PEDRO J. J. ALVAREZ, Ph.D., P.E., DEE

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GENERAL

Prof. Alvarez's research focuses on environmental sustainability through bioremediation of contaminated aquifers, fate and transport of toxic chemicals, water footprint of biofuels, microbial-plant interactions, medical bioremediation, and environmental implications and applications of nanotechnology.

EDUCATION

B.Eng.	1982	Civil Engineering	McGill University, Montréal
Certif.	1988	Haz. Waste Mgmt.	U. of California, Riverside
M.S.E	1989	Environmental Engrg.	University of Michigan, Ann Arbor
Ph.D.	1992	Environmental Engrg.	University of Michigan, Ann Arbor

POSITIONS

2005-present	CEE Dept. Chair	Rice University, Houston, TX
2004-present	G.R. Brown Professor	Rice University, Houston, TX
2001-2003	Professor	The University of Iowa, Iowa City
1999	Visiting Professor	EAWAG, Switzerland
1998-2003	Associate Director	Center for Biocatalysis & Bioprocessing
1997-2001	Associate Professor	The University of Iowa, Iowa City
1993-1997	Assistant Professor	The University of Iowa, Iowa City
1985-1988	Environ. Engineer	Tetratech Inc., San Bernardino, CA

EDITORIAL

2007-Present	Associate Editor, *Environmental Science and Technology*
2005-2006	Associate Editor, *ASCE J. Environ. Engrg*.
2003-2006	Field Editor, *European Journal of Soil Biology*
2002-2006	Editorial Board, *Biodegradation*
1998-2002	Editorial Board, *Journal of Environmental Science and Health*
1996-2002	Editorial Advisory Board, *Advances in Environmental Research*

SELECTED ACTIVITIES

- Registered Professional Engineer, Michigan License # 35419, Iowa License # 12575, Texas License # 95255; Registered Groundwater Professional, Iowa # 1681
- Conference chair, Leading Edge Technologies, International Water Association (IWA), 7/11 (Amsterdam) and 7/10 (Phoenix).
- Delegate to COP15 (Global Climate Forum in Copenhagen), 12/09
- Member, CLEANER Committee, National Research Council (NRC)
- Member, Academic Relations Committee, Water Environment Federation (WEF)
- Member, Publications Committee, American Academy of Environ. Engineers (AAEE)
- Member, Hazard Assessment and Control of Toxic Substances in Water Committee, also Nanomaterials in the Environment Committee; IWA, 7/00-present.
- Panel member, NCEES Environmental Engrg. minimum competency requirements, 11/04.
- International Expert Committee for the Mexican Institute of Petroleum for the evaluation of projects of the Biotechnology Program on Petroleum, 2/00-2/04.
- AWWARF Project Advisory Committee, 1998, 2010
- Advisor to the State of Iowa, Brownfields Committee,1997, and Underground Storage Tank Interim Study Committee, 1993, 1995.
- Consultant, Government of the Commonwealth of Dominica, Roseau, 1991 (Assisted in formulation of environmental policies for economic growth)
- Consultant, The City of Ann Arbor, MI, 1991 (Designed and implemented a landfill groundwater monitoring plan)

SELECTED HONORS AND AWARDS

2012	Fellow, American Academy for the Advancement of Science
2011	Science Advisory Board to the US Environmental Protection Agency (EPA)
2011	Dean of Engineering's Lecture, Columbia University
2010	Most cited paper in the past 5 year, Water Research (Wat. Res. 40(19):3527-3532
2010	Top-10 most read paper, ACS nano (*ACS Nano*, **2010**, *4* (7), pp 3580–3590).
2010	Honorary Professor, Kunming University of Science and Technology, Kunming, China
2009	Professor of the Year, ASCE & Chi Epsilon Student Chapters, Rice University
2009	Delegate, National Academies to US-Iran Engagement in Science, Engrg. And Health
2008	Frontier in Research Award, Assoc. of Environmental Engineering and Science Professors
2008	Founding Member, Nicaraguan National Academy of Sciences
2008	John Henske Distinguished Lecture, Yale University
2007	McKee Medal for Groundwater Protection, Restoration or Sustainable Use (WEF)
2006	Board of Directors, Strake Jesuit College Preparatory
2006	Honorary Professor, Nankai University, Tianjin, China
2005-2006	President, Association of Environmental Engineering and Science Professors
2003-2006	Board of Directors, Nicaragua's Water Management Agency (ENACAL)
2003	Consul of Nicaragua for Iowa (*ad honorem)*
2002	Research project of the year award, SERDP cleanup division, Department of Defense.
2002	Editorial Board Member of Bioremediation and Bioavailability, The Scientific World
2000	Awarded the Button of the City of Valencia, Venezuela, by the Mayor of the City
1998	The UI Collegiate Excellence in Teaching Award, University of Iowa
1997	Participant, National Academy of Engineering's Symposium: Frontiers of Engrg.
1997	Listed in Who's Who in Science and Engineering
1997	Appointed Adjunct Professor, Universidad Autónoma de México, Mexico, D.F.
1996	Honored Member, Strathmore's Who's Who Register of Business Leaders
1996	Listed in Who's Who Among America's Teachers and Who's Who in Environ. Engrg.
1996	Awarded the Alejo Zuloaga Medal by the Universidad de Carabobo, Venezuela
1995	Inducted into the American Academy of Environmental Engineers, Diplomate Status
1995	Career Award, National Science Foundation.
1995	Best Paper Award, EPA Hazardous Substance Research Center for Regions 7 and 8
1995	Appointed Adjunct Professor, Universidade Federal de Santa Catarina, Brasil
1994, 2002	Elected to The University of Iowa Faculty Senate
1992	Outstanding Presentation Award, AIChE Summer Meeting, Minneapolis, MN
1992	The Rackham Predoctoral Fellowship, The University of Michigan, Ann Arbor, MI
1991	The Outstanding Achievement Award in Environmental Engineering, U. of Michigan

Fellow of American Society of Civil Engineers (ASCE, 2005), American Leadership Forum (ALF, 2008), Leopold Leadership Foundation (LLF, 2008), Water Environment Federation (WEF, 2011), and International Water Association (IWA, 2011)

Best student papers: Battelle 6th Bioremediation Symposium, San Diego, 2000 (Todd Dejournett); WEF 70th Annual Meeting, Chicago (Eric Aitchison), 1997; EPA HSRC for regions 7&8, Kansas City, 1993 (Brad Helland)

Other student awards: ACS Environmental Chemistry Graduate Student Award, 2011 (Li Dong); best poster at IWA Leading Edge Technologies, Zurich, 2008 (Katherine Zodrow); best dissertation from Brown School of Engineering, 2007 (Del Lyon); best poster at EPA International Applied Phytotechnologies Conference, Chicago, 2003 (Roopa Kamath)

AFFILIATIONS

AAEE, ACS, AEESP, ASCE, ASM, IWA, Leopold LF, SEPM, SHPE, WEF, Chi Epsilon, and Tau Beta Pi.

COURSES TAUGHT

Environmental Biotechnology
Design & Management of Civil Eng. Projects
Environmental Microbiology and Microbial Ecology
International Perspectives in Water Resources Planning
Integrated Approaches to Sustainable Development
Environmental Molecular Biology
Foundations of Bioremediation
Principles of Environmental Engineering
Engineering I
Experiments in Environmental Eng.

