

## Joel Gerard Burken, Ph.D., P.E., BCEE, F.AEESP

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**NOTE:** The University of Missouri-Rolla (UMR) changed name to the Missouri University of Science & Technology (Missouri S&T) on January 1, 2008

### EDUCATION

Ph.D. - Environmental Engineering and Science (EES) graduate program - Civil & Environmental Engineering Department, University of Iowa, Iowa City, Iowa, Dec., 1996. Dissertation: Fate and Uptake of Organic Contaminants by Hybrid Poplar Trees.

M.S. - Environmental Engineering and Science (EES) graduate program - Civil & Environmental Engineering Department University of Iowa, Iowa City, Iowa, Aug., 1993. Thesis: Vegetative Uptake by Populus sp. & Mineralization of Atrazine in Variable Soil Types.

B.S. with Honors - Civil & Environmental Engineering (CEE) Department, University of Iowa, Iowa City, Iowa, Dec., 1991. Honors Paper: Simulation of Steering Dynamics.

### PROFESSIONAL EXPERIENCE AND POSITIONS

2016 – Present Department Chair of Civil, Architectural, & Environmental Engineering; Missouri University of Science and Technology

2018 – Present ASCE Department Heads Coordinating Council, Elected nationally 2018.

2016 – Present USEPA Science Advisory Board, Appointed and Congressional Confirmation 2016.

2015 – Present Curators' Distinguished Professor, Department of Civil, Architectural, & Environmental Engineering; Missouri University of Science and Technology

2015 – 2016 Interim Chair, Department of Civil, Architectural, & Environmental Engineering; Missouri University of Science and Technology

2013 – 2016 Director, Environmental Research Center, Missouri University of Science and Technology

Vitae: Joel G. Burken

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Continued: Experience and Positions

- 2010 – 2015 Associate Chair, Department of Civil, Architectural, & Environmental Engineering; Missouri University of Science and Technology
- 2008 – 2015 Professor, Department of Civil, Architectural, & Environmental Engineering; Missouri University of Science and Technology
- 2008 – 2014 Chairman (founding) Missouri S&T Green Campus Committee
- 2014 Jan -June Acting Chair, Department of Civil, Architectural, & Environmental Engineering; Missouri University of Science and Technology
- 2011 – 2014 Board of Directors Association of Environmental Engineering and Science Professors Foundation Board of Directors
- 2005 – Present Associate Editor: International Journal of Phytoremediation
- 2014 May-Oct Erskine Fellow – University of Christchurch, Canterbury New Zealand
- 2005 – 2013 Associate Editor: Journal of Environmental Engineering (ASCE)
- 2008 – 2012 Board of Directors Association of Environmental Engineering and Science Professors (AEESP) 2008 – 2012. Vice President 2009-2010, President Elect 2010 – 2011, President 2011 - 2012
- 2008 – 2010 Interim Director Environmental Research Center, Missouri S&T
- 2002 – 2008 Associate Professor, Department of Civil, Architectural, & Environmental Engineering; Missouri University of Science and Technology /UMR
- 2002 – 2008 Coordinator Environmental Engineering Undergraduate Program, Missouri S&T/ University of Missouri-Rolla.
- 2007 – 2011 Vice President - International Phytotechnology Society (IPS)
- 2005 Visiting Scholar Danish National Environment Research Institute, Roskilde, DK. - OECD Fellowship.
- 1997- 2002 Assistant Professor, University of Missouri-Rolla, Department of Civil Engineering.
- 1995 Research Intern, Swiss Federal Institute for Environmental Science and Technology (EAWAG),

**HONORS AND AWARDS**

National & International

- Milton Gordon Award - Lifetime research accomplishment in Phytoremediation,

- International Phytoremediation Society, 2019. Changsha, China. (1 annually internationally)
- Distinguished Service Award: Association of Environmental Engineering and Science Professors (AEESP) 2019
- American Academy of Environmental Engineers and Scientists (AAEES) - Science Award 2018 (1 annually)
- University of Western Cape, South Africa - University of Missouri South African Education Program - Summer research exchange July 2018
- U.S. Environmental Protection Agency Chartered Science Advisory Board (appointed by U.S. EPA Administrator) 2016 – 2022
- Chair (2017-18) and member (2015-18) Investment Advisory Committee - Association of Environmental Engineering and Science Professors Foundation (AEESPF)
- Fellow – Association of Environmental Engineering and Science Professors (AEESP), class of 2016
- Distinguished Service Award – International Phytotechnologies Society 2016
- Chapter Honor Member - Chi Epsilon 2016 (civil engineering national honors society)
- Erskine Fellow 2014: University of Canterbury, Christchurch New Zealand
- Distinguished Service Award: Association of Environmental Engineering and Science Professors (AEESP) 2012
- 1<sup>st</sup> prize NICOLE Technology Award 2012 Network for Industrially Contaminated Land in Europe for Project “Pollution Identification in Trees”, PI Jean Christoph Balouet. JG Burken Co-PI
- Board of Directors - Association of Environmental Engineering and Science Professors Foundation (AEESPF) 2011 – 2014
- Board Certified Environmental Engineering BCCE, American Academy of Environmental Engineering, 2011.
- Board of Directors Association of Environmental Engineering and Science Professors (AEESP) 2008 – 2012  
Elected by board to serve as Vice President - President Elect - President: 2009 - 2012
- Invited attendee: DOE 2010 Science and Energy Challenge (SEARCH Program), Argonne National Lab.
- Conference Chair – 6<sup>th</sup> International Phytotechnologies Conference 2009, St. Louis MO
- US Congressional Visits Day Delegate - AEESP April 2009, April 2010
- Tau Beta Pi Eminent Scholar inductee, April 2009
- 2007-2009 Vice President of International Phytotechnologies Society
- 2007 AEESP Outstanding Teaching in Environmental Engineering and Science Award, Association of Environmental Engineering and Science Professors (International)
- 2007 Rudolph Hering Medal for the Most Valuable Contribution to the Environmental Branch of Engineering, American Society of Civil Engineers, for the paper “Impacts of Component-ion Molar Ratios and pH in Struvite Precipitation”

(International)

- Water Environment Federation VIP Circle (new member recruiting), 2007
- OECD 2005 Research Fellowship (Organization for Economic Cooperation & Development - Paris) Fellowship conducted at Danish National Environment Research Institute, Roskilde, DK.
- Faculty Early Career Development (CAREER) Award 2000, National Science Foundation.
- 1998 Rudolph Hering Medal for the Most Valuable Contribution to the Environmental Branch of Engineering, American Society of Civil Engineers, for the paper “Phytoremediation: Plant Uptake of Atrazine and Role of Root Exudates.”
- American Chemical Society 1996 Environmental Chemistry Graduate Student Award.
- Order of Daedalions (1 of 9 nationally – Air Force ROTC, 1990).

University/Regional/Local

- Presidential Engagement Fellow – President of University of Missouri System Service 2018 - Present
- Summer research exchange with the University of Western Cape, South Africa - University of Missouri South African Education Program, 2016
- Appointed Curators’ Distinguished Professor of Civil, Architectural and Environmental Engineering, 2015
- President’s Award for University Citizenship: Excellence in Service 2015. From President’s Office University of Missouri System. (1 annually across 4 campuses)
- 7 Faculty Excellence Awards - Missouri University of Science & Technology/UMR: 1999, 2000, 2003, 2004, 2008, 2010, 2014 (5 given annually on campus)
- Missouri University of Science & Technology, Faculty Research Award, 2013 (highest university award for research)
- Missouri University of Science & Technology, Faculty Service Award, 2012, (highest university award for service)
- Missouri S&T Alumni Merit Award, 2012, Missouri S&T Alumni Association (<1 annually granted to non-alumni)
- Outstanding Teaching Award of Excellence – Missouri S&T Global Learning, 2011
- Lecturer 2009 Linda Hall Lecture Series, Linda Hall Library of Science, Engineering and Technology
- Missouri University of Science & Technology, Faculty Service Award, 2009 (highest university award for service)
- Missouri Waste Control Coalition Outstanding Achievement in Education, 2008
- School of Engineering, Most Outstanding Advisor Award (1 on campus), 2007
- Outstanding Teaching Award, University of Missouri Rolla, 2004
- Dean of Engineering Teaching Excellence Award, University of Missouri Rolla, 2004.
- 2004 Ozark Rivers Solid Waste Management District Outstanding Contribution Award.
- Joseph Senne Award – 2003 “Most Outstanding Professor in Civil, Architectural &

Environmental Engineering” – University of Missouri Rolla Academy of Civil Engineers

- Nominated by University of Missouri Rolla for the 2001 ASEE Midwest Section Outstanding Teaching Award.
- Nominated for the 2002 James Robbins Outstanding Teaching Award from Chi Epsilon
- Univ. of Iowa Center for Biocatalysis and Bioprocessing Fellowship (1993 - 1996).
- 1992 Neil B. Fisher Environmental Engineering Fellowship, University of Iowa.
- State of Iowa Transportation Scholar (May 1991 - May 1992).

### STUDENT AWARDS

- Mariam Al-Lami – 1<sup>st</sup> place student presentation at 25<sup>th</sup> Annual Environmental Engineering and Science Symposium “Seeking Solutions to Environmental Challenges” (University of Illinois). 2019
- Mariam Al-Lami – 1<sup>st</sup> place student 2018 graduate student research showcase.
- Paul Manley – 1<sup>st</sup> place for student presentation 2017 International Phytotechnologies Conference – Montreal Canada
- Mariam Al-Lami – 1<sup>st</sup> place student paper competition 2016 American Society of Mining and Reclamation’s annual meeting, Spokane, Washington.
- Jordan Wilson – 2<sup>nd</sup> Place for Best Student paper, Tenth International Conference on Remediation of Chlorinated and Recalcitrant Compounds " “Phytoforensics: High Density, Low Cost” May 2016.
- Katherine Bartels – 1<sup>st</sup> place in the 2016 Civil Engineering Academy Undergraduate Student Research Poster Competition, April 2016
- Mariam Al-Lami – 1<sup>st</sup> place in the 2016 Civil Engineering Academy Graduate Student Research Poster Competition, April 2016
- Katherine Bartels – 2016 EPA Greater Research Opportunities (GRO) Fellowship (2 year national fellowship)
- Jordan Wilson – Honorable mention Missouri S&T Graduate Research Presentation 2016
- Madison Gibler – 2<sup>nd</sup> place in Best Paper competition, EWRI-ASCE 2015.
- Paul Manley – 3<sup>rd</sup> place in Missouri S&T Three Minute Thesis presentation.
- Madison Gibler – Top Poster Presentation, EmCon 2014: Fourth International Conference on Occurrence, Fate, Effects & Analysis of Emerging Contaminants in the Environment. Iowa City Iowa (2014)
- Amanda Holmes – 3<sup>rd</sup> place in Missouri S&T Undergraduate Research Conference (2014)
- Jordan Wilson – 3<sup>rd</sup> place in Campus Chancellors’ Fellows Research Conference (2013)
- Grace Harper – Honorable Mention (4<sup>th</sup> place) in Campus Chancellors’ Fellows Research Conference (2013)
- Matt Limmer – 2012 ACS Division of Environmental Chemistry C. Ellen Gonter Award for the Paper “Advances in Phytoscreening: Azimuthal uptake of chlorinated solvents.”

- Matt Limmer – Best platform Presentation 9<sup>th</sup> International Phytotechnologies Conference, Hasselt Belgium, September 2012
- Amanda Holmes – 2012 EPA Greater Research Opportunities (GRO) Fellowship (2 year national fellowship)
- Matt Limmer & Joel Burken – Best Paper Award: Eighth International Conference on Remediation of Chlorinated and Recalcitrant, Battelle, May 2012
- Amanda Holmes – 1<sup>st</sup> place in Missouri S&T Undergraduate Research Conference (2012)
- Matt Limmer \*, Amanda Holmes, Joel Burken – Second prize, Poster Presentation 8<sup>th</sup> International Phytotechnologies Conference, Portland Oregon, September 2011
- Mikhail Shetty\*, Matt Limmer, Joel Burken – First prize, Poster Presentation 7<sup>th</sup> International Phytotechnologies Conference, Parma Italy, September 2010
- Matt Limmer – 2010 NSF Fellowship
- Cailie Carlisle – 2009 EPA Greater Research Opportunities (GRO) Fellowship (2 year national fellowship)
- Cailie Carlisle – 2008 DOE-SULI Internship
- Hannah Bruce – 2007 EPA Greater Research Opportunities (GRO) Fellowship (2 year national fellowship)
- Garrett C. Struckhoff & Joel Burken – Best Paper Award 4<sup>th</sup> International Conference on Remediation of Chlorinated and Recalcitrant Compounds; Battelle Memorial Institute, 2004
- Jerry Gander – 2<sup>nd</sup> place in the 1998 Dean's honors projects competition
- Brady Hays – 2<sup>nd</sup> place in UMR Undergraduate Research Symposium, 1998

#### PROFESSIONAL REGISTRATIONS

- Professional Engineer: Missouri License PE-2010019514 (2010)
- Board Certified Environmental Engineer, American Academy of Environmental Engineering and Science (AAEES), 2011

#### PATENT

- Assemblies for Use In Delineating Subsurface Contamination, and Related Methods: U.S. Patent No. 8,286,511 (2012)

#### PUBLICATIONS - JOURNALS ARTICLES

**Scholar profile: H = 33, >4300 Citations Since 2014 H = 21, >1700 Citations**

<http://scholar.google.com/citations?user=7-aQ35EAAA&hl=en>

**Scopus profile: H = 27, >2450 Citations**

<http://www.scopus.com/authid/detail.url?authorId=7004572174>

1. Manley, P.V., Fritsche, F., Sagan, V. Burken, J.G. (2019) Remote Sensing of Explosives-Induced Stress in Plants: Hyperspectral Imaging Analysis for Remote Detection of Unexploded Threats. *Remote Sensing*, 11 (15), 1827
2. Bagheri, M, Al-jabery, K., Wunsch, D., Burken, J. (2019) Examining Plant Uptake and Translocation of Emerging Contaminants Using Machine Learning: Implications to Food

Security, *Science of the Total Environment*, Accepted 8-22-2019

<https://www.sciencedirect.com/science/article/pii/S0048969719339762>

3. Rossi, L., Bagheri, M., Zhang, W., Chen, Z., Burken, J.G. (2019) Using artificial neural network to investigate physiological changes and cerium oxide nanoparticles and cadmium uptake by *Brassica napus* plants. *Environmental Pollution*. 246, 381-389
4. Sidike, P., Sagan, V., Maimaitijiang, M., Maimaitiyiming, M., Maimaitiyiming, M., Shakoor, N., Burken, J.G., Mockler, T., Fritschi, F. (2019) dPEN: deep Progressively Expanded Network for mapping heterogeneous agricultural landscape using WorldView-3 satellite imagery, *Remote Sensing of Environment*, 2019, 221, pp. 756-772
5. Al-Lami, M., Gonzalez, E., Oustriere, N., Burken, J.G., (2019) Amendment-Assisted Revegetation of Mine Tailings: Improvement of Tailings and Biomass Production, *International Journal of Phytoremediation*. 21(5), pp. 425-434
6. Bagheri, M, Al-jabery, K., Wunsch, D., Burken, J. (2019) A deeper look at plant uptake of environmental contaminants using intelligent approaches. *Science of the Total Environment*, 651, pp. 561-569.
7. Li, H., Yin, Z, Mao, Y., Manley, P.V., Burken, J.G., Fahlgren, N., Shakoor, N. Mockler, T. (2019) Early Drought Plant Stress Detection with Bi-Directional Long-Term Memory Networks. *Photogrammetric Engineering & Remote Sensing*. 84(7), pp. 459-468.
8. Wilson J.L., Limmer, M.A., Samaranayake, V.A., Burken, J.G. (2018) Phytforensics: Trees as bioindicators of potential indoor exposure via vapor intrusion. *PLoS ONE* 13(2): e0193247.
9. Limmer, M.A., Wilson, J.L., Westenberg, D.J., Lee, A.L., Siegman, M., Burken, J.G. (2018) Phytoremediation removal rates of benzene, toluene, and chlorobenzene, *International Journal of Phytoremediation*. 20(7), pp. 666 – 674.
10. Maimaitijiang, M., Ghulam, A., Paheding, S., Hartling, S., Maimaitiyiming, M., Peterson, K., Shavers, E., Fishman, J., Peterson, J., Kadam, S., Burken, J. and Fritschi, F. (2017) Unmanned aerial system (UAS)-based phenotyping of soybean using multi-sensor data fusion and extreme learning machine, *ISPRS Journal of Photogrammetry and Remote Sensing*. 134, pp. 43-58.
11. Wilson J.L., Samaranayake, V.A., Limmer, M.A., Burken, J.G. (2017) Contaminant Gradients in Trees: Directional Tree Coring Reveals Boundaries of Soil and Soil-Gas Contamination with Potential Applications in Vapor Intrusion Assessment *Environmental Science & Technology*. 51 (24), pp 14055–14064.
12. Doty, S. L., Freeman, J. L., Cohu, C. M., Burken, J. G., Firrincieli, A., Simon, A., Areen Khan, Z., Isebrands, J.G., Lukas, J., Blaylock, M. J. (2017). Enhanced degradation of

