THURSDAY MORNING

Section A

Hilton
Grand Ballroom B

Catalysis in Fuel Chemistry
Catalysis for Fuel Cells Cosponsored by CATL (probationary)

S. H. Overbury and C. K. Narula, *Organizers*

S. Dai, *Presiding*

8:30 Introductory Remarks.
8:35 170. Effect of oxide catalysts and oxygen-conducting supports on partial oxidation of liquid hydrocarbons. **M. W. Smith**, D. A. Berry, D. Shekhawat, D. Haynes, J. J. Spivey
9:00 171. Catalysis of electrochemical and partial oxidation of CH_4. **S. S. C. Chuang**, R. Singh, F. Guzman
9:30 172. Feasibility of using sulfur as a growth promoter for CNx PEM and DMFC ORR catalysts. **E. J. Biddinger**, D. S. Knapke, D. von Deak, U. S. Ozkan
9:55 Intermission.
10:15 173. Effect of pretreatment on Pt-Co cathode catalysts for the oxygen reduction reaction. **E. B. Fox**, H. Colon-Mercado
10:40 174. Binary and tertiary platinum based alloys as anode surface catalysts for direct methanol fuel cells. **N. Dimakis**, E. S. Smotkin
11:05 175. Pt/Carbon electrocatalysts functionalized with phenylsulfonic acid and perfluorooctylphenyl groups.
T. T. Salguero, P. Liu, S. Van Atta, C. Zhou, M. Behroozi, A. Phelps, C. Ji, Y. Liu, R. Koestner
11:30 Concluding Remarks.

Section B

Hilton
Grand Ballroom A

Reaction Mechanisms of Coal & Biomass Gasification

B. Eiteneer, *Organizer*

8:15 Introductory Remarks.
8:20 176. Mechanism of the thermal decomposition of furan. **A. Vasiliou**, M. Nimlos, G. B. Ellison
8:45 177. Thermal decomposition of anisole and the methoxyphenols. **A. M. Scheer**, D. J. Robichaud, B. Ellison, M. R. Nimlos
9:10 178. Thermal degradation pathways of levoglucosan as an intermediate in cellulose pyrolysis. **M-K. Bahng**, H-H. Carstensen, A. Vasiliou, G. B. Ellison, M. R. Nimlos
9:35 179. Pyrolysis reactions of lignin-rich corn stover residue in a laminar entrained flow reactor. **M. W. Jarvis**, M. R. Nimlos
10:00 Intermission.
10:20 180. Formation of liquid products from solid fuel in filtration combustion.
E. A. Salganskiy, V. M. Kislov, S. V. Glazov, M. V. Salganskaya, G. B. Manelis
10:45 181. Global mechanisms of tar formation during biomass gasification.
M. Nimlos, W. Jablonski, K. Gaston, D. Carpenter, C. Feik
11:10 182. Rate estimation rules for H abstraction reactions from alcohols by H atoms and CH3 radicals.
H-H. Carstensen, A. M. Dean
11:35 183. Rate constants for the elimination of water from alcohols and biomass model compounds. **H-H. Carstensen**, A. M. Dean
12:00 Concluding Remarks.

Catalysis for Coal Conversion Sponsored by CATL (probationary), Cosponsored by FUEL and I&EC

‡ Cooperative Cosponsorship

THURSDAY AFTERNOON

Section A

Hilton
Grand Ballroom B

Catalysis in Fuel Chemistry
Carbon Catalysis Cosponsored by CATL (probationary)

S. H. Overbury and C. K. Narula, *Organizers*

V. Schwartz, *Presiding*

2:00 Introductory Remarks.
2:05 184. Self-assembly synthesis and functionalization of mesoporous carbon materials for catalysis and energy applications. **S. Dai**
2:35 185. Influence of devolatilization residence time on the reactivity of modified drop-tube furnace coal chars.
K. Le Manquais, C. E. Snape, J. Barker, I. McRobbie
3:00 Intermission.
3:20 186. Hydrogen spillover: Its "diffusion" from catalysis to hydrogen storage community. **C. I. Contescu**, V. V. Bhat, N. C. Gallego
3:50 187. Activity and structural characterization of activated carbon-supported catalysts for diethyl carbonate synthesis.
D. N. Briggs, A. T. Bell
4:15 Concluding Remarks.

Section B

Hilton
Grand Ballroom A

Reaction Mechanisms of Coal & Biomass Gasification

T. H. Fletcher and B. Eiteneer, *Organizers*

1:30 Introductory Remarks.
1:35 188. Advances in wire mesh reactor and diagnostics. **C. Zeng**
2:00 189. CFD modeling of gas phase tar chemistry in a fluidized-bed biomass gasifier. **P. Pepiot**, M. R. Nimlos
2:25 190. Development of fundamentals-based gasification kinetic model.
B. Eiteneer, V. Zamansky, D. L. Derr, J. S. Ravichandra, C. Zeng, T. H. Fletcher
2:50 191. Kinetics of catalytic steam gasification of HyperCoal. **A. Sharma**, I. Saito, T. Takanohashi
3:15 192. Prediction of Chinese coal ash fusion temperatures in an H2 atmosphere. **W. Song**, Z. Zhu
3:40 Intermission.
4:00 193. Prediction of thermal decomposition of biomass using reaction MD.
J. W. Daily, A. C. van Duin, W. A. Goddard III
4:25 194. Pressurized spent pulping liquor gasification kinetics. **K. Iisa**, W. J. Frederick Jr.
4:50 195. The importance of char structure in determining high temperature, high pressure gasification rates. E. M. Hodge, **D. G. Roberts**, D. J. Harris, J. F. Stubington
5:15 196. The role of a Langmuir-Hinshelwood formulation in understanding high pressure char gasification kinetics.
D. G. Roberts, D. J. Harris
5:40 Concluding Remarks.

Please refrain from using cellular telephones and cameras during technical sessions.

