 2:30 93.** Spray pyrolysis as a combinatorial method for the generation of photocatalyst libraries and preparation of oxygen reduction catalysts. D. Dervishogullari, C.A. Sharpe, J.S. Compton, C.A. Peterson, **L.R. Sharpe**
- 3:00** Intermission.
- 3:20 94.** Functional metal–Organic framework materials. **O.K. Farha**

3:50 95. Impacts of confined solvent on the thermal expansion behavior of metal organic nanotubes. **T. Forbes**, M. Payne

4:20 96. Nanocasting in metal-organic framework materials. **A. Stein**, C. Malonzo, Z. Wang, W. Zhao, T. Webber, R. Penn

4:50 97. Degradable and bio-derivable polysilylethers via manganese catalyzed hydrosilylation and dehydrogenative coupling. **G. Du**

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Materials for Energy

Cosponsored by INOR
W. Huang, I. I. Slowing, *Organizers, Presiding*
L. Qi, *Presiding*

1:00 52. Systematic approaches to modify the surface and electronic structure of TiO₂ nanocrystals. **J.D. Hoefelmeyer**

1:30 53. Operando MAS solid-state NMR for mechanistic and kinetic study of lignin depolymerization. **L. Qi**, A. Chamas, D.W. Hoyt, E.D. Walter, S.L. Scott

2:00 54. Kinetics and modeling study of the catalytic disproportionation of hydrogen peroxide over nanostructured ceria. **C.L. Cheung**, T.J. Fisher, T. Wu, A. Bhalkikar, N. Shao, N. Alaqtash, K. Tarawneh, Y. Gao, Y. Soo, R. Sabirianov, W. Mei

2:30 55. Intermolecular hydrogen bonding as a route to tune the organic photovoltaic performance. **J. Chen**

2:50 Intermission.

3:05 56. Improving the stability and activity of noncovalently immobilized redox-active molecules at interfaces. **J.D. Blakemore**, D. Lionetti, K.J. Johnson, K. Prather

3:35 57. Phosphorus(V) porphyrin-based high-potential photoanodes for artificial photosynthetic systems. **P.K. Poddutoori**

4:05 58. Withdrawn

4:35 59. Controlled synthesis and layer-number-dependent catalytic properties of few-layered MoS₂/CdS van der Waals heterostructures for efficient photocatalytic H₂ evolution. **S. Iqbal**

SUNDAY EVENING

Scheman Building
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Sci-Mix

J. Vela , Y. V. Zaikina, *Organizers*

5:00 - 7:00

186, 190, 191, 194, 201, 206, 214, 215, 227, 228, 231, 294, 296, 297, 306, 308, 309, 379, 381, 382, 384, 472, 479, 480, 482, 483, 485, 489, 493, 497, 504, 508, 566, 568, 570, 573, 578, 581, 591, 594, 595, 601, 607. See subsequent listings.

MONDAY MORNING

Scheman Building
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Biological Applications of Mass Spectrometry

Cosponsored by ANYL
Financially supported by Buker, Sciex, Agilent, Office of Biotechnology
Y. Lee, *Organizer, Presiding*

8:00 Introductory Remarks.

8:05 60. Direct analysis of plant and pharmaceutical samples by electrospray laser desorption (ELDI) mass spectrometry imaging. **R.S. Houk**, P. McVey, S.J. Bajic, M. Lauer

8:40 61. Biomolecular collision cross sections estimated using traveling wave ion mobility spectrometry: Evaluating and mitigating uncertainty. A.L. Rister, A.S. Gelb, **E.D. Dodds**

9:15 62. Hydrogen exchange-mass spectrometry (HX-MS) for analysis of higher-order structure of protein therapeutics across the biopharmaceutical pipeline. **D.D. Weis**

9:50 Intermission.

10:00 63. High-definition differential ion mobility spectrometry with high-resolution mass spectrometry. M. Baird, G.A. Anderson, P. Shliaha, O. Jensen, **A.A. Shvartsburg**

10:35 64. Universal proton affinity tagging and multi-dimensional metabolite investigating technology (UPAT-MUDMIT) for low cell number analyses. **J. Edwards**

11:10 65. Toward mass spectrometry imaging in metabolomics scale. **Y. Lee**

11:45 Concluding Remarks.

Scheman Building
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General Organic

L. M. Stanley, J. Vela, *Organizers*
B. J. Lampkin, *Presiding*

8:20 66. Utilizing Excited-State Intramolecular Proton Transfer (ESIPT) fluorescence to monitor Transthyretin dynamics. **B.J. Lampkin**, B. VanVeller

8:40 67. Molecularly imprinted nanoparticles (MINPs) as receptors for selectively binding of alkaloids. **L. Duan**

9:00 68. Open resonance assisted hydrogen bonds and competing quasiaromaticity. **Y. Nguyen**

9:20 69. Finding a transition state: Mechanism of carbonyl-olefin metathesis. C. Hanson, J. Ludwig, S. Phan, C. McAtee, P.M. Zimmerman, C. Schindler, **J.J. Devery**

9:40 70. Competition between molecules: Co-crystal study of nitrile and amide functionalized compounds. **C.J. Bergstrom**, N. Sarkar, C.B. Aakeroy

10:00 Intermission.

10:20 71. Structural effects on dicyanomethyl radical equilibrium. **J.P. Peterson**

10:40 72. Computational modeling of carbocation intermediates for the discovery of new photocleavable protecting groups. **L.J. Fischer**, A.S. Dutton, A. Winter

11:00 73. Monitoring amyloid aggregation using luminescent rhenium complexes of bis(benzothiazole)-based tetraarylethylenes. **M. Gabr**, F. Pigge

11:20 74. Synthesis and host-guest binding of oxaquinonacyclophane macrocycles. **J.W. Wackerly**

11:40 75. Host-guest interactions in versatile functionalized cavitands. **N. Sarkar**, C.B. Aakeroy, A. Sinha, V. Day

12:00 76. Furthering the cavitand-mediated photodimerization approach: Photocycloaddition of dienes in symmetric chalcones. **A. Kashyap**, T. Bokoskie, M. Pattabiraman

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General Physical

A. J. Rossini, J. Vela , *Organizers*

A. Lolinco, J. Mato, *Presiding*

8:00 77. Simulation study of nucleation of liquid droplets using generalized Replica Exchange Method. **D. Ballal**, Q. Lu, M. Raju, X. Song

8:20 78. Ice nucleation in monoatomic water using generalized replica exchange method. **M. Raju**, D. Ballal, X. Song

8:40 79. Synchronization patterns and network topology of oscillatory nickel dissolution in microfluidic flow cell. **Y. Liu**, I.Z. Kiss

9:00 80. Theoretical investigation of relaxation dynamics in Au₁₈(SH)₁₄ and Au₃₈(SH)₂₄ thiolate-protected gold nanoclusters. **R.D. Senanayake**, E. Guidez, A. Neukirch, O.V. Prezhdo, C.M. Aikens

9:20 81. Examining the ground- and excited-state potential energy surfaces of azomethane with Spin-Flip ORMAS: Minima, saddle points, and conical intersections. **J. Mato**, M.S. Gordon

9:40 82. Exploration of the conformational space of small alkylamines and alkylcarbamic acids in aqueous solution: Using a Boltzmann statistical analysis to improve the accuracy of the thermochemical data of the CO₂ capture reaction. **J. Schell**, R. Glaser

10:00 83. Molecular dynamics simulations to explore the interfacial behavior of Ionic-Liquids. **W.V. Karunaratne**, C.J. Margulis

10:20 Intermission.

10:40 84. Molecular interactions on diffusion-controlled aldol condensation with MSN by effective fragment potential (EFP) method. **Y. Kim**, M.S. Gordon

11:00 85. Analytic gradient for the effective fragment molecular orbital (EFMO) charge transfer energy. **S. Kim**, P. Xu, C. Bertoni, M. Gordon

11:20 86. QM/MM investigation into understanding the biodegradation of imidazolium-based ionic liquids. **A. Banerjee**, J. Shah

11:40 87. Solvation structure of iron halide complexes in different dielectric environments. **S.M. Baumler**, W.H. Hartt, H.C. Allen

12:00 88. Quasi-atomic bonding analysis of water clusters. **J. Galvez Vallejo**, J. Duchimaza, M. Gordon

12:20 89. Calculation of kinetic rate constants by high-level *ab initio* quantum chemical methods for astrochemistry and planetary sciences. **S.R. Barua**, P. Romani

Scheman Building
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Inorganic Chemistry for All

Cosponsored by INOR
Financially supported by ISU LAS
J. Vela , *Organizer*
Y. V. Zaikina, *Organizer, Presiding*

8:00 44. Realizing chemical love triangles in intermetallic systems. **D. Fredrickson**

8:30 45. Structural and physical properties of osmium-based double perovskites. **C. Thompson**

9:00 46. Bismuth and its binary compounds. J.P. Walsh, S. Clarke, A. Tamerius, **D.E. Freedman**

9:30 47. Exploring ternary variants of rhenium silicide, ReSi_{1.75}. **F. Wang**

10:00 Intermission.

10:20 48. Adventures in non-classical coordination chemistry. **J.F. Berry**

10:50 49. Reversible hydrogenation catalysis by Iron-Lewis acid systems. E.M. Lane, U. Jayarathne, **W.H. Bernskoetter**, N. Hazari

11:20 50. Electrocatalytic reduction of nitrogen oxyanions. S. Xu, D. Ashley, H. Kwon, G.R. Ware, C. Chen, Y. Lozovyy, X. Gao, E. Jakubikova, **J.M. Smith**

11:50 51. Exploring the crystal structures and applications of novel sulfonamides and Schiff bases. **C.G. Hamaker**

Scheman Building
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Materials & Interfaces

Cosponsored by PHYS
Financially supported by ISU_CCAT
W. Huang, A. J. Rossini, P. A. Thiel, *Organizers, Presiding*

8:00 98. Atomically precise graphene nanoribbons for electronic applications. **A. Sinitskii**

8:30 99. Gold nanostars: Morphology control, SERS detection, and beyond. **C. Jiang**

9:00 100. Self-healable superomniphobic surfaces. **M. Ezazi**, A. Maharjan, G. Kwon

9:30 101. Frost resisting surfaces with preferential wettability. **B. Shrestha**, M. Ezazi, G. Kwon

9:50 Intermission.

10:05 102. Polyarylation of boron hydride anions: Unexpected reactivity from some of the most stable ions. **M.W. Lee**, T. Wang, D. Madugula, M. Clark, K. Baar

10:35 103. Uniformly multifunctionalized metal-organic framework materials. **T. Gadzikwa**, K. Samarakoon, C. Satterfield, J. Brenton, D. Pivaral

11:05 104. Mapping hot carrier photochemistry in plasmonic metal/metal oxide heterostructures. **C. Tan**, B. Sadtler

11:25 105. Facile fabrication of superomniphobic surface using shape memory polymers. **M. Ezazi**, A. Maharjan, G. Kwon

Scheman Building
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Measurement & Evidence in Chemistry Education

Cosponsored by CHED
N. M. Becker, *Organizer, Presiding*

8:00 Introductory Remarks.

8:05 106. Assessment of students' understandings of energy quantization and probability using representations of the electronic structure of the atom. **S. Bretz**, Z.R. Allred

8:30 107. Assessing more than content knowledge: Aligning instruction that values practical skills. **R.S. Cole**, G.J. Reynders, J. Lantz, S.M. Ruder

8:55 108. Student confidence, motivation, and outcomes in general chemistry. **D.J. Wink**, G. Clark, E.J. Yeziarski, H. Zhang

9:20 109. Developing and assessing technical writing skills across the chemistry curriculum. **J.W. Wackerly**

9:45 Intermission.