- TCE on a Superfund site using endophyte-assisted poplar tree phytoremediation. *Environmental Science & Technology*. 2017, 51 (17), pp 10050–10058.
13. Wilson J.L., Limmer, M.A., Samaranayake, V.A., Schumacher, J.G., Burken, J.G. (2017) Tree Sampling as a Method to Assess Vapor Intrusion Potential at a Site Characterized by VOC-Contaminated Groundwater and Soil, *Environmental Science and Technology*. 2017, 51 (18), pp.10369-10378.
  14. Limmer, M.A., Burken, J.G. (2016) Phytovolatilization of Organic Contaminants. *Environmental Science and Technology*. 2016, 50 (13), pp. 6632–6643
  15. Panwar, A., Al-Lami, M., Bharti, P., Chellappan, S., Burken, J.G. (2016) Determining the effectiveness of soil treatment on plant stress using smart-phone cameras; Selected Topics in Mobile & Wireless Networking(MoWNeT) pp 1-8.
  16. Wilson, J.L., Schumacher, J.G., Burken, J.G. (2016) Persistence and Microbial Source Tracking of Escherichia coli at a Swimming Beach at Lake of the Ozarks State Park, *Missouri Journal of the American Water Resources Association (JAWRA)* 52(2), pp. 508-522.
  17. Limmer, M.A., Burken, J.G. (2015) Phytoscreening with SPME: Variability Analysis, *International Journal of Phytoremediation*. 17 (11), pp. 1115-1122
  18. Farrow, E., Wang, J., Burken, J., Shi, H., Yan, W., Yang, J., Hua, B., Deng, B. (2015) Reducing arsenic accumulation in rice grain through iron oxide amendment, *Ecotoxicology and Environmental Safety*, 118, 55-61.
  19. Limmer, M.A., West, D.M., Mu, R., Shi, H., Whitlock, K., Burken, J.G. (2015) Phytoscreening for Perchlorate: Rapid Analysis of Tree Sap *Environmental Science: Water Research & Technology*, 1, 138 – 145. (feature, Cover article)
  20. West, D.M., Mu, R., Gamagedara, S., Ma, Y., Adams, C.D., Eichholz, T., Burken, J.G., Shi, H. (2015 ) Simultaneous detection of perchlorate and bromate using ultra-fast ion exchange chromatography - tandem mass spectrometry and perchlorate removal in drinking water *Environmental Science and Pollution Research*, 1-9.
  21. Harper G. E., Limmer, M.A. Showalter, E., Burken, J.G. (2015) Green Roof Water Impacts and Climate-based Modeling, *Journal of Ecological Engineering* Volume 78, May 2015, Pages 127–133.
  22. Limmer, M.A., Holmes, A.H., Burken, J.G. (2014) Phytomonitoring of Chlorinated Ethenes in Trees: A Four-year Study of Seasonal Chemodynamics *in Planta*, *Environmental Science and Technology*, 2014, 48, (18), 10634-10640.



23. Limmer, M.A., Burken, J.G. (2014) Plant Translocation of Organic Compounds: Physicochemical Predictors *Environmental Science and Technology Letters* 2014, 1 (2), pp 156–161. (Also Highlighted in *Science* v343, p 1291)
24. Stringer, R., Burken, J., Elmore, A.C., Reible D.D. (2014) Using in situ solid phase microextraction (SPME) for depth profiling in sediments treated with activated carbon. *J Soils Sediments*, 2014, 14(5) pp. 1013-1020.
25. Limmer, M.A., Martin, G., Watson, C.J., Martinez, C., Burken, J.G. (2014) Phytoscreening: A Comparison of *In planta* Portable GC-MS and *In vitro* Analyses. *Groundwater Monitoring and Remediation* 34, no. 1: pp. 49–56. (Cover Article)
26. Smith, K.T., Balouet, J.C., Shortle, W.C., Chalot, M., Beaujard, F., Grudd, H., Vroblesky, D.A., Burken, J.G., (2014) Dendrochemical patterns of calcium, zinc, and potassium related to internal factors detected by energy dispersive X-ray fluorescence (EDXRF). *Chemosphere* 95 (2014), pp.58–62.
27. Shetty, M., Limmer, M.A., Waltermire, K.W., Morrison, G.C., Burken, J.G. (2014) *In planta* Passive Sampling Devices for Assessing Subsurface Chlorinated Solvents. *Chemosphere*, Volume 104, pp. 149–154
28. Carlile, C., Nadiger, S., Burken, J. (2013) Effect of Fly Ash on Growth of Mustard and Corn *Biosciences Biotechnology Research Asia*, 10(2), 551-557
29. Limmer, M.A., Shetty, M., Markus, S.A., Kroeker, R. Parker, B. Burken, J.G. (2013) Directional Phytoscreening: Contaminant Gradients in Trees for Plume Delineation *Environmental Science and Technology*, 47 (16), pp. 9069–9076
30. Odom, L., Burken, J.G., Newman, L.A. (2013) Distribution and Accumulation of Trichloroethylene and Trichloroacetic Acid in Hybrid Poplars. *Journal of Environmental Engineering* 139(9) pp.1162-1167.
31. Henry, H.F., Burken, J.G., Maier, R.M., Newman, L.A., Schnoor, J.L., Rock, S.; Suk, W.A. (2013) Phytotechnologies – Preventing Exposures, Improving Public Health, To *International Journal of Phytoremediation* 15 (9), 889-899
32. Wilson, J., Bartz, R., Limmer, M.A., Burken, J.G. (2013) Plants as Bio-Indicators of Subsurface Conditions: Impact of Groundwater Level on BTEX Concentrations in Trees. *International Journal of Phytoremediation*, 15 (9), pp. 900-910.
33. Limmer, M.A., Balouet, J.C., Burken, J.G., Karg, F., Vroblesky, D.A., Smith, K.T., Grudd, H., Rindby, R., Beaujard, F., Chalot, M. (2012) Dendrochemistry of Multiple Releases of Chlorinated Solvents at a Former Industrial Site *Environmental Science and Technology*, 46 (17), pp. 9541–9547.

34. Mu, R., Wang, X., Yuan, Y., Karnjanapiboonwong, A., Shi, H., Burken, J.G., Ma, Y. (2012) A fast separation and quantification method for Nitroguanidine and 2, 4-Dinitroanisole by liquid chromatography/tandem mass spectrometry, *Analytical Chemistry* 84(7), pp. 3427–3432.
35. Karnjanapiboonwong, A., R. Mu, Y. Yuan, H. Shi, Y. Ma, J.G. Burken. (2012) Plant tissue analysis for explosive compound detection in phytoremediation and phytoforensics. *Journal of Environmental Science and Health, Part A* 47: pp. 2219–2229, 2012.
36. Liu, G., Canter, T., Wang, J., Fitch, M.W., Burken, J.G (2012) Baffled Bioreactor (BBR) for Advanced Wastewater Treatment *Journal of Environmental Engineering* 138, pp. 239-248.
37. Sheehan, E., Burken, J.G., Limmer, M.A., P. Mayer, U. Gosewinkel Karlson (2012) Time weighted SPME analysis for *in-planta* phytomonitoring analysis, *Environmental Science and Technology* , 46(6), pp. 3319–3325
38. Limmer, M.A., Balouet, J.C., Karg, F., Vroblesky, D.A., Burken, J.G. (2011) Phytoscreening for Chlorinated Solvents Using Rapid In-Vitro SPME Sampling: Application to Urban Plume in Verl, Germany. *Environmental Science and Technology*, 45(19):pp. 8276-82.
39. Burken, J.G., Vroblesky, D.A., Balouet, J.C. (2011) Phytoforensics, Dendrochemistry, and Phytoscreening: New Green Tools for Delineating Contaminants from Past and Present (feature article) *Environmental Science and Technology*, 45(15) pp. 6218–6226.
40. Harper, G., Elmore, A.C., Redell, C., Risley, G.H.R., Burken, J.G. (2011). Physical impact of waterjet-based remediation on benthic organisms. *Remediation Journal*, 21(4), 107–118.
41. Redell, C.\*, Elmore, A.C., Burken, J., Stringer, R. (2011). Waterjet injection of powdered activated carbon for sediment remediation *Journal of Soils and Sediments* 11, (6), pp. 1115-1124.
42. Canter, T., Burken, J.G., Wang, J., Fitch, M.W., Kinnevan, K., Wedge, K., Tucker, R. The Environment of Warfare (2011), *Journal of Environmental Engineering* 137(7), pp. 525-531.
43. Risley, G.H.R.; Elmore, A.C., Burken, J.G., G. Galecki. (2011) Development of a Waterjet for Direct Delivery of Granular Iron and Activated Carbon to Remediate Contaminated Aqueous Sediments. *Remediation Journal*, 21 (3), pp. 103-119.
44. Burken, J.G., Bailey, S.R., Shurtliff, M., McDermott, J. (2009) Taproot Technology™: Tree Coring for Fast, Non-invasive Plume Delineations *Remediation Journal*, 19, (4)

2009, pp. 49-62.

45. Gopalakrishnan, G., Burken, J.G., Werth, C.J. (2009) Lignin and Lipid Impact on Sorption and Diffusion of Trichloroethylene in Tree Branches for Determining Contaminant Fate During Plant Sampling and Phytoremediation *Environmental Science and Technology* 2009, 43 (15), pp. 5732–5738.
46. Dominguez-Faus, R., Powers, S.E., Burken, J.G., and Alvarez, P.J. (2009) The Water Footprint of Biofuels: A Drink or Drive Issue? *Environmental Science and Technology* 43 (9); pp. 3005–3010.  
3<sup>rd</sup> most accessed Article for 2009-2010 for *Environmental Science and Technology*  
Selected for American Chemical Society *Virtual Issue on Biofuels*  
<http://pubs.acs.org/page/vi/2010/biofuels.html>
47. Weishaar, J.A., D.T. Tsao, and J.G. Burken (2009) Rhizodegradation Of BTEX: Influence Of Diurnal Groundwater Fluctuations, *International Journal of Phytoremediation*. 11(5); pp. 509 – 523.
48. Wang, J., T. Wang, J.G. Burken, C.C. Chusuei, H. Ban, K. Ladwig, and C.P. Huang (2008) Adsorption of Arsenic(V) onto Fly Ash: A Speciation-Based Approach, *Chemosphere* 72, pp. 381-388.
49. Larsen, M., U. Karlson, J.G. Burken, J. Machackova, and S. Trapp (2008) Using Tree Core Samples to Monitor Natural Attenuation and Plume Distribution of a PCE Contamination. *Environmental Science and Technology*. 42 (5); pp. 1711-1717.
50. Baduru, K.K., S.T. Trapp, and J.G. Burken (2008) Direct Measurement of VOC Diffusivities in Tree Tissues: Impacts on Tree-based Phytoremediation. *Environmental Science and Technology*, 42(4); pp. 1268-1275.
51. Wang, J., T. Wang, C. Chusuei., J.G. Burken, H. Ban, and K. Ladwig (2007) Modeling Arsenic(V) Adsorption by Fly Ash using A Speciation-Based Adsorption Model *Journal of Environmental Quality*, 36; pp. 1784 - 1792
52. Gilbertson, A.W., M.W. Fitch, J.G. Burken, and T.K. Wood (2007) Transport and survival of GFP-tagged root-colonizing microbes: potential for enhanced rhizodegradation *European Journal of Soil Biology* 43 (4), July-August, pp. 224-232.
53. Legind, C.H., U. Karlson, J.G. Burken, F. Reichenberg, and P. Mayer (2007) Determining chemical activity of (semi)volatile compounds by headspace solid phase microextraction *Analytical Chemistry*, 79(7); pp. 2869-2876.
54. Wang, J., J.G. Burken, and X. Zhang (2006) Effect of Seeding Material and Mixing Strength on Struvite Precipitation. *Water Environment Research*. 78 (2), pp. 125-132.

55. Wang, J., J.G. Burken, X. Zhang, and R. Surampalli (2005) Impacts of Component-ion Molar Ratios and pH in Struvite Precipitation *Journal of Environmental Engineering* 133 (10), pp. 1433-1440.
56. Burken, J.G., X. Ma, G.C. Struckhoff, and A.W. Gilbertson (2005) Volatile Organic Compound Fate in Phytoremediation Applications: Natural and Engineered Systems *Z. Naturforsch*, 60c(3/4), pp. 208-215.
57. Struckhoff, G; J.G. Burken, and J.G. Schumacher (2005) Phytoremediation of Vadose Zone VOCs; *Environmental Science and Technology*, 39(6) , pp. 1563 - 1568.
58. Ma, X. and J.G. Burken (2004) Modeling of TCE Diffusion to the Atmosphere and Distribution in Plant Stems. *Environmental Science and Technology*, 38(17), pp. 4580-4586.
59. Ma, X, A. Richter, J.G Burken, and S. Albers (2004) Phytoremediation of MTBE with Hybrid Poplar Trees *International Journal of Phytoremediation*, 6 (2), pp. 157-167.
60. Ma, X. and J.G. Burken (2003) TCE Diffusion to the Atmosphere in Phytoremediation Applications. *Environmental Science and Technology*, 37 (11), pp. 2534-2539.
61. Ma, X. and J.G. Burken (2002) VOCs Fate and Partitioning in Vegetation: Use of Tree Cores in Groundwater Analysis. *Environmental Science and Technology*, 36 (21), pp. 4663 – 4668.
62. White, K.E., J.G. Burken and J.S. Gibbons (2001). Natural Treatment and On-Site Processes, *Water Environment Research Literature Review*; 73 (5) ,pp. 596-626.
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1. Burken, J.G. (2016) Jerry Schnoor: The Impact on Others (Editorial), *Environmental Science and Technology*, 50 (13), pp. 6593–6594
2. Burken, J.G. (2013) Natural Treatment Systems: More than just a Solution to Pollution Introduction to Special Issue on Natural Treatment Systems, *ASCE Journal of Environmental Engineering*, April 2013 139 (4), p. 461
3. Burken, J.G. (2012) Environmental Challenges of Hydrofracking Energy Perspectives. Missouri Energy Initiative. May/June Issue 2012.
4. Burken, J.G. (2012) Environmental Engineering Education: We're not like the rest,

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5. Burken, J.G. (2012) Education for the Environmental Engineers of the Future, *Environmental Engineer*, 48(2), p. 7.
  6. Burken, J.G. (2012) New Challenges for our Old Challenges, *Environmental Engineer*, 48(1) p 22.
  7. Burken, J.G. (2011) Educating Engineers in an Advancing Profession, *Environmental Engineer*, 47(3) p 5.
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#### **BOOK CHAPTERS & AGENCY REPORTS (PEER-REVIEWED)**

1. Wilson, J.L., Schumacher, J.G., and J.G. Burken (2014) Occurrence and Origin of *Escherichia coli* in Water and Sediments at Two Public Swimming Beaches at Lake of the Ozarks State Park, Camden County, Missouri, 2011–13. U.S. Geological Survey Scientific Investigations Report 2014–5005, 59 p.
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- Gomez, D., Myers-Jaffe, A., Medlock, K.B., Powers, S.E., Soligo, R., Smulcer, L.A. Fundamentals of a Sustainable U.S. Biofuels Policy, Published by: James A. Baker III Institute for Public Policy. 133 pp  
<http://www.bakerinstitute.org/publications/EF-pub-BioFuelsWhitePaper-010510.pdf>
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ISBN: 0-8247-5563-4 (paper) 0-8247-5499-9 (electronic).
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#### **OTHER PEER-REVIEWED ARTICLES & BOOK SECTIONS (NON-JOURNALS)**

