



PROGRAM AT A GLANCE

THURSDAY

SEPTEMBER 14

5:30 PM - 7:30 PM: **WELCOME RECEPTION** Marian H. Rochelle Gateway Center (Next to UW Conference Center)

FRIDAY

SEPTEMBER 15

7:30 AM - 8:30 AM: **SENIOR CHEMIST BREAKFAST** UW Conference Center, Salon C (REGISTRATION REQUIRED)

8:30 AM - 12:00 PM: **AM SESSIONS** UW Conference Center

- *Chemistry for Enabling Energy-Efficient Technologies for a Sustainable Future*
- *Frontiers in Computational Modeling of Energy Materials*
- *Polymer Chemistry and Materials*
- *Renewable Materials from Biopolymers*
- *Advances in Asphalt Materials and Characterization*
- *Biochemistry*

12:15 PM - 1:15 PM: **WOMEN CHEMIST LUNCHEON** UW Conference Center, Salon C (REGISTRATION REQUIRED)

1:30 PM - 4:00 PM: **PM SESSIONS** UW Conference Center

- *Biochemistry*
- *Ionic Liquids for Sustainable Technologies*
- *Polymer Chemistry and Materials*
- *Solid State Materials Chemistry*
- *Organic Chemistry*

TIME TBD : **BREWERY TOUR** Bond's Brewery (REGISTRATION REQUIRED)

4:00 PM - 6:00 PM: **POSTER SESSION DAY 1 & EXPO RECEPTION** UW Conference Center

6:00 PM - 8:00 PM: **AWARDS BANQUET** UW Conference Center (REGISTRATION REQUIRED)

SATURDAY SEPTEMBER 16

8:30 AM - 12:30 PM: **AM SESSIONS** UW Conference Center

- *Chemistry of Psychedelics*
- *Next-Generation Materials for Electrochemical Energy*
- *Spectroscopy Meets Chemical Dynamics*
- *Analytical Chemistry*
- *Química (virtual)*
- *Polymer Chemistry and Materials*

9:00 AM - 11:30 AM: **SCHB BUSINESS ROUNDTABLE** UW Conference Center, Salon C (REGISTRATION RECOMMENDED)

12:00 PM - 1:30 PM: **LUNCH ON YOUR OWN** - Explore Laramie!!

1:30 PM - 4:00 PM: **PM SESSIONS** UW Conference Center

- *Chemistry of Psychedelics*
- *Small Business & Entrepreneurs*
- *Fermentation Science*
- *CO₂ chemistry at the nexus of energy, materials and environmental sustainability*
- *Next Generation Materials for Electrochemical Energy*

4:00 PM - 6:00 PM: **POSTER SESSION DAY 2 & EXPO RECEPTION** UW Conference Center

6:00 PM - 8:00 PM: **SOCIAL MIXER - INDUSTRY, ACADEMIA, GOVERNMENT** Bond's Brewery, Downtown Laramie

SUNDAY

SEPTEMBER 17

8:30 AM - 12:00 PM: **AM SESSIONS** UW Conference Center

- *Inorganic Chemistry*
- *Novel Materials for Catalysis*
- *Recent developments of the CORE-CM projects in Wyoming and the Region*
- *Actinide Chemistry and Separations for Nuclear Energy*
- *Innovation at the Extended Value Chain: Enablers of Circular Economy*
- *Methane*

9:00 AM - 11:00 AM: **FINDING YOURSELF WORKSHOP** UW Conference Center (REGISTRATION REQUIRED)



FULL PROGRAM

THURSDAY SEPTEMBER 14

5:30 PM - 7:30 PM: WELCOME RECEPTION

Marian H. Rochelle Gateway Center (Across from UW Conference Center)

FRIDAY SEPTEMBER 15

7:30 AM - 8:30 AM: SENIOR CHEMIST BREAKFAST - SALON C

Location: UW Conference Center (REGISTRATION REQUIRED)

8:30 AM - 12:00 PM: AM SESSIONS - SALONS A, B, C, F, G

Location: UW Conference Center

BIOCHEMISTRY - SALON F

Y. He, B. M. Leonard, *Organizers*

8:30 1. RNA 3D structure prediction: From traditional to machine learning techniques. **J. Wang**

8:50 2. Simple and effective conformational sampling strategy for intrinsically disordered proteins using the UNRES web server. **T. Li, E. Hendrix, Y. He**

9:10 3. Substrate channeling of proline dehydrogenase and pyrroline 5 carboxylate dehydrogenase from *Mycobacterium tuberculosis*. **S. Kumar, S. Segal, J. Lynn-Barbe, D. Harris, J. Koehn, D.C. Crans, D. Crick**

9:30 4. Molecular dynamics insights into peptide-based tetrodotoxin delivery nanostructures. **S. Song, Y. He**

9:50 5. Structural impact of 8-oxoG in the structure of RNA, and its impact on interactions with small-molecules and ribonucleases. **M.J. Resendiz**

10:10 Coffee Break.

10:40 6. Utilizing AlphaFoldDesign for the development of a small molecule inhibitor for PICK1-PDZ. **E. Hendrix**

11:00 7. POKY: Unlocking the potential of NMR-based biomolecular research. **A.E. Giraldo, Z. Werner, M. Rahimi, W. Lee**

11:20 8. Machine-learned electron densities of nucleic acids. **A.J. Lee, J.A. Rackers, W.P. Bricker**

11:40 9. Implicating monoamines in the neurochemical basis for noise-induced hearing loss. **A.K. Apawu, P. Wilson**



CHEMISTRY FOR ENABLING ENERGY-EFFICIENT TECHNOLOGIES FOR A SUSTAINABLE FUTURE - SALON A

A. V. Mudring, *Organizer*

Cosponsored by CEI

8:30 10. Carboxylate ester-based electrolytes for Na-ion battery. **Y. Qin**

8:50 11. Enhanced cycling performance of iron metal batteries for low-cost energy storage. **J. Liu**

9:10 12. Enhancing the charging performance of lithium-ion batteries by reducing Sei and charge transfer resistances. **Z. Li**

9:30 13. Electrochemical conversion of N₂ to ammonia at ambient temperature and pressure using a re pincer complex. **H.A. Petersen**, T.H. Myren, J.L. Katsirubas, O.R. Luca

9:50 14. Photocatalytic water splitting: Synergy of a catalyst and surrounding framework. **R. Ezhov**, J. Patel, Y. Pushkar

10:10 Coffee Break.