10:00 110. Designing and implementing constructivist assessments. **M. Cooper**, K. Noyes, O.M. Crandell, C. Minter

10:25 111. House of bricks or house of cards: Item independence of assessment questions and how this impacts test construction and validity. **K.L. Murphy**, J.R. Raker

10:50 112. Development and use of eye-tracking in chemistry education research. **N.J. Pienta**, H. Tang, E. Day

11:15 113. Critical analysis of the state of measurement of undergraduate STEM teaching practices. **M.N. Stains**, R. Erdmann

11:40 Concluding Remarks.

Scheman Building
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Solid-state NMR Spectroscopy: Materials & Methods

Cosponsored by PHYS

Financially supported by Bruker, Phoenix NMR, Revolution NMR

A. J. Rossini, *Organizer, Presiding*

8:00 Introductory Remarks.

8:05 114. Magic angle spinning spheres, electron decoupling with CPMAS below 6 K, and DNP within human cells. **A. Barnes**

8:25 115. Sensitivity enhanced solid-state NMR spectroscopy of half-integer quadrupolar nuclei and low-gyromagnetic ratio nuclei using proton detection. **A. Venkatesh**, M. Hanrahan, M.J. Ryan, A. Biswas, K. Boteju, A.D. Sadow, A.J. Rossini

8:40 116. Measuring and modeling nuclear spin temperature in a buried GaAs interface using ^{75}As optically pumped NMR. **M.E. West**, S.E. Hayes

8:55 117. Electron decoupling and electron saturation recovery with MAS DNP below 6 K. **E.P. Saliba**, E.L. Sesti, N. Alaniva, P.T. Judge, F.J. Scott, B.J. Albert, A. Barnes

9:10 118. Fast MAS proton detected ^{17}O solid-state NMR spectroscopy for enhanced resolution and measurement of scalar and dipolar couplings. **S.L. Carnahan**, B. Lampkin, M. Hanrahan, P. Naik, I.I. Slowing, B. VanVeller, G. Wu, A.J. Rossini

9:25 119. Preparing samples for DNP SSNMR: Experimental and theoretical perspectives. **F.A. Perras**, T. Kobayashi, M. Pruski

9:45 Intermission.

10:00 120. Experimental observations of structure-activity relationships in magnesium-ion battery materials via solid state NMR spectroscopy. **B. Key**

10:20 121. Investigating nanoparticle surface bound ligand dynamics by solution NMR. **T.K. Egner**, P. Naik, A. Venkatesh, A.J. Rossini, I.I. Slowing, V. Venditti

10:35 122. Unexpected bicarbonate found in solid amine adsorbents used for carbon capture. **C. Chen**, D. Shimon, J. Lee, F. Mentink-Vigier, C. Sievers, C.W. Jones, S.E. Hayes

10:50 123. Characterization of the active phase formed on boron nitride oxidative dehydrogenation catalysts using MAS NMR and SEM. **B. Thomas**

11:05 124. ³⁵Cl solid-state NMR spectroscopy of mechanochemically synthesized fluoxetine HCl cocrystals. **A.A. Peach**, D.A. Hirsh, S.T. Holmes, R.W. Schurko

11:20 125. Analysis of spatial distribution of surface-bound molecules by conventional and DNP-enhanced SSNMR experiments. T. Kobayashi, F. Perras, I.I. Slowing, **M. Pruski**

11:40 126. Chemical information from solid-state NMR tensors, and The Materials Project, a new database of tensors for crystalline materials. J. Cui, H. Sun, M.E. West, S. Dwaraknath, K. Persson, **S.E. Hayes**

Scheman Building
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Synthesis & Catalysis: Catalysts for Organic Synthesis

Cosponsored by ORGN
Financially supported by Iowa State University Center for Catalysis
L. M. Stanley, *Organizer, Presiding*

8:00 127. Beyond iron: Abiological catalysis by artificial heme proteins containing noble metals. **H. Key**, P. Dydio, J.F. Hartwig

8:30 128. Accessing multifluorinated arenes via molecular sculpting. **J.D. Weaver**

9:00 129. C-H activation for allylation, amination and cross coupling: New catalysts and new directions. **G.R. Cook**, S. Vemula, D. Kumar

9:30 130. Organic synthesis enabled by long-range electronic control. **J. Mohr**

10:00 131. Asymmetric hydroamination with piano-stool compounds. **A.D. Sadow**

10:30 132. Harnessing the Winstein rearrangement via selective functionalization. **J.J. Topczewski**

11:00 133. Metal-catalyzed methods for decarboxylative fluoroalkylation and remote para-selective C-H functionalization. **R.A. Altman**

11:30 134. Synergistic catalysis: Novel method for enantioselective transformations. **M.P. Sibi**

Scheman Building
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Undergraduate Poster Session

M. Bohorquez, T. Holme, *Organizers*

8:00 - 10:00

135. Alternative electrolytes for lithium-ion batteries: Organosilyl nitrile replacements for carbonate solvents. **S. Sharpe**, L.J. Lyons

136. Detailed kinetic modeling of the mammalian pyruvate dehydrogenase regulatory complex. **B. Jelinek**, **M. Moxley**

137. Using molecular docking to find potential anti-cancer drugs that bind a mutant form of spekle-type POZ, SPOP, a protein necessary for the maintenance of a number of cancer cells. **M. Lee**, I.S. Zegar

138. Fighting cancer by targeting cancer stem cells (CSCs) using virtual docking techniques. **D. McAfee**, I.S. Zegar

139. Comparing ROS in murine microglial cells in response to two different types of particulate matter. **P.A. Mazzer**, L.L. Merrill, K. Buchmann, N. Stadem, M. Street, T. Fortuna

140. Effect of melanin on the degradation of ectomycorrhizal fungi. **J. Swenson**, K. Schreiner, M. Ryan, P. Kennedy

141. Herbicide fate and transport in an agricultural watershed. **K. Mehlretter**, A. Graham, E.M. Marzluff

142. Influence of CdSe nanocrystal shape on vibrational spectra. **B. Nottleson**, **B. Nelson**, M. Wilker

143. Structure and synthesis of ternary rare earth tetrel pnictides. **B. McBride**, J. Mark, K. Kovnir

144. Toward the synthesis of ketose-based calix[4]pyrroles. **K. Wang**, J.A. Shriver

145. Electrochemical DNA sensor for the detection of antibiotic resistance in *N. gonorrhoeae*. **A.M. Schuster**

146. Quantum dot-aptamer bioconjugates for prostate cancer detection. **B. Eichler**, **E. Menzel**, **M.J. Rothschild**, **T.T. Nguyen**

147. Bioaccumulation of methylmercury: Investigation of contamination in *Pylodictis olivaris* and *Ictalurus punctatus*. **A. Austin**, A. Brustkern

148. Hygroscopicity of sodium glycinate aerosols. **M. Grove**, J.P. Darr

149. Synthesis of tris((5-(4,5-dihydrooxazol-2-yl)-1H-pyrrol-2-yl)methyl)amine and preparation for iron complex. **M. Wardlaw**, M.K. Kamunde-Devonish

150. NMR diffusion studies of ions and solvent in organosilyl nitrile electrolytes with LiPF₆ for application in lithium-ion batteries. **T. Derrah**, L.J. Lyons

151. Synthesis of 1-(*tert*-butyl)-3(pyridin-2-yl)urea and the redox non-innocent ligand bis(2-aminophenyl)amine. **C.B. McKenzie-Smith**, M.K. Kamunde-Devonish

152. Binding of curcuminoids to human serum albumin (HSA) using fluorescence spectroscopy. **E. Fuller**, **H. Nyiera**, **S. Rolland**, O. Michels

153. Ionic conductivities of fluorinated organosilicon and carbonate blend electrolytes for lithium-ion batteries. **S. Yoon**, L.J. Lyons

154. Bioinspired synthesis of molybdenum carbide for hydrogen evolution reaction. **T. Morey, K. Morey**, K.S. Siam, P.K. Kahol, R. Gupta
155. Understanding the seasonal variation of Cl^-/Na^+ concentration ratio in polar snow. **L. Samaranayake**
156. Applications of the adaptive resolution simulation (AdResS) with Gaussian processing treatment to biomolecules. **B. Sanchez**, Z. Douglas, Y. Tang, S. Crivelli, W. Dejong, M. Watanabe
157. Synthesis of potential antimicrobial novel propargylic-isoxazolines. **A.L. Schull**, J.L. Duffy-Matzner
158. Modified silicone hydrogel contact lenses for ocular drug delivery. **E. Wanous**, J.L. Duffy-Matzner
159. Effect of nucleophile and leaving group on an addition reaction to dichloronaphthaquinone. **S. Aguilar**, A.N. Garr
160. Effect of L-threonine on the hygroscopicity of sodium chloride aerosols. **E. Mendoza-Lopez**, J.P. Darr
161. Efforts towards improving the synthesis of oxoquinonacyclophanes. **K. Berst**, J.W. Wackerly
162. Change in hygroscopic properties of sodium chloride aerosols induced by L-arginine. **W. Mitts**, E. Mendoza-Lopez, J.P. Darr
163. Water quality monitoring at the Cheyenne Bottoms Wildlife Area. **D. Munganga**, **A.K. Szeto**, C.J. Wolf, R.L. Penner
164. Synthesis, characterization and antimicrobial evaluation of fluorophore-substituted 1,2,3-triazolium salts. **C.A. Lejcher**, J.T. Fletcher
165. Bidentate chelators with 1,2,3-triazole and isoquinoline subunits. **N.W. Kreofsky**, J.T. Fletcher
166. Optimizing lipid extraction in Anabaena. H. Menning, **P.A. Mazzer**
167. Molecular dynamics simulation studies of adsorption of biological molecules onto nanomaterial. **J. Lozenski**, T. Rickel, Z. Green, M. Watanabe
168. Quantum yield comparison of doped carbon dots and fluorescence dependence on pH. **M. Prado**
169. Mössbauer studies of mitochondrial and prokaryotic iron-sulfur proteins. **K.A. Valdes**, **C.V. Popescu**, H. Ding
170. Preparations of transition metal complexes containing redox non-innocent ligands as pre-catalysts for chemical transformations. **M. Kolanowski**, M.K. Kamunde-Devonish
171. Educational, proactive approach to undergraduate general and organic chemistry lab. **C. Nguyen**, P.K. Morehouse
172. Amino acid as a chiral modifier in metal-organic framework for asymmetric hydrogenation reaction. **C. Ward**, W. Huang, J. Goh
173. Uranyl-selenate coordination polymers: Interactions with interstitial N-donors. **J.M. Williams**, T. Forbes, M.M. Pyrch, D. Unruh

174. Synthesis and spectroscopic properties of uranyl molecular compounds containing acetamideoxime. **A. Blanes**, M.M. Pyrch, L. Applegate, T. Forbes

175. Determination of the kinetic expression of the photochemical degradation of dicamba in aqueous solutions and on epicuticular waxes. **B. Courteau**, A.M. Nienow

176. Role of carbon monoxide in atmospheric Haze formation at cryogenic temperatures. **N. Bishop**, J.K. Rishi, J. Sebree

177. Synthesis and characterization of ValDrug and ValDrug-Naphthalimide compounds for localized drug delivery. **K. Parrott**, T. Divis, H. Lovstad, W. Rouse, J.E. Elbert

178. Effect of number density on aromatic seeded aerosols as measured through thin film spectroscopy. **J. Rishi**

179. Electrochemical properties of glutathione conjugates formed from bisphenol A-3,4-quinone. **B. Mullen**, D.E. Stack

180. Using amino acids in the fight against antibiotic resistance. **J. Scheffler**, **C. Lemmons**, D.J. Peitz

181. Withdrawn

182. Synthesis, characterization, and electrochemical properties of Schiff base polymers. **B. Goeden**, **L. Smith**, J. Kramer, S. Mao, M. Balasingam, M.D. Koppang, H. Sun

183. NMR relaxation as a method of exploring porous networks in gelatin methacryloyl. **B.E. Kinn**, A. Allgeier

Scheman Building
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General Analytical

R. K. Anand, J. Vela , *Organizers*

10:15 - 12:15

184. Algorithm in *Python* language for quality control of lactic acid in milk. **A. Miranda**

185. CuCo₂S₄ nanostructures as a promising material for energy storage applications. **C. Muliterno Zequine**, K.S. Siam, P.K. Kahol, R. Gupta

