Peter S. Nico

Earth and Environmental Sciences Area
Lawrence Berkeley National Lab
One Cyclotron Rd, Berkeley, CA 94720
psnico@lbl.gov

EDUCATION

Post-Doctoral Fellow	Soil and Environmental Biogeochemistry	Stanford University	*2002*
Doctor of Philosophy	Agricultural and Environmental Chemistry	University of California, Davis	*2001*
Candidate in Philosophy*	Organic Chemistry	University of California, Los Angeles	*1996*
Masters of Science	Organic Chemistry	University of California, Los Angeles	*1996*
Bachelors of Science	Chemistry	University of California, Davis	*1994*

PROFESSIONAL EXPERIENCE

Director (Interim), Energy Geosciences Division, LBNL

Senior Geologic Scientist, Lawrence Berkeley National Laboratory *May 2022-present*

Associate Adjunct Professor, U.C. Berkeley, Department of Environmental Science, Policy, and Management *January 2022-present*

Resilient Energy, Water, and Infrastructure Program Domain Lead *September 2016-present*

Staff Geologic Scientist, Lawrence Berkeley National Laboratory *August 2013 – May 2022*

Geochemistry Department Head, Lawrence Berkeley National Laboratory *February 2013-June 2016*

Geologic Research Scientist, Lawrence Berkeley National Laboratory *August 2005-August 2013*

Assistant Professor, California State University, Stanislaus *September 2002-August 2005*

Visiting Scholar, Stanford University *September 2002-2006*
Department of Geological and Environmental Sciences

Post Doctoral Fellow, Stanford University *November 2001-September 2002*
Department of Geological and Environmental Sciences
Research Director: Dr. Scott Fendorf

Lecturer, California State University, Hayward *Fall 2000*

Adjunct Faculty, Woodland Community College *Spring 1999*

Research Assistant, University of California, Davis *September 1996-2001*
Department of Agricultural and Environmental Chemistry
Dissertation Advisor: Dr. Robert J. Zasoski

* Candidate in Philosophy (C.Phil.) is a degree awarded by UCLA after a Ph.D. student has successfully completed his/her oral exams and has been promoted to candidacy.

Research Assistant, University of California, Los Angeles *September 1994-1996*
Department of Chemistry and Biochemistry
Research Advisor: Dr. M. Fredrick Hawthorne

SCIENTIFIC PROGRAM DEVELOPMENT

Key leadership role in development of multiple new LBNL programs and *Lab-Wide Initiatives* including:

- *Carbon Negative Initiative:* Helped develop early research activities and State and UC partnerships in several areas carbon negative approaches.
- *Microbes to Biomes*: Co-led lab wide initiative that Launched multiple new research directions and lead directly to acquisition of BioEPIC ($168M) building project
- *Resilient Energy and Water*: Co-led lab wide initiative that increased water related research at LBNL as well as collaboration with multiple UCs, State of California, and key regional stake holders
- *Resilient Infrastructure:* Co-led effort to scope and design potential new lab wide initiative.
- *Helped to develop Geoscience case for Advanced Light Source Upgrade (ALS-U) project* through workshop, reports, presentations.

CAPITAL PROJECT MANAGEMENT

- *User Representative BioEPIC*: Represent scientific vision and needs for ~$168M BioEPIC construction project; manage complex program priority decisions along with laboratory senior management (2018-present)
- *Member Project Management Advisory Board* (PMAB) (2018-2022)
- Principle investigator for construction of Infrared Spectroscopy beamline (5.4) at the Advanced Light Source synchrotron user facility (2009-2011)

PUBLICATIONS:

88 publications, h=31/37 (web of science/google scholar); ResearcherID F-6997-2010

Bhattacharyya, A., R. K. Kukkadapu, M. Bowden, J. Pett-Ridge and P. S. Nico (2022). "Fast redox switches lead to rapid transformation of goethite in humid tropical soils: A Mossbauer spectroscopy study." Soil Science Society of America Journal **86(**2): 264-274.

