Technical Program

NORM 2019
June 16-19, 2019
Portland State University
Portland, Oregon

A. Glasfeld, Program Chair
J. Tung and A. Hoffman, General Co-Chairs

A note about room numbers: Except for Karl Miller Center, all sessions are scheduled in rooms in the Smith Memorial Student Union, designated Smith followed by a room number or name.

SUNDAY EVENING

Karl Miller Center
Poster Session

A. Herbelin, J. Layshock, Organizers, Presiding
6:00 - 8:00 PM

Analytical Chemistry Posters


2. Development of a novel on-column anionic analyte concentration technique integrated with capillary electrophoresis. C.P. Crowther, C. Graf, N. Greenlaw, D.C. Collins

3. Various types of equilibrium, transitional state, and rate theories development and their applications to various types of chemical reactions. M. Fundator


6. Thermal decomposition of potassium carbonate for seeding of magnetohydrodynamic generators. M.S. Bowen, P.Y. Hsieh, R. Woodside

7. Characterization of indicator containing polyelectrolyte complexes for biomedical use. C. Johnson, D. Rivera

8. Real world applications of zirconium vapor deposition. M. Bashore, F. Warden, R. Hayes, C.M. Jones


11. Determination of volatile and semi-volatile constituent found in bark from limber pine (*Pinus flexilis* ‘Vanderwolf’s Pyramid) by GC-MS. E. Morales, **M.I. Kowalska**, J. Hylden, K.E. Grant

12. Comparative analysis of chemical composition Cuban mojito mint (*Mentha x villosa*) by gas chromatography-mass spectrometry. C. Sires, **M.I. Kowalska**, J. Hylden, K.E. Grant


15. Platinum wire electrochemical hydrogen peroxide sensors to study the production of hydrogen peroxide by *Streptococcus gordonii*. **C.A. Ramsperger**, D. Koley

16. Impact of data bin size using principal component analysis (PCA) to distinguish GC×GC chromatograms of diesel fuels. **P.E. Sudol**, D.V. Gough, S.E. Prebihalo, R.E. Synovec

17. Paramagnetic ionic liquids for density-based screening of medicinal tablets using magnetic levitation. D. Bwambok, **S. Uriostigue**, K. Diep

18. Quantitative FTIR of analytes in aqueous emulsions. **E.B. Walker**

Biochemistry Posters

19. Transmembrane water exchange rate constants in proliferating *Saccharomyces cerevisiae* cultures. **J. Armstrong**, D. Fuller, M. Woods

20. Controlled strand exchange in DNA duplexes: Toehold length and salt effects. **M. Bevens**, C.H. Battle


27. Effects of loop sequence on signal response in quadruplex molecular beacons. **M. Power**, C.H. Battle

28. Purification and isolation: Natural compounds found in ancient soil. **C. Raul**, A. Hoffman

29. Hepatic gene expression is altered by consumption of walnuts with or without three polyphenol-rich foods in high-fat fed mice. **G. Pierce**, T. Luo, **N.F. Shay**

30. Antibacterial properties of copper nanowires and the role of copper ion/cysteine interactions in bacterial membrane proteins. **M. Stewart**


32. Mechanism and kinetics of BlaC inactivation by Bis(benzoyl) phosphate. **D.S. White**, C.J. Choy, C.E. Berkman

**Chemistry Education Posters**

*Cosponsored by CHED*

33. Get involved with the ACS Division of Chemical Education. **S. Anthony**

34. Two-for-the-price-of-one: co-listing chemistry for engineers and pre-medical students. **C. Gustafson**


39. Measurement of sugar concentration in Japanese coffee commercial drinks using portable refractometer for development the STEM program (IV). **K. Young Tae**

40. Measurement of fine dust concentration in Korean University for development of STEM program (IV). **K. Young Tae**
Environmental Chemistry & Geochemistry Posters
Cosponsored by ENVR

41. Fluorometric detection of mercury using covalent triazine framework derived carbon dots. A. Auni, Q. Zhang

42. General purpose assay for fatty acid methyl esters (FAME) found in biodiesel by Fourier-transform infrared spectroscopy (FT-IR) and gas chromatography mass spectrometry (GC-MS). E. Cabrera, W.E. Steiner

43. Testing honey samples for pesticides with direct immersion solid phase microextraction gas chromatograph mass spectroscopy (DI-SPME-GC-MS). B. Anyan, C. Dillman, J. Foss, D. Mullen, Y. Ponkratov, K. Sedig, A. Herbelin

44. Quantifying copper, lead and zinc in urban stormwater: An analysis of the effectiveness of a biofiltration swale. L.P. Lackey, T.A. Vannelli

45. Assessment of PFAS in Arctic biota and sediment. S. Novell-Lane, L. Hoferkamp

46. Stable isotope measurements of precipitation as a tool to understand climate change. A. Stambor, M. Kramer

47. Characterizing screening methods for solar thermal fuel properties of norbornadiene. R. Szabo, K. Le, T. Kowalczyk

48. Breaking tradition: Common water quality lab gets upgraded. S. Tate-Wong, C. Gustafson

Health Sciences & Drug Discovery Posters
Financially supported by Schrödinger


51. Progress toward a polyphenol-releasing arterial stent. H. Creasey, E. Brandel, E. Thieme, R. Nguyen, C.M. Jones

52. Computational tools to design selective cyclic peptide-based binders for GPCR-focused therapeutics. K.K. Deibler

53. Bioorthogonally functional lipids to probe flaviviral cell biology. E.S. Farley


56. Rheological analysis and model validation of silica nanoparticles suspension in polyalphaolefin as blood substitutes. **J.R. Omambala**, C.E. Taylor, C. McIntyre


