

CURRICULUM VITAE

COLLEEN MICHELLE HANSEL

Biogeochemist

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EDUCATION

- 2004 Ph.D. in Biogeochemistry, Department of Geological and Environmental Sciences, Stanford University
- 1999 M.S. in Environmental Chemistry, Department of Plant, Soil, and Entomological Sciences, University of Idaho
- 1997 B.S. in Geology, Department of Geological Sciences, California State University, Sacramento

PROFESSIONAL EXPERIENCE

- 2015-present Associate Scientist with tenure, Department of Marine Chemistry and Geochemistry, Woods Hole Oceanographic Institution
- 2012-2015 Associate Scientist, Department of Marine Chemistry and Geochemistry, Woods Hole Oceanographic Institution
- 2011-2012 Associate Professor, School of Engineering and Applied Sciences and Department of Earth and Planetary Sciences, Harvard University
- 2009-2011 Assistant Professor, Department of Earth and Planetary Sciences, Harvard University
- 2007-2011 Assistant Professor, School of Engineering and Applied Sciences, Harvard University
- 2004-2006 Postdoctoral Scholar, Department of Geological and Environmental Sciences, Stanford University
- 2000-2004 Graduate Researcher, Department of Geological and Environmental Sciences, Stanford University

HONORS AND AWARDS

- 2016 Guest investigator fellowship at the Helmholtz Center in Geesthacht, Germany (October 30-December 16, 2017)
- 2014 Mineralogical Society of America Distinguished Lecturer
- 2013 Edward I. Stiefel Lecture Award for the 2014 Metals in Biology, Gordon Research Conference
- 2013 JGI-EMSL Collaborative Research Award entitled "Genome-enabled Investigations of the Role of Secreted Proteins and Reactive Metabolites in Carbon Degradation by Pure and Mixed Ascomycete Fungal Communities"
- 2011 Kavli Frontiers of Science Symposium Invited Speaker, National Academy of Sciences, China
- 2009 National Science Foundation CAREER Award
- 2005 Environmental Protection Agency Travel Grant
- 2004 Woods Hole Oceanographic Institution Postdoctoral Fellowship (*declined*)
- 2002 Graduate Student Travel Grant, DOE Natural and Accelerated Bioremediation Program
- 2002 Best Poster in Environmental Science, Stanford Synchrotron Users Meeting
- 2002 McGee Grant in Earth Science, Stanford University
- 2000 Best Poster in Environmental Science, Stanford Synchrotron Users Meeting
- 2000 Marine Biological Laboratory Microbial Diversity Course Scholarship
- 2000 Shell Foundation Award, Stanford University

1997 Outstanding Field Geologist Award, CSU Sacramento

PROFESSIONAL AFFILIATIONS

2015-present International Society for Coral Reef Studies
2012-present American Society for Limnology and Oceanography, Member
2002-present American Geophysical Union, Member
2002-present Mineralogical Society of America, Member
2001-present Geochemical Society, Member
2000-2013 American Chemical Society, Member
2004-2010 American Society for Microbiology, Member
1997-2002 Soil Science Society of America, Member

RESEARCH INTERESTS

- Metal biogeochemistry
- Biogenic reactive intermediates
- Reactive oxygen species in biogeochemistry
- Biomineralization
- Exoproteins in biogeochemistry
- Biomineralization

PROFESSIONAL ACTIVITIES

Outside WHOI (Other than Attendance at Society/National Meetings):

Co-author of Developing Submergence Science for the Next Decade (DESCEND-2) workshop report, Cambridge, MA – January 14-16, 2016

Environmental Molecular Sciences Laboratory (EMSL) Scientific Advisory Committee (2014-present)

Chair of the Stanford Synchrotron Radiation Lightsource Users' Organization Executive Committee (2013-2015)

Stanford Synchrotron Radiation Lightsource Science Advisory Committee (2013-2016)

Participant, NSF Geomicrobiology and Microbial Geochemistry Workshop (October 2013)

Co-organizer of the Stanford Synchrotron Radiation Lightsource Users' Conference, Stanford, CA (2013)

Stanford Synchrotron Radiation Lightsource User's Conference workshop organizer. *Integrating Synchrotron Techniques into Environmental Carbon Science* (2013)

Chair of 2013 Goldschmidt Conference Theme 19 (Biogeochemistry) (2012-2013)

Session organizer and co-convener:

American Chemical Society, *Microbially-driven geochemical reactions: kinetics and communities* (2017)

Goldschmidt Conference, *Coupled and cryptic cross linkages among biogeochemical cycles* (2017)

AGU Ocean Sciences, *Sources and sinks of reactive oxygen species in the ocean: "Is seawater a radical solution?" (Zafiriou, 1987) Revisited* (2016)

Goldschmidt Conference, *Manganese biogeochemistry: spanning mechanisms to environmental impacts* (2015)

American Geophysical Union Annual Conference, *Cryptic cross-linkages among biogeochemical cycles: novel insights from the perspective of reactive intermediates* (2014)

Stanford Synchrotron Radiation Lightsource User's Conference, *Synchrotron Techniques in Metal Biogeochemistry: Across Time and Spatial Scales* (2013)

Goldschmidt Conference, *Role of Reactive Intermediates in Biogeochemistry* (2013)
Goldschmidt Conference, *Geochemical Processes in Mining Environments* (2011)
American Chemical Society General Meeting, *Spectroscopic investigations of metal interactions at mineral/water/microbial interfaces* (2010)
American Chemical Society General Meeting, *Microbial, molecular and mineralogical characteristics of biological metal oxidation* (2008)
Goldschmidt Conference, *Microbially mediated processes governing the redox cycling of metals* (2007)

Session Leader, Complex System Science for Subsurface Fate and Transport Workshop, DOE Office of Biological and Environmental Research (2009)

Panel Reviewer
NSF (Low Temperature Geochemistry and Geobiology)
DOE (Transuranics SFA)
DOE-TES/SBR

Associate Editor, *Frontiers in Microbiological Chemistry* (2011-present)
Review Editor, *Frontiers in Aquatic Microbiology* (2010-present)
Facility User Grant Review Panel for DOE sponsored user facilities (2007-present)
Environmental Molecular Sciences Laboratory (EMSL) at PNNL
Stanford Synchrotron Radiation Lightsource

Manuscript Reviewer for *Environmental Science and Technology*, *Applied Geochemistry*, *Geochimica et Cosmochimica Acta*, *Chemical Geology*, *Journal of Environmental Quality*, *Applied and Environmental Microbiology*, *Environmental Microbiology*, *Geobiology*, *Environmental Microbiology Reports*, *Nature*, *Nature Geosciences*, *Nature Communications*, *Geomicrobiology Journal*, *International Society for Microbial Ecology (ISME) Journal*, *JGR-Biogeosciences*, *Science*, *Scientific Reports*, *Frontiers in Microbiology*, *PNAS*

