WOO HYOUNG LEE, Ph.D., P.E.

Department of Civil, Environmental, and Construction Engineering
University of Central Florida
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RESEARCH AREAS OF SPECIALTY & INTERESTS

- Evaluating *In Situ* Water Chemistry Dynamics at Biofilm/Surface Interfaces using Microelectrodes for Microbiologically Influenced Corrosion (MIC) and Microfouling Processes
- Electrochemical Micro/Nano-Sensor for *In Situ* Monitoring of Nutrients and Chemical/Biological Compounds in Engineered and Natural Aquatic Systems
- Membrane Fouling Control and Monitoring
- Development of Electrochemical Power Sources: Microbial Fuel Cells (MFC) for Energy Production from Sediment
- Alum Sludge Management: Recovery of Phosphate and Alum using Membrane and MFC
- Gray Water Recycling Systems and Water Standard Development

EDUCATION

Ph.D. in Environmental Engineering, University of Cincinnati, Cincinnati, OH, 2009
- Dissertation: "Development and Use of Microelectrodes to Evaluate Nitrification within Chloraminated Drinking Water System Biofilms, and the Effects of Phosphate as a Corrosion Inhibitor on Nitrifying Biofilm" (Advisor: Dr. Paul L. Bishop)

M.S. in Environmental Engineering, Korea University, Seoul, Korea, 2001
- Thesis: "A Study on the Production Conditions of Polyhydroxyalkanoates (PHA) using Sequencing Batch Reactor (SBR)" (Advisor: Dr. Euiso Choi)

B.S. in Environmental Engineering, Chonnam National University, Gwangju, Korea, 1996

APPOINTMENTS

8/2013 – Present	Assistant Professor, Department of Civil, Environmental, and Construction Engineering, University of Central Florida, Orlando, FL
1/2010 – 6/2013	Postdoctoral Research Fellow of Oak Ridge Institute for Science and Education Office of Research and Development, National Risk Management Research Laboratory, United States Environmental Protection Agency, Cincinnati, OH
9/2006 – 12/2009	Graduate Research Assistant, University of Cincinnati, Cincinnati, OH
1/2004 – 8/2006	Project Engineer, GS Engineering & Construction Co., Seoul, Korea
9/2001 – 12/2003	Environmental Engineer, Contech Co., Seoul, Korea
9/1999 – 8/2001	Graduate Research Assistant, Korea University, Seoul, Korea

HONORS AND AWARDS

- International Perspectives on Quantitative Microbial Risk Assessment (QMRA) workshop travel award, Drexel University, December, 2013
- AEESP NSF CAREER workshop travel award, Association of Environmental Engineering and Science Professors (AEESP), 2011

- Student paper competition/Oral presentation award, Ohio AWWA Student Paper Competition, American Water Works Association (AWWA), 2010
- Oak Ridge Institute for Science and Education Fellowship, Sponsored by U.S. EPA for postdoctoral research, 2010
- First Place, OWEA Student and Young Professional Paper Competition, Ohio Water Environment Association, Water Environment Federation (WEF), 2009
- ACS Graduate Student Award for Excellence in Graduate Studies, Division of Environmental Chemistry, American Chemical Society (ACS), 2009
- University Graduate Scholarship, University of Cincinnati, 2006–2009
- Brain Korea 21 (BK21) Scholarship, Korea Ministry of Education, Korea, 1999 – 2001

TEACHING

- ENV 3001 Introduction to Environmental Engineering, University of Central Florida, Spring, 2014
- EES 4202C Chemical Process Control, University of Central Florida, Fall 2013
- ENVE 471 Environmental Engineering I, University of Cincinnati, Guest Instructor, Summer 2010
- CEE 658 Environmental Instrument, University of Cincinnati, TA, Spring, 2009
- CEE 614 Solid Waste Management, University of Cincinnati, TA, Winter 2009

FUNDED RESEARCH

- The Graywater Recycling System and Related Water Quality Standard, Woo Hyoung Lee (PI), Andrew A. Randall (co-PI), **Mainstream Engineering Corporation** on behalf of U.S.Army, Phase I SBIR Subcontract No. AR-0003B, U.S. Government Prime Contract No. W911QY-12-C-0003B, $41,167 (9/1/2013 – 9/30/2014)

