Stanford

Perry McCarty

Silas H. Palmer Professor of Civil Engineering, Emeritus

Civil and Environmental Engineering

Curriculum Vitae available Online

CONTACT INFORMATION

- **Alternate Contact**

  Diana Lin - Faculty Affairs & Staffing Manager

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Bio

BIO

Perry L. McCarty, Silas H. Palmer Professor Emeritus, joined the Stanford University faculty in 1962 when he came to help develop the environmental engineering and science program. From 1980 to 1985 he was Chairman of Stanford's Department of Civil and Environmental Engineering, and from 1989 to 2002 served as Director of the Western Region Hazardous Substance Research Center. He has a B.S. Degree in civil engineering from Wayne State University (1953), and M.S. (1957) and Sc.D. (1959) degrees in sanitary engineering from M.I.T.

The focus of his research and teaching has been on water with primary interest in biological processes for the control of environmental contaminants. His early research was on anaerobic treatment processes, biological processes for nitrogen removal, and water reuse. Current interests are on aerobic and anaerobic biological processes for treatment of domestic wastewaters, and movement, fate, and control of groundwater contaminants.

He was elected to membership in the National Academy of Engineering in 1977 and the American Academy of Arts and Sciences in 1996. He received the John and Alice Tyler Prize for Environmental Achievement in 1992, the Athalie Richardson Irvine Clarke Prize for Outstanding Achievements in Water Science and Technology in 1997, and the Stockholm Water Prize in 2007.

Prof. McCarty has over 350 publications, and is coauthor of the textbooks, Chemistry for Environmental Engineering and Science, and Environmental Biotechnology - Principles and Applications.

ACADEMIC APPOINTMENTS

- Emeritus Faculty, Acad Council, Civil and Environmental Engineering
- Affiliate, Stanford Woods Institute for the Environment

ADMINISTRATIVE APPOINTMENTS

- World Class University Professor, Department of Environmental Engineering, Incheon, Korea, (2008-2013)
- Chair Professor, Department of Environmental Science and Engineering, Tsinghua University, Bejing, China, (2004-2007)
- Lecturer, Stanford Canada and Great Lakes College, (2003-2003)

- Silas H. Palmer Professor of Civil Engineering Emeritus, Stanford University, (1999- present)
- Director, Western Region Hazardous Substance Research Center, Stanford University, (1989-2003)
- Chairman, Department of Civil Engineering, Stanford University, (1980-1985)
- Silas H. Palmer Professor of Civil Engineering, Stanford University, (1975-1999)
- Visiting Professor, University of Cape Town, South Africa, (1971-1971)
- Visiting Lecturer, Summer Institute in Advanced Sanitary Chemistry, Harvard University, (1969-1969)
- Faculty Member, Curso de Postgrado en Ingenieria Hidrologica, Ministerio de Obros Publicos, Venezuela, (1968-1972)
- Honorary Research Associate, Harvard University, (1968-1969)
- Professor of Civil Engineering, Stanford University, (1967-1975)
- Associate Professor of Civil Engineering, Stanford University, (1962-1967)
- Assistant Professor of Sanitary Engineering, Massachusetts Institute of Technology, (1959-1962)
- Instructor of Sanitary Engineering, Massachusetts Institute of Technology, (1958-1959)
- Instructor, Department of Civil Engineering, Wayne State University, (1953-1954)

