

## ACS Midwest Regional Meeting – Final Program

Blake R. Peterson, *Program Chair*

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### WEDNESDAY EVENING

KS Union  
Ballroom

#### Sci-Mix

R. A. Altman, *Organizer*

**6:00 pm - 8:00 pm**

**Poster Numbers: 66, 103, 200- 202, 206, 215, 226, 228, 231, 238, 240, 246, 248, 253, 256, 263, 270, 280-283, 286, 289, 369, 377, 387, 395, 396, 454, 457, 466, 469, 473, 474, 501- 503, 505- 507, 510, 519, 522, 525.**  
See subsequent listings.

## THURSDAY MORNING

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KS Union  
Alderson

### **Analytical Applications of Microfluidics**

Cosponsored by ANYL

Financially supported by Center for Molecular Analysis of Disease Pathways, Adams Institute for Bioanalytical Chemistry

S. M. Lunte, *Organizer, Presiding*

M. A. Witek, *Presiding*

**8:00** Introductory Remarks.

**8:05 1.** 3D nanostructuring of microfluidic devices by engineered colloidal self-assembly affords sensitive immunosensing of exosomal biomarkers. **P. Zhang**, Y. Shang, M. He, Y. Zeng

**8:20 2.** Chiral separation of Pacific Blue-labeled amino acids for the detection of biosignatures in extraterrestrial samples. **K.M. Schilly**, J. Creamer, M.F. Mora, P.A. Willis

**8:35 3.** Microfluidic devices for extracting cell-free DNA. **C.D. Campos**, M.A. Witek, S.A. Soper

**8:50 4.** Modular approach to microchip-based electrochemical detection using 3-D printing technology. **A.S. Munshi**, R.S. Martin

**9:05 5.** Integrated microfluidics system for the analysis of Circulating Multiple Myeloma Cells (CMMCs) using Fluorescent *in-situ* Hybridization (FISH) analysis. **K. Weerakoon-Ratnayake**, M.L. Hupert, M.A. Witek, S.A. Soper

**9:20 6.** Direct integration of microdialysis sampling with microchip electrophoresis separation for electrochemical detection of small molecule biomarkers in biological samples. **S. Gunawarhana UngawelDurayalage**

**9:35** Intermission.

**9:45 7.** Microchip-based approaches for studying nitric oxide release from endothelial cells. **A. Townsend**, R.S. Martin

**10:00 8.** Microfluidic magnetic bead ELISA streamlined with pneumatic valves. **Y. Yang**, Y. Zeng

**10:15 9.** A novel detection method for microchip electrophoresis based on bipolar electrochemically generated fluorescence. **M.B. Wijesinghe**, D. Gunasekara, S.M. Lunte

**10:30 10.** Measuring the time-of-flight (ToF) of single molecules using dual beam laser-induced fluorescence. **B. Young**

**10:45 11.** High-efficiency and rapid separations of biological samples using flow-gated capillary electrophoresis. **M. Gong**

**11:00 12.** Optimization of hylene MP synthesis for production via microfluidics. **Z. Peacock**, S.M. Torres, T. Robison

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KS Union  
Kansas

## **Analytical Chemistry**

Y. Zeng, *Organizer, Presiding*

**8:00** Introductory Remarks.

**8:05 13.** Barriers in analytical chemistry: Broken instrumentation, and the modern instrumentation paradigm. **S.D. Abbott**

**8:20 14.** Fabrication of a mixed-scale fluidic device for comprehensive molecular profiling from circulating markers. **B. Gross**, V. Singh, J.M. Jackson, S.A. Soper

**8:35 15.** Electrochemical quantification of length mismatched DNA duplexes: Solution versus surface hybridization effect. **M. Shamsi**, M. Taki, H. Palmer

**8:50 16.** Untargeted identification of polyphenol secondary metabolites in *Sambucus nigra* (subsp. *canadensis*) flower extracts. **P.H. Bruner**, A.L. Thomas, C.M. Greenlief

**9:05 17.** Nanoscale electrophoresis separation of deoxynucleotide monophosphates. **C. Amarasekara**, C.E. O'Neil, K. Weerakoon-Ratnayake, B. Gross, S.A. Soper

**9:20 18.** Targeted analysis approach for efficient mapping of full *N*-glycosylation site profile of highly glycosylated proteins. **M.R. Wijeweera Patabandige**, E.P. Go, H.R. Desaire

**9:35 19.** Block copolymer-derived nanoporous films as platforms for electrochemical DNA sensors based on a steam-loop probe. **Z. Harandizadeh**, T. Ito

**9:50** Intermission.

**10:00 20.** Cyanogenic glycosides analysis in American elderberry: picrate paper and LC MS/MS method development and validation. **M.K. Appenteng**, R. Krueger, H. Ingold, A.L. Thomas, C.M. Greenlief

**10:15 21.** A microfluidic IEF chip with scanning fluorescence detection. **K. Sellens**, A. Anye, C.T. Culbertson

**10:30 22.** Single-molecule studies of Nile red incorporated in block copolymer thin films. **H. Coceancigh**, T. Ito, D.A. Higgins

**10:45 23.** Expediting duplex specific nuclease (DSN) mediated microRNA detection using a microfluidic circulating device. **X. Zhou**, Y. Zeng

**11:00 24.** Diffusional studies of differently-charged molecules in self-assembled organic nanotubes using imaging fluorescence correlation spectroscopy. **G. Ghimire**, R. Espinoza, H. Xu, S. Nagasaka, N. Kameta, M. Masuda, D.A. Higgins, T. Ito

**11:15 25.** Improving brain delivery of a peptide via BBB (blood brain barrier) modulation and detection using LC-MS-MS. **K.R. Ulapane**, T.J. Siahaan, P. Kiptoo, T. Williams

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KS Union  
Pine

## **Biochemistry**

H. R. Desaire, *Organizer*  
J. Slusky, *Organizer, Presiding*

**8:00** Introductory Remarks.

**8:10 26.** Role of fast protein dynamics in thymidylate synthase catalyzed hydride transfer. **A.K. Ghosh**, A. Kohen

**8:30 27.** Improved methods to accurately quantify methionine oxidation in glycoproteins. **J.T. Shipman**, E.P. Go, H.R. Desaire

**8:50 28.** Unraveling ionic liquid-iron porphyrin interactions to understand ionic liquid biodegradation. **A. Banerjee**, J. Shah

**9:10** Intermission.

**9:30 29.** Effect of small organic molecules on the assembly of the 20S proteasome core particle. **A. Kante**, E.J. Deeds, D. Johnson, J. Karanicolas

**9:50 30.** Characterizing competitive binding of structurally diverse ligands with OSBP/ORP subfamily-1. **J.I. Nunez**, A.T. Le, N.R. Kothapalli, A.W. Burgett

**10:10 31.** Mechanism study of a peptide diastereomer with anti-cancer activity. **J. Yu**, A.I. Herrera, T.B. Shrestha, O. Prakash, D.L. Troyer, S.H. Bossmann

**10:30 32.** Electrostatic binding of wall teichoic acid re-sensitizes MRSA to oxacillin. **M. Foxley**, C.V. Rice

**10:50 33.** Interaction of 2-color multidrug resistance protein-1 biosensor with potential substrates in ensemble FRET-based assay. **B. Osa-Andrews**, K.W. Tan, S.H. Iram

## Catalysts and Catalytic Technologies for Fuels, Chemicals, & the Environment

Cosponsored by ENFL

J. J. Bravo-Suarez, *Organizer, Presiding*

**8:00** Introductory Remarks.

**8:05 34.** Hydrophobization of catalyst surfaces for biomass upgrading reactions in aqueous and biphasic systems. **D. Resasco**

**8:35 35.** Controlling product selectivity in the conversion of 2,3-butanediol to valuable products. **K.L. Hohn**, Z. Alauda, Q. Zheng

**8:50 36.** Water's unique influence on acid site distribution in low Si/Al zeolites. **J.L. White**, K. Chen, M. Abdolrahmani, S. Crossley, D. Resasco

**9:05 37.** Solid acid catalyzed depolymerization of various lignins into value added phenolic monomers. **K.Y. Nandiwale**, A.M. Danby, A. Ramanathan, R.V. Chaudhari, B. Subramaniam

**9:20 38.** Liquid phase propylene epoxidation with Nb based mesoporous silicates. **S.K. Maiti**, A. Ramanathan, B. Subramaniam

**9:35** Intermission.

**9:50 39.** Microkinetic detail of ammonia decomposition through Y-procedure analysis of transient experiments. S. Lwin, L. Wang, R. Kunz, W. Diao, D. Constales, G. Yablonsky, **R. Fushimi**

**10:20 40.** Carbon nanotube-supported catalysts prepared by a modified photo-Fenton process for Fischer-Tropsch synthesis. H. Almkhelfe, X. Li, K.L. Hohn, **P.B. Amama**

**10:35 41.** Higher dispersion with increased activity of tungsten in bimetallic mesoporous silicates. **A. Ramanathan**, R. Maheswari, H. Zhu, B. Subramaniam

**10:50 42.** Withdrawn

**11:05 43.** Synthesis and characterization of biochar-based carbon supported metal nanoparticles. **S. Neeli**, H. Ramsurn

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## **Chemical Biology of Infectious Disease**

Cosponsored by MEDI

T. E. Prisinzano, *Organizer, Presiding*

**8:00 44.** Chemical and macromolecular insights into ClpP modulation as an antibacterial strategy. **A.S. Duerfeldt**

**8:25** Discussion.

**8:30 45.** From betulinic acid to BMS-955176, a second generation HIV-1 maturation inhibitor. **A. Regueiro-Ren**

**8:55** Discussion.

**9:00 46.** Discovery of host-directed therapeutics for the treatment of Gram negative bacterial infections. **A.J. Duplantier**, R.G. Panchal

**9:25** Discussion.

**9:30 47.** Antibody recruiting molecules: vetting a new modality. **M. Sender**, B. Turunen, Y. Chen, C. Wells, D. Smith, C. Leach

**9:55** Discussion.

**10:00 48.** Development of first-in-class encephalitic alphavirus inhibitors with in vivo efficacy. **J.E. Golden**

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## Organic & Medicinal Chemistry

R. A. Altman, *Organizer*

H. Malinakova, *Organizer, Presiding*

**8:00 49.** Ni-catalyzed alkene carboacylation of *ortho*-allylbenzamides. **K.L. Vickerman**, J.A. Walker, J.N. Humke, L.M. Stanley

**8:20 50.** Directed stereoselective transition metal-catalyzed hydroboration and carbocupration of cyclopropenes. **A. Edwards**, M.A. Rubin

**8:40 51.** Formal  $\alpha$ -C–H allylation of amines by quinone mediated oxidation / Pd catalyzed allylation. **L.M. Mori Quiroz**, M.D. Clift

**9:00 52.** Photo-induced oxidative decarboxylation-elimination for the synthesis of E/Z-enamides and enecarbamates. **K. Cartwright**, S.B. Lang, J.A. Tunge

**9:20 53.** Anodic cyclization: Pathway control and the construction of a 5,7,5-tricyclic ring system. **R. Feng**, R. Perkins, K.D. Moeller

**9:40** Intermission.

**9:50 54.** Base catalysis enables access to  $\alpha,\alpha$ -difluoroalkyl(thio)ethers. **D. Orsi**, B.J. Easley, A.M. Lick, J.P. Sorrentino, R.A. Altman

**10:10 55.** Oxidative functionalization of amine-containing molecules through quinone catalysis. **X. Liu**, B. Haugeberg, J. Phan, T. O'Connor, S. Londhe, M.D. Clift, M. Leon

**10:30 56.** Applications of pyridine-oxazoline functionalized metal-organic frameworks for asymmetric transition-metal catalysis. **B.P. Schumacher**, T. Goh, W. Huang, L.M. Stanley

**10:50 57.** Computational study of Lawesson's reagent mediated fluorenone dimerization forming 9,9'-bifluorenylidene. **A.J. Eckelmann**, M.R. Siebert

**11:10 58.** Toward the development of a "universal" indole aryne generating platform: Synthetic and computational studies of trifluoroindoles, a new and versatile class of indole aryne precursor. **M. Rayhart**, Z. Albader, R. Glaser, C.J. Cramer, M. Wulser, M. Santos, C. Clements, K.R. Buszek