Proposal Reviewer for NSF Low Temperature Geochemistry and Geobiology, NSF Chemical Oceanography, NSF Environmental Chemical Sciences, NSF Dimensions, NSF Biological Oceanography, NSF Postdoctoral Program, DOE-BER, DOE-BES, NASA Exobiology, USDA Soils program, DOE-TES/SBR

PARTICIPATION IN EDUCATION PROGRAM

WHOI:

Co-instructor for Aquatic Chemistry, MIT 1.76, Fall 2017
Co-instructor for Marine Chemistry Seminar (Hot Topics), MIT 12.759, Spring 2015, 2017
Member of SciSEC – January 2016 – present
Member of Joint Committee for Chemical Oceanography (JCCO) for WHOI/MIT Joint Program (January 2016 – present)
WHOI Postdoc Mentoring Committee (November 2014 – present)
Advisor MIT-WHOI PhD students: Kalina Grabb (2017-present), Kevin Sutherland (2014-present), Gabriela Farfan (2013-present), Emily Estes (2011-2017)
Member of thesis committees: Daniel Ohnemus (CO, 2011-2013; advisor Phoebe Lam), Jesse McNichol (BO, 2012-2016; advisor Stefan Sievert), Winifred Johnson (CO, 2013-2017; advisor Liz Kujawinski), Simone Moos (CO, 2014-2017; advisor Ed Boyle), James Collins (CO, 2014-2017; advisor Ben Van Mooy), Sharon Newman (MIT, 2015-present; advisor Tanja Bosak)
Defense Chair: Kathleen Munson (CO, 2013; advisor Carl Lamborg), Rene Boiteau (CO, 2016; advisor Dan Repeta)
Host for WHOI Summer Student Fellows (Katie Rempfert; June-August, 2013; Caterina Brighi; June-August 2014; Dana Johnson, June – August 2015; Chloe Wang; June-August, 2016; Shavonna

Bent; May-August, 2017)
Host for NOAA Hollings Scholar (Rebecca Metivier; July-August 2016)
Member, WHOI Summer Student Fellow Admissions Committee, Spring 2013-2016
Chair, WHOI Summer Student Fellow Admissions Committee, 2016-present
Host for Undergraduate Guest Student (Katie Duncan, June-August, 2016)

Harvard University:

Advisor, Graduate Students (PhD): Carolyn Zeiner (2010-2015), Adiari Vázquez-Rodríguez (2008-2014), Chris Lentini (2007-2013)
Advisor, Graduate Student (SM): Nancy Martinez (2008-2010), Lu Sun (2008-2010)
Member of thesis committees: Wil Leavitt (EPS, 2011-2014; advisor David Johnston)
Instructor, undergraduate-level courses developed and taught (2007-2012): *ES 164 Soil and Environmental Chemistry, ES 166 Environmental Microbiology,*
Instructor, graduate-level courses developed and taught (2007-2012): *ES 263 Microbial Geochemistry, ES 264 Advanced Soil and Environmental Chemistry, ES 266 Advanced Environmental Microbiology*
Guest lecturer: *ES 162 Hydrology and Environmental Geomechanics, ES 165 Introduction to Environmental Engineering; OEB 221 Microbial Diversity*
Harvard University SEAS Sophomore Forum. Faculty Instructor (2007-2008)
Harvard International Genetically Engineered Machine (iGEM). Faculty Mentor (2008)
Environmental Sciences and Public Policy Program, Steering Committee (2009-2012)
Graduate Admissions Committee (2007-2010)

Other Universities:

Member of thesis committees: Rebecca Neumann (MIT, 2007-2009; Advisor Charles Harvey); Laura Meredith (MIT, 2010-2013; Advisor Ron Prinn), Robin Schneider (Colorado School of Mines, 2011-2015; Advisor Tina Voelker); Ryan Marsico (Colorado School of Mines, 2011-2015; Advisor Tina Voelker), Isaiah Reynolds (Central Michigan Univ., 2013-2016; Advisor Deric Learman); Shanker Tamang (Central Michigan Univ., 2015-2017; Advisor Deric Learman),

SUPERVISION:

WHOI:

Postdoctoral researcher: Veronique Oldham, 2017-present
Postdoctoral researcher: Julia Diaz, 2013-2015
Postdoctoral researcher: Tong Zhang, 2012-2015
Postdoctoral researcher: Peter Andeer, 2012-2014

Harvard University:

Postdoctoral researcher: Eileen Ekstrom, 2007-2009
Postdoctoral researcher: Cara Santelli, 2007-2010
Postdoctoral researcher: Deric Learman, 2008-2011
Postdoctoral researcher: Yuanzhi Tang, 2011 – 2012
Postdoctoral researcher: Victoria Parisi, 2010-2011
Postdoctoral researcher: Julia Diaz, 2011-2012
Sabbatical visitor: Tina Voelker (Colorado School of Mines), 2010-2011
Sabbatical visitor: Chris Kim (Chapman College), 2011-2012
Undergraduate Research Advisor: Anika Petach (2011-2012), Chantel Mendes (2011-2013), Renata Cummins (2011), Rachel Field (2009-2010), Robyn Worchester (2009-2010), João Campos (2008-

2010), Arven Sanders (2008-2009), Greta Friar (2008-2009), Dana Lazarus (2007-2009), Jane Eng (2007-2008)

CRUISE PARTICIPATION AND FIELD WORK

R/V *Endeavor*, Eastern Seaboard. Transient oxygen radicals in the cycling of Hg (TORCH-II) research cruise. August 19-August 30, 2017 – Chief Scientist

R/V Sproul. Santa Barbara Basin. Alternative lifestyles of benthic foraminifera. July 18-25, 2017.

R/V *Endeavor*, Eastern Seaboard. Transient oxygen radicals in the cycling of Hg (TORCH) research cruise. August 29-September 9, 2016 – Chief Scientist

Palmer Station, Antarctica, October 30-November 9, 2015 via R/V *LM Gould*

R/V *Tioga*, Vineyard Sound, July 30, 2015.

Chagos Archipelago, British Indian Ocean Territory, March 5-29, 2015. Living Oceans Foundation, M/Y *Golden Shadow*

Kaneohe Bay, Hawaii, October 21-31, 2014. Coral bleaching event.

Curaçao, September 9-19, 2014. Coral spawning event.

R/V *Atlantic Explorer*, PABST Cruise, AE1409. May 5-28, 2014. Sargasso Sea

R/V *New Horizon*, UNOLS Early Career Chief Scientist Training Cruise, NH 1212. November 7-17, 2012, East Fork Poplar Creek, Oak Ridge National Laboratory, Oak Ridge, TN. October 21-25, 2010.

Ashumet Pond, Cape Cod, Massachusetts. August 2008 and May 2012.

Troodos Ophiolite Complex, Troodos Mountains, Cyprus. May 2-10, 2008.

R/V *Western Flyer*, ROV Tiburon Dives. November 15-21, 2005. Tubeworm Slump, Monterey Canyon, Elkhorn Slough, Monterey Bay, California. May/July 2004.