58. Identification and quantification of sesquiterpene lactones (SLs) of Sagebrush (Artemisia tridentate) and its chemical modification. **K.K. Sharma**

59. A PARP inhibitor screening platform in a cellular context. **S.K. Sundalam**


61. Synthesis of small molecule derivatives of CK-666 as potential inhibitors of the Arp2/3 complex. **N. Wade**, A. Sripeng, A. Baggett, B. Nolen


64. ezLigPlot: An ezCADD web application for rapid and high-quality 2D/3D visualization of protein-ligand interactions. **D. Xu**, Y. Huang, A. Tao

### Inorganic Chemistry Posters

65. Band gap tuning and phase analysis of chromium doped zinc oxide thin films. **M.S. Baldwin**

66. Effects of surface composition on decarboxylation and hydrogenation reactions over bimetallic PdCu and PdAg catalysts. **T. Bathena**, K. Goulas


68. Computational study of the influence of geometric isomers on octahedral Ni-pyridinethiolate catalysts for proton reduction. **A. Bhattacharjee**, T. McCormick

69. Structure and properties of cubic YInO3 with bismuth substitution. **B. Clark**, J. Li, M. Subramanian


71. Structural and electrochemical studies of 2,5-bis-phosphoryl-3,6-dihydroxy-1,4-quinone compounds. **D. Hoang**, A. Ha, E.J. Valente, E. Urnezius

72. Withdrawn
73. Turning color through Ti/W coupled substitutions in the defect Sn (II, IV) pyrochlore. Y. Lin, J. Li, M. Subramanian

74. Picoplatin derivatives for drug development: design, synthesis and characterization. E. Liu, C. Feng, Y. Huang, D. Shao, E.S. Guo, V. Rangel, L. Xue, A. Franz, X. Guo, Q. Zhao

75. Understanding metal structure sensitivity during the electrocatalytic hydrogenation of biomass-derived molecules at normal temperature and pressure. J.A. Lopez-Ruiz

76. Identifying a suitable platform for the development of redox-responsive MRI contrast agents. K. Maier

77. Investigation of non-classical dinuclear DNICs. W.R. Marks, J.D. Gilbertson

78. Expansion of secondary spheres around 2,5-dihydroxy-1,4-quinone core via phosphonate groups. C.A. Kearney, S.J. Lippert, K.M. Mooney, E.J. Valente, E. Urnezius

79. Theoretical and spectroscopic investigation of a series of Iron(II)-Selenide model complexes and of their iron(II)-sulfide analogues. M. Moshari, S. Stoian


81. Designing a better MRI contrast agent: Comparing two strategies for targeted imaging. L. Rust

82. Eigencages: Learning a latent space of porous cage molecules. C.M. Simon


Organic Chemistry Posters


86. Mechanistic study of N-arylation with diaryliodonium salts. S. Basu, D.R. Stuart

87. Facile synthesis of novel biocompatible, biodegradable, and thermo-responsive poly(valerolactone)s with tunable LCSTs. I. Edminster, J. Hao


**Physical Chemistry Posters**

92. Investigation of the hematite/siderophore interface using nonlinear spectroscopy.  **J. Brennan**

93. Molecular structures of zeolite templated carbon.  **E. Hanson, R. Rowsey, R.K. Szilagyi, N.P. Stadie**

94. Poly(methyl methacrylate) functionalized nanocrystal quantum dots for suspension in luminescent solar concentrators.  **K. Koch, M. Plummer, D.A. Rider**

95. Intersystem crossing and phosphorescence rates in group 14 (C, Si, Ge) rhodamines.  **K. Lam, E.L. Taylor, A.D. Dixon, J.A. Brozik**

96. Stability and biological interaction of mixed ligand gold nanoparticles.  **C. Le, A.A. Rossi, M. Barajas, R. Corff, E. Melby**

97. Computational investigation of high-spin, square-planar Fe(II) complexes.  **K. Luchte**


105. Withdrawn

106. DIRAC based infrastructure to coordinate the use of resources (computing, storage, etc.) to study chemical system dynamics.  **M. Thomas, M. Schram, N. Oblath, K. Fox**
107. Novel catalyst synthesis technique using atomic beam deposition. B. Thompson, R. Fushimi, R. Rodriguez

108. Nanoparticle effects on aquatic redox systems. A. Restani, B. Tran, A. Pavitt, P.G. Tratnyek, P. Hall


**MONDAY MORNING**

Smith 329

**Analytical Chemistry I**

A. Herbelin, C. Price, *Organizers, Presiding*

8:00 112. Smartphone-based analytical systems for detection of pathogens using nanomaterials amplification. D. Du, Y. Lin

8:20 113. Passivated carbon quantum dot-hydrogel materials as a novel metal ion sensor: Toward the early detection of corrosion on metal substrates. L.N. Kissell, T. Lasseter Clare


9:00 115. Use of silica particles in low-volume detection in spectroscopy. N. Giauque


9:40 Intermission.