186. Indirect potentiometric determination of polyquaternium polymer concentrations by equilibrium binding to 1-dodecyl sulfate. **E.L. Anderson**, P.D. Samaniego, P. Buhlmann

187. Using 3D printed devices to elute and concentrate lambda DNA. C. Masters, **L. Stoner**, **S. Rau**, J. Dolphin, A. Vonderfecht, K. Kounovsky-Shafer

188. Intermolecular interactions in water-based deep eutectic solvents (DESs) and the extraction of vanillin. **M. Rahman**, M. Bhuiyan, D.E. Raynie

- 189.** Optimization of reduced products on CuAg bimetallic catalysts for CO₂ electrochemical reduction reaction. **A. Hailu**
- 190.** Charge variant analysis of human alpha₁-acid glycoprotein by capillary electrophoresis with electrophoretic injection. **C. Zhang**, C. Bi, W.A. Clarke, D.S. Hage
- 191.** Investigation of intermediates by vibrational spectroscopy in methanol electrooxidation reaction on multiwalled carbon nanotubes supported platinum nanoparticles. **R. Ordikhani Seyedlar**, Z. Qi, W. Huang, S.K. Shaw
- 192.** pH-driven hierarchical assembly of DNA origami nanostructures. **S. Yang, W. Liu, R. Wang**
- 193.** Optimization of reaction conditions for the depolymerization of alkali lignin in the presence of subcritical water and catalyst. **B. Jadhav**, R. Roy, D.E. Raynie
- 194.** Using surface-enhanced Raman scattering of gold nanostars for encoding molecular information. **S. Curry**, Y. Huo, C. Jiang
- 195.** Analysis of drug-protein interactions during diabetes using high-performance affinity chromatography and affinity microcolumns. **P. Tao**, Z. Li, D.S. Hage
- 196.** Rapid screening for veterinary drug residues in food and companion animal tissues using liquid microjunction surface sampling probe mass spectrometry. **L.E. Burns**, D.J. Borts
- 197.** Paper spray high resolution accurate mass spectrometry for quantitation of voriconazole in equine tears. **D.J. Borts**, M. Lerch, R.A. Allbaugh, L. Sebbag, J.P. Mochaël
- 198.** Chemical dynamics in model urban films probed via quartz crystal microbalance and sum frequency spectroscopy. **J. DeYoung**, J.S. Grant, S.K. Shaw
- 199.** Selective adsorption of rhodamine 6G using molecularly imprinted polyaniline. **V. Tang**, R. Wei, C. Jiang
- 200.** Cerium oxide nanoparticles and soil nitrogen level modified phosphorus and phytate-phosphorus in second generation seeds but not in first generation seeds of wheat and barley. **O.M. Abolade**, M. Jones, K. Coates, C. Rico
- 201.** Entrapment of proteins in high-performance affinity columns for chromatographic studies of solute-protein interactions. **S. Poddar**, E.L. Rodriguez, S. Azaria, D.S. Hage
- 202.** Elemental analysis of CdSe/ZnS quantum dots by AA and XRF spectrometry. B.L. Roth, P. Ruppelt, J.J. Woodward, **D.E. Weisshaar**
- 203.** Analysis of drug interactions with alpha₁-acid glycoprotein using high-performance affinity chromatography. **K. Suh**, C. Zhang, D.S. Hage
- 204.** High-performance nanostructured flower-like iron-nickel sulfide grown on 3D nickel foam for energy storage application. **C. Zhao**, C. Zhang, K.S. Siam, P.K. Kahol, R. Gupta
- 205.** Electrochemical double layer structure of imidazolium based ionic liquids. **N. Pitawela**, A. Horvath, S.K. Shaw
- 206.** Magnetically modified electrodes for the hydrogen evolution reaction. **S. DeBie**, D. Parr, J. Leddy

207. Examination of ionic liquid water dilution effects using differential scanning calorimetry. **N.L. Walker**, J. Wrona, S.K. Shaw
208. Array of bipolar electrodes arranged to generate a visual voltammogram in a microfluidic device. **J. Borchers**, O. Riusech, B. Rayborn, J. Shi, X. Ruiqi, R.K. Anand
209. Rapid screening of drug-protein interactions by high-performance affinity chromatography. **A.G. Woolfork**, Z. Sun, M. Weigand
210. Rapid drug-binding studies with modified transport proteins using immunoextraction and affinity microcolumns. **E.L. Rodriguez**, D.S. Hage
211. Identifying the binding location of atrazine and three of its metabolites on HSA using high performance affinity chromatography. **K. Frankenberg**, A.C. Moser
212. Separation of lipophilic dyes utilizing ultra-thin layer chromatography and SiO₂ nanopillars. **A. Pekarek**, E. Rodriguez, E. Johnson, D. Peev, S. Beeram, M. Schubert, T. Hofmann, D.S. Hage
213. Analysis of chemical changes throughout fungal tissue degradation using thermochemolysis-GCMS. **M. Ryan**, K. Schreiner, P. Kennedy, J. Swenson
214. Evaluation of electrochemiluminescent and electrochromic reactions for transient signaling. **K. Rahn**, R.K. Anand
215. Characterization and visualization of aged polyethylene under varying oxidative conditions using a novel gold nanoparticle method. **D. Zoltek**, M.A. Maurer-Jones
216. Inhibition of *Plasmodium falciparum* apicoplast DNA polymerase by a Malaria Box compound (MMV666123) and its derivatives. **S. Kaur**, M. Milton, P. Chheda, R.J. Kerns, S. Nelson
217. Quantifying the reductive capability of model bacteria *Shewanella oneidensis* grown in the presence of plastic additives. **L.P. Fawcett**, K. Koval, M.A. Maurer-Jones
218. Sorption of model micropollutants to polymer films after UV light exposure. **F. Murphy**, M.A. Maurer-Jones
219. Studies of interactions between glycated human serum albumin and antidiabetic drugs by high-performance affinity chromatography. **S. Zuchen**, P. Tao, D.S. Hage
220. Characterization of cucurbitacins-inspired estrone analogues as novel inhibitors of human P-glycoprotein. **J. Kyeremateng**, B. Peterson, M. Mahnashi, F.T. Halaweish, S. Iram
221. Impact analysis of multivalent cations on marine-relevant polysaccharides and their selective transfer to the sea surface microlayer. **V. Lamas Meza**, E.S. Hasenecz, E.A. Stone
222. Direct amplification of nucleic acids from a digitized magnetic ion liquid extraction phase. **D. Pagariya**, K. Clark, J.L. Anderson, R.K. Anand
223. Stabilization of the ion depletion zone with viscosity modifiers for enrichment and separation by ion concentration polarization. **S. Kim**, B. Ganapathysubramanian, R.K. Anand
224. Abundance of cytoplasmic phosphoenolpyruvate carboxykinase in rarely examined species. **T.J. Wiese**

- 225.** Separation of melanocytes from mononucleated blood cells by dielectrophoresis. **J. Banovetz**, R.K. Anand
- 226.** Re-engineering hyaluronic acid nanoparticles with a dual-targeting potential to cancer tumor cells. **D.S. Bhattacharya**, D. Svechkarev, A. Mohs
- 227.** Resistive pulse sensing for monitoring degradation processes of PLGA in aqueous media. **A.A. Ellis**, K. Ebeid, M.A. Arnold, A.K. Salem
- 228.** Continuous micellar electrokinetic separation of neutral analytes driven by ion concentration polarization. **B. Berzina**, R.K. Anand
- 229.** Whey protein solid dispersions for encapsulation and controlled delivery of curcumin, resveratrol and their combinations. **M. Djidjoho**
- 230.** Withdrawn
- 231.** Design and fabrication of electrochemical peptide-based selenium sensors. **P. Devi**, C. Schultz, R.Y. Lai

MONDAY AFTERNOON

Scheman Building
260/262

Chemistry from the Computer: Applications

Cosponsored by COMP and PHYS
M. W. Schmidt, *Organizer, Presiding*

- 1:00 232.** Effective nuclear charge model revisited. **R.L. Dekock**, L. VanLaar, M.E. Wolf, R.L. Farrell
- 1:20 233.** RheoScale: A tool for quantifying mutational experimental behavior. **A.M. Hodges**, L. Swint-Kruse, A. Fenton, A. Overholt, L. Dougherty
- 1:40 234.** Isomerism and speciation of uranyl-peroxide nanocapsules. **P. Miro**, E.T. Hare, S. Rabbani
- 2:00 235.** Dynamics of ion transfer across liquid-liquid interfaces: Implications for (asymmetric) phase-transfer catalysis. **J.P. Layfield**
- 2:20** Intermission.
- 2:30 236.** Modeling nanomaterial reactivity, transformations, and dissolution through electronic structure calculations, thermodynamics, and electrochemical principles. **S.E. Mason**
- 2:50 237.** Quantum chemical layer for deep learning of molecular Hamiltonians. **D. Yaron**, H. Li, C.R. Collins, M. Tanha, G.J. Gordon

Scheman Building
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General Analytical

R. K. Anand, J. Vela , *Organizers*
B. Berzina, *Presiding*

1:00 238. Wine: When the vines are too cold and too warm-- Resveratrol content in wines from northern climate. **S. Pandey**

1:20 239. Broad isomer identification by elemental isotopic shifts in high-field ion mobility spectra. **P. Pathak**, M.A. Baird, G.A. Anderson, A.A. Shvartsburg

1:40 240. Determining electroosmotic and electrophoretic contributions in microchannels in a variety of ionic strength conditions. **B. Menke**, K. Kounovsky-Shafer

2:00 241. Investigations of chemical residue in milk – 3 analytical approaches. **S.J. Leibowitz**, M. Henderson

2:20 242. Paper-based biosensors for detection of glycans. **F. Enam**, T.J. Mansell

2:40 243. Rapid detection of autoinducing peptides from gram-positive pathogens. **M. Contreras-Ramos**, T.J. Mansell

Scheman Building
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General Chemical Education

Laboratory & Curriculum

T. Holme, *Organizer*
J. L. Torres Y Torres, *Presiding*

1:00 244. Versatile lab for preparing self-healing poly(vinyl alcohol) hydrogels. **P. Willoughby**, M.T. Wentzel, A. Hilker, T. Mattice, R. Morris

1:20 245. Advances in natural red colors. **D. Dabas**

1:40 246. Isolation and analysis of lavender essential oil: An undergraduate organic chemistry laboratory experiment. **K. Jansen Labby**, **L.E. Parmentier**

2:00 247. Revolutionizing undergraduate labs with benchtop NMR - An active learning approach. **M.T. Zamora**, S.D. Riegel, J.F. Araneda

2:20 Intermission.