International Perspectives in Climate Change: COP15

SELECTED PUBLICATIONS

A. Textbooks and Other Books

1. Alvarez P.J.J. and W. Illman (2006). Bioremediation and Natural Attenuation of Groundwater Contaminants: Process Fundamentals and Mathematical Models. John Wiley & Sons. ISBN No. 0-471-65043-9. 608 pages.
2. Alvarez P.J.J and E. Guevara (2003). Biorremediación y Atenuación Natural de Acuíferos Contaminados por Sustancias Químicas Peligrosas. Consejo del Desarrollo Científico y Humanístico, Universidad de Carabobo, Valencia, Venezuela. ISBN No.980-233-360-3.
3. Kalogerakis N., E. Psillakis and P.J.J. Alvarez (editors) (2005). Recent Advances in Bioremediation: a special issue. *Environment International*. 31 (2) 147-312.
4. Leeson, A., B.C. Alleman, P.J. Alvarez, and V.S. Magar (editors) (2001). Bioaugmentation, Biobarriers, and Biogeochemistry. Proceedings of the Sixth International In Situ and On-Site Bioremediation Symposium, Vol 6(9). Battelle Press, Columbus, OH, 2001.
5. Loucks D.P., P.J. Alvarez, M.J. Baedecker, J.W. Boyd, R.A. Conway, J.W. Day, C.T Driscoll, T.R. Fountain, E.H.. Herricks, R.J.. Huggett, T.K. Kratz, J.M. Lauria, J.L. Meyer, T.O. Najarian, C.R. O'melia, S.D. Parker, and D.K. Weir (2006). CLEANER and NSF's Environmental Observatories. National Research Council of the Academies. National Academy Press. ISBN No.0-309-10229-4.

B. Journal Publications (ISI Web of Science h index = 36)

1. Rysz M., W. Mansfield and P.J.J. Alvarez (2011). Tetracycline resistance gene maintenance under varying bacterial growth rate, substrate and oxygen availability, and tetracycline concentration. Environ. Sci. Technol. (Submitted).
2. Mathieu J., F. Wang, L. Segatori and P.J.J. Alvarez (2011), Attenuation of oxysterol-induced cytotoxicity using a lysosomal-associated membrane protein 1 (LAMP1)-cholesterol oxidase fusion that targets the lysosome. Biotechnol. Bioeng. (Submitted).
3. Yang Y., J. Wang, H. Zhu, Vicki L. Colvin and P.J.J. Alvarez (2011). Relative Susceptibility and Transcriptional Response of Nitrogen Cycling Bacteria to Quantum Dots (2011). Environ. Sci. Technol. (Submitted).
4. Xiu X, J Ma and PJJ. Alvarez (2011). Differential Effect of Common Ligands and Molecular Oxygen on Antimicrobial Activity of Silver Nanoparticles versus Silver Ions. Environ. Sci. Technol. 45 (20): 9003–9008.
5. J, Lee, S. Hong, Y. Mackeyev, C. Lee, L.J. Wilson, J-H Kim and P.J.J. Alvarez (2011). Photosensitized Oxidation of Emerging Organic Pollutants by Tetrakis C_{60} Aminofullerene-Derivatized Silica under Visible Light Irradiation. Environ. Sci. Technol. (In press).
6. Li D and P.J.J. Alvarez (2011). Avoidance, weight loss and cocoon production assessment for *Eisenia fetida* exposed to C_{60} in soil. Environ. Toxicol. Chem. 30(11):2542-2545.
7. Li M., S. Fiorenza, P. Conlon, S. Mahendra, and P.J.J. Alvarez (2011). Rapid analysis of 1, 4-dioxane in water by frozen micro-extraction with gas chromatography/mass spectrometry. Ground Water Monitoring and Remediation. (In press).
8. Ma J., Z Xiu, A.L. Monier, I. Mamonkina, Y. Zhang, B.P. Stafford, W.G. Rixey, and P.J.J. Alvarez (2011). Aesthetic groundwater quality impacts of a continuous pilot-scale release of an ethanol blend. Ground Water Monitoring and Remediation. 31(3):47-54.
9. Corseuil HX, A.L. Monier , A.P.N. Gomes , M. do Rosario and P.J.J. Alvarez (2011). Biodegradation of soybean and castor oil biodiesel: Implications on the natural attenuation of monoaromatic hydrocarbons in groundwater. Ground Water Monitoring and Remediation. 31(3):111-118.
10. Raciny I., K.R. Zodrow, D. Li, Q. Li, and P. J. J. Alvarez (2011). Addition of a magnetite layer

onto a polysulfone water treatment membrane to enhance virus removal. Wat. Sci. Technol. 63.10: 2346-2352.

11. Brame J., Q. Li and P.J.J. Alvarez (2011). Nanotechnology-enabled water treatment and reuse: emerging opportunities and challenges for developing countries. Trends in Food Science and Technology 22:618-624.
12. Li D., W.C. Hockaday, C.A. Masiello, and P.J.J. Alvarez (2011). Earthworm avoidance of biochar can be mitigated by wetting. Soil Biol. Biochem. 43(8): 1732-1737.
13. Yang Y., H. Zhu, V.L. Colvin and P.J.J. Alvarez (2011). Cellular and transcriptional response of *Pseudomonas stutzeri* to quantum dots under aerobic and denitrifying conditions. Environ. Sci. Technol. 45: 4988–4994.
14. Corseuil HX, A.L. Monier, M. Fernandes, M.R. Schneider, C. Nunes, M. do Rosario and P.J.J. Alvarez (2011). BTEX Plume Dynamics Following an Ethanol Blend Release: Geochemical Footprint and Thermodynamic Constraints on Natural Attenuation. Environ. Sci. Technol. 45(8), 3422–3429.
15. Aiken G.,H. Hsu-Kim, J. Ryan, and P.J.J Alvarez (2011). Guest Comment: Nanoscale Metal-Organic Matter Interactions. Environ. Sci. Technol. 45(8), 3194–3195.
16. Yi L., L. Xu, M. Rysz, Y. Wang, H. Zhang, and P.J.J. Alvarez (2011). Occurrence and transport of tetracycline, sulfonamide, quinolone and macrolide antibiotics in the Haihe River basin, China. Environ. Sci. Technol. 45 (5): 1827–1833.
17. Chen J., Z. Xiu, G. V. Lowry and P.J. J. Alvarez (2010). Effect of natural organic matter on toxicity and reactivity of nano-scale zero-valent iron. Wat. Res. 45: 1995-2001.
18. Fang Y-L, J.T. Miller, N. Guo, K.N. Heck, P.J.J. Alvarez, and M.S. Wong (2011). Kinetics analysis of palladium/gold nanoparticles as colloidal hydrodechlorination catalysts. ACS Catalysis Today 1:128-138.
19. J, Lee, Y. Mackeyev, M. Cho, L.J. Wilson, J-H. Kim and P.J.J. Alvarez (2010). C_{60} aminofullerene immobilized on silica as a visible-light-activated photocatalyst. Environ. Sci. Technol. 44: 9488–9495.
20. Li D., J.D. Fortner, D.R. Johnson, C. Chen, Q. Li and P.J.J. Alvarez (2010). Bioaccumulation of $^{14}C_{60}$ by the earthworm *Eisenia foetida.* Environ. Sci. Technol. 44: 9170-9175.
21. Ji L., W. Chen, S. Zheng, Z. Xu, P.J.J. Alvarez and D. Zhu (2010). Adsorption of tetracycline on single-walled and multi-walled carbon nanotubes as affected via aqueous solution chemistry. Environ. Toxicol. Chem. 29(12): 2713-2719.
22. Fang Y-L, J.T. Miller, N. Guo, K.N. Heck, P.J.J. Alvarez, and M.S. Wong (2010). Structural analysis of palladium-decorated gold nanoparticles as colloidal bimetallic catalysts. Catalysis Today 160(1) 96-102.
23. Qu X., Y-S Hwang, P.J.J. Alvarez, D. Bouchard and Q. Li (2010). UV Irradiation and humic acid mediate aggregation of aqueous fullerene (nC_{60}) nanoparticles. Environ. Sci. Technol. 44: 7821–7826.
24. Xiu Z-M, K.B. Gregory, G.V. Lowry, and P.J.J. Alvarez (2010). Effect of bare and coated nano-scale zero-valent iron on *tceA* and *vcrA* gene expression in *Dehalococcoides* spp. Environ. Sci. Technol. 44: 7647–7651.
25. Cho M., J, Lee, Y. Mackeyev, L.J. Wilson, P.J.J. Alvarez, J.B. Hughes and J-H. Kim (2010). Visible light sensitized inactivation of MS-2 bacteriophage by novel amine-functionalized C_{60} derivative. Environ. Sci. Technol. 43: 7410-7415.
26. Yi L., M. Daqing, M. Rysz, Z. Hongjie, X. Lin, and P.J.J. Alvarez (2010). Trends in antibiotic resistance genes occurrence in the Haihe River, China. Environ. Sci. Technol. 44: 7220–7225.
27. Lee J., S. Mahendra, and P.J.J. Alvarez (2010). Nanomaterials in the construction industry: a review of their applications and environmental health and safety considerations. ACS Nano.