10:00 117. Ultrafast comprehensive two-dimensional gas chromatography via pulse flow valve injection in negative mode. T. Trinklein, D.V. Gough, D.H. Song, R. Synovec


10:40 119. Impact of GC GC – TOFMS experimental design on data structure trilinearity for optimal PARAFAC performance. S.E. Prebihalo, D. Pinkerton, R. Synovec

11:00 120. Pesticide residue analysis. H. Hefely
11:20 121. Gábor transform analysis of protein and protein complexes formed from non-volatile salt buffers in native electrospray ionization mass spectrometry. S.P. Cleary, J.W. Wilson, J.S. Prell

Smith 333

Chemistry Education I

Cosponsored by CHED

J. Barbera, Organizer; S. Anthony, N. Naibert, Presiding

8:00 122. Fostering equity, support, and community for underrepresented STEM students: Results from Year 1 of Willamette’s S-STEM project funded by the National Science Foundation. A. Fisher, S.R. Kirk

8:20 123. Implementing and measuring the efficacy of high structure, active learning, and peer-mentors in a large-lecture general chemistry course. C. Stanich, M. Mack, A. Pickering, C.F. Craig

8:40 124. Transcending space and time: Using gestures as visualizations to explain chemical processes from the molecular to the macroscopic. B.L. Gonzalez, T. Anderson, S. Goldin Meadow, N.J. Pelaez, M.H. van Mil

9:00 125. Exploring a scaffold for introducing students to conflicting animations. R.M. Kelly, C. Nguyen, N. Nguyen, E. Major

9:20 126. Adapting, remixing, and adopting an OER in General Chemistry I and II. A. Clark, S. Anthony

9:40 Intermission.

10:00 127. What is POGIL? S. Fiddler


11:00 129. Teaching ethics in chemistry. S.M. Schelble

Smith 294

Health Sciences & Drug Discovery I

Financially supported by Schrödinger

L. Frye, Organizer, Presiding

8:00 130. Molecular dynamics simulations of biomacromolecular systems. W.A. Goddard

9:00 131. Overcoming challenges in drug discovery. D.R. Goldberg

9:50 Intermission.

11:00 133. Targeting the CNS with a prodrug strategy for nuclear receptor modulators.  
S.J. Ferrara, T.S. Scanlan

11:20 134. Oxylipidomic and metabolomic analysis of western diet-induced nonalcoholic steatohepatitis (NASH) in Ldlr⁻/⁻ mice.  
M. Garcia Jaramillo, K. Lytle, D. Jump

11:40 135. ezCADD: Rapid 2D/3D visualization-enabled web modeling environment for democratizing computer-aided drug design.  
D. Xu, A. Tao, Y. Huang

Smith 328

Physical Chemistry I

F. Hou, Organizer
M. Holmes, Organizer, Presiding

8:00 136. Automated high throughput in silico reaction screening for design and discovery of enhanced reactivity and tailored chemo-, regio-, and stereo-selectivity.  

8:20 137. Multireference and DFT quantum-chemical studies of nitrogen reduction and methane C-H activation.  
O. Adeyiga, D. Panthi, N.K. Dandu, S.O. Odoh

J. Bilbrey, C. Ortiz Marrero, A. Ritzmann, N. Henson, M. Schram, R. Rallo

9:00 139. Can ethane be converted to ethene using rhodium atomic clusters at the room temperature?  
A. Le, K. Trujillo, M. Schimelfenig, G. Marquino, Y. Ge

9:20 140. Evidence for surface-active pyruvic acid oligomers products at the air-water interface: A sum-frequency study.  
B. Gordon, E. Tran, F. Moore, L.F. Scatena, G.L. Richmond

9:40 Intermission.

10:00 141. Universality of critical point shifts in the isobutyric acid + water + third component liquid-liquid system.  
C.C. Williamson, D.L. Huber, T.M. Nakama-Fukuhara, A.H. Williams

10:20 142. Attracting opposites: Promiscuous ion-π binding in the nucleobases.  
B.G. Ernst, K. Lao, A.G. Sullivan, R.A. DiStasio

10:40 143. Paths to quitting: Nicotine and 5’ hydroxylated nicotine egress kinetics and energetics with cytochrome P450 2A6.  
A. Chandrasinghe, K.E. Johnson

11:00 144. Using tunable femtosecond stimulated Raman spectroscopy to illuminate the structural dynamics of a functional biosensor mutant.  
S.R. Tachibana, L. Tang, L. Zhu, R.E. Campbell, C. Fang

11:20 145. Tunability of nonionic polymer behavior at the oil/water interface due to electrostatic and hydrophobic properties of surfactant.  
R. Altman, G.L. Richmond
8:15 Introductory Remarks.

**8:20 146.** Hydroxamate siderophore interactions with polycrystalline hematite/water interfaces studied using second harmonic and sum frequency generation spectroscopies.  
A.L. Mifflin, J. Brennan, J. Van Ardenne

**8:50 147.** Sustainable, economical, and globally accessible fabrication of ultrafiltration and nanofiltration membranes through chemical treatment of microbial cellulose.  
M. Holland

**9:10 148.** Identifying phototransformation products from brominated estrogens in treated wastewater effluent with high resolution tandem mass spectrometry.  
C.P. Hutchinson, K. Nance, D.R. Griffith

**9:30 149.** Predicting the environmental risk of insensitive munition constituents and their transformation products using in silico methods.  
T.L. Torralba Sánchez, P.G. Tratnyek, E.J. Bylaska

9:50 Intermission.