Dwivedi, D., C. I. Steefel, B. Arora, J. Banfield, J. Bargar, M. I. Boyanov, S. C. Brooks, X. Y. Chen, S. S. Hubbard, D. Kaplan, K. M. Kemner, P. S. Nico, E. J. O'Loughlin, E. M. Pierce, S. L. Painter, T. D. Scheibe, H. M. Wainwright, K. H. Williams and M. Zavarin (2022). "From legacy contamination to watershed systems science: a review of scientific insights and technologies developed through DOE-supported research in water and energy security." Environmental Research Letters **17**(4).

Hao, Z., Y. Wang, N. Ding, M. C. Saha, W. R. Scheible, K. Craven, M. Udvardi, P. S. Nico, M. K. Firestone and E. L. Brodie (2022). "Spectroscopic analysis reveals that soil phosphorus availability and plant allocation strategies impact feedstock quality of nutrient-limited switchgrass." Communications Biology **5(**1).

Fossum, C., K. Y. Estera-Molina, M. T. Yuan, D. J. Herman, I. Chu-Jacoby, P. S. Nico, K. D. Morrison, J. Pett-Ridge and M. K. Firestone (2022). "Belowground allocation and dynamics of recently fixed plant carbon in a California annual grassland." Soil Biology & Biochemistry **165**.

Siirila-Woodburn, E. R., A. M. Rhoades, B. J. Hatchett, L. S. Huning, J. Szinai, C. Tague, P. S. Nico, D. R. Feldman, A. D. Jones, W. D. Collins and L. Kaatz (2021). "A low-to-no snow future and its impacts on water resources in the western United States." *Nature Reviews Earth & Environment* **2**(11): 800-819.

Matzen, S. L., G. P. Lobo, S. C. Fakra, A. Kakouridis, P. S. Nico and C. E. Pallud (2022). "Arsenic hyperaccumulator Pteris vittata shows reduced biomass in soils with high arsenic and low nutrient availability, leading to increased arsenic leaching from soil." Science of The Total Environment **818**: 151803.

Yuan, X., T. X. Liu, P. Fox, A. Bhattacharyya, D. Dwivedi, K. H. Williams, J. A. Davis, T. D. Waite and P. S. Nico (2022). "Production of hydrogen peroxide in an intra-meander hyporheic zone at East River, Colorado." *Scientific Reports* **12**(1).

Zheng, L., P. Nico, N. Spycher, J. Domen and A. Credoz (2021). "Potential impacts of CO_2 leakage on groundwater quality of overlying aquifer at geological carbon sequestration sites: A review and a proposed assessment procedure." *Greenhouse Gases-Science and Technology* **11**(5): 1134-1166.

Neurath, R. A., J. Pett-Ridge, I. Chu-Jacoby, D. Herman, T. Whitman, P. S. Nico, A. S. Lipton, J. Kyle, M. M. Tfaily, A. Thompson and M. K. Firestone (2021). "Root Carbon Interaction with Soil Minerals Is Dynamic, Leaving a Legacy of Microbially Derived Residues." E*nvironmental Science & Technology* **55**(19): 13345-13355.

Waterhouse, H.; Arora, B.; Spycher, N.F.; Nico, P.S.; Ulrich, C.; Dahlke, H.E.; Horwath, W.R.; Influence of Agricultural Managed Aquifer Recharge (AgMAR) and Stratigraphic Heterogeneities on Nitrate Reduction in the Deep Subsurface; *Water Resources Reserch* **2021**, in press

Di Vittorio, A.V.; Simmonds, M.B.; Nico, P; Quantifying the effects of multiple land management practices, land cover change, and wildfire on the California landscape carbon budget with an empirical model; *PLOS One*, **2021**, in press