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KS Union  
Jayhawk

## Starting Companies in the Biotech Industry

C. Berkland, *Organizer, Presiding*

**8:00** Introductory Remarks by J. Sabol.

**8:05** Session Overview by C. Berkland.

**8:15** Introduction of Panelists: S.A. Soper, C. Marich, M. Flynn, L. Stehno-Bittel, C. Berkland.

**9:05** Intermission.

**9:20** Whiteboarding a company, group exercise.

**9:50** Panel Discussion.

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KS Union  
Woodruff

## Theory, Spectroscopy, & Materials

Cosponsored by COLL, INOR and PHYS

C. L. Berrie, J. D. Blakemore, C. G. Elles, C. K. Johnson, B. B. Laird, W. H. Thompson, *Organizers, Presiding*

**8:00 59.** Computer-aided nanomaterial and nanostructure research and design. **X.C. Zeng**

**8:30 60.** Single particle tracking: Recent advances in methods and applications. **C.F. Landes**

**9:00** Intermission.

**9:15 61.** Interfaces large and small: Connecting molecular response to macroscopic phenomena. **C.J. Mundy**

**9:45 62.** Harnessing the optical properties of metal nanoparticles for targeted action. **A.J. Haes**

**10:15** Intermission.

**10:30 63.** Ultrafast electronic and nuclear structural dynamics of excited state transition metal centers for solar energy conversion. **L.X. Chen**

**11:00 64.** Watching proteins dance. **C.M. Cheatum**



## Undergraduate Symposium

Financially supported by Deciphera Pharmaceuticals, LLC  
D. A. Vartia, *Organizer*

**8:00 - 10:00**

- 65.** ChemisTea: A quantitative chemical analysis of tea. **L. Nabulsi**, P. Morehouse
- 66.** Synthesis and structure-activity relationship (SAR) of carboxyl-substituted phenylalanine derivatives as LAT1 substrates. **L. Stoner, C. Hernandez**, S. Springer, H. Chien, K. Giacomini, C. Colas, A. Schlessinger, A.A. Thomas
- 67.** Characterization of cinnamic acid derivatives as novel pain medications: Role of adenosine pathway. C. Capellen, A. Priebe, M. Hunke, **M. Pattabiraman**, S. Chandra
- 68.** Heart phenotype of an aged mouse model with a targeted deletion causing reduced bone trabecular volume. **D. Warton**, J. Vallejo, N. Lara-Castillo, L.A. Wetmore, M. Johnson, M. Wacker
- 69.** Developing new derivatives of 1,8-naphthalimide dyes via Suzuki coupling reaction. M. Xie, T. Ding, **H. Cao**
- 70.** Co-crystallization of coumarin derivatives. **M. Reinmuth**, A. Sinha, C.B. Aakeroy
- 71.** Concentrate electrophoretically eluted DNA molecules in 3D printed devices. **A. Mashmann**, J. Dolphin, K. Kounovsky-Shafer
- 72.** Synthesis of a novel flavonoid dimer as a potential antibiotic. **A. Millhuff**, J.A. Morrill
- 73.** Quantitative analysis of CdSe/ZnS quantum dots by x-ray fluorescence. H.E. Maunders, A.J. Runia, A.L. Tietz, **D.E. Weisshaar**
- 74.** Role of  $\alpha 5 \beta 1$  integrin and Met in triple negative breast cancer metastasis. **J. Soukup**, S. Van slambrouck
- 75.** Optimizing the hydrogenolysis of 4-L-phenylspinacine. D.D. Smith, **A. Ghajarieh**, M.R. Hulce
- 76.** Synthesis of  $\alpha$ -quaternary amino acids as potential LAT1 substrates. **B. Venteicher, C. Hall**, J. Campbell, C. Hernandez, K. Giacomini, H. Chien, C. Colas, A. Schlessinger, A.A. Thomas
- 77.** Biophysical characterization of *Burkholderia* type III secretion system minor translocon protein BipC. **M. Wilkinson**, S. Dey, S. Yadava, R. De Guzman
- 78.** Synthesis and evaluation of substituted-biaryl isothiocyanates. **C.C. Fanta, K.J. Tlusty**, A.L. Johnson, J.R. Mays
- 79.** Studying the binding interactions of alachlor and alachlor ESA using high performance affinity chromatography. **S. Trenhaile, A. Moser**

80. Nanomaterial-based supports for ultra-thin layer chromatography and ellipsometry. **E. Johnson**, S. Beeram, E.L. Rodriguez, D. Peev, A. Nguyen, D.S. Hage, M. Schubert
81. Role of nonpolar interactions in the recognition of highly polar histone peptides. **F. Poppinga**, D. Boamah, T. Lin, S. Basu, S. Chakravarty
82. SBAP-linked bioconjugation of oligonucleotides to quantum dots. B. Eichler, **T. Hollinsworth**, **A. Kroeger**
83. How halogens on azo-dyes effect solvatochromism. **P. Riegsecker**, D.J. Peitz, P.A. Karr
84. Virtual screening of potential inhibitors of APOBEC3B: A promising cancer drug target. **Z.D. Smith**, E.M. Leddin, B. Miller
85. Delivery of a peptide with anti-cancer activity using mesoporous silica nanoparticles. **D. Hassen**, J. Yu, T.B. Shrestha, H. Wang, D.L. Troyer, S.H. Bossmann
86. Determination of electroendosmosis and electrophoresis in gel matrices for 3D printed devices. J. Lallman, R. Flaugh, **M. Kohlbeek**, **K. Kounovsky-Shafer**
87. Synthesis of analogues of Calcofluor White as antifungal agents. **N. Love**, D. Rane, B.R. Peterson
88. Preparation of Boc-His(Bn)(Boc)-OH as its *tert*-butylamine salt. D.D. Smith, **J. Nguyen**, M.R. Hulce
89. Identifying the binding location of atrazine and two of its metabolites on HSA using high performance affinity chromatography. **K. Frankenberg**, **A. Moser**
90. Optimization of disulfide bond reduction for use in point-of-care microfluidic based devices with applications in early cancer diagnosis. **S. Cook**, J. Sibbitts, C.T. Culbertson
91. Generation of benzyl isothiocyanate via photolysis of an *ortho*-nitrobenzyl-protected analogue. **C.W. Lang**, E. Voigt, E.H. Pauley, J.R. Mays
92. Computational investigation of tryptophan dimer biosynthesis. **J. Lundervold**, J.A. Morrill
93. Phenylalanine derivatives containing polar substituents as LAT1 substrates for use in drug delivery. **L. Stoner**, K. Finke, A. Anthony, J. Bauer, A. Flint, H. Chien, K. Giacomini, C. Colas, A. Schlessinger, A.A. Thomas
94. Investigation of cybrid SH-SY5Y neuroblastoma cells as a model for mitochondrial contribution to cell death in Alzheimer's disease. **A. Brake**, L.A. Wetmore
95. Development of microchip electrophoresis based separation sensor for analysis of catecholamine neurotransmitters in zebrafish brains. **S. Schoneich**, S. Gunawarhana UngawelDurayalage, S.M. Lunte
96. Direct amide coupling to carboxylic acids using microwave techniques. **M. Brewer**, G.P. Nora
97. Stability of BODIPYs towards trifluoroacetic acid: An experimental and computational study into the role of the substituents at boron. **D. Mason**, M. Wang, M.H. Vicente, P.N. Bobadova-Parvanova

- 98.** Construction of a genetic device to investigate bacterial DNA replication. **S. Anderson**, L. Rahn-Lee, L.A. Wetmore
- 99.** Computational study of (2 + 4) retro-cycloadditions of conjugated planar disilenes. P.P. Gaspar, **A. Seim**
- 100.** In silico drug design of heterocyclic cucurbitacin- inspired estrone analogs targeting EGFR in lung cancer. **T. Ostlund**, F.T. Halaweish, K. Alseud
- 101.** Synthesis and characterization of a DFDP-CPDT polymer with ethynyl spacers by means of Sonogashira coupling. **H.P. Masching**, C. Benson, J.L. Duffy-Matzner
- 102.** Computational investigation of biflavonoid inhibitors of amyloid beta aggregation in Alzheimer's Disease. **S. Plassmeyer**, P. Windsor, D. Mattock, B. Miller, B.H. Han
- 103.** Using azide appended 2,3-naphthalimide as an approach for detection of H<sub>2</sub>S. A. Ahmad, **H. Cao**
- 104.** Novel ethynyl-halo-hydroxyisoxazolines synthesis and investigation as potential antimicrobial agents. **K.G. Stevens**, C. Jensen, J.L. Duffy-Matzner
- 105.** Synthesis of water soluble rylene derivatives for sensor applications. **E.C. Olson**, C.H. Battle
- 106.** Detection and quantification of *N*-acyl-L-homoserine lactones from *Vibrio Harveyi* culture. **M.R. Wood**, T. Vasicek, K. Alkhatib, A. Diaz-Perez, P. Pysz, J.A. Stenken
- 107.** In silico drug design of Curcubitacins Inspired Estrone Analogs (CIEA) targeting Small Cell Lung Carcinoma (SCLC). **Z. Khan**, F.T. Halaweish
- 108.** Determination of lambda DNA concentration in 3D printed devices. **C. Masters**, J. Dolphin, A. Maschmann, K. Kounovsky-Shafer
- 109.** Thiol modulation: Activity profiling of sulfur containing covalent modifiers and known drugs. **C. Clay**, J. Jun, S. Iqbal, P.R. Hanson

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KS Union  
Ballroom

## Undergraduate Symposium

Financially supported by Deciphera Pharmaceuticals, LLC  
D. A. Vartia, *Organizer*

**10:10 - 12:10**

- 110.** Catalytic activity of *bis*(2-pyridylmethyl)amine complexes containing coupled pendant arms in ATRA reactions. **J.M. Peterson**, K.D. Oshin
- 111.** Computational studies on the electrochemical reduction of CO<sub>2</sub> on Cu<sub>x</sub>Ni<sub>y</sub> (x = 0-4; y = 4-x) clusters. **T. Creason**, A.Z. Clayborne

- 112.** Development of a microbial transformations research project for the organic chemistry laboratory curriculum. **A. Cribb**, C. Hillebrand, J.L. Torres Y Torres
- 113.** Structural and functional characterization of a *Yersinia pestis* opine dehydrogenase involved in metallophore biosynthesis. **C.L. Davis**, A.L. Lamb, J.S. McFarlane
- 114.** Computational investigation of the aggregation of asphaltenes with various solvents and aggregation inhibitors. **B. Lawson**, K.L. Humphries, J.D. Bickel, B. Miller
- 115.** Utilizing *tris*(2-pyridylmethyl)proazaphosphatane complexes as catalysts in ATRA reactions. **K.L. Sandquist**, K.D. Oshin
- 116.** Probing electron delocalization in low-valent organometallic platforms featuring the isocyanide junction unit via a new <sup>13</sup>C NMR approach. **Z.A. Wood**, M.D. Hart, M.V. Barybin
- 117.** Synthesis, characterization, and catalytic activity of hollow Mn<sub>3</sub>O<sub>4</sub> nanoparticles for cyclohexene oxidation. **C.M. Karki**, J.D. Hoefelmeyer
- 118.** Isolation of trace impurities in Antarctic ice for the purpose of analyzing "Old Faithful". **L. Dirks**, J. Cole-Dai, K.M. Peterson
- 119.** Selenium sorption to hematite at elevated temperature. **J. Dunn-Wall**, C. Freemyer, A. Miller
- 120.** Fluorescent detection of the post-translational modification of PvdJ module 2 in *Pseudomonas aeruginosa*. **K. Brewer**, T.A. Ronnebaum, A. Chilton, A.L. Lamb
- 121.** Photon detection for precision laser spectroscopy. **C. Kujawa**, S. Pineda, A. Klose
- 122.** Non-resonant two-photon excitation of phototriggers. **E. Lorenzo**, S. Senadheera, A.L. Houk, R.S. Givens, C.G. Elles
- 123.** Manipulation of femtosecond laser processed aluminum-1100 surface wetting behavior *via* coating by silanes with long-chain alkyl or fluoroalkyl substituents. **A. Tanbouza-Husseini**, K.R. Everitt, S.A. Darveau, C.L. Exstrom
- 124.** Calculating activation rate constant values ( $k_{act}$ ) in ATRA reactions utilizing modified *tris*(2-pyridylmethyl)amine (TPMA) based complexes. **I.J. Bazley**, K.D. Oshin
- 125.** Chemobrain in zebrafish: Neurochemical assessments and evaluation of potential therapeutic treatments. **J. Loomis**, T. Field, C. Stucky, M. Shin, M.A. Johnson
- 126.** Investigating peptide selectivity and affinity to metal ions: Developing qualitative assays of peptide-metal ion interactions using metal ion dependent dyes and cellulose membranes. **M. Guile**, C. Obinwa, K. Yoshimatsu
- 127.** Computational analysis of the anti-cancer drug cisplatin with the *Thermus thermophilus* ribosome. **J.D. Bickel**, B. Miller
- 128.** Mechanism elucidation of gold-catalyzed three-component reactions forming furans. **M.J. Bakker**, M.R. Siebert