**10:00 150.** Nitrogen-fixing plants and mineral weathering.  
J. Pett-Ridge, S.S. Perakis

**10:30 151.** Catalytic neutralization of organophosphate simulant over undercoordinated Fe, Cu, Co, and Zn on silica.  
D. Prieto, Q. Cunneen, M. Sime

**10:50 152.** Biogeochemical evaluation of ancient hillfort glass as an analogue for nuclear waste glass.  

**11:10 153.** Removal of low-concentration water contaminants with biochar made from Montana biomas.  
D. Prieto, R. LaDouceur, A. Lister

**11:30 154.** Electrochemical characterization of natural organic matter.  
A. Pavitt
From Nano to Global

Smith 238
Stories from the Front: True Tales from Entrepreneurial Chemists
(Innovation Track)
Cosponsored by SCHB
Financially supported by ecosVC, Inc.
J. L. Bryant, S. Vanderwerf, Organizers
J. C. Giordan, Organizer, Presiding
9:00 Introductory Remarks.
9:15 155. Developing a conscious vaping experience. H. Marks
9:25 156. Transitioning from a laboratory chemist to an entrepreneur: Lessons, challenges, opportunities, and qualitative numbers. A. Brown
9:35 157. Importance of getting paid for collaborative projects. N. Day
9:45 158. nexTC - Stories From the Front. J. Amador, C.K. Perkins, D.A. Keszler, J.A. Sommers
9:55 Panel Discussion.
10:15 Q&A.
10:45 Office Hours with the Speakers.

Smith 298
Polymers in Sports & Other Applications
Cosponsored by POLY
W. T. Ford, T. Wilson, Organizers, Presiding
10:00 159. Rheology and kinetics of thermoplastic urethanes during processing. N. Eisenmenger, C. Dimitriou
10:30 160. Spectroscopic analysis of materials for outdoor apparel and footwear. H.W. Beckham
10:50 161. The influence of viscoelasticity and surface energy on frictional behavior of elastomers. N. Bharadwaj, C. Dimitriou
11:30 163. Alternatives to conventional methacrylate chemistry for dental restorative materials. C. Pfeifer, A. Fugolin, J. Ferracane
MONDAY AFTERNOON

Smith 329
Analytical Chemistry II

A. Herbelin, C. Price, Organizers, Presiding

1:10 164. Measuring chemical reaction rates using smartphone video. K. Cantrell, S. Bunger, D. Campbell, L. Naatz


1:50 166. Imaging nanobubble nucleation at the electrode/solution interface. Z. Peng, B. Zhang

2:10 167. Developments in application of mass spectrometry to analysis and applications of Fokker-Plank equation for velocity of chemical reactions. M. Fundator

2:30 168. Transient bipolar electrochemical coupling on single freely moving silver nanoparticles. H. Gao, R. Hao, S. Barlow, B. Zhang

Smith 333
Chemistry Education II

Cosponsored by CHED

J. Barbera, Organizer
S. Anthony, N. Naibert, Presiding

1:10 169. CH 101: A foundational numeracy skills course and its impact on student success in general chemistry. M. Burand, M.D. Haak

1:30 170. Bridging the reality gap. C. Knutson, C.G. Siler

1:50 171. Comparing the outcomes of a hands-on and virtual Beer’s Law experiment in the general chemistry laboratory. C. Hensen, J. Barbera

2:10 172. Analysis of students’ perceived difficulty versus actual ability in performing laboratory skills and techniques. L.K. Kendhammer, S. Lewis, D. Chavez

2:30 173. DNA-based fluorescent sensors: Developing a course-embedded undergraduate research experience. C.H. Battle

2:50 Intermission.

3:10 174. Students’ perceptions of active-learning activities. N. Naibert, J. Barbera

3:30 175. Thinking about learning: Examining students’ general chemistry study practices with metacognitive surveys. J. Chamberlain

3:50 176. Exploring students’ self-efficacy and its relationship with the teaching and learning of chemistry in a diverse general chemistry course. S. Villafane-Garcia
4:10 177. Testing and revision of the Science Motivation Questionnaire II to improve functioning under different wording and course conditions. **R. Komperda, K. Hosbein, M.M. Phillips, J. Barbera**

**Smith 298**  
**Chemistry of Food & Wine**  
**M. C. Qian, Organizer, Presiding**


1:35 179. Advances in volatile aroma and off-odor analysis. **M.C. Qian**

2:00 180. GC/olfactometry and 2D-GC-MS analysis of northern high bush blueberries. **Y.L. Qian**


2:50 Intermission.

3:10 182. Unveil the aroma secret of Chinese Baijiu using sensory-directed flavor analysis. **Y. An, Y.L. Qian, M.C. Qian**

3:35 183. RNA sequencing identifies metabolic improvements associated with consumption of red raspberry fiber and polyphenols in high-fat fed mice. **N.F. Shay, G. Pierce, M. Sturm**

4:00 184. Chemistry and pharmacology of xanthohumol and related prenylated flavonoids from hops (*Humulus lupulus*). **J.F. Stevens**

4:25 185. Physiochemical properties and bioactive compounds of different varieties of fruit and wine grape pomaces. **Y. Zhao**

**Smith 327**  
**Environmental Chemistry & Geochemistry II**  
**Cosponsored by ENVR**

1:10 Introductory Remarks.

