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Environmental and Hydraulic Engineering
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Education

Ph.D.	Civil/Environmental Engineering	Duke University Durham, NC	1989
<i>Dissertation Title: Fate of Deposited Cells in an Aerobic Binary Bacterial Biofilm</i>			
M.S.E.E.	Environmental Engineering	University of North Carolina Chapel Hill, NC	1985
<i>Thesis Title: An Evaluation of Biological Phosphorus Removal</i>			
B.S.E.	Environmental Engineering	University of Florida Gainesville, FL	1982

Experience

2001-Present	<i>Director</i> EPA Midwest Hazardous Substance Research Center
2003-Present	<i>Co-Director</i> Center for Phytoremediation Research and Development
2002-Present	<i>Associate Director</i> NASA Specialized Center of Research and Training (ALS)
2001-Present	<i>Professor</i> Purdue University, West Lafayette, IN
1997-2001	<i>Associate Professor</i> Purdue University, West Lafayette, IN
1994-1997	<i>Associate Professor</i> Kansas State University, Manhattan, KS
1989-1994	<i>Assistant Professor</i> Kansas State University, Manhattan, KS
Summer, 1992	<i>Visiting Summer Faculty</i> Sandia National Laboratory, Livermore, CA
1985-1989	<i>Graduate Research/Teaching Assistant</i> Duke University, Durham, NC
1984-1985	<i>Graduate Research/Teaching Assistant</i> University of North Carolina, Chapel Hill, NC
1983	<i>Research Engineer</i> Acurex Corporation, Research Triangle Park, NC

Honors

University Faculty Scholar Award, Purdue University, 2000-2005.
Sloan Foundation Mentoring Fellowship, Sloan Foundation, 1993-1994
American Fellowship, American Association of University Women, 1988-1989.

Professional Registration and Training

Professional Engineer (Civil) in Indiana (#PE10000132) and Kansas (#12745)
HAZWOPER 40 Hours Training and 8 Hours Annual Certifications

Teaching Activities

Graduate Courses: Water Treatment Processes
 Wastewater Engineering
 Applied Microbial Processes
 Environmental Engineering Microbiology
 Remediation Engineering
 Phytoremediation
 Biochemical Processes in Environmental Engineering
 Environmental Geotechnology

Undergraduate Courses: Civil Engineering Design
 Introduction to Environmental Engineering
 Water and Wastewater Engineering Design
 Biological Processes of Environmental Engineering
 Natural Resources/Environmental Science Capstone Course
 Stochastic Concepts and Methods in Civil Engineering
 Engineering Projects in Communities (EPICs)

Research Projects

- Development of a Mobile Self-Powered Sensor for Assessment of Water Quality, pending, NSF, \$2,500,000 (Marshall Porterfield, P.I., M. K. Banks, Co-P.I., J. Rickus, Co-P.I., S. Nof, Co-P.I., S. Wereley, Co-P.I., and S. Pekerak, Co-P.I.).
- 21st Century Center for Phytoremediation Research and Development, 2003-2005, State of Indiana, \$2,000,000 (David Salt, P.I., M. K. Banks, Co-P.I.).
- OUR TOWN: Developing Partnerships for K-12 and Brownfield Redevelopment, 2003-2007, US EPA, \$1,200,000 (M. K. Banks, P.I.).
- Phytoremediation of Cyanide Contaminated Soil, EPA MHSRC, 2003-2005, \$190,000 (M. K. Banks, P.I., G. Ejata, Co-P.I.)
- Soil Amendments to Reduce Bioavailability of Metals in Soils: Experimental Studies and Spectroscopic Verification, 2003-2006, DoD SERDP, \$900,000 (M. K. Banks, P.I., A. P. Schwab, Co-P.I., C. Johnston, Co-P.I., D. Schultz, Co-P.I.).
- Treatment of Slag Leachate with Constructed Wetlands, Indiana Department of Transportation, 2002-2005, \$175,000 (M. K. Banks, P.I., J. Alleman, Co-P.I., A. P. Schwab, Co-P.I.)

- NSCORT Center of Excellence in Advanced Life Support, 2002-2007, NASA, \$10,000,000 (Cary Mitchell, P. I., M. K. Banks, Co-P.I., J. Alleman, Co-P.I. with 25 other investigators).
- NSCORT: Development of BREATHe, 2002-2007, NASA, \$500,000 (M. K. Banks, P.I.).
- Phytoremediation of Contaminated Sediments, 2001-2004, US EPA, \$125,000 (M. K. Banks, P.I., and A. P. Schwab, Co-P.I.).
- Midwest Hazardous Substance Research Center for Integrated Remediation Using Managed Natural Systems: A University/EPA/Industry Partnership, 2001-2005, US EPA, \$4,000,000 (M. K. Banks, Director; with 21 Co-P.I.s).
- Treatment of Dredged Sediments Using Plants, 2001-2004, MHSRC, \$350,000 (A.P. Schwab, P.I., M. K. Banks, Co-P.I., L. Newman, Co-P.I., K. Nedunari, Co-P.I.).
- Molecular Techniques for Assessment of Bioremediation and Phytoremediation Success, 2001-2002, MHSRC, \$35,000 (M. K. Banks, P.I., J. A. Alleman, Co-P.I.)
- Wavelength-Dependence in UV Dose-Response Behavior Among Waterborne Microorganisms, 2000-2002, US EPA, \$56,000 (E. Blatchley, P.I., J. A. Alleman, Co-P.I., M. K. Banks, Co-P.I.)
- Development of an Integrated Biotoxicity Protocol for Biosolids, 2000-2002, Water Environmental Research Foundation, \$250,000 (M. K. Banks, P.I., A. P. Schwab, Co-P.I., J. Alleman, Co-P.I., M. Switzenbaum, Co-P.I.).
- Phytoremediation of Lead Contaminated Soil, 2001-2004, Indiana Department of Transportation, \$180,000 (A. P. Schwab, P.I., M. K. Banks, Co-P.I.).
- The Use of Plants to Enhance Remediation of INDOT Impacted Areas, 2002-2004, Indiana Department of Transportation, \$80,000 (M. K. Banks, P.I., A. P. Schwab, Co-P.I.).
- Field Support of Demonstrating Phytoremediation for Soil Contaminated with Manufactured Gas Plant Waste, 1998-2002, Battelle Memorial Institute, \$65,000 (M. K. Banks, PI, A. P. Schwab, Co-P.I.).
- The Impact of Soil Chemical Properties on the Bioavailability and Chemical Lability of Selected Organic Priority Pollutants, 1998-2000, US EPA, \$200,000 (A. P. Schwab, P.I., M. K. Banks, Co-P.I., G. Carlson, Co-P.I., L. Lee, Co-P.I.).
- Evaluation of Rhizosphere Microbial Changes During Phytoremediation, 1998-2000, Showalter Trust, Purdue University, \$50,000 (M. K. Banks, P.I.).
- Phytoremediation of Aged Petroleum Contaminants, 1998, Purdue Research Foundation, \$12,000 (M. K. Banks, P.I.).
- The Effect of Plants on the Bioavailability and Toxicity of Contaminants in Soil, 1997-2000, DOE/NSF/EPA/ONR Joint Program on Bioremediation, \$500,000 (M. K. Banks, P.I., A. P. Schwab, Co-P.I., S. Smith, Co-P.I.).
- Assessment of Groundwater Contamination from Agricultural Wastewater Lagoons in Kansas, 1996-1997, Kansas Department of Health and Environment, \$100,000 (A. P. Schwab, P.I., J. Ham, Co-P.I., L. Reddi, Co-P.I., M. K. Banks, Co-P.I.).
- Phytoremediation of Soil Contaminated with Hazardous Chemicals, 1995-1997, DOD Advanced Applied Technology Demonstration Facility, \$609,000 (M. K. Banks, P.I., A. P. Schwab, Co-P.I., R. S. Govindaraju, Co-P.I.).
- Fate and Transport of Heavy Metals and Radionuclides in Soil: The Impacts of Vegetation, 1995-1998, US EPA Hazardous Substance Research Center, Regions 7

and 8, \$220,000 (A. P. Schwab, P.I., M. K. Banks, Co-P.I., J. C. Tracy, Co-P.I., L. E. Erickson, Co-P.I.).