HONORS AND AWARDS

- Stanford Engineering Hero, School of Engineering, Stanford University (2016)
- Gordon Maskew Fair Award, American Academy of Environmental Engineers and Scientists (2014)
- Joan Hodges Queneau Palladium Medal, National Audubon Society (2013)
- Distinguished Member, American Society of Civil Engineers (2012)
- Fellow, Water Environment Federation (2012)
- Honorary Fellow, the Chinese Institute of Environmental Engineering, Taiwan (2011)
- Honorary Professor, Harbin Institute of Technology, China (2011)
- Honorary Professor, National Chiao Tung University, Taiwan (2011)
- Honorary Degree of Doctor of Engineering, Nanyang Technological University, Singapore (2010)
- Honorary Member, American Academy of Environmental Engineers (2009)
- Water Industry Hall of Fame, American Water Works Association (2009)
- Lifetime Achievement Award, Brown and Caldwell (2008)
- Lifetime Achievement Award, Groundwater Resources Association of California (2008)
- Stockholm Water Prize, SIWA (2007)
- Abel Wolman Distinguished Lecturer, National Academies (2001)
- The Athalie Richardson Irvine Clarke Prize, National Water Research Institute (1997)
- Fellow, American Academy of Arts and Sciences (1996)
- J. James R. Croes Medal, American Society of Civil Engineers (1995)
- Fellow, California Council on Science and Technology (1994)
- Fellow, American Academy of Microbiology (1993)
- Founder's Award, Association of Environmental Engineering Professors (1992)
- Honorary Degree of Doctor of Engineering, Colorado School of Mines (1992)
- The John and Alice Tyler Prize, USC (1992)
- CH2M HILL Research Award, Association of Environmental Engineering Professors (1990, 1997)
- A. P. Black Research Award, American Water Works Association (1989)

- Honorary Member, Water Environment Federation (1989)
- Outstanding Publication Award, Association of Environmental Engineering Professors (1985, 1988, 1998, 2003)
- Distinguished Professor Lectureship, Association of Environmental Engineering Professors (1984)
- Thomas R. Camp Lecturer Award, Boston Society of Civil Engineers (1983)
- Honorary Member, American Water Works Association (1981)
- Fellow, American Association for the Advancement of Science (1980)
- Engineering-Science Research Award, Association of Environmental Engineering Professors (1979, 1983, 1992)
- Simon W. Freese Environmental Engineering Lecture Award, American Society of Civil Engineers (1979)
- Member, National Academy of Engineering (1977)
- Thomas Camp Award, Water Environment Federation, for Unique Application of Engineering Research (1975)
- Walter L. Huber Research Award, American Society of Civil Engineers, (1964)
- Harrison P. Eddy Award, Water Environment Federation for Noteworthy Research (1962, 1977)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Chair, External Review Committee, Nanyang Environment & Water Research Institute, Nanyang Technological University, Singapore (2016 - 2016)
- Member, Expert Panel on Development of Water Recycling Criteria for Potable Reuse, National Water Research Institute (2014 - 2016)
- Chair, External Review Committee, Academic Program Review, Environment Science and Engineering, Tsinghua University, China (2010 - 2010)
- Member, Environmental Science and Engineering Visiting Committee, Colorado School of Mines (2009 - 2009)
- Member, Peer Review Team, Capital Regional Districts Core Area Wastewater Management Program, Victoria, British Columbia (2009 - 2009)
- Lee Kuan Yew Water Prize Nominating Committee, Singapore Public Utility Board (2008 - 2021)
- Member, Project Evaluation Panel, Ministry of the Environment and Water Resources, Singapore (2006 - 2021)
- Associate-Editor-in-Chief, Frontiers of Environmental Science & Engineering, Tsinghua University, China (2006 - 2017)
- Member, External Advisory Committee, Water: Systems, Science, Society Program, Tufts University (2006 - 2013)
- Member, Committee on Sediments Dredging at Superfund Megasites, National Research Council (2006 - 2007)
- Member, Environmental Science & Engineering Visiting Committee, National University of Singapore (2006 - 2007)
- Member, Research Advisory Board, National Water Research Institute (2005 - 2010)
- Member, The Athalie Richardson Irvine Clarke Prize Executive Committe, National Water Research Institute (2005 - 2007)
- Member, Vietnam Education Foundation Review Panel, The National Academies (2005 - 2005)
- Member, Oversight Committee for Strengthening Science-Based Decision, The National Academies (2002 - 2007)
- Member, Committee on Water Quality Improvement for The Pittsburgh Region, National Research Council (2002 - 2004)
- Member, Civil Engineering Peer Committee, National Academy of Engineering (2001 - 2004)
- Member, Expert Panel on Water Reuse, West Basin Municipal Utility District, Los Angeles (2001 - 2002)
- Member, Tritium Migration Independent Scientific Peer Review Panel, U.S. Department of Energy (2001 - 2002)
- Member, Expert Panel for Review of Groundwater Treatment Technology, Aerojet General Corporation (2000 - 2001)
- Member, Chemical & Environmental Engineering Department Industrial Advisory Committee, University of Arizona (1999 - 2002)
- External Examiner, Department of Chemical and Environmental, National University of Singapore (1999 - 2001)
- Member, Committee on Assessment of Risks from Remediation of PCB-Contaminated Sediments, National Research Council (1999 - 2001)
- Chairman, Blue Ribbon Panel on San Diego Water Repurification Project, City of San Diego (1998 - 1998)
- Member, Panel on Groundwater Contamination, Scientific Committee on Problems of the Environment (1998 - 1995)
- Member, Science Advisory Board, U.S. DOD Strategic Environmental Research and Development Program (1997 - 2010)