- 129.** Isolation and characterization of a manganese(III) intermediate. **E.G. Stewart-Jones**
- 130.** Enhancement of the hydrogen atom abstraction ability of  $[\text{Mn}^{\text{III}}(\text{OH})(\text{dpaq})]^+$  by the addition of a redox inactive Lewis acid. **A.M. Donovan**, D. Rice, T.A. Jackson
- 131.** Detection of anti-staphylococcal activity by utilizing copper-dependent inhibitors with an extended thiourea group. **F. Rahman**, A.P. Malalasekera, A. Delpé Acharige, M. Kalubowilage, A.G. Dalecki, K.R. Schaaf, O. Kutsch, F. Wolschendorf, S.H. Bossmann
- 132.** Cobalt(II) metal ion complexes of tapa with exogenous anionic ligands bound in the H-Bonding pocket. N. Stumme, N. Sedore, K. Chabal, C. Milius, A. Ellern, D. Swenson, **M. Zart**
- 133.** Effects of acid catalysts on the preparation of ambient-dried titania aerogels. **L.M. Hansen**, S.A. Darveau, **C.L. Exstrom**
- 134.** Syntheses and crystal structures of lanthanide dithiooxamide complexes. **A. Bohanon**, E.M. Villa
- 135.** Removal of alkaline earth metals from produced brine using poly-acrylic acid. **E. Albertson**, K. Shafer-Peltier, S. Randtke, E.F. Peltier
- 136.** Photochromic switching in the plasmonic field of gold nanoparticles. **W. Harmon**, C.J. Otoloski, C.G. Elles
- 137.** Investigating the use of CYCLAM derivatives as catalysts for ATRA reactions. **C.J. LeWarne**, K.D. Oshin
- 138.** Exploring actinide chemistry in environmentally relevant systems: Th(IV), U(VI), & Np(IV,V,VI) bound by macrocyclic ligands. **A. Blanes**, E. Cole, M.C. Basile, T. Forbes
- 139.** Tuning the reactivity of Mn(III)-hydroxo model complexes via ligand substitution. **A.D. Burr**, G.B. Wijeratne, T.A. Jackson
- 140.** Reaction dynamics of the  $\text{TeMo}_6\text{O}_{24}^{6-}$  ion in water. **G. Kuhl**, E.M. Villa
- 141.** Supercell crystal structure of  $\text{Na}_2\text{Ga}_2(\text{BO}_3)_2\text{O}$ . **G. Brown**, R. Smith
- 142.** Facile one-pot synthesis of  $\text{WSe}_2$  nanoparticles from the reaction between diphenyl diselenide and tungsten hexacarbonyl. **J.R. Blum**, W.M. Colling, S.A. Darveau, C.L. Exstrom
- 143.** An investigation of biaxial and uniaxial strain-induced effects in smectic and nematic liquid crystals. **K. Kurtenbach**, M. Sadati
- 144.** Effects of surface capping and pH on seeded growth. **M.M. Scanlan**, A.N. Chen, S.E. Skrabalak
- 145.** Role of transition metal linkers in germanium cluster assemblies. **D.D. Nguyen**, A. Schnepf, A.Z. Clayborne
- 146.** Fabrication of  $\text{WSe}_2$  thin films *via* a mild-temperature selenization of chemical bath-deposited tungsten oxide. **M.E. Falconer**, S.A. Darveau, C.L. Exstrom

- 147.** Rotational analysis of the  $\beta^2\Delta_i - X^2\Pi_i$  transition of CuO using Intracavity Laser Spectroscopy (ILS). J. Harms, **T. Nair**, **R. Russell**, L.C. O'Brien, J.J. O'Brien
- 148.** Syntheses and crystal structures of lanthanide periodate compounds. **R. Colin**, E.M. Villa
- 149.** Calibration of dye laser using laser absorption spectroscopy of iodine. **S. Pineda**, C. Kujawa
- 150.** Effects of silica aerogel embedment on the wetting properties of femtosecond laser processed aluminum 1100 surfaces. **K.R. Everitt**, A. Tanbouza-Husseini, S.A. Darveau, C.L. Exstrom, E. Peng, J.E. Shield, G. Gogos, R. Bell, C.A. Zuhlke, D.R. Alexander
- 151.** Characterization of dentin slices and monitoring their remineralization by AFM-IR and nano-indentation. **A. VanLaecken**, G. Sereda, J. Turner
- 152.** Uniquely engineered doxorubicin-based pH responsive polymeric drug delivery device against breast cancer. **C. Crane**, T. Nguyen, C. Ferrel, S. Aryal
- 153.** Chemistry of tungsten-selenium nanocrystalline product formation from a mild-temperature reaction between tungsten hexacarbonyl and selenium. **W.M. Colling**, J.R. Blum, S.A. Darveau, C.L. Exstrom
- 154.** Characterization of metal-doped amorphous silica clusters via DFT simulations of py-FTIR. **H. Leblanc**, A. Jystad, M. Caricato
- 155.** Examination of the effect of different mole ratios of internally mixed sodium chloride-alanine aerosols on their hygroscopic properties. **M. Alfarra**, D. Woods, S. Gottuso, J.P. Darr
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## THURSDAY AFTERNOON

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KS Union  
Malott

### **Catalysts and Catalytic Technologies for Fuels, Chemicals, & the Environment**

Cosponsored by ENFL  
J. J. Bravo-Suarez, *Organizer, Presiding*

**12:30** Introductory Remarks.

**12:35 156.** Molecular and microkinetic modeling in catalysis. **L. Arnadottir**

**1:05 157.** Density functional theory and kinetic modeling for rational catalyst design. **B. Liu**, M. Zhou

**1:20 158.** Theoretical characterization of metal-doped amorphous silicates. A. Jystad, H. Leblanc, A. Biancardi, **M. Caricato**

**1:35 159.** Using density functional theory calculations to determine Brønsted site acidity in zeolite. **M. Zeets**, B. Wang

**1:50 160.** Investigation acidity inside pores of SBA 15 via single molecule spectroscopy. J. Xie, **J. Xu**, H. Wang, K.L. Hohn

**2:05** Intermission.

**2:20 161.** Catalysis for sustainable chemistry: Process development and catalyst characterization. **A. Allgeier**

**2:50 162.** Vapor phase ring rearrangement of furanic species over TiO<sub>2</sub> supported catalysts. **L.V. Herrera**, S. Crossley

**3:05 163.** Facet effect of ceria nanostructures on catalytic generation of hydroxyl radicals. **T.J. Fisher**, C.L. Cheung, N. Shao, W. Mei, R. Sabirianov, N. Al-Aqtash, K. Tarawneh

**3:20 164.** Nanostructured electrocatalysts for hydrogen and oxygen evolution reactions. **R. Gupta**

**3:35 165.** New process to synthesize Rh<sub>2</sub>S<sub>3</sub> precursor for Rh<sub>x</sub>S<sub>y</sub> catalyst by Na<sub>2</sub>S and pretreated carbon for HER/HOR in HBr solution. **Y. Li**, T.V. Nguyen

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KS Union  
Alderson

## From Molecules to Nanomaterials: Applications in Energy & Catalysis

Cosponsored by COLL and INOR

C. L. Berrie, J. D. Blakemore, *Organizers, Presiding*

**12:30 166.** Artificial photosynthesis: Light capture, charge separation, and fuel production. G. Mohandass, Y. Jang, M. Kincaid, C. Obondi, S. Yellappa, **F. D'Souza**

**1:00 167.** Effects of an unconjugated bipyridine ligand on H<sub>2</sub> evolution with organometallic rhodium complexes. **D. Lionetti**, V.W. Day, J.D. Blakemore

**1:20 168.** Vertically aligned carbon nanofibers with ultra-low platinum loading for oxygen reduction reaction. **A. Elangovan**, J. Li

**1:40** Intermission.

**1:50 169.** Bubble residence during water splitting reactions at structured semiconductor-electrocatalyst interfaces. **R. Coridan**

**2:20 170.** Multifunctional metal-organic framework materials for applications in asymmetric catalysis. **T. Gadzikwa**, K.P. Samarakoon, C.S. Satterfield

**2:40 171.** Supramolecular chemistry of phytate, *myo*-inositol hexakisphosphate. **E. Haque**, V.W. Day, K. Bowman-James

**3:00 172.** Local hybrid perovskite photophysics. **M.K. Kuno**

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KS Union  
Big 12

## Midwest ACS Graduate Awards Symposium

Financially supported by Wakarusa Valley ACS Local Section

M. A. Witek, *Organizer, Presiding*

**12:30** Introductory Remarks & the Award Ceremony.

**12:40 173.** Beyond the diffraction limit: Super high resolution using microlens based nanoscopy. **R. Balaraman**, J. Sharma, A. Pond, C. Zhou, P. Kohli

**1:00 174.** Shape memory superelastic poly(isocyanurate-urethane) aerogels (PIR-PUR) for deployable panels and biomimetic applications. **S. Donthula**, C. Mandal, T. Leventis, J. Schisler, M. Adnan Saeed, C. Sotiriou-Leventis, N. Leventis



**1:20 175.** First symmetric  $\pi$ -conjugated molecular linker asymmetrically anchored with isocyanide and thiolate junctions. **J. Applegate**, N.R. Erickson, N. Gerasimchuk, M.V. Barybin

**1:40 176.** Design and synthesis of a series of bidentate ligands for coordinating with Re (I) and Ru (II) metal centers as dyes for harvesting sunlight. **V. KomReddy**, D.P. Rillema

**2:00** Intermission.

**2:10 177.** Mechanistic study of dye-decolorizing peroxidase from *Enterobacter lignolyticus* using kinetic isotope and viscosity effects. **R. Shrestha**, G. Huang, D.A. Meekins, B.V. Geisbrecht, P. Li

**2:30 178.** Characterization of LiZnP nanoparticles by advanced solid-state NMR spectroscopy. **A. Venkatesh**, M.A. White, J. Vela, A.J. Rossini

**2:50 179.** Synthesis and biological activity of siderophores from human pathogenic *A. baumannii*. **T. Bohac**, J.A. Shapiro, T.A. Wencewicz

**3:10 180.** Withdrawn

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KS Union  
Centennial

## Organic & Medicinal Chemistry

R. A. Altman, H. Malinakova, *Organizers*  
J. D. Weaver, *Presiding*

**12:30 181.** Stereoselective syntheses of allenols and alkenols by 1,2-, 1,4- double hydride reductions of 3-alkynyl- and 3-alkenyl-2-cycloalkenones. **M.R. Hulce**, B.L. Callahan

**12:50 182.** Synthesis and evaluation of oxygen analogues of a promising anticancer drug. **R.A. Bunce**

**1:10 183.** Iterative photocatalytic C—H functionalization: Rapid and programmable access to oligoarenes. A. Arora, **J.D. Weaver**

**1:30 184.** Extension of the cavitand-mediation photocycloaddition approach: Interplay of weak interactions on the 2+2 photocycloaddition of substituted cinnamic acids. **M. Pattabiraman**, T. Bokoskie, N. Vuong, A. Kashyap

**1:50** Intermission.

**2:05 185.** Ring-degenerate rearrangements of 1-substituted-4-imino-1,2,3-triazoles. J. Christensen, M.D. Hanson, R.K. Zawistowski, **J.T. Fletcher**

**2:25 186.** Fluorescent logic gates as multi-input chemical sensors for neuronal imaging. L. Zhang, K.S. Hettie, J.L. Klockow, C. Yin, **T.E. Glass**

**2:45 187.** Withdrawn

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KS Union  
Kansas

## **Spectroscopy Applied to Structure, Dynamics, & Imaging**

Cosponsored by PHYS  
C. G. Elles, C. K. Johnson, *Organizers, Presiding*

**12:30 188.** Surface plasmon coupled emission Raman spectroscopy measurements of the chemical composition and thickness of thin films. **E.A. Smith**, C. Nyamekye, S. Weibel, J.M. Bobbitt

**1:00 189.** Extended photoluminescence lifetimes in optically enhanced CdTe/CdS QWs. **W.M. Sanderson**, F. Wang, W.E. Buhro, R.A. Loomis

**1:20 190.** Charge transfer exciton and spin flipping at organic-TMD interfaces. **T.R. Kafle**, B. Kattel, T. Wang, W. Chan

**1:40 191.** Temperature effect on bulk and thin film ionic liquids examined using vibrational spectroscopy and calorimetry. **J. Wrona**, S.K. Shaw

**2:00** Intermission.

**2:20 192.** Towards super-resolution ultrafast Raman imaging. **R.R. Frontiera**

**2:50 193.** Assignment of excited-state vibrational spectra from resonance-enhanced femtosecond stimulated Raman scattering: Combining experiment and theory. **M.S. Barclay**, T.J. Quincy, C.G. Elles, M. Caricato

**3:10 194.** Probing higher-lying electronic states via mode-specific enhancement of excited-state resonance Raman spectra. **T. Quincy**, M. Barclay, M. Caricato, C.G. Elles

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KS Union  
Jayhawk

## **Theory of Interfaces**

B. B. Laird, W. H. Thompson, *Organizers*  
K. R. Mitchell-Koch, *Presiding*

**12:30 195.** Rich phase behavior of confined water: Nano ice, nano bubble, low-density and high-density liquid water. **X.C. Zeng**