4(7): 3580-3590.

28. Kazy S., A. Monier, and P.J.J. Alvarez (2010). Assessing the correlation between anaerobic toluene degradation activity and *bssA* concentrations in hydrocarbon-contaminated aquifer material. Biodegradation. DOI10.1007/s10532-010-9344-1.

29. Lee J., W. Song, S.S. Jang, J.D. Fortner, P.J.J. Alvarez, W.J. Cooper and J-H Kim (2010). Stability of water-stable C_{60} cluster (nC_{60}) to OH radical oxidation and hydrated electron reduction. Environ. Sci. Technol. 44(10): 3786-3792.

30. Li Z., K. Greden, P.J.J. Alvarez, K. Gregory, and G.V. Lowry (2010). Adsorbed organic macromolecules limits adhesion and toxicity of nano scale zero valent iron (NZVI) to *E. coli*. Environ. Sci. Technol. 44 (9):3462–3467.

31. Li M., S. Fiorenza, J. Chatham, S. Mahendra, and P.J.J. Alvarez (2010). 1,4-Dioxane biodegradation at low temperatures in Arctic groundwater samples. Water Research 44:2894-2900.

32. Da Silva MLB and P.J.J. Alvarez (2010). Indole-based assay to assess the effect of ethanol on *Pseudomonas putida F1* dioxygenase activity. Biodegradation. 21:425-430.

33. Gomez D. and P.J.J. Alvarez (2010). Comparison of the effects of various fuel alcohols on the natural attenuation of benzene plumes: a simulation analysis using RT3D with the general substrate interaction module. J. Contam. Hydrol. 113:66-76.

34. Powers S.E., Dominguez R., and P.J.J. Alvarez (2010). The water footprint of biofuel production in the USA. Biofuels. 1(2):255-260, 2010.

35. Schloendorn, T. Webb, K. Kemmish, M. Hamalainen, D. Jackemeyer, L. Jiang, J. Mathieu, J. Rebo, J, Sankman, L. Sherman, L. Tontson, A. Qureshi, P.J.J. Alvarez, and B. Rittmann (2010). Medical Bioremediation – a concept moving towards reality. Ageing Research. (12(6)411-419.

36. Lee C-W, S. Mahendra, K. Zodrow, D. Li, Y-C Tsai, J. Braam and P. J.J. Alvarez (2010). Developmental phytotoxicity of metal oxide nanoparticles to *Arabidopsis thaliana.* Environ. Toxicol. Chem. 29:669-675.

37. Mathieu J., W.W. Mohn, L.D. Eltis, J. LeBlanc, G. Stewart, C. Dresen, K. Okamoto and P.J.J. Alvarez (2010). 7-Ketocholesterol catabolism by *Rhodococcus jostii* RHA1. Appl. Environ. Microbiol. 76(1):352-355.

38. Xiu Z-M, Z-H Jin, T-L Li, S. Mahendra, G.V. Lowry, and P.J.J Alvarez (2010). Effect of nano-scale zero-valent iron particles on a mixed culture dechlorinating trichloroethylene. Bioresource Technology 101: 1141–1146.

39. Xiu Z-M, Z-H Jin, T-L Liand P.J.J Alvarez (2009). Microbial reductive dechlorination of TCE with nano iron serving as electron donor, Environmental Science (in Chinese), 2009, 30(6): 229-234.

40. Lee J., Y. Mackeyev, M. Cho, D. Li, J-H. Kim, L.J. Wilson, and P.J.J. Alvarez (2009). Photochemical and Antimicrobial Properties of Novel C_{60} Derivatives in Aqueous Systems. Environ. Sci. Technol. 43(17):6604-6610.

41. Heck K.N., M.O. Nutt, P.J.J. Alvarez, and M. S. Wong (2009). Deactivation resistance of Pd/Au nanoparticle catalysts for water-phase hydrodechlorination. J. Catal. 267, 97-104.

42. Alvarez P.J.J., V. Colvin, J. Lead and V. Stone (2009). Research priorities to advance eco-responsible nanotechnology. ACS Nano 3(7): 1616-1619.

43. Stafford B., N. Capiro, P.J.J. Alvarez and W. Rixey (2009). Pore water characteristics following the release of neat ethanol onto pre-existing NAPL. Groundwater Monitoring and Remediation. 29(3): 93-104.

44. Goyal A. , A. Kumar, P. K. Patra, S. Mahendra, P. J. J. Alvarez, G. John, and P.M. Ajayan (2009). In-situ synthesis of silver nanoparticles-PDMS composite films. Macromol. Rapid Commun. 30: 1116–1122.

45. Durnin G. J. Clomburg, Z. Yeates, P.J.J. Alvarez, K. Zygourakis, P. Campbell, and R. Gonzalez (2009). Understanding and harnessing the microaerobic metabolism of glycerol in *Escherichia coli.* Biotechnol. Bioeng.103(1) 148-161.
46. Parisi V.A., G.R. Brubaker, M.J. Zenker, R.C. Prince, L.M. Gieg, M.L.B. da Silva, P.J.J. Alvarez, and J.M. Suflita (2009). Field metabolomics and laboratory assessments of anaerobic intrinsic bioremediation of hydrocarbons at a petroleum-contaminated site. Microbial Biotechnology. 2(2), 202–212.
47. Dominguez R., S.E. Powers, J.G. Burken and P.J.J. Alvarez (2009). The water footprint of biofuels: a drink or drive issue? Environ. Sci. Technol. 43 (9), 3005-3010.
48. Mathieu J.M., J. Schloendorn, B.E.Rittmann and P.J.J. Alvarez (2009). Medical bioremediation of age-related diseases. Microbial Cell Factories. 8:21 (9 April 2009).
49. Gomez D. and P.J.J. Alvarez (2009). Modeling the Natural attenuation of benzene in groundwater impacted by ethanol-blended fuels: effect of ethanol content on the lifespan and maximum length of benzene plumes. Wat. Resour. Res.**,** 45, W03409, doi:10.1029/2008WR007159.
50. Brunet L., Lyon D.Y., Hotze E.M., Alvarez P.J.J., and Wiesner M.R. (2009). Comparative photoactivity of fullerenes and titanium dioxide: mechanisms, implications on antimicrobial activity and applications. Environ. Sci. Technol. 43, 4355–4360.
51. Illman W. and P.J.J. Alvarez (2009). Performance assessment of bioremediation and natural attenuation. Crit. Rev. Environ. Sci. Technol. 39 (4): 209 – 270.
52. Zodrow K., L. Brunet, S. Mahendra, Q. Li, and P.J.J. Álvarez (2009). Polysulfone ultrafiltration membranes impregnated with silver nanoparticles show improved biofouling resistance and virus removal. Wat. Res. 43:715-723.
53. Mahendra S., H. Zhu, V. Colvin and P. J. J. Alvarez (2008). Quantum dot weathering results in microbial toxicity. Environ. Sci. Technol. 42 (24), 9424-9430.
54. Lyon D.Y. and P.J.J. Alvarez (2008). Fullerene water suspension (nC_{60}) exerts antibacterial effects via ROS-independent protein oxidation. Environ. Sci. Technol. 42:8127-8132.
55. Li Q., M. B. Tomson, M.S. Wong, and P. J.J. Alvarez (2008). Nanotechnology: one answer to the global challenge of clean water. Water 21. August. pp. 26-28.
56. Wong M.S., P.J.J. Alvarez, Y.L. Fang, N. Akçin, M.O. Nutt, and K.H. Heck. (2008). Cleaner Water using Bimetallic Nanoparticle Catalysts. J. Chem. Technol. Biotechnol. 84:158-166.
57. Li Q., S. Mahendra, D. Y. Lyon, L. Brunet, M. V. Liga, D. Li and P. J.J. Alvarez (2008). Antimicrobial Nanomaterials for Water Disinfection and Microbial Control: Potential Applications and Implications. Wat. Res. 42:4591-4602.
58. Klaine S.J., P.J.J. Alvarez, G.E. Batley, T.F. Fernandes, R.D. Handy, D.Y. Lyon, S. Mahendra, M.J. McLaughlin, and J.R. Lead (2008). Critical review of Nanomaterials in the Environment. Environ. Toxicol. Chem. 27(9):1825-1851.
59. Cápiro N.L, M.L. Da Silva, B. P. Stafford, W.G. Rixey, and P.J.J. Alvarez (2008). Microbial community response to a release of neat ethanol onto residual hydrocarbons in a pilot-scale aquifer tank. Environmental Microbiology. 10(9), 2236–2244.
60. Mathieu J., J. Schloendorn, B.E. Rittmann and P. J.J. Alvarez (2008). Microbial degradation of 7-ketocholesterol. Biodegradation. 19:807-813.
61. Li D., Lyon D.Y., Q. Li, and P.J.J. Alvarez (2008). Effect of natural organic matter on the antibacterial activity of a fullerene water suspension. Environ. Toxicol. Chem. 27(9):1888-1894.
62. Lyon D.Y., L. Brunet, G.W. Hinkal, M.R. Wiesner, and P.J.J. Alvarez (2008). Antibacterial activity of fullerene water suspensions (nC_{60}) is not due to ROS-mediated damage. Nanoletters. 8(5**):** 1539-1543.