- Member, Committee on Intrinsic Bioremediation, National Research Council (1997 - 2000)
- Member, Blasker Award Selection Committee, Blasker Award for Environmental Science and Engineering (1996 - 2001)
- Chairman, Virtual Commission on Environmental Management Science, National Research Council (1996 - 1998)
- Member, Selection Committee, Mitchell International Prize for Sustainable Development, National Academy of Sciences (1996 - 1997)
- Member, Visiting Committee, Dept. of Civil Engineering, Northwestern University (1996 - 1996)
- Member, Visiting Committee, Dept. of Civil Engineering, Cornell University (1996 - 1996)
- Member, National Forum on Science and Technology Goals - No. 1: Environment, National Research Council (1995 - 1995)
- Member, Commission on Geosciences, Environment, Resources, National Research Council (1994 - 1997)
- Associate Editor, Journal of Contaminant Hydrology (1993 - 2006)
- Environmental Technology Advisory Board, ALCOA (1993 - 2005)
- Member, Editorial Board, Biodegradation (1993 - 2000)
- Member, Advisory Board, Marine Bioremediation Program, University of Washington (1993 - 1996)
- Member, Visiting Committee, Dept. of Environmental Engineering and Science, University of North Carolina, Chapel Hill (1992 - 1992)
- Member, Visiting Committee, Environmental Engineering Program, University of Texas, San Antonio (1992 - 1992)
- Chairman, Committee on Remedial Action Priorities for Hazardous Waste, National Research Council (1991 - 1994)
- Chairman, Panel for review of proposals for Centers of Excellence, U. S. Environmental Protection Agency (1991 - 1991)
- Member, Evaluation Committee on Civil Engineering, Member, Evaluation Committee on Civil Engineering (1990 - 1990)
- Member, Board on Radioactive Waste Management, National Research Council (1989 - 1996)
- Member, Research Council, Water Environment Federation Research Foundation (1989 - 1995)
- Member, Civil Engineering Visiting Committee, Massachusetts Institute of Technology (1989 - 1993)
- Member, Advisory Committee for Center for Environmental Health Sciences, Massachusetts Institute of Technology (1989 - 1992)
- Chairman, Program Planning Committee, International Symposium on Processes Governing the Movement and Fate of Contaminants in Groundwater (1989 - 1989)
- Chairman, Panel for review of Hazardous Substance Research Center Proposals, U. S. Environmental Protection Agency (1988 - 1988)
- Member, Panel for review of Superfund Phase II proposals, National Institute of Environmental Health Sciences (1988 - 1988)
- Member, Visiting Committee, Department of Civil Engineering, University of Southern California (1987 - 1987)
- Member, Visiting Committee, Division of Engineering and Applied Science, California Institute of Technology (1986 - 1992)
- Member, Scientific Advisory Panel on Groundwater Recharge, State of California (1986 - 1987)
- Member, Technical Advisory Committee, Clean Sites, Inc (1985 - 1994)
- Member, Commission on Mathematics, Physics, Resources, National Research Council (1985 - 1988)
- Member, Visiting Committee, Dept. of Civil Engineering, Princeton University (1985 - 1988)
- Chairman, Visiting Committee, Dept. of Civil Engineering, University of Minnesota (1985 - 1985)
- Member, Drinking Water Standards Committee, American Water Works Association (1984 - 1996)
- Member, Engineering Education Board, National Academy of Engineering (1984 - 1987)
- Chairman, Panel on Energy, Environment, and Resources, National Research Council (1984 - 1986)
- Member, Committee on Groundwater Protection, National Research Council (1984 - 1986)
- Member, Engineering Research Board, National Research Council (1984 - 1986)
- Member, Task Force on Ground Water Pollution, Office of Technology, U.S. Congress (1983 - 1985)
- Chairman, Scientific Panel to Evaluate Sacramento-San Joaquin Delta Water Quality, California Department of Water Resources (1982 - 1983)
- Guest Lecturer, Chinese Academy of Sciences, Biogas Production, Guangzhou and Chengdu, China (1982 - 1982)

