KURT PENNELL, Ph.D., P.E., BCEE, F.ASCE, F.AEESP 250th Anniversary Professor

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Education

Ph.D.	University of Florida	1990
M.S.	North Carolina State University	1986
B.S.	University of Maine (with high distinction)	1984

Professional Experience

250th Anniversary Professor	School of Eng., Brown University	2018-
Professor and Chair	Dept. of Civil & Environ. Eng., Tufts. Univ.	2009-2017
Bernard M. Gordon Senior Faculty Fellow in Environmental Eng.		2014-2017
Adjunct Professor	Dept. of Neurology, Emory Univ.	2004-2009
Asst./Assoc./Full Professor	School of Civil & Environ. Eng., Georgia Tech	1995-2009
Assistant Research Scientist	Dept. of Civil & Environ. Eng., Univ. of Michigan	1993-1995
Post-Doctoral Fellow	Dept. of Civil & Environ. Eng., Univ. of Michigan	1990-1993

Selected Professional Activities

Chair, Environmental Engineering Program Leaders (EEPL) Committee, Association of Environmental Engineering and Science Professors (AEESP) 2024-
Program Evaluator (PEV), Accreditation Board for Engineering and Technology (ABET) 2021-
Member, John R. Freeman Lecture, Boston Society of Civil Engineers Section (BSCES) 2020-
Independent Reviewer, Orica Botany Groundwater Cleanup Project, Sydney, Australia 2020
Member, Advisory Board, Rhode Island Water Resources Center 2020-
Panelist, National Academy of Science Engineering and Medicine, PFAS Workshop 2019
Co-Chair, Remediation Technology (RemTec) and Emerging Contaminants Summit 2018-
Instructor, Interstate Technology Research Council (ITRC), Courses on Mass Flux and Integrated Site Characterization and Management 2014-2020
Member, Certification Admissions Committee, American Academy of Environmental Engineers and Scientists (AAEES) 2015-
Member, External Advisory Committee, Brown Univ. Superfund Research Program 2015-2017
Member, National Research Council, Committee on the Nation's Groundwater 2010-2013
Associate Editor, *Journal of Contaminant Hydrology* 2006-

Selected Honors and Awards

Fellow, Association of Environmental Engineering and Science Professors (AEESP) 2019
Outstanding Service Award, Tufts University 2019
Fellow, American Society of Civil Engineers (ASCE) 2016
SERDP Project of the Year, Environmental Restoration 2006, 2012
Career Award (K25), National Institutes of Health (NIEHS) 2006-2009
Outstanding Service Award, Soil Physics Division, Soil Science Society of America 2003
Outstanding Faculty Advisor Award, Chi Epsilon Civil Engineering Honor Society 2003
Faculty Member of the Year Award, College of Engineering, Order of Omega 2000

Professional Certifications

Professional Engineer (P.E.), State of Georgia, No. PE030840 2006-
Board Certified Environmental Engineer (BCEE), AAEES 2009-
Certified Professional Soil Scientist (CPSS), ARCPACS, No. 24756 1998-

Selected Expert/Consulting Activities

Gowanus Canal Superfund Site, Brooklyn, NY	2015-2017
Groyne 42 Cheminova Site, Denmark	2013-2014
First Gulf War, United Nations Compensation Commission - Kuwait	2007-2013

Refereed Publications (from 230; Google Scholars h-index = 60, SCI h-index = 53)

(* = corresponding author, § = advisee)

Klevan, C.§, O. Van Allen§, S. Xia§, K. Mukai§, A. Gomes§, S. Caines§, M.J. Woodcock§, K.D. Pennell*. 2025. Evaluation of co-foaming agents for enhanced removal of per-and polyfluoroalkyl substances (PFAS) by foam fractionation. *Journal of Hazardous Materials*, 494:138423.

Garza-Rubalcava, U.§, C. Klevan§, K.D. Pennell, L.M. Abriola*. 2025. Transport and competitive interfacial adsorption of PFOA and PFOS in unsaturated porous media: Experiments and modeling. *Water Research*, 268: 122728.

