

MARM 2018

J. Freeman and N. Heindel, *Program Chairs*

SUNDAY AFTERNOON

Polymers & Plastics Iacocca Hall B013

Cosponsored by POLY

R. T. Mathers, *Organizer*

A. J. Magenau, *Organizer, Presiding*

11:30 1. Oligofluorene molecular wires: Synthesis and single-molecule conductance. **S. Wei**, G.M. Florio

11:50 2. Conjugated polymers prepared using controlled polymerization. **K.J. Noonan**

12:10 3. Orthogonal-group engineering of cyclopentadiene-based building blocks for conjugated materials. M.M. Rahman, **A. Pietrangelo**

12:30 Intermission.

12:40 4. Polymer functionalized graphenic materials as stem cell instructive scaffolds for tissue regeneration. **S.A. Sydlik**, B. Holt, A. Arnold

1:00 5. Synthesis of [2.2]paracyclophane-inspired materials through ROMP for advanced optoelectronic applications. **E. Elacqua**

1:20 6. Enabling macromolecular design through cross-coupling and alkylborane initiation. **A.J. Magenau**

1:40 Intermission.

2:00 7. Functionalized polymer conjugates as building blocks to construct spatially organized materials. **L.W. Chow**

2:20 8. Complex emulsions as dynamic soft materials. **L.D. Zarzar**, E.M. Sletten, J.A. Kalow, V. Sresht, S. Nagelberg, D. Blankschtein, M. Kollé, T.M. Swager

2:40 9. Nanostructural transitions driven via in situ polymer grafting in diblock copolymer/monomer blends. **R. Hickey**

3:00 Intermission.

3:10 10. Introducing electron-deficient boron into functional polymeric materials. **F. Jaekle**

3:30 11. Finding the hydrophobic/hydrophobic balance in polymeric structures. **R.T. Mathers**

History of Chemistry Iacocca Hall B131

Cosponsored by HIST

R. A. Egolf, *Organizer, Presiding*

12:00 12. Collecting and preserving the history of chemistry, chemical engineering, and the life sciences at the new Science History Institute. **R.S. Brashear**

12:30 13. History of healing among the Pennsylvania Dutch in the 18th and 19th centuries. **N.D. Heindel**

1:00 14. Chemical engineering in the 19th century: the blast furnace revolution. **J.K. Smith**

1:30 15. Chemistry at Lehigh during the 19th century. **R.A. Egolf**

Tech Innovations & Distance Ed Iacocca Hall E301

C. Martey-Ochola, *Organizer, Presiding*

12:00 16. Can we teach upper level chemistry courses online? **C. Martey-Ochola**

12:45 17. Alternative to commercial instrumentation for chemical educators. **S. Abbott**

1:30 Round Table The role of technology and distance education in Chemical education

Chemical Business Entrepreneur Iacocca Hall B131

K. Kardos, *Organizer, Presiding*

2:00 18. A venture capitalists perspective on what makes for a successful technology idea. **M. Gausling**

2:20 19. Serial entrepreneurship in chemistry: One story of solving problems while creating new companies. **S. Niedbala**

2:40 20. Navigating a new drug discovery and development program. **E. Damiano**

3:00 21. Commercializing a diagnostic test to measure and improve medication adherence through a startup company. **G. Daughtridge**

3:20 22. Commercialization of an assay for periprosthetic joint infection: The journey from biomarker discovery to product commercialization. **C. Deirmengian**

Colloids and Surface Chemistry Iacocca Hall B023

Cosponsored by COLL J. C. Freeman, *Organizer* L. Tribe, *Presiding*

2:00 23. First principles study of adsorption for CO₂ at mineral interfaces. **L. Tribe**

2:30 24. Nanocomposites' particle size and distribution measurement in sub-surfaces and in solutions by terahertz multispectral imaging. **A. Rahman**, A.K. Rahman

3:00 Round Table The Place of Colloids and Surface Chemistry in the Chemistry Curriculum