2:35 248. Using time-resolved spectroscopy in the undergraduate chemistry curriculum. **M.P. Hill**

2:55 249. ARiEL: Augmented Reality in Educational Laboratories. **J. An**, L. Poly, T. Holme

3:15 250. Experimental brewing: Developing hands-on activities for a beer chemistry course. **J.T. Fletcher**

Scheman Building
230

General Inorganic

J. Vela , *Organizer*
B. Rosales, *Presiding*

1:00 251. Could soap be the answer? **L. Chlebanowski**, S. Barrett, J. Hammer, S.H. Bossmann

1:20 252. Design of sensors for in-vivo detection of cancer-related enzymes. **J. Covarrubias**, M. Kalubowilage, S.H. Bossmann

1:40 253. Design and characterization of novel copper-activated drugs against Methicillin Resistant *Staphylococcus aureus* (MRSA). **A. Delpe Acharige**, M. Zhang, K. Eschliman, A. Minjarez-Almeida, F. Wolschendorf, S.H. Bossmann

2:00 254. Investigations into the coordination geometries of oxovanadates and enzymes. **C.C. McLauchlan**, C.A. Wallace, M. Tarlton, H.A. Murakami, D.C. Crans

2:20 255. Ligand K-edge XAS, DFT, and TDDFT studies of Rh PNP pincer and Ti diphosphine complexes: Measurement of σ and π contributions to M-P bonding. **K. Lee**, A.V. Blake, C.M. Donahue, J.M. Keith, S.R. Daly

2:40 256. Magnetic properties of co-doped gadolinium nickel compounds. **G. Agbaworvi**, C.M. Thompson

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General Organic

L. M. Stanley, J. Vela , *Organizers*
L. Duan, *Presiding*

1:00 257. Validating and rationalizing predicted behavior of a series of structurally related compounds towards co-crystal formation. **A. Abeysekera**, C.B. Aakeroy, A. Sinha

1:20 258. One-pot tandem oxidation/aldol reactions using novel self-assembled designer dual catalytic dendrimers. **S.A. Moteki**, Z. Yang, E. Talmon

1:40 259. Investigation of PMMA-incompatible rifampin. **E. Menuey**, G. Funk, K. Cole, T.P. Schuman, K.V. Kilway, T. McIff

2:00 260. Post-synthetic modification of covalent organic frameworks via click chemistry. **A. Volkov**

2:20 261. Crystal engineering and the chalcogen bond. **V.V. Panikkattu**, C.B. Aakeroy, A. Sinha

2:40 262. Biorenewable synthesis to isophthalates and naphthalate esters From methyl coumalate. **H. Yu**, G.A. Kraus

Scheman Building
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Materials for Optical, Magnetic, & Electronic Devices

Cosponsored by INOR
Financially supported by ISU CCAT
W. Huang, I. I. Slowing, *Organizers, Presiding*
J. Wang, *Presiding*

1:00 263. Toward a greener world: The (re)search for lead-free piezoelectrics. **X. Tan**

1:30 264. Relaxation dynamics of zero-field skyrmions over a wide temperature range. L. Peng, Y. Zhang, L. Ke, T. Kim, J. Yan, R. McQueeney, A. Kaminski, M. Kramer, **L. Zhou**

2:00 265. Colloidal interactions and directed assembly in polymeric media. **J.J. Juarez**

2:30 266. Withdrawn

2:50 Intermission.

3:05 267. Exploring new inorganic clathrates for thermoelectric application. **J. Wang**, K. Kovnir

3:25 268. Hollow Mn₃O₄ nanoparticles as cathode material for oxygen reduction reaction in bio-electrochemical module. **P. Dhungana**, M. Balasingam, A. Baride, M. Koppang, J.D. Hoefelmeyer

3:45 269. Tuning the thermoelectric performance of GeAs. **S. Lee**, B. Owens-Baird, K. Kovnir

4:05 270. Probing the charge transfer mechanism in organic crystals by femtosecond stimulated Raman spectroscopy. **A.A. Cassabaum**, W. Silva, R.R. Frontiera

4:25 271. Withdrawn

Scheman Building
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Solid-state NMR Spectroscopy: Materials & Methods

Cosponsored by PHYS
Financially supported by Bruker, Phoenix NMR, Revolution NMR
A. J. Rossini, *Organizer*
F. Perras, *Presiding*

1:00 272. Solid-state NMR methods and applications to structure determination of fibrils and sponges. **C.M. Rienstra**

1:20 273. Internalized trimodal polarizing agents for in-cell dynamic nuclear polarization. **B. Albert**, C. Gao, E.L. Sesti, E.P. Saliba, N. Alaniva, F.J. Scott, S.T. Sigurdsson, A. Barnes

1:35 274. NMR crystallography of active pharmaceutical ingredients and nutraceuticals: Insights into crystal structure from dispersion-corrected DFT calculations. **S.T. Holmes**, R.W. Schurko

1:50 275. Soft matter presents hard problems: Advanced NMR methods for untangling complex macromolecular systems. **J.L. White**

2:10 276. Rapid characterization of formulated pharmaceuticals using fast MAS ¹H solid state NMR spectroscopy. **A.V. Wijesekara**

2:25 277. Hybrid NMR. **J. Lorieau**

2:45 278. Design of new pulses for the acquisition of ultra-wideline solid-state NMR spectra using optimal control theory. A. Altenhof, A. Lindquist, L. Foster, S. Holmes, **R.W. Schurko**

3:05 Concluding Remarks.

Scheman Building
175/179

Synthesis & Catalysis: Catalysts for Organic Synthesis

Cosponsored by ORGN

Financially supported by Iowa State University Center for Catalysis

L. M. Stanley, *Organizer, Presiding*

1:00 279. Nickel- and palladium-catalyzed alkene functionalization via activation of amide C-N and ester C-O bonds. **L.M. Stanley**

1:30 280. Palladium catalyzed ketenimine formation and cascade rearrangements from *N*-alloc ynamides. J.R. Alexander, **M.J. Cook**

2:00 281. Catalytic site-selective functionalization of carbohydrates. **W. Tang**

2:30 282. Catalytic reactions involving C-C, C-O, or C-N bond activation: Discovery and mechanism. **C.J. Douglas**

3:00 283. New reactivity modes of nitrones and hydroxylamines. **L.L. Anderson**

3:30 284. Nickel catalyzed C-H arylations. **D. Kalyani**

4:00 285. Decarboxylative substitution and elimination reactions. **J.A. Tunge**, K. Cartwright, S. Senaweera

4:30 286. Regiodivergent catalytic asymmetric hydroboration. A.J. Bochat, V. Shoba, S. Chakrabarty, **J.M. Takacs**

Scheman Building
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General Physical

A. J. Rossini, J. Vela , *Organizers*

1:30 - 3:30

287. Where in the world is ethylenedione (OCCO)? **D. Poole**, J. Mato, M.S. Gordon

288. Anisotropic hot spot formation at a grain boundary in shock compressed 1,3,5-triamino-2,4,6-trinitrobenzene (TATB). **P. Zhao**, M. Kroonblawd, N. Mathew, S. Jiang, T.D. Sewell

289. Facilitating protein crystal nucleation with engineered surface energy features. **K. Nordquist**

- 290.** Multiblock copolymer morphology: Making macroscopic connections to molecular environments. **N. Pickering**, J.L. White
- 291.** Characterizing the surface of nanoparticles with fast MAS and DNP-enhanced solid-state NMR spectroscopy. **M. Hanrahan**, L. Wheeler, N.C. Anderson, J. Stein, Y. Chen, B.M. Cossairt, N.R. Neale, A.J. Rossini
- 292.** Benchmarking of coupled cluster methods with fragmentation schemes. **T. Harville**, M.S. Gordon
- 293.** Further studies of the vibrational spectroscopy of lithium thiocyanate hydrates: Deuterium isotope substitution. **H.R. Krueger**
- 294.** Exploring optical and electronic properties of organic semiconducting polymer microfibers. **S. Avetian**
- 295.** Speciation of uranyl-peroxide nanocapsules building blocks. **E.T. Hare**, P. Miro
- 296.** Confirming the authenticity of products labeled as milk from grass-fed cows by quantification of chlorophyll metabolites. **A. Song**, K. Santra, M. Rasmussen, J.W. Petrich
- 297.** Adsorption of neurotransmitters in metal–organic supercontainers for biomedical applications. **M.M. Bruns**, B. Vlasisavljevich
- 298.** Electron dynamics in silver nanoparticles. **G. Kuda Singappulige**, C.M. Aikens
- 299.** General solution of the tight-binding HMO electronic properties of the stellate graphs corresponding to cycloalkanes – one equation solves all! **J.R. Dias**
- 300.** Computational modeling of the hydrogen deuterium exchange mechanism of peptides containing multiple arginines. **C. Zhang**, E.M. Marzluff
- 301.** Detection and adsorption of emerging contaminants on model natural organic matter surface using Quartz Crystal Microbalance. **M. Nadim**, T.A. Williams, M. Subir
- 302.** DFTB study of cyclodextrins in aqueous solution. **M.R. Vazquez**, U. Schnupf
- 303.** Weak chimera states in a two-group network of electrochemical oscillators close to a homoclinic bifurcation. **J. Ocampo Espindola**, I.Z. Kiss
- 304.** Selective and quantitative removal of extra-framework aluminum species in HZSM-5 zeolites. **M. Abdolrahmani**
- 305.** Analysis of the absorption spectra of nanowire dimers and trimers. **P. Pandeya**, C.M. Aikens
- 306.** Withdrawn
- 307.** Accurate description of atomic-level processes involved in converting biodiesel to other fuels and commodity chemicals: Bond dissociation in the fatty acid methyl ester methyl linoleate. **M.R. Siebert**
- 308.** Study of the effects of dihydrouracil lesion in DNA on non-exchangeable chemical shifts and NOE intensities using two dimensional NMR spectroscopy. **B. Boyd**, G.A. Meints
- 309.** Coiled-coil peptides: Template for investigating relationship between stability and sequences. E.E. Allgeyer, W.K. Cross, P.E. Fisk, **M. Blackburn**

310. On oscillatory terms in lattice heat-current time correlation functions. A. Pereverzev, **T.D. Sewell**

311. Surface selective solid-state NMR spectroscopy of γ -alumina. **M.J. Ryan**, A. Venkatesh, R.L. Johnson, T. Pfennig, A.J. Rossini, B.H. Shanks

312. Withdrawn

Scheman Building
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Undergraduate Poster Session

M. Bohorquez, T. Holme, *Organizers*

1:30 - 3:30

313. Optimizing the linker for LAT1-targeted prodrugs to improve potency and cellular uptake. **H. Way, K. Merklin**, J. Campbell, B. Venteicher, H. Chien, C. Colas, A. Schlessinger, K. Giacomini, A.A. Thomas

314. Computational investigations of the radical anion cyclization reaction of 6-hepten-2-one. **N. Lyu**, J.E. Swartz

315. Developing an integrated catalysis experiment for the undergraduate chemistry curriculum. **J.E. Burke, G.J. Koskay, E.A. Reeson**, K.D. Oshin

316. Exploring the scope and limitations of the selective tris(pentafluorophenyl)borane – trialkylsilane reduction of amides, nitriles, azides, and diazo compounds. **C. Kozenski, M. Zamzow**, N.A. McGrath

317. Synthesis and characterization of a DFDPP-CPDT polymer with ethynyl spacers by means of Sonogashira coupling. **H.P. Masching**, J.L. Duffy-Matzner

318. Amphiphilic ligand coordination complexes: Dual mode activation of C-F bonds. **H. Juntunen**, H.S. Rust, A. McNally, J.D. Hoefelmeyer

319. Evaluation of the antiproliferation effects of glucosinolates against human MCF-7 cells. **M.A. Anderson, E.K. Ronning, A.A. Snyder**, J.R. Mays

320. Efforts towards understanding oxoquinocyclopane-guest binding. **E. O'Brien**, J.W. Wackerly

321. Synthesis and characterization of hypoxia-sensitive platinum (IV) prodrug. **C. Aparicio**, T. Nguyen, S. Aryal

322. Construction and characterization of an external cavity diode laser. **C. Larson**

323. Construction and characterization of an iodine saturated absorption spectrometer. **M. Koble**, A. Klose

324. Optimizing the synthesis of a new tetradentate mixed donor ligand. **S.A. Brunclik, C.M. Seong, A. Reuter**, M. Nevins, **E. Marlier**