Klevan, C.§, S. Caines§, A. Gomes§, K.D. Pennell*. 2024. Accurate determination of perfluorooctanoate aqueous solubility, critical micelle concentration, and acid dissociation constant. *Environmental Science & Technology Letters*, doi.org/10.1021/acs.estlett.4c00858

Wu, H., V. Kalia, K.E. Manz§, L. Chillrud, N.H. Dishon, G.L Jackson, C.K. Dye, R. Orvieto, A. Aizer, H. Levine, M.-A. Kioumourtzoglou, K.D. Pennell, A.A. Baccarelli, R. Machtinger*. 2024. Exposome profiling of environmental pollutants in seminal plasma and novel associations with semen parameters. *Environmental Science & Technology*. 58: 13594-13604.

Dunn F.§, S.E. Paquette, K.D. Pennell, J.S. Plavicki, K.E. Manz§,*. 2024. Metabolomic changes following GenX and PFBS exposure in developing zebrafish. *Aquatic Toxicology*, 271: 106908.

Arshadi, M., U. Garza-Rubalcava§, A. Guedes, N.L. Cápiro, K.D. Pennell, J.Christ, L.M. Abriola*. 2024. Modeling 1-D aqueous film forming foam transport through the vadose zone under realistic site and release conditions. *Science of the Total Environment*, 919: 170566.

Smith, S.J., M. Lauria, C.P. Higgins, K.D. Pennell, J. Blotevogel, H.P.H. Arp*. 2024. The need to include a fluorine mass balance in the development of effective technologies for PFAS destruction. *Environmental Science & Technology*, 58: 2587-2590.

Manz, K.E.*, A. Feerick, J. Braun, Y-L. Feng, A. Hall, J. Koelmel, C.A. Manzano, S. Newton, K. Pennell, B. Place, K.G. Pollitt, C. Prasse, J. Young. 2023. Non-targeted analysis (NTA) and suspect screening analysis (SSA): A review of examining the chemical exposome. *Journal of Exposure Science & Environmental Epidemiology*, 33: 524–536.

Paquette, S.E., N.R. Martin, A. Rodd, K.E. Manz§, E. Allen, M. Camarillo, H.I. Weller, K.D. Pennell, J.S. Plavicki*. 2023. Evaluation of neural regulation and microglial responses to brain injury in larval zebrafish exposed to perfluorooctane sulfonate. *Environmental Health Perspectives*, 131: 117008.

Manz, K.E.§, I. Kulaots, C.A. Greenley§, P.J. Landry, K.V. Lakshmi, M.J. Woodcock§, L. Hellerich, J.D. Bryant, M. Apfelbaum, K.D. Pennell*. 2023. Low-temperature persulfate activation by powdered activated carbon for simultaneous destruction of perfluorinated carboxylic acids and 1,4-dioxane. *Journal of Hazardous Materials*, 442: 129966.

Yan, P.-F., S. Dong, K.E. Manz§, C. Liu§, M.J. Woodcock§, M.P. Mezzari, L.M. Abriola, K.D. Pennell, N.L. Cápiro*. 2022. Biotransformation of 8:2 fluorotelomer alcohol in soil from aqueous film-forming foams (AFFFs)-impacted sites under nitrate-, sulfate-, and iron-reducing conditions. *Environmental Science & Technology,* 56: 13728−13739.

Liao, S.§, S. Akbariyeh, X. Chen, C. Klevan§, C. Greenley§, K.P. Johnston, L.M. Abriola, K.D. Pennell*. 2023. Evaluation of polyelectrolyte complex nanoparticles for prolonged scale inhibitor release in porous media. *Energy & Fuels*, 37(6): 4515–452

Liu, C. [§], J. Chu[§], N.L. Cápiro, J.D. Fortner, K.D. Pennell*. 2022. In-situ sequestration of perfluoroalkyl substances using polymer-stabilized ion exchange resin. *Journal of Hazardous Materials*, 422: 126960.

Dusza, H.M., K.E. Manz[§], K.D. Pennell, R. Kanda, J. Legler*. 2022. Identification of known and novel nonpolar endocrine disruptors in human amniotic fluid. Environment International, 158: 106904.