Riparian wetlands of Coeur d'Alene River, Coeur d'Alene, Idaho. Monthly, September 1997-1999.

PAPERS IN REFERRED JOURNALS AND BOOK CHAPTERS (* = CMH student/postdoc; underlined = corresponding author)

In Review:

[62] Collins, J., H.F. Fredricks, C.P. Ward, J.M. Diaz, J.S. Bowman, C. Moreno, K. Longnecker, A. Marchetti, **C.M. Hansel**, H.W. Ducklow, B. Van Mooy. In Review. The diverse products and biogeochemical significance of lipid photooxidation in coastal surface waters of West Antarctica

[61] Farfan, G.A.*, A. Apprill, S.M. Webb, **C.M. Hansel**. In Revision. Distributions and bonding environments of biolimiting trace metals and sulfur in the tissues and skeletons of scleractinian corals.

Published:

[60] Zeiner, C.A.*, S.O. Purvine, E.M. Zink, L. Paša-Tolić, D.L. Chaput, S. Wu, C.M. Santelli, **C.M. Hansel**. 2017. Quantitative iTRAQ-based secretome analysis reveals species-specific and temporal shifts in carbon utilization strategies among manganese(II)-oxidizing Ascomycete fungi. *Fungal Genetics and Biology* 106, 61-75.

[59] **Hansel, C.M.** 2017. Manganese in Marine Microbiology. In: Robert K. Poole, editor, *Advances in Microbial Physiology*, Vol. 70, Oxford: Academic Press, pp. 37-83. (invited)

- [58] **Hansel, C.M.** 2016. Small but mighty: how minor components drive major biogeochemical cycles. *Crystal Ball Article. Environmental Microbiology Reports*, 9, 8-10. (invited)
- [57] Diaz, J.M.* , **C.M. Hansel**, A. Apprill, C. Brighi*, T. Zhang*, L. Weber, S. McNally, L. Xun. 2016. Species-specific control of external superoxide levels by the coral holobiont during a natural bleaching event. *Nature Communications* 7, 13801 (DOI: 10.1038/ncomms13801)
- [56] Zhang, T.* , J.M. Diaz*, C. Brighi*, R.J. Parsons, S. McNally, A. Apprill, **C.M. Hansel**. 2016. Light-independent production of extracellular superoxide by the coral *Porites astreoides* and representative symbionts. *Frontiers in Marine Biogeochemistry* 3, 232 (doi: 10.3389/fmars.2016.00232).
- [55] Grabb, K.C., C. Buchwald, **C.M. Hansel**, S.D. Wankel. 2016. A dual nitrite isotopic investigation of chemodenitrification by mineral associated Fe(II) and its production of nitrous oxide. *Geochim Cosmochim Acta* (doi: 10.1016/j.gca.2016.10.026)
- [54] Zeiner, C.A.* , S. Purvine, E. Zink, L. Paša-Tolić, D.L. Chaput, S. Haridas, S. Wu, K. LaButti, I.V. Grigoriev, B. Henrissat, C.M. Santelli, **C.M. Hansel**. 2016. Comparative analysis of secretome profiles of manganese(II)-oxidizing ascomycete fungi. *PLOS ONE* 11(7): e0157844.
- [53] Estes, E.R.* , P.F. Andeer*, D. Nordlund, S.D. Wankel, **C.M. Hansel**. 2016. Biogenic manganese oxides as reservoirs of organic carbon and proteins in terrestrial and marine environments. *Geobiology J.* 15:158-172 (doi: 10.1111/gbi.12195)
- [52] Buchwald, C., K. Grabb, **C.M. Hansel**, S.D. Wankel. 2016. Constraining the role of iron in environmental nitrogen transformations: Dual stable isotope systematics of abiotic NO₂⁻ reduction by Fe(II) and its production of N₂O. *Geochim Cosmochim Acta* 186:1-12 (doi:10.1016/j.gca.2016.04.041)
- [51] Zhang, T.* , **C.M. Hansel**, B.M. Voelker, C.H. Lamborg. 2016. Extensive dark biological production of reactive oxygen species in brackish and freshwater ponds. *Environmental Science & Technology* 50, 2983-2993 (doi: 10.1021/acs.est.5b03906).
- [50] Schneider, R.J., K.L. Roe, **C.M. Hansel**, B.M. Voelker. 2016. Species-level variability in extracellular production rates of reactive oxygen species by diatoms. *Frontiers in Marine Biogeochemistry* 4:5 (doi: 10.3389/fchem.2016.00005).
- [49] **Hansel, C.M.**, C. Buchwald, J.M. Diaz*, J.E. Ossolinski, S.T. Dyhrman, B.A.S. Van Mooy, D. Polyviou. 2016. Dynamics of superoxide production by natural *Trichodesmium* colonies from the Sargasso Sea. *Limnology and Oceanography* 61:1188-1200.
- [48] Roe, K.L., R.J. Schneider, **C.M. Hansel**, B.M. Voelker. 2016. Measurement of dark, particle-generated superoxide and hydrogen peroxide production and decay in the subtropical and temperate North Pacific Ocean. *Deep-Sea Research Part I*, 107, 59-69.
- [47] Butler, E.C., L. Chen, **C.M. Hansel**, L.R. Krumholz, A.S. Madden, Y. Lan. 2015. Biological versus mineralogical chromium reduction: Potential for reoxidation by manganese oxide. *Environmental Science: Processes and Impacts* 17, 1930-1940 (DOI: 10.1039/C5EM00286A)