10:40 15. Solar panel initiatives in reducing carbon dioxide emissions. **D. Suruchi**

11:00 16. Solvent-sorbent interactions in type 3 porous liquids: Effects of porosity on CO₂ adsorption. **M. Hurlock**, M. Christian, J. Rimsza, T.M. Nenoff

11:20 17. Emitter materials from the Biopool and earth-abundant sources for organic lighting. **A.V. Mudring**

FRONTIERS IN COMPUTATIONAL MODELING OF ENERGY MATERIALS - SALON B

L. de Sousa Oliveira, S. Neogi, *Organizers*

Cosponsored by The University of Wyoming School of Computing

8:30 18. Electro-thermal transport in 2D materials and across their interfaces. **Z. Aksamija**

9:10 19. Simulating electron energy loss in two-dimensional materials distinguishes mode transitions, excitonic activity, and carrier injection. **D.K. Roper**, C. Thomson

9:30 20. Learning interatomic forces from fluid structure with machine learning accelerated Bayesian optimization. **H.W. Sullivan**, B. Shanks, M. Hoepfner

9:50 Coffee Break.

10:00 21. Ab initio investigation of thermoelectric properties of two-dimensional MOFs. **M. Mahmoudi Gahrouei**, L. de Sousa Oliveira

10:20 22. Effect of interface curvature at the axial junction in Silicon-Germanium (Si-Ge) nanowires. **O. Adesina**, L. de Sousa Oliveira

10:40 23. Comparative analysis of quantum capacitance in TeO and SeO materials with and without spin-orbit coupling for supercapacitor electrodes: A DFT study. **H.M. Kolavada**, S.K. Gupta, P.N. Gajjar

11:00 Meet-and-greet.



POLYMER CHEMISTRY AND MATERIALS - SALON C

X. Li, *Organizer*

8:30 Introductory Remarks.

8:35 24. Organocatalyzed Atom Transfer Radical Polymerization. **G. Miyake**

9:15 25. Novel synthesis of pHEMA hydrogels provides tunable transport and mechanical properties. **Z. Sparks**, A. Chauhan

9:30 26. Chitosan-*k*-carrageenan molecularly imprinted polymers (MIPs) for sequestration of bupivacaine. **J. Macasinag**

9:45 Coffee Break.

10:00 27. Borane-based polymers and polymer transformations for Li-ion batteries, polymer upcycling, and temperature-responsive polymer networks. **M. Hill**

10:40 28. Examining the physical interactions of surface-initiated cationic polymer brushes with therapeutic nucleic acids for gene delivery. **C. Nelson**, R. Kumar

10:55 29. Development of peptide-based zwitterionic cross-linkers for biocompatible polyampholyte hydrogels. S.O. Oneida, A. Shea, L. Dresler, W. Auten, A.R. Reishus, M. Bernards, **K.V. Waynant**

RENEWABLE MATERIALS FROM BIOPOLYMERS - SALON G

J. L. Shamshina, *Organizer*

8:30 Introductory Remarks.

8:35 30. Novel solvents for dissolution and processing of cellulose and lignocellulose materials. **X. Wang**

9:05 31. Ionic liquids for realization of chitin nanomaterials platform: Closer look at the cost structure. **J.L. Shamshina**, A. Shkuratov

9:35 Coffee Break.

9:55 32. Reshaping bio-based waste streams into valuable products using ionic liquids (ILs): Innovative technologies to increase the domestic supply of critical materials. **G. Gurau**, R.D. Rogers, K.R. Di Bona, C. Hill

10:25 33. Advanced biodegradable filtration materials to combat emerging health threats. **K.R. Di Bona**

ADVANCES IN ASPHALT MATERIALS AND CHARACTERIZATION - SALON G

J. J. Adams, *Organizer*

11:00 34. A new saturates, aromatics, resins, and asphaltenes (SARA) separation technique. **J. Rovani**, J.J. Adams

11:30 35. Coal-based asphalt, a new low-carbon footprint paving material with elusive physical properties. **J.J. Adams**, L. Muller, J. Planche, Y. Kumbarger, J. Loveridge, C. Seago, T. Pfeiffer, P. Behrens, L. Hazard, J. Flock, J. Martin



12:15 PM - 1:15 PM: **WOMEN CHEMIST LUNCHEON - SALON C**

Location: UW Conference Center (REGISTRATION REQUIRED)

Cosponsored by WCC

1:30 PM - 4:00 PM: **PM SESSIONS - SALONS A, B, C, F, G**

Location: UW Conference Center

BIOCHEMISTRY - SALON F

Y. He, *Organizer*

1:30 36. Multiscale models of transmembrane adhesion receptors. R. Kolasangiani, O. Joshi, R. Sondaz, **T. Bidone**

1:50 37. Macromolecular rate theory applied to myoglobin as a pseudo peroxidase. **D. Scott**, G. Barron

2:10 38. Increasing productivity of lentiviral gene vectors at high suspended mammalian cell density. **D.K. Roper**, J. Accordino

2:30 39. Modular DNA barcodes embedded in porous protein crystals for enhanced mosquito tracking. **C.D. Snow**, J.D. Stuart, D.A. Hartman, A.A. Jones, S. Chen, R.C. Kading

2:50 40. Accurate simulation of coupling between protein secondary structure and phase separation. **J. Chen**

IONIC LIQUIDS FOR SUSTAINABLE TECHNOLOGIES - SALON A

K. R. Di Bona, G. Gurau, *Organizers*

Cosponsored by CEI

1:30 41. Are ionic liquids inherently green, inherently dangerous, or rather the same combination of both found in all chemicals?. **R.D. Rogers**

1:55 42. Expanding the world of ionic liquids through new anions. **A.V. Mudring**

2:20 43. Chitin: A natural biopolymer with a wide range of applications: Current questions and potential prospects. **J.L. Shamshina**

2:45 44. Ionic liquid-based extraction and electrochemical recovery of rare earth elements from ore. **K.R. Di Bona**, C. Hill

3:10 Break.