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2. Karlson, U.G., M.D. Petersen, M. Algreen, A. Rein, E. Sheehan, M.A. Limmer, J.G. Burken 2012, Vegetation sampling for the screening of subsurface pollution; EGU General Assembly Conference Abstracts 14, 10282.
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4. Risley, G.H.R.\*; A.C. Elmore, J.G. Burken, G. Galecki. 2010. Waterjet Placement of Remediation Amendments into Contaminated Sediments World Environmental and Water Resources Congress, Providence, Rhode Island. May 16-20. Submitted Jan 30, 2010



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8. Burken, J.G., A.W. Gilbertson, and D.J. Westenberg (2007) “Bioengineering Impacts on Organic Contaminant Rhizodegradation”, In: BioEco 2007-Session 8: Bioresource and Biodiversity. Eds: Jiang, Z and Hoogendoorn, J.C. pp. 135-148.
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11. Interstate Technology & Regulatory Council: Mitigation Wetlands Team (Burken Member, coauthor) (2005) ITRC Document : Characterization, Design, Construction, and Monitoring of Mitigation Wetlands, 197 pages.
12. Struckhoff, G.C., J.G. Burken, and J.G. Schumacher (2004) “Effect of Soil PCE on Uptake and Loss by Plants” In: Remediation of Chlorinated and Recalcitrant Compounds, Proceedings of the 4<sup>th</sup> International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Battelle Press, Columbus OH (**Best Paper Award**)
13. Interstate Technology & Regulatory Council Wetlands Team (Burken Member; coauthor) (2003) ITRC Document : Technical and Regulatory Guidance Document for Constructed Treatment Wetlands, 199 pages.
14. Wang, J., J.G. Burken, and X. Zhang (2003) “Effect of Seeding Material and Mixing Strength on Struvite Precipitation”. In Proceedings WEF Tec 2003
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16. Gilbertson, A.W., J.G. Burken, M.W. Fitch, and T.K. Wood (2002), “Fluorescent, Root-Colonizing Recombinant Bacteria to Enhance the Rhizosphere Degradation of TCE” In:



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20. Burken, J.G. (2001) “Chasing Subsurface Contaminants”, in Summary of the Phytoremediation State of the Science Conference, EPA/625/R-01/01a, US EPA Office of Research and Development, Cincinnati, OH, pp 32 – 33.  
(available on-line) <http://www.epa.gov/ORD/NRMRL/Pubs/625R01011a.pdf>
21. Song, Y., M. Fitch, J. Burken, C. Ross, and A. Feeler (2000) “Lead and Zinc Removal by Lab-Scale Constructed Wetlands” In: Environmental and Pipeline Engineering 2000 Ed. R.Y. Surampalli, ASCE Pubs, Reston VA, p. 1 – 8. ISBN: 0-784405077
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24. Burken, J.G. (2001) “Uptake And Volatilization Of Chlorinated Solvents By Poplars At Field –Scale”, in Phytoremediation, Wetlands, and Sediments, Proceedings from the 6<sup>th</sup>

International In Situ and On-Site Bioremediation Symposium, Leeson, A., Foote, A.A., Banks, M.K., and V.S. Magar, Eds. Battelle Press, Columbus OH, pp. 113 – 120.

25. Burken, J.G. (2001) “Hydraulics of Rapid Sand Filtration” In: AEEESP Environmental Engineering Processes Laboratory Manual, eds. S.E Powers, J. Bisogni, J. Burken, K. Pagilla, Association of Environmental Engineering and Science Professors, Champaign IL, 2001 (on CD), section 4-2-1, p. 1 – 6.
26. Adams, C.D., M.W. Fitch, and J.G. Burken (2000). “Military on Campus: A Joint UMR-Army Program Providing Non-Traditional Master's Degrees.” Proceedings of ASEE National Conference, St. Louis, MO, June 21. In Session 3151 of Proceedings
27. Sutherland, J., B. Panka, J.G. Burken, and C.D. Adams (2000) “Chemical and Biological Oxidation of MTBE: Pathways Under Variable Conditions” In: Case Studies in Remediation of Chlorinated and Recalcitrant Compounds ed. Wickramanayake, G., Gavaskar, A., Gibbs, J., Means, J., Battelle Press, Columbus OH, p. 25 – 31.
28. Burken, J.G. (2000) “Phytoremediation/Wetlands Treatment at the Iowa Army Ammunition Plant Middletown, IA”, Web Resource Case Study for Environmental Science: A Global Concern 5e, by Cunningham and Saigo. At: <http://www.mhhe.com/biosci/pae/environmentalscience/casestudies/case12.mhtml>, McGraw-Hill Publishers, p 1-5.

#### **OTHER PUBLICATIONS (NON-REVIEWED TECHNICAL AND PRESS PUBLICATIONS)**

1. Burken, J.G. (2012) Environmental Challenges of Hydrofracking, Missouri Energy Initiative Newsletter, June 2012. <http://www.moenergy.org/marchapril-2012-energy-perspectives-newsletter/78-mayjune-2012-energy-perspectives-newsletter.html>
2. Schumacher, J.G., J.G. Burken, and R. Blake (2005) “Tree-Core Analysis Brings Savings to Site Assessment”, *Technology News and Trends* EPA Newsletter, Issue #21, November 2005, >8,000 subscribers (online <http://www.clu-in.org/download/newsletters/tnandt1105.pdf>)
3. Burken, J.G. (2005) “Phytoremediation of VOC’s: Understanding Fate and Innovative Applications” Third International Phytotechnologies Conference, Atlanta GA, April 20-22, 2005 Sponsored by: U.S. Environmental Protection Agency. (online at <http://207.86.51.66/phytoconf/agenda.cfm>)
4. Burken, J.G. (2003) “Removal and Fate of Chlorinated Solvents from Contaminated Groundwater” International Applied Phytotechnologies Conference, Chicago, IL. March 3 – 5, 2003. Sponsored by: U.S. Environmental Protection Agency. (online at <http://clu-in.org/studio/2003phyto/agenda.cfm>)

5. Burken, J.G. (1999) "Phytoremediation Success Leads to Growth", *HazTech Transfer*, Great Plains/Rocky Mountain EPA Hazardous Substance Research Center, April 1999 (Research Center's quarterly research publication/newsletter).
6. Burken, J.G. (1999) "Undergraduate Research: Programs in Civil Engineering and Across the UMR Campus." Proceedings of 34<sup>th</sup> ASEE Midwest Conference, Stillwater, OK, April.
7. Burken J., A. Dietz, J. Jordahl, W. Schnabel, P. Thompson, L. Licht, P. Alvarez, and J. Schnoor (1996) "Phytoremediation at hazardous waste sites" In: Proceedings WEF 69th Annual Meeting. Dallas, TX, October 5-9, 1996.
8. Schnabel W., A. Dietz, J. Burken, Schnoor, and P.J.J. Alvarez\* (1996) "TCE uptake by common garden vegetables", Proceedings. HSRC/WERC Joint Conference on the Environment, Albuquerque, NM, May 21-23, 1996.

## TECHNICAL REPORTS

- Burken, J.G. and Usman, S (Sept 2015) Westlake Landfill Tree Core Analysis Report to Missouri Attorneygeneral's office, pp 29.
- Burken, J.G. (2004) Report on Tree Coring at J-Field Site, Aberdeen Proving Ground: 2000 – 2004 Weston Solutions and US EPA, May 2004
- Burken, J.G. (1999) Landfill Leachate Identification Using Fluorescence Detection Methods, Missouri Department of Natural Resources, August, 1999, 16 pp.
- Fitch, M.W., and Burken, J.G. (1998) Metals Removal by Constructed Wetlands: Final Report to The Doe Run Company, The Doe Run Company, May 26, 1998, 12 pp.

## RESEARCH HIGHLIGHTS

- "Root Down" Environmental Science Highlights in *Science* 2014 v343, p 1291.
- "Mikroextraktion Empfindlich, automatisch und ohne Lösungsmittel" Messe-Magazin analytica PRO, Feb 2014, p 8-12 (translation "microextraction sensitive, automatically and without solvent")
- "Getting to the Core of the Problem" *Chemistry World* September 2008, Page 56  
["http://www.rsc.org/chemistryworld/restricted/2008/September/DelvingTheDepths.asp"](http://www.rsc.org/chemistryworld/restricted/2008/September/DelvingTheDepths.asp)

## INVITED SPEAKER

1. "Phytoforensic Pollutant Delineation methods to Mitigate Human Exposures" Gordon

**CONTINUED: INVITED SPEAKER**

- Keynote talk, 16<sup>th</sup> annual International Phytotechnologies Conference, Changsha China, September 25, 2019.
2. “Phytoforensics: Delineating Emerging Fugitive Contaminants through Plant Sampling “ 2019 International Symposium on Environmental Science and Technology, Hangzhou, China, September 26, 2019
  3. “Assessing ecological restoration of mine lands using image analysis and computer vision of plant responses and tolerance” Session plenary talk, 16<sup>th</sup> annual International Phytotechnologies Conference, Changsha China, September 24, 2019.
  4. “Plants As Bio-Sentinels: What Mother Nature Can Tell Us About Our Expozome” Biomimicry Research and Innovation Seminar Series, University of Akron, Akron OH, March 2, 2018
  5. “Detecting Unexploded Ordinance through Changes in Plant Health”, Homeland Defense & Security Information Analysis Center National Webinar, April 25, 2018
  6. “Plants As Bio-Sentinels” University of Western Cape, Cape Town South Africa, July 12, 2018
  7. “Vegetation Based Assessment Tools For Landfill Leachate Delineation And Treatment” Technical Development Series, Missouri Department of Natural Resources. Jefferson City MO, June 12, 2018
  8. “Assessing our Exposome Plants as Bio-sentinels” Purdue University , West Lafayette IN, February 20, 2018
  9. “Phytoremediation and PhytoForensics: Mother Nature can Detect and Mitigate Pollutants...with Elegance” EPA Clu-In national Webinar, October 11, 2017.
  10. In-Home Exposures” Chemours Technology Forum (DuPont), Wilmington DE, July 19, 2017.
  11. “Sampling Tree Cores in Assessing Vapor Intrusion Risk” The University Consortium for Field-Focused Groundwater Contamination Research Annual Meeting, Guelph Ontario, Canada. June 7, 2017.
  12. “Rethinking plants in engineering” TedEx talk, Missouri S&T April 6 2017
  13. “Reconnecting Energy and Water: Green Infrastructure” Syracuse University April 10, 2017
  14. “Plants as Bio-Sentinels to Mitigate Human Exposures: Phytoforensics” State University of New York College of Environmental Science and Forestry April 12, 2017

**CONTINUED: INVITED SPEAKER**

15. "Mother Nature as an Engineer: A Quest for Important Knowledge" Keynote Missouri S&T 11<sup>th</sup> Annual Undergraduate Research Conference, Rolla Missouri April 11, 2016.
16. "Use of plants in environmental site investigations" Department of Forestry/Natural Resources Lincoln University, Jefferson City Missouri. April 4, 2016
17. "Green Infrastructure Valuation: Saving water pollutants and energy" NSF – INFEWS Symposia, University of Kansas, Lawrence KS, January 21, 2016
18. "Plants as Bio-Sentinels to Mitigate Human Exposures: Introducing Phytoforensics" Association of Environmental & Engineering Geologists – St. Louis Section meeting, Dec 10, 2015.
19. "Mother Nature as Witness and Engineer?" Keynote – Plenary Session 2015 Annual Conference - American Society of Consulting Arborists, Tuscon Az, Dec 3, 2015
20. "Valuation of Phytotechnology and Green Infrastructure Benefits: Much More than Just 'Aesthetically' Pleasing" 2015 Annual Conference - American Society of Consulting Arborists, Tuscon Az, Dec 4, 2015
21. "Value of Mother Nature as a Witness and an Engineer" Danish Technical University, Lyngby Denmark, June 19, 2015
22. "How can Mother Nature be an Engineer?" School of Engineering Seminar, Pennsylvania State University, March 17, 2015
23. "What's the value of Mother Nature as a Witness and Engineer?" Energy, Environmental and Chemical Engineering Seminar Series Washington University, February 13, 2015.
24. "Mother Nature as engineer of our Urban Spaces" International Congress on Green Urban Futures 2014 (urbafutures2014), November 6, 2014.
25. "PhytoForensics: Using Nature as Witness and Engineer" July 18, 2014. University of Canterbury, Christchurch New Zealand
26. "Phytoforensics Overview" The CAFNR Center for Watershed Management and Water Quality, University of Missouri – Columbia, March 18, 2014
27. "So where are those toxins? Just Ask Mother Nature!" Ignite Rolla, Rolla MO, February 26, 2014.
28. "Phytoforensics: Learning from Mother Nature" Department of Biology invited Lecture, St. Louis University, January 2014

**CONTINUED: INVITED SPEAKER**

29. "Calling on Mother Nature as Witness and Engineer: Phytoforensics and More", Center for the Environmental Implications of NanoTechnology (CEINT), Duke University, Durham NC, September 11, 2013
30. "Phytoforensics: Soil and Groundwater Sampling Without Soil or Groundwater!" Seventh International Conference On Case Histories In Geotechnical Engineering. Chicago Illinois, May 2, 2013
31. Putting Mother Nature to work as Witness and Engineer: An introduction to Phytoforensics University of Illinois, Chicago, April 30, 2013.
32. "Phytoforensics: Mother Nature as both Witness and Engineer" University of Minnesota Warrant Lecture Series, Minneapolis, MN, February 22, 2013
33. "Evaluating Economics of Swine Waste Digestion" National Biocycle Conference. St. Louis, MO, October 29, 2012
34. "Phytoforensics: Site Investigations & Performance Monitoring" Plenary Talk 9<sup>th</sup> International Phytotechnologies Congress, Hasselt Belgium, Sept 12-14, 2012.
35. "Green S&T: I bet you never knew..." No Impact Man Lecture Series, S&T one book program. Rolla, MO September 18, 2012
36. "Phytoforensics: How to sample Soil and Groundwater...Without touching any Soil or Groundwater!" EPA National 2012 Technical Support Project Training Meeting, Oklahoma City, OK May 1-3, 2012
37. "Trees as Engineers" International Society of Arboriculture's Annual Training Conference, Pacific Northwest Chapter, Coeur d'Alene Idaho, October 2 – 5, 2011.
38. " 'Real' Green Design: Phytoremediation & Phytoforensics" University of Buffalo, Buffalo NY, Sept 30, 2011.
39. "Phytomonitoring and Phytoforensics" Plenary Talk 8<sup>th</sup> International Phytotechnologies Conference, Portland Oregon, Sept 14, 2011.
40. "How I teach." In *Engaging Students in the Classroom Workshop*, Held at the 2011 Association of Environmental Engineering and Science Professors (AEESP) Education & Research Conference. Tampa FL, July, 2011.
41. "Phytoforensics: Soil and Groundwater Sampling...Without Soil or Groundwater" (w/ J.C. Balouet, D. Vroblesky M. Limmer, M. Shetty) RemTEC Summit, Chicago IL, May 17, 2011.