1:20 186. Aluminum hydrolysis at the mica interface, and consequences for crystal nucleation and particle-aggregation. **B. Legg, J.J. De Yoreo**

1:40 187. Electrochemical characterization of goethite: Using impedance spectroscopy and equivalent circuit modeling to determine effect of reductive treatments. **M. Bradley, P.G. Tratnyek**

2:00 188. Practical applications of electron shuttles in environmental systems. **C. Kocur, P.G. Tratnyek, R. Johnson**

2:50 Intermission.

3:10 190. Estimations of aerosol size based on multiwavelength optical extinction measurements. **D.B. Atkinson**

3:30 191. Identifying VOCs formed by degradation of electronic cigarette solvents propylene glycol and glycerol using C_{13} labeled compounds and ATD-GC-TOFMS. **K.J. McWhirter, W. Luo, J. Pankow**


4:10 193. Search for heavy metal pollution in urban Portland Oregon. **B. Ayres**

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**Smith 294**

**Health Sciences & Drug Discovery II**

*Financially supported by Schrödinger*

**L. Frye, Organizer, Presiding**

1:10 194. Picoplatin derivatives for drug development: DNA interaction, cell viability and cell accumulation study. **D. Shao, C. Feng, Y. Huang, E. Liu, E.S. Guo, V. Rangel, L. Xue, A. Franz, X. Guo, Q. Zhao**

1:30 195. Novel urea and carbamate derivatives modulate the endocannabinoid system via inhibition of fatty acid amide hydrolase (FAAH). **J. Stec, S. Cramer, J. Johnson, T. Ngo, A. El-Alfy**

1:50 196. Antibiotic from actinomycete bacteria with activity against Pythium ultimum and Escherichia coli. **J. Chung**

2:10 197. Taxol’s evolving story. **A. Hoffman**

3:00 Intermission.


4:10 201. From structure to man: Computational approaches to accelerate drug discovery. **L. Frye**
Smith 238
Nano to Global
Graduate Student Symposium in the Area of Biofuels, Renewable Energy & Sustainability

Financially supported by Sponsored by ACS President Peter K. Dorhout

I. Rettig, Organizer, Presiding

1:10 Introductory Remarks.

1:15 202. Inorganic synthesis as a means to access new phosphorescent Pi-conjugated materials and luminescent nanomaterials. E. Rivard

2:00 203. Hybrid manganese-copper hexacyanoferrate as a cathode material for rechargeable calcium ion batteries. N. Kuperman

2:15 204. Photocatalytic reduction of bicarbonate to formic acid using hierarchical ZnO nanostructures. H. Pan, M.D. Heagy

2:30 205. Nickel tris-(pyridinethiolate) derivatives as catalysts for hydrogen production. D. Santiago Vazquez


3:00 Intermission.

3:10 207. Catalytic hydrogenation of ketones using novel ruthenium nano-anadem decorated zirconium phosphate nanoplatelets. X. Li, G. Ding, L. Hao, Q. Zhang

3:25 208. Polymer/surfactant mixtures at the oil/water interface as a safe chemical dispersant model system. R. Altman, G.L. Richmond

3:40 209. A synthetic route to organic oxidations by a visible-light active tellurorhodamine photocatalyst. I. Rettig

3:55 Intermission.

4:00 210. Graduate Student Symposium panel: Alternative careers in chemistry. I. Rettig

Smith 328
Physical Chemistry II

M. Holmes, Organizer
F. Hou, Organizer, Presiding

1:10 211. In situ measurement of UV-induced photodegradation in organometallic hybrid perovskite nanocrystals. M.L. Crawford, J. Sadighian, C.Y. Wong

1:30 212. Shedding light on interfacial polyelectrolyte-surfactant structure at the oil/water interface. E. Christoffersen, G.L. Richmond
1:50 213. Electron-phonon interaction and energy transport on global flux surface hopping with Lindblad master equation. Y. Wang

2:10 214. Two's Company, Three's a Crowd: How do ions tag along for the ride with SDS and PEI? E. Tran, G.L. Richmond

2:30 215. Photophysical standardization and synthesis of group 14 rhodamines as red fluorescent probes. A.D. Dixon, E.L. Taylor, K. Lam, J.A. Brozik

2:50 Intermission.

3:10 216. Tracking aggregate composition using absorption spectroscopy and a grid-based fitting algorithm. M. Sosa, R. Pandit, C. Wong

3:30 217. Calculation of excited state characteristics and electronic transition dipole moments in time-independent DFTB. M.Y. Deshaye, T. Kowalczyk

3:50 218. Quantum standardization of single-molecule fluorescence probes using LI-FCS and TT-TCSPC. E.L. Taylor, A.D. Dixon, K. Lam, J.A. Brozik


Smith 329

Inorganic Chemistry I
Cosponsored by INOR

L. Y. Kuo, Organizer; M. Bowring, Presiding

3:10 220. Single atom Pd catalyst for carbon–carbon bond formation under practical phosphine-free conditions. G. Ding, L. Hao, Q. Zhang

