

Sangchul S. Hwang, PhD, PE

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EDUCATION

Ph.D.	Civil Engineering (Environmental), University of Akron, OH (2002)
Graduate study	Civil Engineering (Environmental), University of Kansas, KS (1996 – 1998)
Master	Civil Engineering (Environmental), Kyungpook National University, Korea (1994)
Bachelor	Civil Engineering, Kyungpook National University, Korea (1990)
Post Doc	US National Research Council worked at US EPA National Risk Management Research Laboratory, OK (2003 – 2004)
Post Doc	Johns Hopkins University worked at US Army Engineers Engineering and Research Development Center, MS (2002 - 2003)

RESEARCH INTEREST

Low Impact Development
Water Sustainability

Pervious Concrete
Community Connect

TEACHING INTEREST

Environmental Science/Engineering
Solid Waste Management

Water Treatment
Fluid Mechanics

RESEARCH & PROJECT MANAGEMENT EXPERIENCE

Sep. 2020 – present Associate Professor, Civil Engineering, Ingram School of Engineering, Texas State University

Jul. 2014 – Jun. 2020 Professor, Department of Civil Engineering and Surveying (INCI)
University of Puerto Rico at Mayagüez (UPRM)

- Structural and Reactive Pervious Composite for Urban Storm Water Management (PI, \$710K, AES PR, 2012-2018)
- Pervious Rooftop Layer for Rain Harvesting and Inactivation of *E. coli* (PI, \$50K, USGS, 2014-2016)
- Solar-Powered Drum Filtration and Disinfection for Rural Community (PI, \$65.7K, USGS, 2012-2015)
- Nanotechnology Based Remediation (a sub-project of NSF-funded Nanotechnology from Basic Science to Emerging Applications: Institute for Functional Nanomaterials (IFN), UPRM Senior Personnel, 2010-2015)
- Engineered Nanoparticles in Biological Wastewater Treatment (a sub-project of NSF-funded Wisconsin–Puerto Rico Partnership for Research and Education in Materials (Wi(PR)₂EM, \$3.25M), UPRM Senior Personnel, 2009-2014)
- Biological Fate and Degradation of Phthalates in Landfill Settings (a sub-project of NIEHS-funded Puerto Rico Testbed for Exploring Contaminant Threat (PROTECT, \$9.9M), UPRM Co-PI, UPRM Budget \$1.1M, 2010-2014)

Jul. 2008 – Jun. 2014 Associate Professor (tenured in Jan. 2010), INCI, UPRM

- Water Quality Assessment for Application of Ash Aggregates to Soils (PI, \$206.7K, AES PR, 2011-2013)
- Bioutilization of Coffee Wastes & Wastewater (Co-PI, \$50K, USDA, 2010-2012)
- Tight-Zone DNAPL Remediation; Polymer-Aided Alcohol Flushing (Co-PI, \$900K, US DoE, 2007-2012)
- Biomethanation of Chicken Manure (PI, \$6K, QMS, Inc., 2009-2010)
- Development of Point-of-Entry Cistern Rainwater Purification Units (PI, \$40K, USGS, 2009-2011)
- Open Pit Restoration to Bio-viable Land (PI, \$171.1K, USGS / AES PR, 2008-2011)
- Telemetry Monitoring of Small Water Treatment Systems (PI, \$87.2K, Shaw Environmental, 2007-2010)
- Enhanced Landfill Biodecomposition and Settlement (PI, \$109.3K, AES PR, 2007-2011)
- Plant Catchment of Evaporated Explosives (Co-PI, \$75K, US DoD, 2008-2009)

Jan. 2005 – Jun. 2008 Assistant Professor, INCI, UPRM

- Rural Community Water and Wastewater (PI, \$18.6K, Chancellor's Office, UPRM, 2007-2008)
- Effect of Surface Vegetation on Explosives Fate and Transport (Co-PI, \$204K, US DoD, 2006-2007)
- Treatment of Explosives-Containing Water and Wastewater (PI, \$K, R&D Center, UPRM, 2006-2007)
- Alternative Landfill Daily Cover (PI, \$12K, AES PR, 2006-2007)
- In situ Sediment Capping Amendments (PI, \$17.6K, UPR Sea Grant / AES PR, 2006-2007)
- In situ Fenton Oxidation (PI, \$5K, College of Engineering, UPRM, 2005-2006)

Oct. 2003 – Dec. 2004 Post-Doctoral Researcher

- U.S. EPA, National Risk Management Research Laboratory, Ground Water & Ecosystems Restoration Division, Ada, OK
- In-situ chemical oxidation (ISCO) – Process optimization

Feb. 2002 – Sep. 2003 Post-Doctoral Researcher

- US Army ERDC, Environmental Laboratory, Vicksburg, MS (Mar. 2002 – Sep. 2003).
- ISCO for remediation of dense non-aqueous phase liquids in soil & groundwater
- Alkaline hydrolysis and advanced oxidation (UV/H₂O₂) for remediation of TNT- and RDX-contaminated groundwater
- Innovative polymer clarification for confined disposal facilities effluent treatment

Jan. 1999 – Jan. 2002 Research Assistant, Civil Engineering Department, University of Akron, OH

- Worked on sorption, desorption, and biodegradation of polycyclic aromatic hydrocarbons and waste oil
Aug. 1992 – Aug. 1994 Research Assistant, Civil Engineering, Kyungpook National University, Korea
- Assisted in the projects on wastewater treatment plant design, sludge treatment, solid waste management

TEACHING EXPERIENCE

- Jan. 2005 – Jun. 2020* Department of Civil Engineering and Surveying, University of Puerto Rico at Mayagüez
Full Professor (Jul. 2014 – Jun. 2020)
Associate Professor (Jul. 2008 – Jun. 2014)
Tenure (Jan. 2010)
Assistant Professor (Jan. 2005 – Jun. 2008)
- Graduate classes: Physiochemical Water Treatment, Biological Wastewater Treatment, Bioremediation, Environmental Engineering Microbiology
 - Undergraduate classes: Fluid Mechanics, Solid Waste Management, Introduction to Environmental Engineering
- Sep. 1994 – Jun. 1996* Part-time Lecturer, Taegu Engineering Institute, Korea
- Lectures on Environmental Engineering, Hydraulic & Water Resources Engineering, Soil Mechanics, and Statics

TRAINING / OUTREACH EXPERIENCE

- Jan. 2006 – Jun. 2020* Seminar Lecturer, Puerto Rico Transportation Technology Transfer Center
- Pervious Concrete Pavement
 - Introduction to NEPA and Transportation Decision-Making
 - Environmental Impacts and Considerations in Transportation Practices and Projects
 - Practical Guidelines of Solid Waste Disposal
 - Engineering Fundamentals in Municipal Projects of Transportation and Water Resources
- Dec. 4-7, 2007* Short Course Instructor, Puerto Rico Water Resources and Environmental Research Institute
- Sampling and Testing for Indicator Organisms in Fresh and Sea Waters