- [46] **Hansel, C.M.**, T.G. Ferdelman, B.M. Tebo. 2015. Cryptic cross-linkages among biogeochemical cycles: Novel insights from reactive intermediates. *Elements* 11(6), 409-414. (invited)
- [45] Marsico, R.M., R.J. Schneider, B.M. Voelker, T. Zhang*, J.M. Diaz*, **C.M. Hansel**, S. Ushijima. 2015. Spatial and temporal variability of ubiquitous dark production and decay of hydrogen peroxide in freshwater. *Aquatic Sciences* 77, 523-533.
- [44] Andeer, P.F.* , D.R. Learman, M. McIlvin, J.A. Dunn, **C.M. Hansel**. 2015. Extracellular heme peroxidases mediate Mn(II) oxidation in a marine *Roseobacter* bacterium via superoxide production. *Environmental Microbiology* 17, 3925-3936.
- [43] **Hansel, C.M.**, Learman D.R. 2015. The Geomicrobiology of Manganese. In Geomicrobiology, 6th edition, Ehrlich, Newman, Kappler (eds.), Chapter 18, 403-452. (invited)
- [42] Vázquez-Rodríguez, A.I.* , **C.M. Hansel**, T. Zhang*, C.H. Lamborg, C.M. Santelli, S.M. Webb, and S.C. Brooks. 2015. Microbial- and thiosulfate-mediated dissolution of mercury sulfide minerals and transformation to gaseous mercury. *Frontiers in Microbiology* 6:596 (doi: 10.3389/fmicb.2015.00596).
- [41] **Hansel, C.M.**, C.L. Lentini*, Y. Tang*, D.T. Johnston, and S.D. Wankel. 2015. Dominance of sulfur-fueled iron oxide reduction in low sulfate freshwater sediments. *ISME J.* 9, 2400-2412.
- [40] Chaput, D.L., **C.M. Hansel**, W.D. Burgos, C.M. Santelli. 2015. Profiling microbial communities in manganese remediation systems treating coal mine drainage. *Applied and Environmental Microbiology* 81, 2189-2198.
- [39] Tang, Y.* , E. Estes*, S. Webb, **C.M. Hansel**. 2014. Chromium(III) oxidation by biogenic manganese oxides of varying structural ripening. *Environmental Science: Processes and Impacts* (Geosciences Special Issue – invited) 16, 2127-2136.
- [38] Learman, D.R. and **C.M. Hansel**. 2014. Comparative proteomics of Mn(II)-oxidizing and non-oxidizing *Roseobacter* clade bacteria reveal an operative manganese transport system but minimal Mn(II)-induced expression of manganese oxidation and antioxidant enzymes. *Environmental Microbiology Reports* 6(5), 501-509.
- [37] Santelli, C.M., D.L. Chaput, **C.M. Hansel**. 2014. Microbial communities promoting Mn(II) oxidation in Ashumet Pond, a historically polluted freshwater pond undergoing remediation. *Geomicrobiology Journal* 31, 605-616.
- [36] Li, H-P., B. Daniel, D. Creeley, R. Grandbois, S. Zhang, C. Xu, Y-F. Ho, K.A. Schwehr, D.I. Kaplan, P.H. Santschi, **C.M. Hansel**, and C.M. Yeager. 2014. Superoxide production by a manganese-oxidizing bacterium facilitates iodide oxidation. *Applied and Environmental Microbiology* 80, 2693-2699.
- [35] Meredith, L.K., D. Rao, T. Bosak, V. Klepac-Ceraj, K.R. Rada, **C.M. Hansel**, S. Ono, and R.G. Prinn. 2014. Consumption of atmospheric H₂ during the life cycle of soil-dwelling *Actinobacteria*. *Environmental Microbiology Reports* 6(3), 226-238.

- [34] Learman, D.R.* , B.M. Voelker, A.S. Madden, and **C.M. Hansel**. 2013. Constraints on superoxide mediated formation of manganese oxides. *Frontiers in Microbiological Chemistry* 4 (262) (doi:10.3389/fmicb.2013.00262).
- [33] Diaz, J.M.* , **C.M. Hansel**, B.M. Voelker, C.M. Mendes* , P.F. Andeer* , and T. Zhang* . 2013. Widespread production of extracellular superoxide by heterotrophic bacteria. *Science* 340, 1223-1226.
- [32] Tang, Y.* , C.A. Zeiner* , C.M. Santelli* , and **C.M. Hansel**. 2013. Fungal oxidative dissolution of the Mn(II)-bearing mineral rhodochrosite and the role of metabolites in manganese oxide formation. *Environmental Microbiology* 15, 1063-1077.
- [31] Lentini, C.L.* , S.D. Wankel, and **C.M. Hansel**. 2012. Enriched iron(III)-reducing bacterial communities are shaped by carbon substrate and iron oxide mineralogy. *Frontiers in Microbiological Chemistry* 3 (404), 1-19 (doi:10.3389/fmicb.2012.00404).
- [30] **Hansel, C.M.**, C.A. Zeiner* , C.M. Santelli* , S.M. Webb. 2012. Mn(II) oxidation by an Ascomycete fungus is linked to superoxide production during asexual reproduction. *Proceedings of the National Academy of Sciences, USA* 109, 12621-12625.
- [29] Wankel, S.D., M.M. Adams, D.T. Johnston, **C.M. Hansel**, S.B. Joye, and P.R. Girguis. 2012. Anaerobic methane oxidation in metalliferous hydrothermal vent sediments: Influence on carbon flux and decoupling from sulfate reduction. *Environmental Microbiology* 14, 2726-2740.
- [28] Luan, F., C.M. Santelli* , **C.M. Hansel**, and W.D. Burgos. 2012. Defining Mn(II) removal processes in coal mine drainage treatment systems through laboratory incubation experiments. *Applied Geochemistry* 27, 1567-1578.
- [27] Learman, D.R.* , S.D. Wankel, S.M. Webb, N. Martinez* , A.S. Madden, **C.M. Hansel**. 2011. Coupled biotic-abiotic Mn(II) oxidation pathway mediates the formation and structural evolution of biogenic Mn oxides. *Geochimica et Cosmochimica Acta* 75, 6048-6063.
- [26] **Hansel, C.M.**, D.R. Learman* , and E.B. Ekstrom* . 2011. Effect of adsorbed and substituted Al on Fe(II)-induced mineralization pathways of ferrihydrite. *Geochimica et Cosmochimica Acta* 75, 4653-4666.
- [25] Santelli, C.M.* , S.M. Webb, A.C. Dohnalkova, **C.M. Hansel**. 2011. Diversity of Mn oxides produced by Mn(II)-oxidizing fungi. *Geochimica et Cosmochimica Acta* 75, 2762-2776.
- [24] Learman, D.R.* , B.M. Voelker, A.I. Vazquez-Rodriguez* , and **C.M. Hansel**. 2011. Formation of manganese oxides by bacterially generated superoxide. *Nature Geosciences* 4, 95-98.
- [23] Wankel, S.D., A.C. Mosier, **C.M. Hansel**, A. Paytan, C.A. Francis. 2011. Spatial variability in nitrification rates and ammonia-oxidizing microbial communities in the agriculturally-impacted Elkhorn Slough Estuary. *Applied and Environmental Microbiology* 77, 269-280.
- [22] **Hansel, C.M.** and C.L. Lentini* . 2011. Mineralogical Controls on Microbial Reduction of Fe(III) (Hydr)oxides. In J. Stolz and R. Oremland (Eds.) *Microbial Metal and Metalloid Metabolism: Advances and Applications*. ASM Press. (invited)