**CONTINUED: INVITED SPEAKER**

42. “*In-Situ* Sediment Remediation Using Benthic Waterjet Amendment Placement” Cutting Edge Technologies, National Association of Remedial Project Managers (NARPM) Annual Training Program, Kansas City MO, May 16, 2011.
43. “*In-Planta* Sampling Devices And Dendrochemistry For Fast, Cheap & Green Site Assessment And Phytoforensic Application” Cutting Edge Technologies, National Association of Remedial Project Managers (NARPM) Annual Training Program, Kansas City MO, May 16, 2011.
44. “Phytoforensic Site Assessments: Fast, Cheap & Green”, Vironex - Remediation Technology Workshop, Denver Aquarium, Denver, CO, March 2, 2011.
45. “Phytoforensics” Advanced Research Seminar Harvard University Graduate School Of Design Department Of Landscape Architecture, March, 2011.
46. “Mother Nature’s Expert Witness: PhytoForensics-- How Plants Collect Evidence of Environmental Pollution” Burken J.G. St. Louis Academy of Science: Pioneering Science Series . St. Louis, MO. March 1, 2011.
47. “Phytoforensic Site Assessments: Fast, Cheap & Green” Burken, J.G. Hasselt University, Hasselt, Belgium. September 22, 2010.
48. “Benthic and the Jets: Waterjetting Sediment Amendments” Burken, J.G., (w/Elmore, A.C., Archer, A.R., Risley, G.H., Harper, G.E.) National Association of Remedial Project Managers (NARPM) Annual Training Event. Washington D.C., May 27, 2010.
49. “Advances in plan sampling techniques for delineations of chlorinated solvent sites – Phytoforensics” (w/ E. Sheehan, K. Waltermire, M. Limmer, U. Karlson, P Mayer) University Consortium for Field-Focused Groundwater Contamination Research (Guelph University), Guelph Canada, May 19 – 21, 2010.
50. “Water Footprint of Biofuels: A Drink or Drive Issue?” 2009 54<sup>th</sup> Midwest Ground Water Conference (Keynote Talk), St. Louis Missouri, October 13, 2009.
51. “PhytoForensics: Use of *In-planta* Sampling Devices” 2009 Linda Hall Lecture Series, Kansas City Missouri April 16, 2009.
52. “Plants and contaminants: From Phytoremediation to Genetic Engineering & Phytoforensics.” Missouri Department of Natural Resources, Columbia Missouri, April 15 2009.
53. “Carbon Credit Finance, Energy Subsidies and Renewable Energy in Agricultural Waste Treatment Economic Decisions.” Missouri Natural Resources Conference, *Global Trends, Missouri Impacts: Adapting to Climate Change* February 4-6, 2009.

**CONTINUED: INVITED SPEAKER**

54. "Phytoremediation Perspective in North America" (Plenary talk) 5<sup>th</sup> International Phytotechnologies Conference, Nanjing, China, October 22, 2008.
55. "Phytoforensics" Missouri Waste Control Coalition Conference June 24 2008 (Presented by Co-author John Schumacher-USGS).
56. "Methane Digester Developments" Breimyer Seminar hosted by Department of Agricultural Economics. Columbia, Missouri, May 22, 2008.
57. "Phytoforensics: Plant sampling breakthroughs in site investigations" Department of Civil and Environmental Engineering, University of Illinois, 8 February, 2008.
58. "Phytoforensics" Missouri Department of Natural Resources, Division of Geology and Land Survey. Rolla, Missouri, October 22, 2007.
59. "Understanding Plant-VOC Interactions: Phytoremediation, Site Investigations and Much More." Rice University Civil and Environmental Engineering Department, Houston TX, Oct 5, 2007.
60. "Plant Biotechnology Breakthroughs in Phytoremediation" Bio-Eco 2007-Session 8: Bioresource and Biodiversity: sponsored by Ministry of Science and Technology, P.R. China, Tianjin, China, June 26 - 28, 2007.
61. "15 years of Phyto: Natural to Engineered Phytoremediation Systems", Waterways Experiments Station, USACE, Vicksburg, MS. June 12, 2007.
62. "Waste to Energy: Biogas generation." National Association of Attorneys General: Midwest Regional Meeting, April 30, 2007.
63. "Phytoremediation of VOCs: Understanding Fate and Innovative Applications." Chinese National Academy of Forestry, Beijing China, October 16, 2006.
64. "Odor Technologies: Control and Treatment" Governor's Advisory Council on Agriculture, Jefferson City, Missouri, March 7, 2006.
65. "Vapor Phase Mechanisms in Phytoremediation of Volatile Organic Compounds" Ecoles Polytechniques fédérales (EPFL - Swiss Federal Institute of Technology) 2005 Seminar Series, November 21, 2005.
66. "VOC Uptake and Fate in Phytoremediation" Seminar Symposium, Swiss Federal Institute of Environmental Science and Technology (EAWAG), Dubendorf Switzerland. November 16, 2005.
67. "Phytoremediation of VOC's: Understanding Fate and Innovative Applications" 2005 Third International Phytotechnologies Conference Atlanta, GA April 20-22, 2005 Atlanta, GA.



**CONTINUED: INVITED SPEAKER**

68. "Plant-VOC Interaction; Site Investigation and Monitoring for Phytoremediation" National Environmental Research Labs/Hazardous Substances Research Center Meeting on Superfund Research Las Vegas, NV November 4-6, 2004.
69. "Tree core sampling in plume delineation and phytoremediation studies" 39th Midwest Regional Meeting 2004; Manhattan KS, October 19-22, 2004
70. "Phytoremediation in Brownfields" 2004 National Brownfields Conference (EPA and ICMA Conference); St. Louis, MO Sept 19 – 21.
71. "Fate of VOCs in Natural and Engineered Systems" Phytoremediation: Environmental and Molecular Biological Aspects, OECD Workshop; Matrahaza, Hungary, September 9 – 12, 2004
72. "Phytoremediation and Natural Treatment Systems" MO Bio – 2004 Summit on Life Sciences, St. Louis, Missouri, July 19 – 20, 2004
73. "VOC Uptake and Volatilization by Plants: Ecological Site Investigation" American Ecological Engineering Society Conference, Fayetteville Arkansas, June 9-12, 2004
74. "What's Phyto?" South Central Missouri Section –American Chemical Society. Rolla MO, April 22, 2004
75. "Genetically Enhanced Rhizodegradation of Hydrophobic Contaminants" Technology Benchmarking Workshop; Ann Arbor, MI, March 24 – 25, 2004
76. "Genetically Engineered-Pollutant Eating Bugs" St. Louis Section of Society of Mining Engineers. St. Louis Missouri; March 19 2004
77. "Fate of Volatile Compounds In Phytoremediation Applications" 19th Annual International Conference on Soils, Sediments and Water (AEHS); Amherst MA, October 20, 2003
78. "Fate of VOCs in Native and Genetically Enhanced Phytoremediation Applications" University of Iowa Seminar Series, Iowa City, IA, October 3, 2003
79. "Phytoremediation of Chlorinated Solvents:Native and Engineered Systems" National Environmental Research Institute (NERI) Roskilde Denmark, August 11, 2003
80. "Rhizosphere Degradation of Chlorinated Solvents using GFP-Tagged Microorganisms." American Society of Microbiology, Washington D.C. May 18 – 22, 2003
81. "Removal and Fate of Chlorinated Solvents from Contaminated Groundwater" U.S. EPA International Applied Phytotechnologies Conference, Chicago, IL. March 3 – 5, 2003

**CONTINUED: INVITED SPEAKER**

82. "Phytoremediation Applications" Pan American Advanced Study Institute (NSF-sponsored workshop), Rio de Janeiro, Brazil, July 22-August 3, 2002.  
<http://www.hsrb.org/hsrb/html/ssw/rio-presentations.html>
83. "VOC Phytoremediation" University of Missouri, Department of Geology Seminar Series, Rolla Missouri, March 13, 2002.
84. "Phytoremediation of Volatile Organic Compounds", Washington University, Environmental Engineering Seminar, St. Louis, Missouri, April 20, 2001.
85. "Recombinant Microbes In Phytoremediation of Chlorinated Solvents", University of Minnesota, Environmental Science and Engineering Seminar Series, Minneapolis, MN, September 29, 2000.
86. "Chasing Subsurface Contaminants", Phytoremediation: State of the Science Conference, U.S. EPA , Boston, MA, May 1-2, 2000.
87. "Phytoremediation of Explosives and Nitroaromatic Compounds", Second International Symposium on Biodegradation of Nitroaromatic Compounds and Explosives, U.S.A.F. Office of Scientific Research, Leesburg, VA, September 8-9, 1999.
88. "Phytoremediation of Organics; TNT, RDX, HMX", International Business Communications 4<sup>th</sup> Annual Conference on Phytoremediation, Toronto, Canada, June 23-25, 1999.
89. "Uptake and Fate of Organic Contaminants in Phytoremediation" Seminar Symposium, Swiss Federal Institute of Environmental Science and Technology (EAWAG), Dübendorf Switzerland. July 30, 1998.
90. "Uptake and Potential Volatilization of Common Organic Contaminants by Hybrid Poplar Trees", 7<sup>th</sup> Annual INTERCOL Conference: Phytoremediation Workshop, Florence, Italy. July 19-25, 1998.
91. "Fate of Volatile Organic Compounds in Plant Systems", Workshop on Phytoremediation Technologies. Presented by the Great Plains/Rocky Mountain USEPA Hazardous Substances Research Center, University of Kansas State, Manhattan, KS. January 7-9, 1998.
92. "An Introduction to Phytoremediation and Recent Research", University of Missouri-Columbia Bioremediation Seminar Series, Columbia, MO. November 18, 1997.
93. "Graduate Studies in Civil Engineering", Panel Discussion, Regional Chi Epsilon Conclave, April 5, 1997.
94. "Interactions in Biological Environmental Research", University of Missouri-Columbia Biochemistry Panel Discussion, Columbia, MO, February 17, 1997.

**SELECTED PRESENTATIONS**

1. J. L. Wilson; M. A. Limmer; V.A. Samaranayake; J. G. Schumacher; **J. G. Burken**  
Phytoforensic Approaches to Assess Human Exposure Potential via Vapor Intrusion
2. Sukharia, R. and Burken, J.G. Phytostabilization and phytomonitoring for landfill applications. 13<sup>th</sup> Annual Phytotechnologies, Hangzhou China, September 26-29, 2016.
3. Al-Lami, M., Burken, J.G. The Potential Of Biosolids And Soil Amendments For Revegetation Of Lead Mine Tailings For Biomass Crops 13<sup>th</sup> Annual Phytotechnologies Hangzhou China, September 26-29, 2016.
4. Limmer, M.A, Wilson, J. L., Holmes, A.J, and Burken, J.G., Phytomonitoring: *In-planta* SPME Methods of Chlorinated Solvents in Trees Over 4 Years for Long Term Monitoring and VI Assessment Battelle - Tenth International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Palm Springs CA, February, 21 2016.
5. Burken, J.G., Limmer, M.A, West, D., Mu, R., Yuan, Y., Shi, H., Limmer, M.A, Phytoforensic Methods for Non-Volatile, Inorganic Contaminants: Field and Laboratory Testing of Perchlorate Battelle - Tenth International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Palm Springs CA, February, 21 2016.
6. Limmer, M.A\*, West, D., Mu, R., Shi, H., Burken, J.G. Phytoscreening for Perchlorate: Rapid Analysis of Tree Sap. 11<sup>th</sup> Phytotechnologies Conference, Heraklion, Crete, GR. Sept. 30 – Oct. 3, 2014.
7. Limmer, M.A. \*, Burken, J.G. Screening for Plant Uptake of Emerging Organic Contaminants. EmCon 2014, Iowa City, IA. August 19-22, 2014.
8. Limmer, M.A. \*, Burken, J.G. Molecular Predictors of Contaminant Uptake by Plants. Gordon Research Seminar, Environmental Sciences: Water. Holderness, NH. June 21-22, 2014.
9. Limmer, M.A. \*, Burken, J.G. Phytoforensics: Techniques for Assessing Plant Contamination. Ecological Engineering Conference. Charleston, SC. June 9-11, 2014.
10. Limmer, M.A. \*, Burken, J.G. Advances in Tree Coring for Groundwater Contamination Studies. University Consortium for Field-Focused Groundwater Contamination Research. Guelph, ON. June 2-4, 2014.
11. Limmer, M.A. \*, Burken, J.G. Uptake and Translocation of Xenobiotics by Plants. SETAC, Nashville, TN. Nov. 17-21, 2013.

**CONTINUED: SELECTED PRESENTATIONS**

12. M.A. Limmer, A. Holmes, J.G. Burken\*, Long-Term Monitoring of Chlorinated Solvents in Trees: Seasonal Variations in Concentrations, 8<sup>th</sup> International Conference on Remediation of Chlorinated and Recalcitrant Compounds, May 2012. Platform Presentation
13. J.G. Burken\*, M.A. Limmer, M. Shetty, D. Vroblesky, J.C. Balouet Phytoforensics for Site Investigations & Performance Monitoring, 8<sup>th</sup> International Conference on Remediation of Chlorinated and Recalcitrant Compounds, May 2012. Platform Presentation
14. Y. Yuan, R. Mu, A. Karnjanapiboonwong, H. Shi, Y. Ma, J.G. Burken\*, Rapid Phytoforensic Analysis of Battlefield Contaminants, 8<sup>th</sup> International Conference on Remediation of Chlorinated and Recalcitrant Compounds, May 2012. Poster Presentation.
15. Burken, J.G.\*, M.A. Limmer, M. Shetty, J.C. Balouet, D. Vroblesky. Phytoforensics for Site Investigations & Performance Monitoring, 8<sup>th</sup> International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA. May 2012. Platform Presentation
16. Karlson, U.G.\*, Petersen, M.D., Algreen, M., Rein, A., Sheehan, E., Limmer, M.A., Burken, J.G., Mayer, P., Trapp, S. Vegetation sampling for the screening of subsurface pollution, European Geosciences Union General Assembly 2012, Vienna, Austria. April 22-27, 2012. Platform Presentation.
17. Limmer, M.A.\*, Shetty, M.K., Burken, J.G. Green Site Assessment: Directional Uptake of Chlorinated Ethenes by Trees. 8<sup>th</sup> International Phytotechnologies Conference, Portland, OR. Sept. 13-16, 2011, Platform Presentation.
18. Burken, J.G.\*, Limmer, M.A., Watson, C., Martinez, C., Martin, G. In-field Plant Sampling for Real Time Plume Delineation. 8<sup>th</sup> International Phytotechnologies Conference, Portland, OR. Sept. 13-16, 2011, Platform Presentation.
19. Wilson, J., Bartz, R., Limmer, M.A.\*, Burken, J.G. Plant Measurements of Aerobic Biodegradation of BTEX: Effect of Groundwater Depth. 8<sup>th</sup> International Phytotechnologies Conference, Portland, OR. Sept. 13-16, 2011, Platform Presentation.
20. Burken, J.G.\*, M. Limmer, M. Shetty. Green Site Assessment and Remediation, Missouri Chamber of Commerce Environmental Conference at the Lake, July 28-29, 2011. Invited platform Presentation
21. Burken, J.G.\*, M. Shetty, M. Limmer. Fast, Cheap & Green Site Assessment & In-Planta Phytoforensics. AEESP Research conference and Meetings, Tampa Florida, July 12, 2011. Platform Presentation.

**CONTINUED: SELECTED PRESENTATIONS**

22. Shetty, M.K, Limmer, M.A.\* , Burken, J.G. *In-planta Passive Sampling Devices as Biosensors for Subsurface Contaminants*, Battelle International Symposium on Bioremediation and Sustainable Environmental Technologies, Reno NV. June 27 – 30, 2011
23. Limmer, M.A.\* , Shetty, M.K. and Burken, J.G. *Phytoforensics: New Methods for Using Trees to Measure Environmental Contaminants*. 11<sup>th</sup> Annual American Ecological Engineering Society Meeting, Asheville, NC. May 22-25, 2011.
24. Burken, J.G.\* , JC Balouet, D. Vroblesky M. Limmer, M. Shetty, *Phytoforensics: Soil and Groundwater Sampling: Without Soil or Groundwater*. RemTEC Summit, Chicago IL, May 17, 2011. Invited platform presentation
25. Burken, J.G.\* , M. Limmer, M. Shetty, D. Vroblesky, JC Balouet *In-Planta Sampling Devices And Dendrochemistry For Fast, Cheap & Green Site Assessment And Phytoforensic Application Cutting Edge Technologies*, National Association of Remedial Project Managers (NARPM) Annual Training Program, Kansas City MO, May 16 2011. Invited platform presentation.
26. J.G. Burken\* *Phytoforensics: Fast, Cheap & Green Site Assessment Using In-Planta Sampling Devices and Dendrochemistry* 8th Annual Conference, International Phytotechnology Society, September 13-16, 2011. Platform Presentation
27. M.A. Limmer, M. Shetty, A.H. Holmes, J.G. Burken\* *Green Site Assessment: Directional Uptake of Chlorinated Ethenes by Trees*. 8th Annual Conference, International Phytotechnology Society, September 13-16, 2011 Platform Presentation
28. M.A. Limmer, A.H. Holmes, J.G. Burken\* *Long-Term Monitoring of Chlorinated Ethenes in Trees: Seasonal Variation* 8th Annual Conference, International Phytotechnology Society, September 13-16, 2011 Poster Presentation (2<sup>nd</sup> Place Poster Presentation)
29. Y. Yuan, R. Mu, A. Karnjanapiboonwong, H. Shi, Y. Ma, J.G. Burken\*, *Rapid Analysis of Battlefield Contaminants in Plants for Phytoforensic Analysis* 8th Annual Conference, International Phytotechnology Society, September 13-16, 2011 Platform Presentation
30. C. Carlile\*, J.G. Burken *Uptake of metals from Amended Flyash*, 8th Annual Conference, International Phytotechnology Society, September 13-16, 2011 Poster Presentation
31. J.G. Burken\* , M. Shetty, M. Limmer. *Fast, Cheap & Green Site Assessment & In-Planta Phytoforensics*. AEESP Research conference and Meetings, Tampa Florida, July 12, 2011. Platform Presentation.

