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

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**Education**

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

**Professional Experience**

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| 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**

Program Evaluator (EnvE), Accreditation Board for Engineering and Technology 2021-
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, Environmental Health Matters Initiative, PFAS Workshop 2019
Co-Chair, Organizing Committee for Remediation Technology Summit (RemTec) 2018-
Member, Certification Admissions Committee, American Academy of Environmental Engineers and Scientists 2015-
Member, External Advisory Committee, Brown Univ. Superfund Research Program 2015-2017
Member, National Research Council, Committee on the Nation's Groundwater 2010-2013

**Selected Honors and Awards**

Fellow, Association of Environmental Engineering and Science Professors (AEESP) 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
Board Certified Environmental Engineer (BCEE), AAEES
Certified Professional Soil Scientist (CPSS), ARCPACS, No. 24756

**Selected Expert Witness/Consulting Activities**

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

**Refereed Publications (selected from 200; Google Scholars h-index = 58, SCI h-index = 50)**


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.

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. *Environ. Sci. Technol.,* 56: 13728−13739.

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. *J. Hazardous Materials*, 442: 129966.

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. *J. Hazardous Materials*, 422: 126960.

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 Res*., 195, 116975.

Costanza, J., L.M. Abriola, K.D. Pennell. 2020. Aqueous film-forming foams exhibit greater interfacial activity than PFOA, PFOS, or FOSA. *Environ. Sci. Technol.*, 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 J. 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. *Environ. Sci. Technol.,* 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, *Environ. Sci. 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, *Environ. Sci: Water Res. Technol.*, 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. *J. Hazardous Mater.*, 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 Res.*, 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. *Environ. Sci.: Nano*, 4: 1512-1524.

Pennell, K.D. 2016. Specific surface area. *In* Reference Manual in Earth Systems and Environmental Sciences, S.A. Elias (ed.), Elsevier, Oxford, UK. ISBN: 978-0-12-409548-9.

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. *J. Contam. Hydrol*. 182: 78-90.

Pennell, K.D., N.L. Cápiro, D.I. Walker. 2013. Surfactant and cosolvent flushing. *In* Chlorinated Solvent Source Zone Remediation, B. Kueper, H.F. Stroo, H. Ward (eds): Section IV. Remediation Technologies, Chapter 13, Washington, DC.

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. *Environ. Sci. Technol.,* 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. *Environ. Sci. Technol.,* 45: 1547-1554.

Costanza, J., G. Otaño, J. Callaghan, K.D. Pennell. 2010. PCE oxidation by sodium persulfate in the presence of solids. *Environ. Sci. Technol.,* 44: 9445-9450.

Christ, J.A., C.A. Ramsburg, K.D. Pennell, L.M. Abriola. 2010. Predicting DNAPL mass discharge from pool-dominated source zones. *J. Contam. Hydrol.,* 114:18-34.

**Research Projects (selected from 65 externally funded)**

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 (Washington)

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 (EPA) 09/01/20-8/31/24
co-PI with Linda Lee (PI, Purdue) and Heather Preisendanz (co-PI, Penn State)