- Biodegradation of Hazardous Organics at Soil Textural Interfaces, 1994-1996, US EPA, \$180,000 (M. K. Banks, P.I., L. K. Reddi, Co-P.I., C. Rice, Co-P.I., G. Kluitenburg, Co-P.I.).
- Acquisition of High Performance Liquid Chromatograph and Gas Chromatograph/Mass Spectrometer for Studying Dissipation of Organic Chemicals, 1994, NSF, \$100,000 (A. P. Schwab, P.I., M. K. Banks, Co-P.I., J. Blair, Co-P.I., L. C. Davis, Co-P.I., L. E. Erickson, Co-P.I., F. Oehme, Co-P.I., J. Pickrell, Co-P.I.).
- Bioremediation of Petroleum Contaminated Soil Using Vegetation - A Technology Transfer Project, 1994-1997, US EPA Hazardous Substance Research Center, Regions 7 and 8, \$219,389 (M. K. Banks, P.I., A. P. Schwab, Co-P.I., R. S. Govindaraju, Co-P.I.).
- Vegetative Remediation of Hazardous Contaminated Soil, 1994, Alfred Sloan Foundation Grant, \$4000 (M. K. Banks, P.I.).
- Groundwater Contamination by Heavy Metals: Effect of Vegetation on Leaching of Mine Tailings, 1993-1997, Kansas Agricultural Experiment Station, \$60,572 (M. K. Banks, P.I.).
- Biotic and Abiotic Factors Controlling Nitrogen Flux in Pristine and Agricultural Subsurface Systems, 1992-1995, NSF, \$594,884 (A. P. Schwab, P.I., C. W. Rice, Co-P.I., W. K. Dodds, Co-P.I., M. K. Banks, Co-P.I., G. L. Macpherson, Co-P.I., J. K. Koelliker, Co-P.I., M. Sophocleous, Co-P.I.).
- Transport of Petroleum Hydrocarbons in Sand/Clay Columns, 1993, Sandia National Laboratory, \$5100 (M. K. Banks, P.I.).
- Transport and Biodegradation of Petroleum Hydrocarbons at Subsurface Sand/Clay Interfaces, 1992-1993, Argonne National Laboratory, \$26,696 (M. K. Banks, P.I.).
- Services of Students at Research and Development Laboratories, 1993, US Army, \$10,000 (M. K. Banks, P.I.).
- Impact of Soil Microflora on Revegetation Efforts in Southeast Kansas, 1991-1994, US EPA Hazardous Substance Research Center, Regions 7 and 8, \$203,209 (M. K. Banks, P.I., B. A. Hetrick, Co-P.I., A. P. Schwab, Co-P.I.).
- Bioremediation of Hydrocarbon Contaminated Soil Using Vegetation: A Field and Greenhouse Study, 1991-1992, Conoco, Inc., \$20,000 (M. K. Banks, P.I., A. P. Schwab, Co-P.I., B. A. Hetrick, Co-P.I.).
- Effect of Preozonation on the Biodegradability of Atrazine in GAC Columns, 1991-1992, Kansas Water Resources Research Institute, USGS, \$15,147 (M. K. Banks, P.I.).
- Biodegradation of Atrazine in Granular Activated Carbon Columns, 1990-1991, Kansas Water Resources Research Institute, US Geological Survey, \$12,469 (M. K. Banks, P.I.).

Journal Publications

Schwab, A. P., Splichal, P. A., and M. K. Banks, "Adsorption of Atrazine and Alachlor to Aquifer Sediments and Soil," Submitted to *Water, Air, and Soil Pollution*, 2005.

Schwab, A. P., Splichal, P. A., and M. K. Banks, "Persistence of Atrazine and Alachlor in Groundwater Aquifers and Soil," Submitted to *Chemosphere*, 2005.

- Schwab, A. P., M. K. Banks, and W. Kyle, "Heritability of Phytoremediation Potential for the Alfalfa Cultivar *Riley* in Petroleum Contaminated Soil," Submitted to *Water, Air and Soil Pollution*, 2005
- Keller, J., Banks, M. K., and A. P. Schwab, "Effect of Soil Depth on Phytoremediation Efficiency for Petroleum Contaminants," Submitted to *Water, Air, and Soil Pollution*, 2005.
- Shah, N., Sharvelle, S., and M. K. Banks, "Influence of Support Media Characteristics on Biofilm Activity in Graywater Treatment Systems for Advanced Life Support," Submitted to *Habitation*, 2005.
- Banks, M. K., Schwab, A. P., Alleman, J. A., Switzenbaum, M., Cofield, N., and J. Shalabi, "Biosolids Amended Soils: Part I. Effect of Biosolids Application on Soil Quality and Ecotoxicity," Submitted to *Water Environment Research*, 2005.
- Schwab, A. P., Lewis, L., and M. K. Banks, "Biosolids Amended Soils: Part II. Chemical Lability as a Measure of Contaminant Bioaccessability in Biosolids Amended Soils," Submitted to *Water Environment Research*, 2005.
- Banks, M. K., and A. P. Schwab, "Ecotoxicity of Pentachlorophenol in Contaminated Soil as Affected by Soil Type," Submitted to *Journal of Environmental Science and Health*, 2005.
- Euliss, K., Schwab, A. P., and M. K. Banks, "Silica Content of Plants as an Indirect Measure of Transpiration Rate," Accepted in *Journal of Ecological Engineering*, 2005.
- Schultz, K., and M. K. Banks, "Comparison of Plants for Germination Toxicity Tests in Petroleum Contaminated Soils," Accepted in *Water, Air, and Soil Pollution*, 2005.
- Schwab, A. P., He, Y., and M. K. Banks, "Influence of Organic Acids on Retention of Lead in Soil," Accepted in *Chemosphere*, 2005.
- Banks, M. K., A. P. Schwab, and C. Henderson, "Leaching and Reduction of Chromium in Soil as Affected by Soil Organic Content and Plants," Accepted in *Chemosphere*, 2005.
- Spriggs, T., Banks, M. K., and A. P. Schwab, "Reduction of Polycyclic Aromatic Hydrocarbons in the Rooting Zone of Trees During Phytoremediation of Manufactured Gas Plant Impacted Soil," Accepted in *Journal of Environmental Quality*, 2005.
- Parrish, Z., Banks, M. K., and A. P. Schwab, "Assessment of Contaminant Lability During Phytoremediation of Polycyclic Aromatic Hydrocarbon Impacted Soil," *Environmental Pollution*, in press, 2005.
- Webster, T. J., Tong, Z., Liu, J. and M. K. Banks, "Adhesion of *Pseudomonas fluorescens* on Nanophase Materials," *Nanotechnology*, in press, 2005.
- Parrish, Z., Banks, M. K., and A. P. Schwab, "Effect of Root Death and Decay on Dissipation of Polycyclic Hydrocarbons in the Rhizosphere of *Melilotus officinalis* and *Festuca arundinacea*," *Journal of Environmental Quality*, in press, 2005.
- Yu, D. Y., Bae, W., and M. K. Banks, "Characterization of Gaseous Ozone Decomposition in Soil," *Soil and Sediment Contamination*, **14**:1-17, 2005.