3:20 45. Influences of water content on selectivity trends in DGA-based ionic liquids. **K. Johnson**

3:45 46. Ionic liquid processing of biopolymers for sustainable applications: Challenges and opportunities. **A. Spigel**, N. Zalewski, J. Bonner, R.D. Rogers, G. Gurau, C. Hill, K.R. Di Bona

4:00 47. Separation of rare earth elements via electrochemically-assisted solvent extraction. **D. McDonald**, N. Gustafson, K.R. Di Bona, C. Hill



POLYMER CHEMISTRY AND MATERIALS - SALON C

X. Li, *Organizer*

1:30 Coffee Break.

1:35 48. Interface Chemistry for Organic and Organic Inorganic Hybrid Electronics and Opto-electronics. **S.R. Marder**

2:15 49. Epoxy and polyurethane from coal?. **S. Holberg**, X. Wang, P.A. Johnson

2:30 50. Ultrastable porous organic polymers containing thianthrene and pyrene units as organic electrode materials for supercapacitors. **S. Chaganti**

2:45 Introductory Remarks.

3:00 51. Combining TIPS and soft lithography to pattern microporous membranes: Process and applications. **Y. Ding**, S. Fan, D. Nguyen, A. Straub, K. Fung

3:40 52. Production of low-density nanocellular foam based on PMMA/PEBAX blends. **N. Demewoz**, S. Demewoz

3:55 53. Multiphysics modeling of frontal polymerization-based 3D printing of polymer components. **Z. Chen**, M. Ziaee, M. Yourdkhani, X. Zhang

4:10 54. Mechanophore-Free Mechanochemical Reactions for Detection of Stress and Damage in Hydrogels. **A.P. Goodwin**

SOLID STATE MATERIALS CHEMISTRY - SALON B

B. M. Leonard, J. R. Neilson, *Organizers*

1:30 55. Iodide-Triiodide based intercalation of alkali metals into layered 2D Tungsten oxychloride (WO_2Cl_2). **J.O. Samuel**, B.M. Leonard

1:50 56. Magnetism by design: Validating computational predictions of Heusler skyrmion hosts. **E. Mozur**

2:10 57. High throughput mechanocrystallization of active pharmaceutical ingredients with detection by synchrotron X-ray powder diffraction and Raman spectroscopy. **A.H. Bond**

2:30 58. Synthesis and intercalation of two-dimensional transition metal oxychlorides. **F. Zhimi**, B.M. Leonard

2:50 Coffee Break.

3:05 59. Synthesis of $Na_{0.4}WS_2$ and thermal stability of 2M- WS_2 . **J. McBride**, P. Samarawickrama, J. Tian, J. Ackerman, B.M. Leonard

3:25 60. Investigation of 2D tungsten oxyhalides phase changes by alkali metal triethyl borohydrides. **A. Hossain**, B.M. Leonard, J. Ackerman

3:45 61. Enabling energy-efficient refrigeration through new magnetocaloric materials. **A.V. Mudring**



ORGANIC CHEMISTRY - SALON G

X. Li, Organizer

3:10 62. Digital vs. print textbook impact on student comprehension in flipped organic chemistry. **M.A. Christiansen**

3:30 63. Sterically hindered, hydrophobic vanadium (V) complexes with non-innocent ligands, and their potential as chemotherapeutic agents. **J.F. Mangano**, A. Galaeva, K. Klugh, P. Lay, A. Levina, D.C. Crans

3:50 64. Advancing sustainable recycling: Reductive electrochemical methods for polyethylene terephthalate depolymerization. **P. Pham**, S. Barlow, S.R. Marder, O. Luca

4:00 PM - 6:00 PM: **POSTER SESSION DAY 1 & EXPO RECEPTION** - Salons D & E

Location: UW Conference Center

65. LC-QQQ detection of glucosamine from *Aspergillus* species. **M.C. Schwarz**, S. VandeWoude, M.M. Reynolds

66. A-SIMA: Advanced-support for interactive metabolite analysis with 2D NMR. **A. Chiu**, M. Rahimi, W. Lee

67. Sucrose interactions with rice (*Oryza sativa*) callus cell: Insights into cryoprotective mechanisms. **A. Ochoa Castillo**, F.M. Samuels, N.E. Levinger

68. Detection of cannabinoids in blood and hemp extracts by HPLC-DAD. **A. Chard**, M.M. Reynolds

69. Novel methods for HPLC analysis of nucleosidic compounds. **A.H. Ackerman**, J.E. Milliken

70. Longitudinal analysis of phosphate and anatoxin-a in Utah Lake. **C. Bell-Hunley**, E. Heider

71. Antioxidant mechanistic study of a novel thiophene antioxidant. **E. Heider**, G. Nickles, W. Christiansen, J. Harper

72. Investigating how the physical characteristics of monolayer semiconductors influence their photoelectrochemical properties. **A.P. Tews**

73. A method on acrylamide elimination: Comparing and tracing reaction pathways of acrylamide and catechin (catechin quinone) using UHPLC-Q-exactive orbitrap mass spectrometry. **X. Liu**, J. Su, Y. Geng, F. Chen, B. Huang, H. Yang, X. Ma, X. Hu, J. Ji, L. Ma

74. Probing electrochemical reactions at individual metal nanostructures using scanning electrochemical cell microscopy. **I. Sooriyaarachchi**, C. Hill