**CONTINUED: SELECTED PRESENTATIONS**

32. Archer, A. Stringer R., Summers, D. Galecki, G., Rieble, D., Reddell, C., Elmore, A.C., Burken, J.G. \**In Situ* Sediment Remediation Using Benthic Waterjet Amendment Placement. NIEHS Superfund Research Program Meetings, Lexington, Kentucky October 23-26, 2011
33. Burken, J.G., Elmore, A.C., Archer, A., Summers, D., Galecki, G., Stringer, R., Harper, G., Reible, D. 2011. Waterjet Placement of Sediment Amendments: Green In Situ Remediation. Battelle Conference on Remediation of Contaminated Sediment, New Orleans, Louisiana, February 7-10.
34. Archer, A., Stringer, R., Redell, C., Galecki, G., Summers, D., Reible, D., Elmore, A.C., and Burken, J.G. \* 2011. In-Situ Waterjet Placement of Powdered Activated Carbon in Contaminated Sediments. Battelle Conference on Remediation of Contaminated Sediment, New Orleans, Louisiana. February 7-10.
35. Stringer, R. \*, Archer, A., Redell, C., Burken, J., Elmore, A.C., Shi, H., Reible, D. 2011. Depth Profiling of PAHs in Contaminated Sediment Treated with Waterjet Technology using In-situ SPME. Battelle Conference on Remediation of Contaminated Sediment, New Orleans, Louisiana. February 7-10.
36. Stringer, R., Archer, A, Redell, C., Burken, J. \*, Elmore, A.C., Reible, D., Galecki, G. 2011. Decreased PAH Bioavailability in Contaminated Sediment Treated with Waterjet Amendments. Superfund Research Program Annual Meeting 2010, Portland, Oregon. November 10-12.
37. Burken, J.G.\* and Limmer, M.A. Vegetation and *In-planta* Phytoforensics Methods for Directional Analysis. 7<sup>th</sup> International Phytotechnologies Conference, Parma, IT. Sept. 26-29, 2010.
38. Archer, A. Stringer R., Summers, D. Galecki, G., Rieble, D., Reddell, C., Elmore, A.C., Burken, J.G. \* Innovative Use of Waterjet Technology to Remediate Contaminated Sediments Using Activated Carbon Gordon Research Conference, Environmental Sciences: Water, Holderness, New Hampshire. June 20 – 25, 2010, Poster Presentation
39. Burken, J.G. \*, Markus, S. Waltermire, K., Sheehan, E. Karlson, U. Mayer, P. New Tools in Phytoforensic Site Assessments 6<sup>th</sup> International Phytotechnologies Conference, St. Louis MO Dec 1-4, 2009.
40. Burken, J.G. \*, Seigfreid, S.; Grover, T. Pork and Carbon Credits: New Economics in Ag-Waste Treatment AEESP Educational and Research Conference: Grand Environmental Challenges. Iowa City Iowa, July 26 – 28, 2009.
41. Burken, J.G. \*, Sheehan, E.M. Waltermire, K, Mayer P. and Gosewinkel Karlson, U. PhytoForensics: In-planta Sampling Breakthroughs AEESP Educational and Research

**CONTINUED: SELECTED PRESENTATIONS**

- Conference: Grand Environmental Challenges. Iowa City Iowa, July 26 – 28 (poster presentation)
42. Elmore, A.C. \*, M. Crow, J. Burken A State-Sponsored Renewable Energy Demonstration Project Missouri Energy Summit, April 23 – 24. 2009 (poster presentation)
43. Burken, J.G. \* and T. Grover Renewable Energy Revenues, Carbon Credits, and Subsidies in Agricultural Waste Treatment Economic Decisions Missouri Energy Summit, April 23 – 24. 2009
44. Burken, J.G. \*, Dominguez-Faus, R., Powers, S.E., and Alvarez, P.J. 50 Gallons per Mile? What is the Water Footprint of Biofuels? Missouri Energy Summit, April 23 – 24. 2009 (poster presentation)
45. Burken, J.G. \* and T. Grover Pig Poop to Electricity: Methane Digester Developments” Engineering Management and Systems Engineering Graduate Seminar Series Missouri University of Science and Technology. February 25, 2009
46. Waltermire, K., Sheehan, E. Karlson, U. Mayer, P. Burken, J.G. \* Enhancing Phytoremediation: Plant Sampling Techniques 5<sup>th</sup> International Phytotechnologies Conference, Nanjing, China, October 22, 2008
47. Payne, B. Waltermire, K., Elmore, A.C. Burken, J.G. \* Combined Fe0 - Phytoremediation Treatment of Chlorinated Solvents 5<sup>th</sup> International Phytotechnologies Conference, Nanjing, China, October 22, 2008
48. S. Trapp\*, C. N. Legind, M. Larsen, A. Franco, Joel Burken, Jirina Machackova A. Rein P. Mayer and U. Gosewinkel Karlson Using Tree Core Samples To Monitor Natural Attenuation And Plume Distribution *CONSOIL 2008, 10th International Conference on Soil-Water System* -Centro Congressi Stella Polare - Polo esterna Fiera di Milano, Milan Italy. 3-6 June 2008
49. M. Shurtliff and J. Burken\* TapRoot™ Technology: Non-Invasive Plume Delineation, *18th Annual AEHS Meeting and West Coast Conference on Soils, Sediments, and Water*, San Diego, CA, March 10-13, 2008. (Poster Presentation)
50. J. McDermott, M. Shurtliff\*, M. Mason, and J. Burken TapRoot™ Technology: Non-Invasive Plume Delineation, 2007 Railroad Environmental Conference, University of Illinois at Urbana-Champaign, October 23 2007. (Poster Presentation)
51. J.A. Weishaar\*, J.G. Burken, and D.Tsao Phytoremediation of BTEX Hydrocarbons: Potential Impacts of Diurnal Groundwater Fluctuation on Microbial Degradation 4<sup>th</sup>

**CONTINUED: SELECTED PRESENTATIONS**

- International Phytotechnologies Conference 2007, Denver CO, Sept 24, 2007 (Platform Presentation).
52. Sheehan, E.M., J.G. Burken\*, U. Karlson, P. Mayer and C. Legind Plant Sampling for Groundwater Investigations, 4th International Phytotechnologies Conference 2007, Denver CO, Sept 25, 2007 (Platform Presentation). Abstract available on line: <http://www.phytosociety.org/Document%20Bin/ICP%20Abstracts/Presentation%20Abstracts.pdf> page 4
53. J.G. Burken\*; Vegetative Sampling for Plume Delineation and Site Monitoring; American Association of Environmental Engineering and Science Professors Education and Research Conference, Blacksburg, Virginia, July 27 – August 1, 2007, (Platform Presentation).
54. A.C. Elmore; J.H. Martin; J. Gallaway; W.G. Fahrenholtz; J.D. Smith; and J.G. Burken\*; Sustainable POU Water Filtration in Guatemala: Materials, Manufacturing, Economics, Health Beliefs; American Association of Environmental Engineering and Science Professors Education and Research Conference, Blacksburg, Virginia, July 27 – August 1, 2007, (Platform Presentation).
55. J.G. Burken\*, A.C. Elmore and C. Elmore; Attracting Women to Engineering: International Programs, Service Learning, and Environmental Engineering Programs, American Association of Environmental Engineering and Science Professors Education and Research Conference, Blacksburg, Virginia, July 27 – August 1, 2007. (Poster Presentation).
56. J.A. Weishaar, J.G. Burken\*, and D.Tsao “Phytoremediation of BTEX Hydrocarbons: Potential Impacts of Diurnal Groundwater Fluctuation on Microbial Degradation,” AEHS: Soil Sediment and Water, 17th annual West coast Conference, San Diego, CA, March 19 - 22, 2007. (Platform Presentation).
57. J.G. Burken\*, Service Learning in Municipal-Service Fields UMR Service Learning Symposium January 12, 2007, Rolla, Missouri (Platform Presentation)
58. R. Melgoza\*, S. Summers\*, M. Bush\*, J.G. Burken & B. Brainard Service Learning Project: Recycling Programs and Waste Management (Rolla High School) UMR Service Learning Symposium January 12, 2007, Rolla, Missouri (Poster Presentation)
59. M. Boyd\*, M. Kargus\*, and G. Prestegard\*, J. G. Burken & B. Brainard Rolla High School Recycling Facilities: Service Learning Project UMR Service Learning Symposium January 12, 2007, Rolla, Missouri (Poster Presentation)
60. J. Wehde\*, S. McEwen\*, E. Duggan, J.G. Burken & L. Moss, PCCP Semester Dump: Service Learning in Solid Waste Management UMR Service Learning Symposium January 12, 2007, Rolla, Missouri (Poster Presentation)



**CONTINUED: SELECTED PRESENTATIONS**

61. E. Dulle\*, E. Babb\*, J.G. Burken & W. Jadwin UMR Solid Waste Auditing, Service Learning Project UMR Service Learning Symposium January 12, 2007, Rolla, Missouri (Poster Presentation)
62. M. Larsen\*, S. Trapp, U. Karlson, J. Burken, J. Machackova, & L. Soukup. July 9-13, 2006. Using tree core samples to monitor natural attenuation and plume distribution of chlorinated ethenes. International Symposium on Environmental Biotechnology Leipzig 2006, ISEB/ESEB/JSEB 2006, UFZ- Leipzig, Germany.
63. A.W. Gilbertson\*, M.W. Fitch, and J.G. Burken “Improved Viability of Engineered PCB Rhizodegradation,” 5th International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA, May 21 – 25, 2006 (Platform presentation)
64. J.G. Burken\*, J.A. Weishaar, J.G. Schumacher, M. McCaughey and W.H. Schneider “Phytoinvestigations: Plant Sampling to Detect and Evaluate Contaminated Soil and Groundwater” 5th International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA, May 21 – 25, 2006 (Poster presentation)
65. J.G. Burken\*, Innovative applications of Phytoremediation for Volatile Organic Compounds; 3rd European Bioremediation Conference, Chania, Greece; July 3 – 7, 2005, (Platform Presentation).
66. G.C. Struckhoff\*; J.G. Burken, and J.G. Schumacher, Vadose Zone PCE: An Important Source and Fate in Planted Systems; 2005 Third International Phytotechnologies Conference Atlanta, GA April 20-22, 2005, (Platform presentation).
67. W.H. Schneider\*, J.G. Burken, D. Strobridge, and J. Wrobel, Annual Hydraulic Containment of a Ground Water Plume by Poplar Trees” 2005 Third International Phytotechnologies Conference Atlanta, GA, April 20-22, 2005, (Platform presentation)
68. J.G. Burken\*, Xingmao Ma, Garrett Struckhoff, Jeff Weishaar and John Schumacher, Tree core sampling in plume delineation and phytoremediation studies; 39th Midwest Regional Ame. Chem. Society Meeting 2004; Manhattan KS, October 19-22, 2004 (Platform Presentation).
69. J.G. Burken\*, Phytoremediation in Brownfields; National Brownfields Conference (EPA and ICMA Conference); St. Louis, MO Sept 19 – 21, 2004, (Platform Presentation).
70. J.G. Burken\*, G.C. Struckhoff, A.W. Gilbertson, and X. Ma, Fate of VOCs in Natural and Engineered Systems, Phytoremediation: Environmental and Molecular Biological Aspects; OECD Workshop; Matrahaza, Hungary, September 9 – 12, 2004, (Platform Presentation).

**CONTINUED: SELECTED PRESENTATIONS**

71. G.C. Struckhoff, J.G. Burken\*, and J.G. Schumacher; Effect of Soil PCE on Uptake and Loss by Plants; 4<sup>th</sup> International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA, May 24 – 28, 2004, (Platform Presentation).
72. Chang Ye, J.G. Burken\*, and M.W. Fitch; “Neutral Mine Drainage Treatment with Constructed Wetlands; American Ecological Engineering Society Conference; Fayetteville Arkansas, June 9-12, 2004, (Poster Presentation).
73. M.A. von Arb\*, S.K. Shukla, J. Conradt, R. Surampalli, and J.G. Burken, M.R. Mormile; Phylogenetic Diversity of Bacteria in Anaerobic Swine Lagoons; American Society for Microbiology -104<sup>th</sup> General meeting, New Orleans, LA, May 2004. (Poster Presentation).
74. A.W. Gilbertson, and J.G. Burken\*; Enhanced rhizosphere degradation of persistent organic pollutants; American Ecological Engineering Society Conference, Fayetteville, AK, June 9-12, 2004 (Poster Presentation).
75. J. G. Burken\*, G.C. Struckhoff, and J.G. Schumacher; VOC Uptake and Volatilization by Plants: Ecological Site Investigation; American Ecological Engineering Society Conference, Fayetteville, AK, June 9-12, 2004 (Platform Presentation).
76. V.Sasidhara panicker\*, C. Henny, R. Surampalli, C.D. Adams, M.R. Mormile, and J.G. Burken, “Effect of Antimicrobial Agents on the Performance of High- rate Anaerobic Treatment of Swine waste”, Poster presentation in the American Society for Microbiology -104<sup>th</sup> General meeting, New Orleans, LA , May 2004. (Poster Presentation).
77. C. Henny\*, M. A. Von Arb, R. Surampalli, J. G. Burken, and M. R. Mormile. 2004. “Microbial Activity along a Spectrum of Anaerobic Swine Lagoons”. ASM 104rd General Meeting, May 23 - 27, New Orleans, LA. (Poster Presentation).
78. J.G. Burken\*, A. W. Gilbertson, G. C. Struckhoff, and X. Ma; Fate of Volatile Compounds In Phytoremediation Applications; 19th Annual International Conference on Soils, Sediments and Water (AEHS); Amherst, MA, October 20, 2003. (Platform Presentation).
79. J. Wang, J.G. Burken\*, and X. Zhang; Struvite Precipitation: Impacts of Seeding and Mixing Strength; 76<sup>th</sup> Annual WEFtec Conference and Exhibition, Los Angeles, CA, October 14, 2003. (Platform Presentation).
80. J.G. Burken\*, A. W. Gilbertson, G. C. Struckhoff, and X. Ma “Fate of VOCs in Native and Genetically Enhanced Phytoremediation Applications” University of Iowa Seminar Series, Iowa City, IA, October 3 2003, (Platform Presentation).
81. J.G. Burken\*, Gilbertson, A.G., M.W. Fitch, and T.K. Wood “Rhizosphere Degradation

**CONTINUED: SELECTED PRESENTATIONS**

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- of Chlorinated Solvents using GFP-Tagged Microorganisms.” American Society of Microbiology, Washington D.C. May 18 – 22, 2003. (Platform Presentation).
82. C. Henny, M. A. von Arb, S. Homan, M. R. Mormile and J. G. Burken\* Comparison of Microbial Activity in a Functional vs. a Non-functional Anaerobic Swine Lagoon, Washington D.C., May 20, 2003 (Poster Presentation).
83. A.G. Gilbertson, J.G. Burken\*, M.W. Fitch, and T.K. Wood; Transport of Root-Colonizing, Recombinant Bacteria in Enhanced Rhizosphere Degradation; Orlando FL, June 4<sup>th</sup> 2003 (Platform Presentation).
84. X. Ma, and J.G. Burken\*; Multimedia Transfer of TCE in Phytoremediation Applications; International Applied Phytotechnologies Conference, Chicago, IL, March 3 - 5, 2003, (poster presentation).
85. A.G. Gilbertson, J.G. Burken\*, M.W. Fitch, and T.K. Wood; Fluorescent, Root-Colonizing Recombinant Bacteria and Their Use in Phytoremediation; Pan American Advanced Study Institute (NSF-sponsored workshop), Rio de Janeiro, Brazil, July 22-August 3, 2002, (Platform Presentation).
86. J.G. Burken\*, and X. Ma, Chlorinated Solvent Phytoremediation: Uptake and Diffusion. Pan-American Advanced Study Institute (NSF-sponsored workshop), Rio de Janeiro, Brazil, July 22 – Aug 3, 2002. (Poster presentation).
87. J.G. Burken\*, and X Ma; Chlorinated Solvent Phytoremediation: Uptake and Transfer to the Atmosphere; 3<sup>rd</sup> International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA, May 20 – 24, 2002, (Platform Presentation).
88. A.W. Gilbertson\*, J.G. Burken, M.W. Fitch, and T.K. Wood Fluorescent; Root-colonizing Bacteria to Enhance the Rhizosphere Degradation of TCE; 3<sup>rd</sup> International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA, May 20 - 24 2002, (Platform Presentation).
89. S. Hirsch, J.G. Burken\*, H. Compton, W. Schneider, and J. Wrobel; Characterizing the Remedial Performance of a Phytoremediation Pilot Study: A Case Study from J-Field, Aberdeen Proving Ground, Maryland; 3<sup>rd</sup> International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA, May 20 – 24, 2002. (Platform Presentation).
90. J.G. Burken\*, and X. Ma; Field-Scale Phytoremediation of VOC by Poplars; National Association of Engineering Geologists Conference, St. Louis, Missouri, October 5, 2001. (Platform Presentation)
91. J.G. Burken\*; Uptake and Volatilization of Chlorinated Solvents By Poplars At Field – Scale; In Situ and On-Site Bioremediation: The 6<sup>th</sup> International Symposium, San Diego,

**CONTINUED: SELECTED PRESENTATIONS**

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CA, June 4 – 7 2001 (Platform Presentation).