SUNDAY EVENING

General Posters Iacocca Hall Wood Dining Hall
J. C. Freeman, *Organizer*

3:00 - 6:00

- 25.** SCHB assists innovators and entrepreneurs in the chemistry enterprise. **G.W. Ruger**, J.L. Maclachlan, J.E. Sabol
- 26.** Electronic transitions of iodine species in solution: Density Functional Theory calculations. M. Schupp, **L. Tribe**
- 27.** Design, synthesis and photophysical properties of highly efficient d¹⁰-and/or d⁸ transition metal-based complexes. **M.M. Ghimire**, R. Switzer, R.M. Mitch, A. Appiah
- 28.** Molecular dynamics simulations of functional arylamide foldamers: Water transport and inter-conversion mechanism of cyclic-arylamide. **R. Delia**, V. Pophristic, Z. Liu
- 29.** Computational chemistry investigation of aromatic foldamers: Folding propensity, molecular encapsulation and handedness inversion. **P. Reagan**, V. Pophristic, Z. Liu
- 30.** Optimizing the synthesis of imine-linked 3D covalent organic frameworks. **D. Fischbach**, B.J. Smith
- 31.** Microdomain registration in PEG-PBD diblock-copolymers investigated with simulations. **N. Chen**
- 32.** Preparation and mechanical testing of vinyl ester biocomposites modified with limonene. **D.L. Simonson**, J.G. Kohl, A. Ring
- 33.** Improving the organic chemistry laboratory experience through a scaffolded approach. **J. Leake**
- 34.** Supporting the future of STEM: outreach activities in the Lehigh Valley. **J.R. Berk**, G.W. Ruger
- 35.** Bohr model for hydrogen - revised. **P.J. Wepplo**
- 36.** Investigation of a synthesis for white lead pigment. **K.C. Cannon**, A. Barmash, H. Karyampudi
- 37.** Controlling surfaces for crystal nucleation and growth of acetaminophen. **E.E. Byers**, B.J. Smith
- 38.** Three-dimensional mapping of optical near-field responses by controlling probe-sample distance. **H. Wang**, L. Wang, D. Jakob, X. Xu
- 39.** Nanoscale spectroscopic and mechanical characterization of individual aerosol particles with peak force infrared microscopy. **L. Wang**, X. Xu
- 40.** Photophysical properties of amino acid capped fluorescent nanoclusters. **E.J. Cunningham**, J. Hu
- 41.** Effect of pore size on the density of matrices made from collagen nanofibrils. **A. Peterman**
- 42.** Using the Maquette technology to develop novel genetically-encoded voltage indicators (GEVIs). **X. Yu**, M. Iwanicki, B.M. Discher