**1:10 196.** Morphometric thermodynamics in 2D: Comparing theory to simulation. **S. Martin**, B.B. Laird

**1:30** Intermission.

**1:50 197.** The role of substrate structure on heterogeneous nucleation. **J.P. Palafox - Hernandez**, B.B. Laird

**2:30 198.** Structure of the Al-Ga solid-liquid interface. **P.R. Barry**, J. Kern, B.B. Laird

**2:50 199.** Understanding the wetting behavior of octane-water-silica systems using Monte Carlo simulation. W. Guo, **J. Errington**

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KS Union  
Ballroom

## **Organic & Medicinal Chemistry**

R. A. Altman, H. Malinakova, *Organizers*

**1:00 - 3:00**

**200.** Synthetic lethal targeting of growth factor receptors. **K. Knewton**, C. Perera, M.M. Lee, D. Hymel, B.R. Peterson

**201.** New approach to disable resistance in MRSA. **C.V. Rice**, M. Foxley, S.N. Wright, A.K. Lam

**202.** Magnetic resonance characterization of peritoneal mesothelioma, psuedomyxoma peritonei and cirrhosis ascites. **M.R. Hulce**, B.W. Loggie, G.K. Sirineni, P. Thomas

**203.** Synthesis and characterization of Chitosan derivatives for high performance gene delivery. **Q. Wyatt**, A.M. McMullen, L. Kwok, R.S. Herati

**204.** Synthesis of functionalized bile acid macrocycles towards the construction of steroid-based molecular cages. **C.A. Knudtson**, J.R. Dias

**205.** Cell permeable dibenzothiophene based fluorescent dye and O(<sup>3</sup>P) generators. **J.T. Petroff**, R.D. McCulla

**206.** Multi-antigen I-domain conjugates against antigenic spreading in animal models for multiple sclerosis. **M.G. Moral**, P. Kiptoo, T.J. Siahaan

**207.** Synthesis of small molecules to understand the mechanism of methylation of 2'-deoxyuridine-5'-monophosphate byin flavin-dependent thymidylate synthase. **D. Mondal**, J. Yao, A. Kohen

**208.** Restoring susceptibility to methicillin-resistant *Staphylococcus epidermidis*. **A.K. Lam**, M. Foxley, C.V. Rice

**209.** Conjugate addition of N-acetylcysteine to bisphenol A-3,4-quinone. D.E. Stack, **B. Mahmud**

**210.** Concept of copper-activatable drugs. **T. Shrestha**, A. Delpe Acharige, M. Kalubowilage, F. Wolschendorf, S.H. Bossmann

- 211.** Diastereoselective *7-exo-trig* nucleophilic cycloaddition of tethered alkoxides to cyclopropenes *en route* to homochiral medium ring scaffold with anti-mycobacterial activity. **V. Maslivetc**, A. Philippova, M. Rubina, M.A. Rubin
- 212.** Synthesis and efficacy evaluation of naphthalimide intercalating agents. **R. Oelrich, M. Schneider, Y. Salha**, M.A. Lewis
- 213.** Design and synthesis of novel OSW-1 scaffolds as precision cancer therapeutic agents. **C.A. Malinky, A.T. Le**, S. Sakers, G. Nguyen, G. Manginelli, A.W. Burgett
- 214.** Synthesis of five-membered SHetA2 Flex-Het analogues for preventing human ovarian cancer. **D. Bryant**, D. Berlin, R.A. Bunce
- 215.** Applications of the radical-polar crossover reaction to medicinal chemistry. **S. Cullen**, G.K. Friestad
- 216.** Modular total synthesis of salvinorin A inspired designer opioids. A. Sherwood, **S. Williamson**, R. Crowley, T.E. Prisinzano
- 217.** Design, synthesis and biological study of hybrid drug candidates of nitric oxide releasing cucurbitacin-inspired estrone analogs for treatment of hepatocellular carcinoma. **M.A. Abousalim**, M.A. Shaaban, M.K. Abd El Hamid, Y.A. Elshaier, M.H. Abdelrahman, F.T. Halaweish
- 218.** Design, synthesis and characterization of 1-(2-((4-(4-methoxyphenyl)-2,2-dimethyl-3-phenylchroman-7-yl)oxy)ethyl)pyrrolidine (JAK15) analogs for treatment of ovarian cancer. **J. Apraku**, C.C. Subhash, F.T. Halaweish
- 219.** Development of novel electrophilic probes for chemical biology: Synthesis and reactivity profiling studies using <sup>19</sup>F NMR. **J. Jun**, A. Cassity, J.S. Jha, C. Clay, P.R. Hanson
- 220.** Modular synthesis and reactivity profiling studies of diverse and stereochemically enriched *C*-, *S*-, and *P*-based electrophilic macrocycles. **G.C. Dissanayake**, S. Javed, D. Vithanage, A. Ganguly, P.R. Hanson
- 221.** Novel tetramic acid analogs: Synthesis and reactivity profiling of cysteine-reactive  $\beta$ -keto-vinyl sultams. **J.S. Jha**, J. Jun, P.R. Hanson
- 222.** Design, synthesis and reactivity profiling of cysteine-reactive electrophilic acyl sultams. **S. Iqbal**, M.A. Khan, Q. Zang, C. Clay, E. Gao, J. Loh, N. Asad, P.R. Hanson
- 223.** Study of epimetalated intermediates towards functional group transformations of *pi*-bonded organic compounds. **J. Gitua**
- 224.** Synthesis of vinyl cyclopropanes via anion relay cyclization. **K.M. Allegre**, N. Brennan, J.A. Tunge
- 225.** Radical [1,3] rearrangements of Breslow intermediates. **H. Wallace**
- 226.** Stereospecific decarboxylative benzylation of enolates: Scope, application, and mechanistic insights. T. Li, **M.L. Maliszewski**, J.A. Tunge
- 227.** Mechanism for the formation of benzo[e]-1,3-oxazin-4-ones from reactions of salicylic acids and anilines with HATU. **D. Leas**, J. Wu, Y. Dong, J.L. Vennerstrom

- 228.** Benzo[*b*]naphtho[2,1-*d*]selenophene-*Se*-oxide, Benzo[*b*]naphtho[1,2-*d*]selenophene-*Se*-oxide as potential triplet atomic oxygen precursors. **S.M. Chintala**, R.D. McCulla
- 229.** Synthesis of 5-amino-2-sulfonamido-thiazole-4-carboxylic acids using microwave techniques. **G.P. Nora**
- 230.** Directed nucleophilic addition of phenoxides to cyclopropenes. **P. Yamanushkin**, M. Lu-Diaz, A. Edwards, M. Rubina, M.A. Rubin
- 231.** Developing methods for diversifying molecular scaffolds directly on a microelectrode array. K.D. Moeller, **N. Yeh**
- 232.** Study on the compatibility of manganese-mediated radical addition reaction with aromatic heterocycles. **M. Li**, L. Goff, G.K. Friestad
- 233.** Scope of the electrophilic groups for cyclization in the type-II Mn-mediated radical-polar crossover annulation. **R.L. Hein**, G.K. Friestad
- 234.** Novel triazole-containing tricyclic sultams: Intramolecular C–H functionalization of triazoles to generate a small molecule library. **V.U. Thomas**, M.A. Khan, Q. Zang, E. Gao, P.R. Hanson
- 235.** An efficient synthesis of *P*-sterogenic mono-, bi- and tricyclic *P*-heterocycles via one-pot sequential enyne ring-closing metathesis/Diels-Alder protocol. **D.A. Vithanage**, S. Javed, A. Ganguly, G.C. Dissanayake, P.R. Hanson
- 236.** Diastereoselective six- and seven-membered ring closure *via* intramolecular nucleophilic attack by nitrogen ylides on C=C bond of cyclopropenes. **V. Maslivetc**, A. Maslivetc, M. Rubina, M.A. Rubin
- 237.** Exploring reactivity of N-heterocyclic carbenes (NHCs). **H. Palencia**, I. Monreal-Leyva, L. Berdugo
- 238.** Synthesis of oxacycles via reaction of stabilized carbanions with peroxides. **A. Horn**, P.H. Dussault
- 239.** Efficient synthesis of substituted 1*H*-indazoles. **J. Annor-Gyamfi**, R.A. Bunce
- 240.** Practical and scalable total syntheses of complex benzannulated indole natural products via indole aryne cycloaddition methodologies. Total synthesis of the trikentrins and herbindoies. Z. Albader, M. Rayhart, O. Talavera, **K.R. Buszek**
- 241.** Synthesis, characterization, and catalytic activity of chiral covalent organic frameworks. **A. Volkov**, L.M. Stanley
- 242.** Synthesis and biological screening of cucurbitacin-inspired estrone analogues targeting JAK/STAT3 pathway in pancreatic cancer. **K. Alseud**, F.T. Halaweish
- 243.** Intramolecular C-H functionalization via *C*-vinylation: Synthesis of structurally unique triazole-fused vinyl sultams. **A. Cassity**, J. Jun, N.M. Windmon, N. Asad, A. Diepenbrock, P.R. Hanson, K. Jeon
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KS Union  
Woodruff

## Midwest Plenary Symposium

Financially supported by St. Louis Local Section

J. A. Heppert, *Organizer*

T. E. Prisinzano, *Presiding*

**3:45 244.** Can ionic liquids be disruptive enough to save the world? **R.D. Rogers**

**4:35** Intermission.

**4:40 245.** From molecular dating to functional materials. **C.B. Aakeroy**

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## FRIDAY MORNING

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KS Union  
Ballroom

### Biochemistry

H. R. Desaire, J. Slusky, *Organizers*

#### 8:00 - 10:00

**246.** Perturbing the BfrB:Bfd interaction of *Pseudomonas aeruginosa* by chemical and genetic intervention causes irreversible accumulation of iron in BfrB. **A. Punchi Hewage**, H. Yao, B. Nammalwar, K.K. Gnanasekaran, S. Lovell, R.A. Bunce, J. Chandler, M.E. Rivera

**247.** Determination of the interaction of the transmembrane helices of IpaB in micelles by EPR Spectroscopy. **A. Chakravarty**, R. N De Guzman

**248.** Identification of novel inhibitors of multidrug resistance protein 1 (MRP1). **A. Sampson**, K.W. Tan, B.G. Peterson, S.H. Iram

**249.** Dynamic ligand-dependent FRET changes of 2-color Multidrug resistance protein-1 biosensor. **B. Osa-Andrews**, K.W. Tan, S.H. Iram

**250.** Cellular effects of ligand binding to the oxysterol-binding protein family (OSBP/ORP4). **B. Roberts**, Z.C. Severance, R. Bensen, N.R. Kothapalli, J.I. Nunez, M. Hongyan, S. Wu, A.W. Burgett

**251.** Neuroprotective properties of Ascorbic Acid against N-substituted derivative of Parkinsonian toxin 1-methyl-4-phenylpyridinium (MPP+). **B. Lickteig**, D. Murphy

**252.** Solving the MSTery: Determining the Chemical Mechanism of Lyase Activity. **C. Shelton**

**253.** Interactions between the CS and cytochrome b5 reductase domains of human Ncb5or revealed by X-ray crystallography. **D.R. Benson**, S. Lovell, N. Mehzabeen, K.P. Battaile, H. Zhu

**254.** Effects of macromolecular crowding and lipid composition on CYP2J2 stability and substrate metabolism. **H. Huff**, A. Das

**255.** *Pa*-Bfd (*Pseudomonas aeruginosa*-bacterioferritin associated ferredoxin) fold is stabilized by a phosphate ion. **H.N. Wijerathne**, H. Yao, S. Lovell, M.E. Rivera

**256.** Biosynthesis of opine metallophores by bacterial pathogens. **J.S. McFarlane**, C.L. Davis, A.L. Lamb

**257.** Importance of the C-terminus of ALDH7A1 for catalytic activity and oligomerization. **J.W. Wyatt**, D.A. Korasick, A.R. Laciak, K.S. Gates, J. Tanner

