

CURRICULUM VITAE

Jasquelin Pena

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CONTACT

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EDUCATION

PhD University of California, Berkeley, CA
Environmental Engineering, May 2009

Dissertation Title: *Contaminant Metal Immobilization by Biogenic Manganese Oxide Nanoparticles: Implications for Metal Attenuation and Bioremediation*

Advisor: Prof. Garrison Sposito

MS University of California, Berkeley, CA
Environmental Engineering, December 2004

BS Yale University, New Haven, CT
Chemical Engineering, May 2001

EMPLOYMENT

Faculty of Geoscience and Environment, University of Lausanne, Lausanne, Switzerland
Assistant Professor, 2011-present

Earth Sciences Division, Lawrence Berkeley National Lab, Berkeley, CA (USA)
Postdoctoral Fellow, 2009-2011

Environmental Geochemistry Group, University of California, Berkeley, CA (USA)
Graduate Student Researcher and Teaching Assistant, 2003-2009

Earth Sciences Division, Lawrence Berkeley National Lab, Berkeley, CA (USA)
Research Associate, 2001-2003

BIOGEOCHEMICAL METHODS

- Elemental analysis* ICP-AES/OES; ICP-MS; kinetic phosphorescence analysis; UV-visible spectrometry
- Soil/mineral characterization* X-ray diffraction; BET surface area analysis; particle-size analysis
- Synchrotron-radiation techniques* EXAFS spectroscopy (SSRL); XANES spectroscopy (SSRL and APS); X-ray fluorescence mapping (APS and ALS); X-ray diffraction (SSRL)
- Microscopy* Optical microscopy; SEM; ESEM; TEM; HR-TEM; EELS; biological sample preservation by standard protocols and by high-pressure freezing and freeze substitution
- Microbiology* Culturing *Pseudomonas putida* for MnO₂ and siderophore production; culturing *Desulfotribrio vulgaris* for FeS production; DNA-extraction/PCR; Clone libraries

COURSES TAUGHT

- Environmental Surface Chemistry: Water-Microbe-Mineral Interface*
Masters in Environmental Geoscience, University of Lausanne, Professor (Fall 2011)
- Modeling Physical and Chemical Processes in the Environment*
Masters in Environmental Geoscience, University of Lausanne, Professor (Fall 2011)
- The Origin of Soils: Bio-alteration of minerals*
Masters in Biogeoscience, University of Lausanne, Professor (Fall 2011)
- Introduction to Environmental Studies*
Undergraduate course, University of California Berkeley, Teaching assistant (Fall 2007)
- Aqueous Environmental Geochemistry*
Undergraduate course, University of California Berkeley, Teaching assistant (Spring 2007)
- Water Chemistry*
Undergraduate course, University of California Berkeley, Teaching assistant (Fall 2006)
- Physical Science*
Middle-school, Hilcrest Elementary School, Oakland (California, USA), Teacher (2004-2005)

PEER-REVIEWED PUBLICATIONS (8)

van Genuchten, C. M., S. E. Addy, **J. Peña**, A. J. Gadgil. Removing arsenic from synthetic groundwater with iron electrocoagulation: An Fe and As K-edge EXAFS study (2012). *Environ. Sci. Technol.* **46**, 986-994.

Peña, J., J. R. Bargar and G. Sposito. Role of Bacterial Biomass in the Sorption of Ni by Biomass-Birnessite Assemblages (2011). *Environ. Sci. Technol.* **45**, 7338-7344.

Peña, J., K.K. Kwon, K.R. Refson, J.R. Bargar and G. Sposito (2010). Mechanisms of Nickel Sorption by Bacteriogenic Birnessite. *Geochim. Cosmochim. Acta.* **74**, 3076-3089.

Kelly, S.D., S.R. Bare, N. Greenlay, G. Azevedo, M. Balasubramanian, D. Barton, S. Chattopadhyay, S. Fakra, B. Johannessen, M. Newville, **J. Peña**, G. Pokrovski, O. Proux, K. Priolkar, B. Ravel and S. Webb (2009). Comparison of EXAFS Foil Spectra from Around the World. *J. Phys.: XAFS14 Conf. Proc.* **190**, 1-4.