63. Gomez D., P. Leblanc P. Bedient. W. Rixey and P.J.J. Alvarez (2008). Modeling benzene plume elongation mechanisms exerted by ethanol using RT3D with a general substrate interaction module. Wat. Resour. Res. 44(5), W05405, doi:10.1029/2007WR006184.
64. Sawvel R., B. Kim and P.J.J. Alvarez (2008). Removal of volatile organic compounds at extreme shock loading using a scaled-up pilot rotating drum biofilter. J. Air & Waste Mngmt. Assoc. 58:1407-1414.
65. Lyon D.Y., D, Brown, E. Sundstrom, and P. J.J. Alvarez (2008). Assessing a fullerene water suspension as an antibiofouling surface treatment. Int. Biodeterior. Biodegrad. 62:475-478.
66. Da Silva M.L.B. and P.J.J. Alvarez (2008). Exploring the correlation between halorespirer biomarker concentrations and TCE dechlorination rates. J. Environ. Engrg. 134(11)895-901.
67. Hotze M., J. Labille, P.J.J. Alvarez and M. Wiesner (2008). Mechanisms of photochemistry and reactive oxygen production by fullerene suspensions in water. Environ. Sci. Technol. 42, 4175–4180.
68. Lyon, D.Y., D.A. Brown and P J.J. Alvarez (2008).Implications and Potential applications of bactericidal fullerene water suspensions: effect of nC_{60} concentration, exposure conditions and shelf life. Wat. Sci. Technol. 57(10): 1533-1538.
69. Dominguez R., M.L.B. da Silva, T.M. McGuire, D.A. Adamson, C.J. Newell, B.S. Yare and P.J.J. Alvarez (2008). Source zone bioremediation of chlorobenzene DNAPLs: performance assessment using real time quantitative polymerase chain reaction. Biodegradation. 19(4):545-553.
70. Rentz J.A., P.J.J. Alvarez, and J. L. Schnoor (2008). Salicylate induced benzo[a]pyrene co-metabolism by *Sphingomonas yanoikuyae* JAR02. Environmental Pollution 151:669-677.
71. Hotze M., A.R. Badireiddy, S. Chelam, P.J.J.Alvarez and M. Wiesner (2007). Toxicity of fullerol nanoparticles to bacteriophages. Environ. Sci. Technol. 41(18): 6627-6632.
72. Vázquez-Morillas A., M. Vaca-Mier, M. Beltrán-Villavicencio, R. López-Callejas, y P.J.J. Alvarez (2007). Reducción de percloroetileno y cromo hexavalente mediante Fe(0) y bioestimulación de microorganismos anaerobios. Rev. Int. Contam. Ambient. 23 (2) 51-58.
73. Brunet L., D.Y Lyon., K. Zodrow, J-C Rouch, B. Caussat, P.Serp, J-C Remigy, M.R Wiesner, P.J.J. Alvarez (2007). Properties of membranes containing semi-dispersed carbon nanotubes. Environ. Engrg. Sci. 24(8): 1122-1127.
74. Fang J., D.Y. Lyon, M Wiesner, J. Dong and P.J.J. Alvarez (2007). Effect of a fullerene water suspension on bacterial phospholipids and membrane phase behavior. Environ. Sci. Technol. 41(7): 2636-2642.
75. Zhu X., L. Zhu, Y. Li, Z. Duan, Chen and P. J. J. Alvarez (2007). Developmental Toxicity in Zebrafish Embryos After Exposure to Manufactured Nanomaterials: Buckminsterfullerene Aggregates (nC_{60}) and Fullerol. Environ. Toxicol. Chem. 26(5):976-979.
76. Da Silva M.L.B., R.L.. Johnson, and P.J.J. Alvarez (2007). Microbial characterization of a subsurface undergoing treatment with a permeable reactive iron barrier. Environ. Engrg. Sci. (24(8) 1122-1127.
77. Cápiro N.L, B. P. Stafford, W.G. Rixey, P.B. Bedient, and P.J.J. Alvarez (2007). Fuel-grade ethanol transport at the water table interface in a pilot-scale aquifer tank. Water Research. 41(3):656-664.
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E. Conferences and Sessions Chaired

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2011 Applications of Nanotechnology in the Water. IWA Specialist group on Nano and Water Sector, Session chair and program committee. Monte Verita, Switzerland, 5/11.
2010 7th Leading Edge Conference on Water and Wastewater Technologies, International Water Association (IWA) – Program committee chair. Phoenix, 6/10
2009 6th Leading Edge Conference on Water and Wastewater Technologies, International Water Association (IWA) – Conference co-chair. Singapore, 6/09.
2009 2nd International Conference on Pollution Control and Resource Reuse – Session chair. Nanjing, China, 4/09.
2009 International Workshop on Priorities to Advance the Eco-Responsible Design and Disposal of Engineered Nanomaterials – Conference chair. Houston, 3/09.
2008 IWA Chemical Industries 2008- Program committee. Beijing, 11/08
2008 5th Leading Edge Conference on Water and Wastewater Technologies, International Water Association (IWA) –Program committee, session and workshop chair. Zurich, 6/08.
2007 4th Leading Edge Conference on Water and Wastewater Technologies, International Water Association (IWA) –Program committee, session and workshop chair. Singapore, 7/07.
2007 Nanotechnology-Enabled Water Treatment (NEWT) Workshop. Co-chair. Houston, 2/07.
2006 22nd Annual International Conference on Soils, Sediments and Water- Oxygenates Session. Amherst, MA 10/06
2006 The Fifth International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Reductive treatment with nZVI Session, Monterey**,** CA, 5/06.
2005 3rd European Bioremediation Conference – Chania, Greece, CA, 7/05.
2005 Battelle 8th International Symposium on In Situ and Onsite Bioremediation– Biobarriers, Baltimore, MD, 6/05.
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2004 CONCARIBE 2004 Environmental Engineering and Science Conference –, General Secretary, Cartagena, Colombia, 5/04.
2004 The Tenth International Symposium on Microbial Ecology (ISME-10)- International Convener, Bioremediation Session, Cancun, Mexico, 8/04.
2003 2nd European Bioremediation Conference – Chania, Greece, CA, 6/03.