CONSULTING EXPERIENCE

- Identification of Application Potentials of Coal Combustion Byproducts in Civil, Agricultural and Environmental Engineering Fields – for AES, LLP (2006)
- Evaluation of Water Disinfection by Sodium Hypochlorite Generator - for PR Aqueduct & Sewer Authority (2005)

CONFERENCE CHAIRING / HOSTING

- Technical Chair: 1st Rural (non-PRASA) Community Water Supply and Sanitation, UPRM, Feb 25, 2008
- Technical Chair: 7th Caribbean Islands Water Resources Congress, St. Croix, USVI, Oct 25-26, 2007
- Session co-Convener: AGU Joint Assembly, Acapulco, Mexico, May 22-25, 2007

HONORS, RECOGNITION & LICENSES

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| July 2018 | Texas PE |
| Dec 2017 | Texas EIT |
| Mar 2016 | Certified Pervious Concrete Technician, NRMCA (PCC 309678) |
| May 2014 | Outstanding Professor of Civil Engineering, 2012-2013, UPRM |
| May 2013 | Distinguished Researcher, College of Engineering, UPRM |
| 2012 | 2011 Scientific and Technological Achievement Award (STAA), US EPA |
| May 2011 | Outstanding Professor of Civil Engineering, 2009-2010, UPRM |
| May 2009 | Outstanding Professor of Civil Engineering, 2007-2008, UPRM |
| May 2007 | Outstanding Professor of Civil Engineering, 2005-2006, UPRM |
| May 2007 | Best Technical Poster Presentation at the 2007 World of Coal Ash Conference |
| Oct. 2006 | Coal Combustion Products Partnership (C2P2) Award, US EPA |
| Oct. 2003 | Research Associateship Award, National Research Council, USA |
| Dec. 2001 | Tau Beta Pi, The Engineering Honor Society |
| May 14-18, 2001 | 40-hr Hazardous Materials Incident Response Operations, U.S. EPA |
| Sep. 2000 | Scholarship for academic excellence, NAFSA: Association of International Educators |
| Mar 1990 – Jun 1992 | Korean Army ROTC Officer, 1113 Army Corps of Engineer, Korea |
| 1991 | Korean Environmental Engineer License (similar to US Fundamentals of Engineering) |
| Mar 1989 | Best Performance Award, 109 ROTC Headquarter, Korea |
| 1989 | Korean Civil Engineer License (similar to US Fundamentals of Engineering) |

SCHOLARLY PUBLICATIONS & PRESENTATIONS

A. Refereed Journal Publications

1. Hwang S., Terán-Rondón R., Morales-Vélez A., Segarra-Montelala R., Somoza López J., Ruiz-Vale I. Daleccio E. (2019) "Pervious Concrete Pavement to Make a Public Plaza More Handicap Accessible and Environmentally Friendly." *Dimensión CIAPR*, 33:27-36.
2. Arocho-Irizarry M., Segarra R., Diaz V., Hwang S., (2018) "Eco-friendly pervious concrete infrastructure for stormwater management and bicycle parking: A case study". *Urban Water Journal* (<https://doi.org/10.1080/1573062X.2018.1536760>)
3. López-Carrasquillo V., Hwang S. (2017) "Comparative assessment of pervious concrete mixtures containing fly ash and nanomaterials for compressive strength, physical durability, permeability, water quality performance and production cost." *Construction & Building Materials*, 139: 148-158.
4. Hwang V., Masters A., Arocho M., Hwang S. (2017) "Fly ash-amended pervious concrete pavement followed by bamboo bioretention basin with *Dracaena sanderiana* for urban stormwater runoff control." *Construction & Building Materials*, 132: 161-169.
5. Soto-Pérez L., Hwang S. (2016) "Mix design and pollution control potential of pervious concrete with non-compliant waste fly ash", *Journal of Environmental Management*, 176: 112-118.
6. Soto-Pérez L., Lopez V., Hwang S. (2015) "Response Surface Methodology to optimize the cement paste mix design: Time-dependent contribution of fly ash and nano-iron oxide as admixtures", *Materials & Design*, 86: 22-29.
7. Jo M., Soto L., Arocho M., St John J., Hwang S. (2015) "Optimum mix design of fly ash geopolymer paste and its use in pervious concrete for removal of fecal coliforms and phosphorus in water", *Construction & Building Materials*, 93: 1097-1104.
8. Vázquez-Rivera N., Soto-Pérez L., St John J., Molina-Bas O., Hwang S. (2015) "Optimization of pervious concrete containing fly ash and iron oxide nanoparticles and its application for phosphorus removal", *Construction & Building Materials*, 93: 22-28.
9. Hossain F., Perales-Perez O.J., Hwang S., Román F. (2014) "Antimicrobial nanomaterials as water disinfectant: Applications, limitations and future perspectives". *Science of the Total Environment*, 466-467: 1047-1059.
10. Latorre I., Hwang S., Montalvo R. (2012) "Isolation and Molecular Identification of Landfill Bacteria Capable of Growing on Di-(2-ethylhexyl) Phthalate and Deteriorating PVC Materials". *Journal of Environmental Science and Health, Part A-Toxic/Hazardous Substances & Environmental Engineering*, 47(14): 2254-2264.
11. Hwang S., Latorre I., Irizarry E. (2012) "Cordylina fruticosa Growth and Soil Microbial Quality with Topical Application of Coal Combustion Byproducts Aggregates", *Coal Combustion and Gasification Products*, 4: 10-16.
12. Latorre I., Hwang S., Sevillano M. Montalvo R. (2012) "PVC Biodegradation and DEHP Leaching by DEHP-degrading Bacteria", *International Biodegradation & Biodegradation* 69: 73-81.
13. Hwang S., Martinez D., Perez P., Rinaldi C. (2011) "Effect of surfactant-coated iron oxide nanoparticles on the effluent water quality from a simulated sequencing batch reactor treating domestic wastewater". *Environmental Pollution*, 159: 3411-3415.
14. Huling S., Hwang S., Fine D., Ko S. (2011) "Fenton-like Initiation of a Toluene Transformation Mechanism". *Water Research*, 45: 5334-5342.
15. Hwang S., Latorre I. (2011) "Impact of Manufactured Coal Ash Aggregates on Water Quality during Open Pit Restoration: 1. A statistical screening test". *Coal Combustion and Gasification Products*, 3: 1-7.
16. Hwang S., Hernandez I., Latorre I., Rosado S. (2010) "Phaselous vulgaris Growth under the Influence of Manufactured Coal Ash Aggregates". *Coal Combustion and Gasification Products*, 2: 38-44.
17. Huling S., Hwang S. (2010) "Iron Amendment and Fenton Oxidation of MTBE-Spent Granular Activated Carbon". *Water Research*, 44: 2663-2671.
18. Hwang S., Hernandez V. (2010) "Manufactured Coal Ash Aggregates for Aqueous TNT Sorption". *Coal Combustion and Gasification Products*, 2: 35-37.
19. Hwang S., Huling S., Ko S. (2010) "Fenton-like Degradation of MTBE: Effects of Iron Counter Anion and Radical Scavengers". *Chemosphere*, 78(5): 563-568.
20. Hwang S., Felt D.R., Bouwer E.J., Brooks M.C., Larson S.L., Davis J.L. (2006) "Remediation of RDX-contaminated water using alkaline hydrolysis". *Journal of Environmental Engineering*, 132(2): 256-262
21. Hwang S., Ruff T.J., Bouwer E.J., Larson S.L., Davis J.L. (2005) "Applicability of alkaline hydrolysis for remediation of TNT-contaminated water". *Water Research*, 39: 4503 -4511
22. Hwang S., Batchelor C.J., Davis J.L., MacMillan D.K. (2005) "Sorption of 2,4,6-trinitrotoluene to natural soils before and after hydrogen peroxide application". *Journal of Environmental Science and Health, Part A-Toxic/Hazardous Substances & Environmental Engineering*, 40(3): 581-592.
23. Hwang S., Bouwer E.J., Larson S.L., Davis J.L. (2004) "Decolorization of alkaline TNT hydrolysis effluents using UV/H₂O₂". *Journal of Hazardous Materials*, 108(1-2): 61-67.
24. Hwang S., Cutright T.J. (2004) "Evidence of underestimation in PAH sorption/desorption due to system non-equilibrium and interaction mechanisms". *Journal of Environmental Science and Health, Part A-Toxic/Hazardous Substances & Environmental Engineering*, 39(5): 1147-1162.