75. On-tissue derivatization for enhanced carbohydrates and sterols detection in bee and rat brain via MALDI/MALDESI mass spectrometry. **N. Saha**, A. Goodenough, T. Hatcher, M. Dillon, F. Basile

76. 2-dimensional covalent organic framework for selective separation of cationic species. **M. Wenzel**, A. Davies, Z. Kiss, J. Brant, L. de Sousa Oliveira, B.A. Parkinson, J.O. Hoberg



77. Probing local photocatalytic variations in nanostructured BiVO₄ films using scanning electrochemical cell microscopy. **V.D. Aderibigbe**, C. Hill
78. Fabricating ordered nanoparticle arrays using scanning electrochemical cell microscopy for biosensing applications. **S. Rahman**, C. Hill
79. Analysis of aerosolized viruses using water soluble capture pad. **S. Ramproshad**, A. Acharzo, D. Dutta
80. Untargeted metabolomics of *Bombus impatiens* short-term responses to cold exposure Via GC-MS. **H. Taylor**, E. Keaveny, M. Dillon, F. Basile
81. Developing an HPLC method to evaluate the impact of deafening noise on GABA and glutamate in the central auditory system. **I.D. Larson**, A.K. Apawu
82. Studies in the fabrication and functionalization of ordered nanoparticle arrays via SECCM for applications in electrochemical biosensing. **K. Osoro**, C. Hill
83. Effect of S-STEM project initiatives on student engagement and High Impact Practice participation. **N.O. Flynn**
84. Structural studies on the -GGAG- tetraloop within hairpins of RNA and DNA. **V.V. Nguyen**
85. AHNA: Automated homomer structure by NMR and AlphaFold-multimer. **K. Pham**, W. Lee
86. The effect of vanadium and manganese speciation on mitochondrial reactive oxygen species formation. **C. Dolan**, L. Rose, L. Whitcomb, A. Chicco, D.C. Crans
87. Evaluating the impact of deafening noise on dopamine synthesis and metabolism in the hub of the central auditory system. **C. Oubkeo**, A.K. Apawu
88. Building protein-DNA co-crystals as scaffolds for X-ray crystallography. **C. Shepherd**, C.D. Snow
89. Integrating anti-freeze proteins in silk microneedle patch delivery. **A.L. Leonel Reyes**, K. Meister
90. Effects of cholesterol on membrane binding by synaptotagmin-7 C2 domains. **A.E. Matthews**
91. Site-specific spectroscopic probe of calmodulin-nitric oxide synthase (CaM-NOS) docking interface. **R. Owopetu**, Y. Gyawali, C. Feng
92. Transphosphorylation from p-nitrophenyl phosphate to the catalytic cysteine of DUSP5. **A. Atangulov**, M. Talipov, P.S. Senanayake
93. Increasing aminoglycoside target selectivity of RNA aptamers with the incorporation of chemically modified purines. **T. Aljarah**
94. Deuterium solid-state NMR line shape analysis of methyl bearing side chains in amyloid fibrils interacting with synaptic vesicles. **B. Frazier**, L. Vugmeyster, D. Ostrovsky
95. Reactivity of PNPase towards oxidized RNA containing 7,8-dihydro-8oxoguanine. **B. Reynolds**, L. Miller, L.M. Contreras, M.J. Resendiz
96. Neuroscience and structures of receptors related to addiction: Introductory text for Chem 320. **L. Rose**, C. Dolan, V. Farmer, D. Roess, D.C. Crans



97. Partition coefficient $\log(P)$ in novel psilocybin varieties. V. Shuger, **D. D'Agostino**, E. Johnson, E.B. Hulley
98. Synthesis of amine oxidation activity of a novel 10-cyano-substituted Flavin. **Q. Penalzo Orozco**, V. Shuger, N. Arulsamy, E.B. Hulley
99. Synthesis and evaluation of novel tryptamines. **E. Johnson**, V. Shuger, E.B. Hulley

6:00 PM - 8:00 PM: AWARDS BANQUET - BALLROOM

Location: UW Conference Center (REGISTRATION REQUIRED)

SATURDAY **SEPTEMBER 16**

9:00 AM - 11:30 AM: SCHB CHEMICAL BUSINESS ROUNDTABLE - SALON A

Location: UW Conference Center
J. E. Sabol, K. R. Di Bona *Organizers*

8:30 AM - 12:30 PM: AM SESSIONS - SALONS A, B, C, F, G

Location: UW Conference Center

CHEMISTRY OF PSYCHEDELICS - SALON F

E. B. Hulley, *Organizer*

8:30 100. Psilocin prodrugs and hydrolysis. **A. Chadeayne**

9:05 101. The solid-state structures of tryptamines. **D.R. Manke**

9:40 Coffee Break.

9:55 102. Fundamental chemistry of tryptamines: Overview, new directions, and pharmacological relevance. **E.B. Hulley**, V. Shuger, N. Arulsamy, E. Johnson, D. D'Agostino, Q. Penalzo Orozco

10:30 103. Evaluation of fundamental structure-activity relationships of tryptamines for pharmacological relevance. **V. Shuger**, D. D'Agostino, E. Johnson, E.B. Hulley

10:55 104. Undergraduate course in "Chemistry of drug addiction" at Colorado State University involve structure and function of psychedelic drugs. **D.C. Crans**, C. Dolan, L. Rose, D. Roess

11:30 105. Psychedelics and the entourage effect?. **A. Chadeayne**

NEXT-GENERATION MATERIALS FOR ELECTROCHEMICAL ENERGY - SALON B

A. Maughan, P. A. Yox, *Organizers*

8:30 106. Cross-linked naphthalene diimide-based polymer as a cathode material for high-performance organic batteries. **S. Sharma**



8:50 107. Effects of dynamic and static disorder on ionic conduction in $\text{Li}_6\text{PS}_5\text{Br}_{1-x}(\text{CN})_x$. **L. Metzroth**, A. Maughan

9:10 108. Earth abundant chloride electrolytes for solid state Li batteries. **C. Rom**, M. Kothakonda, P.A. Yox, T. Martin, P. Gorai, A. Maughan

9:30 109. Probing electrocatalytic activity of individual high entropy alloy nanoparticles using scanning electrochemical cell microscopy. **R. Ramakrishnan**, C. Hill

9:50 Coffee Break.