Carnevali, P.B.M.; Lavy, A.; Thomas, A.D.; Crits-Christoph, A.; Diamond, S.; Meéheust, R.; Olm, M.R. Sharrar,A.; Lei, S.; Dong, W.; Falco, N.; Bouskill, N.; Newcomer, M.; Nico, P.; Wainwright, H.; Dwivedi, D.; Williams, K.H.; Hubbard,S.; Banfield; J.F.; Meanders as a scaling motif for understanding of floodplain soil microbiome and biogeochemical potential at the watershed scale; *Microbiome*, **2021;** DOI: 10.1186/s40168-020-00957-z

Wang, S.; Walker,R.; Schicklberger, M.; Nico, P.; Fox, P.M.; Karaoz, U.; Chakraborty, R.; Brodie; E.L.; Microbial phosphorus mobilization strategies across a natural nutrient limitation gradient and evidence for linkage with iron solubilization traits; *Frontiers in Microbiology*, **2021**; DOI: 10.3389/fmicb.2021.572212

Lin, Yang; Campbell, Ashley N.; Bhattacharyya, A.; DiDonato, N.; Thompson, A.M.; Tfaily, M.M.; Nico, P.S.; Silver, W.L.; Pett-Ridge, J.; Differential effects of redox conditions on the decomposition of litter and soil organic matter; *Biogeochemistry*; **2021;** DOI: 10.1007/s10533-021-00790-y

Rogers, D.B.; Newcomer, M.; Raberg, J.; Dwivedi, D.; Steefel, C.; Bouskill, N.; Nico, P.; Faybishenko, B.;Fox, P.; Conrad, M.; Bill, M.; Brodie, E.; Arora, B.; DAfflon, B.; Williams, K.H.; Hubbard, S.; Modeling the impact of riparian hollows on river corridor nitrogen exports; *Frontiers in Water*, **2021:** DOI: h10.3389/frwa.2021.590314

Dong, W.; Bhattacharyya, A.; Fox, P.M.; Bill,M.; Dwivedi, D.; S Carrero, S.; Mark Conrad, M.; Nico, P.S., Geochemical Controls on Release and Speciation of Fe (II) and Mn(II) from Hyporheic Sediments of East River, Colorado. *Frontiers in Water* **2020.**

Simmonds, M.B.; Di Vittorio, A.V.; Jahns, C.; Johnston, E.; Jones, A.D.; Nico. P.S. Impacts of California's climate-relevant land use policy scenarios on terrestrial carbon emissions (CO_2 and CH4) and wildfire risk. *Environmental Research Letters*, **2020**, in press

Jones, M.E.; LaCroix, R.E.; Zeigler, J.; Ying, S.C.; Nico, P.S.; Keiluweit, M. Enzymes, Manganese, or Iron? Drivers of Oxidative Organic Matter Decomposition in Soils *Environmental Science & Technology* **2020**; 54 (21), 14114-14123

Matzen, S.; Fakra, S.; Nico, P.S.; Pallud, C., Pteris vittata arsenic accumulation only partially explains soil arsenic depletion during field-scale phytoextraction. *Soil Systems* **2020,** *4 (4)*

Schaefer, M. V.; Bogie, N. A.; Rath, D.; Marklein, A. R.; Garniwan, A.; Haensel, T.; Lin, Y.; Avila, C. C.; Nico, P. S.; Scow, K. M.; Brodie, E. L.; Riley, W. J.; Fogel, M. L.; Berhe, A. A.; Ghezzehei, T. A.; Parikh, S.; Keiluweit, M.; Ying, S. C., Effect of Cover Crop on Carbon Distribution in Size and Density Separated Soil Aggregates. *Soil Systems* **2020,** *4* (1).

Marklein, A.; Elias, E.; Nico, P.; Steenwerth, K., Projected temperature increases may require shifts in the growing season of cool-season crops and the growing locations of warm-season crops. *Science of the Total Environment* **2020,** *746*.

Fox, P. M.; Bill, M.; Heckman, K.; Conrad, M.; Anderson, C.; Keiluweit, M.; Nico, P. S., Shale as a Source of Organic Carbon in FloodplainSediments of a Mountainous Watershed. *Journal of Geophysical Research-Biogeosciences* **2020,** *125* (2).