- Liu, X., Qitang, W., and M. K. Banks, "Effect of Simultaneous Establishment of *Sedum alfredii* and *Zea mays* on Heavy Metal Accumulation in Plants," *International Journal of Phytoremediation*, **7**(1):1-11, 2005.
- Liu, X., Qitang, W., Ebbs, S. D., and M. K. Banks, "Phytoextraction of Zn and Cu from Sewage Sludge and Impact on Agronomic Characteristics," *Journal of Environmental Science and Health*, **A40**:1-16, 2005.
- Chen, Y. C. and M. K. Banks, "Bacterial Community Changes During Establishment of Tall Fescue (*Festuca arundinacea*) in Soil Contaminated with Pyrene," *International Journal of Phytoremediation*, **6**(3): 227-238, 2004.
- He, Y., Schwab, A. P., and M. K. Banks, "The Influence of Citrate on the Adsorption of Zinc in Soils," *ASCE Journal of Environmental Engineering*, **130**(10):1180-1187 2004.
- Parrish, Z., M. K. Banks, and A. P. Schwab, "Effectiveness of Phytoremediation as a Secondary Treatment for Polycyclic Aromatic Hydrocarbons (PAHs) in Composted Soil," *International Journal of Phytoremediation*, **6**(2):119-138, 2004.
- Banks, M. K., Mallede, H., and Rathbone, K., "Rhizosphere Microbial Characterization in Petroleum Contaminated Soil," *Soil and Sediment Contamination*, **12**(3):371-386, 2003.
- Chen, Y. C., Banks, M. K., and A. P. Schwab, "Pyrene Degradation in the Rhizosphere of Tall Fescue (*Festuca arundinacea*) and Switchgrass (*Panicum virgatum* L.)," *Environmental Science and Technology*, **37**:5778-5782, 2003.
- Banks, M. K., Kulakow, P., Schwab, A. P., Chen, Z., and K. Rathbone, "Degradation of Crude Oil in the Rhizosphere of *Sorghum bicolor*," *International Journal of Phytoremediation*, **5**(3):225-234, 2003.
- Yu, W., Banks, M. K., and R. S. Govindaraju, "Bacterial Adsorption and Transport in Saturated Columns," *Journal of Environmental Science and Health*, **A38** (12):2749-2758, 2003.
- Silciliano, S. D., Fortin, N., Mihoc, A., Wisse, G., Labelle, S., Beaumier, D., Ouellette, R. R., Whyte, L. G., Banks, M. K., Schwab, P., Lee, K., C. W. Greer, "Changes in Microbial Composition and Function during a Polyaromatic Hydrocarbon Phytoremediation Field Trial Using Tall Fescue (*Festuca arundinaceae*) and Rose Clover (*Trifolium hirtum*)," *Applied and Environmental Microbiology*, **69**(1):483-489, 2003.
- Hutchinson, S. L., Banks, M. K., and A. P. Schwab, "Phytoremediation of Aged Petroleum Sludge: Effect of Irrigation Techniques and Scheduling," *Journal of Environmental Quality*, **30**:1516-1522, 2001.
- Hutchinson, S. L., Banks, M. K., and A. P. Schwab, "Phytoremediation of Aged Petroleum Sludge: Effect of Inorganic Fertilizer," *Journal of Environmental Quality*, **30**:395-403, 2001.
- Liu, B., Banks, M. K., and A. P. Schwab, "Influence of Water Content on Biodegradation of Petroleum Contaminants in Soil," *Soil and Sediment Contamination*, **10**:633-658, 2001.
- Silciliano, S. D., Fortin, N., Mihoc, A., Wisse, G., Labelle, S., Beaumier, D., Ouellette, R. R., Whyte, L. G., Banks, M. K., Schwab, P., Lee, K., and C. W. Greer, "Selection of Specific Endophytic Bacterial Genotypes by Plants in Response to Soil Contamination," *Applied and Environmental Microbiology*, **67**:2469-2475, 2001.

- Kulakow, P.A., A.P. Schwab, and M.K. Banks, "Screening plant species for growth on weathered, petroleum hydrocarbon-contaminated sediments," *International Journal of Phytoremediation*, **4**:297-318, 2000.
- Nedunuri, K. V., Govindaraju, R. S., Banks, M. K., Schwab, A. P., and Z. Chen, "Effect of Spatial Variability in Evaluating Field-Scale Total Petroleum Hydrocarbon Degradation Using Phytoremediation," *ASCE Journal of Environmental Engineering*, **126**:483-490, 2000.
- Zhu, D., Schwab, A. P., and M. K. Banks, "Heavy Metal Leaching from Mine Tailings As Affected by Plants," *Journal of Environmental Quality*, **28**: (6) 1727-1732, 1999.
- Schwab, A. P., Su, J., Wetzel, S., Pekerak, S., and M. K. Banks, "Extraction of Petroleum Hydrocarbons from Soil by Mechanical Shaking," *Environmental Science and Technology*, **33**:1940-1945, 1999.
- Banks, M. K., Clennan, C., Dodds, W., and C. Rice, "Variations in Microbial Activity Due to Fluctuations in Soil Water Content at the Water Table Interface," *Journal of Environmental Science and Health*, **A34**: 479- 505, 1999.
- Banks, M. K., Lee, E., and A. P. Schwab, "Fate of Benzo[a]pyrene in the Rhizosphere of *Festuca arundinacea*," *Journal of Environmental Quality*, **28**: 294-298, 1999.
- Kyle, G., Banks, M. K., and L. N. Reddi, "Transport and Biodegradation of Petroleum Hydrocarbons at Subsurface Sand/Clay Interfaces," *Journal of Environmental Science and Health*, **A34**: 1- 29, 1999.
- Reddi, L. N., Han, W., and M. K. Banks, "Evaluation of Mass Loss from LNAPL-Pool Under Fluctuating Water Table Conditions," *ASCE Journal of Environmental Engineering*, **124**:1171-1177, 1998.
- Wiltse, C. C., Rooney, W. L., Chen, Z., Schwab, A. P., and M. K. Banks, "Agronomic and Phytoremediation Potential Among Alfalfa Clones Grown in Crude Oil-Contaminated Soil," *Journal of Environmental Quality*, **27**:169-174, 1998.
- Al-Assi, A., Schwab, A. P., and M. K. Banks, "Adsorption of Naphthalene onto Alfalfa Roots," *Journal of Environmental Quality*, **27**: 220-224, 1998.
- Huang, C. M., and M. K. Banks, "Effect of Ozonation on the Biodegradability of Atrazine in GAC Columns," *Journal of Environmental Science and Health*, **B31(6)**:1253-1266, 1996.
- Dodds, W. K., Banks, M. K., Clennan, C. S., Rice, C. W., Sotomayor, D., Strauss, E. A., and W. Yu, "Biological Properties of Soil and Subsurface Sediments Under Grassland and Cultivation," *Soil Biology and Biochemistry*, **28**:837-846, 1996.
- Govindaraju, R., Koelliker, J., Banks, M. K., and A. P. Schwab, "Comparison of Spatial Variability of Infiltration Properties at Two Sites in the Konza Prairie," *ASCE Journal of Hydrologic Engineering*, **1**:131-138, 1996.
- Reilley, K., Banks, M. K., and A. P. Schwab, "Dissipation of Polynuclear Aromatic Hydrocarbons in the Rhizosphere," *Journal of Environmental Quality*, **25**:212-219, 1996.
- Yu, W., Dodds, W. K., Banks, M. K., Slaksky, J., and E. A. Strauss, "Optimal Staining and Sample Storage Times for Direct Microscopic Enumeration of Total and Active Bacteria in Soil Using Two Fluorescent Dyes," *Applied and Environmental Microbiology*, **61**:3367-3372, 1995.

- Burckhard, S. R., Schwab, A. P., and M. K. Banks, "Effect of Organic Acids on the Leaching of Heavy Metals from Mine Tailings," *Journal of Hazardous Materials*, **41**:135-145, 1995.
- Shetty, K. G., Banks, M. K., Hetrick, B. A., and A. P. Schwab, "Biological Characterization of a Southeast Kansas Mining Site," *Water, Air, and Soil Pollution*, **78**:169-177, 1994.
- Abdel-saheb, I., Schwab, A. P., Banks, M. K., and B. A. Hetrick, "Chemical Characterization of Heavy-Metal Contaminated Soil Transects in Southeast Kansas," *Water, Air, and Soil Pollution*, **78**:73-82, 1994.
- Erickson, L. E., Banks, M. K., Davis, L. C., Schwab, A. P., Muralidharan, N., Reilley, K., and J. C. Tracy, "Using Vegetation to Enhance In-Situ Bioremediation," *Environmental Progress*, **13**(4):226-231, 1994.
- Banks, M. K., Fleming, G. R., Schwab, A. P., and B. A. Hetrick, "Effects of the Rhizosphere Microflora on Heavy Metal Movement in Soil," *Chemosphere*, **29**(8):1691-1699, 1994.
- Banks, M. K., Waters, C. Y., and A. P. Schwab, "The Influence of Organic Acids on Leaching of Heavy Metals from Contaminated Mine Tailings," *Journal of Environmental Science and Health*, **A29**(5):1045-1056, 1994.
- Lee, E. and M. K. Banks, "Bioremediation of Petroleum Contaminated Soil Using Vegetation: A Microbial Study," *Journal of Environmental Science and Health*, **A28**(10):2187-2198, 1993.
- Banks, M. K., and J. D. Bryers, "Deposition of Bacterial Cells Onto Glass and Biofilm Surfaces," *Biofouling*, **6**:81-86, 1992.
- Banks, M. K., and J. D. Bryers, "Bacterial Species Dominance Within a Binary Culture Biofilm," *Applied and Environmental Microbiology*, **57**:1974-1979, 1991.
- Banks, M. K., and J. D. Bryers, "Cryptic Growth Within a Binary Microbial Culture," *Applied Microbiology and Biotechnology*, **33**:596-601, 1990.