92. T. Wood\*, D. Ryoo, H. Shim, J.S. Gibbons, and J.G. Burken; Phytoremediation/Genetically Engineered Microbes: A Unique Approach To Organic Contaminant Treatment; Environment Canada: Second Phytoremediation Technical Seminar, Vancouver Canada June 13, 2000, (Poster Presentation)
93. T. K. Wood\*, H. Shim, D. Ryoo, J. G. Burken, and J. S. Gibbons; Rhizosphere Competitiveness of Trichloroethylene-Degrading, Poplar-Colonizing Recombinants; American Chemical Society National Meeting, San Francisco, CA March 26, 2000 (Platform Presentation).
94. J. Sutherland, B. Panka, J.G. Burken\*, and C.D. Adams; Chemical and Biological Oxidation of MTBE: Pathways Under Variable Conditions; 2<sup>nd</sup> International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA, May 24, 2000 (Poster Presentation).
95. J.G. Burken\* and J.S. Gibbons; Root colonizing genetically engineered bacteria for trichloroethylene remediation; 2<sup>nd</sup> International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA, May 24, 2000 (Platform Presentation).
96. J. Sutherland, B. Panka, J.G. Burken\*, and C.D. Adams; Chemical Oxidation of MTBE Under O<sub>2</sub> - Rich and - Limited Environments Coupled with Biological Degradation of Oxidation Byproducts; Joint Environmental Engineering and Pipelines Conference, Kansas City, MO, July 23, 2000 (Platform Presentation).
97. C.D. Adams, M.W. Fitch, and J.G. Burken\*; Military on Campus: A Joint UMR-Army Program Providing Non-Traditional Master's Degrees; ASEE National Conference, St. Louis, MO, June 21, 2000 (Platform Presentation).
98. J.G. Burken\*, L.M. Harrison, and C. Ross; Phytoremediation of Benzene: Whole-Plant Laboratory Studies; Phytoremediation Technical Seminar, Environment Canada, Calgary, Alberta, May 31-June 1, 1999 (Platform Presentation).
99. M.W. Fitch, J.G. Burken\*, Y. Song, C. Ross, L. Nass, S. Chilikuri, N. Gale; Lead and Zinc Removal by Lab-Scale Constructed Wetlands; 14th Conference on Hazardous Waste Research. Great Plains and Rocky Mountains Hazardous Substance Research Center. St. Louis, MO, May 24-27, 1999. (Platform Presentation).
100. J. Sutherland, B. Panka, J.G. Burken\*, and C.D. Adams; Chemical and Biological-Oxidation Pathways of MTBE and Its Oxidation By-Products Using Combination of H<sub>2</sub>O<sub>2</sub> O<sub>3</sub>, and UV under oxygenated and Oxygen-Limited Conditions; 14th Conference on Hazardous Waste Research. Great Plains and Rocky Mountains Hazardous Substance Research Center. St. Louis, MO, May 24-27, 1999. (Platform Presentation).

**CONTINUED: SELECTED PRESENTATIONS**

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101. J.G. Burken\*; Undergraduate Research: Programs in Civil Engineering and Across the UMR Campus; 34<sup>th</sup> ASEE Midwest Conference, Stillwater, OK, April 20, 1999 (Platform Presentation).
102. J.G. Burken\*; Army Officers on Campus: A Joint Program for Providing Master's Degrees, 34<sup>th</sup> ASEE Midwest Conference, Stillwater, OK, April 20, 1999 (Platform Presentation).
103. J.G. Burken\*; Phytoremediation of Organic Contaminants: Uptake and Degradation of Atrazine; 1998 National Conference on Environmental Engineering (ASCE), Chicago, IL, June 7-10, 1998 (Extended Abstract and Platform Presentation).
104. J.G. Burken\* and J.L. Schnoor; Translocation of Organic Contaminants by Hybrid Poplars: Potential for Volatilization; International Conference on Chlorinated and Recalcitrant Compounds, Monterey, CA, May 18-21, 1998 (Poster Presentation).
105. J.G. Burken\* and J.L. Schnoor, Uptake and Fate of Organic Contaminants by Hybrid Poplar Trees, Proc. 213<sup>th</sup> ACS National Meeting, San Francisco, CA, April 15, 1997 (Extended Abstract and Platform Presentation).
106. J.L. Schnoor\*, E.W. Aitchison, S.L. Kelley, P.J.J. Alvarez, S. Wakefield, J.G. Burken, and C.L. Just; Phytoremediation of 1,4-dioxane by Hybrid Poplars, Proc. 213<sup>th</sup> ACS National Meeting, San Francisco, CA, April 15, 1997 (Extended Abstract and Platform Presentation).
107. J.G. Burken\* and J.L. Schnoor; Phytoremediation of Pesticide Wastes - Full-Scale and Pilot Demonstrations; Conference document IBC 2<sup>nd</sup> Annual Conference on Phytoremediation, Seattle, WA, June 17, 1997 (Platform Presentation).
108. J.G. Burken\* and J.L. Schnoor; Hybrid Poplar Tree Phytoremediation of VOCs; Proc. 212<sup>th</sup> ACS National Meeting, Orlando, FL, August 27, 1996 (Extended Abstract and Platform Presentation).
109. J.G. Burken\* and J.L. Schnoor; Atrazine Phytoremediation and Metabolism by Poplar Trees; 69<sup>th</sup> Water Environment Federation Conference, Dallas, TX, October 5 - 9 1996 (Platform Presentation).
110. J.G. Burken\*, A.C. Dietz, J. Jordahl, W.E. Schnabel, P. Thompson, L. Licht, P.J.J. Alvarez, and J.L. Schnoor; Phytoremediation at Hazardous Waste Sites; Proc. 69<sup>th</sup> Water Environment Federation Conference, Dallas, TX; October 5 - 9, 1996 (Paper and Platform Presentation).
111. H. Raschke, J.G. Burken\*, R. Hany, J.R. van der Meer, and H.P. Kohler; Oxidation of Different Aromatic Substances to the Corresponding Dihydrodihydroxy Derivatives by a

**CONTINUED: SELECTED PRESENTATIONS**

- Cloned Chlorobenzenedioxygenase; Gordon Research Conference, *Environmental Sciences: Water*. New Hampton, NH, June, 25, 1996 (Poster Presentation).
112. W.E. Schnabel, A.C. Dietz, J.G. Burken\*, J.L. Schnoor, and P.J.J. Alvarez; TCE uptake by common garden vegetables; HSRC/WERC Joint Conference on the Environment, Albuquerque, NM, May 21-23, 1996, (Platform Presentation).
113. J.G. Burken\* and J.L. Schnoor; Degradation of Atrazine by Poplar Trees; Fifth Annual Biocatalysis and Bioprocessing Conference. Iowa City, Iowa, May 14, 1996 (Platform Presentation).
114. J.G. Burken\* and J.L. Schnoor; The Effect of Poplar Trees on the Fate and Transport of Atrazine; Hazardous Waste Research Conference. Bozeman, MT, June 8-10, 1994, (Platform Presentation).
115. J.G. Burken\* and J.L. Schnoor; Atrazine Uptake by Poplar Trees in Variable Soil Types; Hazardous Waste Research Conference; Manhattan, KS, May 25-26, 1993 (Platform Presentation).

**GRANTS AND CONTRACTS**

**Completed/Active** (\$5.1 Million shared credit, > \$11.0 Million total funding to UMR/S&T)

Excellence in Research: Elucidating uptake mechanisms of silver/zinc oxide nanoparticles into food crops and transport through soil ecosystem, \$499,915, NSF, PI John Yang Lincoln University, (Burken CoPI, 10%)

Preparing Leaders of Sustainable Public Health Protection: International Phytotechnologies Scholars Program - China 2019, \$15,000, NIEHS

Phytoforensic Site Assessment Analysis for Chlorinated Solvents and 1,4-Dioxane At Santa Susana Field Lab, Intrinsyx-NASA/Ames Lab, \$11,000

International Phytotechnologies Scholars Program, Preparing Next Generation Global Leaders in our Profession (NoviSad Serbia) 2018. \$13,300, NIEHS, GRANT #12534532

Tree Core & Solid Polymer Samplers (SPS) Analysis – Brooklyn Street Site, O'BRIEN & GERE, \$ 20,925.

Phytotechnologies 14<sup>th</sup> Annual international conference Montreal Canada, Preparing Next Generation Global Leaders in Our Profession, \$13,500 NIEHS Grant # GRANT12385688

Identification of Chlorinated Solvents in Tree Cores - NSA Crane Site, To Resolution Consultants (AECOM & EnSafe), \$36,000

**CONTINUED: GRANTS AND CONTRACTS**

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Plant uptake of metals in mine tailings stabilization and biomass production at Viburnum mine 28, DOE Run Resource Company, \$27,800 (PI 60%) 2016-2017

Plant Uptake of Emerging and Fugitive Compounds: A Sustainable Approach to Exposure Assessment; NSF, \$332,880 Oct 2016 – 2019

Collaborative Data Assessment & Phytoforensic Analysis for Organic Leachate Pollutants, US Forest Service (USFS), \$75,712 (PI 60%) 2016-2017

Phyto Scholars program For Phytotechnologies International Conference 2016 Hongzhou China; NIEHS \$13,500 (PI 100%) 2016

Plant uptake of metals in mine tailings stabilization and biomass production at Viburnum mine 28, DOE Run mining, \$27,800 (PI 60%) 2016-2017

Site Assessment for Bridgeton MO: Collaborative Data Assessment and Phytoforensic Analysis for Organic and Radionuclide Leachate Pollutants, State or Missouri Attorney General Office \$64,696 (PI: 50%) 2015-2016

Potential for concurrent mine tailings stabilization and biomass production at Viburnum mine 28, DOE Run mining, \$23,800 (PI 60%) 2015-2016

The Missouri Transect: Climate, Plants, and Community – EPSCOR, NSF, Total \$20,000,000; S&T Portion 1,238,250 (60%) 2014-2020

Keyport Area 1 Phase I Field Work Phytoremediation Consulting Support, URS/US Navy, \$76,671, 2014-2015 (100%)

Plants as Pollution Sentinels for Improved Health in the Built Environment; NSF, \$252,712 Nov 2013 – 2015 (60%)

Collaborative Study on Contaminant Fate: Phytoremediation Mass Flux and Biodegradation Assessment for DOW Midlands - Dow Chemical \$75,000 (100%) 2013-2014

REU Site: Technologies for Renewable Energy Generation, NSF \$388,798 (15%) 2012 – 2014

Phytoforensic Pollution Delineation - Montague DuPont Site, DuPont \$17,000 (100%) 2012 - 2013

Phytoforensic Pollution Delineation – DOW Palestine Site, Dow Chemical \$35,827 (100%) 2012-2013

Phytoforensic Pollution Delineation - Longhorn Ammunition Plant, TechLaw - EPA, \$25,640 (50%) June 2012 – Dec 2012

**CONTINUED: GRANTS AND CONTRACTS**

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Environmental Engineering Chairs and Directors Conference: Preparing the Future Stewards of our Planet, \$15,000, (100%) 2012 - 2013

Workshop: Needs & Frontiers of Education in Environmental Engineering, NSF \$50,000 (100%) October 2011 – October 2013.

Frontiers of Environmental Engineering: Needs in Human and Public Health, NIEHS \$20,000. (100%) November 2012 – November 2013

Heat Island Effects- Value of Green Roof Technology RCI Foundation \$12K (50%), November 2011 – November 2012

Economics of Waste to Energy Anaerobic Digestion in Missouri, Missouri DNR, \$49,966 (70%), Jan 2011 – Jan 2012

Urban Water Quality Impacts: Value of Green Roof Technology, USGS Missouri Water Center, \$44,000, (50%), March 2011 – March 2013

Phytoforensic use of Plants in Biosensing of Battlefield Compounds, Leonard Wood Institute, \$309,100 (60%), Sept 2010 – Jan 2012.

Development and Verification of a Rapid Method for Determining Escherichia coli in Recreational Water in Missouri - Phase 1, \$54,000 (10%). August 2010 – August 2011

International Phytotechnologies Scholars Program. NIEHS/NIH. \$48,575 (100%) June 2010 – June 2011

International Phytotechnologies Scholars Program Conference in St. Louis, MO, NSF, \$30,000 (100%). Nov 2009 July 2010

International Phytotechnologies Conference. NIEHS/NIH, \$10,000 (100%). October 2009 – June 2010.

ARRA Supplement: In-situ Sediment Remediation - Waterjet amendment placement NIEHS – NIH, CoPIs: D.A. Summers, G. Galecki A.C. Elmore, D. Reible. \$207,971 (50%); Sept 2009-Sept 2011,

Developing a Deployable Wastewater Treatment and Reuse System for Military Base Camps, Leonard Wood Institute, PI: J. Wang, CoPI: M. Fitch. \$516,458 (20%), 2008-2009

Recycling Campus Program, Ozark Rivers Solid Waste Management District, \$7,500, January 2009.

Investigating subsurface impacts of chlorinated solvents using tree cores and in-planta sampling. Ministry of Environment – Ontario, Canada, \$CD 95,164 (90%) , CoPI G.C. Morrison, 2008



**CONTINUED: GRANTS AND CONTRACTS**

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- 2010

In-situ Sediment Remediation using benthic Waterjet amendment placement, NIEHS – NIH, CoPIs D.A. Summers, A.C. Elmore, D. Reible. \$591,178, (60%) April 1, 2008-2011,

Renewable Energy Demonstration at Troop I Headquarters, State of Missouri, Office of Administration, March 31, 2008 - May 31, 2010 \$306,056 (20%) PI A.C. Elmore, CoPI M. Crow

A planning visit for rural drinking water research in Amazonia Brazil., NSF, PI: A.C. Elmore, CoPIs: J. Martin, J. Gallaway. \$18,222, 2008-2009

Abatement of Odors from Swine Confinement & Waste Treatment, To Missouri Agricultural and Small Business Development Authority - Department of Agriculture. \$38,250, (10%) PI Fitch, 2007 – 2008.