GEOC

Division of Geochemistry

D. B. Kent, *Program Chair*

SUNDAY MORNING

Section A

Hilton
Alpine Ballroom East

Coprecipitation of Metals during Chemically and Biologically Induced Mineral Precipitation

Y. Fujita and A. Kappler, *Organizers*

8:30 Introductory Remarks.
8:40 1. Adding structure to reactivity: How do aqueous oxides really react? **W. H. Casey**
9:10 2. Ca, Zn, and Cd ions at buried solid/water interfaces studied by second harmonic generation. **F. M. Geiger**, J. N. Malin, P. L. Hayes
9:30 3. Changes in chemical speciation of Ce(III) and its association with biogenic manganese oxides. **T. Ohnuki**, N. Kozai, T. Nankawa, F. Sakamoto, Y. Suzuki, K. Tanaka, A. J. Francis
9:50 4. Coprecipitation in the barite isostructural family. **C. Zhu**
10:20 Intermission.
10:40 5. Co-precipitation of metals and actinides mediated by microbial phosphatases. **P. A. Sobecky**, R. J. Martinez, M. J. Beazley, S. Webb, M. Taillefert
11:10 6. Induced precipitation of apatite as a strategy to reduce ^{90}Sr mobility in the subsurface. **K. E. Wright**, Y. Fujita, D. E. Janney
11:30 7. Influence of calcium carbonate precipitation kinetics and solution stoichiometry on Sr co-precipitation. **M. S. Beig**, G. D. Redden, Y. Fujita, J. Taylor, R. W. Smith
11:50 8. Metal and carbon dioxide sequestration through biologically induced mineral precipitation: Influence of hydrodynamics.
R. Gerlach, A. B. Cunningham, F. G. Ferris, A. C. Mitchell

Section B

Hilton
Salon I

Metal and Metalloid Speciation and Adsorption in Honor of James O. Leckie Surface Complexation Modeling of Mineral Surfaces Cosponsored by ENVR

M. M. Benjamin, W. P. Ela, D. B. Kent, C. Papelis, G. D. Redden, and A. P. Robertson, *Organizers*

J. A. Davis and K. F. Hayes, *Organizers, Presiding*

8:30 Introductory Remarks.
8:50 9. Surface complexation: From model systems to the natural oxide fraction.
T. Hiemstra, W. H. van Riemsdijk
9:30 10. Surface complexation of oxyanions: Unity of the inorganic and organic realms.
D. A. Sverjensky
10:10 Intermission.
10:25 11. Evaluating the thermodynamics of metal ion adsorption at the molecular scale. **L. J. Criscenti**, L. E. Katz, M. C. F. Wander
10:50 12. Surface complexation models of ion adsorption in soils. G. Sposito, **S. Goldberg**
11:15 13. Sorption of trivalent metals on uranium(VI) silicates. **S. L. Holbrook**, N. A. Wall, S. B. Clark
11:35 14. Relative contributions of surface and solution reactions to the acid-base chemistry of gibbsite suspensions.
A. K. Karamalidis, D. A. Dzombak

Section C

Hilton
Salon II

Molecular Computational Geochemistry for Water-Rock Interactions

B. R. Bickmore and K. M. Rosso, *Organizers*

8:30 Introductory Remarks.
8:35 15. Computer simulations of the interaction of water with complex mineral surfaces and clusters. **N. H. de Leeuw**
9:00 16. Bond-valence analysis of liquid and interfacial molecular dynamics simulations.
B. R. Bickmore, K. M. Rosso, S. Kerisit, I. D. Brown
9:25 17. Interactions of water with hematite and alumina surfaces. **A. M. Chaka**, C. R. Iceman, S. E. Mason, T. P. Trainor
9:50 18. Structure and transport behavior of nanoconfined water and enhanced hydronium ion formation. **S. H. Garofalini**, T. Mahadevan
10:15 Intermission.
10:25 19. Diffusion of water and solutes near clay surfaces: Bridging the nanopore and continuum scales. **I. C. Bourg**, G. Sposito
10:50 20. Structure and dynamics of water at mineral interfaces and in nanoconfinement: Connecting molecular modeling with experimental observations.
A. G. Kalinichev
11:15 21. Predicting the effect of ordered water on the adsorption of ions on nanoparticle surfaces and aggregation of hematite nanoparticles. **D. Spagnoli**, B. Gilbert, G. A. Waychunas, J. F. Banfield
11:40 22. Potential of mean force studies of the adsorption of rare earth elements to defect ridden quartz. **A. Clark**, M. C. F. Wander

SUNDAY AFTERNOON

Section A

Hilton
Alpine Ballroom East

Coprecipitation of Metals during Chemically and Biologically Induced Mineral Precipitation

Y. Fujita and A. Kappler, *Organizers*

1:30 23. Iron cycling at neutral pH and the production of iron oxyhydroxides with unique morphologies and properties by oxygen-dependent iron-oxidizing bacteria.
D. Emerson
2:00 24. Mechanisms of arsenite sequestration by Fe(II)-(hydr)oxides after (bio)reduction of Fe(III)-oxyhydroxides. **G. Morin**, G. Ona-Nguema, Y. Wang, G. E. Brown Jr.
2:20 25. Coprecipitation and immobilization of arsenic by iron(II)-oxidizing bacteria.
A. Kappler, C. Hohmann, E. Winkler, G. Morin, Y. Zhu
2:40 26. Optimizing Cr(VI) bioremediation through nanoscale bionanomineral engineering. **R. S. Cutting**, V. S. Coker, R. L. Kimber, N. D. Telling, C. I. Pearce, E. Arenholz, G. van der Laan, R. A. D. Pattrick, D. J. Vaughan, J. R. Lloyd
3:00 Intermission.
3:20 27. Arsenic in lake sediments: Resolving historical deposition from biogeochemical transformation. **P. Van Cappellen**, B. Shafei, R-M. Couture, C. Gobeil, A. Tessier
3:50 28. Biogenic Zn1-xCdxS in anaerobic peatlands of western New York.
C. E. Martinez, S-J. Yoon, C. Yáñez, N. Martínez-Villegas, M. A. Bruns
4:10 29. Pb and Zn Coprecipitation with iron oxyhydroxide nanoparticles. **P. Lu**, C. Zhu, S. Kelly, T. Nuhfer
4:30 30. Tc(VII) attenuation in Hanford sediments exposed to highly alkaline and saline fluids. **N. P. Qafoku**, J. P. Icenhower, C. F. Brown, R. J. Serne, C. Resch

Section B

Hilton
Salon I

Metal and Metalloid Speciation and Adsorption in Honor of James O. Leckie Mineral Surface Speciation Cosponsored by ENVR