25. Hwang S., Min K.-S., Cutright T.J. (2004) "PAH biodegradation in soil-water suspensions contaminated with waste oil". *Environmental Engineering Research* (Korean Society of Environmental Engineers), 9(1): 1-12.
26. Hwang S., Min K.-S., Davis J.L. (2004) "Comparative assessment of nucleophilic alkaline hydrolysis for remediation of high explosives-contaminated groundwater". *Environmental Engineering Research* (Korean Society of Environmental Engineers), 9(1): 13-22.
27. Hwang S., Cutright T.J. (2004) "Preliminary evaluation of PAH sorptive changes in soil by Soxhlet extraction". *Environment International*, 30(2): 151-158.
28. Hwang S., Cutright T.J. (2003) "Effect of expandable clays and cometabolism on PAH bioavailability". *Environmental Science and Pollution Research*, 10(5) 9A: 277-280.
29. Hwang S., Cutright T.J. (2003) "Preliminary exploration of the relationships between soil characteristics and PAH desorption and biodegradation". *Environment International*, 29(7): 887-894.
30. Hwang S., Cutright T.J. (2003) "Statistical implications of pyrene and phenanthrene sorptive phenomena: Effects of soil type, SOM and clays, and solute concentration". *Archives of Environmental Contamination and Toxicology* 44: 152-159.
31. Hwang S., Min K.-S. (2003) "Improved sludge dewatering by addition of electro-osmosis to belt filter press". *Journal of Environmental Engineering and Science* 2(2): 149-153.
32. Hwang S., Ramirez N., Cutright T.J., Ju L.-K. (2003) "The role of soil properties in pyrene sorption and desorption". *Water, Air, and Soil Pollution* 143(1-4): 65-80.
33. Hwang S., Cutright T.J. (2002) "Biodegradability of aged pyrene and phenanthrene in a natural soil". *Chemosphere* 47(9): 891-899.
34. Hwang S., Cutright T.J. (2002) "Impact of clay minerals and DOM on the competitive sorption/desorption of PAHs". *Soil and Sediment Contamination* 11(2): 269-291.
35. Hwang S., Cutright T.J. (2002) "The impact of contact time on pyrene sorptive behavior by a sandy-loam soil". *Environmental Pollution* 117(3): 371-378.
36. Hwang S., Cutright T.J. (2002) "Statistical impacts of the extent of desorption, compound aging and bacteria inoculation on PAH biodegradation". *Polycyclic Aromatic Compounds* 22(5): 1057-1074.
37. Min K.-S., Kim H.-T., Hwang S., Ahn Y.-H., Nam K.-H., Seo K.-H. (1995) "A study on sludge dewatering using electroosmotic belt press filter". *Journal of Korean Solid Wastes Engineering Society* 12(5): 544-551.
38. Min K.-S., Ahn Y.-H., Hwang S., Um W.-T., Lee S.-H. (1994) "The characteristics and heating values analysis of municipal solid wastes". *Journal of Korean Solid Wastes Engineering Society* 11(4): 75-87.

B. Books and Technical Reports

1. Bailey S.E., Hwang S., Brooks M.C., Schroeder P.R. (2006). "Evaluation of chemical clarification polymers and methods for removal of dissolved metals from CDF effluent". DOER Technical Notes (ERDC TN-DOER-R10), U.S. Army Engineer Research and Development Center, Vicksburg, MS
2. Pando M., Hwang S. (2006) "Possible Applications for Circulating Fluidized Bed Coal Combustion By-products from the Guayama AES Power Plant". Technical Report. Civil Infrastructure Research Center, University of Puerto Rico at Mayagüez, PR
3. Cutright T.J., Hwang S. (2006) "Polycyclic Aromatic Hydrocarbons (PAHs)." Pp. 2291-2299. In: Encyclopedia of Chemical Processing (Lee, S. Ed.). Marcel Dekker, Inc. New York, NY.
4. Hwang S. (2006) "Advanced Oxidation." Pp. 41-49. In: Encyclopedia of Chemical Processing (Lee, S. Ed.). Marcel Dekker, Inc. New York, NY.
5. Hwang S. (2002) "Effect of soil properties, compound aging, and presence of cosolute on sorption, desorption, and biodegradation of polycyclic aromatic hydrocarbons in natural soils." Ph.D. Dissertation. University of Akron, OH.
6. Hwang S. (1994) "Sludge dewatering using electroosmotic belt press filter." Master Thesis. Kyungpook National University, Korea.