Books and Monographs

- Banks, M. K., Govindaraju, R. S., Schwab, A. P., and P. Kulakow, *Phytoremediation of Hydrocarbon Contaminated Soil*, Lewis Publishers, CRC Press, 1999.

Book Chapters

- Banks, M. K., Schwab, A. P., Liu, B., Kulakow, P., Smith, J. S., and R. Kim, "The Effect of Plants on the Degradation and Toxicity of Petroleum Contaminants in Soil: A Field Assessment," *Advances in Biochemical Engineering/Biotechnology, Special Volume: Phytoremediation*, Volume 78, Tsao, D., Ed., Springer-Verlag, 2003.
- Lewis, S. L., M. K. Banks, and A. P. Schwab, "Advances in Rhizosphere Degradation of TPH, PAH, and Other Organic Compounds: Importance of Soil Properties," *Phytoremediation: Degradation and Control of Hazardous Wastes*, McCutcheon, S., Schnoor, J., Eds., John Wiley and Sons, 2003.
- Schwab, A. P., and M. K. Banks, "Phytoremediation of Petroleum Contaminated Soils," In *Bioremediation of Contaminated Soils*, American Society of Agronomy Monograph, No. 37, pp. 783-795, 1999.
- Davis, L., Banks, M. K., Schwab, A. P., Narayanan, M., Erickson, L. R., and J. C. Tracy, "Plant-Based Bioremediation," *Bioremediation: Principles and Practice* -

- Fundamentals and Applications*, Sidkar, S., Irvine, R., Eds., Technomic Publishing Company, Vol. 2, pp. 183-217, 1998.
- Wetzel, S., Banks, M. K., and A. P. Schwab, "Rhizosphere Effects on the Degradation of Pyrene and Anthracene in Soil," *Phytoremediation of Soil and Water Contaminants*, Kruger, E. L., Anderson, T. A., and Coats, J. R., Eds., American Chemical Society Symposium Series, pp. 254-263, 1997.
- Schwab, A. P., Banks, M. K., and M. Arunachalam, "Influence of the Rhizosphere on Biodegradation of Phenanthrene and Pyrene," In *Bioremediation: Bioremediation of Recalcitrant Organics*, Hinchee, R. E., Anderson, D. B., Hoeppel, R. E., Eds., Battelle Memorial Institute, pp. 23-30, 1995.
- Schwab, A. P., and M. K. Banks, "Biologically Mediated Dissipation of Polyaromatic Hydrocarbons in the Root Zone," In *Bioremediation Through Rhizosphere Technology*, Anderson, T., Coats, J., Eds., American Chemical Society Symposium Series, pp. 132-141, 1994.
- Pierzynski, G., Schnoor, J. L., Banks, M. K., Tracy, J. C., Licht, L., and L. Erickson, "Vegetative Remediation at Superfund Sites," In *Mining and Its Environmental Impact - Issues in Environmental Science and Technology*, Hester, R. E., Harrison, R. M., Eds., Royal Society of Chemistry Publication, pp. 49-69, 1994.

Books and Proceedings Edited

- Leeson, A., Foote, E., Banks, M. K., and V. Magar (Editors), "Phytoremediation, Wetlands, and Sediments," Sixth International In-Situ and On-Site Bioremediation Symposium Proceedings, 2001.

Editorials and Reviews

- Banks, M. K., "Editorial: Ripples of Change," *ASCE Journal of Environmental Engineering*, January, 2005.
- Banks, M. K., "Editorial: The Continuing Evolution of the Environmental Engineering," *ASCE Journal of Environmental Engineering*, February, 2003.
- Banks, M. K. "Book Review: Biofilms: Investigative Methods and Applications," *AEESP Newsletter*, January, 2003.

Peer-Reviewed Proceedings

- Li, C., Heber, A. J., Hong, H., Ni, J., Lee, S. H., and M. K. Banks, "A New Lab for Testing Biofiltration for Advanced Life Support," *ICES Annual Meeting*, Paper 05ICES-323, 2005.
- Hains-Allen, J., Banks, M. K., Fish, M., and S. Sharvelle, "NSCORT Specialized Center of Research and Training in Advance Life Support Education and Outreach Program," *ICES Annual Meeting*, Paper 05ICES-???, 2005.
- Sharvelle, S., Banks, M. K., McClamore, E., Kim, Y. S., Clark, S., and A. Heber, "Characterization of Effluent from Biological Trickling Filters Treating Graywater," *ICES Annual Meeting*, Paper 05ICES-???, 2005.

- Euliss, K., Schwab, P., and M. K. Banks, "Plant Establishment for Confined Dredged Facilities "Establishing Plants Under Water for the Purpose of Dewatering Contaminated Dredged Sediments," Paper C6-06, *Proceedings of the Third International Conference on Remediation of Contaminated Sediments*, Battelle Press, Columbus, OH, 2005.
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- Banks, M. K., "NSCORT at Purdue: Water and Air Treatment Research Program," Presented at Kennedy Space Center, 2005.
- Cofield, N., A.P. Schwab, and M.K. Banks, "Integration of Toxicity Tests into Remediation Studies," Presented at the Soil Science Society of America Annual Meetings, Seattle, WA, 2004.
- Banks, M. K., "MHSRC: Research and Outreach Accomplishments," Presented at the EPA/ORD-HSRC Superfund Research on Risk Characterization and Monitoring Conference, Las Vegas, NV, 2004.
- Banks, M. K., "Gray Water Recycling Using a Simultaneous Water-Gas Biological Treatment System: BREATHe," Presented at the NASA ALS Biological Water Treatment Workshop, Houston, TX, 2004.
- Banks, M. K., "Rhizosphere Degradation of Polycyclic Hydrocarbons," Presented at University of Florida Environmental Engineering Seminar Series, Gainesville, FL, 2004.
- Banks, M. K., "Nanotechnology and the Environment," Presented to the Department of Physics, Purdue University, IN, 2003.

- Banks, M. K., "Brownfields to Mars: A Vision of the Future," Presented at the National Meeting of the Garden Clubs of America, Conservation Committee, Indianapolis, IN, 2003.
- Banks, M. K., "Keynote Address: Making the Case for Ecological Enhancements," Presented at the Wildlife Habitat Council National Meeting, Ecological Enhancements for Contaminated Sites, Merrillville, IN, 2003.
- Banks, M. K., "Phytoremediation Research at the Midwest Hazardous Waste Substance Center," Presented at the US EPA National Risk Management Research Laboratory Centers Meeting, Cincinnati, OH, 2003.
- Banks, M. K., "Bioavailability as Affected by Phytoremediation Processes," Presented at EPA Region 5 Scientific Symposium, Chicago, IL, 2003.
- Banks, M. K., "Rhizosphere Microbial Characterization during PAH Phytoremediation," Presented at the American Society for Microbiology Annual Meeting, Washington, DC, 2003.
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- Banks, M. K., "The Future of Phytoremediation," Presented for the Department of Botany Seminar Series, Purdue University, West Lafayette, IN, 2003.
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- Banks, M. K., and A. P. Schwab, "Remediation of Hazardous Contaminated Soil Using Vegetation," Presented at the Second International Symposium on Environmental Contamination in Central and Eastern Europe, Budapest, Hungary, 1994.
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- Kang, D.H., Banks, M.K., and A.P. Schwab, "Sorption of Iron Cyanide Compounds onto Clay Minerals and Manganese Oxides," To be presented at the Division of Environmental Chemistry, 230th ACS National Meeting, Washington, DC, 2005.
- Schwab, A. P., Euliss, K., and M. K. Banks, "Dewatering of Contaminated Sediments Using Plants," Presented at the International Conference on Phytoremediation, Atlanta, GA, 2005.
- Ho, C., and M. K. Banks, "Microbial Community Changes during Phytoremediation of Polycyclic Aromatic Hydrocarbons," Poster presented at the International Conference on Phytoremediation, Atlanta, GA, 2005.
- Hong, R., M. K. Banks, A. P. Schwab, and D. Kang, "Phytoremediation of Cyanide Complexes in Soil," Poster presented at the International Conference on Phytoremediation, Atlanta, GA, 2005.
- Humphreys, M. T., Banks, M. K., Schwab, A. P., Johnston, C., Schulz, D., and Gaodong, X., "Immobilization of Heavy Metals in Soil," Poster presented at the Partners in Environmental Technology Technical Symposium and Workshop, Annual SERDP Meeting, Washington, DC, 2004.