2003 Battelle 7th International Symposium on In Situ and Onsite Bioremediation– Biobarriers, Orlando, FL, 6/03.
2002 12th International Biodeterioration and Biodegradation Symposium –Biodegradation of persistent compounds session, Prague, Czech Republic, 7/02.
2001 First European Bioremediation Conference– Petroleum hydrocarbons bioremediation session, Chania, Greece, CA, 7/01.
2001 Battelle 6th International Symposium on In Situ and Onsite Bioremediation– Session D-10: Interactions between Microorganisms and Fe(0) in PRBs, San Diego, CA, 5/01.
2000 NGWA/API Petroleum Hydrocarbons Conference – Session II: Gasoline Oxygenates: Ethanol, Anaheim, CA, 11/00.
1998 ASCE Specialty Conference, Technical Session on Reductive Treatment of Hazardous Wastes with Zero-Valent Iron, Chicago, IL, 6/98.
1997 27th IAHR Congress, Technical Session on Groundwater Remediation and Risk Management, San Francisco, CA 8/97.
1997 NSF-CMS Workshop, Group Mentor, for Junior Faculty from Underrepresented Groups, Washington, D.C., 9/97.
1996 North-Central GSA Sectional Meeting, Research Symposium on Geomicrobiology, Ames, IA, 5/96.

F. Environmental Impact Studies

Preliminary Environmental Review and Development of Environmental Evaluation Guidelines for Prince Rupert Bay, Dominica. Prepared for the Department of Regional Development and Environment, Organization of American States. Washington, D.C. May, 1991.

Environmental Impact Statement: Peacekeeper Rail Garrison Program.
Prepared for United States Air Force, Norton AFB, California. June, 1988.

Environmental Planning Technical Report for Water Resources. Small Intercontinental Ballistic Missile Program. Malmstrom Air Force Base, Montana. Prepared for United States Air Force, Norton AFB, California. December, 1987.

G. Patents

Alvarez P.J.J., B.A. Till, L.J. Weathers, G.F. Parkin, and J.L. Schnoor, "Iron-based bioremediation of aquifers contaminated with mixed wastes". **US 6,719,902 B1**, April 13, 2004.

Alvarez P.J.J., K. Zodrow, A. Zhang, S. Mahendra. D. Li and Q. Li. "Silver-Impregnated Polysulfone Ultrafiltration Membranes for Virus Removal" (Pending).

Alvarez P.J.J., J. Lee, L. Wilson, and Y. Mackeyev. "Immobilized Photocatalytic Fullerenes for Water and Wastewater Treatment and Disinfection" (Pending).

INVITED LECTURES

Date	Location	Host Organization	Title/Description
12/11	Lyon, France	U de Lyon	Environmental implications & applications of nanotechnology
11/11	Washington DC	AAAS and Georgetown U	Nanotechnology in its teen years
11/11	Tianjin, China	Tianjin University (keynote)	Anaerobic bioremediation of hydrocarbon spills
9/11	Rehoboth Beach, DE	EPA Region 3	Microcospic, macroscopic and thermodynamic implications of fuel ethanol releases

9/11	London, England	The Royal Society	Quantum dots impacts on Nitrogen cycling
7/11	Chania, Greece	TUC	Biomarkers to assess bioremediation performance
6/11	Montreal, Canada	ACS Colloids symposium	Antibacterial mechanisms of silver nanoparticles
6/11	Denver, CO	Water research Foundations	Nanotechnology and water quality
6/11	Amsterdam	IWA	Welcome address for Leading Edge technologies conference
5/11	New Hampshire	Gordon conference	Research priorities in environmental nanotechnology
5/11	Monte Verita, Switzerland	ETH/EAWAG	Nanotechnology in the water sector; opportunities &concerns
4/11	Boston, MA	Harvard University	Environmental implications and applications of nanotechnology
4/11	New York, NY	Columbia University	Environmental implications and applications of nanotechnology
4/11	Mexico City	Tecnologico de Monterrey	Nano-enabled water treatment for developing countries
3/11	Boston, MA	Northeastern University	Environmental nanotoxicology
3/11	Abu Dhabi	Masdar Institute of Science & Technology	Bioremediation: principles and Applications
3/11	Washington DC	NNI US-EU Workshop: Bridging nanoEHS Research	Environmental data needs
2/11	Nanjing, China	Nanjing University	Emerging opportunities for nanotechnology in water
2/11	Managua, Nicaragua	St. Agustin Academy (graduation speech)	Global warming and global whining
11/10	Rome, Italy	FAO	Nano-enabled water treatment for developing countries
11/10	Veracruz, Mexico	PEMEX	Bioremediation of petroleum hydrocarbons
10/10	Washington D.C.	National Academy of Sciences	Fate and transport of engineered nanoparticles
10/10	Jalandhar, India	Kanya Maka Vidyalaya	Environmental challenges: a global concern
10/10	Bilbao, Spain	Labein Tecnalia	Ecotoxicology of engineered nanomaterials
9/10	Montreal, Canada	IWA	Nanotechnology applications in the water treatment sector
9/10	Montreal, Canada	McGill University	Environmental applications and implications of nanotechnology
9/10	Washington DC	NSF	Diversity, integrity and honor (National Hispanic Keynote).
9/10	Stockholm. Sweden	World Water Week	Emerging opportunities and challenges for GW remediation
7/10	Nazareth, Israel	Haiffa University	Photocatalytic disinfection with aminofullerene nanoparticles
6/10	San Carlos, Brazil	FAO, UN	Nano-enabled water treatment: opportunities and challenges
6/10	Johannesburg, South Africa	Mintek Advanced Materials Division	Nano-enabled functionalized water treatment membranes
5/10	Taipei, Taiwan	7th Conf. on Environmental Protection & Nanotechnology	Environmental applications and implications of nanotechnology
5/10	Taipei, Taiwan	National Taiwan University	Phytoremediation: principles and applications

5/10	Tainan,Taiwan	National Cheng Kung University	Bioremediation of hydrocarbon releases
5/'10	Los Angeles, CA	UCLA	Risks of nanomaterials in the environment
5/10	Providence, RI	Brown University	Antimicrobial nanoparticles: implications & applications
4/10	Cairo, Egypt	Ministry of Agriculture	Nanotechnology for sustainable water management
3/10	Panama	Universidad Tecnológica de Panamá	Manejo sostenible de recursos hidricos
3/10	Chicago, IL	National Nanotechnology Initiative	Research priorities in Environmental nanotechnology
3/10	Kunming, China	KUST	Environmental nanotechnology
1/10	Tucson, AZ	University of Arizona	Antimicrobial nanoparticles: implications & applications
9/09	Helsinki, Finland	US National Academies	Environmental nanotechnology
9/09	Copenhagen, DK	Danmarks Naturfredningsforening	Sustainable water under climate change
9/09	Vienna, Austria	Austrian Academy of Sciences and U Vienna	Antimicrobial nanoparticles: implications & applications
8/09	San Antonio, TX	NEMC and EPA	Risks of nanomaterials in the environment
6/09	Aix, France	CEREGE	Environmental nanotechnology
6/09	Singapore	IWA	Antimicrobial nanoparticles: implications & applications
6/09	Prague, CZ	NICOM	Nanomaterials in Construction
5/09	Tunja, Colombia	Universidad de Santo Tomas	Nanotecnologia para manejo sostenible del agua
4/09	Baltimore, MD	Johns Hopkins University	Environmental applications of nanotechnology
4/09	Lansing. MI	Michigan State University	Environmental applications and implications of nanotechnology
3/09	Tianjin, China	Nankai University	Bioremediation: principles and applications
3/09	Nanjing, China	Keynote on Pollution Control and Resource Reuse Conf.	Nano-toxicology
2/09	Mumbai, India	IIT Mumbai	Environmental nanotechnology
2/09	Mangalore, India	NITK (Subba Rau Lecture in Chemical Engineering)	Bioremediation principles and applications
11/08	Baltimore, MD	Johns Hopkins University	Environmental applications and implications of nanotechnology
10/08	New Haven, CT	Yale University, John Henske Distinguished Lecture	Environmental applications and implications of nanotechnology
9/08	Chania, Crete	European Bioremediation Conference (keynote)	Microbial interactions with nanomaterials
8/08	Sidney, Australia	SETAC	Ecotoxicology of nanomaterials
4/08	Iowa City, IA	U Iowa (Caterpillar lecture)	Environmental applications and implications of fullerenes
4/08	Los Angeles, CA	UCLA	Ecotoxicology of nanomaterials
4/08	Amherst, MA	UMass	Environmental nanotechnology