10:20 110. Not all zero-dimensional crystal structures are created equal: Ion conduction in thioantimonate solid-state electrolytes. **P.A. Yox**, A. Maughan

10:40 111. Manifesting multivalent Mg pnictide solid state electrolytes. **S. Galinat**, R. Earnest, E. Ziu, A. Maughan

11:00 112. Observing localized photoelectrochemical energy conversion in transition metal dichalcogenide thin film electrodes via scanning electrochemical cell microscopy. **D. Lorenz**

POLYMER CHEMISTRY AND MATERIALS - SALON D

X. Li, *Organizer*

8:35 113. Aromatic ortho-diimides for organic materials. **D. Cao**

9:15 114. Rapid and energy-efficient method for manufacturing lattice core sandwich panels via frontal polymerization. **M. Condell**

9:30 115. Synthesis of tri-aza-coronene (TAzC) based carboxylic acid functionalized covalent organic frameworks using the Pictet–Spengler reaction. **B. Dhokale**

9:45 Coffee Break

10:00 116. Developing Ionoelastomer heterojunctions for low-voltage electroadhesion. **R. Hayward**

10:40 117. Frontal polymerization based 3D printing of epoxy components: Manipulating ink temperature for increased printing velocity. **R. Ruiz**

10:55 118. By-design functional polymeric materials enabled by dynamic covalent chemistry. **W. Zhang**

QUIMICA - SALON G

P. D. Burton, E. Guaba-Roldan, *Organizers*

8:30 119. Polarimetric analysis of carbohydrates, experimental verification of Biot's law. **M.T. Espinoza-Nicol**

8:50 120. Estudios para controlar la estructura supramolecular de cadenas de ARN y ADN, via modificaciones con benzotiofeno. **M.J. Resendiz**

9:10 121. Novel kinetic description of real-time polymerase chain reaction characterizes interrelated effects of sample, master mix, and cycle time. **D. Tafur**, D.K. Roper



9:30 122. Trajectories for transformation-competent lentiviral gene vectors in polyethyleneimine-transfected adherent cells. **N. Mier-Zambrano**, D.K. Roper

ANALYTICAL CHEMISTRY - SALON G

C. Hill, *Organizer*

10:20 133. Developed electrochemical sensor based on 2D inorganic materials for determination of Tyrosine. **M. Mehmaddoust**

10:40 134. Identification of *Oryza sativa* callus cell responses to Plant Vitrification Solution 2 with coherent anti-Stokes Raman scattering microscopy. **K. Pearce**, F.M. Samuels, N.E. Levinger

SPECTROSCOPY MEETS CHEMICAL DYNAMICS - SALON C

D. T. Anderson, *Organizer*

8:30 123. Spectral evidence of nuclear spin conversion of CH₃D isolated in quantum solids. **A.H. Nguyen**, i. muddasser, D.T. Anderson

8:50 124. Nanoscale imaging of quantum dots using time-resolved super-resolution microscopy combined with scanning electron microscopy. **B. Dhakal**, A. Van Orden, M. Gelfand, D.P. Ryan, L. Koch, M. Dunlap, P. Goodwin, J. Werner

9:10 125. Quantum diffusion of chlorine atoms in solid parahydrogen. **I. Muddasser**, A.H. Nguyen, D.T. Anderson

9:30 126. Spectroscopic studies of a cationic Co(II) bisphosphine hydroformylation catalyst system. **G.G. Stanley**

9:50 127. When a solid acts like a liquid: Evidence for diffusion-controlled recombination at 4 K. **D.T. Anderson**

10:10 Coffee Break.

10:30 128. Characterization of bound water in post-translationally modified amyloid-beta fibrils and a soil sample from Antarctica, using H-2 and O-17 solid-state NMR. **L. Vugmeyster**, R. Fu, D. Ostrovsky, K. Gwin, A. Rodgers

10:50 129. Study of ion pairing for alkali halides in water by NMR spectroscopy and simulation. M. Musial, C. Suiter, S. Miller, D. Riccardi, C. Muzny, A. Stelson, K. Schwarz, T. Lovestead, **J. Widegren**

11:10 130. Urea at the extremes: Exploring the effects of confinement and concentration in urea-containing AOT reverse micelles and aqueous urea solutions. **G. Virgen**, N.E. Levinger, B.L. Gourley

11:30 131. Inverse relationship between quantum diffusion rate of H-atom and chemical Impurity concentration in solid parahydrogen. **I. Muddasser**, D.T. Anderson, A.H. Nguyen

11:50 132. High-resolution infrared spectroscopy of gas phase cyclobutyl radical in the α -CH stretch region: Structural and dynamical insights. **Y. Chan**, D.J. Nesbitt



12:10 Yu Chen.

12:00 PM - 1:30 PM: **LUNCH ON YOUR OWN - Explore Laramie!**

1:30 PM - 4:00 PM: **PM SESSIONS**

Location: UW Conference Center

CHEMISTRY OF PSYCHEDELICS - SALON F

E. B. Hulley, *Organizer*

1:30 135. Exploring the neurobiological effects of tryptamine psychedelics on stress-induced anorexia. **M.J. Francis**, A.B. Furbish, A.W. Smith, P.M. Woster, E.P. Azevedo

2:05 136. Utility of the mouse head twitch response in psychedelic drug discovery: Strengths, limitations, and methodological advances in detection. **G. Glatfelter**, M.H. Baumann

2:40 137. Effects psychedelic compounds on drug seeking. **A. Bobadilla**

CO₂ CHEMISTRY AT THE NEXUS OF ENERGY, MATERIALS AND ENVIRONMENTAL SUSTAINABILITY - SALON C

C. Jeong-Potter, *Organizer*

M. A. Arellano, W. McNeary, *Presiding*

1:30 Introduction.