Duckworth, O.W., S.M. Holmstrom, **J. Peña**, and G. Sposito (2009). Biogeochemistry of Iron Oxidation in a Circumneutral Freshwater Habitat. *Chem. Geol.* **260**, 149-158.

Peña, J., O.W. Duckworth, J.R. Bargar, and G. Sposito (2007). Dissolution of Hausmannite in the Presence of the Trihydroxamate Siderophore Desferrioxamine B. *Geochim. Cosmochim. Acta.* **71**, 5661-5671.

Tokunaga, T.K., J. Wan, **J. Peña**, E.L. Brodie, M.K. Firestone, T. C. Hazen, S.R. Sutton, A. Lanzirrotti, M. Newville (2005). Uranium Reduction in Sediments Under Diffusion-Limited Transport of Organic Carbon. *Environ. Sci. Technol.* **39**, 7077-7083.

Tokunaga, T.K., J. Wan, **J. Peña**, S.R. Sutton, and M. Newville (2004). Hexavalent Uranium Diffusion in Soils from Concentrated Acidic and Alkaline Solutions. *Environ. Sci. Technol.* **38**, 3056-3062.

PRESENTATIONS (21)

I have made 19 research presentations between 2003 and 2011 at national and international scientific meetings (4 oral presentations and 7 poster presentations) and given research seminars at various universities in the USA and Switzerland (10).

PROFESSIONAL MEMBERSHIPS

American Chemical Society; 2000 Summer Meeting, 2006 Fall Meeting, 2009 Spring Meeting, 2010 Spring Meeting

American Geophysical Union; 2001, 2004-2010 Winter Meetings

Mineralogical Society of America

INSTRUMENT PROPOSALS

- Author of successful proposals for X-ray absorption spectroscopy experiments to investigate the surface reactivity of birnessite minerals, Swiss Lightsource User Program, Paul Scherer Institute, Villigen, Switzerland (2011)
- Author of four successful proposals for X-ray absorption spectroscopy experiments to investigate the surface reactivity of birnessite minerals, Stanford Synchrotron Radiation Lightsource User Program, Menlo Park, CA (2008, 2009, 2011)

- Author of two successful proposals for microscopy experiments to characterize point defects and structural disorder in biogenic layer-type nanoparticles, National Center for Electron Microscopy, LBNL, Berkeley CA (2010 and 2011)
- Contributor to a successful proposal for X-ray absorption spectroscopy experiments to investigate As removal from groundwater with iron electrocoagulation, Stanford Synchrotron Radiation Lightsource User Program, Menlo Park, CA (2010)
- Contributor to a successful proposal for X-ray scattering (PDF) experiments to investigate As removal from groundwater with iron electrocoagulation, Advanced Photon Source, User Program, Argonne, IL (2010)

AWARDS AND HONORS

- Winner of the 2012 BCV Foundation Scientific Prize (2012; 125K CHF)
- Winner of the 2009 Competition of the Sandoz Family Foundation-Monique de Meuron Program for the Encouragement of Up-and-Coming Academics, funding a tenure-track assistant professorship at the University of Lausanne, Switzerland (2010; 1.05 M CHF)
- Outstanding Student Scientific Poster Award, SSRL & LCLS User Meeting (2008)
- American Association of University Women, Engineering Dissertation Fellowship (2008)
- Ford Foundation Dissertation Writing Fellowship, Alternate (2008)
- Outstanding Graduate Student Instructor Award, UC Berkeley (2007)
- Travel grant, American Chemical Society Scholar's Program (2006, 2009)
- AICHE, New Haven Chapter, Outstanding Academic Achievement Student Award (2001)
- Master's Cup: Service Award, Timothy Dwight College, Yale University (2001)
- Manzella Award: Service Award, Timothy Dwight College, Yale University (2001)

