

## DAVID L. SEDLAK

### EDUCATION

**University of Wisconsin**, Madison, Wisconsin  
Water Chemistry  
**Dissertation:** Abiotic Oxidation of Polychlorinated Biphenyls (PCBs) Ph.D.  
June 1992

**Cornell University**, Ithaca, New York  
Environmental Science B.S.  
June 1986

### EXPERIENCE

October 1994-Present: **Professor (2004-present), Associate Professor (2000-2004) and Assistant Professor (1994-2000)**, Department of Civil and Environmental Engineering, University of California, Berkeley, CA

July 2003-June 2004: **Visiting Associate Professor**, School of Civil and Environmental Engineering, University of New South Wales, Sydney, Australia

April 1992-June 1994: **Postdoctoral Fellow**, Swiss Federal Institute for Environmental Science and Technology, Dübendorf, Switzerland

July 1986-June 1988: **Staff Scientist**, ENVIRON Corporation, Princeton, New Jersey

### RESEARCH INTERESTS

Fate of wastewater-derived chemical contaminants in conventional and advanced wastewater treatment plants, fate of steroid hormones in the aquatic environment, chemical fate during groundwater recharge and in engineered treatment wetlands, metal speciation in soil and water.

### AWARDS

Fulbright Senior Scholar Award for Australia, 2003  
Paul L. Busch Award for Innovation in Applied Water Quality Research, 2003  
National Science Foundation CAREER Development Award, 1998  
Hellman Family Fund Faculty Award, 1995  
Graduate Student Award, ACS Division of Environmental Chemistry, 1991  
Graduate Student Paper Award, ACS Division of Environmental Chemistry, 1990  
Carl Ladd Scholarship, Cornell University, 1985  
New York State Regents Scholarship, Cornell University, 1982-1986

### PROFESSIONAL AFFILIATIONS AND SERVICE

Chair, Gordon Research Conference Environmental Sciences Water, 2004  
Editorial Board Member, Environmental Technology  
Member, US EPA Science Advisory Board, Drinking Water Committee  
Member, US EPA Board of Scientific Counselors Drinking Water Subcommittee (2005)  
Member, American Chemical Society  
Member, Association of Environmental Engineering Professors  
Member, California Water Environment Association

Member, Society of Environmental Toxicology and Chemistry  
Member, International Water Association  
Reviewer for Scientific Journals (approximately 75 reviews in past 5 years)  
Review Panel Member, National Science Foundation (1998, 2002, 2003)

#### **UNIVERSITY SERVICE**

Executive Committee Member, UC Toxic Substances Teaching & Research Program  
Executive Committee Member, Berkeley Institute for the Environment  
Group Leader, Environmental Engineering Program  
Member, Committee on Undergraduate Prizes  
Member, Committee on Undergraduate Scholarships and Honors (2000-2003)  
Member, Environmental Sciences Advisory Board, College of Natural Resources  
Organizing Committee, California Colloquium on Water