Vasco, D. W.; Farr, T. G.; Jeanne, P.; Doughty, C.; Nico, P., Satellite-based monitoring of groundwater depletion in California's Central Valley. *Scientific Reports* **2019,** *9*.

Fox, P. M.; Tinnacher, R. M.; Cheshire, M. C.; Caporuscio, F.; Carrero, S.; Nico, P. S., Effects of bentonite heating on U(VI) adsorption. *Applied Geochemistry* **2019,** *109*.

Whitman, T.; Neurath, R.; Perera, A.; Chu-Jacoby, I.; Ning, D. L.; Zhou, J. Z.; Nico, P.; Pett-Ridge, J.; Firestone, M., Microbial community assembly differs across minerals in a rhizosphere microcosm. *Environmental Microbiology* **2018,** *20* (12), 4444-4460.

Wanzek, T.; Keiluweit, M.; Varga, T.; Lindsley, A.; Nico, P. S.; Fendorf, S.; Kleber, M., The Ability of Soil Pore Network Metrics to Predict Redox Dynamics is Scale Dependent. *Soil Systems* **2018,** *2* (4).

Wanzek, T.; Keiluweit, M.; Baham, J.; Dragila, M. I.; Fendorf, S.; Fiedler, S.; Nico, P. S.; Kleber, M., Quantifying biogeochemical heterogeneity in soil systems. *Geoderma* **2018,** *324*, 89-97.

Souza, I. F.; Almeida, L. F. J.; Jesus, G. L.; Pett-Ridge, J.; Nico, P. S.; Kleber, M.; Silva, I. R., Carbon Sink Strength of Subsurface Horizons in Brazilian Oxisols. *Soil Science Society of America Journal* **2018,** *82* (1), 76-86.

Porras, R. C.; Pries, C. E. H.; Torn, M. S.; Nico, P. S., Synthetic iron (hydr) oxide-glucose associations in subsurface soil: Effects on decomposability of mineral associated carbon. *Science of the Total Environment* **2018,** *613*, 342-351.

Lin, Y.; Bhattacharyya, A.; Campbell, A. N.; Nico, P. S.; Pett-Ridge, J.; Silver, W. L., Phosphorus Fractionation Responds to Dynamic Redox Conditions in a Humid Tropical Forest Soil. *Journal of Geophysical Research-Biogeosciences* **2018,** *123* (9), 3016-3027.

Jones, M. E.; Nico, P. S.; Ying, S.; Regier, T.; Thieme, J.; Keiluweit, M., Manganese-Driven Carbon Oxidation at Oxic-Anoxic Interfaces. *Environmental Science & Technology* **2018,** *52* (21), 12349-12357.

Hubbard, S. S.; Williams, K. H.; Agarwal, D.; Banfield, J.; Beller, H.; Bouskill, N.; Brodie, E.; Carroll, R.; Dafflon, B.; Dwivedi, D.; Falco, N.; Faybishenko, B.; Maxwell, R.; Nico, P.; Steefel, C.; Steltzer, H.; Tokunaga, T.; Tran, P. A.; Wainwright, H.; Varadharajan, C., The East River, Colorado, Watershed: A Mountainous Community Testbed for Improving Predictive Understanding of Multiscale Hydrological-Biogeochemical Dynamics. *Vadose Zone Journal* **2018,** *17* (1).

Hao, Z.; Bechtel, H. A.; Kneafsey, T.; Gilbert, B.; Nico, P. S., Cross-Scale Molecular Analysis of Chemical Heterogeneity in Shale Rocks. *Scientific Reports* **2018,** *8*.

Dwivedi, D.; Steefel, C. I.; Arora, B.; Newcomer, M.; Moulton, J. D.; Dafflon, B.; Faybishenko, B.; Fox, P.; Nico, P.; Spycher, N.; Carroll, R.; Williams, K. H., Geochemical Exports to River From the Intrameander Hyporheic Zone Under Transient Hydrologic Conditions: East River Mountainous Watershed, Colorado. *Water Resources Research* **2018,** *54* (10), 8456-8477.