M. M. Benjamin, J. A. Davis, W. P. Ela, K. F. Hayes, D. B. Kent, G. D. Redden, and A. P. Robertson, *Organizers*

L. E. Katz, *Presiding*

C. Papelis, *Organizer, Presiding*

1:30 Introductory Remarks.
1:35 31. Interaction of Zn(II)aq with mineral nano- and microparticles, bacterial surfaces, and biofilm-coated metal oxides. **G. E. Brown Jr.**, J. Ha, D. M. Singer, Y. Wang, A. Gélabert, F. Farges, T. P. Trainor, J. R. Bargar, P. Eng, A. M. Spormann
2:15 32. Role of molecular scale approaches in advancing frontiers in surface speciation of metal(loids). **D. L. Sparks**
2:40 33. Sulfate sorption and incorporation into iron oxyhydroxide minerals. **G. A. Waychunas**
3:05 Intermission.
3:20 34. Uranyl-chlorite sorption/desorption: Evaluation of different U(VI) sequestration processes. **D. M. Singer**, K. Maher, G. E. Brown Jr.
3:40 35. Uranyl adsorption at solvated (010) edge surfaces of kaolinite. A. Kremleva, S. Krueger, **N. Roesch**
4:00 36. New insight into arsenate adsorption on iron and aluminum oxide surfaces. **J. G. Catalano**, C. Park, Z. Zhang, P. Fenter
4:20 37. Speciation, sorption, and precipitation processes in arsenic attenuation in subsurface sediments. **P. A. O'Day**, D. Vlassopoulos
4:45 38. Metals at oxide/water interfaces studied by nonlinear optics. **F. M. Geiger**

Section C

Hilton
Salon II

Molecular Computational Geochemistry for Water-Rock Interactions

B. R. Bickmore and K. M. Rosso, *Organizers*

1:15 Introductory Remarks.
1:20 39. Isotope-exchange reactions in nanometer-size oxide ions. **W. H. Casey**, E. M. Villa, C. A. Ohlin
1:45 40. DFT calculation of site-specific carbon isotope fractionation in soil minerals. **J. R. Rustad**
2:10 41. Atomistic simulation of structure, transport, dissolution at mineral interfaces. **S. C. Parker**, J. P. Allen, W. Gren
2:35 42. Modeling of probe molecules on silicate surfaces: Using NMR to quantify reactive surface area. N. M. Washton, K. T. Mueller, **J. D. Kubicki**
3:00 Intermission.
3:10 43. Toward a stochastic treatment of crystal dissolution. **A. Luttge**, R. S. Arvidson
3:35 44. Reactions controlling step movement during mineral dissolution and growth. **A. G. Stack**
4:00 45. Understanding the fundamental mechanisms of $CaCO_3$ growth in water. **P. Raiteri**, J. D. Gale
4:25 46. Dissolution studies of mineral-water interfaces using newly developed Monte Carlo algorithm. **S. Nangia**, B. J. Garrison
4:50 47. Ab initio investigation of forsterite dissolution. **C. P. Morrow**, A. Olsen, J. Kubicki, K. T. Mueller
5:15 48. Arsenic (III)/(V) substitutions in gypsum and calcite. **A. Fernandez-Martinez**, A. Cuello, F. Bardelli, G. Roman-Ross, X. Turrillas, L. Charlet

MONDAY MORNING

Section A

Hilton
Alpine Ballroom East

Metal and Metalloid Speciation and Adsorption in Honor of James O. Leckie Applications of Adsorption Models Cosponsored by ENVR

J. A. Davis, W. P. Ela, K. F. Hayes, D. B. Kent, C. Papelis, G. D. Redden, and A. P. Robertson, *Organizers*

C. R. O'Melia, *Presiding*

M. M. Benjamin, *Organizer, Presiding*

8:30 Introductory Remarks.
8:35 49. Comparison of metal sorption capacity of AMD iron oxides and three soil samples: Implications for metal sorption modeling in soil-water systems. R. Liu, E. B. Altschul, **D. A. Dzombak**
9:15 50. Modeling metal ion adsorption in packed bed reactor systems. **L. E. Katz**, C-C. Chen, G. E. Speitel Jr., S. N. Stokes
9:40 51. Metal/metalloid speciation and adsorption in engineering applications: Examples from European radioactive waste management programs. **S. Altmann**
10:05 Intermission.
10:20 52. Molecular sorption investigations from Mexico: Complementing spectroscopy with wet chemistry. **M. Villalobos**, A. Perez-Gallegos, A. I. Olivos-Suarez, C. Salazar-Camacho
10:45 53. Application of a surface complexation modeling approach to simulate U(VI) adsorption and desorption in a heterogeneous contaminated aquifer. **G. P. Curtis**, M. Kohler, M. B. Hay, K. J. Johnson, J. A. Davis
11:10 54. Reactive solute transport modeling for the design and evaluation of permeable reactive barriers. **D. W. Blowes**, C. J. Ptacek, K. U. Mayer, R. T. Amos, S-W. Jeen, B. Gibson
11:35 55. Surface complexation modeling of U(VI) adsorption by an aquifer sediment from a former mill-tailings site at Rifle, Colorado. **S. P. Hyun**, P. M. Fox, K. F. Hayes, J. A. Davis

Section B

Hilton
Salon I

Molecular Computational Geochemistry for Water-Rock Interactions

B. R. Bickmore and K. M. Rosso, *Organizers*

8:30 Introductory Remarks.
8:35 56. Calculating energetics and spectra for arsenic compounds in sulfidic solution. **J. A. Tossell**
9:00 57. Computational treatment of the oxidation of different oxides and sulfides in an aqueous environment. D. Renock, **U. Becker**
9:25 58. Molecular modeling of ion-pairing in aqueous solution: Implications for modeling adsorption at mineral surfaces. **L. J. Criscenti**
9:50 59. Water adsorption on the $Fe_3O_4(001)$-surface: Evidence for lifting of the $(\sqrt{2} \times \sqrt{2})R45°$-reconstruction. **R. Pentcheva**
10:15 60. U^{6+} interactions with Fe^{2+} in magnetite. **F. N. Skomurski**, S. Kerisit, E. S. Ilton, K. M. Rosso

The official technical program for the 237th National Meeting is available online at oasys2.confex.com/acs/237nm/techprogram/.