#### **PEER-REVIEWED PUBLICATIONS**

- Pehlivanoglu-Mantas E. and Sedlak D.L. (2006) Wastewater-derived dissolved organic nitrogen: Analytical methods, characterization, and effects-a review. *Critical Reviews in Environmental Science and Technology* 36(3):261-285.
- Pehlivanoglu-Mantas E. and Sedlak D.L. (2006) The fate of wastewater-derived NDMA precursors in the aquatic environment. *Water Research* 40(6):1287-1293.
- Pehlivanoglu-Mantas E., Hawley E.L., Deeb R.A. and Sedlak D.L. (2006) Formation of nitrosodimethylamine (NDMA) during chlorine disinfection of wastewater effluents prior to use in irrigation systems. *Water Research* 40(2): 341-347.
- Gan J., Bondarenko S., Ernst F., Yang W., Ries S.B., Sedlak D.L. (2006) Leaching of N-nitrosodimethylamine (NDMA) in turfgrass soils during wastewater irrigation. *J. Environ. Qual.*, 35(1):277-284.
- Arienzo M., Gan J., Ernst F., Qin S., Bondarenko S., Sedlak D.L. (2006) Loss pathways of N-nitrosodimethylamine (NDMA) in turfgrass soils. *J. Environ. Qual.*, 35(1):285-292.
- Schlenk D., Sapozhnikova Y., Irwin M.A., Xie L.T., Hwang W., Reddy S., Brownawell B.J., Armstrong J., Kelly M., Montagne D.E., Kolodziej E.P., Sedlak D., Snyder S. (2005) In vivo bioassay-guided fractionation of marine sediment extracts from the Southern California Bight, USA, for estrogenic activity. *Environmental Toxicology and Chemistry*, 24(11): 2820-2826.
- Kümmerer K., Ericson J.F., Hannah R., Johnson A., Sedlak D.L., Weston J.J. (2005) Environmental fate and transport of human pharmaceuticals. In: Human Pharmaceuticals: Assessing the Impacts on Aquatic Ecosystems. R.T. Williams, Editor, SETAC Press. Pensacola, FL.
- Fono L.J. and Sedlak D.L. (2005) Use of the chiral pharmaceutical propranolol to identify sewage discharges into surface waters. *Environ. Sci. Technol.* 39, 9244-9252.
- Mitch W.A., Oelker G.L., Hawley E.L., Deeb R.A., Sedlak D.L. (2005) Minimization of NDMA formation during chlorine disinfection of municipal wastewater by application of pre-formed chloramines. *Environmental Engineering Science* 22, 882-890.
- Feitz A.J., Joo S.H., Guan J., Sun Q., Sedlak D.L., Waite T.D. (2005) Oxidative transformation of contaminants using colloidal zero-valent iron. *J. Colloids and Surfaces A*, 265(1-3): 88-94.
- Hsu-Kim H. and Sedlak D.L. (2005) Similarities between inorganic sulfide and the strong Hg(II)-complexing ligands in municipal wastewater effluent. *Environ. Sci. Technol* 39,4035-4041.

- Mehrotra A.S. and Sedlak D.L. (2005) Decrease in net mercury methylation rates following iron amendment to anoxic wetland sediment slurries. *Environ. Sci. Technol.* 39, 2564-2570.
- Gray J.L. and Sedlak D.L. (2005) The fate of estrogenic hormones in an engineered treatment wetland with dense macrophytes. *Water Environ. Res.*, 77, 24-31.
- Sedlak D.L., Deeb R.A., Hawley E.L., Mitch W.A., Durbin T.D., Mowbray S., Carr S. (2005) Sources and fate of nitrosodimethylamine and its precursors in municipal wastewater treatment plants. *Water Environ. Res.*, 77, 32-39.
- Joo S.H., Feitz A.J., Sedlak D.L. and Waite T.D. (2005) Quantification of the oxidizing capacity of nanoparticulate zero-valent iron. *Environ. Sci. Technol.*, 39, 1263-1268.
- Kolodziej E.P., Harter T. and Sedlak D.L. (2004) Dairy wastewater, aquaculture and spawning fish as sources of steroid hormones in the aquatic environment. *Environ. Sci. Technol.*, 38, 6377-6384.
- Pehlivanoglu E., and Sedlak D.L. (2004) Bioavailability of wastewater-derived organic nitrogen to the alga *Selenastrum Capricornutum*. *Water Research*, 38(14-15): 3189-3196.
- Sedlak D.L., Huang C.H. and Pinkston K.E. (2004) Strategies for selecting pharmaceuticals to assess attenuation during indirect potable water reuse. In: Pharmaceuticals in the environment. K. Kümmerer, ed. Springer Publishers, Berlin.
- Pinkston K.E. and Sedlak D.L. (2004) Transformation of aromatic ether- and amine-containing pharmaceuticals during chlorine disinfection. *Environ. Sci. Technol.*, 38, 4019-4025.
- Mitch W.A. and Sedlak D.L. (2004) Characterization and fate of NDMA precursors in municipal wastewater treatment plants. *Environ. Sci. Technol.*, 38, 1445-1454.
- Ridge A.C. and Sedlak D.L. (2004) Effect of ferric chloride addition on the removal of Cu and Zn complexes with EDTA during municipal wastewater treatment. *Water Research*, 38, 921-934.
- Kolodziej E.P., Gray J.L. and Sedlak D.L. (2003) Quantification of steroid hormones with pheromonal properties in municipal wastewater effluent. *Environmental Toxicology and Chemistry*. 22, 2622-2629.
- Mitch W.A., Sharp J.O., Trussell R.R., Valentine R.L., Alvarez-Cohen L. and Sedlak D.L. (2003) *N*-Nitrosodimethylamine as a drinking water contaminant: A review. *Environmental Engineering Science* 20, 389-404.
- Snyder S.A., Westerhoff P., Yoon Y. and Sedlak D.L. (2003) Pharmaceuticals, personal care products and endocrine disrupters in water: Implications for water treatment. *Environmental Engineering Science* 20, 449-469.
- Mitch W.A., Gerecke A.C. and Sedlak D.L. (2003) A *N*-Nitrosodimethylamine (NDMA) precursor analysis for chlorination of water and wastewater. *Water Research* 37, 3733-3741.
- Mehrotra A.S., Horne A.J. and Sedlak D.L. (2003) Inhibition of net mercury methylation by iron in *Desulfobulbus propionicus* cultures: implications for engineered wetlands. *Environ. Sci. Technol.* 37, 3018-3023.
- Hsu H. and Sedlak D.L. (2003) Strong Hg(II) complexation in municipal wastewater effluent and surface waters. *Environ. Sci. Technol.* 37, 2743-2749.
- Gerecke A.C. and Sedlak D.L. (2003) Precursors of *N*-Nitrosodimethylamine (NDMA) in natural waters. *Environ. Sci. Technol.* 37, 1331-1336.
- Mitch W.A. and Sedlak D.L. (2002) Factors affecting the formation of NDMA during chlorination. *Environ. Sci. Technol.*, 36, 588-595.