3/08	Beijing, China	Tsinghua University	Environmental nanotechnology
3/08	Hong Kong	Hong Kong University	Sustainable water management
3/08	Monte Verita, Switzerland	EMPA/ETH	Microbial interactions with nanoparticles
12/07	Washington, DC	NSF	Environmental applications and implications of fullerenes
12/07	San Antonio, TX	Texas Water Board	Sustainable water resources management
11/07	South Bend, IN	University of Notre Dame	Environmental applications and implications of nanotechnology
11/07	Rimini, Italy	Ecomondo	Iron-based bioremediation of oxidized pollutants
10/07	Sapporo, Japan	Hokkaido University	Environmental applications of nanomaterials
10/07	Seoul, South Korea	Seoul National University and Gwangju University	Antibacterial mechanisms of fullerenes
10/07	Sao Paulo, Brazil	Acquacon	The water footprint of fuel ethanol
9/07	Riverside, California	UCR	Environmental impacts of fuel alcohols
9/07	Cambridge, England	Cambridge University	Medical bioremediation: targeting 7-ketocholesterol
8/07	Zurich, Switzerland	EAWAG	Environmental applications and implications of nanotechnology
7/07	Bogota, Colombia	Universidad de Los Andes	Decentralized water treatment systems
6/07	Durham, NC	Duke University	Environmental impacts of fuel alcohols
6/07	Singapore	IWA	Environmental applications and implications of nanotechnology
5/07	Seattle, WA	University of Washington	Fuel ethanol and groundwater pollution
4/07	Tempe, AZ	Arizona State University	Nanotechnology and the environment
3/07	San Diego, CA	AEHS	Bacterial-fullerene interactions
2/07	Durham, NC	Duke University	Environmental impacts of fuel alcohols
1/07	Ann Arbor, MI	University of Michigan	Ethanol in fuel: groundwater quality implications
12/06	Managua, Nicaragua	Universidad Centroamericana (UCA)	Nanotecnologia ambiental
11/06	Washington, D.C.	EPA/ORD	Fullerene-bacterial interactions
11/06	Copenhagen, Denmark	Technical University of Denmark	Environmental nanotechnology
10/06	Amherst, MA	U Mass	Microbial impacts of fuel ethanol
9/06	Houston, TX	Baker Institute, Rice	Groundwater impacts of ethanol
9/06	EL Paso, TX	UTEP	Environmental nanotechnology
8/6	Bogotá, Colombia	Universidad de Los Andes	Principles and applications of bioremediation
7/06	Tianjin, China	Nankai University	Fullerene micro-ecotoxicology

6/06	Mexico City	UAM	Nanotechnology and environmental engineering
6/06	New Hampshire	Gordon Conference	Biodegradation of organic compounds
5/06	Medellin, Colombia	Universidad Nacional de Colombia	Fitorremediacion
4/06	Ann Arbor, MI	University of Michigan	Fullerene ecotoxicology
3/06	Valencia, Venezuela	Universidad de Carabobo	Environmental implications and applications of nanotechnology
2/06	Tempe, AZ	Arizona State University	Environmental nanotechnology
11/05	Pachuca, Mexico	Universidad Politecnica de Pachuca	Bioremediation and natural attenuation
10/05	Washington, D.C.	EPA	Nanomaterial-bacterial interactions
9/05	Managua, Nicaragua	MARENA	Cleanup of gasoline contaminated aquifers
9/05	Washington, DC	ESTCP	Bioaugmented iron barriers to treat RDX contaminated aquifers
6/05	Sapporo, Japan	IWA	Emerging pollutants and treatment approaches
5/05	Toulouse, France	Université Paul Sabatier/ Laboratoire de Genie Chimique	Iron-based bioremediation of oxidized groundwater pollutants
5/05	Aix-En-Provence	Centre Européen de Recherche et d'Enseignement des Géosciences de l'Environnement (CEREGE)	Emerging hazards and water treatment needs
3/05	Urbana-Champaign, IL	University of Illinois	Bioremediation: startups and upstarts
2/05	Zurich, Switzerland	EAWAG	Microbial interactions with nanomaterials
1/05	El Paso, TX	UTEP	Natural attenuation of BTEX-ethanol mixtures
11/04	Sao Paulo, Brazil	Instituto Ekos (keynote)	Phytoremediation: principles and applications
11/04	College Station, TX	Texas A&M	Effects of ethanol on BTEX natural attenuation
9/04	Tianjin, China	Nankai University (keynote)	Global changes and industrial ecology
9/04	Venice, Italy	INCA (keynote)	Sustainable chemistry
8/28	Cancun. Mexico	Asociación Mexicana de Microbiología	Biorremediacion de BTEX" principios y aplicaciones
8/04	Cancun. Mexico	ISME	Fate and transport of BTEX-ethanol mixtures
7/04	Irvine, CA	CDM Inc	Effects of ethanol on BTEX natural attenuation: microscopic and macroscopic implications
7/04	Bethesda, MD	NIA	History and epistemology of bioremediation
7/04	Nuevo Vallarta, MX	Mayan Resorts	Civil and environmental engineering at Rice
6/04	Prague, Czech Republic	IWA	Attenuation and amplification of TC resistance genes in soil
5/04	Monterrey California	Battelle	Sustainable RDX degradation in bioagumented iron columns

5/04	Cartagena, Colombia	CONCARIBE	Leapfrogging technologies for Caribbean environmental problems
2/04	Berkeley, CA	UC Berkeley	Groundwater impacts of ethanol
1/04	Washington, DC	NSF, EPA and DOD Interagency meeting	Phytoremediation and Rhizoremediation
11/03	Sao Paulo, Brazil	Instituto Eccos (keynote)	Monitored natural Attenuation
11/03	Mexico City	IMP, keynote	Bioremediation
10/03	Managua, Nicaragua	AIDIS, keynote	Bioremediation
8/03	Costa Mesa, CA	NGWA	Oxygenates workshop
8/03	Kansas City, KS	EPA	Effect of ethanol on BTEX natural attenuation
6/03	Chania, Greece	EU, keynote	Effect of ethanol on BTEX natural attenuation
4/03	West Lafayette	Purdue University	Environmental Impacts of Biofuels
4/03	Gainesville, FLA	University of Florida	Effect of ethanol on BTEX natural attenuation
4/03	Buenos Aires, Argentina	Universidad de Buenos Aires	Sustainable development and industrial ecology
3/03	Cartagena, Colombia	ANEIC, keynote	Phytoremediation principles and applications
2/03	Valencia, Venezuela	AVISA	Permeable reactive barriers for groundwater pollution
1/03	Ames, Iowa	ISU	Effect of ethanol on BTEX attenuation and plume length
12/02	Managua, Nicaragua	Universidad Catolica (UCA)	Bioremediation case studies
11/02	Davis, CA	University of California at Davis	Natural attenuation of gasohol releases
11/02	Valencia, Venezuela	Universidad de Carabobo - keynote	Sustainable Development and Industrial Ecology
9/02	Mexico City, Mexico	Universidad Autónoma de México	Bioremediation (Short Course)
7/02	Prague, Czech Republic	Institute of Chemical Technology	Iron-based bioremediation
5/02	Monterey, CA	Battelle	Biodegradation of ethanol
4/02	Monterrey, Mexico	Mexican Society for Microbiology - keynote	Principles and applications of BTEX bioremediation
3/02	Rio de Janerio, Brazil	Petrobras	Bioremediation an natural attenuation of gasohol spills
2/02	Pomona, CA	NWRI	Life cycle assessment of alternative fuel
12/01	Washington, DC	SERDP	RDX mineralization by Fe(0) and anaerobic sludge
11/01	Houston, TX	NGWA	Effect of ethanol on benzene plume length
10/01	Berlin, Germany	IWA	Effect of ethanol of BTEX degradation kinetics
10/01	Costa Mesa, CA	NWRI	Potential groundwater impacts of the use of methanol as fuel