10:40 Intermission.
10:50 61. Electron-transfer reactions at the hematite-water interface. **S. Kerisit**, K. M. Rosso
11:15 62. Ferrous iron reduction of uranium(VI) in moderately acidic water. **M. C. F. Wander**, S. Kerisit, K. M. Rosso
11:40 63. Theoretical description of electron exchange dynamics at Fe(II)/goethite interfaces. **P. Zarzycki**, S. Kerisit, F. N. Skomurski, K. M. Rosso

Section C

Hilton
Salon II

Redox Biogeochemistry of Phyllosilicate Minerals Cosponsored by ENVR

E. Shelobolina and E. E. Roden, *Organizers*

8:25 Introductory Remarks.
8:30 64. Overview of redox biogeochemistry of iron in phyllosilicates. **J. W. Stucki**
9:00 65. Assessing the redox reactivity of structural iron in smectites using reactive probe compounds and infrared spectroscopy. A. Neumann, **T. B. Hofstetter**, O. A. Cirpka, S. Petit, R. P. Schwarzenbach
9:20 66. Visible and infrared spectroscopic studies of the reduction of tetrahedral Fe in nontronites. R. B. Merola, B. R. Bzdek, **M. M. McGuire**
9:40 67. Comparisons of structural iron reduction in phyllosilicates by bacteria and dithionite. F. R. Ribeiro, J. E. Kostka, **J. W. Stucki**
10:10 Intermission.
10:25 68. Microbe-clay mineral interactions and implications for environmental remediation. **H. Dong**, D. Jaisi, G. Zhang, J-W. Kim
10:55 69. Separation of iron-bearing phyllosilicate and iron oxide phases in sediments for microbial reduction studies. **T. Wu**, E. E. Roden, H. Xu
11:15 70. Microorganisms involved in iron redox cycling in smectite. **E. Shelobolina**, E. E. Roden
11:45 71. Long-term biostimulation in uranium-contaminated iron-rich saprolite, followed by reoxidation. G. Zhang, J. M. Senko, K. M. Kemner, **W. D. Burgos**
12:05 Discussion.

MONDAY AFTERNOON

Section A

Hilton
Alpine Ballroom East

Geochemistry Division Award Symposium in honor of Fred T. Mackenzie

F. J. Millero and G. W. Luther III, *Organizers*

1:45 Introductory Remarks.
2:00 72. Control of global CO_2 by mineral weathering reactions. **A. Lerman**
2:40 73. CO_2-carbonate system dynamics in subtropical coastal reef environments under rising atmospheric CO_2. **E. H. De Carlo**, F. T. Mackenzie, A. J. Andersson, C. L. Sabine, R. A. Feely
3:20 Intermission.
3:30 74. Importance of magnesium in understanding the behavior of marine carbonates. **J. W. Morse**
4:10 75. 500 million years of ocean-atmosphere-sediment evolution. **F. T. Mackenzie**, R. S. Arvidson, M. Guidry

MONDAY EVENING

Section A

Salt Palace Convention Center
Hall 5

Sci-Mix

D. B. Kent, *Organizer*

8:00–10:00
113, 115-117, 122-123. See subsequent listings.

TUESDAY MORNING

Section A

Hilton
Alpine Ballroom East

Metal and Metalloid Speciation and Adsorption in Honor of James O. Leckie Reactivity of Carbonates, Sulfides, and other Minerals Cosponsored by ENVR

M. M. Benjamin, J. A. Davis, W. P. Ela, K. F. Hayes, D. B. Kent, C. Papelis, G. D. Redden, and A. P. Robertson, *Organizers*

B. D. Honeyman and P. A. O'Day, *Presiding*

8:30 Introductory Remarks.
8:35 76. Surface chemistry of lamellar (smectite) and tubular (imogolite) aluminosilicates. **L. Charlet**, A. Fernandez-Martinez
9:15 77. Carbonate mineral surface charge and potential reevaluated. **M. Wolthers**, L. Charlet, P. Van Cappellen
9:40 78. Modeling organic- and amino-acid adsorption on calcite. D. Mkhonto, **N. Sahai**
10:05 Intermission.
10:20 79. Metal sulfide nanoparticles and clusters in the environment. **G. W. Luther III**, K. M. Mullaugh, M. Yucel, D. Rickard, J. M. Spraggins II, D. P. Ridge, H. Hsu-Kim
10:45 80. In situ precipitation in porous media: Simulating physical/chemical interactions in reactant mixing zones. **G. D. Redden**, T. Scheibe, A. M. Tartakovsky, D. T. Fox
11:10 81. Exploring the potential of spinels stabilization for hazardous metals. **K. Shih**
11:30 82. A fluorescence spectroscopic study of U(VI) in Hanford 300 area groundwater fines. **Z. Wang**, J-F. Boily, J. M. Zachara, Y. X. Xia, D. A. Moore, C. Liu

Section B

Hilton
Salon I

Multiscale Reactions Including Fe-oxides, Oxyhydroxides, and Hydroxides Thermodynamics and Iron (hydr)oxide Nucleation and Growth

J. D. Kubicki, *Organizer*

R. L. Penn, *Presiding*

Y-S. Jun, *Organizer, Presiding*

8:30 83. In situ characterization of nanocrystal growth by oriented aggregation. **R. L. Penn**, N. D. Burrows, V. M. Yuwono, J. Soltis, B. Gilbert
9:00 84. Nanogoethite (α-FeOOH) crystallization in the presence of aluminum. **C. E. Martinez**, K. Bazilevskaya, D. Archibald
9:20 85. First principles study of bulk Fe-oxyhydroxides: Magnetic structure and thermodynamic stability of ferrihydrite. **N. D. Pinney**
9:40 86. Effect of particle size on thermodynamics of reactions involving iron oxides and oxyhydroxides. **A. Navrotsky**
10:20 Intermission.
10:40 87. Ionic strength-controlled growth mechanisms of iron oxide nanoparticles. **Y-S. Jun**, G. A. Waychunas, B. Lee
11:00 88. Nucleation and growth of ferrihydrite. **S. O. Ajayi**
11:20 89. A molecular level approach to nucleation and growth of iron oxyhydroxide nanoparticles. **M. Aryanpour**, A. C. van Duin, J. D. Kubicki
11:40 90. Quantum mechanical calculations on nanoparticles based on the ferrihydrite and goethite crystal structures. **J. D. Kubicki**, M. Aryanpour

TUESDAY AFTERNOON

Section A

Hilton
Alpine Ballroom East

Metal and Metalloid Speciation and Adsorption in Honor of James O. Leckie
Heterogeneous Redox Reactions
Cosponsored by ENVR

M. M. Benjamin, J. A. Davis, W. P. Ela, K. F. Hayes, D. B. Kent, C. Papelis, G. D. Redden, and A. P. Robertson, *Organizers*