- [21] Ekstrom, E.B.*, D.R. Learman*, A.S. Madden, and **C.M. Hansel**. 2010. Contrasting effects of Al substitution on microbial reduction of Fe(III) oxides. *Geochimica et Cosmochimica Acta* 74, 7086-7099.
- [20] Santelli, C.M.*, D.H. Pfister, D. Lazarus*, L. Sun*, W.D. Burgos, **C.M. Hansel**. 2010. Promotion of Mn(II) oxidation and remediation of coal mine drainage in passive treatment systems by diverse fungal and bacterial communities. *Applied and Environmental Microbiology* 76, 4871-4875.
- [19] **Hansel, C.M.**, S. Fendorf, P.M. Jardine, and C.A. Francis. 2008. Changes in bacterial and archaeal community structure and functional diversity along a geochemically variable soil profile. *Applied and Environmental Microbiology* 74, 1620-1633.
- [18] **Hansel, C.M.** and C.A. Francis. 2006. Coupled photochemical and enzymatic Mn(II) oxidation pathways of a planktonic *Roseobacter*-like bacterium. *Applied and Environmental Microbiology* 72, 3543-3549.
- [17] **Hansel, C.M.**, S.G. Benner, S. Fendorf. 2005. Competing Fe(II)-induced mineralization pathways of ferrihydrite. *Environmental Sciences and Technology* 39, 7147-7153.
- [16] Charette, M.A., E.R. Sholkovitz, and **C.M. Hansel**. 2005. Trace element cycling in a subterranean estuary: Part 1. Geochemistry of the permeable sediments. *Geochimica et Cosmochimica Acta* 69, 2095-2109.
- [15] **Hansel, C.M.**, S.G. Benner, P. Nico, S. Fendorf. 2004. Structural constraints of ferric (hydr)oxides on dissimilatory iron reduction and the fate of Fe(II). *Geochimica et Cosmochimica Acta*, Special Issue on Microbial Geochemistry, 68, 3217-3229. (invited)
- [14] **Hansel, C.M.**, S.G. Benner, J. Neiss, A. Dohnalkova, R.K. Kukkadapu, and S. Fendorf. 2003. Secondary mineralization pathways induced by dissimilatory iron reduction of ferrihydrite under advective flow. *Geochimica et Cosmochimica Acta* 67, 2977-2992.
- [13] **Hansel, C.M.**, B.W. Wielinga, S. Fendorf. 2003. Structural and compositional evolution of Cr/Fe solids following indirect chromate reduction by dissimilatory iron-reducing bacteria. *Geochimica et Cosmochimica Acta* 67, 401-412.
- [12] Benner, S.G., **C.M. Hansel**, B.W. Wielinga, T. Barber, S. Fendorf. 2002. Reductive dissolution and biomineralization of iron hydroxide under dynamic flow conditions. *Environmental Sciences and Technology* 36, 1705-1711.
- [11] **Hansel, C.M.**, M.J. LaForce, S. Fendorf, and S. Sutton. 2002. Spatial and temporal association of As and Fe species on aquatic plant roots. *Environmental Sciences and Technology* 36, 1988-1994.
- [10] **Hansel, C.M.**, M.J. LaForce, S.E. Sutton, and S. Fendorf. 2002. Ecosystem Dynamics of Zinc and Manganese within a Mine-Waste Impacted Wetland. In S. Wood and R. Hellmann (Eds.) *Water-Rock Interactions, Ore Deposits, and Environmental Geochemistry, A Tribute to David A. Crerar*, Geochemical Society Special Publication, Geochemical Society of America. p. 441-454.
- [9] Fendorf, S., **C.M. Hansel**, and B. Wielinga. 2002. Operative Pathways of Chromate and Uranyl Reduction within Soils and Sediments. In P-C. Zhang and P.V. Brady (Eds.) *Geochemistry of Soil*

Radionuclides, SSSA Special Publication Number 59, Soil Science Society of America, Madison, WI. p. 111-130.

[8] La Force, M.J., **C.M. Hansel**, and S.E. Fendorf. 2002. Seasonal transformations of Mn in a palustrine emergent wetland. *Soil Science Society of America Journal* 66, 1377-1389.

[7] **Hansel, C.M.**, S.E. Fendorf, S. Sutton, and M. Newville. 2001. Characterization of Fe plaque and associated metals on the roots of mine-waste impacted aquatic plants. *Environmental Sciences and Technology* 35, 3863-3868.

[6] Wielinga, B., M.M. Mizuba, **C.M. Hansel**, and S.E. Fendorf. 2001. Iron promoted reduction of chromate by dissimilatory iron-reducing bacteria. *Environmental Sciences and Technology* 35, 522-527.

[5] Bostick, B.C., **C.M. Hansel**, M.J. La Force, and S. Fendorf. 2001. Seasonal fluctuations in zinc speciation within a contaminated wetland. *Environmental Sciences and Technology* 35, 3823-3829.

[4] La Force, M.J., **C.M. Hansel**, and S.E. Fendorf. 2000. Arsenic speciation, seasonal transformations, and co-distribution with iron in a mine waste-influenced palustrine emergent wetland. *Environmental Sciences and Technology* 34, 3937-3943.

[3] Wielinga, B., B. Bostick, **C.M. Hansel**, R.F. Rosenzweig, and S. Fendorf. 2000. Inhibition of bacterially promoted uranium reduction: Ferric (hydr)oxides as competitive inhibitors. *Environmental Sciences and Technology* 34, 2190-2195.

[2] Fendorf, S.E., B.W. Wielinga, and **C.M. Hansel**. 2000. Chromium transformations in natural environments: The role of biological versus abiological processes in chromium(VI) reduction. *International Geology Reviews* 42, 691-701.

[1] La Force, M.J., **C.M. Hansel**, and S.E. Fendorf. 2000. Constructing simple wetland sampling devices. *Soil Science Society of America Journal* 64, 809-811.

CONFERENCE PRESENTATIONS (INVITED ONLY)

Manganese oxide associations and interactions with organic carbon. 2017. Goldschmidt Conference. Paris, France. (*Keynote*)

Manganese oxidation and mineralization by Ascomycete fungi. 2017. Joint Genome Institute Annual Meeting. Walnut Creek, CA. (*Plenary*)

Synchrotron-enabled investigations of terrestrial and marine biogeochemistry. 2017. Stanford Synchrotron Department of Energy Symposium Stanford, CA. (*Keynote*)

Spectroscopic windows into deep sedimentary carbon. C-DEBI Annual Meeting. October 17, 2016. Monterey, CA

International Society for Microbial Ecology (ISME) meeting. 2016. How microbes break the cryptic Mn cycle to form Mn oxides. Montreal, Canada.

NE Geobiology Conference. 2016. Complexity of coupled biotic and abiotic pathways in Mn Oxide formation. Cambridge, MA. (*Plenary*)

Environmental Sciences: Water Gordon Research Conference. 2014. Microbial and Geochemical Cooperation in the Biomineralization of Manganese. Holderness, NH.

American Chemical Society National Meeting. 2014. Biogenic Mn Oxide Formation via Enzymatic Production and Consumption of Reactive Oxygen Species. Dallas, TX.

Metals in Biology Gordon Research Conference. 2014. Linking Heme Peroxidases to Extracellular Cycling of Reactive Oxygen Species and Manganese in Marine Bacteria. Ventura, CA.

SSRL User's Conference. 2013. Mercury Sulfide Minerals as an Unappreciated Source of Mercury to the Atmosphere. Stanford, CA.

American Chemical Society National Meeting. 2013. Mineralogical Constraints on Iron Cycling and Microbial Activity at the Mineral-water Interface. New Orleans, LA.