- Tong, Z., Banks, M. K., and T.J. Webster, "Increased Bacterial Attachment on Nanophase Materials," Presented at the American Chemical Society, Philadelphia, PA, 2004.
- Park, M., Tong, Z., and Banks, M. K., and T.J. Webster, "More Efficient Capture of Bacteria on Nanophase Materials," Presented at the Annual AIChE Meeting, Austin, TX, 2004.
- Park, M., Tong, Z., Banks, M. K., and T.J. Webster, "Removal of Bacteria Using Nanophase Titania," Presented at the Annual MRS Fall Meeting, Boston, MA 2004.
- Sharvelle, S. and M. K. Banks, "Application of a First Generation Biotrickling Filter Model for Design of BREATHe I Experiments," Poster presented at the Annual NSCORT Meeting, Washington, DC, 2004.
- Kim, Y.S., S. Sharvelle, and M. K. Banks, "BREATHe I System Design and Operation," Poster presented at the Annual NSCORT Meeting, Washington, DC, 2004.
- Euliss, K.W., A.P. Schwab, and M.K. Banks, "Using Plants to Dewater and Remediate Contaminated Dredged Sediments," Presented at the Soil Science Society of America Annual Meetings, Seattle, WA, 2004.
- Banks, M. K., "Design and Operation of BREATHe: Progress Report," Presented at the Annual NSCORT Meeting, Washington, DC, 2004.
- Euliss, K, Shalabi, J., Ho, C. H., Schwab, A.P., and M. K. Banks, "Phytoremediation of PAHs at the Indiana Harbor," Poster presented at the EPA/ORD-HSRC Superfund Research on Risk Characterization and Monitoring Conference, Las Vegas, NV, 2004.
- Ho, C. H., and M. K. Banks, "Rhizosphere Microbial Diversity During Phytoremediation," Poster presented at the EPA/ORD-HSRC Superfund Research on Risk Characterization and Monitoring Conference, Las Vegas, NV, 2004.
- Banks, M. K., S. Sharvelle, and Y. Kim, "Graywater and Gas Treatment for ALS using BREATHe," Presented at the Habitation Conference, Orlando, FL, 2004.
- Hains-Allen, Banks, M. K., Fish, Macon, and Sybil Sharvelle, "Education and Outreach Program Designed for NASA Specialized Center of Research and Training in Advanced Life Support," Presented at the *International Conference on Environmental Systems*, Colorado Springs, CO, 2004.
- Sharvelle, S. E., M. K. Banks and E. Maloney "Surfactant Biodegradation for Application to Advanced Life Support Water Recycling Systems," Presented at the *International Conference on Environmental Systems*, Colorado Springs, CO, 2004.
- Sharvelle, S. E., K. Banks, K. Graham and E. Maloney. "Graywater Treatment Using Biofilm Reactors for Water Recycling in Advanced Life Support." Presented at the *ASCE Earth and Space Conference*, Houston, TX, 2004.
- Heber, A.J., S.-H. Lee, H. Huang, J.-Q. Ni, S. Sharvelle, M. K. Banks, Y. S. Kim. "Testing biofilters for advanced life support." Poster presented at the Habitation Conference, Orlando, Florida, 2004.
- Tong, Z., Park, M., Liu, J., T. Webster, and M. K. Banks, "Microbial Adhesion on Nanophase Surfaces," Poster presented at the Sigma Xi Poster Session, Purdue University, 2004.
- Ghattas, C., J. Liu, M. K. Banks, and T. Webster, "The Effect of Nanophase Materials on Bacterial Adhesion," Poster Presented at the Marc Aim Poster Session, Purdue University, 2003.
- Liu, J., M. K. Banks, and T. Webster, "Bacterial Adhesion on Nanophase

- Materials," Poster presented at the NASA NSCORT Annual Poster Session, Purdue University, 2003.
- Banks, M.K., A.P. Schwab, C. Johnston, D. Schulz, and K.D. Lewis, "Soil Amendments to Reduce Bioavailability of Metals in Soils: Experimental Studies and Spectroscopic Verification," Presented at the SERDP/ESTCP Partners in Environmental Technology Symposium, Washington, DC, 2003.
- Euliss, K.W., A.P. Schwab, Lee Newman, K.V. Nedunuri, and M.K. Banks, "Dewatering and Remediation of Dredged Sediments," Poster presented at the Purdue University Wetlands Conference, West Lafayette, IN, 2003.
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- Hunter, J.G., J.C. Hickey, M.K. Banks, A.P. Schwab, and J. Alleman, "Constructed Wetlands for Remediation of Slag Leachates," Poster presented at the Purdue University Wetlands Conference, West Lafayette, IN, 2003.
- Lewis, K.D., A.P. Schwab, and M.K. Banks, "Evaluation of Chemical Extraction Indices for Metals in Biosolids," Presented at the Soil Science Society America Annual Meeting, Denver, CO, 2003.
- Schwab, A.P., L. Newman, K.V. Nedunuri, and M.K. Banks, "Dewatering and Remediation of Dredged Sediments," Presented at the U.S. EPA Region 5 Research Workshop, Chicago, IL, 2003.
- Schwab, A.P., Newman, K.V. Nedunuri, and M.K. Banks, "Dewatering and Remediation of Dredged Sediments," Presented at the Midwest Hazardous Substance Research Meeting, Kansas City, MO, 2003.
- Simmons, Bilal, K.W. Euliss, K.V. Nedunuri, A.P. Schwab, M.K. Banks, and S.I. Sritharan, "Experiences From A Field Study To Dewater Contaminated Sediments Using Plants," Presented at the 18th Willie Washington Science Symposium, Central State University, Wilberforce, OH, 2003.
- Sharville, S., M. K. Banks, and A. Heber, "BREATHe Treatment for Air and Water," Presented at the International Conference on Environmental Systems, Vancouver, Canada, 2003.
- Parrish, Z., Banks, M. K., and A. P. Schwab, "Secondary Phyto-Treatment of PAH Contaminants: Phytoremediation of Biopile Composted Soil," Presented at the Seventh International In-Situ and On-Site Bioremediation Symposium, Orlando, FL, 2003.
- Cofield, N., Banks, M. K., and A. P. Schwab, "Toxicity Testing for Evaluation of Phytoremediation Success," Poster presented at the Seventh International In-Situ and On-Site Bioremediation Symposium, Orlando, FL, 2003.
- Euliss, K., Mankad, V., Schwab, A. P., and M. K. Banks, "Phytoremediation of Dredged Material," Poster presented at the Seventh International In-Situ and On-Site Bioremediation Symposium, Orlando, FL, 2003.
- Schwab, A. P., Banks, M. K., and J. A. Alleman, "Integrated Toxicity Testing for Biosolids," Presented at the WEF/AWWA/CWEA Joint Residuals and Biosolids Management Specialty Conference, Baltimore, MD, 2003.
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- Parrish, Z., Banks, M. K., and A. P. Schwab, "Tertiary Treatment of Composted Soil from a Manufactured Gas Plant," Poster presented at the International Phytotechnologies Conference, Chicago, IL, 2003.
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- Shalabi, J., M.K. Banks, and A.P. Schwab, "A Treatability Study for the Phytoremediation of Petroleum-Contaminated Sediments," Freshwater Spills Symposium, Cleveland, Ohio, 2002.
- Kunkel, J., M. K. Banks, and A. P. Schwab, "Phytoremediation of PAH Contaminated Soil at a Former Manufactured Gas Plant," Poster presented at the Midwest Hazardous Substance Research Center Annual Meeting, West Lafayette, IN, 2002.
- Cofield, N., Lewis, K., Schwab, A. P. and M. K. Banks, "Development of an Integrated Biototoxicity Protocol for Biosolids," Poster presented at the Midwest Hazardous Substance Research Center Annual Meeting, West Lafayette, IN, 2002
- Parrish, Z., Banks, M. K., and A. P. Schwab, "The Effectiveness of Phytoremediation as a Tertiary Treatment of Aged Polycyclic Aromatic Hydrocarbons from a Manufactured Gas Plant Site," Poster presented at the Midwest Hazardous Substance Research Center Annual Meeting, West Lafayette, IN, 2002
- Banks, M. K., Schwab, A. P., Hutchinson, S. L., Spriggs, T., and R. Kim, "Enhanced Biodegradation of Soil Contaminants in the Rhizosphere," Presented at the Railroad Environmental Conference, Champaign, IL, 2001.
- Schmude, B. M., Cole, K. A., Hedderich, H., Banks, M. K., Alleman, J. E., and E. R. Blatchley, "Wavelength Dependence in Microbial Responses to Ultraviolet Irradiation," Presented at the International Water Association Conference, Berlin, Germany, 2001.
- Banks, M. K., Fanson, J., and Z. Parrish, "Evaluation of Rhizosphere Microbial Characteristics During Phytoremediation," Poster presented at the In Situ and On-Site Bioremediation Conference, Battelle Sixth International Symposium, San Diego, CA, 2001.