Bhattacharyya, A.; Campbell, A. N.; Tfaily, M. M.; Lin, Y.; Kukkadapu, R. K.; Silver, W. L.; Nico, P. S.; Pett-Ridge, J., Redox Fluctuations Control the Coupled Cycling of Iron and Carbon in Tropical Forest Soils. *Environmental Science & Technology* **2018,** *52* (24), 14129-14139.

Yuan, X.; Nico, P. S.; Huang, X.; Liu, T. X.; Ulrich, C.; Williams, K. H.; Davis, J. A., Production of Hydrogen Peroxide in Groundwater at Rifle, Colorado. *Environmental Science & Technology* **2017,** *51* (14), 7881-7891.

Varadharajan, C.; Beller, H. R.; Bill, M.; Brodie, E. L.; Conrad, M. E.; Han, R. Y.; Irwin, C.; Larsen, J. T.; Lim, H. C.; Molins, S.; Steefel, C. I.; van Hise, A.; Yang, L.; Nico, P. S., Reoxidation of Chromium(III) Products Formed under Different Biogeochemical Regimes. *Environmental Science & Technology* **2017,** *51* (9), 4918-4927.

Keiluweit, M.; Wanzek, T.; Kleber, M.; Nico, P.; Fendorf, S., Anaerobic microsites have an unaccounted role in soil carbon stabilization. *Nature Communications* **2017,** *8*.

Fox, P. M.; Nico, P. S.; Tfaily, M. M.; Heckman, K.; Davis, J. A., Characterization of natural organic matter in low-carbon sediments: Extraction and analytical approaches. *Organic Geochemistry* **2017,** *114*, 12-22.

Daugherty, E. E.; Gilbert, B.; Nico, P. S.; Borch, T., Complexation and Redox Buffering of Iron(II) by Dissolved Organic Matter. *Environmental Science & Technology* **2017,** *51* (19), 11096-11104.

Zheng, L. G.; Spycher, N.; Bianchi, M.; Pugh, J. D.; Varadharajan, C.; Tinnacher, R. M.; Birkholzer, J. T.; Nico, P.; Trautz, R. C., Impacts of elevated dissolved CO_2 on a shallow groundwater system: Reactive transport modeling of a controlled-release field test. *Chemical Geology* **2016,** *447*, 117-132.

Yuan, X.; Davis, J. A.; Nico, P. S., Iron-Mediated Oxidation of Methoxyhydroquinone under Dark Conditions: Kinetic and Mechanistic Insights. *Environmental Science & Technology* **2016,** *50* (4), 1731-1740.

Keiluweit, M.; Nico, P. S.; Kleber, M.; Fendorf, S., Are oxygen limitations under recognized regulators of organic carbon turnover in upland soils? *Biogeochemistry* **2016,** *127* (2-3), 157-171.

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Cismasu, A. C.; Williams, K. H.; Nico, P. S., Iron and Carbon Dynamics during Aging and Reductive Transformation of Biogenic Ferrihydrite. *Environmental Science & Technology* **2016,** *50* (1), 25-35.

Bouskill, N. J.; Wood, T. E.; Baran, R.; Ye, Z.; Bowen, B. P.; Lim, H. C.; Zhou, J. Z.; Van Nostrand, J. D.; Nico, P.; Northen, T. R.; Silver, W. L.; Brodie, E. L., Belowground Response to Drought in a Tropical Forest Soil. I. Changes in Microbial Functional Potential and Metabolism. *Frontiers in Microbiology* **2016,** *7*.