**258.** Cloning of a periplasmic serine endoprotease of *Escherichia coli*. **N. Mikita**

259. PvdF as potential novel transformylase from *Pseudomonas aeruginosa*. **N. Kenjic**, A.L. Lamb
260. EPR reveals different conformations of *Yersinia* LcrG and *Pseudomonas* PcrG proteins. **P. Guha Biswas**, P. Kaur, K. Kaur, A. McShan, S. Tachiyama, L. Song, R. De Guzman
261. 3D reconstruction of tetanus neurotoxin using negative stain electron microscopy and electron tomography. **P. O'Neil**, A. Machen, M.T. Fisher
262. Mutagenesis study on bio-orthogonal protein-peptide isopeptide bond forming systems. **S.P. Kasson**, K. Yoshimatsu
263. Withdrawn
264. Study of anti-proliferative activity of cucurbitacins inspired esterone analogs on hepatocellular carcinoma. **S. Elgazwi**, F.T. Halaweish, M. Mahnashi
265. Investigation on innate and adaptive immune response of Macrophage. **S. Jo**
266. G-quadruplex driven self-assembly of DNA origami dimer. **S. Yang**, W. Liu, R. Wang
267. Small molecules binding to *Shigella* Type III Secretion System (T3SS) tip protein IpaD. **S. Dey**, A. Anbanandam, B. Mumford, R. De Guzman
268. 2-alkyl-4-quinolones of *Pseudomonas aeruginosa* as iron chelators in bacterial iron homeostasis. **T. Pahattuge**, T. Williams, J. Chandler, M.E. Rivera
269. Investigating “stuffed” domains of NRPS assembly lines: PchF and PchE of pyochelin biosynthesis. **T.A. Ronnebaum**, G.P. Horsman, S.J. Booker, T.E. Prisinzano, A.L. Lamb
270. Myopalladin’s role in cardiac muscle function and disease. **V.K. Kadarla**, M. Beck, M.L. Bang
271. Synthesis of (5-oxo-2-dibenzothienylmethyl)triphenylphosphonium and its localization in mitochondria to study oxidative stress. **A. Isor**, R.D. McCulla
272. Towards synthetic cell surface receptors that control signal transduction. **Y. Yin**, C. Perera, D. Hymel, B.R. Peterson
273. Synthetic mimics of cytochrome b5 as cell surface receptors. **A. Andres**, B.R. Peterson
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KS Union  
Big 12

## Chemical Biology of Microbial Processes

M. E. Rivera, *Organizer*  
A. L. Lamb, *Presiding*

**8:00 274.** Chemical biology of bacterial nanoinjectors. **R. De Guzman**

**8:35 275.** Functional models of chromosomal ParDE toxin-antitoxin systems. **C. Bourne**

**9:10 276.** Using biolayer interferometry to assess the kinetic stability of bacterial toxins for accelerated drug discovery. **M.T. Fisher**

**9:45** Intermission.

**10:05 277.** Iron-clad strategies of microbial growth: chemical biology of siderophores. **A. Butler**, Z. Reitz, G. Maier, K. Dulaney

**10:40 278.** Developing microdialysis sampling as an in situ analysis tool for quorum sensing from biofilms. **J.A. Stenken**

**11:15 279.** Copper-activated drugs to maximize the effects of nutritional immunity. **S.H. Bossmann**, F. Wolschendorf

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KS Union  
Ballroom

## Chemical Education

J. E. Headrick, *Organizer*

**8:00 - 10:00**

**280.** Developing teaching modules that incorporate next generation science standards in the secondary science curriculum. **N. Jackson**, B.D. Hidaka, C.G. Elles

**281.** Addressing retention of general chemistry students via a new supplemental problem solving course: CHE 198 at Missouri Western State University. **S.L. Hiley**, M.W. Ducey, D. Stasko

**282.** Withdrawn

**283.** VIVED Chemistry, a new interactive, educational, 3D platform for educators and students to enhance learning chemistry. **A.M. Cannon**, J. Kersten, W. Baltz, Y.A. Letuchy, A. Patrick

**284.** Student produced videos for teaching. **J.C. Easdon**

285. Instrumental analysis project that teaches aspects of liquid chromatography. **J. Hahn**, D.W. Harak
286. Electrocatalysis projects for the undergraduate instrumental analysis laboratory. **T.P. Ratz**, D.W. Harak
287. Drafting and using a novel standard exam to measure how students apply chemistry to biology. **D. Morrone**
288. Safety considerations when designing a new chemical engineering research laboratory. **W.J. Gilbert**, M. Shiflett
289. ACS Division of Small Chemical Businesses (SCHB): Opportunities and benefits. **J.E. Sabol**
290. Calculation of wavefunctions made easy. **J.R. Dias**

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KS Union  
English

## Chemical Education

J. E. Headrick, *Organizer*  
A. A. Vartia, *Presiding*

- 8:00 291.** Ad astra per excelCA: Chemical accounting for the undergraduate researcher. **J.R. Silverman**, B. Subramaniam
- 8:20 292.** Lab for the pack: Redesigning first semester general chemistry lab for the students we have. **B.M. Neal**, D.J. Styers-Barnett, A.R. Cutler, L.A. Bolyard
- 8:40 293.** Revolutionizing undergraduate labs with benchtop NMR: An active learning approach. **M.T. Zamora**, J.F. Araneda, S.D. Riegel
- 9:00 294.** Incorporating an interdisciplinary course-based undergraduate research experience into an introductory organic and biochemistry lab course. **M.J. Harvey**
- 9:20** Intermission.
- 9:35 295.** Professionalism in chemistry II. **S. Gamagedara**
- 9:55 296.** Flipping an organic chemistry class. **M.A. Lewis**
- 10:15 297.** New organic chemistry reaction simulation that allows students to simultaneously view the 2D scheme and 3D animation of reactions. **A.M. Cannon**, J. Kersten, W. Baltz, Y.A. Letuchy, A. Patric

## From Molecules to Nanomaterials: Applications in Energy & Catalysis

Cosponsored by COLL and INOR

C. L. Berrie, J. D. Blakemore, *Organizers, Presiding*

**8:00 298.** X-ray transient absorption spectroscopy. **L.X. Chen**

**8:30 299.** Fabrication of micro and nano sized metal structures on Si (111) and Mica substrates: An Atomic Force Microscope (AFM) and Particle Lithography (PL) approach. **S.B. Ulapane**, A.K. Borkowski, M.K. Okeowo, J. Totleben Doolin, C.L. Berrie

**8:50 300.** Electrochromic diisocyanide-terminated bi- and terazulenic platforms chemically accessible with three different molecular charges. **N.R. Erickson**, A.D. Spaeth, D.M. McGinnis, M.V. Barybin

**9:10** Intermission.

**9:20 301.** Promoting adsorption of non-thiolated molecules to gold nanostars. **A.J. Haes**, W. Xi, H.T. Phan, G. Lu

**9:50 302.** Design of ultrasmall intermetallic compound nanoparticles for electrocatalysis. **Z. Qi**, C. Xiao, T. Goh, Y. Pei, W. Huang

**10:10 303.** Synthesis of highly dispersed and highly stable supported Au-Pt bimetallic catalysts by a two-step method. **X. Wang**, X. Liang

**10:30** Intermission.

**10:40 304.** Size-selective catalysts with an ultra-thin porous shell prepared by molecular layer deposition. **Z. Shang**, X. Liang

**11:00 305.** Breaking the intrinsic limits of electrode materials in electrical energy storage using a hierarchical core-shell structure. **J. Li**, J.E. Brown, G.P. Pandey, S. Klankowski, J. Acharya, J. Wu

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## Inorganic Chemistry

J. D. Blakemore, *Organizer*  
D. Lionetti, *Presiding*

**8:00** Introductory Remarks.

**8:15 306.** Hydrogen atom transfer reactivity by a series of N5-ligated oxomanganese (IV) complexes. **A.A. Massie**, D. Rice, T.A. Jackson

**8:30 307.** Oxygen-exchange kinetics of the Anderson-type polyoxometalate ion  $\text{IMo}_6\text{O}_{24}^{5-}$ . M. Spriet, **E.M. Villa**

**8:45 308.** Theoretical investigation into the reaction landscape of hydrogen atom abstraction by a  $\text{Mn}^{\text{IV}}(\text{O})$  complex. **D. Rice**, A.A. Massie, T.A. Jackson

**9:00 309.** Distinguishing between homogeneous and heterogeneous hydrogen-evolution electrocatalysis with a quartz crystal microbalance. **D.J. Sconyers**, J.D. Blakemore

**9:15** Intermission.

**9:30 310.** Synthesis and characterization of  $(\text{Cp}^*\text{H})\text{Rh}(\text{diimine})$  complexes. **Y. Peng**, D. Lionetti, J.D. Blakemore

**9:45 311.** Multielectron processes in a rhodium bipyridine complex relevant to hydrogen fuel production. **W. Moore**, W. Henke, K. Prather, J.D. Blakemore

**10:00 312.** d-Electron count, ion-pairing and diagonal twist angles in metallo-bis(dithiolene) complexes. **C.C. Kirkpatrick**, J.N. Truong, B.A. Kowert

**10:15** Intermission.

**10:30 313.** Highly stable two and three lithium insertion in conformal amorphous  $\text{V}_2\text{O}_5$  shells electrodeposited on electrospun carbon nanofiber network as a flexible lithium ion battery cathode. **J.E. Brown**

**10:45 314.** Varied extended singlet excited state lifetime via excimer formation as a MOF topology-dependent function. **J. Yu**, P. Deria

**11:00 315.** Quantitative control of metal doping in  $\text{TiO}_2$  nanocrystals. **S. Mia**, S. Varapragasam, C. Balasanthiran, J.D. Hoefelmeyer

**11:15 316.** Ag- $\text{TiO}_2$  hybrid nanoparticles as active photocatalyst for hydrogen evolution. **S. Varapragasam**, S. Mia, C. Balasanthiran, J.D. Hoefelmeyer

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## Materials Chemistry

F. Tao, *Organizer, Presiding*

**8:00 317.** Crystal engineering of energetic materials: Co-crystals of tetrazole based explosives with modified performance. **J.C. Gamekkanda**, C.B. Aakeroy, A. Sinha

**8:20 318.** Study of microwave effect on synthesis of hyperbranched  $\text{CdS}_{1-x}\text{Se}_x$  supra quantum dots. **M. Yazdanparast**, E.J. McLaurin

**8:40 319.** Physical and chemical applications of photodoping in electrodeposited cuprous oxide thin films. **R. Coridan**, J.M. Lowe

**9:00 320.** Significance of inserting an oxidative ring-fusion aromatization step at the early stages of pyrolytic carbonization of polybenzoxazines and other phenolic resins. **H. Majedifar**, S. Donthula, S. Mahadik, T. Yazdeli, M. Adnan Saeed, N. Leventis, C. Sotiriou-Leventis

**9:20 321.** Synthesis and first MRI results of mesoporous silica-stabilized very small iron oxide contrast agents. **J. Covarrubias**, H. Wang, T.B. Shrestha, D.L. Troyer, S.H. Bossmann

**9:40** Intermission.

**9:50 322.** Scalable synthesis of block functionalized carbon nanotubes. **L. Barrett**, B.P. Grady, S. Crossley

**10:10 323.** Withdrawn

**10:30 324.** Solid-state landscape of a class of activated halogen bond donors. **B. Sandhu**, A. Sinha, C.B. Aakeroy

**10:50 325.** Dynamic crosslinks through the reversible thia-Michael addition reaction. **P. Getty**, K. Greenman, S.J. Rowan

**11:10 326.** Synthetic strategies for versatile functionalization of cavitands. **N. Sarkar**, C.B. Aakeroy, A. Sinha

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## Organic & Medicinal Chemistry

R. A. Altman, H. Malinakova, *Organizers*  
J. L. Markley, *Presiding*

**8:00 327.** Synthesis of dibenzothiophene sulfoxide derivatives and their potential for site-selective oxidation of nucleic acids. **J.C. Throgmorton**, A. Eischen, L. Zhong, D.A. Baum, R.D. McCulla

**8:20 328.** Synthesis of endophenazines and analogues and their antimicrobial evaluation. **K. Maddeboina**, N. Rodrigues de Almeida, V.R. Udumula, M.M. Conda-Sheridan

**8:40 329.** Synthesis of fluorescently labelled analogs of cyclophostin and cyclipostin. **G.R. Gnawali**, B. Martin, C.D. Spilling

**9:00 330.** Synthesis and evaluation of tricyclic pyrone derivatives for the treatment of Alzheimer's disease. **M. Zhang**, I. Maezawa, B. Zou, S. Weerasekara, B. Hao, M.L. Weber, W.S. Cao, C. Pascual, X.S. Xie, L. Jin, D.H. Hua

**9:20 331.** Development of pot-economical strategies for the synthesis of (-)-13-Desmethyl-lyngbouilloside and novel electrophilic macrocycles. **A. Ganguly**, S. Javed, G.C. Dissanayake, D. Vithanage, P.R. Hanson

**9:40** Intermission.

**9:50 332.** Syntheses of substituted 6-(Dimethylamino)-2-phenylisoindolin-1-ones for the inhibition of luciferase. M.J. Gunaratna, M. Nakagomi, A. Ito, B. Hao, **K. Apley**, D.H. Hua

**10:10 333.** Synthesis of 1,3-anti diol containing bioactive natural products and analogs via modular, pot-economical and library amenable protocols. **S. Javed**, A. Ganguly, G.C. Dissanayake, D. Vithanage, P.R. Hanson