- Member, Advisory Subcommittee for Civil and Environmental Engineering, National Science Foundation (1981 - 1985)
- Trustee, American Water Works Research Foundation (1981 - 1985)
- Trustee, Research Division, American Water Works Association (1981 - 1985)
- Director, International Conference on Ground Water Quality (1981 - 1981)
- Chairman, Scientific Advisory Board, Southern California Coastal Water Research Project (1980 - 1986)
- Member, Scientific Advisory Board, National Center for Ground Water Research (1980 - 1986)
- Member, Visiting Committee, Division of Applied Science, Harvard University (1980 - 1985)
- Member, Wastewater Reclamation Health Effects Advisory Panel, California Department of Health Services (1980 - 1985)
- Chairman, Committee to Review Potomac Estuary Experimental Water Treatment Plant, National Research Council (1979 - 1984)
- Member, Committee to Review the Metropolitan Washington Area Water Supply Study, National Research Council (1979 - 1984)
- Member, Expert Committee on Engineering and Technology, International Joint Commission on the Great Lakes (1979 - 1982)
- Member, Panel on Wastewater Reuse Criteria, National Research Council (1979 - 1982)
- Member, Aquaculture Technical Advisory Committee, California Water Resources Control Board (1979 - 1981)
- Member, Innovative and Alternative Technology Committee, California Water Resources Control Board (1979 - 1981)
- Member, Scientific Advisory Board, Member, Scientific Advisory Board (1979 - 1980)
- Member, Technical Delegation to the People's Republic of China, Stanford University (1978 - 1978)
- Member, Commission on Natural Resources, National Research Council (1977 - 1980)
- Vice Chairman, Environmental Studies Board, National Research Council (1977 - 1980)
- Chairman, Camp Medal Award Committee, Water Pollution Control Federation (1977 - 1979)
- Chairman, Research Committee, Technical and Professional Council, American Water Works Association (1976 - 1981)
- Member, Environmental Studies Board, National Research Council (1976 - 1981)
- Member, Technical and Professional Council, American Water Works Association (1976 - 1981)
- Member, Potomac Estuary Committee, National Research Council (1976 - 1979)
- Chairman, Panel on Treatment Processes, National Research Council (1976 - 1977)
- Member, Engineering Board of Consultants, John Wiley & Sons (1974 - 1980)
- Member, T & P Research Committee, American Water Works Association (1973 - 1976)
- Member, Water Quality Policy Committee, National Research Council (1973 - 1976)
- Chairman, Water Quality Division, American Water Works Association (1972 - 1973)
- Participant, Study on the Effect of Rapid Urbanization on the Environment in Seoul, Korea, Smithsonian Institution (1972 - 1972)
- Member, Sanitary Engineering Advisory Committee, California Department of Public Health (1971 - 1975)
- Member, Committee on Control of Nitrates, American Water Works Association (1971 - 1974)
- Member, Advisory Board, Environmental Science & Technology (1971 - 1973)
- Member, George Westinghouse Environmental Student Award Committee, American Society of Engineering Education (1971 - 1973)
- Member, Symbiotic Study on Agricultural Wastewaters, U.S. Bureau of Reclamation and California Department of Water Resource (1971 - 1973)
- Vice Chairman then Chairman, Environmental Sciences – Water Conference, Gordon Research Conference (1971 - 1972)
- Member, Workshop on "Water in Man's Life in India", U.S. National Academy of Science – Indian National Science Academy (1971 - 1971)
- Member, Training Grants Division, U. S. Environmental Protection Agency (1970 - 1975)
- Member, Committee on Quality Control in Reservoirs, American Water Works Association (1970 - 1972)
- Member, Committee on Wastewater Reclamation, American Water Works Association (1970 - 1972)