PREVIOUS RESEARCH INVOLVEMENTS

- Development and Use of Microelectrodes to Evaluate Nitrification within Chloraminated Drinking Water System Biofilms (Grant EP-C-05-056), ***U.S. Environmental Protection Agency, USA,*** University of Cincinnati
- Trenchless Pipe Lining System with Revolvable Inversion Device by Water/Air Pressure, ***Korea Ministry of Environment, Korea,*** GS Engineering & Construction Corp.
- Development of Environmentally-Friendly Rainwater Treatment System Using Wasted-tire media and Membrane, ***Korea Ministry of Environment, Korea,*** Jeonju University, GS Engineering & Construction Corp.
- Commercialization of the Plate-Typed High Concentration Ozone Generator and Development of Advanced Water Treatment Process using Ozone, ***Korea Ministry of Environment, Korea,*** Contech Corp.
- Development of Ozone Generator and Facilities for Advanced Water Treatment, ***Korea Ministry of Environment, Korea,*** Contech Corp.
- Recycling of Food Waste as a Carbon Source and Polyhydroxyalkanoates (PHA) Production for Biodegradable Plastics using Acidified Food Waste, ***Korea Ministry of Environment, Korea,*** Korea University

REFEREED JOURNAL PUBLICATIONS

1. **Lee. W. H.**, Wahman, D. G., and Pressman, J. G., (2013) Amperometric carbon fiber nitrite microsensor for *in situ* biofilm monitoring, *Sensors and Actuators B*, 188, 1263-1269.

2. Guo, X., **Lee, W. H.,** Noe, A, Shanov, V. N., and Heineman, W. R., (2013) Detection of trace zinc by an electrochemical microsensor based on carbon nanotube threads, *Electroanalysis*, 25(7), 1599−1604.
3. **Lee, W. H.,** Choi, W-H., Guo, X., Heineman, W. R., and Bishop, P. L., (2012) Material science chemistry of electrochemical microsensors and applications for biofilm research, *Key Engineering Materials: Innovation in Materials Science II*, 521, 113−139.
4. Pressman, J. G., **Lee, W. H.,** Bishop, P. L., and Wahman, D. G., (2012) Effect of free ammonia concentration on monochloramine penetration within a nitrifying biofilm and its effect on activity, viability, and recovery, *Water Research*, 46, 882−894
5. **Lee, W. H.,** Lee, J-H., Choi, W-H., Hosni, A., Papautsky, I., Bishop, P. L., (2011) Needle-type environmental microsensors: design, construction and uses of microelectrode and multi-analyte MEMS sensor arrays *, *Measurement Science and Technology*, 22, 042001 (22pp).
   *** This article is a top 10% paper and has been downloaded over 500 times in 97 days from the date of publication.**
6. **Lee, W. H.,** Wahman, D. G., Bishop, P. L., and Pressman, J. G., (2011) Free chlorine and monochloramine application to nitrifying biofilm: comparison of biofilm penetration, activity, and viability, *Environmental Science and Technology*, 45, 1421−1419.
7. **Lee, W. H.,** Pressman, J. G., Wahman, D. G., and Bishop, P. L., (2010) Characterization and application of a chlorine microelectrode for measuring monochloramine within a biofilm. *Sensors and Actuators B*, 145(2), 734−742.
8. **Lee, W. H.,** and Bishop, P. L., (2010) *In situ* microscale analyses of activated sludge flocs in the enhanced biological phosphate removal process by the use of microelectrodes and fluorescent *in situ* hybridization. *Journal of Environmental Engineering (ASCE*), 136(6), 561−567.
9. **Lee, W. H.,** Lee, J-H., Bishop, P. L., and Papautsky, I., (2009) Biological application of MEMS microelectrode array sensors for direct measurement of phosphate in the enhanced biological phosphorus removal process, *Water Environment Research*, 81(8), 748−754.
10. Lee, J-H., **Lee, W. H.,** Bishop, P. L., and Papautsky, I., (2009) A cobalt-coated needle-type microelectrode array sensor for *in situ* monitoring of phosphate, *Journal of Micromechanics and Microengineering*, 19(2), 025022.
11. **Lee, W. H.,** Seo, Y., and Bishop, P. L., (2009) Characteristics of a cobalt-based phosphate microelectrode for *in situ* monitoring of phosphate and its biological application, *Sensors and Actuators B*, 137(1), 121−128.
12. Seo, Y., **Lee, W. H.,** and Bishop, P. L., (2009) Application of a permeable reactive biobarrier for surfactant enhanced soil bioremediation, *Environmental Pollution*, 157. 95−101.
13. Rhu, D. H., **Lee, W. H.,** Kim, J. Y., and Choi, E., (2003) Polyhydroxy-alkanoate (PHA) production from waste, *Water Science and Technology*, 48(8), 221−228.