**10:30 334.** Synthesis of phostone and furanose phosphonates. **R.R. Paudel**, J.N. Ridenour, S. Dawadi, C.D. Spilling

**10:50 335.** One-pot sequential strategies for the synthesis of polyol fragments: Applications in natural product synthesis. **C.N. Ndi**, P.R. Hanson

**11:10 336.** Stream-lined synthesis of 3-Hydroxy- $\beta$ -lactams: Norrish-Yang type II photocyclizations of  $\beta$ -ketoformamides. **J.L. Markley**, T. Morse, N.P. Rath, T.A. Wenczewicz

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KS Union  
Woodruff

## Organic Synthesis & Catalysis

M. D. Clift, *Organizer*

J. A. Tunge, *Organizer, Presiding*

**8:00 337.** Highly selective preparation of heteroleptic Zn(II)-methylene bis(imidazoline) complexes through a chirality driven self-assembly, and its applications toward building multi-functional dendrimer catalysts. **S.A. Moteki**

**8:30 338.** Intra- and intermolecular functionalization of alkenes via transition metal-catalyzed activation of amide C-N bonds. **L.M. Stanley**

**9:00 339.** Direct functionalization of alcohols using cobalt photocatalysis. **D.B. Martin**, D. Chambers, E. Sodogar

**9:30 340.** Progress toward a tunable terpenoid synthesis strategy. **A.J. Grenning**

**10:00 341.** Cofactors as a source of inspiration for discovering new modes of catalytic activation. **M.D. Clift**

**10:30 342.** Stereoselective strategies for the synthesis of chiral amines with imine and enamine umpolung reagents. **S. Malcolmson**, K. Li, P. Daniel, X. Shao, A. Weber, L. Tseng

**11:00 343.** New methods for chemical screening library construction and applications: Overcoming complex barrier. **R. Rafferty**

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KS Union  
Divine 9

## Physical Chemistry

M. Caricato, *Organizer*

X. Chen, *Presiding*

**8:00 344.** Diffusion of benzene and alkylbenzenes in nonpolar solvents. **B.A. Kowert**

**8:30 345.** Real-time TDDFT investigation of plasmon resonances in gold nanowires. **R.D. Senanayake**, D. Lingerfelt, X. Li, C.M. Aikens

**8:45 346.** Enhancing the sensitivity of solid-state NMR for characterization of organolead halide perovskites. **M. Hanrahan**, L. Men, B. Rosales, J. Vela, A.J. Rossini

**9:00** Intermission.

**9:15 347.** Electronic coupling for donor-bridge-acceptor systems with a bridge-overlap approach: A benchmark study. **A. Biancardi**, M. Caricato

**9:35 348.** Graphene field effect transistors as a high-throughput platform for measuring exciton dissociation dynamics at organic interfaces. **B. Kattel**, T. Kafle, L. Qin, W. Chan

**9:50 349.** Residue based contributions to the thermodynamic properties of ubiquitin. **N. Kariyawasam Manachhige**, E.A. Ploetz, P.E. Smith

**10:05** Intermission.

**10:20 350.** Cu-oxo complexes supported in MOR zeolites as active sites for methane-to-methanol conversion. **J. Xu**, B. Liu

**10:35 351.** Investigation of solvation effects on optical rotatory dispersion using the polarizable continuum model. **T. Aharon**, P. Lemler, P.H. Vaccaro, M. Caricato

**10:50 352.** Ultrafast relaxation dynamics of *trans*-stilbene derivatives in confined organic capsules. **C.J. Otolski**, A.M. Raj, V. Ramamurthy, C.G. Elles

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KS Union  
Malott

## Theory of Interfaces

B. B. Laird, W. H. Thompson, *Organizers*  
J. P. Palafox - Hernandez, *Presiding*

**8:00 353.** Surface potentials, surface spectroscopy, and solvation: A theoretical perspective. **C.J. Mundy**, M.D. Baer

**8:40 354.** Understanding liquid structure and dynamics near amorphous SiO<sub>2</sub> through simulations of sum frequency generation spectra. **P.N. Wimalasiri**, P.C. Burris, J. Harvey, W.H. Thompson

**9:00** Intermission.

**9:15 355.** Heterogeneous hydration dynamics around *Candida Antarctica* lipase B: Relationships with protein dynamics and water structure. J.N. Dahanayake, **K.R. Mitchell-Koch**

**9:55 356.** Atomistic insights into nitrogen-cycle electrochemistry: NO electrochemical reduction on Pt surfaces from first principles calculations. H. Chun, **A.Z. Clayborne**, V. Apaja, K. Honkala, J.P. Greeley

**10:15** Intermission.

**10:30 357.** Accelerated nucleation and polymorph selection with trace additives: theory and simulation. **B. Peters**

**11:10 358.** Removing the barrier to the calculation of activation energies and volumes: Diffusion and reorientation in water. **E.A. Piskulich**, O. Mesele, W.H. Thompson



## Spectroscopy Applied to Structure, Dynamics, & Imaging

C. G. Elles, C. K. Johnson, *Organizers, Presiding*

**8:10 359.** Resolving interfacial protein dynamics by Super Temporal-Resolved Microscopy (STReM). **C.F. Landes**

**8:40 360.** *In Situ* biomolecular structural elucidation by super-resolution microscopy with single particle averaging. **J. Unruh**

**9:10 361.** Methods of analyzing sparse data sets from time-correlated, single-photon counting experiments: Application of the maximum likelihood and related methods to mixtures of rose bengal and rhodamine B. **K. Santra**, E.A. Smith, J.W. Petrich, X. Song

**9:30** Intermission.

**9:50 362.** Oscillatory enzyme dynamics and their role in enzyme-catalyzed reactions. **C.M. Cheatum**

**10:20 363.** Split-GFP assay to survey proteins, interactions, and dynamics of the inner nuclear envelope in live cells. **B.D. Slaughter**

**10:50 364.** Spectroscopic imaging studies of micropolarity in plasmid DNA using a solvatochromic dye and chemically graded surfaces. **Z. Li**, R. Kumarasinghe, D.A. Higgins

**11:10 365.** Energy landscape of the FMO antenna from *C. tepidum* and its L122Q and Y16F mutants: Low temperature high resolution spectroscopic and modeling studies. **A. Khmelnskiy**, R. Saer, R.E. Blankenship, R. Jankowiak

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## Analytical Chemistry

Y. Zeng, *Organizer*

### 10:10 - 12:10

- 366.** Development and validation of high performance liquid chromatography method for quantitative determination of 4-hydroxybenzoate and related renal cell carcinoma biomarkers in human urine. **S. Gamagedara**, T. An-Yen, K.S. Dahal, N.T. Perera, B.K. Lavine
- 367.** Development of a hydrogen exchange-mass spectrometry method to predict aggregation propensity of protein therapeutics. **J.P. Rincon**, G. Meric, C. Calero-Rubio, C. O'Brien, H. Shahfar, A.S. Robinson, C.J. Roberts, D.D. Weis
- 368.** Rapid prediction of deamidation rates of proteins to assess their long-term stability using hydrogen exchange mass spectrometry (HX-MS). **C.L. Demalgiyaya Gamage**, D.D. Weis
- 369.** Sparse representation for hydrogen exchange mass spectrometry (HX-MS) data by using LASSO optimization. **Y. Shi**, D.D. Weis
- 370.** Hydrogen exchange mass spectrometry can reliably detect small fractions of destabilized protein in comparability studies. **T. Hageman**, J. Arora, D.D. Weis
- 371.** Identification of individual phenolic metabolites in American elderberry pomace extract utilizing high performance liquid chromatography tandem mass spectrometry. **R. Krueger**, A.L. Thomas, C.M. Greenlief
- 372.** High-throughput microfluidic separation of plasma from whole blood for downstream biomarker detection. **E.M. Mohr**, C. Campos, S.A. Soper
- 373.** Microfluidic affinity purification of cancer-specific extracellular vesicles. **J.M. Jackson**, M.A. Witek, S. Pullagurla, D. Park, K. Herrera, M. Murphy, S.A. Soper
- 374.** Label-free enumeration of Circulating Tumor Cells (CTCs) using  $\mu$ -Coulter counter. **C. Kong**, M. Hu, M.L. Hupert, S.A. Soper
- 375.** Nano-coulter counter for the quantification of extracellular vesicles. **J.D. Conner**, S. Pullagurla, B. Gross, S.A. Soper
- 376.** Evaluation of minimal residual disease in acute leukemia using microfluidics and spectral time-delayed integration multi-parameter flow cytometry. **W. Hu**, M. Jackson, M.A. Witek, S.A. Soper
- 377.** Automated sealing system for digitalizing multiplexed biomarkers in femtoliter compartments. **D. Lella**, Y. Zeng
- 378.** Microfluidic-based exponential rolling circle amplification for exosomal microRNA detection. **H. Cao**, Y. Zeng

- 379.** Connecting land use and water quality: Agricultural and restored prairie outputs. **A. Miller**, A. Dere, C. Jackson
- 380.** Detection of metal ions by organic dyes on paper-based analytical devices. **K. Yoshimatsu**
- 381.** Fabrication of polymer microneedle implants using an atomized spray process for controlled drug delivery. **M. Kim**, S. Choi
- 382.** Analysis of drug-protein interactions during diabetes by high-performance affinity chromatography. **P. Tao**, Z. Li, R.E. Matsuda, D.S. Hage
- 383.** Analysis of free drug fractions by high performance affinity chromatography: Interactions of sulfonyleurea drugs with human serum albumin. **B. Yang**, X. Zheng, D.S. Hage
- 384.** Controlled drug release from solution blow spun core-shell nanofibers with blended shell. **S. Park**, S. Choi
- 385.** Soxhlet extraction of avocado endocarp and trituration of avocado mesocarp for biodiesel production. **A.J. Cruz**, D. Kostner, I. Oraemesi, B. Maricle
- 386.** Nanoscale solid-phase enzymatic reactor for biopolymer (DNA/RNA) disassembly. **U.S. Athapattu**, S.A. Soper
- 387.** Nanoparticle composition and reactivity contribute to the bacterial toxicity of nanoscale metal phosphates. **P.L. Clement**, J.E. Kuether, J.R. Borgatta, T.A. Qiu, V. Feng, R.J. Hamers, C.L. Haynes
- 388.** Ligands binded paramagnetic nanoparticles applied in enzyme activity studies. **S. Jia**, C.T. Culbertson
- 389.** Vapor phase plotting of organotrichlorosilane sub-monolayer gradients. **J. Bautista**, J. Austin, A. Forzano, M.M. Collinson, D.A. Higgins
- 390.** Hydrogen peroxide detection in chemotherapy treated wistar rats. **K.J. Garcia**, R. Gehringer, A.I. Bandara, M.A. Johnson
- 391.** Evaluation of cyclic olefin copolymer as a new material for fabrication of microchip electrophoresis devices for online monitoring of amino acids in brain dialysate. **G.A. Bulgakova**, N.J. Oborny, S.M. Lunte
- 392.** Comparison of CE-UV and CE-MS as analysis methods for dynorphin peptides. **E.A. Kurfman**, A.M. Al-Hossaini, M.B. Wijesinghe, S.M. Lunte
- 393.** 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
- 394.** On-column preconcentration of adenine nucleotides for analysis of brain tissues by CE. **E. Buyuktuncel**, S. Gunawarhana UngawelDurayalage, S.M. Lunte
- 395.** Single-cell analysis of nitric oxide production in stimulated RAW 264.7 macrophages by microchip electrophoresis coupled with laser Induced fluorescence detection. **J. Sibbitts**, D.E. Patabadige, C.T. Culbertson

- 396.** Simultaneous detection and quantification of nitric oxide and superoxide using microchip electrophoresis coupled with laser-induced fluorescence. **D.B. Weerasekara**, G. Caruso, C. Fresta, J. Siegel, M.B. Wijesinghe, S.M. Lunte
- 397.** Single-molecule tracking studies of charge-dependent translational and orientational dye motions within surfactant- and solvent-filled silica mesopores. **R. Kumarasinghe**, D.A. Higgins, T. Ito
- 398.** Impact of perturbing the BfrB:Bfd interaction on *Pseudomonas aeruginosa* biofilms. **A. Soldano**, M.E. Rivera
- 399.** Thermal characterization of lignin residue after high-temperature hydrotreatment. **R. Roy**, D.E. Raynie
- 400.** Depolymerization of alkali lignin in the presence of subcritical water and Ni-G catalyst. **B. Jadhav**, D.E. Raynie
- 401.** Thermoplastic nanofluidic sensor for the fluorescence detection of chemotherapeutically induced damage in genomic Dna. **S. Vaidyanathan**, K. Weerakoon-Ratnayake, S.A. Soper, D. Kaufman
- 402.** Microfluidic platform for isolation of extracellular vesicles: Potential stroke biomarkers. **S. Pullagurla**, M.A. Witek, J.M. Jackson, A. Baird, S.A. Soper
- 403.** Effective identification of benzaldehyde product in oxidation reactions using Co(II)/TEMPO Catalytic system. B. Sweetman, L. Handin, **Y. Liu**