G. E. Brown Jr. and R. O. James, *Presiding*

1:30 Introductory Remarks.
1:35 91. Heterogeneous redox potential of different solid-phase Fe(II) forms defined by reaction with the pertechnetate anion. **J. M. Zachara**, S. M. Heald, J. P. McKinley, J. Fredrickson, T. Peretyazhko, A. Plymale
2:15 92. Effect of carbonate ligands on the speciation and reduction of U(VI) by Fe(II) at a carboxyl surface. **M. I. Boyanov**, E. O'Loughlin, K. Kemner
2:35 93. Speciation and reactivity of biogenic UO2 in water. **K-U. Ulrich**, H. Veeramani, J. O. Sharp, R. Bernier-Latmani, E. Schofield, J. R. Bargar, D. E. Giammar
2:55 Intermission.
3:10 94. How do biogeochemical conditions affect the products of U(VI) reduction by bacteria? **R. Bernier-Latmani**, J. O. Sharp, H. Veeramani, E. I. Suvorova, E. Schofield, J. R. Bargar, A. Mehta, K-U. Ulrich, D. E. Giammar
3:35 95. Mineralogical control on U(VI) attenuation in the contaminated sediments from Rifle, CO. **N. P. Qafoku**, R. K. Kukkadapu, J. P. McKinley, B. W. Arey, S. D. Kelly, K. M. Campbell, C. Resch, C. Wang, K. H. Williams, M. J. Wilkins, P. E. Long
3:55 96. Role of dissolved iron(II) and structural iron in clay mineral mediated redox transformations of arsenic and antimony. **A. G. Ilgen**, M. Newville, T. P. Trainor
4:15 97. Arsenic redox changes by microbially and chemically formed semiquinone radicals and hydroquinones in a humic substance model quinone. **J. Jiang**, I. Bauer, A. Paul, A. Kappler
4:35 98. Effect of rainfall events on adsorption and transport of Cu, Ni, Pb, and Zn in streams draining the historic Beatson mine, Latouche Island, Prince William Sound, AK, USA. **L. L. Stillings**

Section B

Hilton
Salon I

Multiscale Reactions Including Fe-oxides, Oxyhydroxides, and Hydroxides
Structural Characterization of Bulk and Surfaces

J. D. Kubicki, *Organizer*

C. P. Grey, *Presiding*

Y-S. Jun, *Organizer, Presiding*

1:30 99. Real-space structural analysis of ferrihydrite nanoparticles. **F. M. Michel**, C. Cismasu, D. R. Strongin, J. B. Parise, G. E. Brown Jr.

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2:00 100. Molecular- and nm-scale investigation of the structure and composition of naturally occurring ferrihydrite. **C. Cismasu**, F. M. Michel, J. F. Stebbins, A. P. Tcaciuc, G. E. Brown Jr.
2:20 101. Hydrogen-bonding in synthetic and natural schwertmannite. **J-F. Boily**, P. L. Gassman, J. M. Zachara
2:40 102. NMR Studies of local structure and ion binding on iron oxyhydroxides. J. Kim, U. G. Nielsen, D. Middlemass, **C. P. Grey**
3:10 Intermission.
3:30 103. The crystal chemistry of iron oxyhydroxide-silica interfacial reactions. **G. A. Waychunas**, Y-S. Jun, J. A. Davis, J. D. Kubicki
4:00 104. Solvated ion and explicit water contributions to the energy of the 1-102 hematite surface. **C. R. Iceman**, K. Tanwar, S. E. Mason, A. M. Chaka, T. P. Trainor
4:20 105. Surface structure and composition of oxidized and reduced hydrated magnetite (111). **S. C. Petitto**, R. J. Rowland, K. Tanwar, S. K. Ghose, P. Eng, T. P. Trainor
4:40 106. Reaction of sulfide with ferric oxides: Pathway to pyrite formation? **S. Peiffer**, K. Hellige, P. Larese-Casanova
5:00 107. Reductive dechlorination of cis-dichloroethylene (cis-DCE) by Fe-bearing precipitates formed under reducing conditions. **H. Y. Jeong**, K. Anantharaman, L. Rajewski, K. F. Hayes
5:20 108. The role of iron hydroxy complexes in the suppression of pyrite oxidation by silicates and bilayer lipids. **D. Kargbo**, S. Chatterjee

TUESDAY EVENING

Section A

Salt Palace Convention Center
Hall 5

Coprecipitation of Metals during Chemically and Biologically Induced Mineral Precipitation

Y. Fujita and A. Kappler, *Organizers*

5:00–7:00
109. Withdrawn.
110. Effects of pH and ammonium carbonate concentration on strontium coprecipitation in calcium carbonate. **C. Corriveau**, M. S. Beig, R. W. Smith
111. Mercury speciation and accumulation in plants roots at the abandoned New Idria mine site. **H. Siebner**, S. Webb, G. E. Brown Jr.
112. Mineral formation and cadmium coprecipitation by a nitrate-reducing Fe(II)-oxidizing bacterium. **P. Larese-Casanova**, R. Martinez, S. B. Haderlein, A. Kappler
113. Phosphate-induced metal stabilization using Apatite II: Bioavailability of toxic metals. **V. A. Jouraeva**
114. Remediation of ^{90}Sr by induced calcite precipitation: Reactive transport modeling on several fronts. **N. Spycher**, T. Weathers, T. Barkouki, R. W. Smith, T. R. Ginn, G. Zhang, Y. Fujita, Y. Wu, J. Ajo-Franklin, S. Hubbard, S. S. Sengor

Section B

Salt Palace Convention Center
Hall 5

Geochemical Processes, Reactivity, and Applications of Manganese Oxides
Cosponsored by ENVR and INOR

M. Villalobos and J. R. Bargar, *Organizers*

5:00–7:00
115. Novel synthesis of layer-structured black birnessite nanomaterial from brown birnessite with complex shape under mild and acidic conditions. **M. A. Cheney**, P. K. Bhowmik, S. Qian, S. W. Joo, W. Hou, J. M. Okoh

‡ Cooperative Cosponsorship

116. Oxidative degradation of Chlorpyrifos by synthetic birnessites, analog to biogenic manganese oxides. **J. Morales-Morales**, R. Gibson, R. Lopez-Santiago, M. Villalobos
117. Redox dynamics at the Mn/Fe oxide interface. **M. V. Schaefer**, R. M. Handler, D. M. Cwiertny, M. M. Scherer
118. Sorption of polycyclic aromatic hydrocarbons (PAHs) onto synthetic analogs of a biogenic manganese oxide. **M. Carrillo-Cardenas**, R. López-Santiago, R. Gibson, M. Villalobos
119. Surface reactivity of arsenic (V) on two synthetic analogs of a biogenic manganese oxide. **C. A. Salazar-Camacho**, A. I. Olivos-Suarez, M. A. Cheney, J. R. Bargar, M. Villalobos
120. Photosynthesis and respiration control the solubility of Mn in natural aquatic systems. M. A. M. Kedziorek, **A. C. M. Bourg**
121. Selective sorption of cobalt over nickel on biogenic manganese oxides. **K. Sasaki**, T. Kaseyama, T. Hirajima