- Bedsworth W.W. and Sedlak D.L. (2001) Determination of metal complexes of ethylenediaminetetraacetate (EDTA) in the presence of organic matter by high performance liquid chromatography. *J. Chromatography A*, 905, 157-162.
- Huang, C.H. and Sedlak, D.L. (2001) Analysis of estrogenic hormones in municipal wastewater effluent and surface water using ELISA and GC/MS/MS. *Environmental Toxicology and Chemistry*. 20, 133-139.
- Sedlak D.L., Gray J.L. and Pinkston K.E. (2000) Understanding microcontaminants in recycled water. *Environ. Sci. Technol.* 34, 508A-515A.
- Weissmahr K.W. and Sedlak D.L. (2000) Influence of metal complexation on the degradation of dithiocarbamate fungicides. *Environ. Toxicol. & Chem.* 19, 820-826.
- Voelker B., Sedlak D.L. and Zafiriou O.C. (2000) Chemistry of superoxide radical in seawater: reactions with organic Cu complexes. *Environ. Sci Technol.* 34,1036-1042.
- Abu-Saba K., Flegal A.R. and Sedlak D.L. (2000) Reduction of hexavalent chromium by copper in the presence of superoxide. *Marine Chemistry*. 69, 33-41.
- Bedsworth W.W. and Sedlak D.L. (1999) Sources and environmental fate of strongly complexed nickel in estuarine waters: the role of ethylenediaminetetraacetate. *Environ. Sci. Technol.* 33(6): 926-931.
- Zafirou O.C., Voelker B. and Sedlak D.L. (1998) Chemistry of superoxide radical in seawater: reactions with inorganic Cu complexes. *J. Phys. Chem. A* 102, 5693-5700.
- Weissmahr K.W., Houghton C.L. and Sedlak D.L. (1998) Analysis of the dithiocarbamate fungicides Ziram, Maneb, Zineb and the flotation agent Ethylxanthogenate by ion-pair reversed phase HPLC. *Anal. Chem.* 70, 4800-4804.
- Sedlak D.L., Phinney J.T. and Bedsworth W.W. (1997) Strongly complexed Cu and Ni in wastewaters and surface runoff. *Environ. Sci. Technol.* 31(10), 3010-3016.
- Sedlak D.L. and Chan P.G. (1997) The reduction of Cr(VI) by Fe(II) in natural waters. *Geochimica et Cosmochimica Acta*, 61, 2185-2192.
- Sedlak D.L., David M.M., Hoigné J., Colville R.N., Seyffer E., Wiepercht W., Lind J. and Fuzzi S. (1997) The cloudwater chemistry of iron and copper at Great Dun Fell, U.K.. *Atmospheric Environment*, 31(16) 2515-2526.
- Choularton T.W., Colville R.N., Bower K.N., Sedlak D.L. and others (1997) The Great Dun Fell cloud experiment 1993: an overview. *Atmospheric Environment*, 31, 2393-2405.
- Voelker, B. and Sedlak, D.L. (1995) Iron reduction by photoproduced superoxide in seawater. *Marine Chemistry* 50, 93-102.
- Matthijssen J., Builtjesi P.J.H. and Sedlak D.L. (1995) Cloud model experiments on the effect of iron and copper on tropospheric ozone under marine and continental conditions. *Meteorology and Atmospheric Physics*, 57, 43-60.
- Sedlak D.L. and Andren A.W. (1994) The effect of sorption on the oxidation of polychlorinated biphenyls (PCBs) by hydroxyl radical. *Water Res.* 28(5),1207-1215.
- Sedlak D.L. and Hoigné J. (1994) The oxidation of S(IV) in atmospheric waters by photo-oxidants and iron in the presence of copper. *Environ. Sci. Technol.* 28(11), 1898-1906.
- Sedlak D.L. and Hoigné J. (1993) The role of copper and oxalate in the redox cycling of iron in atmospheric waters. *Atmospheric Environment* 27A(14), 2173-2185.
- Sedlak D.L., Dean K.E., Armstrong D.E. and Andren A.W. (1991) Interaction of quicklime with polychlorobiphenyl-contaminated solids. *Environ. Sci. Technol.* 25, 1936-1940.
- Sedlak D.L. and Andren A.W. (1991) Aqueous-phase oxidation of polychlorinated biphenyls with hydroxyl radicals. *Environ. Sci. Technol.* 25(8), 1419-1427.