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## FRIDAY AFTERNOON

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KS Union  
Alderson

### **Analytical Applications of Microfluidics**

Cosponsored by ANYL  
Financially supported by Center for Molecular Analysis of Disease Pathways; Adams Institute for Bioanalytical Chemistry  
S. M. Lunte, *Organizer, Presiding*

**12:30** Introductory Remarks.

**12:35 404.** Using microchip electrophoresis and electrochemical detection to investigate cellular communication. **R.S. Martin**

**1:15 405.** Microfluidic paper-based analytical devices for forensic applications. T. Cardoso, P. Garcia, R. Channon, J. Adkins, C. Henry, **W. Coltro**

**1:55 406.** Enhancing the information content of single cell analysis on microfluidic devices using optical fiber bridge. **C.T. Culbertson**, J. Sibbitts

**2:35** Intermission.

**2:45 407.** Expanding the paper-microfluidics toolbox. **E. Verpoorte**, G.I. Salentijn, N.N. Hamidon, Y. Hong

**3:25 408.** Microfluidics for isolation of orthogonal populations of circulating tumor cells. **M.A. Witek**

**4:05** Concluding Remarks.

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KS Union  
Big 12

### **Chemical Biology of Microbial Processes**

M. E. Rivera, *Organizer*  
R. De Guzman, *Presiding*

**12:30 409.** Biliverdin IX $\beta$  a signaling molecule for extracellular heme uptake by the opportunistic pathogen *Pseudomonas aeruginosa*. **A. Wilks**

**1:05 410.** Biosynthetic mechanisms for antibiotics from the emerging biocontrol agents *Lysobacter*. **L. Du**

**1:40 411.** Using archaea for what they do best: Redirecting carbon and energy towards isoprene as an anaerobic respiration/fermentation product. J. Aldridge, S. Carr, K.A. Weber, **N.R. Buan**

**2:15** Intermission.

**2:35 412.** Unraveling the MSTery. **A.L. Lamb**

**3:10 413.** Mechanistic insights into bacterial dye-decolorizing peroxidases. **P. Li**, R. Shrestha, G. Huang, B.V. Geisbrecht

**3:45 414.** Inhibiting the bacterioferritin (BfrB):bacterioferritin associated ferredoxin (Bfd) interaction in *P. aeruginosa* causes iron homeostasis dysregulation. **M.E. Rivera**, H. Yao, A. Punched Hewage, A. Soldano, S. Lovell

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KS Union  
Jayhawk

## **Inorganic Chemistry**

J. D. Blakemore, *Organizer, Presiding*

**12:30** Introductory Remarks.

**12:45 415.** Preparation of transition metal cluster complexes containing NHC ligands. **L.F. Szczepura**, W. Wilson, D.N. Huh

**1:00 416.** Assembly and characterization of heterobimetallic complexes of nickel with trivalent redox-inactive cations. **A. Kumar**, J.D. Blakemore

**1:15 417.** Structural landscape assessment: N-heterocycle containing tritopic acceptors. **S.N. Andree**, A. Sinha, M. Dakovic, C.B. Aakeroy

**1:30 418.** Halide-bridged coordination polymers from mono-picoyl biimidazoles and cadmium(II). **C.A. Gunawardana**, A. Sinha, C.B. Aakeroy

**1:45** Intermission.

**2:00 419.** Assessing the chemical variations in thorium, uranium, and neptunium bonding reactivity through macrocyclic ligand encapsulation. **M.C. Basile**, E. Cole, A. Blanes, T. Forbes

**2:15 420.** Surface immobilization of molecular complexes of the f-elements. **K.J. Cannon**, D. Lionetti, J.D. Blakemore

**2:30 421.** O-O bond activation by a series of Mn complexes supported by amide-containing ligands. **J. Parham**, T.A. Jackson

**2:45 422.** Photodecomposition mechanisms of manganese tricarbonyl complexes. **W.C. Henke**, C.J. Otolowski, W. Moore, K.V. Prather, C.G. Elles, J.D. Blakemore

**3:00** Intermission.

**3:15 423.** Noncovalent immobilization of a manganese electrocatalyst for CO<sub>2</sub> reduction. **K. Prather**, J.D. Blakemore

**3:30 424.** Morphology inheritance from hollow metal-organic frameworks to hollow carbon polyherons in preparing electrocatalysts. **Y. Pei**, Z. Qi, W. Huang

**3:45 425.** Development of new media for electrochemical CO<sub>2</sub> conversion. **T. Kerr**, C. Shaughnessy, H. Lee, D.J. Sconyers, B. Subramaniam, K.C. Leonard, J.D. Blakemore

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KS Union  
Pine

## Materials Chemistry

F. Tao, *Organizer, Presiding*

**12:30 426.** Sorption kinetics and structural features of water confined in a 1-D metal organic nanotube. **T. Forbes**, J. Leddy

**12:50 427.** Positron interactions with asymmetric materials. **J. Van Horn**, Y. Jean

**1:10 428.** Electrode wettability influences on the deep discharge capacity of Li–O<sub>2</sub> batteries. **F. Wang**, X. Li

**1:30 429.** Organometallic self-assembled monolayer films of linear azulenic and biazulenic p-linkers featuring asymmetric anchoring. **M.K. Okeowo**, J. Applegate, C.L. Berrie, M.V. Barybin

**1:50 430.** Epitaxial lift-off of electrodeposited single-crystal gold foils for flexible electronics. **N. Mahenderkar**, Q. Chen, Y. Liu, A.R. Duchild, S. Hofheins, E. Chason, J.A. Switzer

**2:10** Intermission.

**2:20 431.** Molecular structure of silicon nanocrystal surfaces characterized by multidimensional solid-state NMR spectroscopy. **M. Hanrahan**, E. Fought, T.L. Windus, L. Wheeler, N. Anderson, N.R. Neale, A.J. Rossini

**2:40 432.** Study of soy protein isolate as a functional modifier for polymer materials. **Z. Zheng**, B. Li

**3:00 433.** Characterization of energy-rich hydrochars from microwave-assisted hydrothermal carbonization of coconut shell. **S. Elaigwu**, G. Greenway

**3:20 434.** K-Index: a quantitative tool that describes complex soft-matter nanomorphology and correlates it to synthetic conditions. **T. Yazdeli**, S. Donthula, C. Sotiriou-Leventis, N. Leventis

**3:40 435.** Fighting the world's most dangerous villain: Multidrug resistant bacteria. **L. Chlebanowski**, O. Covarrubias-Zambrano, S. Barrett, D.L. Troyer, F. Wolschendorf, S.H. Bossmann

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KS Union  
Kansas

## **New Directions in Chemistry Education**

D. D. Weis, *Organizer, Presiding*

**12:30** Introductory Remarks.

**12:35 436.** Ripped from the headlines: Analytical chemistry in the news. **C.T. Culbertson**

**1:05 437.** Preliminary investigation of students' beliefs about their academic ability and how those beliefs affect performance. **L.M. Wojcinski**

**1:35 438.** Enhancing learning by assessing process skills in STEM courses. **R.S. Cole**, J. Lantz, S.M. Ruder, J.A. Schmidt-McCormack, G. Reynders

**2:05** Intermission.

**2:15 439.** Infusing systems thinking in the general chemistry curriculum. **T. Holme**

**2:45 440.** Leveraging the Learner-Centered Teaching rubric to characterize instructional practices in undergraduate chemistry courses. **M.N. Stains**, Z. Nelson, R.M. Erdmann

**3:15 441.** Promoting change where change is hard: Tales of a teaching postdoc. **A.A. Vartia**

**3:45** Discussion.

**3:55** Concluding Remarks.

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## Organic & Medicinal Chemistry

H. Malinakova, *Organizer*

R. A. Altman, *Organizer, Presiding*

**12:30 442.** Resorufamines as fluorescent probes of the endoplasmic reticulum. **S. Phaniraj**, Z. Gao, D. Rane, B.R. Peterson

**12:50 443.** Liquid biopsy for early stage pancreatic cancer detection. **O. Covarrubias-Zambrano**, M. Kalubowilage, A.P. Malalasekera, D.N. Udukala, H. Wang, S.O. Wendel, D.L. Troyer, S.H. Bossmann

**1:10 444.** Pacific blue-taxoids: New fluorescent probes of the anticancer properties of taxol. **Z. Gao**, M. Lee, B.R. Peterson

**1:30 445.** Nanobiosensor for the arginase detection. **M. Kalubowilage**, A.P. Malalasekera, O. Covarrubias-Zambrano, F. Rahman, H. Wang, D.L. Troyer, S.H. Bossmann

**1:50 446.** Molecular modeling of membrane glucose transporter (GLUT1) as target for anticancer drugs. **S. Almahmoud**, X. Wang, J.L. Vennerstrom, H.A. Zhong

**2:10** Intermission.

**2:20 447.** Peptide-nanosponges for advanced drug delivery. **A.S. Yapa**, M. Kalubowilage, H. Wang, P. Thapa, T.B. Shrestha, J. Yu, O. Covarrubias-Zambrano, M. Pyle, D.L. Troyer, S.H. Bossmann

**2:40 448.** Design, synthesis and antimicrobial properties of self-assembled cationic amphiphilic peptides. **N. Rodrigues de Almeida**, M. Samad, M.M. Conda-Sheridan

**3:00 449.** Developing potent and broad spectrum analogues of the antimicrobial peptide Citropin 1.1. **M. Samad**, M. Conda-Sheridan

**3:20 450.** Synthesis of novel copper-activatable drugs against MRSA. **A. Delpe Acharige**, T. Shrestha, M. Zhang, A.P. Malalasekera, H. Wang, M. Kalubowilage, F. Wolschendorf, S.H. Bossmann

**3:40 451.** Preparation and characterization of family of charged ammonium pocket with para-substituted multi-functional receptors that target to anionic phospholipid found in bacterial membrane. **M. Alsuri**

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## Physical Chemistry

M. Caricato, *Organizer*

**12:30 - 2:30**

**452.** Electronic structure, geometric properties, and catalytic performance of the multishell Au-nanoparticle Au<sub>70</sub>S<sub>20</sub>[P(Ph<sub>3</sub>)]<sub>12</sub>. **A. Frojd**, S. Kenzler, H. Hakkinen, A. Schnepf, A.Z. Clayborne

**453.** Infrared studies of crystalline thiocyanate hydrates: Evidence of solid phase simultaneous vibrational transitions. **H.R. Krueger**

**454.** Measurement of one-bond <sup>1</sup>H-<sup>17</sup>O scalar couplings in organic solids and inorganic materials. **S.L. Carnahan**, B. Lampkin, P. Naik, M. Hanrahan, I.I. Slowing, B. VanVeller, A.J. Rossini

**455.** Vapor-liquid equilibria: Ammonia and 1-hexyl-3-methylimidazolium bis(trifluoromethylsulfonyl)imide. **T. Turnaoglu**, M. Shiflett

**456.** Clathrate hydrate formation using fluorocarbons. **A. Rocha**, M. Shiflett

**457.** Simulations of ammonia adsorption for the characterization of acid sites in metal-doped amorphous silicates. **A. Jystad**, A. Biancardi, M. Caricato

**458.** Structure determination of boron carbide thin films using solid state NMR spectroscopy. **A. Alnafisah**, N.A. Oyler, T. Nguyen, M. Paquette

**459.** Analysis of the effect of glycine on the hygroscopic properties of sodium chloride aerosols. **D. Birge**, S. Gottuso, A. Kanley, J.P. Darr

**460.** Electronic properties of [n]cyclacene series versus Möbius[n]cyclacene series. **J.R. Dias**

**461.** Solubility of vinyl fluoride in aqueous lithium bis(trifluoromethylsulfonyl)imide solutions. **D.L. Minnick**, W.J. Gilbert, A. Rocha, M. Shiflett

**462.** Understanding catalytic bifunctionality of Cu/ZSM5 and Cu/Y zeolites for biomass conversions. **J. Xu**, Q. Zheng, K.L. Hohn, B. Liu

**463.** Computational studies of Si<sub>3</sub>N<sub>3</sub>H<sub>x</sub> (x = 0 - 9) clusters. **K. Suh**, G. Guirgis, C. Metz, A.Z. Clayborne

**464.** Infrared spectra of phosphoenolpyruvate in aqueous solutions: Vibrational frequency shifts of functional groups due to presence of metal ions. **R.E. Brenner**, C.J. Wurrey, A. Fenton

**465.** Ultrafast interlayer electron transfer in incommensurate transition metal dichalcogenide homobilayers. **Y. Li**, Q. Cui, F. Ceballos, S. Lane, Z. Qi, H. Zhao

**466.** Characterizing the structural overpotentials induced by bubble evolution during water electrolysis on spatially-distributed electrocatalyst-semiconductor interfaces. **Z. Schichtl**, R. Coridan