C. Oral Presentations

1. Hwang V., Acevedo Y., Román A., Moreno C., Terán R., Hwang S. "Aqueous Phosphorus Removal and Recovery by Pervious Concrete." International Conference on Environmental Science and Technology, Houston, TX, Jun 25-29, 2018.
2. Moreno-Cortés C., Morales-Vélez A., González-Vélez E., Hwang S. "Integrating Solid Waste Management and Transportation Safety with Pervious Concrete Bicycle Path." The 32nd International Conference on Solid Waste Technology and Management, Philadelphia, PA, Mar 19-22, 2017.
3. Arocho-Irizarry M., Hwang S. "Pervious Concrete Pavement: An Ecofriendly Solution." The 32nd International Conference on Solid Waste Technology and Management, Philadelphia, PA, Mar 19-22, 2017.
4. Hwang V., Hwang S. "Phosphorus Recovery from Storm Water Runoff with Fly Ash-Added Pervious Concrete." The 32nd International Conference on Solid Waste Technology and Management, Philadelphia, PA, Mar 19-22, 2017.
5. Hwang S., Jo M. "Pollutant removal by pervious geopolymer concrete pavement placed on roadway shoulders." AWRA Annual Water Resources Conference, Orlando, FL, Nov 13-17, 2016.

6. Arocho M., Hwang S. "Functional pervious concrete pavement for improvement of livability, safety and water sustainability." AWRA Annual Water Resources Conference, Orlando, FL, Nov 13-17, 2016.
7. Hwang S. "Pervious concrete pavement design, experiments and results." Puerto Rico Institute of Transportation Engineers Annual Technical Conference, San Juan, PR, Oct 21, 2016.
8. Hwang V., Masters A., Montalvo E., Hwang S. "Contaminant reduction by pervious concrete pavement and bamboo bioretention basin". International Conference on Environmental Science and Technology, Houston, TX, Jun 6-10, 2016.
9. Arocho M., Hwang S. "Going green on campus with pervious concrete pavement." International Sustainable Concrete Conference, Washington DC, May 15-18, 2016.
10. Colucci B., Hwang S. "Pervious Concrete Pavement (PCP): An Innovative Approach to Enhance Safety, Livability and the Environment in Puerto Rico." Seminario de la Beca Ramón L. Carrasquillo 2016, San Juan, PR, Apr 8, 2016.
11. Masters A., Hwang S. "Stormwater BMP: Pervious concrete pavement and bamboo biofilter." Junior Technical Meeting (JTM) and the Puerto Rico Interdisciplinary Meeting (PRISM), Ponce, Puerto Rico, Mar 5, 2016.
12. Hwang S. "Chemical Durability of Pervious Fly Ash Concrete under Acidic Environments." Pacifichem 2015, Honolulu, HI, Dec 15-20, 2015.
13. López-Carrasquillo V., Soto-Pérez L., Jo M., St John J., Arocho M., Hwang S. "Comparative quality of water infiltrating through pervious concrete pavements." AWRA Annual Water Resources Conference, Denver, CO, Nov 16-19, 2015.
14. Hwang S., Soto L. "Pervious concrete for agricultural runoff controls." StormCon 2015, Austin, TX, Aug 2-6, 2015.
15. Jo M., Lopez V., Soto L., Hwang S. "Delayed Role of Fly ash and Alkali Activation in the Development of Compressive Strength of Geopolymer Paste cured at Ambient Temperature." World Engineers Summit, Singapore, Jul 21-24, 2015.
16. Jo M., Soto-Pérez L., Hwang S. "Optimization of fly ash geopolymer for early age strength development." 10th Asia Pacific Conference on Sustainable Energy & Environmental Technologies." Seoul, Korea, Jun 2-5, 2015.
17. Soto-Pérez L., Vázquez N., Molina O., Jo M., Hwang S. "Effect of Iron-Oxide Nanoparticles on the Durability of Fly Ash Cement Paste." 5th International Symposium on Nanotechnology in Construction, Chicago, IL, May 24-26, 2015.
18. Soto L., St John J., Suarez C., Jo M., Smith H., Hwang S. "Inactivation of fecal coliforms during rain harvesting with engineered pervious layer." 23rd Caribbean Water & Wastewater Association Annual Conference, Paradise Island, The Bahamas, Oct 6-9, 2014.
19. Hwang S. "Flask-to-field toward Non-PRASA water sustainability", EPA Region 2 Caribbean Science Workshop, San Juan, PR, Sep. 11, 2014.
20. Vazquez N., Soto L., Santiago R., Hwang S. "Optimization by Response Surface Methodology of pervious concrete containing fly ash and engineered iron oxide nanoparticles." International Concrete Sustainability Conference, Boston, MA, May 12-15, 2014.
21. Soto L., Vazquez N., Santiago R., Hwang S. "Characterization of cement paste containing coal fly ash and engineered iron-oxide nanoparticles." 247th ACS National Meeting, Dallas, TX, Mar 16-20, 2014.
22. Rodriguez J.M., Hernandez B., Tarafa P.J., Papadopoulos C., Hwang S. "Development of a Procedure and Apparatus to Quantify Pathogen Reduction throughout an Intermittent Biosand Filter" International Perspective on Water Resources & The Environment, Quito, Ecuador, Jan 8-10, 2014.
23. Hwang S., Martinez D., Perez P., Rinaldi C. "Resilience of SBR Activated Sludge System against the Presence of Engineered Iron-Oxide Nanoparticles" International Conference of Environmental and Agricultural Engineering, Jeju Islands, South Korea, Jun 29-30, 2012.
24. Hwang S., Martinez D., Perez P., Rinaldi C. "Presence of iron oxide nanoparticles in wastewater disinfection" IUPAC, San Juan, PR, Jul 30-Aug 5, 2011.
25. Torres P., Hwang S. "Waste-To-Resource: Applicability of coal ash concrete for freshwater quality enhancement" IUPAC, San Juan, PR, Jul 30-Aug 5, 2011.
26. Escobar Z., Hwang S. "Waste-To-Resource: Characteristics of landfill leachate in different hydrological sequences with coal combustion byproducts aggregates as an alternative reactive daily cover" IUPAC, San Juan, PR, Jul 30-Aug 5, 2011.
27. Hwang S., Anaya N., Serrano N. "Natural Polymer-Aided Alcohol Flushing for Enhancement of TCE Remediation: Effects of Soil Property and Permeability" Air & Waste Management Conference, Orlando, FL, Jun 21-24, 2011.
28. Hwang S., Torres P., Colon C. "Coal Ash Concrete Blocks for Reduction of Algal Growth and Ammonia Toxicity" World Of Coal Ash, Denver, CO, May 9-12, 2011.
29. Hwang S., Latorre I. "Topical Application of Manufactured Aggregates to *Cordyline fruticosa* and *Phaselous vulgaris*" World Of Coal Ash, Denver, CO, May 9-12, 2011.
30. Sevillano M., Hwang S., Rosado S., Concepcion D., Latorre I., Montijo L. "Isolation and enrichment of DEHP-degraders from landfill leachate and DEHP biodegradation" SERMACS, New Orleans, LA, Nov 30-Dec 4, 2010.
31. Sevillano M., Hwang S., Rosado S., Concepcion D., Latorre I. "Di(2-ethylhexyl) Phthalate Ester (DEHP)-Degradation Isolated from Landfill Leachate", 34th ACS Senior Technical Meeting, Mayaguez, PR, Nov 5, 2010.
32. Concepcion D., Hwang S., Falcon J., Sinha R., Impellitteri C. "Field Testing of a Small Water Purification System for Non-PRASA Communities", World Environmental & Water Resources Congress, Providence, RI, May 16-20, 2010.