7/01	Chania, Greece	Technical University of Crete	Fe(0)-based bioremediation of RDX contamination
7/01	Madrid, Spain	European Federation of Biotechnology	Novel trends in in situ bioremediation
5/01	Prague, Czech Republic	NATO Advance Studies Institute	Principles and applications of BTEX remediation
4/01	Seattle, WA	University of Seattle	Global Changes and Sustainable Development
4/01	Oakland, CA	Lawrence Livermore National Laboratory	The effect of ethanol on BTEX degradation kinetics
3/01	Houston, TX	University of Houston and Rice University	Natural attenuation of gasohol releases
3/01	Montreal, Canada	McGill University	Epistemology of bioremediation and natural attenuation
3/01	Guanajuato, Mexico	Mexican Society for Microbiology	Phytoremediation of contaminated soils
12/00	Madison, WI	University of Wisconsin	Biodegradation and bioremediation
11/00	Mexico, D.F.	UAM	Monitored natural attenuation workshop
11/00	Anaheim, CA	API/NGWA	Effects of ethanol versus MTBE on BTX natural attenuation.
10/00	West Lafayette, IN	Purdue University	Xenobiotic recalcitrance mechanisms
10/00	Irvine, CA	NAS/Ford Foundation	Challenges of an academic life in engineering
9/00	Iowa City, IA	ASCE	Merits and limitations of RBCA and natural attenuation
8/00	Managua, Nicaragua	INCAE (a Harvard Satellite)	Industrial ecology and sustainable development
7/00	Managua, Nicaragua	Universidad Centroamericana	Global changes and economic development
6/00	Paris, France	IWA	RDX degradation by an integrated microbial-Fe^0 system
5/00	Valencia, Venezuela	Carabobo Industrial Consortium	Global changes and industrial ecology
5/00	Columbus Ohio	Ohio State University	Bioremediation and natural attenuation
2/00	Cincinnati, OH	API/EPA	Effect of ethanol of natural attenuation of BTEX
11/99	Honolulu, HI	University of Hawaii	Bioremediation Perspectives
11/99	Chicago, IL	EPA	Fe(0)-Based Bioremediation
6/99	Zürich, Switzerland	ETH/ Biotechnology Institute	Intrinsic bioremediation and risk-based corrective action
12/98	Managua, Nicaragua	MARENA/IMPYME	Bioremediation and bioprospecting
11/98	Houston, TX	API/NGWA (keynote speaker)	BTEX degradation kinetics: model vs. field data
8/98	Managua, Nicaragua	PAMIC/INPYME	Green Technologies for sustainable development
7/98	Zürich, Switzerland	EAWAG	Substrate interactions for enhanced BTX biodegradation
5/98	Mexico, D.F.	Universidad Autónoma de México	Site assessment and remediation
3/98	Valencia, Venezuela	AVISA/ U. de Carabobo	Epistemology of environmental engineering

11/97	Caracas, Venezuela	AVISA/AIDIS	Xenobiotic biodegradation in natural systems
9/97	Washington, D.C.	NSF/CMS Workshop	BTPs for groundwater remediation
7/97	Mexico, D.F.	Universidad Autónoma de México	Hazardous waste remediation (Short Course)
6/97	Lincoln, Nebraska	University of Nebraska	Iron-Supported Denitrification
6/97	Florianopolis, Brazil	Universidade Federal de Sta. Catarina	Principles of bioremediation
5/97	Caracas, Venezuela	Ministry of the Environment	Fundamentals of environmental microbiology
5/97	Valencia, Venezuela	Assoc. Venezolana de Ing. Ambientales	Novel approaches to site remediation
4/97	New Orleans, LA	Battelle	Fe(0) based bioremediation of nitrate contaminated waters
4/97	San Francisco, CA	ACS	Effect of ethanol of anaerobic toluene biodegradation
8/96	Mexico, D.F.	Universidad Autónoma de México	Advances in hazardous waste site remediation
6/96	Singapore	IAWQ	Bioremediation perspective for Brazil
5/96	Florianópolis, Brazil	Universidade Federal de Sta. Catarina	Environmental chemodynamics (Short Course)
2/96	Valencia, Venezuela	AVISA (Keynote speaker)	Reductive treatment with Fe°
11/95	Hill AFB, UT	US Air Force and Montgomery Watson	TCE uptake by common garden vegetables
10/95	Iowa City, IA	Iowa Groundwater Association	Enhanced BTX degradation by benzoate
6/95	Florianópolis, Brazil	Universidade Federal de Sta. Catarina	Biotransformations of xenobiotics in soils
6/95	Florianópolis, Brazil	Universidade Federal de Sta. Catarina	Activated sludge design
5/95	Valencia, Venezuela	Assoc. Venezolana de Ing. Ambientales (Keynote spkr)	Contamination and remediation of aquifers
5/95	Valencia, Venezuela	Universidad de Carabobo	Fate and transport of xenobiotics in aquifers
4/95	Champagne, IL	University of Illinois	Nitrate-based bioremediation
12/94	Managua, Nicaragua	Universidad Nacional de Ingeniería	Chemical and microbial degradation of pollutants
12/94	Managua, Nicaragua	Fundación de Desarrollo	Socio-political implications of pollution
5/94	Copenhagen, DK	IAWQ Biofilm Conference	Degradation of BTX and their metabolites

ADVISORY BOARD & REVIEWER OF OTHER CEE PROGRAMS

- Rice University, 2003
- Carnegie Mellon University, 2007
- The University of Kansas, 2008
- The University of Nebraska, 2008
- Central Florida University, 2010
- Seoul National University World Class University program on Chemical Convergence for Energy and the Environment

FUNDING AS PRINCIPAL INVESTIGATOR

U.S. EPA. "Consortium for Manufactured Nanomaterial Bioavailability & Environmental Exposure" ($2,000,000) 1/1/10-1/1/13 (Co-PI's Vicki Colvin, Steve Klaine and Sam Luoma).

National Science Foundation, "Engineered Nanomaterials and Plant Interactions: Uptake, Biotransformations and Physiological Effects" ($600,000) 9/1/10-8/31/13 (co-PI's Vicki Colvin, Janet Braam and Jerry Schnoor)

National Science Foundation, "Developing Novel Surface Immobilized Photocatalysts Using Functionalized C_{60}" ($350,000) 8/01/09-8/31/12 (Co-PI: Jaesong Kim)

U.S. EPA, "Quantum Dot Weathering and its Effects on Microbial Communities" ($400,000) 9/01/08-8/31/11 (Co-PI: Vicki Colvin)

U.S. EPA, "Interactions of Natural Organic Matter with C60 Fullerene and their Impact on C_{60} Transport, Bioavailability and Toxicity" ($400,000) 9/01/08-8/31/11 (PI: Qilin Li)

BP America, "1,4-Dioxane Biodegradation in the Arctic" ($50,000) 9/01/08-9/01/10

BP America, "1Modeling the effect of fuel alcohol on BTEX plume dynamics" ($50,000) 9/01/08-9/01/10

National Science Foundation, "C_{60} Biotransformation and Bioaccumulation: Environmental Impact Implications" ($240,000) 8/01/08-8/31/10 (Co-PI: Vicki Colvin)

National Science Foundation, "Correlation between Biomarker Concentrations and Hydrocarbon Biodegradation Rates to Enhance the Selection and Performance Assessment of Bioremediation and Natural Attenuation" ($128,531) 9/01/07-8/31/09

Chevron, "The Water Footprint of Biofuels" ($100,000) 9/01/07-8/31/09 (Co-PI: Amy Jaffe).

