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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

250 th Anniversary Professor	School of Eng., Brown University	2018-
Adjunct Professor	Dept. of Civil & Environ. Eng., Tufts. Univ.	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

Independent Reviewer, Orica Botany Groundwater Cleanup Project, Sydney, Australia	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
Independent Reviewer, United Nations Compensation Committee, 1 st Gulf War	2008-2014
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 Refereed Publications (from 160; Google Scholars h-index = 48, SCI h-index = 38)

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.
- Walker, D.I., M.E. Marder, Y. Yano, M. Terrell, Y. Liang, D.B. Barr, G.W. Miller, D.P. Jones, M. Marcus, K.D. Pennell. 2019. Multigenerational metabolic profiling in the Michigan PBB registry. *Environ. Res.*, 172: 182-193.
- 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.
- Walker, D.I., K. Uppal, L. Zhang, R. Vermeulen, M. Smith, W. Hu, M.P. Purdue, X. Tang, C. Qiu, B. Reiss, S. Kim, L. Li, H. Huang, K.D. Pennell, D.P. Jones, N. Rothman, Q. Lan. 2016. High-resolution metabolomics of occupational exposure to trichloroethylene, *Int. J. Epidemiol.*, 45: 1517-1527.
- 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.
- Becker, M.D., Y. Wang, J. Paulsen, Y-Q. Song, L.M. Abriola, K.D. Pennell. 2014. In situ measurement and simulation of nano-magnetite mobility in porous media subject to transient salinity. *Nanoscale*, 7: 1047-1057.
- 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.
- Wang, Y., Y. Li, J. Costanza, L.M. Abriola, K.D. Pennell. 2012. Enhanced mobility of fullerene nanoparticles in the presence of stabilizing agents. *Environ. Sci. Technol.*, 46: 11761-11769.
- Abriola, L.M., J.A. Christ, K.D. Pennell, C.A. Ramsburg. 2012. Source remediation challenges. Delivery and Mixing in the Subsurface: Processes and Design Principles for In-Situ Remediation. Kitanidis, P.K., P.L. McCarty (Eds.), American Geophysical Union, Monograph, Chapter 10, Washington, DC.
- 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.
- Amos, B.K., E.J. Suchomel, K.D. Pennell, F.E. Löffler. 2009. Spatial and temporal distributions of *Geobacter Lovleyi* and *Dehalococcoides* spp. during bioenhanced PCE-NAPL dissolution. *Environ. Sci. Technol.*, 43: 1977-1985.
- Wang, Y., Li, Y., K.D. Pennell. 2008. Influence of electrolyte concentration and species on the aggregation and transport of fullerene nanoparticles in quartz sand. *Environ. Toxicol. Chem.*, 29: 1860-1867.
- Li, Y., L. M. Abriola, T.J. Phelan, C.A. Ramsburg, K.D. Pennell. 2007. Experimental and numerical validation of the total trapping number for prediction of entrapped DNAPL mobilization. *Environ. Sci. Technol.*, 41: 8135-8141.
- Suchomel, E.J., C.A. Ramsburg, K.D. Pennell. 2007. Evaluation of trichloroethene recovery processes in heterogeneous aquifer cells flushed with biodegradable surfactants. *J. Contam. Hydrol.*, 94: 195-214.
- Costanza, J., E.L. Davis, J.A. Mulholland, K.D. Pennell. 2005. Abiotic degradation of trichloroethylene under thermal remediation conditions. *Environ. Sci. Technol.*, 39 (17): 6825-6830.

Selected Research Projects (from 55 externally funded)

- Acquisition of a High-Resolution Liquid Chromatograph-Mass Spectrometer for Environmental Exposure Biomonitoring Research and Training
 Funding Agency: National Science Foundation (NSF) 9/01/18-8/31/21
 PI with Joe Braun (Brown), Vicki Colvin (Brown), and Jess Plavicki (Brown)
- Development of Coupled Physiochemical and Biological Systems for In-Situ Remediation of Mixed Perfluorinated Chemical and Chlorinated Solvent Groundwater Plumes
 Strategic Environmental Research Development Program (SERDP) 1/01/18-8/31/21
 PI with Natalie Cápiro (Auburn) and John Fortner (Yale)
- Development and Laboratory Validation of Mathematical Modeling Tools for Prediction of PFAS Formation, Transport, and Retention in AFFF Source Areas
 Strategic Environmental Research Development Program (SERDP) 6/01/18-5/31/21
 co-PI with Linda Abriola (PI, Tufts) and Natalie Cápiro (Auburn)
- Effects of Nano-Bio Interactions on Nanoparticle Fate and Transport in Porous Media
 National Science Foundation (NSF) 9/1/17-8/31/20
 PI with John Fortner (Wash Univ.) and Natalie Capiro (Tufts)
- An Environment-wide Association Study in Autism Spectrum Disorders Using Novel Bioinformatics Methods and Metabolomics via Mass Spectrometry
 National Institute of Health (NIH) 9/1/15 - 8/31/20
 co-PI with Sek Won Kong (Children's Hospital, PI), Dean Jones (Emory, co-PI)
- Measurement and Modeling of High Mobility Nanoparticles for Advanced Oil Recovery
 Advanced Energy Consortium (AEC) 1/01/15-3/31/18
 PI with Linda Abriola (Tufts)
- Novel Approach for in situ Remediation of PFC Contaminated Groundwater
 Strategic Environmental Research Development Program (SERDP) 9/01/14 – 12/31/17
 co-PI with Matt Simick (Univ. Minn., PI) and Bill Arnold (Univ. Minn.)
- Development of an Integrated Field Test/Modeling Protocol for Efficient In Situ Bioremediation
 Strategic Environmental Research Development Program (SERDP) 5/1/13 – 12/31/17
 co-PI with Linda Abriola (PI, Tufts), Natalie Capiro (Tufts), Eric Miller (Tufts)