33. Hwang S., Concepcion D., Falcon J. "Small Filtration and Disinfection Unit for a Point-of-Entry Cistern Water Purification", Caribbean Water and Wastewater Association Annual Conference, St. Thomas, USVI, Oct 4-9, 2009.
34. Hwang S., Concepcion D., Fonseca A., Falcon J., Sinha R. "Evaluation of Small Drum Filtration and Disinfection Units for Small, Rural Communities", American Water Works Association Annual Convention, San Diego, CA, June 14-18, 2009.
35. Escobar Z., Lugo Y., Hwang S. "Biochemical Response of Landfill with Manufactured Aggregates as a Daily Cover", World of Coal Ash Conference, Lexington, KY, May 4-7, 2009.
36. Hwang S., Padilla I., Feliciano I., Falcon J. "Transport and Distribution of TNT and DNT in the Presence of Surface Vegetation with *Fimbristylis cymosa*", SPIE, Orlando, FL, April 13-17, 2009.
37. Lugo Y., Escobar Z., Hwang S. "Landfills with Coal Combustion Byproducts as an Alternative Daily Cover", Puerto Rico Interdisciplinary Scientific Meeting (PRISM), Rio Piedras, PR, Mar 14, 2009.
38. Hwang S., Escobar Z., Hernandez V., Latorre I., Hernandez I., Fonseca A., Del Moral A. "Environmental Engineering Applications of Coal Combustion Byproducts Aggregates", International Conference on Environmental Science and Technology (ICEST), Houston, TX, Jul 28-31, 2008.
39. Fonseca A., Concepcion D., Sanchez S., Lugo Y., Hwang S., Sinha R. "Development of a Water Purification System for Rural Community Sustainability", CoHemis International Conference on Green Communities, Mayaguez, PR, June 18-20, 2008.
40. Herrera M., Concepcion D., Hwang S., Pagan-Trinidad I. "Environmental Engineering Approach for Rural Community Water Sustainability", CoHemis International Conference on Green Communities, Mayaguez, PR, June 18-20, 2008.
41. Hwang S. "Current Engineering Approaches to Enhance PR Rural Community Water Quality", 1st Rural (Non-PRASA) Community Water Supply and Sanitation Workshop, Mayaguez, PR, Feb. 25, 2008.
42. Fonseca A., Hwang S., Escobar Z. "Hydraulic and Biochemical characteristics of Coal Combustion Byproducts Aggregates as Alternative Daily Cover for Landfills", 7th Caribbean Islands Water Resources Congress, St. Croix, US Virgin Islands, Oct. 25 – 26, 2007.
43. Sanchez S., Hwang S., Concepcion D. "Telemetry Monitoring of Small Water Supply", 7th Caribbean Islands Water Resources Congress, St. Croix, US Virgin Islands, Oct. 25 – 26, 2007.
44. Padilla I., Hwang S. "Development of Physical Systems for Fate and Transport Measurements of TNT and DNT in Variably-Saturated Soils", AGU Joint Assembly, Acapulco, Mexico, May 23 – 25, 2007.
45. Padilla I., De Lourdes M., Gutierrez J., Torres A., Hwang S. "Transport of Explosives Related Chemicals from Point Sources", SPIE, Orlando, FL, April 9-13, 2007.
46. Rodriguez S., Padilla I., Hwang S. "Development of a multi-scale parking methodology for evaluating fate and transport processes of explosives-related chemicals in clayey soils", SPIE, Orlando, FL, April 9-13, 2007.
47. Del Moral A., Hwang S. "The Use of Coal Combustion Byproducts for In-Situ Capping Amendment in the Sequestration of Heavy Metals", COINAR, Bayamon, Puerto Rico, March 17, 2007.
48. Fonseca A., Hwang S. "Agremax as an alternative Landfill Daily Cover", COINAR, Bayamon, PR, Mar 17, 2007.
49. Hwang S., Davis J.L. "High Explosives Alkaline Hydrolysis in Continuous Stirred Tank Reactor." 4th Latin American and Caribbean Consortium of Engineering Institution (LACCEI). Mayagüez, PR. June 21-23, 2006
50. Hwang S., Davis J.L. "Remediation of TNT-Contaminated Water with Coupled Alkaline Hydrolysis and UV/H₂O₂ Oxidation." World Federation of Engineering Organizations (WFEO). San Juan, PR. October 16-22, 2005
51. Hwang S., Felt D.R., Bouwer E.J., Larson S.L., Davis J.L. "Kinetics and treatability of aqueous alkaline hydrolysis for hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)." Air & Waste Management Association's 96th Annual Conference & Exhibition. San Diego, CA. June 22-26, 2003.
52. Hwang S., Cutright T.J. "Bioavailability of phenanthrene and pyrene aged for 0 and 200-d in a silty-sand soil." Division of Industrial and Engineering Chemistry, 222nd American Chemical Society National Meeting. Chicago, IL. August 26-30. 2001.
53. Hwang S., Cutright T.J. "Effect of aging, bacterial source and desorption on PAH biodegradation." 6th International In-Situ and On-site Bioremediation Symposium. San Diego, CA. June 4-7, 2001.
54. Hwang S., Cutright T.J. "The effect of desorbability on biodegradation of pyrene in a natural soil." 1st Great Lakes Civil Engineering Graduate Student Research Symposium. Case Western Reserve University, OH. May 31, 2000.

D. Poster Presentations

1. Moreno C., Marales A., González E., Hwang S. "Improving Transportation Safety and Environmental Sustainability with Pervious Concrete Bicycle Path." Puerto Rico Institute of Transportation Engineers Annual Technical Conference, San Juan, PR, Oct 21, 2016.
2. Arocho M., Hwang S. "Pervious concrete bicycle parking lot for improvement of livability and environmental safety on campus." Puerto Rico Institute of Transportation Engineers Annual Technical Conference, San Juan, PR, Oct 21, 2016.
3. Terán R., Morales A., Hwang S. "Pervious Concrete Pavement on a UPRM Public Plaza to Improve Safety and Livability." Puerto Rico Institute of Transportation Engineers Annual Technical Conference, San Juan, PR, Oct 21, 2016.
4. López V., Soto-Pérez L., St John J., Jo M., Arocho M., Hwang S. "Water Quality improvement with pervious pavement." Caribbean Water & Wastewater Association Annual Conference, Miami, FL, Aug 24-28, 2015.