3:30 221. One highly reactive CoIII,IV(m-O)2 diamond core complex that cleaves aliphatic C-H bonds. D. Wang

3:50 222. Unusual kinetic behavior in the protonolysis of a Pt–Me complex. P.T. Truong, M. Bowring


4:30 224. Evaluation of air-free glassware using the ketyl test. L. Carlson, E.D. Douma, P.T. Truong, M. Bowring
TUESDAY MORNING

Smith 296
Chemistry Education III
Cosponsored by CHED

J. Barbera, Organizer
C. Hensen, T. Lund, Presiding

8:00 225. Information retention and chemical demonstrations. C. Mortensen, A. Noble, T. Hislop, H. Cottle, T.L. Sorey

8:20 226. Chemical demonstrations as a vehicle for active learning. D. Wiegand, T. Francis, M. Mack

8:40 227. How the sun works: Nuclear fusion demonstration model. R. Walsh

9:00 228. Teaching principal componenet analysis at the undergraduate level: Development of an analytical method for the analysis of volatile components in different sources of vanilla using Electronic-Nose instrumentation. K.J. Skogerboe, A. Mohammed

9:20 229. Wristband exposome project: A GC / MS investigation of personal chemical exposure. C.C. Williamson, R.D. Jones

9:40 Intermission.

10:00 230. Undergraduate O chem in the brave new MCAT world. R. Swisher

10:40 231. Inquiry-based molecular modeling lab for students to discover VSEPR theory and resonance structures. A. Le, G. Marquino, Y. Ge

11:00 232. Implementing RStudio for data analysis in the general chemistry curriculum. D. Cass, J.I. Vesto


Smith 298
Inorganic Chemistry II
Cosponsored by INOR

L. Y. Kuo, Organizer, Presiding

8:00 234. Synthesis of functionalized organoborohydrides and organoboranes from trifluoroborates. E.R. Abbey

8:20 235. Efficient oxidative desulfurization of fuels using mesoporous Zr-based MOFs. L. Hao, Q. Zhang

8:40 236. Crystalization of new polyoxoniobates with uranyl peroxide. N.P. Martin, M.D. Nyman
9:00 237. Non-precious metal bimetallic carbide electrocatalysts. **B.M. Leonard**


9:40 Intermission.

10:00 239. Photocatalytic hydrogen peroxide production with tellurium-containing chromophores. **T. McCormick**, L. Lutkus, J.E. Lohman, I. Rettig

10:20 240. Incorporation of a BODIPY dye into a diphosphine scaffold for the promotion of redox-switchable catalytic behavior. **B. Thompson**, Z.M. Heiden

10:40 241. Solubility trend of {Nb24} cluster with different alkali cations with different anions. **T. Rahman**, M. Segado, **N. Martin**, C. Bo, L. Fuller, M.D. Nyman

11:00 242. Development of 14-connect Zr₆ secondary building units through post-synthetic linker insertion. **M. Hurlock**, Q. Zhang

11:20 243. Unusual oxidation state alert! Monovalent alkaline earth metal compounds (Mg, Ca, Sr, Ba) in ternary graphite intercalation compounds. **W. Xu**, K. Kozma, T. Sha, Y. Wu, M.M. Lerner

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**Smith 238**

**Nuclear Chemistry & Radiochemistry I**

*Cosponsored by NUCL*

**M. Krahenbuhl, Organizer, Presiding**

8:00 Introductory Remarks.

8:05 244. Comparison of SuperLig™639 and Purolite™A530E for technetium recovery in a secondary waste stream condensate from Hanford low activity waste vitrification using both pertechnetate and perrhenate (surrogate). **J. Duncan**

8:25 245. Competitive reductive removal of pertechnetate and chromate by zero valent iron. **J. Williams**, A.A. Maria, H. Emerson, D. Boglaienko, Y. Katsenovich, T. Levitskaia


9:45 Intermission.

10:00 249. Atomic-scale electron energy loss spectroscopy of uraninite (UO₂) surface oxidation. **S. Spurgeon**, M. Sassi, C. Ophus, J. Stubbs, E. Ilton, E. Buck

10:40 251. Nanoscale evolution of amorphization in ion-irradiated \( \text{La}_2\text{Ti}_{2-x}\text{Zr}_x\text{O}_7 \) thin film heterojunctions. **S. Spurgeon, M. Sassi, T. Kaspar, V. Shutthanandan**


**Smith 328**

**Novel Approaches to Chemical & Molecular Microscopy**

*C. López, Organizer, Presiding*

8:30 Introductory Remarks.

8:35 254. Using single molecule microscopy to probe actin cytoskeletal dynamics. **J.A. Galbraith, C.G. Galbraith**

9:00 255. Protein markers for multiscale mapping of cellular proteins. **K.E. Beatty**

9:25 256. Fast carrier migration in time-resolved emission spectra of CsPbBr\(_3\) perovskite. **J.J. Thiebes, A. Hathaway, C.L. Kennedy, E. Grumstrup**

9:50 Intermission.