1:35 138. Electrochemical CO₂ reduction to methane with remarkably high Faradaic efficiency in the presence of a proton permeable membrane. **H. Pan**, C. Barile

2:05 139. Measuring the sequestration of CO₂ by cement/concrete with gas-phase and solid-phase NMR spectroscopy. C. Suiter, R. Nieuwendaal, E. Mansfield, V. Malavé, E. Garboczi, **J. Widegren**

2:35 140. On the use of temperature to modulate redox potentials for electrochemical carbon capture. **H.J. Koltunski**, H.A. Petersen, A.W. Alherz, O.R. Luca

3:05 141. Polymer mobility: Role of humidity in linear, branched and confined polymers used in direct air CO₂ capture. **N. Leick**, N.A. Strange, M. Marple, J. Crawford, M. Yung, M. Carroll, W.A. Braunecker

3:35 Discussion of challenges and opportunities in CO₂ chemistry.

NEXT-GENERATION MATERIALS FOR ELECTROCHEMICAL ENERGY - SALON B

A. Maughan, P. A. Yox, *Organizers*

1:30 142. Disordered materials design of metal halide electrolytes for fast ion conduction in all-solid-state batteries. **S. Combs**, P. Gorai, A. Maughan



1:50 143. Tumbling tetrahedra: An interrogation of borohydride substituted Argyrodites. **A. Shotwell**

2:10 144. Potential of diffuse reflectance infrared Fourier transform spectroscopy for metal oxide based electrochemical cells. **K. Valeti**, A. Staerz

2:30 145. Probing heterogeneity in faceted BiVO_4 single particle and ensemble-level photo-electrochemical water oxidation using spatially resolved correlated microscopy. **A. Banik**, J.B. Sambur

SMALL BUSINESS & ENTREPRENEURS - SALON A

K. R. Di Bona, G. Gurau, *Organizers*

Cosponsored by SCHB

1:30 146. Interdisciplinary research, innovative thinking, and entrepreneurial action in the commercialization of life science technologies. **A.H. Bond**, H. Patel, J. Sha, Y. Ma

1:50 147. Lessons learned in starting a small business in the chemicals sector: The next challenges of biorefineries: roadblocks, detours, and areas under construction. **R.D. Rogers**

2:10 148. Observations from a chemical consultant. **J.E. Sabol**

2:30 149. Innovation, development, and commercialization of sustainable technologies: The challenges of getting a business off the ground. **G. Gurau**

2:50 Break.

3:05 150. Next-generation benchtop NMR at 125 MHz: Advances in resolution, applications, and accessibility. **T. Ozvat**

3:25 151. GlycoSurf: Fostering innovation one bio-inspired surfactant at a time. **C. Boxley**, R. Stolley, R. Bruggeman

3:45 152. Commercialization of advanced technologies in the Rocky Mountain region, opportunities and challenges for start-ups. **K.R. Di Bona**

4:05 Panel.

FERMENTATION SCIENCE - SALON F

B. M. Leonard, *Organizer*

3:15 153. From nature to cancer therapy: Evaluating the RTK-inhibiting potential of *Streptomyces clavuligerus* secondary metabolites. **R. Saini**, S. Kumari, A. Mishra, A. Singh

3:35 154. Sourdough-omics: Using modern analytical technologies to optimize ancient fermentation approaches. **C. Van Buiten**, J. Wee, J. Prenni, E. Keohane, C. Clark, A. Ohstrom

4:00 PM - 6:00 PM: **POSTER SESSION DAY 2 & EXPO RECEPTION**

Location: UW Conference Center - Salons D & E



155. Quantifying CO₂ reduction selectivity on Au by rotating ring disk electrode voltammetry: Opportunities and challenges. **M. Kelly**, R. Wnuk, W. Smith
156. Investigating quinone-based sorbents for electrochemical capture of carbon dioxide from air. **H.A. Petersen**, A.W. Alherz, S.N. Sur, N.R. Singstock, O.R. Luca, C. Musgrave
157. Dry reforming of methane over highly active and stable oxide-supported cobalt catalysts. **N. Paudyal**, J. Larson, T. Ara, J. Zhou
158. Rapid wort color method using inclusions for significantly darker malts. **N.O. Flynn**
159. Molecular structures of 3-methyl and 3,5-dimethylpyridine Aqua transition metal sulfates. **J. Golen**, M. Naeem, D. Pham, A. Park, D.R. Manke
160. Amine intercalation of WO₂Cl₂. **R. Tardon**, B.M. Leonard, H. Arellano, C. Duffee
161. Exploration of porous titanium dioxide photocatalysts for oxidation of long and short chain PFAS. **S.E. Massimi**, B.G. Trewyn
162. Large scale synthesis and characterization of [VO(tbuHSHED)dtb] as a potential anticancer agent: Preparation for toxicity testing. **A. Galaeva**, J.F. Manganaro, P. Lay, A. Levina, D.C. Crans
163. Synthesis and characterization of cobalt Schiff base complexes. **K. Klugh**, A. Levina, P. Lay, D.C. Crans
164. UV-Vis stability studies of non-innocent vanadium(V) Schiff base SALIEP catecholate complexes. **A.R. Eberspacher**, K. Kostenkova, A. Levina, P. Lay, D.C. Crans
165. Development of TEVA resin extraction chromatography separation for Np determination in Pu materials using gamma spectrometry. N.A. DiBlasi, S. Maxwell, **D.R. Porterfield**, D. Valdez, J. Rim, A.C. Olson, L. Tandon, K. McCann
166. Eutectic composition affects electrodeposit morphology in molten salts. **M. Duff**, J. Shafer, M.P. Jensen
167. TBP radiolysis products' effect on Ce and Np valence and speciation. **J. Dunbar**, M.P. Jensen
168. Increasing temperature sensitivity for ⁵¹V NMR thermometers through ligand-to-metal charge transfer. **A.C. Bates**, J. Grundy, D.C. Crans, J. Zadrozny
169. Generation of an aminyl radical and nitrenium ion: Redox noninnocence of a phosphinimine-based pincer ligand. **X. Xing**
170. Activation of O-H bond through metal-ligand cooperativity in a pincer-based aluminum complex. **X. Xing**
171. Relating stability and biological activity to structural modifications of two vanadium (V) Schiff-Base catecholate complexes. **E. Nelson**, E. Kim, D. Walters, A. Eberspacher, S.A. Markham, K. Kostenkova, A. Levina, P. Lay, D.C. Crans
172. Synthesis and characterization of vanadium(V) Schiff-base catecholate complexes for intratumoral cancer treatment. **E. Kim**, E. Nelson, S.A. Markham, A.C. Bates, A. Levina, P. Lay, D.C. Crans