5. Arocho M., St John J., Soto-Pérez L., Jo M., López V., Hwang S. "Strength, workability and cost of fly ash geopolymer paste. Caribbean Water & Wastewater Association Annual Conference, Miami, FL, Aug 24-28, 2015.
6. Hwang S., Smith H. "Engineered pervious layer for pathogen removal during rainwater harvesting." ACS Northeast Regional Meeting, Ithaca, NY, Jun 10-13, 2015.
7. St John J., Soto L., Hwang S. "Fecal coliform removal by fly-ash-aided pervious concrete." XIX Sigma Xi, University of Puerto Rico, PR, April 3, 2014.
8. Torres, I., Santiago R., Vazquez N., Hwang S. "Bioclogging and Fenton regeneration of pervious concrete pavements." XIX Sigma Xi, University of Puerto Rico, PR, April 3, 2014.
9. Pagan K., Perez P., Hwang S. "Wastewater effluent disinfection in the presence of engineered iron oxide nanoparticles." 247th ACS National Meeting, Dallas, TX, Mar 16-20, 2014.
10. Hernandez M., Illas J., Hwang S., "Inactivation of *Bacillus subtilis* by a sequential filtration and disinfection for rural community water supply." 247th ACS National Meeting, Dallas, TX, Mar 16-20, 2014.
11. Latorre I., Hwang S. "Application of SBA-15 in adsorption-Fenton oxidation process for simultaneous remediation of DEHP and As(III)." American Geophysics Union Fall Meeting, San Francisco, CA, Dec 9-13, 2013.
12. Soto L., Rivera K., Conde M., Hwang S. "Structural and hydrological properties of pervious fly ash concrete." Puerto Rico Water & Environmental Association Annual Convention, San Juan, PR, May 22-24, 2013.
13. Soto L., Rivera K., Conde M., Hwang S. "Structural properties of fly ash-aided pervious composite." XVIII Sigma Xi, University of Puerto Rico, PR, April 25, 2013.
14. Latorre I., Hwang S., Hernández-Maldonado A. "Statistical approach for the optimization of di-(2hexylethyl) phthalate and arsenic removal by adsorption-Fenton oxidation process." 33rd Puerto Rico Interdisciplinary Scientific Meeting (PRISM), Caguas, PR, March 19, 2013.
15. Hwang S., Concepción D., Hernandez M. "Solar-powered engineered experimental drum filtration and disinfection for rural community water sustainability." IWA Asia Pacific Young Water Professionals Conference, Tokyo, Japan, Dec 7-10, 2012.
16. Hwang S., Martinez D., Perez P., Pagan K. "Effect of hydraulic retention times on effluent quality and disinfection in biological wastewater treatment with engineered iron-oxide nanoparticles." IWA Asia Pacific Young Water Professionals Conference, Tokyo, Japan, Dec 7-10, 2012.
17. Hwang S., Latorre I., Caban M., Soto B., Montalvo-Rodríguez R., Hernández-Maldonado A. "Adsorption and Fenton regeneration of SBA-15 for di-(2-ethylhexyl) phthalate leached from PVC sheets by Gram-positive strains LHM1 and LHM2." American Geophysics Union Fall Meeting, San Francisco, CA, Dec 3-7, 2012.
18. Martinez D., Perez P., Hwang S., Rinaldi C. "Stability of Iron Oxide Nanoparticles at Different Treatment Stages of a Simulated Wastewater Plant and Its Influence on Water Quality." 32nd Puerto Rico Interdisciplinary Scientific Meeting (PRISM), Carolina, PR, March 10, 2012.
19. Latorre I., Vazquez N., Sevillano M., Hwang S., Montalvo R. "Growth-linked Biodegradation and Thermogravimetric Stability of PVC by DEHP Degrading Bacteria Isolated from Landfill Leachate." 32nd Puerto Rico Interdisciplinary Scientific Meeting (PRISM), Carolina, PR, March 10, 2012.
20. Rodriguez L., Hwang S. "Calcium Alginate Beads (AG) for Adsorption of Heavy Metals in a Point-Of-Entry Cistern Purification Unit (CPU)". 32nd Puerto Rico Interdisciplinary Scientific Meeting (PRISM), Carolina, PR, March 10, 2012.
21. Latorre I., Hwang S., Montalvo R. "PVC biodeterioration by landfill bacteria capable of using di-(2-ethylhexyl) phthalate as the sole carbon source" Superfund Research Program Annual Meeting, Oct. 24-25, 2011, Lexington, KY.
22. Irizarry E., Latorre I., Hwang S. "Interactive Effects of Soil Properties and Manufactured Coal Ash Aggregates on Groundwater Quality." World Of Coal Ash, Denver, CO, May 9-12, 2011.
23. Escobar Z., Hwang S. "Greater Landfill Settlement in an earlier stage with Microbial Activity Enhancement", XVI Sigma Xi, University of Puerto Rico, PR, April 12, 2011.
24. Latorre I., Hwang S., Montalvo R., Sevillano M., Montijo L. "Growth-linked Biodeterioration of Plastic Materials by DEHP-Degrading Bacteria", XVI Sigma Xi, University of Puerto Rico, PR, April 12, 2011.
25. Rodriguez L., Hwang S. "Disinfection By-products Occurrence and Escherichia-coli Removal in a Point-of-Entry Cistern Purification Unit (POE-CPU)", XVI Sigma Xi, University of Puerto Rico, PR, April 12, 2011.
26. Martinez D., Hwang S., Rinaldi C., Perez P. "Engineered Iron Oxide Nanoparticles in Biological Wastewater Treatment", 31st Puerto Rico Interdisciplinary Scientific Meeting (PRISM), Bayamon, PR, March 12, 2011.
27. Falcon J., Hwang S. "Remediation of Explosives-Containing Water with Crumb Rubber", 31st Puerto Rico Interdisciplinary Scientific Meeting (PRISM), Bayamon, PR, March 12, 2011.
28. Hwang S., Anaya N., Benn K., Padilla I. "Biopolymers to modify permeability for in-situ alcohol flushing of TCE", CeRMACS, Dayton, OH, June 16-19, 2010.
29. Lugo Y., Hwang S., Colucci J. "Biomethanation of chicken manure", XV Sigma Xi, University of Puerto Rico, PR, April 8, 2010.
30. Benn K., Hwang S., Anaya N., Padilla I. "Alginate acid-aided alcohol flushing for TCE removal from tight zones", XV Sigma Xi, University of Puerto Rico, PR, April 8, 2010.
31. Rodriguez L., Hwang S., Sevillano M., Concepcion D. "Point-of-Entry (POE) Cistern Water Purification Unit (CPU) Development", XV Sigma Xi, University of Puerto Rico, PR, April 8, 2010.