Iron Biogeochemistry: From Molecular Processes to Global Cycles, Monte Verita Conference, ESF Research Networking Programme (FIMIN). 2013. How Iron Minerals Shape Microbial Communities and Metabolic Pathways. Ascona, Switzerland.

Goldschmidt Conference, Geochemistry Society. 2012. Microbial and Geochemical Synergy in Manganese Oxide Formation. Montreal, Canada (*Keynote*)

Goldschmidt Conference, Geochemistry Society. 2012. Structural Constraints on Mn(II) Oxidation by Biogenic Mn Oxides. Montreal, Canada

Astrobiology Science Conference (AbSciCon). 2012. Biological Production of Reactive Oxygen Species: Implications for Mn oxide Formation. Atlanta, GA

Kavli Frontiers of Science, US National Academy of Sciences. 2011. The Microbial Role in Environmental Nanomineral Formation. Shenzhen, China.

Goldschmidt Conference, Geochemistry Society. 2011. Enzymatic Extracellular Superoxide in Microbial Mn(II) Oxidation. Prague, Czech Republic.

Goldschmidt Conference, Geochemistry Society. 2011. The Role of Aluminum in Ferrihydrite Preservation. Prague, Czech Republic.

Synchrotron Environmental Science Annual Meeting. 2011. Microbial and Geochemical Synergy in Metal Mineralization. Saskatoon, Canada (*plenary talk*)

American Chemical Society Annual Meeting. 2008. Expanding the Role of Microbes in the Oxidation of Mn(II). Philadelphia, PA.

American Society for Microbiology General Meeting. 2008. New Insights into Microbially Mediated Metal Redox Cycling. Boston, MA.

Workshop on Biogeochemical Processes of the Iron Cycle: From Microbes to Minerals. 2008. Oxide-based Niche Differentiation Among Iron-reducing Microbial Communities. Telluride, CO.

Water Resources Research Center Conference. 2008. Defining the Abiotic and Biotic Contributions to Metal Sequestration within Acidic Mine Drainage in Appalachia. Amherst, MA.

American Geophysical Union Joint Assembly Meeting. 2005. Bacterial-induced Mineralization of Fe (Hydr)oxides and Subsequent Modification of Surface Reactivity. New Orleans, LA.

Bouyoucos Conference on Electron Transfer and Environmental Biogeochemistry at the Clay-Water Interface, Soil Science Society of America. 2004. Structural Constraints of Ferric (Hydr)oxides on Dissimilatory Iron Reduction. San Antonio, TX.

American Geophysical Union General Meeting. 2002. Effects of Reductive Biomineralization of Ferric Hydroxides on Sustained Microbial Metabolism and Contaminant Sequestration. San Francisco, CA.

Soil Science Society of America General Meeting. 2002. Resolving Reductive Biomineralization Pathways of Ferric Hydroxides. Indianapolis, IN.

INVITED SEMINARS AND LECTURES

University of California, Santa Cruz, Ocean Science Seminar Series. 2017. Reactive oxygen species in the cryptic cycling and biomineralization of manganese. Santa Cruz, CA.

Stanford University, Biogeochemistry Seminar Series. 2017. Reactive oxygen species in the cryptic cycling and biomineralization of manganese. Stanford, CA.

University of Hamburg. 2017. How and why microbes eat and breathe minerals. Hamburg, Germany.

University of Connecticut, Marine Sciences Seminar. 2016. Beyond the light: The biological production and biogeochemical impacts of dark reactive oxygen species in the ocean. Groton, CT.

MBL Microbial Diversity Course Symposium. 2016. Friend or foe?: Production of reactive oxygen species by marine microbes. Woods Hole, MA.

Center for Dark Energy Biosphere Interactions (CDEBI) Sediments Workshop. 2015. Mineral-hosted carbon in the deep biosphere. Los Angeles, CA.

Rutgers University, Department of Earth and Environmental Sciences Seminar Series. 2015. Biogenic Reactive Oxygen Species in the Cycling and Mineralization of Manganese. Newark, NJ.

Lamont-Doherty Earth Observatory, Columbia University. 2015. Expanding the Role of Microorganisms in the Production of Superoxide within Marine Systems: Implications for Coral Bleaching. Palisades, NY.

Caltech, Division of Geological and Planetary Sciences Seminar. 2014. Biogenic Reactive Oxygen Species in Manganese Cycling and Mineralization. Pasadena, CA.

Rice University, Biochemistry Seminar Series. 2014. Biogenic Reactive Oxygen Species in Manganese Cycling and Mineralization. Houston, TX.

Washington University, Earth and Planetary Sciences Seminar Series. 2014. Biogenic Reactive Oxygen Species in the Cycling and Mineralization of Manganese. St. Louis, MO.

Environmental Molecular Sciences Laboratory Seminar Series, Pacific Northwest National Laboratory. 2014. Secreted Proteins and Metabolites in Biogenic Manganese Oxidation: Implications for Carbon Cycling. Richland, WA.

UC Berkeley, Plant and Microbial Biology Seminar Series. 2013. Microbial and Geochemical Cooperation in the Cycling and Mineralization of Manganese By Reactive Oxygen Species. Berkeley, CA.

ETH Zurich, Institute of Biogeochemistry and Pollutant Dynamics Seminar Series. 2013. Microbial and Geochemical Synergy in Manganese Oxidation and (Bio)mineralization. Zurich, Switzerland.

Stanford University, Geological and Environmental Sciences Seminar Series. 2013. Microbial and Geochemical Synergy in Manganese (Bio)mineralization. Stanford, CA.

Central Michigan University, Geology Seminar Series. 2012. Making the Improbable Probable: Microbial-induced Dissolution of "Insoluble" Mercury Sulfide Minerals. Mt. Pleasant, MI.

University of Madison, Wisconsin, Women in Science and Engineering Special Seminar. 2012. Microbial and Geochemical Synergy in Manganese Biomineralization. Madison, WI.

Marine Biological Laboratory Ecosystem Center Seminar Series. 2012. How Minerals Shape Microbial Communities and Biogeochemical Pathways. Woods Hole, MA.

Yale University, Geochemistry Seminar Series. 2012. How Microbes Make Minerals: When Enzymes Hide the Role of Geochemistry. New Haven, CT.

Marine Biological Laboratory, Microbial Diversity Course. 2012. Microbial and Geochemical Synergy in the Cycling of Metals: The Role of Reactive Metabolites. Woods Hole, MA.

Montana State University, Center for Biofilm Engineering Seminar Series. 2012. Homology in Fungal and Bacterial Mn(II) oxidation Pathways: The Role of Reactive Oxygen Species. Bozeman, MT.

Massachusetts Institute of Technology, Earth and Planetary Sciences Seminar Series. 2011. Microbial and Geochemical Synergy in the Formation of Mn Oxides. Cambridge, MA.

Cornell University, Biogeochemistry and Environmental Biogeochemistry Seminar Series. 2011. Microbial and Geochemical Synergy in Metal Mineralization. Ithaca, NY.