Section C

Salt Palace Convention Center
Hall 5

Metal and Metalloid Speciation and Adsorption in Honor of James O. Leckie
Cosponsored by ENVR

M. M. Benjamin, J. A. Davis, W. P. Ela, K. F. Hayes, D. B. Kent, C. Papelis, G. D. Redden, and A. P. Robertson, *Organizers*

5:00–7:00
122. Acid promoted Cr(VI) attenuation in contaminated sediments. **N. P. Qafoku**, P. E. Dresel, E. S. Ilton, J. P. McKinley, R. K. Kukkadapu, C. Resch
123. DFT studies of Cr(VI) complex adsorption on hydroxylated hematite (1-102) surfaces. **S. Yin**, D. E. Ellis
124. A novel pervious cement reaction barrier (PCRB) in situ arsenic remediation system. **M. L. Jones**
125. Diel variations in particulate Hg and other trace metals in a temperate wetland, Farmington Bay, Utah. **G. T. Carling**, W. P. Johnson, D. Naftz
126. FeS-Coated sand for removal of arsenic(III) under anaerobic conditions: Comparison of batch and column experiments. **Y-S. Han**, A. H. Demond, K. F. Hayes
127. Heavy metal and arsenic sorption to nano-iron oxides. **H. J. Shipley**, K. Engates
128. Mercury sorption to river sediments from the Hillsborough river: Potential impacts from climate change. **M. A. Trotz**, J. Howard, A. Stuart, F. Akiwumi
129. Potential error and uncertainty in uranium speciation calculations. **J. Leavitt**, S. Cabaniss
130. Selenium loading vs. removal via sedimentation and volatilization from the Great Salt Lake, Utah. X. Diaz, W. Oliver, D. Naftz, **W. P. Johnson**, C. C. Fuller
131. Study of Hg transformation using stable isotope tracer in combination with aqueous phenylation–purge and trap–GC–ICP–MS. **Y. Mao**, Y. Cai
132. Using surface complexation models to quantify the impact of adsorption on reactive solute transport observed in field experiments. **D. B. Kent**, G. P. Curtis, J. A. Davis, G. M. Fairchild, D. R. LeBlanc, R. L. Smith
133. Effects of salinity on the aggregation, composition, and sorption capacity of humic acid. **L. C. González-Márquez**, A. Hansen, J. O. Leckie
134. Scenarios of desorption of metals due to resuspension of sediments. **A. Hansen**, L. C. González-Márquez
135. Kinetics of sorption of cobalt from solution by using activated bentonite. S. Kubilay, **A. Gur**, I. Basak
136. Investigation of adsorption kinetics and removal of copper (II) and zinc from aqueous solution by Bardakçi clay. **A. Gur**, A. Y'ld'z, E. Alkan, T. Gur

Section D

Salt Palace Convention Center
Hall 5

Molecular Computational Geochemistry for Water-Rock Interactions

B. R. Bickmore and K. M. Rosso, *Organizers*

5:00–7:00
137. Modeling the interaction of UO_2^{2+} with corundum and hematite surfaces. **M. Van der Hoven**, S. Aboud, J. Wilcox, M. Odelius, G. E. Brown Jr.

Section E

Salt Palace Convention Center
Hall 5

Multiscale Reactions Including Fe-oxides, Oxyhydroxides, and Hydroxides
Fe-oxides

Y-S. Jun and J. D. Kubicki, *Organizers*

5:00–7:00
138. Magnetite vs. green rust: Effects of phosphate on the formation of Fe(II)-bearing secondary mineralization products resulting from the bioreduction of Fe(III) oxides. **E. J. O'Loughlin**, C. A. Gorski, K. M. Kemner, M. I. Boyanov, R. E. Cook, D. E. Latta, M. M. Scherer
139. Crossover size for best hematite nanoparticle surface area measurement. **A. S. Madden**
140. Siderophore-mediated dissolution of Co-substituted goethite. **Y. Bi**, O. Duckworth

Section F

Salt Palace Convention Center
Hall 5

Speciation and Kinetics in Natural Waters in Honor of Frank J. Millero

V. K. Sharma, *Organizer*

5:00–7:00
141. Chemical speciation of phosphorus in Arctic sediments. **J-Z. Zhang**, L. Guo, C. Fischer
142. Dissociation constants of protonated oxidized glutathione in seawater media at different temperatures and salinities. P. Crea, C. De Stefano, F. J. Millero, S. Sammartano, **V. K. Sharma**
143. Carbon cycling and the coupling between proton and electron transfer reactions in aquatic sediments in Lake Champlain. **W-J. Cai**, G. W. Luther III, J. Cornwell, A. Giblin

WEDNESDAY MORNING

Section A

Hilton
Alpine Ballroom East

Metal and Metalloid Speciation and Adsorption in Honor of James O. Leckie
Speciation and Microbial Systems
Cosponsored by ENVR

M. M. Benjamin, J. A. Davis, W. P. Ela, K. F. Hayes, D. B. Kent, C. Papelis, and A. P. Robertson, *Organizers*

P. McCarty, *Presiding*

G. D. Redden, *Organizer, Presiding*

8:30 Introductory Remarks.
8:35 144. Extracellular biochemicals: Evolution's answer to the challenges posed by dissolved metal ions and mineral surfaces in soils. **A. T. Stone**, Z. Shi, N. E. Boland, P. M. Flanders
9:15 145. Surface complexation modeling of metal adsorption onto bacteria. **J. B. Fein**
9:40 146. Dissolved and labile metal concentrations: Comparisons among thermodynamic speciation models and implications for biotic ligand models. **L. S. Balistrieri**, R. G. Blank

10:05 Intermission.
10:20 147. Biogeochemistry of plutonium transport. **B. D. Honeyman**, R. M. Tinnacher, A. D. Diaz, C. Kantar, R. M. Sofield Harper, J. Gillow
10:45 148. Field application of activated carbon amendment for in situ stabilization of PCBs in sediment. **R. G. Luthy**, Y-M. Cho, U. Ghosh, A. J. Kennedy, T. S. Bridges
11:10 149. Association of metalloids with sediments and soils of managed urban watersheds in the US Southwest: Implications for water quality. A. C. Williams, T. M. Boettcher, R. Harris-Burr, **C. Papelis**
11:30 150. Surface speciation of aspartate and glutamate on titanium dioxide. **C. M. Jonsson**, C. L. Jonsson, D. A. Sverjensky, H. J. Cleaves II, R. M. Hazen