43. Chemical countermeasures for sulphur mustard exposure based on drug combinations of polyamines, terpenes and vanilloids. **J. Saxena**, C. Lacey, C.D. Guillon, G. Composto, L. Joseph, D. Heck, J. Laskin, N.D. Heindel
44. Protic mixtures: Bulk liquids incorporating self-assembling nanodomains. **M.N. Kobra**
45. Green synthesis of biomineralized CdS quantum dot-graphene photocatalysts for visible light driven hydrogen generation. **L. Spangler**, L. Lu, C. Kiely, B. Berger, S. McIntosh
46. Aerosol preparation of spherical metal oxides for the purpose of surface modification. **F.C. Mayville**, **A. Bielski**
47. Determination of pesticide residues at the Food and Drug Administration using the QuEChERS Extraction method in conjunction with liquid and gas chromatography. **H. Kim**, **X. Yu**, T. Harrison, P.D. Svoronos
48. Sequential electrolytic oxidation of ethanol to carbon dioxide. **A.T. Poulos**, R. Furman, H. Do, P. Poulos
49. Using Excel(R) to expand the power of experimentation, automation and device control. **S. Abbott**
50. Microbial VOC fingerprints: Rapid detection of antimicrobial resistance in pathogenic bacteria. **A. Dailey**, J. Saha, S.A. Zaidi, R. Couch
51. Serum lipidomics extraction and data processing. **G. Madison**, Z.J. Beaulac, R. Couch
52. Temporal fecal metabolome profiling: An approach to assess gastrointestinal health. **S.A. Zaidi**, R. Couch
53. Detecting Pb²⁺ and Hg²⁺ ions with an acridinium-based fluorescent turn-on sensor. **L.L. Kowal**, J. Hu
54. Oxidative decarboxylation of formic and acetic acids at metal-oxide coated electrodes. A.T. Poulos, D. Agrawal, S. Lee, P. Poulos, **V. Patel**
55. Electro-oxidation of acetaldehyde in basic aqueous solution assisted by electron transfer agents. A.T. Poulos, R. Kaur, **M. Namer**
56. Liquid-liquid extraction and analysis of the antioxidant, resveratrol, from various red and white wines. F.C. Mayville, **C. McGlocklin**
57. Elemental analysis of arsenic in rice speciation. **K. Kaur**, L. Aleo, D. Stutts, P.D. Svoronos
58. Imidazole as a novel and robust gold binding group at STM-BJ method. **X. Yu**, S. Smith, T. Fu, J. Xue, L. Venkataraman, S. Wei
59. Biochemical sensing circuits based on DNA-scaffolded proximity assembly. **S. Oh**, T. Zhang, A. Pereira, A. Lane, J. Fu
- XO.** The quantitative Analysis of Caffeine in Consumer Product
Suah Yeke Nidhal Marashi
- XX.** Determination of the water hardness of the municipal samples through determination of alkalinity.
Deric Siamon Nidhal Marashi

60. Sources and presence of opiates and amphetamines in water, sediment and biota in the tidal freshwater Potomac River and its tributary embayments. **A. Leahigh**, G.D. Foster, T.B. Huff
61. Pesticide profiles in marsh sediment cores obtained from the tidal Potomac River. **E. Lang**, G.D. Foster, T.B. Huff, R. McBride, D.J. Velinsky
62. Sorption of ciprofloxacin to aquatic colloids determined through fluorescence quenching. **C. Ajjan**, G.D. Foster
63. In-situ chemical mapping and quantification of organic matter in oil shale with 10-nm spatial resolution. **D.S. Jakob**, X. Xu
64. Novel vasopressin 1a antagonists for CNS disorders: Development and characterization of clinical candidates. **C.D. Guillon**, N.D. Heindel, S. Lu, N. Simon, M. Brownstein, C. Ferris
65. Examination of the conformational dynamics of the *Yersinia pestis* 1-deoxy-D-xylulose-5-phosphate reductoisomerase enzyme in response to inhibitor binding. **Z.J. Beaulac**, A. Dailey, H. Ball, R. Couch
66. Script development in support of cationic antimicrobial peptide identification. **A. Carfagno**, B. Bishop
67. Site-directed mutagenesis of *P. falciparum* 1-deoxy-D-xylulose 5-phosphate reductoisomerase (PfIspC) residues hypothesized to interact with bisubstrate inhibitors. **S. Cronin**, R. Couch
68. Targeting Dxr/IspC to develop drugs against malaria and tuberculosis. **M.B. Girma**, **H. Ball**, **C. Dowd**, **R. Couch**
- OX.** The extract of essential oil from different spices & their benefit in the modern and alternative medicine. **C. Queuruga**, N Marashi
69. Investigation of the release mechanism of naproxen sodium, acetaminophen and ibuprofen from gel caplet delivery systems. **F.C. Mayville**, **N.J. Cronin**, **R.J. Morales**
70. Identifying excretory secretory metabolites in *Trichuris suis* in host pathology. **H.A. Khan**, A. Dailey, **J. Urban**, R. Couch
71. Targeting the ESKAPE pathogens: Kinetic characterization and inhibition of *Acinetobacter baumannii* and *Klebsiella pneumoniae* 1-Deoxy-D-Xylulose 5-Phosphate Reductoisomerase. **H. Ball**, M.B. Girma, M. Zainab, E. Marcus, S. Noble, R. Couch
72. Functionalization of graphene-oxide with bio-organic matrices for drug delivery. I.A. Banerjee, **M.M. Hugo**, K.R. Fath
73. Aromatic oligoamide foldamer for protein-protein interactions: A computational investigation. **O. Vazquez**, S. Makeneni, V. Pophristic, Z. Liu
74. Foldamer-based artificial water channels: A computational study. **S. Houshyar Azar**, Z. Liu, V. Pophristic
75. Catalysis of RNA surrogates by montmorillonite: Effects of pH. E. Gordon, **L. Tribe**
76. In silico survey of the central conserved regions of viroids classified in the Pospiviroidae family for conserved SRD-like motifs. **P.L. Freidhoff**, M.F. Bruist