173. Vanadium(V) pyridine-containing Schiff base catecholate complexes are novel lipophilic, redox-active and selectively cytotoxic in glioblastoma (T98g) cells. K. Kostenkova, A. Levina, **D. Walters**, P. Lay, D.C. Crans
174. Synthesizing morphology-controlled high entropy perovskite nanomaterials for electrocatalysis. **C.E. Block**, E. Brim, S. Gonzalez, R.M. Richards
175. Production of biodiesel from jatropha seeds. **M. Hamid Ali**
176. Biocatalytic Aza-Michael addition of aromatic amines to enone using α -amylase in water. **S. Dutt**
177. Investigation of a fluorescent approach based on 1,8-naphthalimide for the detection of H_2S . M. Riesberg, T. Dvorak, N. Gleason, **H. Cao**
178. Improved synthesis of uridine functionalized with benzothiophene at the C2'-O-position. **E.N. Grimes**
179. Synthesis, characterization, and structural analysis of truncated biologically relevant lipoquinones. **S.A. Markham**, K. Kostenkova, C. Dolan, J.T. Koehn, C. Beuning, D. Crick, D.C. Crans
180. Synthesis of acridone derivative for antibiotic prodrug targeting methicillin-resistant *Staphylococcus aureus*. **A.R. Girmus**, A.R. Selkow, M.M. Reynolds
181. Synthesis of a novel combination therapeutic to treat breast carcinoma. **T. Whitaker**, M.M. Reynolds
182. Multi-step synthesis of a methicillin-resistant *Staphylococcus aureus* specific prodrug. **A.R. Selkow**, A.R. Girmus, M.M. Reynolds
183. Functionalization of solid supports to immobilize oligonucleotides of RNA. **A. Cushing**, M.J. Resendiz
184. Boronate COF synthesis. **J. Calvert**, B. Dhokale, A. Davies, Z. Kiss, J. Brant, L. de Sousa Oliveira, B.A. Parkinson, J.O. Hoberg
185. Synthesis and characterization of Triazacoronene covalent organic frameworks for separation membranes. **K.C. Kirkham**, B. Dhokale, A. Davies, Z. Kiss, J. Brant, L. de Sousa Oliveira, B.A. Parkinson, J.O. Hoberg
186. Metal-organic frameworks using Triazacoronene nodes for metal capture. **F.O. Gboyero**, J.O. Hoberg, B.A. Parkinson, J. Brant
187. Production of sustainable aviation fuel from hydrodeoxygenation of pinyon juniper and feather reed grass catalytic pyrolysis oils. **C. Mock**, F.A. Agblevor, Y. Sun
188. Synthesis and characterization of 3,4, 6-tri-isopropyl catechol and 3,5-di-isopropyl catechol for use in bioactive vanadium (V) Schiff base complexes. **K. Klugh**, A.C. Bates, J.F. Manganaro, A. Levina, P. Lay, D.C. Crans
189. Secondary Structure and Selectivity of RNA Aptamers containing 8-oxoG: Targeting Aminoglycosides. **H. Ramirez**, M.J. Resendiz
190. Synthesis and photoreactivity of 8-oxo-7,8-dihydroguanosine. **V. Conrad**, M.J. Resendiz



- 191.** Developing an atomistic model for the E318Q variant of CLC^F F/H⁺ antiporter. **J.L. Nguyen**, N. Chon, H. Lin
- 192.** Innovative applications of electrospinning natural polymers. **N. Zalewski**, A. Spigel, G. Gurau, R.D. Rogers, J. Bonner, C. Hill, K.R. Di Bona
- 193.** From waste to products: Sustainable applications for renewable biopolymers. **A. Spigel**, N. Zalewski, C. Hill, K.R. Di Bona, G. Gurau, R.D. Rogers, J. Bonner
- 194.** Applications to advanced micro/nanomanipulation platforms for emerging biotechnologies. **I. Orozco**, D. Rone, C. Hill, K.R. Di Bona
- 195.** Development of a micromanipulation platform to enable emerging technologies. **D. Rone**, I. Orozco, C. Hill, K.R. Di Bona
- 196.** Structure determination of RNA and DNA modified with 2-Methylebenzothiophene. **A. Ball**

6:00 PM - 8:00 PM: **SOCIAL MIXER - INDUSTRY, ACADEMIA, GOVT**

Bond's Brewery, Downtown Laramie

Cosponsored by ACS Corporate Associates

SUNDAY

SEPTEMBER 17

8:30 AM - 12:00 PM: **AM SESSIONS - SALONS A, B, C, F, G**

Location: UW Conference Center

ACTINIDE CHEMISTRY AND SEPARATIONS FOR NUCLEAR ENERGY - SALON F

C. Hill, *Organizer*

8:30 197. Actinide chemistry: Projects, facilities, opportunities. **R.D. Rogers**

9:00 198. Enhancing the electrophoretic separation of rare earth elements through complexation with carboxylate ligands. **C.L. Tolbert**

9:20 199. A Mach-Zhender Interferometric waveguide modulator Improvement. **K. Kanawi**