Liao, S.[§], Z. Saleeba, J.D. Bryant, L.M. Abriola, K.D. Pennell*. 2021. Influence of aqueous film forming foams on the solubility and mobilization of non-aqueous phase liquid contaminants in quartz sands. *Water Research*, 195, 116975.

Costanza, J.[§], L.M. Abriola, K.D. Pennell*. 2020. Aqueous film-forming foams exhibit greater interfacial activity than PFOA, PFOS, or FOSA. *Environmental Science & Technology*, 54: 13590-13597.

Huff, D.K., L.A. Morris, L. Sutter, J. Costanza, K.D Pennell*. 2020. Accumulation of six PFAS compounds by woody and herbaceous plants: potential for phytoextraction. *International Journal of Phytoremediation*, 1-13, doi: 10.1080/15226514.2020.1786004.

Liu, C. [§], J. Hatton, W.A. Arnold, M.F. Simcik, K.D. Pennell*. 2020. In-situ sequestration of per- and polyfluoroalkyl substances (PFAS) using polymer-stabilized powdered activated carbon. *Environmental Science & Technology,* 54: 6929–6936.

Hnatko, J.P., L. Yang, K.D. Pennell, L.M. Abriola, N.L. Cápiro*. 2020. Bioenhanced back diffusion and population dynamics of Dehalococcoides mccartyi strains in heterogeneous porous media. *Chemosphere,* 254: 126842.

Costanza, J.[§], M. Arshadi, L.M. Abriola, K.D. Pennell*. 2019. Accumulation of PFOA and PFOS at the air-water interface, *Environmental Science & Technology Letters*, 6: 487-491.

Aly, Y.H., D.P. McInnis, S.M. Lombardo, W.A. Arnold, K.D. Pennell, J.M. Hatton, M.F. Simcik, 2019. Enhanced adsorption of perfluoro alkyl substances for in situ remediation, *Environmental Science: Water Research Technology*, 5: 1867-1875.

Kingsley, S.L., D.I. Walker, A.M. Calafat, A. Chen, G.D. Papandonatos, Y. Xu, D.P Jones, B.P. Lanphear, K.D. Pennell, J.M. Braun. 2019. Metabolomics of childhood exposure to perfluoroalkyl substances: A cross-sectional study. *Metabolomics*, 15: 95-103.

Wilton N., B.A. Lyon-Marion[§], R. Kamath, K. McVey, K.D. Pennell, A. Robbat. 2018. Remediation of heavy hydrocarbon impacted soil using biopolymer and polystyrene foam beads. *Journal of Hazardous Materials*, 349: 153-159.

Marcet, T.F.[§], N.L. Cápiro, Y. Yang, F.E. Löffler, K.D. Pennell*. 2018. Impacts of low-temperature thermal treatment on microbial detoxification of tetrachloroethene under continuous flow conditions. *Water Research*, 145: 21-29.

Lyon-Marion, B.A.[§], M.D. Becker, A.A. Kmetz[§], E. Foster, K.P. Johnston, L.M. Abriola, K.D. Pennell*. 2017. Simulation of magnetite nanoparticle mobility in a heterogeneous flow cell. *Environmental Science: Nano*, 4: 1512-1524.

Cápiro, N.L. [§], F.E. Löffler, K.D. Pennell*. 2015. Spatial and temporal dynamics of organohalide-respiring bacteria in a heterogeneous PCE-DNAPL source zone. *Journal of Contaminant Hydrology,* 182: 78-90.

Stroo, H.F., A. Leeson, J.A. Marqusee, P.C. Johnson, C.H. Ward, M.C. Kavanaugh, T.C. Sale, C.J. Newell, K.D. Pennell, C.A. Lebrón, M. Unger. 2012. Chlorinated ethene source remediation: Lessons learned. *Environmental Science & Technology,* 46: 6438-6447.

Cápiro, N.L. [§], E.K. Granbery[§], C.A. Lebrón, D.W. Major, M.L. McMaster, M.J. Pound, F.E. Löffler, K.D. Pennell*. 2011. Liquid−liquid mass transfer of partitioning electron donors in chlorinated solvent source zones. *Environmental Science & Technology,* 45: 1547-1554.