Section B

Hilton
Salon I

Multiscale Reactions Including Fe-oxides, Oxyhydroxides, and Hydroxides
Redox Reactions: Electron Transfer from Sobed Fe(II) to Fe(III) Oxides

Y-S. Jun and J. D. Kubicki, *Organizers*

K. M. Rosso and J. G. Catalano, *Presiding*

8:30 151. Multiscale investigations of Fe(II) interaction with hematite (001) surfaces. S. V. Yanina, J-F. Boily, C. A. Gorski, P. Larese-Casanova, J. G. Catalano, P. Fenter, M. M. Scherer, **K. M. Rosso**
9:10 152. Kinetics of atom exchange between aqueous Fe(II) and goethite. **R. M. Handler**, B. L. Beard, C. M. Johnson, K. M. Rosso, M. M. Scherer
9:30 153. Orientation-dependent hematite-Fe(II) reactions at acidic and neutral pH. **J. G. Catalano**, P. Fenter, C. Park, K. M. Rosso
9:50 154. Heterogeneous oxidation of Fe(II) on iron oxides: Controls on product formation. **P. Larese-Casanova**, A. Kappler, S. B. Haderlein
10:10 Intermission.
10:30 155. Fe oxides as semiconductors: Implications for contaminant fate in iron-reducing environments. **C. A. Gorski**, R. M. Handler, M. M. Scherer
10:50 156. Passivation and depassivation of iron/iron oxide nanoparticles. **J. T. Nurmi**, P. G. Tratnyek
11:10 157. Impact of *Shewanella oneidensis* MR-1 biofilm coatings on the reactivity of hematite. **Y. Wang**, A. Gélabert, Y. Choi, J. Ha, J. Gescher, J. R. Bargar, J. Rogers, P. Eng, C. D. Cordova, A. M. Spormann, G. E. Brown Jr.
11:30 158. Quantum chemical modeling of microbial iron reduction. **B. Puls**, J. Kubicki, M. Tien
11:50 159. Influences of humic substances and mineral nucleation sites on minerals formed during microbial iron(II) oxidation. **U. G. Dippon**, C. Hohmann, P. Larese-Casanova, K. Porsch, A. Kappler

WEDNESDAY AFTERNOON

Section A

Hilton
Alpine Ballroom East

Metal and Metalloid Speciation and Adsorption in Honor of James O. Leckie
Environmental Sciences, Engineering, and Dermal Exposure Cosponsored by ENVR

M. M. Benjamin, J. A. Davis, K. F. Hayes, D. B. Kent, C. Papelis, and G. D. Redden, *Organizers*

A. P. Robertson and W. P. Ela, *Organizers, Presiding*

1:30 160. Assessing the current and future impacts of the disposal of chromated copper arsenate-treated wood in unlined landfills. **M. C. Kavanaugh**, N. Kresic, E. L. Hawley
2:00 161. Transport and distribution of arsenic, chromium, and copper in soil associated with CCA-treated wood. **L. Hu**, Y. Cai, C. Diez-Rivas, H. Solo-Gabriele, L. Fieber, A. F. R. Hasan
2:20 162. Combining adsorption with membrane filtration to remove NOM and reduce fouling. **M. M. Benjamin**, Z. Cai, J. Kim
2:45 163. Effect of foulant-foulant electrostatic interaction on limiting flux for RO and NF membranes. **C. Y. Tang**, Y. N. Kwon, J. O. Leckie
3:10 Intermission.
3:25 164. Smart multifunctional TiO_2 nanofiber/tube membrane powering water production. **D. D. Sun**, X. W. Zhang, A. J. Du, J. H. Pan, W. J. Fu, Y. J. Wang, J. O. Leckie
3:45 165. Soil adherence techniques and measures for dermal exposure. **A. C. Ferguson**
4:10 166. Pesticide exposure among farmworkers' children. **P. I. Beamer**
4:35 167. Collection of contact activity data via videotaping. **W. W. AuYeung**

Section B

Hilton
Salon I

Multiscale Reactions Including Fe-oxides, Oxyhydroxides, and Hydroxides
Redox Reactions: Reactions by Foreign Chemical Sorption

Y-S. Jun and J. D. Kubicki, *Organizers*

E. S. Ilton and P. J. Vikesland, *Presiding*

1:30 168. Alterations to magnetite aggregation state during oxidation. R. F. Rebodos, **P. J. Vikesland**
1:50 169. Oxidation of Fe(II) by CCl_4 at iron mineral surfaces studied by compound specific isotope analysis. **A. Schmidt**, S. B. Haderlein
2:10 170. Electron transfer reactions at iron mineral surfaces in the presence of organic matter. **C. Laskov**, S. B. Haderlein
2:30 171. Fe(II)/HFO reactions with O2, nitrite, and uranyl at pH 6.8. Y-L. Tai, **B. A. Dempsey**
2:50 Intermission.
3:10 172. Multiscale uranium(VI)–phosphate interactions in the presence of goethite. **A. Singh**, K-U. Ulrich, J. G. Catalano, D. E. Giammar
3:30 173. Reduction of U(VI) by soil containing natural green rust. **D. E. Latta**, E. J. O'Loughlin, K. M. Kemner, M. I. Boyanov, M. M. Scherer
3:50 174. Investigating speciation at the iron oxide/solution interface using cryogenic XPS. **E. S. Ilton**
4:10 175. Anoxic production of sulfate green rust II by the reduction of water and partial oxidation of $Fe_2(OH)_3Cl \cdot x\ H_2O(s)$. **Y. Xiong**, M. B. Nemer, A. E. Ismail, L. H. Brush
4:30 176. A macroscopic investigation unifying proton, chromate, carbonate, and lead(II) adsorption on goethite. **M. Villalobos**, A. Perez-Gallegos, M. A. Cheney, J. C. Alcaraz-Cienfuegos

THURSDAY MORNING

Section A

Hilton
Alpine Ballroom East

Geochemical Processes, Reactivity, and Applications of Manganese Oxides
Cosponsored by ENVR and INOR