Sedlak D.L. and Andren A.W. (1991) Oxidation of chlorobenzene with Fenton's reagent. *Environ. Sci. Technol.* 25(4), 777-782.

#### NON-REVIEWED PUBLICATIONS

- Sedlak D.L., Pinkston K.E., Gray J.L. and Kolodziej E.P. (2003) Approaches for quantifying the attenuation of wastewater-derived contaminants in the aquatic environment. *Chimia*, 57(9), 567-569.
- Mitch W.A. and Sedlak D.L. (2002) *N*-Nitrosodimethylamine (NDMA): an emerging chlorine disinfection byproduct. *Water Science & Technology: Water Supply*, 2, 191-198.
- Sedlak D.L. and Pinkston K.E. (2001) Factors affecting the concentrations of pharmaceuticals released to the aquatic environment. *Wat. Res. Update*, 120, 56-64.
- Huang C.H., Renew J.E., Smeby K.L., Pinkston K. and Sedlak D.L. (2001) Assessment of potential antibiotic contaminants in water and preliminary occurrence analysis. *Wat. Res. Update*, 120, 30-40.
- Sedlak D.L., Bedsworth W.W., Jenkins D., Kang S.J. and Murin J. (2000) Assessing methods of removing metals from wastewater: a review of data and methodologies. Final report to the Water Environment Research Foundation: Project 97-CTS-4.
- Sedlak D.L. (1999) Pharmaceutically-active compounds in the aquatic environment and their relationship to water reuse. Proceedings of the 9th biennial symposium on artificial recharge of groundwater. Tempe, Arizona, June 10-12, 1999.
- Sedlak D.L., Bedsworth W.W. and Jenkins D. (1998) The role of speciation in the removal of nickel by the San Jose/Santa Clara Water Pollution Control Plant and its fate in San Francisco Bay. Environmental Engineering Health Sciences Laboratory, report 98-01.
- Sedlak D.L. and Bentley A. (1997) The role of photochemistry in the transport and transformation of arsenic. University of California Water Resources Center Technical Completion Report: UCAL-WRC-W-853.
- Sedlak D.L. (1997) Analytical Techniques for determining metal speciation in polluted waters. 5th International Conference on the Transport, Fate and Effects of Silver in the Environment. Hamilton, Canada, September 4-6, 1997.
- Voelker B.M., Zafiriou O.C. and Sedlak D.L. (1995) Metal redox cycling by photoproduced superoxide radical. 210th National Meeting of the American Chemical Society, Chicago, IL, August 21-26, 1995.
- Sedlak D.L. (1995) The use of ionizing radiation to study reactions of hydroperoxyl and superoxide radicals in sunlit waters. 210th National Meeting of the American Chemical Society, Chicago, IL, August 21-26, 1995.
- Sedlak D.L. and Hoigné J. (1995) Mechanisms of iron redox reactions in sunlit cloudwater. 210th National Meeting of the American Chemical Society, Chicago, IL, August 21-26, 1995.
- Sedlak D.L. and Andren A.W. (1994) Photo-enhanced sorption of silver to bentonite. 2nd International Conference on the Transport, Fate and Effects of Silver in the Environment. Madison, WI, September 11-14, 1994.
- Sedlak D.L. and Hoigné J. (1993) The use of  $\gamma$ -radiation to simulate the free radical chemistry of sunlit waters. 6th European Symposium on the Physico-Chemical Behavior of Atmospheric Pollutants. Varese, Italy, October 1993.
- Hoigné J., Zuo Y., Sedlak D.L., von Piechowski M., Bühler R. (1992) The role of iron and copper species for reactions of photooxidants and photochemical reactions in atmospheric waters. Joint CEC/EUROTRAC Workshop, Leuven Belgium, September 1992.