- Member, Board of Directors, Biostimulation and Biotoxicity Study, California Water Resources Control Board (1970 - 1971)
- Vice Chairman, Environmental Engineering Division, American Society of Engineering Education (1968 - 1969)
- Trustee, Water Quality Division, American Water Works Association (1967 - 1974)
- Chairman, National Symposium on Estuarine Pollution, American Society of Civil Engineers (1967 - 1967)
- Chairman, San Francisco Sanitary Engineering Section, American Society of Civil Engineers (1967 - 1967)
- Member, Interagency Agricultural Wastewater Treatment Study, Fed. Water Pollution Control Admin., U.S. Bureau of Reclam., Calif. Depart. of Water Resources (1966 - 1971)
- Chairman, Committee on Gases in Water, Standard Methods (1965 - 1970)
- Chairman, Task Group on Nutrients in Water, American Water Works Association (1965 - 1969)
- Assistant Editor, Sanitary Engineering Division Newsletter, American Society of Civil Engineers (1965 - 1968)
- Member, Sanitary Engineering Committee, American Society of Engineering Education (1965 - 1968)
- Member, Program Planning Committee, Water Pollution Control Federation (1964 - 1970)
- Member, Research Grants Study Section on Environmental Science and Engineering, U.S. Public Health Service (1964 - 1966)

PROFESSIONAL EDUCATION

- Sc.D., Massachusetts Institute of Technology , Sanitary Engineering (1959)
- S.M., Massachusetts Institute of Technology , Sanitary Engineering (1957)
- B.S., Wayne State University , Civil Engineering (1953)

PATENTS

- Spormann, A. M., Muller, J. A., Rosner, B. M., von Abendroth, G., Meshulam-Simon, G., and McCarty, P. L.. "United States Patent 8,647,824 Microbial Reductive Dehalogenation of Vinyl Chloride", Leland Stanford Junior University, Nov 11, 2014
- Bae, J. H., Kim, J. H., McCarty, P. L. "United States Patent 8,404,111 Fluidized Membrane Bioreactor", Inha University, Mar 26, 2013
- Spormann, A. M., Muller, J. A., Rosner, B. M., von Abendroth, G., Meshulam-Simon, G., McCarty, P. L.. "United States Patent 8,063,192 Microbial Reductive Dehalogenation of Vinyl Chloride", Leland Stanford Junior University, Nov 22, 2011
- McCarty, P. L., Bachmann, A.. "Japan Patent 1971981 Bioconversion Reactor", Leland Stanford Junior University, Sep 27, 1995
- Semprini, L., McCarty, P. L., Kitanidis, P. K., Bae, J.H.,. "United States Patent 5,302,286 Method and Apparatus for In Situ Groundwater Remediation", Leland Stanford Junior University, Apr 12, 1994
- McCarty, P. L., Alvarez-Cohen, L.. "United States Patent 5,139,682 Zeolite Enhanced Organic Biotransformation", Leland Stanford Junior University, Aug 18, 1992
- McCarty, P. L. and Bachmann, A.. "United States Patent 5,091,315 Bioconversion Reactor", Leland Stanford Junior University, Feb 25, 1992
- McCarty, P. L., Bachmann, A.. "Canada Patent 1,294,070 Bioconversion Reactor", Leland Stanford Junior University, Jan 7, 1992
- Roberts, P. V., Hopkins, G. D., Semprini, L., and McCarty, P. L.. "United States Patent 5,006,250 Pulsing for Electron Donor and Electron Acceptor for Enhanced Biotransformation of Chemicals", Leland Stanford Junior University, Apr 9, 1991
- Williamson, K. J. and McCarty, P. L.. "United States Patent 4,743,382 Method and Apparatus for Separating Suspended Solids from Liquids", Oregon State University, May 10, 1988