Acquisition of Natural Treatment Systems Research Facility. To: NSF (MRI Program) - \$800,950 (\$485,275 sponsor), (55%) 2003 – 2006. Co PIs: D. Wronkewicz, Mormile, M. Fitch, J. Hogan, D. M. Porterfield,

Plastic Recycling Program –UMR Havener Center. To: Ozark Rivers Solid Waste Mgmt. Dist. - Co – PI Harvest Collier \$1,832 2004 –2005

Plant-VOC Interaction: Site Investigation and Monitoring for Phytoremediation. To: EPA Hazardous Substance Research Center, Purdue University - \$267,993 (\$208,196), 2003 – 2006 (EPA Program Eliminated 2005)

Leaching and Modeling of As and Se from Fly Ash, EPRI, \$52,056 (10%), PI: J.Wang Co PI: J. Burken; 2004-6

The Leaching Behavior of Arsenic and Selenium from Fly Ash and Their Potential Impact on Water Quality, USGS & EPRI, \$34,000 (10%), PI: J. Wang, Co PI Joel Burken; 2004-6

Low Rate Mixing & Struvite Precipitation: Paired Treatment for Swine Waste, USGS-Missouri Water Center, \$22,000, PI Burken, 2006-2007

Biological Energy Generation from Waste Solids, Anheuser Busch, St. Louis, \$32,740 (50%) CoPIs: J. Wang, J. Raper, D. Forceniti, M. Mormile, Joel Burken, 2005-2006

Genitally Enhanced Rhizodegradation of PCBs, Missouri Research Board, \$27,000, PI Burken, 2004-2005.

Phytoinvestigation and phytoremediation of petroleum refineries at Sugar Creek Missouri, BP Remediation Management Function, Warrenville Illinois - \$40,200, PI Burken, 2004 – 2005.

**CONTINUED: GRANTS AND CONTRACTS**

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Constructed Wetlands for Metals Removal: Design for Neutral Waters and AMD Remediation  
EPA Hazardous Substance Research Center, Purdue University; \$154,000 (40%) Co PIs  
M.Fitch, J. Burken; 2004-2007 (program cancelled nationally 2005)

Equipment Supplement: CAREER: Phytoremediation of Organic Contaminants and Preparing  
Environmental Engineers to Meet Current and Future Challenges. To: National Science  
Foundation - \$20,000 (\$10,000 Sponsor), 2003 – 2004

Plant-VOC Interaction: Site Investigation and Monitoring for Phytoremediation at Portsmouth  
Gas Diffusion Plant; Pro2Serve, Piketon OH. - \$9,854 , 2003

Supplement : CAREER: Phytoremediation of Organic Contaminants and Preparing  
Environmental Engineers to Meet Current and Future Challenges. To: National Science  
Foundation - \$50,000, 2003 – 2004

Environmental Technologies for Concentrated Animal Feed Operations (CAFOs). To: U.S  
Environmental Protection Agency - \$1,995,600; 18% Shared Credit, Co-PIs C.D. Adams,  
M.W. Fitch, M. Mormile, G. Morrison, 2001 – 2004.

Constructed Wetlands for Metals Removal. To: Purdue University (as part of U.S. EPA  
Hazardous Substance Research Center-HSRC) – \$269,357 (\$192,106 sponsor); 40% Shared  
Credit, Co-PI M.W. Fitch, 2001 – 2004.

CAREER: Phytoremediation of Organic Contaminants and Preparing Environmental Engineers  
to Meet Current and Future Challenges. To: National Science Foundation - \$336,460  
(\$200,000), 2000 - 2004

Design and Sampling of a Constructed Wetland, To: DOE Run Mining Co. - \$8,600 (\$5,000),  
40% Shared Credit, Co-PI M.W. Fitch, 2002 – 2003

Exploratory Investigation: Tree Core Analysis. To: U.S. Environmental Protection Agency  
National Risk Management Lab - \$60,020 (\$40,000), 2001 – 2002.

Graduate Assistance in Areas of National Need (GAANN) Fellowship Program. To: The U.S.  
Department of Education - \$573,253 (\$350,714 sponsor); 50% Shared Credit, Co-PI C.D.  
Adams, 1998 – 2001.

Phytoremediation/GEM Systems for Atrazine Remediation and Water Resource Protection. To:  
The U.S. Department of Agriculture - \$57,654 (\$44,110), 1998 – 2001.

Exploratory Investigation: Tree Core Analysis, Proposal to incorporate Portsmouth Gas  
Diffusion Plant-Piketon, Ohio. To: Bechtel-Jacobs Engineering - \$6,825, 2000.

Development of Fluorescence Detection Methods for Landfill Leachate Identification. To:  
Missouri Department of Natural Resources - \$11,656 (\$7,823), 1999.

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**CONTINUED: GRANTS AND CONTRACTS**

Coupled UV/H<sub>2</sub>O<sub>2</sub>-Biological Treatment of Fuel Oxygenates. To: University of Missouri Research Board - \$56,880; 50% Shared Credit, Co-PI C.D. Adams, 1997 – 1998.

Constructed Wetlands for Heavy Metals Removal. To: DOE RUN Mining Company - \$6,435; 50% Shared Credit, Co-PI M. W. Fitch, 1997.

**as PhD candidate**

Uptake of BTEX Compounds and Metabolites by Hybrid Poplar Trees in Hazardous Waste Remediation. To: HSRC Kansas State. Co PIs Louis Licht, Jerry Schnoor. \$458,877. 1994 – 1997. (written as graduate student 0% Credit)

TCE uptake by common garden vegetables. To: Montgomery Watson, Inc. (funded by DoD)PI Pedro Alvarez (\$154,500) 9/01/94 - 8/31/95. (written as graduate student 0% Credit)

**PROFESSIONAL ACTIVITIES (National and International)**

- Professional Engineer: Missouri License PE-2010019514 (2010)
- Engineer - In - Training Registration in Iowa, Registration #11322 (1992).
- Founding Committee: International Phytotechnology Society (IPS)
- Vice President International Phytotechnology Society (IPS) 2007-2008
- President, ASCE Mid. Missouri Section 2000-2001 (Vice Pres. 1998 – 2000).

**Conference Organizing Committees:**

- Organizer and Chair: Needs and Frontiers of Environmental Engineering Educational Workshop. October 17-19, 2012, St. Louis Missouri (NSF/NIH/AEESP)
- Technical Committee and Session Chair, Ninth International Conference on Phytotechnologies, September 2013, Hasselt, Belgium
- Organizer and Chair Environmental Engineering Chairs and Directors Workshop. July 29-31, 2012, Columbus OH (NSF/AEESP/AEE)
- Eighth International Conference on Phytotechnologies, September 2011, Portland Oregon
- Missouri Chamber of Commerce, Environmental Conference at the Lake, July 2011; July 2012. Lake of the Ozarks, MO
- Chair: AEESP 2011 Frontiers of Environmental Engineering Educational Workshop. (Part of National Conference, Tampa FL.)
- Seventh International Conference on Phytotechnologies, October 2010, Parma Italy
- Conference Chair - Sixth International Conference on Phytotechnologies, Dec 2009, St. Louis MO
- Fifth International Conference on Phytotechnologies, October 2008, Beijing, China.
- Alternative Covers for Landfills: Theory, Design, and Practice 18 to 20 November 2008 -- Kansas City, MO
- Fourth International Conference on Phytotechnologies, 24 to 26 September 2007, Denver, Colorado, USA
- Third International Phytotechnologies Conference April 20-22, 2005 Atlanta, GA

**CONTINUED: PROFESSIONAL ACTIVITIES**

- Second International Applied Phytotechnologies Conference, March 3–5, 2003 Chicago, IL
- Technical Committee for 2000 ASCE National Environmental Engineering Division Conference, ASCE Zone III Nominating Committee (1999, 2000).

Program Chair:

- *Emerging Contaminants* 10<sup>th</sup> International Phytotechnologies Conference, Syracuse NY, October 1-4, 2013
- *Phytoforensics*, Ninth International Conference on Phytotechnologies, September 2013, Hasselt, Belgium
- Session Chair and Organizer - *Phytoremediation Sessions: International Conference on Remediation of Chlorinated and Recalcitrant Compounds* (Battelle), May 21-24, 2012 Monterey, California
- *Phyto Scholar Program and Phytomonitoring session chair* Eight International Conference on Phytotechnologies, September 2011, Portland Oregon
- *Phytomonitoring* Seventh International Conference on Phytotechnologies, October 2010, Parma Italy
- *Monitoring and Groundwater Remediation: Fourth International Conference on Phytotechnologies*, 24 to 26 September 2007, Denver, Colorado, USA
- *Sustainability in Engineering Program*, American Association of Environmental Engineering and Science Professors Education and Research Conference, Blacksburg, Virginia, July 27 – August 1, 2007.
- *Volatile Organic Compounds in Groundwater Program Fifth International Conference on Remediation of Chlorinated and Recalcitrant Compounds* (Battelle), 2006
- *Phytoremediation of Organic Compounds: 3rd European Bioremediation Conference* (Greece), July, 2005.
- *Volatile Organic Contaminants in Groundwater Third International Phytotechnologies Conference* April 20-22, 2005 Atlanta, GA
- *Phytoremediation Program - In Situ and On-Site Bioremediation: The 8<sup>th</sup> International Symposium*, (Battelle), 2005.
- *Phytoremediation Program - In Situ and On-Site Bioremediation: The 7<sup>th</sup> International Symposium* (Battelle), 2003.
- *Phytoremediation Program Third International Conference on Remediation of Chlorinated and Recalcitrant Compounds*, 2002.
- 2000-ASCE National Environmental Engineering Division Conference;
- 14th Conference on Hazardous Waste Research-Great Plains and Rocky Mountains Hazardous Substance Research Center, 1999.

Technical Committees:

- Member: Interstate Technology Regulatory Council (ITRC) Committee for Constructed Wetlands (1999 – 2004)
- Member: Remedial Technologies Development Forum (RTDF) Phytoremediation of Organics Action Team.

National Service Committees:

**CONTINUED: PROFESSIONAL ACTIVITIES**

- ASCE Department Heads Coordinating Council, Elected nationally 2018– Present
- USEPA Science Advisory Board, Appointed and Congressional Confirmation 2016– Present.
- Board of Directors: Association of Environmental Engineering and Science Professors Foundation (2011-2014)
- Planning Committee: 10<sup>th</sup> International Phytotechnologies Conference, Syracuse NY, October 1-4, 2013
- Chair: Frontiers in Environmental Engineering Educational Workshop, AAEE – AEESP, October 2011.
- Scientific Committee: 9<sup>th</sup> International Phytotechnologies Congress, Hasselt Belgium, September 12-14, 2012
- Board of Directors: Association of Environmental Engineering and Science Professors (2008-2012)
- Chair: AEESP 2009 Workshop on Environmental Engineering Educational Challenges. Iowa City Iowa, July 2011.
- Planning Committee: 8<sup>th</sup> International Phytotechnologies Conference, Portland Oregon, September 13-16, 2011
- Chairman AEESP National Committee on Student Organizations,
- WEF Students and Young Professionals Committee;
- AEESP Publications Committee,
- Guest Editor: ASCE Journal of Environmental Engineering Special Issue on Natural Treatment Systems 2013, International Journal of Phytoremediation, 1999; ASCE Practice Periodical of Hazardous, Toxic, and Radioactive Waste Management, 2001.
- Associate Editor, AEESP Environmental Engineering Processes Laboratory Manual (2000 – 2001).
  
- Referee Activities: EPA Guidance Documents; Environmental Science & Technology, Chemosphere, International Journal of Phytoremediation, Water Research, Journal of Environmental Quality, Environmental Toxicology and Chemistry, Environmental Pollution; ASCE Journal of Environmental Engineering, ACS Journal of Agricultural and Food Chemistry, Journal of Ecological Engineering, Journal of Hazardous Materials, ASCE GeoCongress 2008; Contaminant Hydrology; Environmental Engineering Science; Bioresource Technology; ASCE Practice Periodical of Hazardous, Toxic, and Radioactive Waste Management, Environmental Technology, Hazardous Waste Journal, American Chemical Society Conference Proceedings, U.S. Department of Agricultural Documents.
- External Expert reviews: Nanyang Tech Univ Review; S. Illinois University-Edwardsville – Teaching Excellence Committee; NSF Peer Review Panel Member 1999, 2003, 2006, 2007, 2008, 2009, 2011, 2012; Consortium for Plant Biotechnology Research Peer Review 2006, 2007; NSF SBIR Peer Review, 2007; Natural Sciences and Engineering Research Council 2005; EPA Peer Review Panel Member, 1999, 2003, 2005; SERDP Peer Review Panel 2001, 2003. EPA Peer Review Panel Member, 2004; SERDP Peer Review Panel 2004; EPA Peer Review Panel Member, 2005; NSF Peer Review Panel Member 2006; EPA Peer Review

**CONTINUED: PROFESSIONAL ACTIVITIES**

Panel Member, 2006; ERDC Reviewer US Army Corps of Engineers, 2007;

**UNIVERSITY SERVICE ACTIVITIES**

- Chancellor Search Committee, 2018-2019
  - Presidential Engagement Scholar (UM System), 2017 – present
  - Missouri S&T Faculty Recruitment and Retention Council, 2017 - present
  - Chair of the Academic Calendar Committee, 2012 - 2015
  - Campus Ad-Hoc Curriculum Committee, 2012 - 2014
  - Campus Recruiting Committee; 2008 – Present
  - Chair, Green Campus Committee, 2008 – 2015
  - Chair (founding) Sustainability Minor, 2010 – 2013
  - Chancellor’s Scholarship Committee, 2007 - 2013
  - Campus P&T Committee, 2010-2012 (Chair 2011-2012)
  - Global Studies Advisory Committee (Founding member), 2008 - 2011
  - Campus Calendar Committee; 2010 – 2012
  - Coordinator (and founder): Undergraduate Environmental Engineering Program, 2002 – 2008
  - S&T / UMR Environmental Management System Committee, 2003 – 2009
  - Faculty Recruitment Group –Admissions, 2007 – 2009
  - Brand Identity Team, 2007-Present
  - Campus Recruitment Committee – Enrollment. 2007 - present
  - Service Learning Advisory Committee, 2006 - present
  - Women’s Leadership Institute Committee, 2004 - 2008
  - Assistant Advisor UMR/M S&T Chi Epsilon (National CE Honor Society); 1997 – Present
  - New Student Faculty Mentor; 1999 – 2001, 2003, 2004, 2006, 2007
  - UMR Institutional Biosafety Committee; 2000 – Present,
  - Faculty Advisor Water Environment Federation 1998 – 2006,
  - UMR Recycling Committee 2004 – 2006
  - Coauthored proposal for support of plastics recycling at UMR, funded by Ozark Rivers Solid Waste Management Grants program for \$1,832
  - Transfer Advisor for Env Eng 2002-2005
  - Organizer Environmental Research Center Seminar Series, 1999 – 2005, 2007 - Present
  - Admissions and Academic Standards Committee, 2001 – 2004,
  - Prepared Proposed Program for Bachelor’s of Science Degree in Environmental Engineering, 2000 – 2001,
  - UMR Academic Council, 1997 – 2001,
  - UMR School of Engineering Curriculum Study Group (Ad Hoc), 1999 – 2001,
  - Biological Sciences Department Faculty Search, 1999
- Civil, Architectural and Environmental Engineering Department:
- Vision 2020 - Strategic planning, Chair 2010 - present
  - Civil Undergraduate Program Committee, 2006 – 2010

## CONTINUED: PROFESSIONAL ACTIVITIES

- Curriculum Committee, 1999 – 2003, Chair 2001-2002
- Undergraduate Affairs Committee, 1999 – 2003,
- Phonathon, Co Chair 1998, Chair 1998, Co Chair 1999
- Assessment Committee (1998-1999)
- Chair Search Committee (1999)
- Long Range Planning Committee (1997-1999) Sub-committee on Curriculum

### Local – State Service

- Board member Champions of Rolla Education (CORE) 2008 – Present  
elected President 2013 - 2015
- Coach – Knight Soccer Club, 2014 - Present
- Rolla Public School District's Comprehensive School Improvement Plan (CSIP)  
Committee 2014
- Rolla Municipal Utilities (RMU) Board of Directors, 2011 – 2012
- Advisory Committee: Ozark Rivers Solid Waste Management District (Missouri DNR/  
Meramec Regional Planning Commission)

## RESEARCH ADVISING

### Postdoctoral Research

- Dr. Cynthia Henny *Characterization of microbial activity in anaerobic Swine waste Treatment.* (2002 – 2004) (Indonesian Institute of Sciences)
- Dr. Adcharee Karjanapiboonwong, *Phytoforensics of Energetic Battlefield contaminants.* (2011-2012) (Research Associate Texas Tech University)
- Dr. Lorenzo Rossi, *Uptake and transport of emerging pollutants and nanoparticles in vegetation.* (2017 – 2018) (Assistant Professor University of Florida)
- Dr. Nadge Oustriere, *Ecosystem restoration for mining sites and pollutant fate in vegetated systems.* (2018 – 2019).