FELLOWSHIPS

- University of California Office of the President Dissertation Year Award (2008-2009; \$31K)
- Switzer Foundation Environmental Fellow (2006-2007; \$13K)
- University of California Toxic Substances Research and Teaching Program (2006-2008; \$50K)
- Jane Lewis Fellowship, University of California, Berkeley (2004-2006; \$50K)
- University Block Grant, University of California, Berkeley (2003; \$24K)
- Science, Technology, and Research Scholars Research Fellowship, Yale University (1999-2001; \$5K)
- American Chemical Society Scholar (1997, 1999-2001; \$7.5K)

PROFESSIONAL TRAINING

- Synchrotron Environmental Science VI Workshop, San Francisco, CA (2008)
- Preparing Future Faculty Summer Institute, El Paso, TX (2008)
- Teaching Conference, Berkeley Teaching and Resource Center, Berkeley, CA (Fall 2006)
- XAFS School, Advanced Photon Source, Argonne, IL (Summer 2005)
- Molecular Geomicrobiology Workshop, Mineralogical Society of America, Berkeley, CA (Fall 2005)
- Communicating Science Course, Lawrence Hall of Science, Berkeley, CA (Spring 2004)

PROFESSIONAL SERVICE**Journal Article and Book Reviewer (2004-2011)**

Environmental Science and Technology, Geochimica Cosmochimica Acta, Water Research, Chemical Geology, Journal of Hazardous Materials, Chemical Engineering Journal

Proposal Reviewer (2009-2011)

NSF CAREER Award Program; NSF Geobiology and Low-Temperature Geochemistry Program; SSRL User Program

American Geophysical Union (2010)

Conference session co-convenor

Berkeley Edge Program (UC-AGEP, NSF-AGEP, LPFI), UC Berkeley (2006-2009)

Panelist and speaker during recruitment conference and seminar series

Department of Civil and Environmental Engineering, UC Berkeley (2004-2008)

Co-Organizer of the Fall 2008 Environmental Engineering Seminar Series

Graduate student participant of Departmental Review

American Chemical Society (2006)

Undergraduate student mentor

San Diego Regional Water Quality Board, San Diego, CA (Spring 2005)

Scientific reviewer, Chollas Creek Metals Total Maximum Daily Load

American Institute of Chemical Engineers (2000-2001)

Co-President of the Yale AIChE Student Chapter

OUTREACH ACTIVITIES**Department of Energy Science Bowl Regional Competition, Berkeley CA (Winter 2010)**

Volunteer

Lawrence Hall of Science-Science and Global Issues, Berkeley CA (Summer 2009)

Scientific reviewer of curriculum materials for high-school course on Environmental Sustainability

National Student Leadership Conference, Berkeley CA (Summer 2009)

Lectured to three groups of 50 -70 students on Chemical and Environmental Engineering

Spiral Gardens, Berkeley, CA (2008)

Volunteered (20 hr / month) at non-profit urban garden, nursery, and food security project

SMASH Academy, Level Playing Field Institute, UC Berkeley, Berkeley, CA (Summer 2007)

Designed and led a two-week electron microscopy research project for two groups of high school students

Bret Harte Middle School, Oakland, CA (2004-2008)

Organized laboratory activities and environmental science lab tour at UC Berkeley; led panel discussions on the value of and challenges faced in obtaining a higher education

LeConte Elementary School, Berkeley, CA (Spring 2004)

Co-taught several hands-on lessons on the scientific method

Timothy Dwight College Seminar Committee, New Haven, CT (1999-2001)

Interviewed and selected instructors for college-sponsored courses

Weathervane (1999-2001; Editor-in-Chief 2000-2001)

Editor of literary magazine for Timothy Dwight College, Yale University

PERSONAL INFORMATION

Citizenship	USA
Residency	Morges (CH-1110)
Swiss Permit	Ci
Birth	23 January 1980 (New York, USA)
Languages	English (native), Spanish (native), Italian, French
Marital status	Married, 1 child (2010)