M. Villalobos and J. R. Bargar, *Organizers*

8:10 Introductory Remarks.
8:15 177. Geochemistry of marine ferromanganese crusts. **J. R. Hein**, A. Koschinsky, J. R. Bargar, T. A. Conrad
8:45 178. Biogenic Mn oxide production in the Guaymas Basin deep-sea hydrothermal plume. **G. J. Dick**, B. Clement, S. Webb, J. Bargar, B. M. Tebo
9:15 179. Bioinorganic chemistry of bacterial manganese oxidation. **T. G. Spiro**, B. M. Tebo, A. V. Soldatova, O. F. Oyerinde
9:45 180. Enzymatic and abiotic Mn(II) oxidation: Cooperative or competitive pathways? **T. Behrends**, S. Shaw, L. G. Benning
10:05 Intermission.
10:45 181. Synthesis, characterization, and applications of layered manganese oxide materials. **S. L. Suib**
182. Withdrawn.
11:15 183. Effects of Hoffmeister anions on nanostructure of cryptomelane MnO_2 and its transformation to birnessite phase. **M. A. Cheney**, R. Jose, A. Banerjee, P. K. Bhowmik, S. Qian
11:35 184. Electrochemical properties of different Mn dioxides: Application as electrode materials in energy storage devices. **L. Athouël**, O. Crosnier, D. Bélanger, T. Brousse
12:05 185. Process and analytical chemistry of nanomanganese oxide electrodes. J. T. Nurmi, S. Feng, **P. G. Tratnyek**, S. Chinni, B. M. Tebo

Section B

Hilton
Salon I

Speciation and Kinetics in Natural Waters in Honor of Frank J. Millero

V. K. Sharma, *Organizer*

8:30 Introductory Remarks.
8:40 186. Adventures in marine carbonate chemistry with Frank Millero. **J. W. Morse**
9:10 187. In situ determination of Fe(II) oxidation kinetics in microbial mats and sulfur species temporal dynamics in diffuse flow hydrothermal vents. **G. W. Luther III**, K. M. Mullaugh, R. E. Trouwborst, G. K. Druschel, J. A. Rentz, D. Emerson, B. K. Pierson, C. Fisher
9:40 188. Equilibrium behavior of Pb(II) in natural waters. **R. H. Byrne**
10:10 189. Effect of desferrioxamine B on the release of arsenic from volcanic rocks. B. Casentini, **M. Pettine**, F. J. Millero
10:40 Intermission.
10:50 190. Hydrolysis of Al(III) in NaCl solutions: A model for Fe(III). **F. J. Millero**, R. J. Woosley
11:10 191. Hydrolysis of Al(III) in NaCl solutions: Model for M(II), M(III), and M(IV) ions. **R. J. Woosley**, F. J. Millero
11:30 192. Determinations of carbonate species in environmental water by new automatic instrument. **N. Tsurushima**, H. Narita, K. Okamura, T. Kimoto

THURSDAY AFTERNOON

Section A

Hilton
Alpine Ballroom East

Geochemical Processes, Reactivity, and Applications of Manganese Oxides
Cosponsored by ENVR and INOR

M. Villalobos and J. R. Bargar, *Organizers*

1:10 Introductory Remarks.
1:15 193. On the role of Mn(IV) vacancy in photoreductive dissolution of birnessite. **K. D. Kwon**, K. Refson, G. Sposito
1:45 194. pH Effects on the structure of biogenic Mn-oxides. **M. Zhu**, M. Ginder-Vogel, S. J. Parikh, D. L. Sparks
2:05 195. Role of process conditions on the controlled conversion of nanoplates to nanoneedles in birnessite without structural change. **M. A. Cheney**, R. Jose, A. Banerjee, P. K. Bhowmik, S. Qian, S. W. Joo
2:25 196. The reactivity of siderophores at manganese oxide surfaces. **O. Duckworth**, J. R. Bargar, J. Peña, L. B. Saal, G. Sposito
2:55 197. Kinetic modeling of oxidation of antibacterial agents by manganese oxide. **C-H. Huang**, H. Zhang, W-R. Chen
3:15 Intermission.
3:25 198. Interaction of several elements with biogenic Mn oxides formed by a Mn(II)-oxidizing fungus, *Acremonium* sp. KR21-2. **T. Yukinori**, M. Naoyuki
3:55 199. Processes of Zn attenuation by microbial Mn oxides in mine-contaminated streams. **C. C. Fuller**, J. R. Bargar, Y. Arai, S. Webb
4:25 200. Transition metal uptake by biogenic manganese oxide nanoparticles. **J. Peña**, J. R. Bargar, G. Sposito
4:45 201. Manganese oxide contribution to metal binding in soil systems. **J. Antelo**, E. Tipping, S. Lofts

Section B

Hilton
Salon I

Speciation and Kinetics in Natural Waters in Honor of Frank J. Millero

V. K. Sharma, *Organizer*

1:40 202. Long trends in the water column carbon dioxide system at Estoc site. **M. Gonzalez-Davila**, J. M. Santana-Casiano
2:00 203. Spectroscopic measurements of the pH in NaCl brines. F. J. Millero, **B. R. DiTrolio**, A. F. Suarez, G. Lando
2:20 204. Reevaluation of the global boron to chlorinity ratio. **K. Lee**, Y-M. Liu
2:40 205. The analysis of iron(II) in natural waters at the nanomolar level using a colorimetric flow injection analysis method: Methodology and applications. **M. J. Pullin**, A. Higdon, E. Osantowski
3:00 206. Fe(III) reduction in the presence of catechol in natural waters. **J. M. Santana-Casiano**, M. Gonzalez-Davila, F. J. Millero
3:20 207. Spectroscopic study of the interaction of iron(III)-EDTA complex with peroxynitrite. **V. K. Sharma**, R. Yngard, Z. Homonnay
3:40 Intermission.
3:55 208. Factors governing the lifetime of superoxide in seawater. **S. P. Hansard**, B. Voelker
4:15 209. Speciation of dissolved nickel in the Gulf of México. **G. F. Vázquez**, S. H. Bustos
4:35 210. Characterization of the photochemical degradation products of 2,4-dinitrotoluene and 2,6-dinitrotoluene in seawater. **J. R. Denzel**, D. J. Luning Prak, D. W. O'Sullivan
4:55 211. Solar degradation of endocrine-disrupting pollutants in natural waters. **D. E. Latch**, K. E. Daumit, C. N. Goodwin, J. L. Gray, G. R. Aiken

HIST

Division of The History of Chemistry

S. C. Rasmussen, *Program Chair*

BUSINESS MEETING:
HIST Business Meeting, 1:00 pm: Mon

MONDAY MORNING

Section A

Marriott Downtown
Solitude

General Papers

S. C. Rasmussen, *Organizer, Presiding*

10:00 1. Protein wars: Controversies in the early history of protein structure and function. **J. S. Jeffers**

The official technical program for the 237th National Meeting is available online at oasys2.confex.com/acs/237nm/techprogram/.