API, "The Impact of E85 on BTEX and other Hydrocarbons in Ground Water" (300,000) 7/1/07-6/30/09, (Co-PI: Bill Rixey)

API, "The Impact of E95 and E10 on BTEX and other Hydrocarbons in Ground Water" (270,000) 7/1/05-6/30/07, (Co-PI: Bill Rixey)

U.S. EPA, "Collaborative effect of surface coatings on the environmental and microbial fate of nano-iron and Fe-oxide nanoparticles" ($75,000 subcontract to CMU) 9/01/07-8/31/10 (Co-PI Greg Lowry)

U.S. EPA, "Microbial Impacts of Engineered Nanoparticles" ($375,000) 9/1/05-8/31/08 (Co-PI Mark Wiesner)

National Science Foundation, "Civil and Environmental Engineering Program Update to the 21st Century" ($100,000) 9/01/05-8/31/06 (Co-PI Phil Bedient)

National Science Foundation, "Fullerene-Microbial Interactions: Implications for disinfection and risk assessment" ($150,000) 9/1/05-8/31/06 (Co-PI with Mark Wiesner and Jiasong Fang)

National Science Foundation "Center for Biological and Environmental Nanotechnology" ($10,000,000) 1/1/02-1/1/12 (Co-PI's Vicki Colvin, Jennifer West)

National Science Foundation, "NSF CAREER Award Proposal Writing Workshop" ($16,000) 6/15/05-12/31/05

EPA/GCHSRC, "Development of an RTQ-PCR protocol for the detection and quantification of anaerobic benzene degraders" (100,000) 9/04-8/06.

ESTCP, “Reductions in DNAPL longevity through biological flux enhancement” ($200,000) 6/1/2004-5/31/2006 (Co-PI Herb Ward).

National Science Foundation, “Workshop on U.S.-Latin American Caribbean environmental problems and sustainable solutions“ ($28,000) 5/15/04-12/31/04.

U.S. Army Corps of Engineers, CECER Lab “Evaluation of Rotating Biofilter Reactor at the Iowa Army Ammunitions Plant ($160,000) 05/01/03-12/31/04

National Science Foundation, “PAH biodegradation in the rhizosphere of tropical plants” ($100,000) 9/15/02-8/14/04.

ISWRRI, “Fate and transfer of antibiotic resistance genes” ($132,430), 5/02-4/04.

National Science Foundation, “Environmental Impacts of Ethanol in Gasoline: A Planning Trip to Brazil” ($12,915) 8/15/01-8/14/02.

American Petroleum Institute, “Effect of Ethanol on BTEX Plume Length” ($38,994) 8/01/01 - 7/31/02.

SERDP, “Fe(0)-Based Bioremediation of RDX Contaminated Groundwater” ($500,000) 8/01/01 - 12/31/03

EPA/OER, “Effect of the gasoline oxygenate ethanol on the migration and natural attenuation of BTEX” ($194,878) 1/1/00 -8/31/04.

SERDP, “Fe(0)-Based Bioremediation of RDX Contaminated Aquifers” ($99,997) 1/01/00 - 12/31/00.

American Petroleum Institute, “Effect of Ethanol on BTEX and MTBE Natural Attenuation” ($85,000) 7/01/99 - 6/30/01.

EPA/HSRC, “Iron-Enhanced Bioremediation of Aquifers Contaminated with Chlorinated Solvents, Heavy Metal, and Agrochemical Mixtures”, ($150,000), 10/01/99-5/31/01 01 (Co-PI with G.F. Parkin and M. Scherer).

Lawrence Livermore National Lab, “The Use of Ethanol as a Transportation Fuel Oxygenate” ($98,055), 8/1/99 - 6/30/01.

Iowa Comprehensive Petroleum Underground Storage Tank Fund Board "Tier 3 model evaluation of groundwater contaminant models" ($43,255 direct costs) 1/01/99 - 5/31/00.

U.S. Geological Survey.ISWRRI, “Treatment of Nitrate-Contaminated Groundwater with Fe(0) and Autotrophic Denitrifiers” ($180,086) 9/01/98-8/31/00.

Department of Energy, “Biogeochemical Interactions in Zero-Valent Iron Walls” ($491,985), 9/01/98 - 8/31/01 (Co-PI with G.F. Parkin and J.L. Schnoor)

National Science Foundation, "Research Training Grant: Gene expression in bioremediation" ($1,600,000) 9/01/96 - 8/31/00 (PI is E.P. Greenberg).

Iowa Comprehensive Petroleum Underground Storage Tank Fund Board "Evaluation of Tier-3 Groundwater Models" ($92,836direct costs) 1/1/99-12/31/01.

Iowa Comprehensive Petroleum Underground Storage Tank Fund Board "Evaluation of Tier-2 Groundwater Modeling Program" ($17,079 direct costs) 5/01/98 - 12/31/98.

Hoescht Celanese, Inc., "Phytoremediation of 1,4-dioxane and bioaugmentation of the poplar rhizosphere" ($88,317) 9/01/98 - 8/31/99 (Co-PI with Jerry L. Schnoor).

Hoescht Celanese, Inc., "Phytoremediation of sites contaminated with dioxane" ($93,000) 9/01/96 -

8/31/97 (Co-PI with Jerry L. Schnoor).

National Science Foundation, "Career Award" ($275,000) 7/01/95 - 6/30/99.

EPA/OER, "Biostimulation of BTX degradation with environmentally benign aromatic substrates" ($246,342) 10/1/95 - 9/30/98.

Center for Health Effects of Environmental Contamination, “Bioaugmentation of the poplar rhizosphere with GEMs " ($15,000) 2/1/97-8/31/97.

Center for Health Effects of Environmental Contamination, "Expression of toluene dioxygenase under various redox and substrate conditions" ($15,000) 1/01/95 - 12/31/95.

Center for Health Effects of Environmental Contamination, "Effect of poplar trees on microbial populations important to hazardous waste bioremediation" ($15,000) 1/01/95 - 12/31/95.

EPA/HSRC, "The role of elemental iron in biotransformations of halogenated xenobiotics" ($554,591) 5/1/95 - 4/30/98. (Co-PI with Gene F. Parkin and Jerry L. Schnoor).

Montgomery Watson, Inc. (funded by DoD), "TCE uptake by common garden vegetables" ($154,500) 9/01/94 - 8/31/95.

NIEHS Environmental Health Sciences Core Center at Iowa, "Enhanced degradation of trace levels of benzene" ($9,000) 7/01/94 - 3/31/95.

Center for Global and Regional Environmental Research, "Reductive dechlorination of chlorinated methanes with iron metal" ($15,000) 9/01/94 - 8/31/95.

Iowa State Water Resources Research Institute, "The effect of structural analogues on monoaromatic hydrocarbon biodegradation" ($59,020 plus $45,000 in equipment match-up from U. of Iowa) 7/01/93 - 6/30/96.

National Science Foundation, "The effect of sustained nitrate exposure on monoaromatic hydrocarbon biodegradation" ($11,952) 1/01/94 - 12/31/94.

Microbiotics Corp., "The use of Microtox as a screening tool to evaluate bioremediation techniques" (Equipment grant for $ 10,000) 7/1/94.