### PhD:

1. Xingmao Ma, *Fate of Volatile Chlorinated Solvents in Phytoremediation Applications,* (2003) (Currently Associate Professor Texas A&M)
2. Chang Ye (co-Advised, M.W. Fitch) *Metals removal mechanisms in Constructed Wetlands* (2005) (Albert A. Webb Associates)
3. Amanda Gilbertson *Expression of Green Fluorescent Protein (gfp) in Recombinant Microbes to Investigate the Survival and Growth of Root-Colonizing Organisms* (MS 2001, PhD 2006) (Principal Golder Associates)
4. Yuan Yuan *Phytoforensics of RDX and TNT* (Dec 2012)
5. Matt Limmer *Plants as Biosentinels of Toxicity and Anthropogenic Exposure* (Aug 2014) Research Professor – University of Delaware
6. James Peterson (co-Advised, C. Mendoza) *Evaluation of Unmanned Aerial Systems Image Collection & Computer Vision Image Processing For Accuracy and Content Compliance with Mapping Industry Standards and Specifications* (Defended May 2014) (Assistant Professor, Missouri State University)

**CONTINUED: RESEARCH ADVISING**

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7. Jordan Wilson *Organic Contaminant Monitoring in Phytoremediation Systems* (2017) (Research Hydrologist US Geological Survey)
8. Miriam Al-Lami *Reclamation of Mine tailings – Optimizing biofuel production and water management* (Expected 2019)
9. Paul Manley *Hyperspectral imaging for plant stress Assessment* (Expected 2020)
10. Majid Bagheri *AI modeling of pollutant fate in vegetated systems* (Expected 2020)

Invited PhD Committee Member

1. Mette Algreen Nielsen *The Feasibility of Tree Coring as a Screening Tool for Selected Contaminants in the Subsurface* Danish Technological University, Copenhagen DK, 2015
2. Charlotte (Nielson) Legind *Fate of Organic Contaminants in Phytoremediation Systems*, Danish Technological University, Copenhagen DK, 2008
3. Deepak Raj Dubey *Wastewater Denitrification in Upflow Anoxic Sludge Blanket Reactor*, Indian Institute of Technology Bombay. 2008
4. Gayathri Gopalakrishnan *Nature's Sensors: Using Plants As An Alternative Monitoring Approach For Subsurface Contamination*, University of Illinois at Urbana-Champaign, 2008
5. Frank Shan-Lin Hou *Phytoremediation and Bioremediation of Petroleum Contaminated Soils and Water* University of Canterbury, Christchurch New Zealand. 1999

MS Thesis:

1. Linda Nass *Wetlands Treatment of Neutral Mine Drainage* (inactive, non-completed thesis),
2. Brian Panka *Biological Degradation of Methyl Tertiary-Butyl Ether (MTBE) Oxidation Byproducts* (2000),
3. Carla Ross *Toxicity and Fate of Benzene and Trichloroethylene in Hybrid Poplar Trees* (2001),
4. Amanda Gilbertson *Expression of Green Fluorescent Protein (gfp) in Recombinant Microbes to Investigate the Survival and Growth of Root-Colonizing Organisms* (2001),
5. Jun Wang *Struvite Precipitation for Phosphorous Removal from Animal Waste Streams* (2003),
6. Garrett Struckhoff *Vapor Phase Uptake and Translocation of Volatile Organic Compounds* (2003),
7. Michelle von Arb *Microbial Population Dynamics In Anaerobic Treatment Of Swine Waste* (2004),
8. Cem Selman (co advised) *Constructed wetlands for treating Acid Mine Drainage* (Dec 2004),
9. Vineeth Sasidhara-Panicker *Effect of Antibiotics and Chemical Disinfectants on Anaerobic Sequencing Batch Reactor Treatment of Swine Waste* (Dec 2004),
10. Krishna Baduru *Diffusivity and Partitioning of VOCs in Woody Biomass* (Dec 2005),
11. Sally Breite *Fate of Multiple VOCs in Phytoremediation Systems* (May 2007),
12. Jeff Weishaar *Phytoremediation of Petroleum Hydrocarbons at Refineries* (Aug.



**CONTINUED: RESEARCH ADVISING**

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- 2007),
13. Andy Jugan (Biological Sciences) *Impacts of diurnal water table fluctuation on Rhizoremediation of BTEX* (Aug 2007),
  14. Sushmita Dhakal *Struvite precipitation from Anaerobically treated swine waste*. (May 2008),
  15. Taresh Grover (Engineering Management) *Economic Viability of Anaerobic Digestion: Considering Electrical Generation and Carbon Credit Revenues* (May 2008)
  16. Emily Sheehan *TWA-SPME analysis for Chlorinated VOCs* (May 2009),
  17. Kendra Waltermire *SPME in-planta sampling for plume delineation* (May 2009),
  18. Gavin Risley *In-Situ measurement of hydraulic sediment amendments* (Dec 2009)
  19. Matt Limmer *Phytoforensic Tools: Directional Uptake Of Chlorinated Solvents* (May 2011)
  20. Mikhail Shetty *In Planta Solid Phase Sampling Devices Used In Delineating Groundwater Contaminants* (Dec 2011)
  21. Samantha Markus, *Energy optimization in wastewater facilities*(May 2012)
  22. Ryan Stringer *In-situ SPME Monitoring of Sediment Contaminants* (Dec 2012)
  23. Jordan Wilson *Source and Fate of E.Coli Related to Beach Closings in the Lake of the Ozarks* (May 2013)
  24. Grace Harper *Green Roof Impacts on Stormwater flowrates and Quality* (August 2013)
  25. Elise Kittrell *Acidophilic Sulfate Reducing Bacteria for Acid Mine Drainage* (May 2014)
  26. Madison Gibler *Green Roof Benefits and Valuation* (May 2015 anticipated)
  27. Johanna Pavlowsky *Urban water quality assessment tools* (May 2016)
  28. Tommy Goodwin *Phytoscreening for subsurface reactivity assessment* (May 2016 anticipated)
  29. Rahul Sukharia *Phytoforensics for landfill leachate* (May 2017)
  30. Katie Bartels *Green Roofs for energy savings and Urban heat island mitigation*, (Dec 2019)
  31. Courtney Munch *Landfill leachate treatment and assessment of plant stress* (2019)
  32. Dane Nguyen *Computational plant phenotyping for assessing anthropogenic chemical stress* (2020)

Undergraduate Research:

1. Brady Hays\*, \*\*\*\*\* *Poplar Uptake of MTBE* (2<sup>nd</sup> place in UMR Undergraduate Research Symposium, MS Kansas)
2. Cathy Vornberg\* *Toxicity of MTBE to Hybrid Poplars*,
3. Eric Brus *Removal of Metals in Constructed Wetlands*,
4. Jerry Gander\*, \*\*\*\*\* *Performance of Constructed Wetlands Treating Acid Mine Drainage from the Old Bevier Mine*(2<sup>nd</sup> place in the 1998 Dean's honors projects competition, received NSF graduate fellowship directly from undergraduate), (MS Iowa)
5. Bret Lindsey\* *Fate of TCE in Poplar Cuttings at Laboratory Scale*,
6. Greg Currington\* *Phytoremediation of High Nitrate Wastewater*,

**CONTINUED: RESEARCH ADVISING**

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7. Brian Iles *Design of Constructed Wetlands to Treat Orchard Hills Wastewater*,
8. Goitseone Malumbela *Impact of GEMs on Chlorinated Solvents*, (PhD in Botswana)
9. Jennifer McCann\* *Survival of Genetically Engineered Microbes (GEMs) in Poplar Rhizosphere*, (PhD, Purdue University)
10. Ryan Taylor *Headspace Analysis for TCE in Poplar Cuttings*,
11. Ryan Kidd\* *Transport of Recombinant Microbes Expressing GFP*,
12. Lisa Bruggenjohn *Potential Transfer of GEMs to Non-Inoculated Plants*,
13. Sarah Albers\* *Diffusion of MTBE from Poplar Cuttings*. NSF REU
14. Garrett Struckhoff *Hydroponic Uptake of TCE and Fate in Plant Tissues* (Received PhD Iowa, Professor, Cal St Fullerton)
15. Kevin Morrissey\* *Anaerobic treatment of swine waste*
16. Andy Richter *MTBE Phytoremediation* (MS Missouri S&T)
17. Anna Stoverink\* *Toxicity resistance of GEM-Innoculated Trees* \*
18. Jon Murray *Anaerobic lagoon operations and treatment*
19. Leonor Valdez *Molecular Biology Methods in CAFO Lagoon Populations*
20. Katherine Glee\* *Use of SPME in Phytomonitoring\**
21. Jared Wehde *Struvite Precipitation for Phosphorous Removal from Swine Waste* (MS Missouri S&T)
22. David Longrie *Struvite precipitation from aerated lagoon waste*
23. Meagan Boyd\* *Identification of isolated rhizosphere organisms*.
24. Zach Carroll *\*Increasing sensitivity of Coring methods*. (PhD Wisconsin)
25. Hannah Bruce\*, \*\* *SPME method detection limits for Chlorinated VOCs* (MS Va Tech)
26. Brian Payne\*, \*\*\*, \*\*\*\* *Combined Phyto-PRB treatment of chlorinated solvents* (MS Illinois)
27. Katy Gilliam *Phytotoxicity Screening: Landfill Leachate*
28. Adedo Moronkeji *Groundwater fluctuations impacts on BTEX degraders* (MS Missouri S&T)
29. Phillip McGee *Phytotoxicity of PRB Materials*
30. Gavin Risley \*, *Phytoforensics for petroleum and Landfill leachates*. (MS Missouri S&T)
31. Cailie Carlile\*, \*\*, \*\*\*\*, *Endophytic benefits in Phytoremediation of Landfill leachate and PAH soils\**
32. Samantha Markus\*, *In-planta Sampling comparisons*(MS Missouri S&T)
33. Grace Harper\* , *Bioimpacts of hydraulic Sediment Amendment\** (MS Missouri S&T)
34. Rachel Bartz\*, \*\*\*\*\*, \*\*\*\*\*, *Phytoforensics for BTEX compounds*
35. Jordan Wilson\*, \*\*\*\*\*, \*\*\*\*\*, *Phytoremediation and Phytomonitoring of BTEX Compounds* (MS & PhD Missouri S&T)
36. Philip Aarve\*, *Microbial inactivation in high pressure water jetting*. (MS Clemson, PhD Clemson)
37. Jordan Hindmann, Trevor Trasowsky (MS USC) \*\*\*: *Crude oil degradation by *alcanivorax borkumensis* SK2*
38. Amanda Holmes\*, \*\*, \*\*\*\*\*, \*\*\*\*\*, *In planta SPME analysis for Phytoforensics applications* (MS UMKC)
39. Katlyn Denby\*: *Phytoforensics Monitoring of Evapotranspiration at Field Scale*

**CONTINUED: RESEARCH ADVISING**

40. Melissa Elder\*: *Phytoforensics Monitoring of Groundwater Impacts*
41. Eli Adair - NSF REU University of Oklahoma *Energy potential of Amry latrines in anaerobic digestion*
42. Tyler Hall - NSF REU Student, Brown University, *Green roof thermal experimental arrangements* (Tesla)
43. Cory Pollpeter \* *Phytostabilization of Mine Tailings* (MS S&T)
44. Marshall Usrey - NSF REU Tulsa University, *Green Roof Thermal Data Collection*
45. Katherine Bartels \*, \*\*, \*\*\*\*\* *Green infrastructure benefits in Urban Hydrology* (MS S&T)
46. Tommy Goodwin \* *Phytoremediation of Vapor Phase Pollutants*. (MS Missouri S&T)
47. Eric Fallon\* *Phytoforensics Monitoring of Evapotranspiration for Vapor Intrusion*. (Officer, US Navy)
48. Ryan Mendoza - NSF REU University of Monterrey, *Green Roof benefits calculator*
49. Sarah Donaher - NSF REU University of Clemson, *Green infrastructure thermal benefits assessment* (PhD UNC Chapel Hill)
50. Hagen Fritz - NSF REU University of Texas-Austin, *combined thermal – water benefits in green roof media design* (PhD UT Austin)
51. Alicia McCabe\* *Phytoforensic Assessments for field sites*. (MS S&T)
52. Margo Daniels *Water holding capacity of Green Roof Media*
53. Emily Quist\* *Column Testing of water quality in Green Roof Media*
54. Josephine Gass *Greenhouse phenotyping for drought Tolerance*
55. Rahel Pommerenke \*\*\*\*\* *Phytogon – Portable Computer Vision Based Phenotyping*
56. Hunter Dougan \*\*\*\*\* *Phytogon – Portable Computer Vision Based Phenotyping*
57. Ashley Ann Davis \*, \*\*\*\*\* *Phytogon – Portable Computer Vision Based Phenotyping*
58. Emma Lane \*\*\*\*\* *Phytogon – Portable Computer Vision Based Phenotyping*
59. Marina Mueller \*, *Plant response to leachate exposure: Endophyte impacts*
60. Dane Nguyen\*\*\*\*\* *Phytogon – Portable Computer Vision Based Phenotyping*
61. Jenna Grunner *Mine tailings revegetation with coordinated soil amendments*.
62. Sara Lubecke *Mine tailings restoration with waste material amendments and native species*
63. Abigail Cain *Mine tailings restoration with Mycorrhizae and native species*

\* Received S&T Opportunities for Undergraduate Research Experience OURE Funding.

\*\* Received **National EPA GRO Undergraduate Fellowship**

\*\*\* Received S&T OURE Fellowship (1 of 10 annually).

\*\*\*\* Received **DOE Summer Undergraduate Laboratory Internship (SULI)**

\*\*\*\*\* Selected for **Undergraduate Research Day at the Capitol**

\*\*\*\*\* placed in top 3 for Undergraduate research awards

\*\*\*\*\* S&T Campus Finalist UM System's Entrepreneur Quest (EQ) competition

**COURSES TAUGHT** (Sections taught)

- Phytoremediation and natural treatment systems (2) \*\*

**CONTINUED: RESEARCH ADVISING**

- Engineering Communications CE/ArchE 003 (6)\*\*,
  - Introduction to Environmental Engineering CE/EnvE 261 (10),
  - Water and Wastewater Treatment CE 265 (10),
  - Remediation of Contaminated Soil and Groundwater CE/EnvE 361 (8) \*\*,
  - Environmental Systems Modeling CE/EnvE 364 \*\*, (4)
  - Sanitary Design CE/EnvE 369 (4)\*,
  - Senior Design CE/EnvE 298 (Capstone) (7)
  - Solid Waste Management CE/EnvE 363 (6; 4 as distance to web)\* ,
  - Water Resources Engineering CE/EnvE 380 (7, as extension)\*.
  - Public Health Engineering CE/EnvE 362 (3)\*
- \* Course entirely rebuilt with no overlap to previous offerings at S&T  
\*\* Courses newly developed by Dr. Burken, taught as CE/EnvE 301 during experimental course stage

**PROFESSIONAL AFFILIATIONS**

- International Phytotechnologies Society (Former Vice President)
- American Society of Civil Engineering (Former Chapter President, Current student Chapter Advisor)
- American Chemical Society
- Association of Environmental Engineering and Science Professors (former President and board member, board member AEESP Foundation)
- Tau Beta Pi (Eminent Scholar)
- Chi Epsilon (Chapter Advisor and Chapter Honor Member)
- Water Environment Federation
- American Society for Engineering Education
- American Association for Advancement of Science
- Society of Environmental Toxicology and Chemistry (inactive)
- American Ecological Engineering Society (inactive)
- Interstate Technology Regulatory Council (ITRC) (inactive)
- Remedial Technologies Development Forum (RTDF) (inactive)