325. Mode-locking and characterization of erbium-doped ultrafast laser system. **C. Kujawa**, G. Bowman, A. Klose

- 326.** In silico drug design for synthesis of fatty acid synthase I & II inhibitors targeting hepatocellular carcinoma. **A.M. Schuster**, J.L. Kuebler
- 327.** Phenazine-linked porous organic polymers for separation of carbon dioxide. **M. Rabbani**, J. Wallace, A. Byrd, J. Taylor
- 328.** X-ray crystal structure of dihydrolipoyllysine-residue succinyltransferase component of 2-oxoglutarate dehydrogenase complex. **T. Shupp**, R. Baines, M.S. DeVore, N.M. DeVore
- 329.** Computational modeling of anthraquinone macrocycle luminescent chemosensors. **A. Reuter**, B. Vlaisavljevich, A.G. Sykes
- 330.** Synthesis and investigation of pharmaceutical properties of potential drugs against human African trypanosomiasis (HAT). **V. Mashinson**
- 331.** Structural analysis of *OAZ* RNA from *Agaricus bisporus*. **S. Venkatraman**
- 332.** Computational modeling of ICG mediated laser interstitial thermal therapy for cancer treatment. **A. Aryal**, P. Prakash
- 333.** Phosphonic acid functionalized electrospun nanofibers for uranium (VI) uptake. **A. Peroutka**, J. Qian, D.M. Cwiertny, T. Forbes
- 334.** Synthesis of transition metal dichalcogenide catalysts via chemical vapor deposition for catalytic applications. **B. Rudzinski**, D. Maiti, A. Fryer, T. Afaneh, S. Ramani, J. Kuhn, H. Rodriguez-Gutierrez
- 335.** Dependence of stability on sequence in coiled-coil regions of proteins. **W.K. Cross**, E.E. Allgeyer, P.E. Fisk, M.E. Blackburn
- 336.** Evaluation of tartaric acid in wine. D. Agoumba, **J. DeMonte**
- 337.** Synthesis of alginate microgels for cancer cell encapsulation, preservation, and culture. **J. Kuebler**
- 338.** Computational study of monosaccharides: Comparing structural and energetic features of D- and L-sugars. **A. Vice**, **J. Schuely**, **C. Sciortion**, U. Schnupf
- 339.** Putting the cart before the horse: Using a stress-induced plant hormone pretreatment to build stress tolerance. **D. Lowe**, **B. Muhlstein**, R. Pugh
- 340.** Study of HCN1 assembly using Blue Native PAGE. **E. Micka**, **G. Kline**, A. Olson, I. Kees, Q. Zhang, K. Rupert, M.A. Dean
- 341.** Cobalt(II) and manganese(II) metal ion complexes of tnpa with hydroxide bound in the H-bonding pocket. **N. Stumme**, A. Ellern, M. Zart
- 342.** Surface chemistry of crystal violet on titanium dioxide. **K. Boehnke**

Scheman Building
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Midwest Awards Symposium

J. W. Burnett, T. Holme, *Organizers*
M. Shamsi, *Presiding*

3:30 343. Conjugated polymers via cyclopentannulation strategies. **K.N. Plunkett**, S. Bheemireddy, M.P. Hautzinger, X. Zhu

3:55 344. Computational studies of electrolyte for next-generation batteries. **L. Cheng**

4:20 345. Simulating heterogeneous catalysis for energy- and environment-related applications. **Q. Ge**

TUESDAY MORNING

Scheman Building
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Bioanalysis: Sensing, Separations, & Spectroscopy

Cosponsored by ANYL
R. K. Anand, *Organizer, Presiding*

8:00 346. Pharmaceutical analysis and personalized medicine based on microscale affinity separations. **D.S. Hage**

8:25 347. Bioanalytical approaches towards selective and sensitive nucleic acid diagnostics. **J.L. Anderson**, K. Clark, M.N. Emaus, M. Varona, X. Ding

8:50 348. Analysis of protein conformations and dynamics *in vivo* and *in vitro* by single-molecule spectroscopy. **C.K. Johnson**

9:15 intermission.

9:30 349. Lateral diffusion and clustering of receptor for advanced glycation endproducts (RAGE). **E.A. Smith**, Q. Zhu, C. Wijesooriya

9:55 350. Noninvasive biosensing with near infrared spectroscopy. **M.A. Arnold**

10:20 351. Electrochemical peptide-based metal ion sensors. **R.Y. Lai**

Scheman Building
260/262

Chemistry from the Computer: Applications

Cosponsored by COMP and PHYS
M. W. Schmidt, *Organizer, Presiding*

8:00 352. Quantum chemistry at the Frederick National Laboratory for Cancer Research. **J. Ivanic**

8:30 353. Understanding the fundamental origin of optical absorption, luminescence, and nonradiative dynamics in noble metal nanoparticles using DFT methods. **C.M. Aikens**

9:00 354. Active thermochemical tables: Thermochemistry for the 21st century. **B. Ruscic**

9:30 Intermission.

10:00 355. Electronic structure of uranium arene interactions. **B. Vlaisavljevich**

10:30 356. Role of surface shell in photoexcited dynamics of PbSe and PbS quantum dots. **S. Kilina**

11:00 357. Structure and dynamics of ionic liquids. **C.J. Margulis**

Scheman Building
252

Entrepreneurs Tool Kit: Resources & Best Practices

Cosponsored by SCHB

J. E. Sabol, *Organizer*

A. Kantak, *Organizer, Presiding*

8:00 358. SCHB objectives and activities. **A. Kantak, J.E. Sabol**

8:30 359. Additive manufacturing: Challenges and opportunities for chemical businesses. **I.I. Slowing**

9:00 360. How one tiny metal particle turned a chemist into an entrepreneur: The story of SAFI-Tech. **I. Tevis**

9:30 Intermission.

10:00 361. Intellectual property: Alternative career path for chemists. **C.M. Turoski**

10:30 362. Securing startup success. **M. Vollstedt**

Scheman Building
250

General Analytical

R. K. Anand, J. Vela, *Organizers*

C. K. Nyamekye, K. O'Neill, *Presiding*

8:00 363. Alkali-based cupric oxide oxidation of alkali lignin at different temperatures. **R. Roy, D.E. Raynie**

8:20 364. Which is better frozen storage or heat drying?: Effect of storage method on the compounds in American elderberry (*sambucus nigra* subsp. *canadensis*). **P.H. Bruner, C. Greenlief, A.L. Thomas**

8:40 365. Cyanogenic glycoside analysis in American elderberry: Method development and validation. **M.K. Appenteng, R. Krueger, M.C. Johnson, A.L. Thomas, C. Greenlief**

9:00 366. Applications of two new ambient ionization technologies for direct sample analysis: PaperSpray and Flowprobe. **D.J. Borts, L.E. Burns, M. Lerch**

9:20 367. Revealing individual lifestyles through mass spectrometry imaging of chemical compounds in fingerprints. **P. Hinners**

9:40 368. Reverse engineering of polyurethane car seat foams using pyrolysis-GC-dAPCI-TOF. **E. Larson,** J. Lee, Y. Lee

10:00 Intermission.

10:20 369. Determination of nicotine level on campus during tobacco-free promotion using HPLC/UV coupled with MS. **C. Dallimore, Y. Zhang, Q. Zhang**

10:40 370. Novel methodology for collection and chemical characterization of airborne indoor particulate matter. **G. Parker,** C. Ong, R. Manges, E. Stapleton, A.P. Comellas, T.M. Peters, E.A. Stone

11:00 371. Chemical imaging of latent fingerprints deposited on porous surfaces developed by ninhydrin and iodine fuming. **E. King,** P. Hinners, Y. Lee

11:20 372. Withdrawn

11:40 373. Study the effect of temperature, pressure and time for the depolymerization of alkali lignin in the presence of subcritical water and catalyst. **B. Jadhav,** D.E. Raynie

12:00 374. On-surface chemical modification of vicinal diols for mass spectrometry imaging. **T.T. Forsman,** M.E. Duenas, Y. Lee

Scheman Building
299/lobby/204

General Chemical Education

T. Holme, *Organizer*

8:00 - 10:00

375. Get involved with the ACS Division of Chemical Education. **J.L. Torres Y Torres**

376. Fostering community appreciation of science in and out of the classroom. **B.Z. Shakhshiri**

377. SCHB member benefits, resources, and programming opportunities. **A. Kantak,** J.E. Sabol

378. Scientific glassblowing education at the University of Iowa. **B. Revis**

379. Missouri Regional Science and Engineering (MO-RISE) networking and employment event: Model for connecting students and regional employers. **M.W. Ducey**

380. Diversifying STEM through community college social integration. **A. Peck**

381. Active learning strategies to improve the performance of first generation students. H. Palencia, **C. Staudacher,** K. Pearson

382. Learning Biochemistry the write way: Writing as a tool to promote conceptual understanding. **R. Pugh**

383. Expanded discovery-based experiment involving the conversion of alcohols to alkyl bromides. **K.P. Peterson, C. Schrank**, M. O'Reilly, S. Stoffregen

384. Graphene and engineering design in the undergraduate chemistry laboratory: A framework for undergraduate student engagement. **S. Breitfelder**, A.R. Hoffman, K.L. Turner

385. Development of a discovery-based experiment exploring steric and directing effects on electrophilic aromatic substitution reactions. M. Jarocki, R. Perreault, K. Chies, T. Riccardi, K.P. Peterson, **S. Stoffregen**

Scheman Building
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General Inorganic

J. Vela , *Organizer*

C. Daniels, A. Medina-Gonzalez, *Presiding*

8:00 386. Application of hollow Mn₃O₄ nanoparticles as lithium ion battery anode, catalyst for electrochemical oxygen reduction, and catalyst for selective oxidation of organic molecules. S. Varapragasam, P. Dhungana, A. Gurung, C. Balasanthiran, C.M. Karki, V. Gadhamshetty, Q. Qiao, R.M. Rioux, **J.D. Hoefelmeyer**

8:20 387. Studying the formation process of PtSn intermetallic nanoparticles in solution. **M. Chen**, W. Huang

8:40 388. Exploring actinyl intermolecular interactions incorporating novel Np(V) molecular building units. **M.M. Pyrch**, T. Forbes

9:00 389. Catalytic applications of covalent organic frameworks derived from metalated bipyridine building blocks. **P. Heintz**, W. Huang, L.M. Stanley

9:20 390. Excited state electronic nature interrogation within strictly assembled chromophoric systems as a function of MOFs topology. **J. Yu**, P. Deria

9:40 391. Metal nanocluster supported on amino acid functionalized metal-organic framework for CO oxidation. **T. Goh**, C. Ward, W. Huang

10:00 Intermission.

10:20 392. Silica surface modification via catalytic dehydrocoupling reaction. **A. Biswas**

10:40 393. Synthesis and structural characterization of divalent lanthanide and actinide complexes for the solvent-less separation of f-elements by sublimation. **N. Anderson**, G.S. Girolami

11:00 394. Investigating transition metal complexes using femtosecond tabletop M_{2,3}-edge absorption spectroscopy. **K. Zhang**, E. Ryland, R. Ash, K. Benke, M.A. Verkamp, M. Lin, F. de Groot, G.S. Girolami, J. Vura-Weis

11:20 395. Ni complexes with redox-active tetradentate ligands: determining the locus of ligand oxidation as a function of metal-donor substituents. **K. Spielvogel**, J.A. Luna, E.J. Coughlin, A. Benson, R. Salacinski, A. Kibasa, K. Lee, C.M. Donahue, S.K. Shaw, S.C. Bart, S.R. Daly

11:40 396. Oxidation of ammonia with diruthenium oxypridinate complexes. **C.M. Wallen**, M. Trenerry, J.F. Berry

12:00 397. Enhanced electrocatalytic CO₂ conversion in CO₂-expanded electrolytes. **D.J. Sconyers**, C. Shaughnessy, T. Kerr, B. Subramaniam, K.C. Leonard, J.D. Blakemore

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General Organic

L. M. Stanley, J. Vela , *Organizers*
S. Norris, *Presiding*

8:00 398. Bioactive terpenoids: Relationship between activity at nicotinic acetylcholine receptors and chemical formula. **C. Wong**, J.R. Coats

8:20 399. Total synthesis of biatriosporin D. **S. Wang**, G.A. Kraus

8:40 400. Studies toward the total synthesis of Drimentine C. **S.J. Underwood**, C.J. Douglas

9:00 401. Novel synthetic route to pyrone skeleton of *Aspergillus* sp. extract. **K.S. Podolak**, G. Kraus

9:20 402. Synthetic single chain peptides and polypeptides as gene delivery vectors. **A. Yapa**, T.B. Shrestha, S.H. Bossmann

9:40 403. Toward the development of a "universal" indole aryne generating platform: Synthetic and computational studies of di- and trifluoroindoles, new and versatile classes of indole aryne precursors. **M. Rayhart**, Z. Albader, R. Glaser, C.J. Cramer, M. Wulser, M. Santos, C. Clements, K.R. Buszek

10:00 Intermission.