Bouskill, N. J.; Wood, T. E.; Baran, R.; Hao, Z.; Ye, Z.; Bowen, B. P.; Lim, H. C.; Nico, P. S.; Holman, H. Y.; Gilbert, B.; Silver, W. L.; Northen, T. R.; Brodie, E. L., Belowground Response to Drought in a Tropical Forest Soil. II. Change in Microbial Function Impacts Carbon Composition. *Frontiers in Microbiology* **2016,** *7*.

Zheng, L. G.; Spycher, N.; Varadharajan, C.; Tinnacher, R. M.; Pugh, J. D.; Bianchi, M.; Birkholzer, J.; Nico, P. S.; Trautz, R. C., On the mobilization of metals by CO_2 leakage into shallow aquifers: exploring release mechanisms by modeling field and laboratory experiments. *Greenhouse Gases-Science and Technology* **2015,** *5* (4), 403-418.

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Lee, N.; Schuck, P. J.; Nico, P. S.; Gilbert, B., Surface Enhanced Raman Spectroscopy of Organic Molecules on Magnetite (Fe3O4) Nanoparticles. *Journal of Physical Chemistry Letters* **2015,** *6* (6), 970-974.

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Keiluweit, M.; Bougoure, J. J.; Nico, P. S.; Pett-Ridge, J.; Weber, P. K.; Kleber, M., Mineral protection of soil carbon counteracted by root exudates. *Nature Climate Change* **2015,** *5* (6), 588-595.

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Varadharajan, C.; Tinnacher, R. M.; Pugh, J. D.; Trautz, R. C.; Zheng, L. G.; Spycher, N. F.; Birkholzer, J. T.; Castillo-Michel, H.; Esposito, R. A.; Nico, P. S., A laboratory study of the initial effects of dissolved carbon dioxide (CO_2) on metal release from shallow sediments. *International Journal of Greenhouse Gas Control* **2013,** *19*, 183-211.

Vandehey, N. T.; Boutchko, R.; Druhan, J. L.; O'Neil, J. P.; Nico, P. S.; Slowey, A. J.; Moses, W. W., *Performance Evaluation of SPECT Imaging System for Sediment Column Imaging. IEEE Transactions on Nuclear Science* **2013,** *60* (2), 763-767.

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BOOK CHAPTERS

Jazmin E. Aravena, Markus Berli, Manoj Menon, Teamrat A. Ghezzehei, Ajay K. Mandava, Emma E. Regentova, Kranthi K. Potteti, Natarajan S. Pillai, John Steude, Michael H. Young, Scott W. Tyler, and Peter S. Nico, *Soil-Water-Root Processes: SSSA Special Publication 61*. S.H. Anderson and J.W. Hopmans, Synchrotron X-ray Microtomography (XMT) – New Means to Quantify Root Induced Changes of Rhizosphere Physical Properties

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Fendorf, S.; **Nico, P.S.**; Kocar, B.D.; Masue, Y.; Tufano, K.J.; "Arsenic Chemistry in Soils and Sediments" in *Advances in Understanding Soils and Sediments Using Synchrotron-based Techniques*, B. Singh and M. Grafe (Eds), Elsevier, **2010**. (LBNL-3071E)

P. S. Nico, J. B. Ajo-Franklin., S. M. Benson, A. McDowell,D. B. Silin,L. Tomutsa, Y. Wu; "Synchrotron X-Ray Micro-Tomography and Geological CO_2 Sequestration" *Advances in Computed Tomography for Geomaterials*, K Alshibli and A. Reed (Eds) Wiley, **2010**

B. Gilbert, C. S. Kim, C.-L. Dong, J. Guo, P. S. Nico and D. K. Shuh, *"*Oxygen K-edge emission and absorption spectroscopy of iron oxyhydroxide nanoparticles" *X-ray Absorption Fine Structure-XAFS13*, **2007,** American Institute of Physics Conference Proceedings**,** v882, p.51-55, Edited by B. Hedman and P. Pianetta (LBNL-62225)

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Peter S. Nico and Scott E. Fendorf, *Encyclopedia of Soils in the Environment*, "Kinetics of Redox Reactions" **2004,** p372-378, Daniel Hillel, Editor-in-Chief, Elsevier Ltd., Oxford, UK.