Publications

PUBLICATIONS

- **Temperate climate energy-positive anaerobic secondary treatment of domestic wastewater at pilot-scale.** *Water research*
  Shin, C., Tilmans, S. H., Chen, F., McCarty, P. L., Criddle, C. S.
  2021; 204: 117598
- **What is the Best Biological Process for Nitrogen Removal: When and Why?** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
  McCarty, P. L.
  2018; 52 (7): 3835–41

- **Pilot-scale temperate-climate treatment of domestic wastewater with a staged anaerobic fluidized membrane bioreactor (SAF-MBR)** *BIORESOURCE TECHNOLOGY*
  Shin, C., McCarty, P. L., Kim, J., Bae, J.
  2014; 159: 95-103
- **Effect of temperature on the treatment of domestic wastewater with a staged anaerobic fluidized membrane bioreactor.** *Water science and technology*
  Yoo, R. H., Kim, J. H., McCarty, P. L., Bae, J. H.
  2014; 69 (6): 1145-1150
- **Domestic Wastewater Treatment as a Net Energy Producer-Can This be Achieved?** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
  McCarty, P. L., Bae, J., Kim, J.
  2011; 45 (17): 7100-7106
- **Anaerobic Fluidized Bed Membrane Bioreactor for Wastewater Treatment** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
  Kim, J., Kim, K., Ye, H., Lee, E., Shin, C., McCarty, P. L., Bae, J.
  2011; 45 (2): 576-581
- **A comparative pilot-scale evaluation of gas-sparged and granular activated carbon-fluidized anaerobic membrane bioreactors for domestic wastewater treatment.** *Bioresource technology*
  Evans, P. J., Parameswaran, P. n., Lim, K. n., Bae, J. n., Shin, C. n., Ho, J. n., McCarty, P. L.
  2019: 120949
- **Efficient anaerobic membrane bioreactor treatment of municipal wastewater for energy and biosolids reduction**
  McCarty, P., Kim, J., Shin, C., Bae, J.
  AMER CHEMICAL SOC.2017
- **Low energy single-staged anaerobic fluidized bed ceramic membrane bioreactor (AFCMBR) for wastewater treatment.** *Bioresource technology*
  Aslam, M., McCarty, P. L., Shin, C., Bae, J., Kim, J.
  2017
- **Effects of FeCl3 addition on the operation of a staged anaerobic fluidized membrane bioreactor (SAF-MBR)** *WATER SCIENCE AND TECHNOLOGY*
  Lee, E., McCarty, P. L., Kim, J., Bae, J.
  2016; 74 (1): 130-137
- **Integrity of hollow-fiber membranes in a pilot-scale anaerobic fluidized membrane bioreactor (AFMBR) after two-years of operation** *SEPARATION AND PURIFICATION TECHNOLOGY*
  Shin, C., Kim, K., McCarty, P. L., Kim, J., Bae, J.
  2016; 162: 101-105
- **Discovery of Organohalide-Respiring Processes and the Bacteria Involved** *Organohalide-Respiring Bacteria*
  McCarty, P. L.
  Springer.2016: 51–62
- **Importance of Dissolved Methane Management When Anaerobically Treating Low-Strength Wastewaters** *CURRENT ORGANIC CHEMISTRY*
  Shin, C., McCarty, P. L., Bae, J.
  2016; 20 (26): 2810-2816
- **Development and application of a procedure for evaluating the long-term integrity of membranes for the anaerobic fluidized membrane bioreactor (AFMBR).** *Water science and technology*
  Shin, C., Kim, K., McCarty, P. L., Kim, J., Bae, J.
  2016; 74 (2): 457-465
- **Interactions between GAC sizes, particle sizes and biofouling in anaerobic fluidized membrane bioreactor**
  Kim, J., Aslam, M., Kwon, D., Ahmad, R., Bae, J., McCarty, P.
  AMER CHEMICAL SOC.2015
- **Anaerobic fluidized membrane bioreactor polishing of baffled reactor effluent during treatment of dilute wastewater** *JOURNAL OF CHEMICAL TECHNOLOGY AND BIOTECHNOLOGY*
  Lee, R., McCarty, P. L., Bae, J., Kim, J.
  2015; 90 (3): 391-397