Rensselaer Polytechnic Institute (RPI), Department of Civil and Environmental Engineering Seminar Series. 2011. Biomineralization by Fungi: The Future of Coal Mine Drainage Remediation. Troy, NY.

Woods Hole Oceanographic Institution, Marine Chemistry and Geochemistry Seminar Series. 2011. Geochemical Constraints on Metal Cycling and Microbial Activity at the Mineral-Water Interface. Woods Hole, MA.

Georgia Institute of Technology. 2011. Microbial and Geochemical Synergy in Metal Mineralization. Atlanta, GA.

Harvard Graduate School of Design, Loeb Fellows Seminar. 2011. Cleaning the Environment with Minerals and Microbes. Cambridge, MA.

Woods Hole Oceanographic Institution, Marine Chemistry and Geochemistry Seminar Series. 2010. When Enzymes Hide the Role of Geochemistry: Biological Reactive Oxygen Species in Metal Cycling. Woods Hole, MA.

University of Delaware, Delaware Environmental Institute Seminar Series. 2010. Microbial and Chemical Cooperation in Mn Oxide Formation. Newark, DE.

University of Massachusetts-Amherst. Department of Microbiology Seminar Series. 2010. Mineral-based Niche Differentiation in Fe(III)-reducing Communities. Amherst, MA.

Harvard University, Department of Earth and Planetary Sciences Colloquium Series. 2009. How Microbes Make Minerals: How Enzymes Hide the Role of Geochemistry. Cambridge, MA.

Ohio State University. 2009. New Microbial Players and Pathways in the Biomineralization of Mn Oxides: Implications for Bioremediation. Columbus, OH.

Miami University. 2009. New Microbial Players and Pathways in the Biomineralization of Mn Oxides: Implications for Bioremediation. Oxford, OH.

Microbial Sciences Initiative Symposium. 2008. Expanding the Role of Microbes in the Mineralization of Metals. Harvard, MA.

Lawrence Berkeley National Laboratory Seminar. 2006. Metabolite-driven Metal Redox Cycling and Biomineralization. Berkeley, CA.

Stanford University Environmental Molecular Sciences Initiative. 2005. Interplay Between Biotic and Abiotic Processes in Metal Redox Cycling. Stanford, CA.

United States Geological Survey Seminar. 2003. Secondary Mineralization Pathways Induced By Dissimilatory Iron Reduction of 2-line Ferrihydrite. Menlo Park, CA.

Natural and Accelerated Bioremediation (NABIR) Annual Meeting, Department of Energy (DOE). 2002. Mechanisms of Fe Biomineralization Induced By Dissimilatory Iron Reduction. Arlington, VA.

Pacific Northwest National Laboratory Seminar. 2002. Iron Biomineralization Pathways Resulting from Dissimilatory Iron Reduction Under Advective Flow. Richland, WA.

STUDENT/POSTDOC PRESENTATIONS AND PUBLISHED ABSTRACTS (*CMH student or postdoc)

Farfan, G. *, E. Cordes, R. Waller, S. Webb, C.M. Hansel. The crystallography of deep sea coral skeletons under changing ocean conditions. Goldschmidt Conference. Paris, France. August 18, 2017.

Plummer, S., C.M. Hansel, E.L. Harvey, K. Bulski, J.M. Diaz. Unraveling the eco-physiological roles of phytoplankton-derived reactive oxygen species. Goldschmidt Conference. Paris, France. August 15, 2017.

Sutherland, K. *, S. Wankel, C. Hansel, J. Hein. Developing an interpretive framework for the oxygen isotope record in ferromanganese crusts. Goldschmidt Conference. Paris, France, August 16, 2017

Diaz, J. *, C.M. Hansel, A. Apprill, C. Brighi*, T. Zhang*, L. Weber, S. McNally, L. Xun. Species-specific control of external superoxide levels by the coral holobiont during a natural bleaching event. Goldschmidt Conference. Paris, France, August, 15, 2017

Sutherland, K. *, S.D. Wankel, C.M. Hansel. Fingerprinting bacterial and fungal Mn oxides with $\delta^{18}\text{O}_{\text{MnOx}}$. AGU, San Francisco, CA. December 15, 2016.

Wang, C. *, T. Zhang*, C. Hansel, S. Sievert. Microbial colonization of metal sulfides at a diffuse-flow deep-sea hydrothermal vent. ASLO. Honolulu, HI. February 2017.

Farfan, G. *, A. Apprill, S.M. Webb, C.M. Hansel. Zinc and sulfur distributions and bonding environments in scleractinian corals. AGU Ocean Sciences. New Orleans, LA. February 2016.

Buchwald, C., K. Grabb, C.M. Hansel, S.D. Wankel. Constraining the role of iron in environmental nitrogen transformations: Dual stable isotope systematics of abiotic NO_2^- reduction by Fe(II) and its production of N_2O . AGU Ocean Sciences. New Orleans, LA. February 2016.

Roe, K.L., T Rand, C.M. Hansel, B.M. Voelker. Detection of non-photochemical superoxide in coastal and open ocean seawater: Particulate versus dissolved sources. AGU Ocean Sciences. New Orleans, LA. February 2016.

Schneider, R.J., K.L. Roe, C.M. Hansel, B.M. Voelker. Extracellular production of reactive oxygen species by marine microbiota. AGU Ocean Sciences. New Orleans, LA. February 2016.

Estes, E.R. *, C.M. Hansel, W. Orsi, C.H. Anderson, R.W. Murray, S.D. Wankel, D. Johnson*, D. Nordlund, A.J. Spivack, J. Sauvage, C.C. McKinley, K. Homola, T.M. Present, R. Pockalny, S. D'Hondt. Insight into metabolic potential of carbon-poor pelagic sediments derived from the abundance and composition of organic carbon. AGU Ocean Sciences. New Orleans, LA. February 2016.

Diaz, J.M. *, C.M. Hansel, A. Apprill, C. Brighi*, T. Zhang*, L. Weber, S. McNally, L. Xun. Species-level variability in superoxide production by symbiotic corals. International Coral Reef Symposium. Honolulu, HI. June 2016.

E. R. Estes*, C.M. Hansel, C.H. Anderson, R.W. Murray, M.D. Dyar, D. Nordlund, S.D. Wankel, D.B. Johnson*, A.J. Spivack, R. Pockalny, J. Sauvage, C.C. McKinley, K. Homola, T.M. Present, S. D'Hondt.

Elucidating geochemical controls on the concentration and composition of organic carbon in deep pelagic sediments. AGU, San Francisco, CA, December 2015.

Johnson, D.* , E. R. Estes*, C.M. Hansel, C.H. Anderson, R.W. Murray, M.D. Dyar, D. Nordlund, S.D. Wankel. Exploring the potential for mineral-based protection of organic carbon in deep-sea sediments. AGU, San Francisco, CA, December 2015.