Ph.D. COMMITTEE SERVICE

Care Anderson, U. Massachusetts, Ph.D. degree expected 2022
Christian Dewey, Stanford University, Ph.D.
Rachel Neurath, U.C. Berkeley, Ph.D.
Sarick Matzen, U.C. Berkeley, Ph.D.
Mike Massey, Stanford University, Ph.D.
Debra Hausladen, Stanford University, Ph.D.
Cynthia McClain, Stanford University, Ph.D.
Marco Keiluweit, Oregon State University, Ph.D.
Michelle Werner, U.C. Davis, Ph.D.

OTHER SERVICE

LBNL Future of Work Committee 2021-present
Goldschmidt 2021, Session Organizer 2021
Goldschmidt 2020, Session Organizer 2020
Inclusion, Diversity, Equity, &Accountability Communications and Awareness Group 2019-2022
Managed Career Track Scientist Promotion for Dr. Charu Varadharajan 2019
Chaired Senior Scientist Promotion Committee for Dr. Benjamin Gilbert 2017
Hiring Committee for Berkeley Lab Community Relations Hire 2016
Hiring Committee for Water-Energy Lead Scientist 2016
Goldschmidt 2014, Session Organizer 2014
SSSA Session Organizer 2014
Hiring Committee Earth and Environmental Sciences Area, Operations Deputy
LBL Lead for U.C. Global Food Initiative 2014-present
LBL Lead of U.C. Davis-LBL Predictive Agriculture Initiative 2013-present
Strategy Lead, Biogeochemistry, LBL Biosciences Strategic Planning Committee 2012-2014
Member, Vice Chair, Chair, Former Chair ALS User Executive Committee 2012, 2013, 2014, 2015
Member and Chair (2015), Canadian Light Source Proposal Study Panel 2011-2015
LBNL Operating Experience Steering Committee 2012-2014
Co-chair ALS User Meeting 2012 2012
Integrated Bioimaging Initiative Committee 2011-2014
Berkeley Synchrotron Infrared Structural Biology (BSISB) Steering Committee 2008-2011
Co-Chair Planning Committee: Synchrotron Environmental Science IV 2007-2008
Member, "Faculty Mentor Program" 2003-2005
Faculty Mentor Program is a program through which students who are at more of a risk of not graduating are paired with "Faculty Mentors." Mentors are available to help students with academic or non-academic issues related to their success in college.
Member, Faculty Search Committee 2004-2005
Member, Science II Ground Breaking Presentation Committee 2004
Coordinator, Environmental Sciences Concentration 2002-2005
California State University, Stanislaus
Chair, Visiting Lecturer Search Committee 2002/2003
Department of Chemistry, California State University, Stanislaus
Student Representative, Agriculture and Environmental Chemistry Graduate Group
Responsibilities included planning and organizing graduate group events; specifically recruiting and scheduling student and guest faculty speakers for the group's fall and winter seminar series.
Student Member, Ad Hoc Committee on Graduate Group Membership
Committee reevaluated and amended the process by which faculty were admitted to and retained in the Agricultural and Environmental Chemistry graduate group.
Student Representative, City of Davis/U.C. Davis Liaison Committee

Committee acted as liaison between the City of Davis and the University.

Graduate Student Association Representative, U.C. Davis

Represented the graduate group at the university-wide Graduate Student Association meetings.

Graduate Student Association Representative, UCLA Chemistry Department

Responsibilities including helping to organize an "*Alternative Careers in Chemistry*" seminar series, which showcased, among others, speakers from non-research institutions talking about their careers.