32. Hwang S., Herrera M. "Development of a decision support tool to ensure safe drinking water in rural communities in Puerto Rico", AWRA Spring Specialty Conference, Orlando, FL, Mar 29-31.
33. Anaya N., Hwang S., Benn K., Padilla I. "Polymer-Aided Alcohol Flushing to Enhance TCE Remediation: Effect of Methanol Concentrations and Contact Times", 30th Puerto Rico Interdisciplinary Scientific Meeting (PRISM), Mayaguez, Mar 13, 2010.
34. Concepcion D., Hwang S., Falcon J. "Engagement of Diverse Student Pool to Small Community Water Sustainability", 30th Puerto Rico Interdisciplinary Scientific Meeting (PRISM), Mayaguez, Mar 13, 2010.
35. Escobar Z., Hwang S., Lugo Y. "Influence of Manufactured Coal Ash Aggregates used for Daily Covers on Landfill Leachate Characteristics", 30th Puerto Rico Interdisciplinary Scientific Meeting (PRISM), Mayaguez, Mar 13, 2010.
36. Hwang S., Latorre I., Hernandez I. "Groundwater Quality and Phyto-Viability from Restored Open Pit", American Water Works Association Annual Convention, San Diego, CA, June 14-18, 2009.
37. Hernandez V., Hwang S. "Explosives Sorption to Coal Ash Aggregates", World of Coal Ash, Lexington, KY, May 4-7, 2009.
38. Hernandez I., Feliciano I., Hwang S. "Bio-viability on Restored Open Pit with Coal Ash Aggregate Amendment", World of Coal Ash, Lexington, KY, May 4-7, 2009.
39. Latorre I., Roman D., Hwang S. "Feasibility of Open Pit Restoration with Coal Ash Aggregates: Ground Water Quality Assessment", World of Coal Ash, Lexington, KY, May 4-7, 2009.
40. Rosado S., Acevedo P., Lugo Y., Roman D., Falcon J., Garcia J., Hwang S. "Research and Education Advancement through Laboratory (REAL) Experience: INCI4998_Academic Year 2008-2009", XIV Sigma Xi, University of Puerto Rico, Mayaguez, PR, April 16, 2009.
41. Escobar Z., Lugo Y., Hwang S. "Dual-Purpose Landfills with Coal Combustion Byproducts Aggregates as Daily Cover: Resource Recovery and Reclamation", XIV Sigma Xi, University of Puerto Rico, Mayaguez, PR, April 16, 2009.
42. Hernandez I., Hwang S. "Plant Growth on the Land Restored with Coal Combustion Byproduct Aggregates", Puerto Rico Interdisciplinary Scientific Meeting (PRISM), Rio Piedras, PR, Mar 14, 2009.
43. Concepcion D., Hwang S., Falcon J. "Lessons Learned from Operation of Field-Scale Small Water Purification Systems", Puerto Rico Interdisciplinary Scientific Meeting (PRISM), Rio Piedras, PR, Mar 14, 2009.
44. Anaya N., Hwang S., Padilla I. "Enhanced TCE Remediation with Polymer-aided Alcohol Flushing", Puerto Rico Interdisciplinary Scientific Meeting (PRISM), Rio Piedras, PR, Mar 14, 2009.
45. Falcon J., Hwang S., Padilla I. "Spatial Distribution and Temporal Trend of Explosives in Soil with Surface Vegetation", Puerto Rico Interdisciplinary Scientific Meeting (PRISM), Rio Piedras, PR, Mar 14, 2009.
46. Torres P., Rosado S., Hwang S. "Effect of Aquatic Structure made of Cement and Coal Ash Byproducts on Water Quality", Puerto Rico Interdisciplinary Scientific Meeting (PRISM), Rio Piedras, PR, Mar 14, 2009.
47. Latorre I., Roman D., Hwang S. "A Statistical Approach for Restoration of Disturbed Land with Coal Combustion Byproduct Aggregates", Puerto Rico Interdisciplinary Scientific Meeting (PRISM), Rio Piedras, PR, Mar 14, 2009.
48. Fonseca A., Concepcion D., Falcon J., Hwang S. "Evaluation of Drums Filtration Units for Alternative Rural Water Sustainability", AIChE Annual Meeting, Philadelphia, PA, November 16 – 21, 2008.
49. Feliciano I., Hwang S., Padilla I. "Distribution of Explosives TNT and DNT with Surface Vegetation *Fimbristylis Cymosa*", AIChE Annual Meeting, Philadelphia, PA, November 16 – 21, 2008.
50. Del Moral A., Hwang S. "Effects of Potassium Permanganate Induced In-Situ Chemical Oxidation in Trichloroethylene DNAPL Source Zones", Puerto Rico Water and Environmental Association Convention, Rio Grande, May 19-23, 2008.
51. Sanchez S., Fonseca A., Concepcion D., Hwang S., Sinha R. "Water Filtration and Monitoring System for Rural, Remotely Located Communities", XIII Sigma Xi, University of Puerto Rico, Mayaguez, PR, April 10, 2008.
52. Herrera M., Hwang S., Pagan-Trinidad, I. "Geographical Information System for Identification of Rural Communities in Need of Improved Water Quality and Sanitation", XIII Sigma Xi, University of Puerto Rico, Mayaguez, PR, April 10, 2008.
53. Escobar Z., Fonseca A., Concepcion D., Hwang S. "Landfills with Coal Combustion Byproducts as an Alternative Daily Cover", XIII Sigma Xi, University of Puerto Rico, Mayaguez, PR, April 10, 2008.
54. Hernandez I., Latorre I., Hwang S. "Graduate Study in a Unique Interdisciplinary Research Group", XIII Sigma Xi, University of Puerto Rico, Mayaguez, PR, April 10, 2008.
55. Anaya N., Gomez J., Hwang S., Padilla I. "Understanding of Permeability Contrast to Advance In situ Flushing for DNAPL Remediation", XIII Sigma Xi, University of Puerto Rico, Mayaguez, PR, April 10, 2008.
56. Hernandez V., Hwang S., Torres P. "Remediation of Explosives-Containing Water with Advanced Oxidation and Sorption", XIII Sigma Xi, University of Puerto Rico, Mayaguez, PR, April 10, 2008.
57. Latorre I., Hernandez I., Fonseca A., Hwang S. "Restoration of Open-Pit Quarry to Bio-viable Land: Resource Recovery Approach", XIII Sigma Xi, University of Puerto Rico, Mayaguez, PR, April 10, 2008.
58. Torres P., Hwang S., Padilla I. "Environmental Engineering Laboratory at University of Puerto Rico – Mayaguez", 1st Rural (Non-PRASA) Community Water Supply and Sanitation, Mayaguez, PR, Feb. 25, 2008.
59. Herrera M., Hwang S., Pagan-Trinidad I., Velez-Arocho J. "Rural, Non-PRASA Water Supply and Sanitation Systems", 1st Rural (Non-PRASA) Community Water Supply and Sanitation, Mayaguez, PR, Feb. 25, 2008.