Sedlak D.L. and Andren A.W. (1992) Hydroxyl radical transformations of polychlorinated biphenyls in the presence of particles. 203rd National Meeting of the American Chemical Society, San Francisco, CA April 1992.

Sedlak D.L. and Andren A.W. (1990) Oxidation kinetics of chlorobenzene with Fenton's reagent: reaction pathway, intermediates and kinetics. 199th National Meeting of the American Chemical Society, Boston, MA, April 1990.

### **CONFERENCE TALKS AND INVITED PRESENTATIONS (PARTIAL LIST)**

- “Quantifying Sources and Attenuation of Wastewater-Derived Contaminants” UC Davis Department of Civil and Environmental Engineering. May 22, 2006.
- “Chemical Contaminants in Water Produced by Desalination” AWWA Regional Meeting, San Francisco, CA. April 27, 2006.
- “Quantifying Sources and Attenuation of Wastewater-Derived Contaminants” Environmental Toxicology Program, UC Santa Cruz. April 25, 2006.
- “Oxygen activation by iron and its role in the abiotic transformation of organic compounds” 231st ACS National Meeting, Atlanta, GA. March 28, 2006.
- “Characterization and Fate of rDON” WERF workshop on Organic Nitrogen. Washington, DC. March 10, 2006.
- “Wastewater-Derived Contaminants: Problems and Potential Solutions” National University of Singapore. January 19, 2006.
- “Challenges and Opportunities Associated with Wastewater-derived contaminants” California Water Environment Association, Los Angeles, CA. January 12, 2006.
- “Strategies for Assessing the Fate of Wastewater-Derived Chemical Contaminants” Pacificchem 2005 Congress, Honolulu, HI. December 15, 2005.
- “Challenges and Opportunities Associated with Wastewater-derived contaminants” Department of Chemistry, University of Buffalo, NY. November 11, 2005.
- “Oxidation of Organic Contaminants on Nanoparticulate Zero-Valent Iron” USEPA Workshop on Nanotechnology for Site Remediation, Washington, DC. October 20, 2005.
- “The Significance of PhPCPs in US Drinking Water” American Water Works Association National Meeting, San Francisco, CA, June 15, 2005.
- “NDMA Fate and Transport” WateReuse Association Research Conference, Orlando, FL, May 24, 2005.
- “Tools for Tracking the Fate of Wastewater-Derived Contaminants in Effluent-Dominated Waters” Plenary address, Southern California Society for Environmental Toxicology and Chemistry, Los Angeles, CA, May 21, 2005.
- “Technologies for Enhancing Water Supplies” Berkeley in Silicon Valley Symposium, Santa Clara, CA, May 7, 2005.
- “Protecting human health and aquatic ecosystems from potential impacts of wastewater-derived Contaminants” Departmental seminar, University of Illinois, CAMPWS Program, Urbana, IL November 12, 2004 and Stanford University, Stanford, CA October 15, 2004.
- “Androgen, estrogen and progestin hormones in the aquatic environment” Plenary lecture, SECOTOX 2004, Sogkla, Thailand, September 31, 2004.
- “The use of propranolol enantiomers to discriminate between combined sewer overflows and wastewater effluent discharges” ACS National Meeting, Philadelphia, PA August 25, 2004.