- **Anaerobic Fluidized Bed Membrane Bioreactors for the Treatment of Domestic Wastewater** *Anaerobic biotechnology: Environmental Protection and Resource Recovery*
  McCarty, P. L., Kim, J., Shin, C., Lee, P. H., Bae, J.
  edited by Fang, H. H., Zhang, T.
  World Scientific.2015: 211–242
- **Superior Removal of Disinfection Byproduct Precursors and Pharmaceuticals from Wastewater in a Staged Anaerobic Fluidized Membrane Bioreactor Compared to Activated Sludge** *ENVIRONMENTAL SCIENCE & TECHNOLOGY LETTERS*
  McCurry, D. L., Bear, S. E., Bae, J., Sedlak, D. L., McCarty, P. L., Mitch, W. A.
  2014; 1 (11): 459-464
- **The effect of fluidized media characteristics on membrane fouling and energy consumption in anaerobic fluidized membrane bioreactors** *SEPARATION AND PURIFICATION TECHNOLOGY*
  Aslam, M., McCarty, P. L., Bae, J., Kim, J.
  2014; 132: 10-15
- **Anaerobic treatment of low-strength wastewater: A comparison between single and staged anaerobic fluidized bed membrane bioreactors** *BIORESOURCE TECHNOLOGY*
  Bae, J., Shin, C., Lee, E., Kim, J., McCarty, P. L.
  2014; 165: 75-80
- **Anaerobic treatment of low-strength wastewater: A comparison between single and staged anaerobic fluidized bed membrane bioreactors.** *Bioresource technology*
  Bae, J., Shin, C., Lee, E., Kim, J., McCarty, P. L.
  2014; 165: 75-80
- **Discovery of Organohalide-Respiring Processes and the Bacteria Involved** *Discovery of Organohalide-Respiring Processes and the Bacteria Involved*
  McCarty, P. L.
  edited by Adrian, L., Löffler, F. E.
  Springer.2014: 51–62
- **The effect of SRT on nitrate formation during autotrophic nitrogen removal of anaerobically treated wastewater** *WATER SCIENCE AND TECHNOLOGY*
  Lee, P., Kwak, W., Bae, J., McCarty, P. L.
  2013; 68 (8): 1751-1756
- **Two-stage anaerobic fluidized-bed membrane bioreactor treatment of settled domestic wastewater** *WATER SCIENCE AND TECHNOLOGY*
  Bae, J., Yoo, R., Lee, E., McCarty, P. L.
  2013; 68 (2): 394-399
- **Efficient single-stage autotrophic nitrogen removal with dilute wastewater through oxygen supply control** *BIORESOURCE TECHNOLOGY*
  Kwak, W., McCarty, P. L., Bae, J., Huang, Y., Lee, P.
  2012; 123: 400-405
- **Anaerobic treatment of municipal wastewater with a staged anaerobic fluidized membrane bioreactor (SAF-MBR) system** *BIORESOURCE TECHNOLOGY*
  Yoo, R., Kim, J., McCarty, P. L., Bae, J.
  2012; 120: 133-139
- **Lower operational limits to volatile fatty acid degradation with dilute wastewaters in an anaerobic fluidized bed reactor** *BIORESOURCE TECHNOLOGY*
  Shin, C., Bae, J., McCarty, P. L.
  2012; 109: 13-20
- **Energy-efficient anaerobic membrane bioreactor for treatment of dilute wastewaters**
  McCarty, P. L.
  AMER CHEMICAL SOC.2012
- **Introduction** *Delivery and Mixing in the Subsurface: Processes and Design Principles for In-Situ Remediation*
  Kitanidis, P. K., McCarty, P. L.
  edited by Kitanidis, P. K., McCarty, P. L.
  Springer.2012: 1