10:20 404. Synthesis and in-line processing of peroxide using flow chemistry. **L. Cummings**, J. Daye, Z.S. Peacock, J.T. Haliburton, T. Robison, S.M. Torres

10:40 405. Phosphorylation of alcohols and carbon capture using dibasic sodium phosphate. **B. Otoo**, M. Perez-Ramirez

11:00 406. Reactions of mixed organic acids: Direct synthesis of a novel pyrone from citric acid and malic acid. **W. Bradley**, G.A. Kraus

11:20 407. Open-shell singlet phenyloxenium ion reacts as an electrophile. **Y. Qiu**, L. Du, D. Phillips, A. Winter

11:40 408. Catalyzing the racemization of azides in effort to achieve a dynamic kinetic resolution. **A.A. Ott**, J.J. Topczewski

12:00 409. Synthesis and reactivity studies of hetero-bimetallic iron(II) complexes with group 10 metals. **P. Halder**

Scheman Building
167/171

Materials for Biomedicine

Cosponsored by INOR

W. Huang, I. I. Slowing, *Organizers, Presiding*

8:00 410. Genetic code expansion in protein acetylation studies. **C. Fan**

9:10 Intermission.

9:25 411. Phytochemical composition and in-vitro radical scavenging activity of ethanolic extracts of *Spondias mombin* and nutraceutical-C24/7. **C.C. Nweze**

10:05 412. Local application of pyrophosphorylated simvastatin prevents experimental periodontitis. **Y. Almoshari**

10:25 413. Identification of novel inhibitors of multidrug resistance protein 1. **A. Sampson**, K. Wee Tan, B. Peterson, B. Osa-Andrews, S. Iram

Scheman Building
299/lobby/204

Undergraduate Poster Session

M. Bohorquez, T. Holme, *Organizers*

8:00 - 10:00

414. Investigating the physical and electronic properties of (ZnS)₃₄ coated with oleylamine and benzylamine surfactants. **K.E. Theisz**, S.R. Alvarado

415. Investigation of student attitudes and understanding in an online versus face-to-face introduction to inorganic chemistry course. **H.T. Nennig**, L. Salzer, R.M. Theisen

416. Comparison of student attitudes and performance in an online and a face-to-face inorganic chemistry course. **H.T. Nennig**, L. Salzer, R.M. Theisen

417. Target membrane viscosity controls the sensitivity of antibody dependent phagocytosis. **N. Cronin**

418. Putrescine oxidase immobilization on gold nanostructures and interactions with hydrophilic self-assembled monolayer resists. **T.M. Nguyen**, N.J. Kamathewatta, T.E. Hughes, D.O. Deay, R.T. Lietz, M.L. Richter, C. Tamerler, C.L. Berrie

419. Synthesis of tris[5-cycloimino-thiophenyl-2-ylmethyl]amine for a synthetic model for hydrogen bonding capabilities in the secondary coordination sphere. **A. Call**, M.K. Kamunde-Devonish

420. Lake Michigan ozone study: Characterization and sources of airborne particles. **A. Milani**, D. Hughes, E.A. Stone

421. Exploring novel gas-phase reactivity of *closo*-borane radical and non-radical anions. **E. Johnson**, X. Ma, J. Kuan-Yu Liu, J. Warneke, H. Kenttämäa

422. Examining the effect of molecular dipole on ligand substitution dynamics. **E.A. Reasoner**, M. Wilker

423. Utilizing the Scherrer equation to understand nanocrystalline mixtures. **K.J. Baumler**, M.A. White, J. Vela
424. Sources of airborne particulate matter in Nepal. **T. Li**, M. Islam, K. Mahata, N. Khanal, P. Praveen, S. Adhikari, N.B. Dhital, M. Giordano, B. Werden, A. Gurung, A.K. Panday, P.F. DeCarlo, E.A. Stone
425. Synthesis of unsymmetrical 2,2'-bipyridine derivatives via a phosphorus extrusion. **S.A. Markham**, Z.M. Araki, B.F. Wicker, B. Atwater
426. Stability studies of glycolysis inhibitor prodrugs for cancer. **A. Duncan**, **C. Hall**, A.A. Thomas
427. Curcumin and quercetin polymeric lipid combination formulations for anti-oxidant activity. **C. Ternent**, D. Kumari
428. Mono-fluorinated organosilicon nitrile compound as an additive in LiPF₆ carbonate blend electrolytes for lithium-ion batteries. **S. Su**, L.J. Lyons
429. Nickel chloride as a multifunctional material for overall water splitting and supercapacitor. **J. Poli**, S.D. Bhoiyate, B. Neria, K.S. Siam, P.K. Kahol, R. Gupta
430. Withdrawn
431. Understanding the role of neutrophils in bovine viral diarrhoea virus (BVDV) pathogenesis. **H. Evans**, K. Abdelsalam, C. Chase, N. Thakur, A. Farr
432. Synthesis, stabilization, modification, and activity of zinc oxide nanoparticles for biological applications. **A. Freese**
433. Identification of novel substrates of MRP1. **A. Milbauer**, K.J. Rosenthal, A. Sampson, P. Agyemang, S. Iram
434. Enabling confident proteoform identification by validating mass differences characteristic of tri-phosphorylation and adducts of sulfate and acetone. **C.M. Pavelec**, L. Schaffer, M. Scalf, B.L. Frey, M. Shortreed, A. Cesnik, L.M. Smith
435. Withdrawn
436. Versatile, mild, and selective reduction of various carbonyl groups using an electron-deficient boron catalyst. **N.A. McGrath**, C. Kozenski, M. Zamzow
437. Analysis of n-nitrosodiethylamine (NDEA) in tap water using ice concentration linked with extractive stirrer (ICECLES). **M. Marotz**, B.A. Logue
438. Expression and purification of transmembrane serine protease 2 (TMPRSS2) to determine X-ray crystal structure. **M. Gadd**, **N. Holmes**, N.M. DeVore
439. Oxaquinonacyclophanes: Synthesis and application. **N.M. Cooper**, J.W. Wackerly
440. Dopamine quantification in *Caenorhabditis elegans* with HPLC. **V. Vitycharenko**, S. Fretham, M. Wilker
441. Ion concentration polarization in a simple paper device for tear analysis. **D.F. Twedt**, B. Berzina, J. Borchers, R.K. Anand

- 442.** Interactions of pharmaceuticals with hydrophobic surfaces in the aquatic environment. **C.J. Walsh**, M. Subir
- 443.** Cloning, expression, and purification of the catalytic domain of human airway trypsin-like protease. **H. Culbertson**, **K. Cuate**, N.M. DeVore
- 444.** Characterization of the physiochemical properties of choline chloride: Propylene glycol-based deep eutectic solvents in combination with added halides. **E. Haeska**, D.E. Raynie
- 445.** Evaluation of the anticancer drug library to selectively kill MRP1 overexpressing multidrug resistant cancer cells. **K.J. Rosenthal**, A. Milbauer, A. Sampson, P. Agyemang, S. Iram
- 446.** Ion-selective electrodes based on metal-organic supercontainers. **D.S. George**, P. Jampani, N. Netzer, Z. Wang
- 447.** Novel relational optimization of the Pubchem Bioassay database. **A. Aryal**, R. Mazloom, M. Jaberidouraki
- 448.** Investigation of various wavelengths for phosphorus analysis in surface water samples by ICP-OES. **D. Vickers**, J.W. Ejniak
- 449.** Ligand-centered borenium reactivity in triaminoborane-bridged diphosphine complexes. **C. Kirkvold**, K. Lee, S.R. Daly, B. Vlasisavljevich
- 450.** Kinetics of functionalization of mesoporous silica nanoparticles with organotrialkoxysilanes. **H. Wang**, J.S. Manzano, I.I. Slowing
- 451.** Substituent effects in compounds with NNSN motif: Towards nanomolar activity against MRSA. **T. Shrestha**, K. Eschliman, R. Roberts, A. Delpé Acharige, F. Wolschendorf, S.H. Bossmann
- 452.** Investigating heteroscorpionate ligands as a catalyst template for use in ATRA reactions. **E.A. Khoury**, K.D. Oshin
- 453.** Photo-active naphthalimide-drug compound synthesis and characterization. **T. Divis**, J.E. Elbert, K. Parrott, H. Lovstad, W. Rouse

Scheman Building
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Carbon Capture, Utilization & Storage

Cosponsored by ENFL
R. Glaser, *Organizer, Presiding*
L. Hamdy, J. Schell, *Presiding*

8:15 Introductory Remarks.

8:20 454. Making better materials for carbon dioxide capture and utilization. **E. Andreoli**

9:00 455. Purely organic cross-linked PEI as a self-supported CO₂ sorbent enhanced via hydrophobic functionality. **L. Hamdy**, E. Andreoli, A. Barron

9:20 456. Post synthetic ligand exchange in zirconium based metal organic frameworks: Beware of the defects! **R.J. Wakeham**, M. Taddei, A. Koutsianos, E. Andreoli, A. Barron

9:40 Intermission.

9:45 457. First-principles molecular dynamics studies of catalytic CO₂ conversion reactions in aqueous solutions. **V. Alexandrov**

10:05 458. Determination of the thermochemistry of CO₂ capture by alkylamines in aqueous solution using NMR techniques and density functional theory. **J. Schell**, K. Yang, W. Wycoff, R. Glaser

10:25 459. Computational study of CO₂ capture by the rubisco-inspired tetrapeptide KDDE. **K. Yang**, R. Glaser

10:45 Intermission.

10:50 460. Withdrawn

11:10 461. Formulation of CO₂ solid adsorbents into practical contactors using 3D printing technique. **F. Rezaei**

11:30 462. Heterogeneous Fe/Fe₃O₄ catalysts for carbon dioxide capture and conversion to aromatic hydrocarbons. **S.H. Bossmann**, T.B. Shrestha, P. Thapa, H. Wang

Scheman Building
299/lobby/204

General Organic

L. M. Stanley, J. Vela , *Organizers*

10:15 - 12:15

463. Synthesis of thiazole amides inspired by the bacillamide natural products and their evaluation against agriculturally relevant pests. **J.D. Eckelbarger**, M.B. Olson

464. *In vitro* glycosylation of membrane glycoproteins. **G. Cook**

465. Sig2Lead: Integration of omics signatures and chemical similarity for improved structure activity relationship analysis. A.W. Thorman, **J.K. Reigle**, S. Chutipongtanate, B. Shamsaei, R. Adamczak, M. Pilarczyk, M. Fazel Najafabadi, M. Medvedovic, J. Meller

466. Convergent synthesis of photoactive naphthalimide compounds for localized drug delivery. **H. Lovstad**, J.E. Elbert

467. Dibenzothiophene based cell dyes and organelle specific delivery platforms for O(³P). **J. Petroff**, R. Mulla

468. Palladium catalyzed salt free decarboxylative aryl allylation. **R. Daley**, J.J. Topczewski

469. Synthesis of new N-heterocyclic carbenes (NHCs) precursors and their catalytic activity evaluation. H. Palencia, **I. Hueftle**, **T. Buettner**