- Chen, Y. C., Banks, M. K., and A. P. Schwab, "Phytoremediation of Pyrene by Tall Fescue (*Festuca arundinacea*) and Switchgrass (*Panicum virgatum* L.)," Poster presented at the Environmental Science and Engineering Annual Conference, West Lafayette, IN, 1999.
- Fanson, J., Parrish, Z., Banks, M. K., and A. P. Schwab, "Remediation of Manufactured Gas Plant (MGP) Contaminated Soil Using Plants," Poster presented at the Environmental Science and Engineering Annual Conference, West Lafayette, IN, 1999.
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- Banks, M. K., Schwab, A. P., Smith, J., Kim, R., Spriggs, T, Staton, K., Kulakow, P., and B. Liu, "Phytoremediation of Petroleum Contaminated Soil: Field Assessment," Poster presented at the Battelle Fifth International Symposium on In-Situ and On-Site Bioremediation, San Diego, CA, 1999.
- Schwab, A. P., and M. K. Banks, "Dissipation of Petroleum Contaminants in Vegetated Soil," Presented at the Annual West Coast Conference on Contaminated Soils and Groundwater, Oxnard, CA, 1999.
- Kulakow, P., Schwab, A. P., Banks, M. K., Lewis, S., Rathbone, K. and J. Keller, "Phytoremediation of Petroleum Contaminated Soils: Laboratory and Greenhouse Studies," Presented at the 90th Annual Meeting of the American Society of Agronomy, Baltimore, MD, 1998.
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- Rathbone, K. I., Schwab, A. P., and M. K. Banks, "Phytoremediation of Petroleum Contaminated Soils: A Field Assessment," Presented at the Emerging Biological Processes in Hazardous Waste Remediation Session at the American Chemical Society Annual Meeting, Pittsburg, PA, 1997.
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- Burckhard, S. R., Schwab, A. P., and M. K. Banks, "The Effect of Vegetation on the Transport of Heavy Metal in a Contaminated Soil," Presented at the 12th Annual Conference on Hazardous Waste Research, Kansas City, MO, 1997.
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- He, Y, Schwab, A.P., Banks, M. K., and S. Burckhard, "Adsorption and Transport of Pb in Soil as Affected by Organic Ligands: Batch and Column Study," Presented at the 12th Annual Conference on Hazardous Waste Research, Kansas City, MO, 1997.
- Zhu, D., Schwab, A. P., and M. K. Banks, "The Impact of Vegetation on Heavy Metal Movement," Presented at the 12th Annual Conference on Hazardous Waste Research, Kansas City, MO, 1997.
- Keller, J., Rathbone, K., Banks, M. K, and A. P. Schwab, "The Effect of Soil Depth and Root Surface Area on the Degradation of Polycyclic Aromatic Hydrocarbons,"

- Presented at the 12th Annual Conference on Hazardous Waste Research, Kansas City, MO, 1997.
- Lewis, S. L., Banks, M. K., and A. P. Schwab, "Phytoremediation Field Design and Site Management," Presented at the 12th Annual Conference on Hazardous Waste Research, Kansas City, MO, 1997.
- Rathbone, K., Banks, M. K., Kulakow, P., and A. P. Schwab, "Sorghum Variety Impact on the Biodegradation of Diesel Fuel Contaminated Soil," Presented at the 12th Annual Conference on Hazardous Waste Research, Kansas City, MO, 1997.
- Banks, M. K., Schwab, A. P., and G. S. Govindaraju, "Assessment of Phytoremediation in Field Trials," Presented at the 12th Annual Conference on Hazardous Waste Research, Kansas City, MO, 1997.
- Han, W., Reddi, L. N., and M. K. Banks, "Modeling of the Effects of Cyclic Water Table Fluctuations on the Fate of NAPL Ganglia," Presented at the 12th Annual Conference on Hazardous Waste Research, Kansas City, MO, 1997.
- Schuckman, L., Banks, M. K., and L. N. Reddi, "The Effect of Fluctuating Water Levels on Biodegradation of NAPLs in Soil," Presented at the 12th Annual Conference on Hazardous Waste Research, Kansas City, MO, 1997.
- Liu, B., Banks, M. K., and A. P. Schwab, "Investigation of Kinetics and Metabolites of Phenanthrene in Soil at Different Moisture Contents," Presented at the 12th Annual Conference on Hazardous Waste Research, Kansas City, MO, 1997.
- Pekarek, S., Banks, M. K., Rathbone, K., and A. P. Schwab, "Phytoremediation of Petroleum Contaminated Soils: A Microbial Community Assessment," Presented at the 12th Annual Conference on Hazardous Waste Research, Kansas City, MO, 1997.
- Mallede, H., and M. K. Banks, "Microbial Diversity in Contaminated Soil," Presented at the 12th Annual Conference on Hazardous Waste Research, Kansas City, MO, 1997.
- Banks, M. K., Pekarek, S., Rathbone, K., and A. P. Schwab, "Phytoremediation of Petroleum Contaminated Soil: Field Assessment," Presented at the Battelle Fourth International Symposium on In-Situ and On-Site Bioremediation, New Orleans, LA, 1997.
- Burckhard, S. R., Schwab, A. P., and M. K. Banks, "Rates of Adsorption of Pb, Zn, and Cd, on Soil as Affected by Organic Acids," Presented at the American Society of Agronomy Annual Meeting, Indianapolis, IN, 1996.
- He, Y., Schwab, A. P., and M. K. Banks, "Adsorption and Transport of Zinc as Affected by Complexing Ligands," Presented at the American Society of Agronomy Annual Meeting, Indianapolis, IN, 1996.
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- Freeborn, T. J., Banks, M. K., Govindaraju, R. S., Rice, C., and A. P. Schwab, "Influence of a Fluctuating Water on Microbial Degradation of Pesticides," Poster presented at the Hazardous Waste Research Conference, Manhattan, KS, 1995.
- Arunachalam, M., Banks, M. K., and A. P. Schwab, "Biodegradation and Dissipation of Polycyclic Aromatic Hydrocarbons in Rhizosphere Soil," Poster presented at the Hazardous Waste Research Conference, Manhattan, KS, 1995.
- Banks, M. K., Schwab, A. P., and R. S. Govindaraju, "Phytoremediation of Petroleum Contaminated Soil: A Technology Transfer Project," Poster presented at the Hazardous Waste Research Conference, Manhattan, KS, 1995.
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- Rooney, W. L., Chen, Z., Schwab, A. P., Banks, M. K., and C. Wiltse, "The Effect of Nitrogen Fixation and Fertilization in Alfalfa on Phytoremediation of PAHs," Presented at the Hazardous Waste Research Conference, Manhattan, KS, 1995.
- Lee, E., Banks, M. K., and A. P. Schwab, "Fate of Benzo(a)pyrene in the Rhizosphere of *Festuca arundinacea*," Presented at the Hazardous Waste Research Conference, Manhattan, KS, 1995.
- Wetzel, S. C., Banks, M. K., and A. P. Schwab, "Behavior of Polycyclic Aromatic Hydrocarbons (PAHs) in Rhizosphere Soil," Presented at the Hazardous Waste Research Conference, Manhattan, KS, 1995.
- Govindaraju, R. S., Banks, M. K., and A. P. Schwab, "Use of Geostatistics in Designing and Analyzing Treatment Effects at the Field Scale," Presented at the Hazardous Waste Research Conference, Manhattan, KS, 1995.
- Burckhard, S. R., Schwab, A. P., and M. K. Banks, "Characterization of Lead Containing Mining and Smelter Waste," Presented at the Hazardous Waste Research Conference, Manhattan, KS, 1995.
- He, Y., Schwab, A. P., and M. K. Banks, "Effect of Citrate on the Adsorption of Zinc to Soil," Presented at the Hazardous Waste Research Conference, Manhattan, KS, 1995.