- **CHEMICAL AND BIOLOGICAL PROCESSES: THE NEED FOR MIXING** *DELIVERY AND MIXING IN THE SUBSURFACE: PROCESSES AND DESIGN PRINCIPLES FOR IN SITU REMEDIATION*
  McCarty, P. L., Criddlel, C. S., Kitanidis, P. K., McCarty, P. L.
  2012: 7–52

- **Chemical and Biological Processes – The Need for Mixing** *Delivery and Mixing in the Subsurface: Processes and Design Principles for In-Situ Remediation*
  McCarty, P. L.
  edited by Kitanidis, P., McCarty, P. L.
  Springer.2012: 2

- **Delivery and Mixing in the Subsurface: Processes and Design Principles for In Situ Remediation**
  edited by Kitanidis, P. K., McCarty, P. L.
  Springer.2012

- **Effects of influent DO/COD ratio on the performance of an anaerobic fluidized bed reactor fed low-strength synthetic wastewater** *BIORESOURCE TECHNOLOGY*
  Shin, C., Lee, E., McCarty, P. L., Bae, J.
  2011; 102 (21): 9860-9865

- **Model to Couple Anaerobic Process Kinetics with Biological Growth Equilibrium Thermodynamics** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
  McCarty, P. L., Bae, J.
  2011; 45 (16): 6838-6844

- **Biological reduction of chlorinated solvents: Batch-scale geochemical modeling** *ADVANCES IN WATER RESOURCES*
  Kouznetsova, I., Mao, X., Robinson, C., Barry, D. A., Gerhard, J. I., McCarty, P. L.
  2010; 33 (9): 969-986

- **Groundwater Contamination by Chlorinated Solvents: History, Remediation Technologies and Strategies** *In Situ Remediation of Chlorinated Solvent Plumes*
  McCarty, P. L.
  edited by Stroo, H. F., Ward, C. H.
  Springer.2010: 1–28

- **pH control for enhanced reductive bioremediation of chlorinated solvent source zones** *SCIENCE OF THE TOTAL ENVIRONMENT*
  Robinson, C., Barry, D. A., McCarty, P. L., Gerhard, J. I., Kouznetsova, I.
  2009; 407 (16): 4560-4573

- **Bioaugmentation with butane-utilizing microorganisms to promote in situ cometabolic treatment of 1,1,1-trichloroethane and 1,1-dichloroethene** *JOURNAL OF CONTAMINANT HYDROLOGY*
  Semprini, L., Dolan, M. E., Hopkins, G. D., McCarty, P. L.
  2009; 103 (3-4): 157-167

- **Comparison between acetate and hydrogen as electron donors and implications for the reductive dehalogenation of PCE and TCE** *JOURNAL OF CONTAMINANT HYDROLOGY*
  Lee, I., Bae, J., McCarty, P. L.
  2007; 94 (1-2): 76-85

- **Dependence of lumped mass transfer coefficient on scale and reactions kinetics for biologically enhanced NAPL dissolution** *ADVANCES IN WATER RESOURCES*
  Chu, M., Kitanidis, P. K., McCarty, P. L.
  2007; 30 (6-7): 1618-1629

- **Thermodynamic electron equivalents model for bacterial yield prediction: Modifications and comparative evaluations** *BIOTECHNOLOGY AND BIOENGINEERING*
  McCarty, P. L.
  2007; 97 (2): 377-388

- **Laboratory, field, and modeling studies of bioaugmentation of butane-utilizing microorganisms for the in situ cometabolic treatment of 1,1-dichloroethene, 1,1-dichloroethane, and 1,1,1-trichloroethane** *ADVANCES IN WATER RESOURCES*
  Semprini, L., Dolan, M. E., Mathias, M. A., Hopkins, G. D., McCarty, P. L.
  2007; 30 (6-7): 1528-1546

- **Electron Donor and pH Relationships for Biologically Enhanced Dissolution of Chlorinated Solvent DNAPL in Groundwater** *European Journal of Soil Biology*
  McCarty, P. L., Chu, M., Kitanidis, P.
  2007; 43: 276-282

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