INVITED PRESENTATIONS

1. **Water Resources in a Climate Uncertain Future;** Building Efficiency for a Sustainable Tomorrow (BEST); 2020
2. **Importance of Subsurface Sediments on Water Movement,** Almond Conference, Sacramento, December 2018
3. **Mineral Organic Associations: What are they and why should I care?** Land, Air, and Water Resources Department Seminar, U.C. Davis, June 2018
4. **Cross-scale molecular analysis of chemical heterogeneity in shale rocks;** SSRL User meeting 2018
5. **Importance of Subsurface Sediments on Water Movement;** Almond Conference, Sacramento, December 2017
6. **Impact of Subsurface Structure on Water Dynamics during On Farm Water Recharge,** UCB-Energy Resources Group Department Seminar 2017
7. **From Aerosols to Oaks: stories of how transition metals and reactive oxygen species impact our air, land, and water;** Chemistry Department Seminar, University of the Pacific, 2016
8. **Linking metal biogeochemical cycles to carbon chemistry: at the small scale;** NSF CZO-China Workshop at Purdue University, West Lafayette, Indiana, October 2015
9. **The tightly coupled fates of iron and organic matter;** University of Nevada Reno, Dec 2015
10. **From Aerosols to Oaks: Stories of how transition metals and reactive oxygen species impact our air, land, and water;** U.C. Berkeley-Environmental Science and Policy Department Seminar, April 2016
11. **Subsurface Reactive Oxygen Species and Implications,** DOE-ESS PI Meeting, April 2015
12. **The Instability of Stable Organic Matter Mineral Associations;** World Congress of Soils, Korea, 2014
13. **Soil carbon cycling at the microbial scale;** Baylor University, 2013
14. **Challenges in Processing and Interpretation of Near-Edge X-ray Absorption Fine Structure Data of Earth Materials;** 2013 Canadian Light Source User Meeting
15. **Coupled spectromicroscopic investigations for improved conceptual models of soil carbon cycling;** 2013 Goldschmidt Keynote
16. **Mineral surfaces: hotbeds of carbon-mineral interactions,** Gordon Conference on Catchment Science, 2013
17. **Applying Synchrotron Techniques to Coupled Metal-Organic Matter Cycling: Successes and Challenges;** 2013 SSRL User Meeting
18. **Bulk redox status or redox microenvironments: Which is more important for controlling trace element transport?;** Keynote Goldschmidt 2012
19. **Metals and microbes: imaging organic matter-mineral relationships at high resolution with STXM/NanoSIMS;** Invited Goldschmidt 2012
20. **A New View of Soil Carbon: Why you should care;** 2012 ALS seminar series
21. **Intimate Life of Soil Carbon;** SSSA Annual Meeting, 2011
22. **Impact of Solid-State Speciation and Redox Transformation on the Bioavailability of Toxic Metal(oid)s.,** Keynote Address, Manitoba Environmental Industries Association, February, 2011
23. **Evolution of Exposure Estimates from Chromated Copper Arsenic-Treated Wood through Improved Redox Speciation and Bioavailability Estimates,** Keynote Presentation, Manitoba Environmental Industries Association, February, 2011

24. **Environmental chemistry and future of California,** Chemistry Department Seminar, San Francisco State University, May 2009,
25. **Synchrotron Spectromicroscopy and Biogeochemical Interfaces;** *June 2007*, Oregon State University, Subsurface Biosphere Initiative SBI/IGERT, Newport, OR
26. **Chromium in atmospheric particles: speciation and redox transformations**; *October 2004*, 2004 ALS' User Meeting: Annual Meeting of users of the Advanced Light Source at Lawrence Berkeley National Laboratory
27. **EXAFS Investigation of Cr and As in CCA Treated Materials;** *October 2003;* 19th Annual International Conference on Soils, Sediments and Water Special Session: CCA Treated Wood – *Regulations, Science and Risk Assessment*
28. **Atmospheric Transformation of Chromium Species on Aerosol Nano-Particles;** *June 2003*; Argonne National Lab's Advanced Light Source User Seminar Series
29. **The Influence of Ferric Hydroxide Structure on Sustained Microbial Metabolism and Contaminant Transport, June 2003***;* 84th Annual Meeting of AAAS, Pacific Division, San Francisco