- Banks, M. K., and A. P. Schwab, "Degradation of Polyaromatic Hydrocarbons in Soil as Affected by the Rhizosphere," Presented at the Fourteenth Annual Plant Biochemistry, Physiology, and Molecular Biology Symposium, Columbia, MO, 1995.
- Schwab, A. P., and M. K. Banks, "Enhanced Mobilization of Heavy Metals by Rhizosphere Organic Acids," Presented at the Fourteenth Annual Plant Biochemistry, Physiology, and Molecular Biology Symposium, Columbia, MO, 1995.
- Schwab, A. P., Banks, M. K., and M. Arunachalam, "Biodegradation of Polycyclic Aromatic Hydrocarbons in Rhizosphere Soil," Presented at the Third International Symposium on In-Situ and On-Site Bioreclamation (Battelle), San Diego, CA, 1995.
- Abdel-Saheb, I., Schwab, A. P., and M. K. Banks, "Mobilization of Heavy Metals in Mine Tailings as Influenced by Revegetation," Presented at the American Society of Agronomy Annual Meeting, Seattle, WA, 1994.
- Burckhard, S. R., Schwab, A. P., and M. K. Banks, "Mobilization of Metals from Mine Tailings by Organic Acids," Poster presented at the American Society of Agronomy Annual Meeting, Seattle, WA, 1994.
- Banks, M. K., Schwab, A. P., Burckhard, S., and I. Abdel-Saheb, "Effects of the Rhizosphere on the Movement of Heavy Metals in Contaminated Soil," Presented at the Second International Symposium on Environmental Contamination in Central and Eastern Europe, Budapest, Hungary, 1994.
- Banks, M. K., and A. P. Schwab, "Phytoremediation of Petroleum Contaminated Soil," Poster presented at the Gordon Research Conference: Environmental Sciences-Contaminants in Soil and Subsurface Systems; Fundamentals, Applications, and Risks, New Hampton, NH, 1994.
- Lee, E., Banks, M. K., and A. P. Schwab, "Fate of Pyrene in the Rhizosphere," Poster presented at the Ninth Annual EPA Conference on Hazardous Waste, Bozeman, MT, 1994.
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- He, Y., Burckhard, S., Schwab, A. P., and M. K. Banks, "Adsorption of Heavy Metals on Rhizosphere Soil," Poster presented at the Ninth Annual EPA Conference on Hazardous Waste, Bozeman, MT, 1994.
- Burckhard, S., Schwab, A. P., and M. K. Banks, "The Effect of Organic Acids on the Leaching of Heavy Metals from Mine Tailings," Presented at the Ninth Annual EPA Conference on Hazardous Waste, Bozeman, MT, 1994.
- Wetzel, S., Kyle, G., and M. K. Banks, "Transport of Dodecane in Sand and Clay Columns," Poster presented at the Ninth Annual EPA Conference on Hazardous Waste, Bozeman, MT, 1994.
- Yu, W., Clennan, C. S., Sotomayor, D., Banks, M. K., and C. W. Rice, "Enumeration and Activity of Microbes in the Unsaturated Zone of Pristine and Agricultural Soils," Presented at the Ninth Annual EPA Conference on Hazardous Waste, Bozeman, MT, 1994.
- Clennan, C. S., Yu, W., and M. K. Banks, "Bacterial Enumeration in the Vadose Zone," Poster presented at the Ninth Annual EPA Conference on Hazardous Waste, Bozeman, MT, 1994.
- Arunachalam, M., Banks, M. K., and A. P. Schwab, "Vegetative Bioremediation of Phenanthrene," Poster presented at the Ninth Annual EPA Conference on Hazardous Waste, Bozeman, MT, 1994.

- Chen, Z., Banks, M. K., Schwab, A. P., and R. S. Govindaraju, "Bioremediation of Petroleum Contaminated Soil Using Vegetation - A Technology Transfer Project," Poster presented at the Ninth Annual EPA Conference on Hazardous Waste, Bozeman, MT, 1994.
- Kim, S. C., Banks, M. K., and A. P. Schwab, "Enhancement of Polycyclic Aromatic Hydrocarbon Biodegradation in the Rhizosphere," Poster presented at the Ninth Annual EPA Conference on Hazardous Waste, Bozeman, MT, 1994.
- Clennan, C. S., Yu, W., Sotomayor, D., Banks, M. K., and C. W. Rice, "Distribution of Microorganisms in the Vadose Zone of Prairie and Agricultural Soils," Presented at the Second International Conference on Ground Water Ecology, Atlanta, GA, 1994.
- Waters, C. Y., Banks, M. K., and A. P. Schwab, "Influence of Organic Acids on Leaching of Heavy Metals from Mine Tailings," Presented at the CSCE-ASCE National Conference on Environmental Engineering, Montreal, Canada, 1993.
- Schwab, A. P., and M. K. Banks, "The Impacts of Vegetation on the Leaching of Heavy Metals from Mine Tailings," Presented at the Air and Waste Management Association Annual Meeting, Denver, CO, 1993.
- Schwab, A. P., Banks, M. K., Fleming, G. R., and B. A. Hetrick, "Effects of Plant-Microbial Interactions on the Movement of Zinc in Contaminated Soil," Presented at the Conference on Hazardous Waste Research, Manhattan, KS, 1993.
- Reilley, K. A., Banks, M. K., and A. P. Schwab, "Dissipation of Anthracene and Pyrene in the Rhizosphere," Poster presented at the Conference on Hazardous Waste Research, Manhattan, KS, 1993.
- Lee, E., and M. K. Banks, "Bioremediation of Petroleum Contaminated Soil in the Rhizosphere," Poster presented at the Conference on Hazardous Waste Research, Manhattan, KS, 1993.
- Al-Assi, A. A., Banks, M. K., and A. P. Schwab, "Uptake of Polynuclear Aromatic Hydrocarbons by Alfalfa and Fescue," Poster presented at the Conference on Hazardous Waste Research, Manhattan, KS, 1993.
- Abdelsaheb, I., Schwab, A.P., Banks, M.K., and B. A. Hetrick, "Chemical Characterization of Heavy Metals in Contaminated Soils of Southeast Kansas," Presented at the Conference on Hazardous Waste Research, Boulder, CO, 1992.
- Hetrick, B.A., Banks, M.K., Schwab, A.P., and D. A. Hoobler, "Rhizosphere Microbial-Plant Interactions in Heavy Metal Contaminated Soil," Presented at the Conference on Hazardous Waste Research, Boulder, CO, 1992.
- Waters, C., Banks, M.K., and A. P. Schwab, "The Effects of Organic Acids on the Leaching of Zinc from Mine Tailings," Poster presented at the American Society of Agronomy Annual Meeting, Minneapolis, MN, 1992.
- Abdelsaheb, I., Schwab, A. P., Banks, M. K., and B. A. Hetrick, "Chemical Characterization of Heavy Metal Contaminated Soils," Poster presented at the American Society of Agronomy Annual Meeting, Minneapolis, MN, 1992.
- Huang, C. H., and M. K. Banks, "Atrazine Biodegradation in Biological Granular Activated Carbon Columns," Poster presented at the Conference on Hazardous Waste Research, Manhattan, KS, 1991.
- Shetty, K. G., Abdelsaheb, I., Hetrick, B. A., Schwab, A. P., and M. K. Banks, "Biological and Chemical Characterization of Mine Tailings in Southeast Kansas," Poster presented at the Conference on Hazardous Waste Research, Manhattan, KS, 1991.

Banks, M. K., "Adsorption and Biodegradation of Atrazine in Granular Activated Carbon Columns," Presented at the Conference on Hazardous Waste Research, Manhattan, KS, 1990.

Banks, M. K., and Bryers, J. D., "Biopolymer Particulate Turnover in Biofilm Systems," Presented at the National AIChE Annual Meeting, New York, NY, 1987.

Professional Societies and Service

Women Engineering Leadership Institute (WELI)

Workshop Participant, 2005

American Society of Civil Engineers

Member, Organizing/Technical Committee, ASCE Aerospace International Conference, 2006

Member, Water Supply Engineering Committee, 1994-1997

Member, Hazardous, Toxic, and Radioactive Waste Committee, 1992-1996

Association of Environmental Engineering and Science Professors

Member, Publications Committee 1999-2002

Member, Conference Committee, 2002-2004

Chi Epsilon

International Association on Water Quality

Sigma Xi, Executive Committee, Kansas State University Chapter, 1994.