10:00 257. Micro-ED at PNNL as a powerful tool for probing small molecule structure. **J.E. Evans, I. Novikova**

10:25 258. Imaging electron-transparent structures by manipulating and measuring the phase of electrons. **F. Yasin, B. McMorran**

10:50 259. Micro-electron diffraction: Complementary structural biology and small molecule structure determination technique. **J. Lengyel**


**Smith 333**

**Organic Chemistry I Cope Scholar Symposium**

in honor of Tom Maimone:

**Celebrating Advances in Natural Products from Synthesis to Medicine**

*Cosponsored by ORGN*

R. LaLonde, D. R. Stuart, Organizers, Presiding

8:50 Introductory Remarks.

9:00 261. New methods and strategies in the synthesis of natural products. **S. Pronin**

9:30 262. Unified synthetic approach to the aspidosperma alkaloids mersicarpine and leuconoxine that relies on a radical cascade reaction. **R. Kim**
9:50 Intermission.

10:00 263. Deconstructive oxo-halogenation of \( \alpha \)-alkenyl and alkynyl eneformamides for the chemoselective synthesis of formamide-tethered \( \alpha \)-halo enones and ynones. T.K. Beng

10:20 264. Drug discovery from natural products – from fungal gene activation techniques to anticancer leads. S. Loesgen

10:50 265. Synthetic studies and applications of complex natural products. T.J. Maimone

Smith 294

Chemistry of Renewable Energy I: Electrocatalysis

C. K. Brozek, A. Cook, C. H. Hendon, Organizers, Presiding

10:00 Introductory Remarks.

10:05 266. Tuning the activity of nickelates for oxygen electrocatalysis. K.A. Stoerzinger, L. Wang, E. Jia, J. Liu, Z. Yang, S. Chambers, Y. Du


11:15 268. Oxygen evolution catalysis on mixed-metal oxyhydroxides. S.W. Boettcher

Smith 329

Chemistry of Vaping

R. M. Strongin, Organizer
S. Vreeke, Presiding

10:00 269. Flavor profiles of commercial electronic cigarette refill fluids: Quantification of 177 flavorants by GC-MS. K.J. McWhirter, W. Luo, J. Pankow

10:20 270. Interlaboratory variation and the underestimation of toxin levels in electronic cigarette aerosols. S. Vreeke

10:40 271. Effect of puff topography on carbonyl and carbon monoxide emissions from four types of electronic cigarette devices. A. Khlystov, Y. Son, V. Samburova, C. Bhattarai

11:00 272. Sucralose can increase e-liquid degradation during vaping as studied by \( ^1 \)H NMR. A. Duell, D.H. Peyton

11:20 273. Chemistry of cannabis concentrate aerosolization. J. Meehan-Atrash
Smith 327

Nanochemistry: Biological & Technological Applications I

A. Brown, A. M. Goforth, Organizers, Presiding


10:20 275. Evolving nanotechnologies for ophthalmology applications. **M.R. Mackiewicz**


11:00 277. Synthesis and applications of peptoid-based crystalline nanomaterials. **C. Chen**


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TUESDAY AFTERNOON

Smith 328

Archaeometry I

Cosponsored by ANYL

R. S. Bard, M. Ramirez Galán, Organizers, Presiding


2:00 281. Past Beringian cultural exchange and interaction: a study of northern ceramic technology and exchange. **S. Anderson**

2:20 282. Blue and white porcelain in early south Thailand maritime trade. **A.B. Kneisly**

2:40 283. LiDAR predictive modeling of Kalapuya mound sites in the Calapooia Watershed, Oregon. **T. Cody**, S. Anderson
1:10 284. Spectroscopic studies of reactions of metalloenzymes with dioxygen and nitric oxide. **P. Moenne Loccoz**

1:30 285. Nitric oxide reductase activity in heme-nonheme binuclear engineered myoglobins through a one-electron reaction cycle. **S. Sabuncu**, P. Moenne Loccoz

1:50 286. Alkaline conformer of human dimeric cytochrome c. **H. Lei**


2:30 288. The inhibition of the nucleation of hydroapatite by antifreeze protein. **M. Gonzalez**, F. Catipon, S. Wang

2:50 Intermission.

3:10 289. 7-deazaguanine based modifications of DNA. **A. Gustafson**, P.C. Dedon, M. Swairjo, V.A. De Crecy-Lagard, D. Iwata-Reuyl


3:50 291. Effects of methylmercury and theaflavin digallate on adipokines in mature 3T3-L1 adipocytes. **S. Chauhan**, L.K. Duffy

4:10 292. Effects of spirulina supplementation and exercise regimen on the antioxidant response to PM2.5 exposure in sled dogs. **J.J. Witkop**

4:30 293. Various types of quantum coherence in biological systems implies scale dependence of spatio-temporal coherence. **M. Fundator**

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**Smith 294**

**Chemistry of Renewable Energy II: Materials for Sustainability**

C. K. Brozek, A. Cook, C. H. Hendon, **Organizers, Presiding**

1:10 Introductory Remarks.


2:25 296. Graphite from the University of Idaho Thermolyzed Asphalt Reaction (GUITAR) is it another graphite, or an amorphous carbon? From fundamental studies to application in the oxygen reduction reaction. **I.F. Cheng**, K. Hamal, J. May, H. Kabir, H. Zhu
Smith 333

Inorganic Chemistry III: Celebrating the Career of Professor David Tyler
Industrial & Academic Chemistry with Northwest Connections

Cosponsored by INOR

Financially supported by Lonza

L. Y. Kuo, Organizer, Presiding

1:10 297. Nitrogen (re)cycle: Ligand-based proton and electron flux management for nitrate/nitrite reduction. J.D. Gilbertson

1:45 298. Achieving active control of cell culture performance with the aid of machine learning techniques. D. Lyon

2:20 299. Flavors and fragrances: A fourier into industrial chemistry. A.J. Kendall

2:55 Intermission.