60. Sanchez S., Concepcion D., Fonseca A., Hwang S., Sinha R. "Water Quality Monitoring of Rural (Non-PRASA) Community Treatment System using Telemetry", 1st Rural (Non-PRASA) Community Water Supply and Sanitation, Mayaguez, PR, Feb. 25, 2008.
61. Fonseca A., Sanchez S., Concepcion D., Hwang S., Sinha R. "Experimental Small Drum Filtration System with Chlorination for Rural Community Water Supply", 1st Rural (Non-PRASA) Community Water Supply and Sanitation, Mayaguez, PR, Feb. 25, 2008.
62. Anaya A., Padilla I., Hwang S. "Effect of Cyclic Precipitation and Radiation on the Fate and Transport of TNT and DNT near Soil-Atmospheric Surfaces". AGU Fall Meeting, San Francisco, CA, Dec. 10-14, 2007.
63. Padilla I., Hwang S. "GeoEnvironmental Education through Multidisciplinary Research". AGU Fall Meeting, San Francisco, CA, Dec. 10-14, 2007.
64. Feliciano I., Hwang S., Padilla I., Torres P. "Hydraulic Controls & Explosives Phytodegradation by Tropical Fimbr". AICHE Annual Meeting, Salt Lake City, Utah, November 4 – 9, 2007.
65. Hwang S., Pando M., Pagan I., Godoy L., Rossi J., Ruiz A., Watlington N. "A Joint Industrial Byproducts Reutilization Initiative", World of Coal Ash, Cincinnati, OH, May 7 – 10, 2007.
66. Hwang S., Pando M., Maldonado V., Del Moral A. "Utilization of Coal combustion Byproducts as Capping Amendments for Heavy Metals Sequestration", World of Coal Ash, Cincinnati, OH, May 7 – 10, 2007.
67. Del Moral A., Hwang S. "Containment of Heavy Metals in Sediments with an Industrial By-product", XII Sigma Xi, University of Puerto Rico, Mayagüez, PR, April 26, 2007.
68. Fonseca A., Feliciano I., Ortiz M., Torres P., Padilla I., Hwang S. "Research and Education Advancement through Laboratory (REAL) Experience: INCI 4998_Spring 2007 Semester", XII Sigma Xi, University of Puerto Rico, Mayagüez, PR, April 26, 2007.
69. Torres A., Padilla I., Hwang S. "Physical Modeling of 2,4-DNT Gaseous Diffusion Through Unsaturated Soil", SPIE, Orlando, FL, April 9-13, 2007.
70. Anaya A., Padilla I., Hwang S. "Influence of Environmental Conditions on the Fate and Transport of ERCs in a Physical 3D Model: Spatial and Temporal Assessment Effects in a Sandy Soil", SPIE, Orlando, FL, April 9-13, 2007.
71. Irizarry M., Baez R., Benitez L., Concepcion D., Torres P., Padilla I., Hwang S. "Chemistry Experiences with Environmental Engineering Projects through the Class INCI4998: Undergraduate Research Experience in Environmental Laboratory (UREEL)", Expochem, Mayagüez, PR, Nov. 9 – 11, 2006.
72. Del Moral A., Huling S., Hwang S. "Understanding of Fenton Oxidation Pathways for Effective Remediation of VOCs in Environmental Matrix", Hispanics in Engineering National Conference (HENC), San Juan, PR, Nov. 14 – 17, 2006.
73. Vazquez M., Padilla I., Hwang S. "Effect of Surface Vegetation on the Fate, Transport and Detection of Explosives-Related Compounds" XVII Undergraduate Research Symposium, Universidad Metropolitana, San Juan, PR, Sep. 15-16, 2006.
74. Del Moral A., Huling S., Hwang S. "Hydrogen Peroxide – Iron Catalyzed Oxidation and Synergistic Effects" XVII Undergraduate Research Symposium, Universidad Metropolitana, San Juan, PR, Sep. 15-16, 2006
75. Maldonado V., Del Moral A., Roman F., Hwang S. "Coal Combustion Byproducts as Low-Cost, Active Capping Amendments for Sequestration of Heavy Metals in Sediments" XVII Undergraduate Research Symposium, Universidad Metropolitana, San Juan, PR, Sep. 15-16, 2006.
76. Del Moral A., Huling S., Hwang S. "Sustaining H₂O₂ Concentrations and Synergistic Binary Effects in Fenton-like Oxidation" 4th Latin American and Caribbean Consortium of Engineering Institution (LACCEI). Mayagüez, PR, June 21-23, 2006.
77. Del Moral A., Huling S., Hwang S. "Improved Understanding of Fenton Reaction Mechanisms" VI Sigma Xi. University of Puerto Rico ay Mayagüez, PR, April 6, 2006.
78. Felt D.R., Nestler C.C., Davis J.L., Ruff T., Brooks M.L., Hwang S., Santiago-Rodriguez L.C. "Application of Alkaline Hydrolysis to Remediate Explosive- and Propellant-Contaminated Groundwater." 4th International Conference on Remediation of Chlorinated and Recalcitrant Compounds. Monterey, CA, May 24-27, 2004.
79. Waisner S.A., Zappi M., MacMillan D., French T., Hwang S., Harden J., Johnson J. "Elucidation of Key Mechanistic Processes Impacting Effective Application of In-situ Chemical Oxidation." Partners in Environmental Technology, SERDP and ESTCP Symposium & Workshop. Washington, DC, December 2-4, 2003.
80. Hwang S., Felt D.R., Bouwer E.J., Brooks M.C., Larson S.L., Davis J.L. "Alkaline hydrolysis is an effective treatment technology for RDX-contaminated groundwater." Division of Environmental Chemistry, 225th American Chemical Society National Meeting. New Orleans, LA, March 23-27, 2003.
81. Hwang S., Cutright T.J. "Soil characteristics and PAH biodegradation." 2nd Great Lakes Civil Engineering Graduate Student Research Symposium. Case Western Reserve University, OH, May 15, 2001.
82. Hwang S., Ramirez N., Cutright T.J. "Sequestration of pyrene by clay minerals in a natural soil." Division of Environmental Chemistry, 220th American Chemical Society National Meeting. Washington DC, August 20-25, 2000.

PROFESSIONAL ORGANIZATION AFFILIATIONS

Texas Board of Professional Engineers (TBPE)
American Water Resources Association (AWRA)
Tau Beta Pi (TBP)

American Water Works Association (AWWA)
American Chemical Society (ACS)
National Ready Mix Concrete Association (NRMCA)