Society of Women Engineers

Faculty Advisor, Kansas State University Student Chapter, 1990-1994

Water Environment Federation

Member, Hazardous Waste Committee, 1995-1998

Editorial Boards

Editor, ASCE Journal of Environmental Engineering, 2004-2006

Associate Editor, ASCE Journal of Environmental Engineering, 2001-2004

Associate Editor, International Journal of Phytoremediation 1998-2001

Advisory Boards

University of Florida Department of Environmental Engineering

External Advisory Board

Wildlife Habitat Council

Ecological Enhancement Group

WERF Science Advisory Committee

Wastewater Security Project

SBRP NIEHS External Advisory Group

Working Group of the National Advisory Environmental Health Science Counsel

Advisory Group Member

Department of Earth and Environmental Sciences, University of Toledo

International Advisory Board

International Symposium: Biochemical Interactions of Microorganisms and Plants with Environmental Pollutants

Program Reviews

Army Basic Research Program Review Panel (IRP)

Proposal Review Panels

EPA Natural Sciences Review Panel, 1999, 2000
EPA SBIR Panel, 1999, 2000, 2002
EPA STAR Minority Superfund Grants Panel, 2002
EPA EPSCoR Panel, 2001
EPA Midwest Center Review Panel, 1998
EPA STAR Fellowships Review Panel, 1997, 1998, 2001
EPA Exploratory Research Review Panel, 1995, 1997, 1998
NSF Career Award Review Panel, 1998
NSF Biogeochemistry Review Panel, 2001
NSF/EPA/ONR/DOE Bioremediation Review Panel, 1997, 1998
SERDP, 2001

Journal Reviews

Environmental Toxicology and Chemistry
Water Resources Research
Environmental Science and Technology
ASCE Journal of Environmental Engineering
ASCE Journal of Irrigation and Drainage
Water Environment Federation
Biotechnology and Bioengineering
Journal of Hazardous Materials
Environmental Technology
Water Research
Applied and Environmental Microbiology
Advances in Environmental Research
Journal of Environmental Quality
International Journal of Phytoremediation

Proposal Reviews

National Science Foundation
Water Environment Federation
Environmental Protection Agency
American Chemical Society
Natural Sciences and Engineering Research Council of Canada
Amarillo National Resources Center for Plutonium
Wyoming Water Office
Idaho Department of Education
Kansas Water Resources Research Institute

Conference Session Chair

ICES Advanced Life Support Conference, 2004
Battelle Bioremediation Conference, 1999, 2001, 2003
EPA Hazardous Substance Research Conference, 1992, 1993, 1994, 1995, 1996

Purdue University Committees

Schools of Engineering, Research Enterprise Review Committee, 2002-present
School of Engineering, Strategic Planning Committee, 2004-present
School of Engineering, Environmental Engineering Committee, 2004
School of Engineering, Engineering Education Committee, 2003-2004
Chair, 2003-2004
Schools of Engineering Grade Appeals Committee (Elected Position), 2000 – 2002
Chair, 2001-2002
School of Civil Engineering, Departmental Review Committee, 2005
School of Civil Engineering, Promotion and Tenure Committee
Chair, 2004
School of Civil Engineering Search Committee, Intelligent Infrastructure Cluster
Chair, Subcommittee on Intelligent Environmental Systems, 2003-2004
School of Civil Engineering Research Committee
Chair, 2002-2004
School of Civil Engineering Rieth Chair Search Committee
Co-Chair, 1997-1999
School of Civil Engineering Alumni Awards Committee, 1997-2000
School of Civil Engineering Graduate Committee, 1997-2000
School of Civil Engineering Teaching Evaluation Committee, 1999 - 2002
School of Civil Engineering Building Renovation Committee, 1999-2002
School of Civil Engineering Martha Dicks Stevens Committee, 1998-2001
Purdue University, Faculty Advisor, Science Bound Program, 2001-2002

Kansas State University Committees

University Graduate Council, 1994-1997
University Physical Sciences Graduate Committee, Elected 1994
Chair, 1995-1996
University Search Committee
Vice-Provost for Research Position, 1994
University Commission on the Status of Women, 1991-1994
Department of Geology Faculty Search Committee, 1996
College of Engineering Dean's Search Committee, 1996
College of Engineering Research Award Committee, 1994-1996
College of Engineering Reinstatement Committee, 1993-1996
College of Engineering Advising Committee, 1992-1995
College of Engineering Scholarship Committee, 1993
College of Engineering Course and Curriculum Committee, 1990-1992
Agricultural Engineering Search Committee
Environmental Engineering Position, 1994
Civil Engineering Publicity Committee, 1994-1996
Chair, 1996
Civil Engineering Undergraduate Study Committee, 1990-1993
Chair, 1993
Civil Engineering ABET Review Committee, 1993-1997
Civil Engineering Search Committees
Water Resources Position, Chair, 1993
Geoenvironmental Position, 1992

Major Professor

Non-Thesis M.S. Students

Perre Burns, December 1998
Zakia Parrish, August 1999
Miranda Tseng, December 1999
Robert Threlkeld, May 2000
Chris Mote, December 2000
Jennifer Fanson, December 2000
Shannyn Finch, May 2001
Naressa Cofield, August 2001
Jon Kunkel, August 2002
Carol Brown, May, 2003
Vibhav Mankad, August, 2003
Rebecca Hong, December 2003
Monika Prasad, December, 2003
Janna Stath, May, 2004
Mark McClain, August, 2005
Michelle Park, August, 2005

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Fleming, Gregory, "Effects of the Rhizosphere Microflora on Leaching of Zinc from Mine Tailings," December, 1992.
Waters, Camille, "The Influence of Organic Acids on Leaching of Heavy Metals from Contaminated Mine Tailings," December, 1992.
Reilley, Kelly, "Dissipation of Polynuclear Aromatic Hydrocarbons in the Rhizosphere," July, 1993.
Al-Assi, Abdul, "Plant Uptake and Root Adsorption of Polynuclear Aromatic Hydrocarbons by Alfalfa and Fescue," July, 1993.
Clennan, Courtney, "Bacterial Activity in the Vadose Zone," December, 1994.
Wetzel, Scott, "Biodegradation of Pyrene in Rhizosphere Soils," May, 1995.
Yu, Wei, "Microbial Activity and Transport in Unsaturated Soil," May, 1995.
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Henderson, Carlos, "The Influence of Plants on the Movement of Chromium in Rhizosphere Soil," May, 1997.
Schuckman, Lon, "Bioremediation of LNAPLs Under Fluctuating Water Conditions," August, 1997.
Keller, Jeffrey, "The Use of Root Surface Area as a Predictor of Phytoremediation Efficiency," August, 1997.

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Mallede, Hadessa, "Evaluation of Microbial Communities in the Rhizosphere," August, 1997.

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He, Yinghong, "The Effect of Organic Acids on the Movement of Heavy Metals in Soil," May, 1997.

Burckhard, Suzette, "Heavy Metal Movement in Rhizosphere Soil," August, 1997.

Chen, Zhi, "Field and Greenhouse Evaluations of Phytoremediation of Petroleum Contaminated Soil," August, 1997.

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Cofield, Naressa, "Hydrophobicity, Toxicity, and Lability of PAH Contaminated Soil Undergoing Phytoremediation," May, 2005.

Supervision of Post-Doctoral and Research Associates

Ed Wong, 1995

Edward Brennan, 1996

Peter Kulakow, 1996-1998

Baozhi Liu, 1998-2000

Jill Shalabi, 2001-2003

Do Yun Yu, 2002-2004

Chul Choi, 2003-2004

Sophia Hardin, 2003-2004

Robert Nicol, 2003-2004

Jackie Arroyoda, 2004-present

Current Ph.D. Students

James Hunter, Anticipated Graduation Date, August 2005

Chi-hua Ho, Anticipated Graduation Date: May 2005

Dong-He Kang, Anticipated Graduation Date, December 2005

Sybil Sharvelle, Anticipated Graduation Date, December 2005

Agnes Szlezak, Anticipated Graduation Date, May 2006

Rebecca Hong, Anticipated Graduation Date, May 2006

Yong Sang Kim, Anticipated Graduation Date, May 2006

Eric McLamore, Anticipated Graduation Date, May 2007