467. Carrier dynamics in phosphorene and multilayer black phosphorous. **P. Zerehki**, F. Ceballos, M. Bellus, S. Pan, H. Zhao
468. Using bulk-heterojunction and selective electron trapping to enhance the responsivity of perovskite-graphene photodetector. **L. Qin**, B. Kattel, W. Chan
469. Understanding the dynamics of the resorcin[4]arene hexameric supramolecular assembly. **A. Katiyar**, W.H. Thompson
470. Modeling the permeation of aromatic dipeptides across lipid bilayers. **B. Lee**, K. Kuczera
471. Stability of gold thiolate and gold chloride nanoclusters. **G. Kuda Singappulige**, C.M. Aikens
472. Disrupting protein-protein interactions to modulate the integrity of the blood brain barrier. **J. He**, T.J. Siahaan, K. Kuczera
473. Electron and nuclear dynamics in  $[\text{Au}_{24}\text{Ag}(\text{SH})_{18}]^{-1}$  and  $[\text{Au}_{13}\text{Ag}_{12}(\text{SH})_{18}]^{-1}$  nanoparticles. **P. Pandeya**, C.M. Aikens
474. Measuring accurate absolute Two-Photon Absorption cross sections using stimulated Raman scattering as an internal standard. **D.A. Stierwalt**, A.L. Houk, C.G. Elles
475. Computational study of the interactions of hydrogen peroxide and water with reduced ceria surfaces. N. Shao, N. Al-Aqtash, K. Tarawneh, **C.L. Cheung**, W. Mei, R. Sabirianov
476. Novel reaction cell design for simultaneous in situ diffuse reflectance UV-visible and FTIR spectroscopies: Application to CO oxidation on gold catalysts. **P.D. Srinivasan**, J.J. Bravo-Suarez
477. Cavity-mediated catalysis via metal-organic supercontainers. **Z. Wang**, Y. Qiao, P. Jampani

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## Physical Chemistry

M. Caricato, *Organizer*  
 B. A. Kowert, *Presiding*

12:30 478. Hydrogenated TiO<sub>2</sub> nanomaterials for microwave absorption. **X. Chen**

1:00 479. Exploiting CO<sub>2</sub>-expanded liquids in hydroformylation: A molecular simulation approach. **C.H. Mendis**, J.P. Palafox - Hernandez, B.B. Laird, W.H. Thompson

1:15 480. Reanalysis of the  $a^4\Sigma^- - X^2\Pi_{1/2}$  transition of GeH using intracavity laser spectroscopy. J. Harms, **L.C. O'Brien**, J.J. O'Brien

1:30 Intermission.

- 1:45 481.** Evaluating cations' competitive interactions with water-soluble anionic polyelectrolytes using an ion exchange model. **M. Chen**, K. Shafer-Peltier, E.S. Albertson, S. Randtke, E.F. Peltier
- 2:05 482.** An EOM-CCSD-PCM benchmark for electronic excitation energies of solvated molecules. **S. Ren**, M. Caricato
- 2:20 483.** Development of gold nanostructures using AFM based nanopatterning of self-assembled monolayers on silicon to study gold binding peptide tagged proteins. **N.J. Kamathewatta**, D.O. Deay, M.L. Richter, C.L. Berrie
- 2:35 484.** Phase equilibria, transport properties, and structure of CO<sub>2</sub>-expanded ethylene oxide and methanol. **E.A. Piskulich**, B.B. Laird, W.H. Thompson
- 2:50** Intermission.
- 3:05 485.** Effects of water and pH on electrocatalytic conversion of carbon dioxide in ionic liquid media. **A. Hailu**, S.K. Shaw
- 3:20 486.** Electronic coupling in diazulenic molecular rectifiers: A theoretical approach. **T.C. Balduf**, A. Biancardi, M. Caricato
- 3:35 487.** Positron interactions with natural and synthetic chiral quartz crystals in non- $z$  orientations. **F. Wu**, J. Van Horn, Y. Jean

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## Organic Synthesis & Catalysis

### Cope Scholar Symposium

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J. A. Tunge, *Organizer*  
M. D. Clift, *Organizer, Presiding*

- 1:00 488.** Development of a long term manufacturing route to HCV NS5b inhibitor, MK-3682. **J. Limanto**
- 1:30 489.** Inter- and intramolecular aryl insertion reactions of borylnitrenes. **F.J. Williams**
- 2:00 490.** Radical chemistry of the Breslow intermediate. **M. McIntosh**
- 2:30 491.** New approaches to allylic fluorination and radiofluorination. **H.M. Nguyen**
- 3:00 492.** Take a CA<sub>H</sub>B direct to chiral boronic esters, but don't interrupt? **J.M. Takacs**
- 3:30 493.** Stereoselective synthesis of saturated heterocycles via copper-catalyzed alkene difunctionalizations. **S.R. Chemler**

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## Inorganic Chemistry

J. D. Blakemore, *Organizer*

**2:40 - 4:40**

**494.** Nano-particles for water treatment synthesized from conjugated linoleic acid (CLA). **M. Chen**, C.T. Jafvert

**495.** Early detection of non-small-lung cancer in liquid biopsies by ultrasensitive protease-activity analysis. **M. Kalubowilage**, D.N. Udukala, A.P. Malalasekera, S.O. Wendel, H. Wang, A.S. Yapa, D.L. Troyer, S.H. Bossmann

**496.** Benzalkonium-derived Mesoporous Silica Nanoparticles Against *Micrococcus luteus*. **S. Barrett**, L. Chlebanowski, O. Covarrubias-Zambrano, D.L. Troyer, S.H. Bossmann

**497.** Catalyst for conversion of methyl ethyl ketone to butenes. **Z. Alauda**, H. Alatabi, Q. Zheng, K.L. Hohn

**498.** Simultaneous upgrading of furanics and phenolics via hydroxyalkylation/aldol condensation reactions. **T.V. Bui**, T. Sooknoi, D. Resasco

**499.** Synthesis of novel rhenium selenide clusters containing isonitrile ligands. **C.P. Chin**, W. Wilson, D.N. Huh, L.F. Szczepura

**500.** Photopatterned noble metal functional surfaces via galvanic replacement reactions on Cu<sub>2</sub>O thin films. **J.M. Lowe**, R. Coridan

**501.** Hierarchical nano-on-microsized copper crystals on nickel foam for highly efficient electro-oxidation of hydrazine. **X. Yan**, Y. Liu, K. Scheel, Y. Li, Y. Yu, X. Yang, Z. Peng

**502.** Supramolecular and coordination chemistry: search for new classes of carboxamide pincers. **S. Pramanik**, S. Kaur, V.W. Day, K. Bowman-James

**503.** Preparation and investigation of the pK<sub>a</sub> of [Mn<sup>II</sup>(H<sub>2</sub>O)(dpaq<sup>2Me</sup>)]<sup>+</sup> and the characterization of a one electron oxidized version of [Mn<sup>III</sup>(OH)(dpaq<sup>2Me</sup>)]<sup>+</sup>. **A.A. Munasinghe**, J. Parham, D. Rice, T.A. Jackson

**504.** Investigation of bis(μ-oxo)dimanganese(III,IV) and oxomanganese(IV) complexes: Comparison of structure and reactivity. **Y. Lee**, A.A. Massie, T.A. Jackson

**505.** Bidentate ligands modulate hydrogen generation by [Cp\*Rh] complexes. **E.A. Boyd**, K. Prather, D. Lionetti, J.D. Blakemore

**506.** Investigation of actinide reactivity by synthesis with crown ethers. **E. Cole**, M.C. Basile, A. Blanes, T. Forbes

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## Materials Chemistry

F. Tao, *Organizer*

**2:40 - 4:40**

**507.** Binder free approach to synthesize nanostructured nickel compounds for energy storage applications. **N. Albeladi**, C. Zhang, S.D. Bhoyate, K.S. Siam, P.K. Kahol, R. Gupta

**508.** Tea leaves derived carbon for high temperature energy storage devices. **S.D. Bhoyate**, C. Ranaweera, C. Zhang, M. Hyatt, P.K. Kahol, R. Gupta

**509.** Orange peel derived highly flame retardant rigid polyurethane foam. **C. Zhang, S.D. Bhoyate**, M. Ionescu, P.K. Kahol, R. Gupta

**510.** Hierarchically structured electrodes prepared from selective atomic layer deposition in self-assembled, composite colloidal films. **M.A. Norman, W. Perez**, R. Coridan

**511.** Progress towards a large-scale synthesis of hollow Mn<sub>3</sub>O<sub>4</sub> nanoparticles from the galvanic reaction between MnO nanocrystals and Cu<sup>2+</sup>. **B. Onserio**, S. Varapragasam, J.D. Hoefelmeyer

**512.** Withdrawn

**513.** Development of high-load, hybrid ROMP reagents and scavengers immobilized on silica and Co/C magnetic nano-particles for their application in sequestration and parallel synthesis. **S. Faisal**, J. Jun, T.A. Klein, Q. Zang, P. Maity, P.C. Kearney, D. Stoianova, P.R. Hanson

**514.** Highly porous SiC & Si<sub>3</sub>N<sub>4</sub> monoliths via carbothermal reduction of polymer-crosslinked sol-gel silica powder compacts. **P.M. Rewatkar**, T. Taghvaei, M. Adnan Saeed, S. Donthula, T. Leventis, J. Schisler, C. Sotiriou-Leventis, N. Leventis

**515.** Selective hydrogenation of citral over supported Pt catalysts: Insights into support effects. **X. Wang**, X. Liang

**516.** Supported nickel nanoparticle catalysts synthesized by atomic layer deposition for dry reforming of methane. **Z. Shang**, X. Liang

**517.** The role of surface-wettability in electrochemical reactions involving gas-phase reactants or products. **H. Mehrabi**, R. Coridan

**518.** Electropolymerization of perfluoroalkylated thiophene- and aniline-based aromatic compounds for high-performance batteries. **E.L. Moen, J.C. Lawrence**, S. Mao, J.H. Kramer, M.O. BaniKhaled, H. Sun

- 519.** Evaluating the functional similarity of hydrogen and halogen bonding. **A.M. Abeysekera**, C.B. Aakeroy, A. Sinha
- 520.** SERS detection of toxins via substrates with anchored polymeric chains. **R.S. Rodriguez**, V.M. Szlag, S. Jung, S. Bryson, M. Bourgeois, G.C. Schatz, T.M. Reineke, C.L. Haynes
- 521.** Effect of nanostructure morphology and C=charge on esterase-release of ketoprofen from supramolecular nanostructures. **V.R. Udumula**, M.M. Conda-Sheridan
- 522.** Dielectric properties of soy protein isolate and its nanocomposites. **M. Cox**, Z. Zheng, B. Li
- 523.** Effect of surface passivation on photothermal effect of gold nanorod. **R. Marasini**, A. Pitchaimani, T. Nguyen, S. Aryal
- 524.** Structural reorganization of silica wet-gels upon drying: Why aerogels shrink? **C. Mandal**, S. Donthula, C. Sotiriou-Leventis, N. Leventis
- 525.** Multiscale hierarchical nanoporous polyurethane aerogels based on  $\alpha$ - and  $\beta$ -Cyclodextrin for CO<sub>2</sub> sequestration, water vapor uptake and cationic dye separation. **P.M. Rewatkar**, M. Adnan Saeed, S. Donthula, H. Majedifar, N. Leventis, C. Sotiriou-Leventis
- 526.** One-step synthesis and characterization of “click-able” polymers for biomedical applications. **W. Alqahtani**, S. Santra, R.A. Gross
- 527.** Systematic route for heterobifunctionalization of polypropylene glycol polymers and poly(propyleneglycol)-block-poly(ethyleneglycol) copolymers. **J. Blankenship**, K. Yoshimatsu
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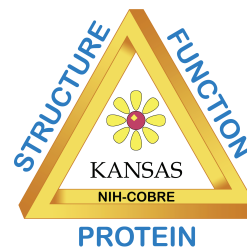
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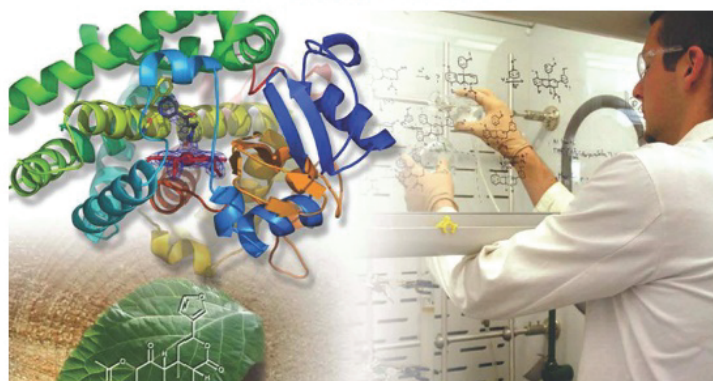
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