Sutherland, K.* , C. Hansel, S. Wankel. Oxygen isotope signatures of biogenic manganese(III/IV) oxides. AGU, San Francisco, CA, December 2015.

Zeiner, C.* , S. Purvine, E. Zink, S. Wu, L. Pasa-Tolic, C.M. Santelli, C.M. Hansel. Mechanisms of manganese oxide formation by filamentous Ascomycete fungi. Ecological Society of America, Baltimore, MD August 2015

Zhang, T.* , C.M. Hansel, B.M. Voelker, C.H. Lamborg. Occurrence, pathways and implications of biological production of reactive oxygen species in natural waters. AGU, San Francisco, CA, December 2014.

Estes, E.* , D. Nordlund, S. Wankel, C.M. Hansel. Evolution of mineral-organic matter associations in sediments: From (bio)mineralization to burial. AGU, San Francisco, CA, December 2014.

Brighi, C.* , J. Diaz*, A. Apprill, and C.M. Hansel. Temperature and light effects on extracellular superoxide production by algal and bacterial symbionts in corals: Implications for coral bleaching. AGU, San Francisco, CA, December 2014.

Diaz, J.M.* , P. Andeer*, C.M. Hansel. Enzymatic Production of Extracellular Reactive Oxygen Species by Marine Microorganisms. AGU, San Francisco, CA, December 2014.

Farfan, G.* , S. Webb, A. Apprill, C.M. Hansel. Elucidating the composition and distribution of trace metals in corals. AGU, San Francisco, CA, December 2014.

Zeiner, C.* , C. Anderton, S. Wu, S. Purvine, E. Zink, L. Pasa-Tolic, and C.M. Hansel. Role of reactive intermediates in manganese oxide formation by Ascomycete fungi. AGU, San Francisco, CA, December 2014.

Zhang, T.* , C.M. Hansel, B.M. Voelker. Microbial production of reactive oxygen species in fresh and brackish waters. American Society for Microbiology Annual Meeting, Boston, MA, May 2014.

Vázquez-Rodríguez, A.I.* , T. Zhang*, C.H. Lamborg, C.M. Santelli*, S.C. Brooks, C.M. Hansel. Volatilization of Hg from HgS minerals mediated by the coupled activity of thiosulfate and a sulfur-oxidizing bacterium. Goldschmidt Conference, Florence, Italy, August 2013. (*invited*)

Learman, D.R.* , T. Zhang*, P.F. Andeer*, C.M. Hansel. Connecting bacterial ROS cycling to the production of Mn oxides. Goldschmidt Conference, Florence, Italy, August 2013.

Rempfert, K.R.* , S.M. Sievert, C.M. Hansel, S.M. Webb, F. Thomas. Insights into spatial sulfur variation within the modified gill-chamber of the epibiont-colonized hydrothermal vent shrimp *Rimicaris exoculata*. AGU Fall Meeting, San Francisco, CA, December 2013.

Learman, D.R.* , C.M. Hansel. Unraveling the role of animal heme peroxidases in superoxide mediated Mn oxide formation. AGU Fall Meeting, San Francisco, CA, December 2013. *(invited)*

Vázquez-Rodríguez, A.I.* , C.M. Santelli*, C.S. Kim, S.C. Brooks, C.M. Hansel. *In situ* colonization of HgS minerals by sulfur-oxidizing bacteria and the enhancement of HgS weathering. Goldschmidt Conference, Montreal, Canada, June 2012.

Learman, D.R.* , B.M. Voelker, A.S. Madden, C.M. Hansel. Manganese oxides from abiotic oxidation of Mn(II) by superoxide radical. ACS National Meeting, Philadelphia, PA, August 2012. *(invited)*

Lentini, C.J.* , C.M. Hansel, S. Wankel. The role of Fe(III) (hydr)oxide structure in controlling the kinetics and products of sulfide oxidation in low sulfate media with *Desulfovibrio* sp. Goldschmidt Conference, Montreal, Canada, June 2012.

Tang, Y.* , C.M. Hansel. Cr(III) oxidation by biogenic manganese oxides. Goldschmidt Conference, Montreal, Canada, June 2012.

Rao, D., L.K. Meredith, T. Bosak, C. Hansel, S. Ono, R.G. Prinn. Exploring the microbially-mediated soil H₂ sink: A lab-based study of the physiology and related H₂ consumption of isolates from Harvard Forest. AGU National Meeting, San Francisco, CA, December 2012.

Schneider, R., K. Roe, B.M. Voelker, C. Hansel. Biological production of hydrogen peroxide in *Prochlorococcus*-dominated oligotrophic waters. AGU National Meeting, San Francisco, CA, December 2012.

Roe, K., B.M. Voelker, C. Hansel. Superoxide production and decay in the subtropical North Pacific. AGU National Meeting, San Francisco, CA, December 2012.

Zeiner C.A.* , Hansel C.M., Tang Y.* , Santelli C.M.* Superoxide-mediated and organicdirected Mn oxide formation in Ascomycete fungi. MassMyco, Worcester, MA. October, 2012.

Vázquez-Rodríguez, A.I.* , C.M. Santelli*, S.C. Brooks, C.M. Hansel. Microbial communities colonizing mercury sulfide surfaces. Goldschmidt Conference, Prague, Czech Republic, August 2011.

Lentini, C.L.* , C.M. Hansel. The impact of Fe(III) oxide structure on shaping metal respiring microbial communities and carbon oxidation. Goldschmidt Conference, Prague, Czech Republic, August 2011.

Learman, D.R.* , C.M. Hansel. Enzymatic extracellular superoxide in microbial Mn(II) oxidation. Goldschmidt Conference, Prague, Czech Republic, August 2011.

Lentini, C.L.* , C.M. Hansel. Mineralogical niches shape microbial populations responsible for Fe(III) reduction on a diverse set of Fe(III) (hydr)oxides. Goldschmidt Conference, Knoxville, TN, June 2010. *(invited)*

Learman, D.R.* , A.I. Vázquez-Rodríguez*, A.S. Madden, C.M. Hansel. Defining novel enzymatic and photochemical pathways in the oxidation of manganese. Goldschmidt Conference, Davos, Switzerland, June 2009.

Santelli, C.M.* , D.H. Pfister, D. Lazarus* , W. Burgos, C.M. Hansel. Mn(II)-oxidizing fungi in metal contaminated environments. Goldschmidt Conference, Davos, Switzerland, June 2009.

Santelli, C.M.* , D. Lazarus* , W.D. Burgos, C.M. Hansel. Diverse Mn(II)-oxidizing fungi contribute to the passive remediation of acid mine drainage in western Pennsylvania. ACS National Meeting, Philadelphia, PA, August 2008.

Ekstrom, E.B.* , C.M. Hansel. Microbial reduction of Al-substituted Fe(III) (hydr)oxides: Redefining the reducing capacity of Fe phases in natural soils. AGU National Meeting, San Francisco, CA, December 2008.

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