Costanza, J.[§], G. Otaño[§], J. Callaghan[§], K.D. Pennell*. 2010. PCE oxidation by sodium persulfate in the presence of solids. *Environmental Science & Technology,* 44: 9445-9450.

Research Projects (selected from 77 externally funded grants)

Perfluoroalkyl Substances and Risk of Kidney Cancer in US Men and Women (R01 ES034014)
Funding Agency: National Institutes of Health (NIEHS) 7/1/24-6/30/29
Role: co-PI with Tongzhang Zheng (PI, Brown-SPH)

Airborne Metals, Neurodegeneration and Cognitive Decline: Examining the Olfactory System in The Adult Changes in Thought Study (R01 ES035501) 8/1/23-7/31/28
Funding Agency: National Institutes of Health (NIEHS)
Role: co-PI with Helen Suh (PI, Tufts) and Joshua Sonnen (UWashington)

Polymer Addition for Improved Removal of Short-Chain PFAS by Dissolved Air Flotation
Funding Agency: Department of Defense, SERDP ER21-3540 5/24/23-5/23/27
PI

In Situ Sequestration of PFAS-Impacted Groundwater Using Stabilized Ion Exchange Resin
Funding Agency: Department of Defense, ESTCP ER21-7754 10/1/23-9/30/27
PI with James Hatton (co-PI, Jacobs Eng.)

Environmental Conditions Influencing Natural Abiotic and Biotic Transformation of Perfluoroalkyl Acid (PFAA) Precursors at AFFF-impacted Sites
Funding Agency: Department of Defense, SERDP ER23-3628 11/1/23-10/31/27
co-PI with Natalie Capiro (PI, Cornell) and Katherine Manz (co-PI, UMichigan)

Experimental Evaluation and Mathematical Modeling of Particulate Amendment Delivery, Retention and Adsorption Performance in the Subsurface
Funding Agency: Department of Defense, SERDP ER21-1129 6/1/22-5/31/25
PI with Linda Abriola (co-PI, Brown) and Rula Deeb (co-PI, Geosyntec)

Experimental and Theoretical Validation of the Chemical Kinetics for the Thermal Destruction of Perfluoroalkyl Alkyl Substances
Funding Agency: Department of Defense, SERDP ER21-1234 6/1/22-5/31/26
co-PI with Franklin Goldsmith (PI, Brown) and Eric Suuberg (co-PI, Brown)

Evaluating PFAS Occurrence and Fate in Rural Water Supplies and Agricultural Operations to Inform Management Strategies
Funding Agency: US Environmental Protection Agency 09/01/20-8/31/24
co-PI with Linda Lee (PI, Purdue) and Heather Preisendanz (co-PI, Penn State)

Impacts of Surface Coating Aging on Nanomaterial Fate and Transport in Porous Media
Funding Agency: National Science Foundation, CBET-1236653 10/1/12 – 9/30/15
PI with Linda Abriola (Tufts, co-PI), Yonggang Wang (Tufts, co-PI), John Fortner (WashU, co-PI)

Secondary Impacts of In Situ Remediation on Groundwater Quality and Post-Treatment Management Strategies (ER-2129)
Funding Agency: Department of Defense, SERPD ER-2129 4/1/11 – 12/31/15.
PI with Natalie Capiro (Tufts, co-PI) and Frank Löffler (Tennessee, co-PI)

Fate and Transport of Metal-Based Nanoparticles in the Subsurface
Funding Agency: National Science Foundation 7/1/09-6/30/12
PI with Linda Abriola (Tufts, co-PI) and Yusong Li (Nebraska, co-PI)

Quantitative Metabolomic Analysis of Chronic Exposures to Environmental Toxicants
Funding Agency: National Institutes of Health (NIEHS) 5/8/06 – 4/30/10
PI (K25 Career Award)

Investigation of Chemical Reactivity, Mass Recovery and Biological Activity During In Situ Thermal Treatment of DNAPL Source Zones
Funding Agency: Department of Defense, SERDP
PI with Frank Löffler (GT, co-PI) and Eva Davis (EPA-NRML, co-PI)