3:10 300. Inspirations from aqueous coordination chemistry: Small molecule activation facilitated by acidic groups. N.K. Szymczak, J. Kiernicki, J.P. Shanahan, J.B. Geri


Smith 329

Medicinal & Bio-Organic Chemistry in the Northwest

Sponsored by ACS Division of Medicinal Chemistry

T. T. Denton, Organizer, Presiding

1:10 302. Bioorganic chemistry at WSU Spokane: What’s going on up there? T.T. Denton


1:50 304. Developing a chimeric heterobivalent platform as a selective imaging probe for MMP-14. M.D. Pun, C.E. Berkman

2:10 305. Phosphoramidate derivates as controlled release prodrugs of L-Dopa. F.P. Olatunji, B.N. Kesic, C.J. Choy, C.E. Berkman

2:30 306. Chemical tools for regulating and sensing reactive sulfur species. M. Xian

3:00 Intermission.

3:10 307. Ancient soil microbes as sources for new antibiotics? A. Hoffman


4:30 311. Developments in PSMA-targeted therapeutic applications. **C.E. Berkman**

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**Smith 327**

**Nanochemistry: Biological & Technological Applications II**

**A. Brown, A. M. Goforth, Organizers, Presiding**

1:10 312. Photonic diatom biosilica frustule monolayers with in-situ grown plasmonic silver nanoparticles for on-chip UTLC separation and SERS detection of trace sample mixtures. **J.A. Kraai**, A. Wang, G. Rorrer

1:30 313. Scaling up nanomaterial composites for industrial applications. **N.U. Day**

1:50 314. Quantum dot phosphors: academic topic and commercial product. **E. Johansson**

2:10 315. Environmental effects on the photoluminescence of hydride terminated silicon nanoparticles. **J.D. Barnes**, C. Radlinger, A.M. Goforth

2:30 316. Near-infrared (NIR)-to-NIR upconversion nanocrystals for security-printing and forensic applications. **P.S. May**, A. Baride, M.T. Berry, G. Sigdel, W. Cross, J. Kellar

3:00 Intermission.


4:30 321. Tuning the curvature of hybrid lipid-coated gold nanoparticles to investigate their role in toxicity. **H. Sawab**, A.M. Engstrom, R. Faase, S.L. Harper, J. Baio, **M.R. Mackiewicz**
Smith 238

Nuclear Chemistry & Radiochemistry II

Cosponsored by NUCL

M. Krahenbuhl, Organizer, Presiding

1:10 Introductory Remarks.

1:15 322. Center for Radiochemistry Research at Oregon Health & Science University (OHSU): Capability and research challenges. J.M. Link

1:35 323. Hot atom chemistry of nucleogenic $^{13}$N: In-target production of $[^{13}$N]-ammonia. K.A. Krohn, J.M. Link

1:55 324. NO$_x$ as a catalyst in uranium fluorination. F.D. Heller, B. McNamara, A.M. Casella, R.A. Clark, K.M. McCoy


Smith 296

Organic Chemistry II

R. LaLonde, D. R. Stuart, Organizers, Presiding


2:00 329. Synthesis of densely functionalized arenes via C-H functionalization. A. Nilova, D.R. Stuart

Smith 328

Archaeometry Posters

Cosponsored by ANYL

R. S. Bard, M. Ramirez Galán, Organizers, Presiding

3:00 - 3:25


332. Alcalá la Vieja landscape analysis: Application of LiDAR in uncovering possible archaeological features. R.M. Inlow, M. Ramirez Galán, R.S. Bard

Smith 294

Chemistry of Renewable Energy III: Nanomaterials

C. K. Brozek, A. Cook, C. H. Hendon, Organizers, Presiding

3:10 Introductory Remarks.

3:15 333. Microporous carbon frameworks as next-generation battery cathodes. N.P. Stadie


5:00 Concluding Remarks.

Smith 296

Research & Teaching Methods in the Community College Setting

J. Whitman, Organizer, Presiding

3:10 336. Building capacity in science education: A collaborative professional development program for faculty at two-year, Hispanic-serving institutions and graduate students at a major research university. D.R. Brown, S. Brydges, S.M. Lo, M.E. Denton, N. Suarez, S. Wang, M. Borrego

3:35 337. Choose your own chemistry adventure: A menu approach to course-embedded undergraduate research experiences (CUREs) in a General Chemistry course. T.A. Vannelli, E. Davishahl

4:00 338. Infusing high-impact teaching practices into the undergraduate chemistry curriculum at Bellevue College. G. Blacken

4:25 339. Integrating ALEKS into a community college curriculum. T. St. John
3:25 340. On-site geochemical processing of Late Neolithic floors: What, if anything, can handheld-XRF analysis tell us about the archaeology of the Ness of Brodgar, Orkney, Scotland? S. Pike

3:55 341. Traction or hybrid trebuchet? The use of physical calculations to classify trebuchets. M. Ramirez Galán, M. Benítez Galán, R. Montalvo Laguna, R. Inlow, R.S. Bard