INORGANIC CHEMISTRY - SALON C

E. B. Hulley, B. M. Leonard, *Organizers*

8:30 200. Catalysis with redox-active Azothioformamide ligands. **K.V. Waynant**, R. pradhan, L. Tiwari, S. Schoth, N. Muparutsa, M.T. Moody

8:50 201. Expanding the scope of TREN ligands: From C₃ to C₅ and beyond. **D.R. Manke**

9:10 202. Synthesis and characterization of novel carbazole-based PNP-type pincer ligand for group 10 metals. **A. Mas ud**, N. Arulsamy, E.B. Hulley



9:30 203. Screening of catalysts for the hydrodeoxygenation of 6-undecanone. **R.I. Balderas**, J. Miller, D. Vardon, R.M. Richards

9:50 204. Synthesis and physicochemical studies of metal(II) complexes of 2-((4-oxopentan-2-ylidene)amino) benzoic acid and their 2,2-bipyridine and 1,10-phenanthroline. **S.B. Adekoya**, S.K. Anyanwu, D.T. Ibukun, H.O. Omoregie

10:10 Coffee Break.

10:25 205. Pitfalls and blessings in reduced rare-earth metal halide chemistry. **G. Meyer**

10:45 206. Utilization of CO₂ in C-H activation by a pop supported organometallic platform. **K.J. Chavez**, N. Arulsamy, E.B. Hulley

11:05 207. Increasing hydrophobicity and stability of vanadium Schiff base catecholate complexes with adamantyl substituted catechol ligands. **A.C. Bates**, H. Murakami, P. Lay, A. Levina, D.C. Crans

11:25 208. Halogenated Non-Innocent Vanadium(V) Schiff base complexes show correlation of complex redox potential with first ligand catechol pKa value. **S.A. Markham**, A. Haase, H. Murakami, J.T. Koehn, A. Levina, P. Lay, D.C. Crans

METHANE - SALON G

J. E. Sabol, *Organizer*

Cosponsored by CES

8:30 Introductory Remarks.

8:35 209. New insights into methane emissions from the Permian Basin. **D. Caulton**, P. Gurav, A. Robertson, K. Pozsonyi, S. Murphy, D. Lyon

8:55 210. Identifying methane emissions from cattle feeding operations within the Colorado front range. **K. Steinmann**, M. McCabe, J. Juncosa Calahorrano, A. Sullivan, I. Pollack, E.V. Fischer, D. Caulton

9:15 211. Mitigation of methane and methanol waste by optimizing microbial bioplastic production. **M. Lazic**

9:35 212. High pressure vapor liquid equilibrium measurements of methane and water mixtures using nuclear magnetic resonance (NMR) spectroscopy. **S. Miller**, M. Sartini, C. Suiter, J. Widegren, M. McLinden, B.C. Windom

9:55 213. Methane: The consumer's guide. **J.E. Sabol**

10:15 Discussion.

NOVEL MATERIALS FOR CATALYSIS - SALON B

J. Zhou, *Organizer*

Cosponsored by CATL



8:30 214. A comparative study of size-dependent properties of nickel and cobalt nanoclusters on CeO₂(111). S. Rahman, T. Ara, **Y. Xu**, J. Zhou

9:00 215. Instantaneous degradation of nerve agent simulants using zirconium-based metal-organic polyhedra. **K. Kiaei**

9:20 Coffee Break.

9:40 216. Interrogating the pH lability of ethylamine enriched ordered mesoporous carbon surfaces modified by oxidative coupling and organolithium-mediated methods. **N. Kovach**, B.G. Trewyn

10:00 217. Enzyme-inspired metal-organic architectures for confined photocatalytic inert bond transformation with added values. **C. Duan**

RECENT DEVELOPMENTS OF THE CORE-CM PROJECTS IN WYOMING AND THE REGION - SALON A

D. Bagdonas, R. Goff, *Organizers*

8:30 Session introduction.

8:40 218. Microalgae biomass generation in 3D printed matrices. **J. Oakey**

9:05 219. Recent developments of hydrogen generation and transport projects in Wyoming and the region. **C. Nye**, J. Brant, J.B. Schneider

9:30 220. Rare earth elements: Industrial importance and environmental impact. **R. Goff**

9:55 221. Recent development of building products from Powder River Basin coal. **K. Ng**, **C. Lau**, H. Yu, M. Hossain, T. Pfeiffer

10:20 Coffee Break.

10:35 222. Coal-based asphalt, a new potentially carbon negative source of flexible pavements. **J.J. Adams**, **L. Muller**, J. Planche, Y. Kumbarger, J. Loveridge, C. Seago, T. Pfeiffer, P. Behrens, L. Hazard, J. Flock, J. Martin

11:00 223. Coal-derived fillers and resins as economic and sustainable raw materials for thermoset polymers. **S. Holberg**, X. Wang, A. Zanjanijam, P.A. Johnson

11:25 224. Pyrolyzed coal's effect on soil chemical properties and plant growth in low-quality sandy soil. **R.B. Thapa**

INNOVATION AT THE EXTENDED VALUE CHAIN: ENABLERS OF CIRCULAR ECONOMY - SALON F

K. Ghosh, *Organizer*

10:00 225. Effect of smart television in learning of chemistry in secondary school: A case study of a public Nigerian secondary school. **M. Folorunsho**

10:20 226. Rebound effect of CE and the solution for SDG12s: Case study of e-waste management. **S.T. Rikitu**

10:40 227. The rebound effect of circular economy and the solution for Sustainable Development Goal 12s: A case study of e-waste management. **S.T. Rikitu**



Rocky Mountain **20** Regional Meeting **23**



LARAMIE, WYOMING
SEPTEMBER 14-17, 2023

11:00 228. Circular economy models for smart phones: A case of Taiwan. **S.T. Rikitu**

9:00 AM - 11:00 AM: **FINDING YOURSELF WORKSHOP**

Location: UW Conference Center (REGISTRATION REQUIRED)

Salons D/E

12:00 PM: **MEETING CONCLUDES**