- “Understanding Microcontaminants in Recycled Water”, Keynote presentation, OZ-AQUAREC Workshop IV, Detection, Fate and Removal of Trace Contaminants, Wollongong, Australia, February 13, 2004.
- “The Fate of Wastewater-Derived Contaminants in Engineered and Natural Systems”, Departmental Seminar, CSIRO, Adelaide, Australia, January 29, 2004.
- “Quantification of NDMA Precursors in the Aquatic Environment”, American Water Works Association 2003 National Meeting, Anaheim, CA, June 18, 2003.
- “Wastewater-Derived Chemical Contaminants to Water Providers”, American Water Works Association 2003 National Meeting, Anaheim, CA, June 18, 2003.
- “Occurrence and Treatment of Endocrine Disrupters and Pharmaceuticals in Municipal Wastewater Effluent”, San Gabriel Watermaster, Azusa, CA, May 29, 2003.
- “The Fate of Wastewater-Derived Contaminants in Engineered Treatment Wetlands”, Departmental Seminar, Department of Oceanography, Stony Brook University, Stony Brook, NY, May 2, 2003.
- “Wastewater-Derived Chemical Contaminants to Water Providers”, American Water Works Association California and Nevada Regional Meeting, Reno, NV, October 16, 2002.
- “Wastewater-Derived Chemical Contaminants.” Association of California Water Agencies Conference on Xenobiotics. Sacramento, CA, September 2002.
- "N-Nitrosodimethylamine: The Unexpected Disinfection Byproduct." Gordon Research Conference, Environmental Sciences: Water. Plymouth, NH, June 2002.
- "Emerging Contaminants: New Research Opportunities for Bioremediation Specialists." NIEHS Conference on Bioremediation, Monterey, CA. June 2002.
- "Factors Controlling the formation of N-Nitrosodimethylamine (NDMA) during Chlorination." Water Reuse Foundations, 2001 Annual Research Conference. Monterey, CA.
- "Factors Affecting the Fate of Pharmaceuticals in the Aquatic Environment." National Ground Water Association International Conference on Pharmaceuticals and Endocrine Disrupters. Minneapolis, MN, November 2001.
- "Emerging Issues in Environmental Chemistry." Department of Environmental Toxicology and Chemistry, Oregon State University, Corvallis, OR. November 2001.
- "Effluent-Derived Chemical Contaminants in Recycled Water." Department of Civil and Environmental Engineering, MIT, Boston, MA. November 2001.
- "Endocrine Disrupters in Municipal Wastewater." Department of Environmental Engineering, National Autonomous University of Mexico (UNAM), Mexico City, Mexico. July 2001.
- "Challenges Associated with Quantification of Trace Concentrations of Pharmaceutically-Active Compounds (PhACs) in a Complex Matrix." American Water Works Association Research Foundation Emerging Contaminants Conference, Chicago, IL. April 2001.
- "The Fate and Transport of Hormones in the Aquatic Environment." Environmental Engineering Science seminar series, California Institute of Technology, Pasadena, CA. March 2001.
- "Analytical Challenges Associated with Identification of Endocrine Disrupters in Water." American Water Works Association Special Symposium, Denver, CO. March 2001.
- "Immunochemical Methods for Quantifying Hormones in Polluted Waters." Swiss Chemical Society Meeting, Basel, Switzerland. November 2000.
- "The Environmental Chemistry of Water Reuse." Harvard University College of Engineering and Applied Sciences, May 1999.
- "Pharmaceutically Active Compounds (PhACs) in the Aquatic Environment and their Relationship to Water Reuse." Plenary lecture, 9th Biennial Symposium on Artificial Recharge of Groundwater, Phoenix, AZ, June 1999.

- "The Role of Speciation in the Removal of Cationic Metals by Wastewater Treatment Systems: A Short Course on Metal Removal in Wastewater Treatment Plants." Water Environment Research Foundation, Orlando, FL, October 98.
- "Metals as Catalysts of Sunlight-Induced Reactions in Natural Waters." Geological Society of America, 1998 Annual Meeting, Toronto, Canada, October 1998.
- "Analytical Techniques for Determining Metal Speciation in Polluted Waters." Plenary lecture, Fifth International Argentenum Conference, Hamilton, Ontario, Canada, September 1997.
- "Thermodynamic Data and the Prediction of Metal Speciation in Polluted Waters." National Institute of Standards and Technology (NIST), Gaithersburg, MD, August 1998.
- "The Treatment and Environmental Fate of Strongly Complexed Metals." Department of Civil and Environmental Engineering, UC Davis, November 1997 and Department of Civil Engineering, University of Nevada, Reno, February 1998.
- "Superoxide radical ( $O_2^-$ ) and the Photoredox Chemistry of Copper and Chromium." 18th Annual Meeting of the Society of Environmental Toxicology and Chemistry, San Francisco, CA, November 1997.
- "Analytical Techniques for Determining Metal Speciation in Polluted Waters." Plenary lecture, Fifth International Argentenum Conference, Hamilton, Ontario, Canada, September 1997.
- "The Treatment and Environmental Fate of Strongly Complexed Metals". Department of Civil and Environmental Engineering, UC Davis, November 1997.
- "Strongly Complexed Nickel and Copper Discharged by Anthropogenic Sources." Department of Civil Engineering, Stanford University, Stanford, CA. May 16, 1997.