- 470.** Current progress towards the synthesis of Acridinomycin A and B. **G.P. Nora**
- 471.** Unexpected formation of 5,6-dihydro-7*H*-1,4-methanobenzo[*e*][1,4]diazonine-2,7(3*H*)-diones from oxidative cleavage of tetrahydro- β -carbolines with NaIO₄. **D. Leas**, Y. Dong, J.L. Vennerstrom
- 472.** Enantioselective formation of 1,2,3-triazoles via dynamic kinetic resolution of allylic azides. **E. Liu**, J.J. Topczewski
- 473.** Synthesis of 4-(methylsulfinyl)benzyl and 3-pyridylmethyl glucosinolate via the nitronate pathway. **M.A. Anderson**, **E.K. Ronning**, **A.A. Snyder**, S. Fisher, J.R. Mays
- 474.** Direct coupling of esters and azides to form amides. **A.S. Carlson**, J.J. Topczewski
- 475.** Total synthesis of trans-trikentrin A via indole aryne cycloaddition and cycloaddition/rearrangement methodologies. **K.R. Buszek**, N.L. Chandrasoma, D. Luo
- 476.** *N*-Vinylpyridinium and -ammonium tetrafluoroborate salts: New electrophilic coupling partners for Cr/Ni-catalyzed Nozaki-Hiyama-Kishi (NHK) coupling reactions. **K.R. Buszek**, N. Brown
- 477.** Progress towards the *de novo* synthesis of per-¹⁸O-perylenetetracarboxylic dianhydride. **J. Cox**, J.J. Topczewski
- 478.** Construction of bile acid macrocycles via Pd-catalyzed Sonogashira coupling. **C.A. Knudtson**, J.R. Dias
- 479.** Development and mechanistic studies of Pd/Lewis-acid-catalyzed N–CN bond activation and intramolecular aminocyanation of alkenes. **S. Wang**, Z. Pan, J.T. Brethorst, C.J. Douglas
- 480.** Hybrid Lewis acid/Lewis base catalysts for additions of ketones and aldehydes to unactivated unsaturated carbon-carbon bonds. **J. Porter**, E. Greve, A. Alsafran, A. Benoit, S.V. Lindeman, C. Dockendorff
- 481.** Synthesis and investigations of selective metal-halogen exchange, elimination, and subsequent reactions of polyhalogenated benzoxazoles. **M. Just**, M. Cody, P. Chapman, M. Rayhart, K.R. Buszek
- 482.** Design and synthesis of mitochondria-targeted dihydroartemisinin derivatives. **M. Varmazyad**, A. Kalen, F. Pigge, P. Goswami, M.K. Schultz
- 483.** Discovery of novel cannabinoid receptor allosteric modulators. **S. Saldana**, H. Hernandez-Galante, R.G. Lange, A.D. Rosicky, L. Armbruster, C.J. Hillard, C.W. Cunningham
- 484.** Design, synthesis and evaluations of *N*-cycloalkyl-2-(phenylamino)acetamides as novel anti-mycobacterial agents. **P. Bhattarai**, W. Li, M. Jackson, E. North
- 485.** Synthesis of potential HAT drugs against African trypanosomiasis. **K. Higgins**, **B. Belter**
- 486.** Polyhalogenated 2,1-benzisoxazoles (anthranils) as candidates for selective metal-halogen exchange, elimination, and further reactions. Expanding on a poorly explored motif for natural products total synthesis, library development, and drug discovery. **M. Cody**, M. Rayhart, K.R. Buszek
- 487.** Discovery of novel non-nucleoside small molecule inhibitors of DNMT1. J. Clement, **N.S. Duncan**, M. Holmes, J. White

- 488.** Investigation of β -lactones as selective activity-based probes for penicillin-binding proteins. **J. Shirley**, S. Sharifzadeh, E.E. Carlson
- 489.** Amide analogues of isoprenoid triazole bisphosphonates that inhibit geranylgeranyl diphosphate synthase. **D.B. Goetz**, M.L. Varney, S.A. Holstein, D.F. Wiemer
- 490.** Design, synthesis and characterization of novel *N*-heterocyclic-1-benzyl-1*H*-benzo[*d*]imidazole-2-amines as selective TRPC5 ion channel inhibitors for suppression of progressive kidney disease. **S. Sharma**, J. Pablo, M. Montesinos, A. Greka, C. Hopkins
- 491.** Potentiating penicillins, carbapenems, and cephalosporins to kill MRSA. **C.V. Rice**, M. Foxley, A. Lam, A. Ly, M. Harney, E. Moen, B. Wilson
- 492.** Identification of selective bacterial histidine kinases inhibitors. **C. Fihn**
- 493.** DNA-programmed labeling of membrane proteins on live cells. **Y. Huang**, L. Meng, X. Li
- 494.** Triazole analogs of histidine via click chemistry to probe the L-type amino acid transporter (LAT1) binding site. **A. Wells**, **H. Wolfe**, C. Hall, H. Chien, C. Colas, A. Schlessinger, K. Giacomini, A.A. Thomas
- 495.** Luminescent platinum(II) complexes with sterically expansive tetraarylethylene ligands as probes for DNA mismatches. **M. Gabr**, F. Pigge
- 496.** Assessing substituent size for meta-substituted phenylalanine analogs to guide the design of L-type amino acid transporter (LAT1) targeted prodrugs. **B. Venteicher**, **C. Alvarado**, **J. Griffith**, H. Way, K. Merklin, S. Springer, K. Finke, L. Stoner, E. Augustyn, H. Chien, A. Zur, C. Colas, A. Schlessinger, K. Giacomini, A.A. Thomas
- 497.** Two-color biosensor-based ensemble FRET assay identifies ten potential substrates of the cancer-implicated human multidrug resistance protein-1. **B. Osa-Andrews**, K. Wee Tan, **A. Sampson**, **S. Iram**
- 498.** Molecular modeling of isoform-specific inhibition of the peroxisome proliferator-activated receptor PPAR γ : Identification of PPAR γ antagonists. **S. Almahmoud**, H.A. Zhong, J. Jones, X. Wang, J.L. Vennerstrom
- 499.** Quantative detection of sulfite by using a reaction based fluorescent probe. H. Schmitz, T. Ding, **H. Cao**
- 500.** Synthesis of (5-oxo-2-dibenzothienylmethyl)triphenylphosphonium and its use as a photo-switchable drug in cancer therapy. **A. Isor**, A. O'Dea, K. Skubic, C. Arnatt, R.D. McCulla
- 501.** 1,3-Dicarbonyl compounds as chemical probes for detection of amino acid citrulline. **N. Dacon**, A. Bronder, D.V. Kadnikov
- 502.** Assembly of modular chemical probes for detection of amino acid citrulline using an alkyne/azide click reaction. **C. Trevarthen**, M. Moore, D.V. Kadnikov
- 503.** Enhancement of 2+2 photocyclization efficiency using cucurbit[8]uril. M. Pattabiraman, **W. Martinez**
- 504.** Investigation into the environmental sensitivity of benzoxadiazole chromophores and their isobenzofuran derivatives. **C. Warner**, P. Bouc, B. VanVeller
- 505.** Host-guest binding of an oxaquinonacyclophane. **R. Petersen**, J.W. Wackerly

506. Oxygen-bridged triangulenium dyes. **E.L. Trump**

507. Visible light-initiated photodeoxygenation of polycyclic selenoxides to generate O(³P) in condensed phase. **S.M. Chintala**, R.D. McCulla

508. Computational extrapolation of Baldwin's Rules to larger rings. **P. Chapman**, M. Rayhart, K.R. Buszek

509. Use of macrocyclic cavitands for reaction selectivity and sustainable chemistry. T. Bokoskie, A. Kashyap, W. Martinez, **M. Pattabiraman**

510. Cost-effective way to develop highly flame retardant rigid polyurethane foams using corn oil. S.D. Bhoyate, **C. Muliterno Zequine**, B. Neria, P.K. Kahol, R. Gupta

511. Ab initio methyl linoleate bond dissociation investigations: Categorization of probable products through computational means. M.J. Bakker, **M.R. Siebert**

TUESDAY AFTERNOON

Scheman Building
240

Bioanalysis: Sensing, Separations, & Spectroscopy

Cosponsored by ANYL
R. K. Anand, *Organizer, Presiding*

1:00 512. Wax-on-plastic platforms for bioanalysis. **M. Shamsi**

1:25 513. Challenges associated with bedbug (*Cimex Lectularius*) detection, leading to a consumer product. **N. Schattke**

1:50 514. Printed and laser induced graphene for in-field electrochemical biosensing. **J. Claussen**

2:15 intermission.

2:30 515. Fabrication of DNA origami integrated nanoplatform for biosensing and drug delivery. Y. Zeng, W. Liu, **R. Wang**

2:55 516. Nanosensors for food safety applications: Biomimetic approach. **C.L. Gomes**

3:20 517. Selective capture and patterning of cells at wireless electrodes for high-throughput analysis. M. Li, **R.K. Anand**

Scheman Building
260/262

Chemistry from the Computer: Applications

Cosponsored by COMP and PHYS
M. W. Schmidt, *Organizer, Presiding*

1:00 518. Strongly anisotropic thermomechanical response to shock wave loading in oriented samples of the triclinic molecular crystal 1,3,5-triamino-2,4,6-trinitrobenzene (TATB). P. Zhao, M. Kroonblawd, N. Mathew, **T.D. Sewell**

1:30 519. Using electronic structure theory to target spontaneous magnets. **G.J. Miller**

2:00 520. *Candida antarctica* lipase B in organic solvent: connections between solvation layer mobility and enzyme dynamics. J.N. Dahanayake, **K.R. Mitchell-Koch**

2:30 Intermission.

3:00 521. Computer based models of CH and OH stretch vibrations as probes of local environment. **E.L. Sibert**

3:30 522. Excited state dynamics with quantum tunneling. **D. Kilin**, Y. Han, A. Forde, L. Johnson

4:00 523. VM2 software package for prediction of molecular binding free energies of protein-ligand and host-guest systems. **S.P. Webb**

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General Analytical

R. K. Anand, J. Vela , *Organizers*
D. L. Mendivelso, N. M. Stephens, *Presiding*

1:00 524. Effect of diagenesis on the Ca/P ratio within archaeological bone and teeth samples. **J.W. Ejniik**, A. Fernandez, P. Killoran

1:20 525. Variable ionic liquid crystallization behaviors accessed by heating rate as determined by x-ray diffraction. **J. Wrona**, S.K. Shaw

1:40 526. Towards an electrochemical model of compressible polymers. **D.L. Parr**, J. Leddy

2:00 527. Development of wirelessly powered remote-controlled electrodes. **K. Dadallagei**, G. Armas, D. Parr, J. Leddy

2:20 528. Ideal pore size of porous glass frits for aqueous reference electrodes. **E.L. Anderson**, B.K. Troudt, P. Buhlmann

2:40 529. Electrochemical reduction of nitro groups: Strategies for LC-EC analysis of Sanger-derivatized analytes. M. Balasingam, P. Guerrero, J. Becker, H. Sun, **M.D. Koppang**