77. Photosensitized lipid peroxidation accelerates vesicle rupture on SiO₂ surfaces: A QCM-D study. **A.M. Baxter**, M. Farley, N. Wittenberg
78. Interaction of ionophoric polyphenols with human serum albumin (HSA). **A. Martinez**, M. Gomez, S. Shibutani
79. Formation of planar model membranes rich in caveolin-1. **M.E. Blauch**, S. Plucinsky, J.A. Julien, K.J. Glover, N.J. Wittenberg
80. Influence of brain gangliosides on vesicle adsorption, rupture, and supported bilayer formation determined by quartz crystal microbalance sensing. **L. Jordan**, N. Wittenberg
81. Fluorescent detection of the prolamin family of proteins. **A.J. Brown**, W.A. Patton
82. Studying the kinetics and inhibition of the G-quadruplex/hemin DNAzyme complex. **R. Maloney**, **T. Brown**, J. Fu
83. Mapping the initial events in insertion and exit of the cell-penetrating peptide pHLIP. **V. Burns**, **B. Mertz**
84. Purification and crystallization of geranylgeranyl glyceryl phosphate synthase from *T. volcanium*. **B. Gillott**, K. Alderfer, J.A. Himmelberger
85. Synthesis of ionic liquids and application in Diels-Alder reactions. **F.C. Mayville**, **B. Gillott**, **B.A. Dierolf**
86. Synthesis and stability of *N*-benzylamide conjugates of non-steroidal anti-inflammatory drugs. **B. Eden**, **T. Lovett**, A.J. Rice, W. Bowman, E. Geissler, S.C. Young
87. Investigation into the mechanism of the sodium borohydride reduction of benzil. **M. Dworzak**, M. Meyer, T. Peelen
88. Oxidative esterification of allylic sp³-carbon via cross-dehydrogenative coupling followed by in-situ reductio. **T. Hapatsha**, S. Cartelli
89. Allylsilane synthesis via abnormal Peterson Olefination reaction. **M.L. Kwan**, P.R. Challen, **Q.D. Tran**
90. Mild, microwave-accelerated phenyl methyl ether protecting group cleavage method. **E. Geissler**, S.C. Young
91. Polycationic cages for noncovalent functionalization of frameworks. **H. Arslan**
92. Thermal rearrangement in triazoleimines, a unique class of anti-inflammatory and anti-cancer compounds. **N.D. Heindel**, J. Saxena, C.D. Guillon, R. Rapp, P.T. Kaplan, C. Fianu-Velgus, D. Heck, J. Laskin
93. The synthesis of two new putrescine analogs in 100 % ethanol as possible growth inhibitors of breast cancer cells. **F.C. Mayville**, **J. Weiss**
94. Mn-terpyridine catalyzed dehydrogenative acceptorless coupling of amines and alcohols to give aldimine. **L. Lopez**
95. Michael reactions of tropone iron tricarbonyl: Towards a flexible synthesis of bridged azapolycycles. **Z. Huang**, **Z. Phelan**, S. Valent, R. Tritt, D. Griffith

OO. Chemistry beyond the classroom. ACS chapter success **Essex County College**

Plenary Iacocca Hall, Wood Dining Hall 4:00

96. The image of alchemy: Depicting chemical change in medieval England. J.M. Rampling