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General Inorganic

J. Vela , *Organizer*
M. Adamson, L. Wei, *Presiding*

- 1:00 530.** Mechanism of ultrafast photoinduced CO release from manganese tricarbonyl complexes. **W. Henke**, C.J. Otolowski, W.N. Moore, K. Prather, C.G. Elles, J.D. Blakemore
- 1:20 531.** Quantification of Lewis acid effects in heterobimetallic complexes. **A. Kumar**, D. Lionetti, V. Day, J.D. Blakemore
- 1:40 532.** Synthesis and hydrosilylation reactivity of rare earth arylsilazido compounds. **K. Boteju**, S. Wan, A. Ellern, A.D. Sadow
- 2:00 533.** Mechanistic studies of fluxional behaviors in $L_2PtHSnPh_3$ ($L_2=dppe, dppp$). **L. Peng**, T.A. Mobley, B.R. Hoekstra
- 2:20 534.** Distinguishing the H_2 evolution pathways of a half-sandwich rhodium monohydride. **J.A. Hopkins**, D. Lionetti, V. Day, J.D. Blakemore
- 2:40 535.** Thermochemical basis for catalytic H_2 evolution with diverse $[Cp^*Rh]$ complexes. **D. Lionetti**, Y. Peng, J.A. Hopkins, E.A. Boyd, V. Day, J.D. Blakemore
- 3:00 536.** Synthesis and characterization of new unsymmetrical diglycolamides for lanthanide complexation. **B.G. Tokheim**, D. Stankowski, T. Hanson
- 3:20** Intermission.
- 3:40 537.** Chemical and electrochemical properties of $[Cp^*Rh]$ complexes bearing nitrated bipyridine ligands. **W.N. Moore**, W. Henke, D. Lionetti, V. Day, J.D. Blakemore
- 4:00 538.** Catalytic alumination of terminal alkynes by zwitterionic bis(2-oxazolynyl)cyclopentadienylborate supported lanthanide heterobimetallic complexes. **U. Kanbur**, A.D. Sadow
- 4:20 539.** Synthesis and kinetic studies of mono(oxazoline)-substituted cyclopentadienyl zirconium complexes. **Y. Chu**, N. Eedugurala, Y. Wang, R. Wang, A.D. Sadow
- 4:40 540.** Solution studies of homoleptic uranium and lanthanide phosphinodiboranate complexes: Insight into monomer/dimer equilibrium dictated by metal size. **T.V. Fetrow**, A.V. Blake, A. Harrison, F. Eckstrom, Z.J. Theiler, B. Vlasisvljevich, S.R. Daly
- 5:00 541.** Mechanistic studies of homoleptic tris(alkyl) lanthanum $La\{C(SiHMe_2)_3\}_3$ on hydroboration. **S. Patnaik**, A.D. Sadow
- 5:20 542.** Redox-active macrocycles as model systems for heterogeneous catalysis. **L.M. Thierer**, P. Cui, S.H. Brooks, Q. Wang, S. Zhang, M. Gau, B.C. Manor, P.J. Carroll, N.C. Tomson

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General Organic

L. M. Stanley, J. Vela , *Organizers*
M. Arifuzzaman, *Presiding*

- 1:00 543.** Understanding the allylic and propargyl azide rearrangements. **M.H. Packard**, J.J. Topczewski

1:20 544. Stereoselective formation of 3-azido-heterocycles via a dynamic cyclization of allylic azides. **M.R. Porter**, J.J. Topczewski

1:40 545. Formal C–H allylation of primary benzylic amines by quinone-mediated oxidation and Pd catalysis. **S. Londhe**, L.M. Mori Quiroz, M.D. Clift

2:00 546. Studies toward the total syntheses of quebrachamine and madangamine A via Pd-catalyzed C–CN bond activation. **M. Eastwood**, C. Douglas

2:20 547. Iridium-catalyzed acylation and retro-acylation of arenes. **C. Anderson**, C.J. Douglas

2:40 548. Synthesis of aryl phosphonates via 3-phosphonyl arynes. **P. Willoughby**

3:00 Intermission.

3:20 549. Synthetic efforts towards various furan esters. **B. Kosieradzki**, G.A. Kraus

3:40 550. Synthesis of 2,2'-bipyridines and their derivatives by the use of a mild phosphorus extrusion method. **B. Atwater**, S.A. Markham, Z.M. Araki, B.F. Wicker

4:00 551. Nickel catalyzed intermolecular, three-component carboacylation of alkenes via amide C-N bond activation. **A.A. Kadam**, T.L. Metz, L.M. Stanley

4:20 552. Palladium-catalyzed intermolecular alkene carboacylation via activation of ester C-O bonds. **H.K. Banovetz**, K.L. Vickerman, C. David, L.M. Stanley

4:40 553. Intermolecular functionalization of alkenes via transition metal-catalyzed activation of amide C-N bonds. **T.L. Metz**, A.A. Kadam, L.M. Stanley

5:00 554. Lateral alkylation of salicylates: an approach to ginkgolic acid. **J.L. Alterman**, G.A. Kraus

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Inorganic Materials Synthesis

W. Huang, I. I. Slowing, J. Vela , *Organizers*
M. Chen, J. S. Manzano, *Presiding*

1:00 555. Materials informatics and big data: Realization of 4th paradigm of science in materials science. **A. Agrawal**

1:30 556. High throughput screening of 3D printable resins: Tuning their surface and catalytic properties. **J.S. Manzano**, H. Wang, I.I. Slowing

1:50 557. Interfacial control of catalytic activity in the aldol condensation: Combining the effects of hydrophobic environments and water. **D. Singappuli-Arachchige**, T. Kobayashi, M. Pruski, I.I. Slowing

2:10 Intermission.

2:25 558. Chemical and electrochemical lithiation of GeAs and SiAs. **J. Mark**, K.E. Woo, S. Lee, K. Kovnir

2:45 559. Quantitative control of metal doping and properties of TiO₂ nanocrystals. **S. Mia**, S. Varapragasam, C. Balasanthiran, J.D. Hoefelmeyer

3:05 560. Botanically templated porous TiO₂ structures for the enhanced photocatalytic evolution of hydrogen from water. **N. Black**, E.G. Gillan

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Carbon Capture, Utilization & Storage

Cosponsored by ENFL
R. Glaser, *Organizer, Presiding*
E. Andreoli, K. Yang, *Presiding*

1:15 Introductory Remarks.

1:20 561. Withdrawn

2:00 562. Science communication as an essential driving force for course and curriculum development: CCUS education in university courses in the US and in China. **R. Glaser**, J. Schell, K. Yang

2:20 Intermission.

2:25 563. Be tradition: A metaphor for sustainable energy. **E. Andreoli**, M. Cortese

2:45 564. Communicating your science to non-experts: Best practices and training. **M. Dahlstrom**

3:25 Intermission.

3:30 565. Why communicate about science? Experiences from scientists who engage the public. R. Glaser, **M. Dahlstrom**

4:20 Concluding Remarks.

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General Inorganic

J. Vela , *Organizer*

1:30 - 3:30

566. Influence of semiconductor nanoparticle properties on the electrowetting behavior of nanofluids. **U.N. Tohgha**, N.P. Godman

567. Synthesis and characterization of a series of vanadium (IV) complexes with the Kläui ligand. **X. Wu**, C.C. McLauchlan

568. Synthesis of intermetallic compounds from heterobimetallic single-source precursors. **C. Daniels**, D. Mendivelso-Perez, B. Rosales, D. You, S. Sahu, E.A. Smith, F. Gabbai, J. Vela

- 569.** Reactivity in confined spaces: Knoevenagel condensation inside molecular nanocapsules. **S. Rabbani**, P. Miro
- 570.** Frustrated lewis pairs and C-F bond activation: Interactions with transition metals. **H.S. Rust**, H. Juntunen, A. McNally, J.D. Hoefelmeyer, P. Miro
- 571.** Speciation of hexagonal blocks of uranyl-peroxide nanocapsules. **S. Rabbani**, P. Miro
- 572.** Properties and synthesis of Zn_8Sb_7 : A coveted thermoelectric. **P.A. Yox**, K. Kovnir, J. Vela
- 573.** Targeting diruthenium oxos. **M. Roy**, J.F. Berry
- 574.** Scientific glassblowers: Who they are and where to find them. **B. Revis**
- 575.** Robust surface modification of quantum dots using polydentate ligands. **A.M. Medina-Gonzalez**, B. Rosales, J. Vela
- 576.** Incorporation of molecular diodes into ruthenium photocatalytic systems. **D.J. Boston**, T. Finely, C. Sparks
- 577.** Formation of a long-lived charge-separated states by sequential electron transfer in an artificial reaction center. **N. Zarrabi**, P.K. Poddutoori
- 578.** Comparative investigation of lanthanum-based perovskites in water splitting and energy storage applications. **X. Martinez**, K.S. Siam, P.K. Kahol, R. Gupta
- 579.** $SrPbB'ReO_6$ ($B' = Mg, Ca, Mn-Zn$): Structural and physical properties investigation. **F. Yuan**, C. Thompson
- 580.** Electrochemical analysis of Ru(II) complexes with redox non-innocent S_2N_2 ligands and their applications in the reduction of CO_2 . **J.A. Luna**, K.D. Spielvogel, G. Durgaprasad, C. Haas, S.K. Shaw, S.R. Daly
- 581.** Homoleptic dimethylphosphinodiboranate uranium and lanthanide complexes. **F. Eckstrom**, T.V. Fetrow, A. Harrison, S.R. Daly
- 582.** Formation of isomeric substituted η^4 -cyclopentadiene complexes of rhodium. **Y. Peng**, D. Lionetti, J.T. Douglas, V.W. Day, J.D. Blakemore
- 583.** Thermodynamic investigations of electrochemical ammonia oxidation catalyzed by a diruthenium oxypyridinate complex. **M. Trenerry**, C.M. Wallen, J.F. Berry
- 584.** Synthesis and characterization of molybdenum(V) imido complexes. S. Alves-Czachor, **M. Minelli**
- 585.** Stabilizing lanthanide periodates: Preventing hydrothermal reduction with a sacrificial oxidant. **C.N. Reedy**, E.M. Villa
- 586.** Structural divergence of heavy metal complexes with isomeric thiophenecarboxylates. **A.G. Lang**, E.M. Villa
- 587.** Syntheses and crystal structures of heavy transition and main group metals with thiosulfate. **W.R. Blomberg**, E.M. Villa
- 588.** Withdrawn

589. Precursor dependent synthesis of aluminum oxide thin films. **Y. Afriyie**

590. Study of the physiological function of the antifungal HSAF and analogs from the biocontrol agent *Lysobacter enzymogenes* OH11. **L. Yu**, F. Liu, L. Du

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Inorganic Materials Synthesis

Financially supported by ISU_CCAT
W. Huang, I. I. Slowing, J. Vela , *Organizers*

1:30 - 3:30

591. Applications of rhenium complexes containing carboxylate linkages to TiO₂ for dye-sensitized solar cells. **K. Ensz**, V. Komreddy, D.P. Rillema

592. Two-dimensional metal NaCu₆Sb₃ and solid-state transformations of sodium copper antimonides. **B. Owens-Baird**, S. Lee, K. Kovnir

593. Solvothermal intercalation of iron-amine complexes into iron sulfide layered materials. **C. Harmer**, K. Kovnir

594. Synthesis and characterization of aluminum porphyrins for photoactivation of water oxidation catalysts. **B.G. Boe**, N. Zarrabi, P.K. Poddutoori

595. Sodium bismuth dichalcogenide colloidal semiconductor nanocrystals composed of earth-abundant and biocompatible elements. **B. Rosales**, M.A. White, J. Vela

596. Exploration of water mobility within metal organic nanotubes. **L. Applegate**, K.M. Santiago, T. Forbes

597. Biocompatible synthesis and band structure modification of zinc and copper vanadates. **S. Hong**, Y.V. Zaikina

598. Facile synthesis and thermoelectric properties of alkaline earth hexaborides. **G. Bhaskar**, V. Gvozdetskyi, Y.V. Zaikina

599. Investigation of energetic solid-state metathesis reactions for the metal boride formation. **J.P. Abeysinghe**, E.G. Gillan

600. New phases in the K-Zn-Sb ternary system: Crystal structures and thermoelectric properties. **T.L. Cox**, V. Gvozdetskyi, Y.V. Zaikina

601. Environmentally friendly synthetic route toward titanates. **A.N. Adeyemi**, Y. Li, Y.V. Zaikina

602. Electrochemical and spectroelectrochemical properties of polyarylated boron clusters. **D. Madugula**

603. Highly fluorescent polyarylboranes derived from heteroatom functionalized arenes. **M. Clark**, M.W. Lee

- 604.** Polyarylboranes: Nanomolecular organic-inorganic hybrid materials with interesting photophysical properties. **T. Wang**, M.W. Lee
- 605.** Gedunin synergizes the therapeutic effect of CT20p peptide in cancer treatment. **S. Darji**, T. Banerjee, S. Santra, A. Khaled, S. Anant
- 606.** Multimodal detection of Ebola virus using a novel magneto-plasmonic nanosensor. **S.S. Ramanujam**, T. Banerjee, S. Santra
- 607.** Accelerating the discovery of gold containing ternary compounds through a machine learning approach. **S. Lotfi**, J. Brgoch
- 608.** Solvothermal synthesis of a hybrid layered cobalt selenide. **E.H. Gamage**, K. Kovnir