BOOK CHAPTER

1. Guo, X. and **Lee, W. H.**, Electronic Properties of Carbon Nanotubes and Their Applications in Electrochemical Sensors and Biosensors (volume 3), *Graphene Science Handbook*, CRC Press/Taylor & Francis (*In press*).
2. **Lee, W. H.,** Lee, J-H., Choi, W-H., Papautsky, I., and Bishop, P. L., Needle-Type Environmental Sensors, *Measurement, Instrumentation, and Sensors Handbook : Spatial, Thermal, and Radiation Measurement*, 2nd Edition (Co-editor: Halit Eren), CRC Press, 2014.
3. Lee, J-H., Seo, Y., **Lee, W. H.,** Bishop, P. L., and Papautsky, I., Needle-Type Multi-Analyte MEMS Sensor Arrays for *In Situ* Measurements in Biofilms, in: *Emerging Environmental Technologies, Volume II*, (Ed. Vishal Shah), Springer, Oakdale, NY, 115-145, 2010.

POPULAR PRESS

1. Jacek Debowski, Frost & Sullivan, *Sensor Technology Alert*, 2011 issue, "Needle-Type Electrode for Enhanced Biological Sensors."

Research Findings from University of Cincinnati Update Understanding of Analytical Science, Published in *Science Letter* (Publisher: Susan Hasty), April 19th, 2011.

CONFERENCE PAPERS AND PRESENTATIONS

1. **Lee, W. H.,** Wahman, D. G, Lytle, D. A., and Pressman, J. G., Evaluating *In-Situ* Reactions of Chlorine and Chloramines at the Surface of Copper and Iron Pipe Materials using Microelectrodes. *Proceedings, American Water Work Association, Annual Conference and Exposition,* Boston, MA, USA, June 8−12, 2014 (*Submitted*).
2. **Lee, W. H.,** Needle-type Environmental Microelectrode Sensors for *In Situ* Biofilm Study in Aqueous Systems, *11th IEEE International Conference on Networking, Sensing and Control,* Miami, FL, USA, April 7-9, 2014 (*Accepted*).
3. **Lee, W. H.,** Wahman, D. G, and Pressman, J. G., 3D Free Chlorine and Monochloramine Penetration and Associated Nitrifying Biofilm Activity and Viability: Implications for Periodic Free Chlorine Application to Chloraminated Drinking Water Distribution Systems. *Proceedings, Water Quality Technology Conference and Exhibition*, Toronto, Ontario, Canada, November 4−8, 2012.
4. **Lee, W. H.,** Wahman, D. G, Bishop, P. L., and Pressman, J. G., Carbon-fiber nitrite microsensor for in situ biofilm monitoring, *Proceedings, International Water Association (IWA) World Water Congress & Exhibition,* Busan, South Korea, September 16-21, 2012.
5. **Lee, W. H.,** Wahman, D. G, Bishop, P. L., and Pressman, J. G., Using Microelectrodes and Live/Dead BacLight to Compare Penetration, Activity, and Viability within Nitrifying Biofilm Subjected to Free Chlorine, Monochloramine, and Free ammonia, *Proceedings, the 244th American Chemical Society National Meeting*, Philadelphia, PA, August 19−23, 2012.
   *** This poster was chosen the best of the Division of Environmental Chemistry (ENVR) posters and presented in the Sci-Mix Interdivisional Poster Session.**
6. Pressman, J. G, **Lee, W. H.,** and Wahman, D. G., Investigating the effects of disinfectants on nitrifying biofilm using chlorine and monochloramine sensitive microelectrodes: comparison of penetration, activity, and viability, Cincinnati Area Water Distribution System Networking Seminar, July 13, 2011.
7. **Lee, W. H.,** Wahman, D. G, Bishop, P. L., and Pressman, J. G., Using Microelectrodes and Live/Dead BacLight to Compare Penetration, Activity, and Viability within Nitrifying Biofilm Subjected to Free Chlorine, Monochloramine, and Phosphate, *2011 AEESP Educational & Research Conference*, Tampa, FL, July 10-12, 2011.
8. Wahman D. G, **Lee, W. H.,** Bishop, P. L., and Pressman, J. G., Investigations into Drinking Water Distribution System Nitrification: EPA Microelectrode Research. Presented at Spring 2011 Chemical, Biological and Environmental Engineering Seminar Series, Oregon State University, Corvallis, OR, May 16, 2011.
9. **Lee, W. H.,** Wahman, D. G, Bishop, P. L., and Pressman, J. G., Comparison between Monochloramine and Chlorine in Water Distribution Systems Biofilms: Penetration, Activity and Viability, *Proceedings, Water Quality Technology Conference and Exhibition*, Savannah, GA, November 14−18, 2010.
10. **Lee, W. H.,** Wahman, D. G, Bishop, P. L., and Pressman, J. G., Disinfectant Penetration and its Effect on Nitrifying Biofilm Activity and Viability: Monochloramine vs. Free Chlorine, *Ohio Section American Water Works Association (AWWA) 72nd Annual Conference*, Columbus, OH, September 20-23, 2010.
11. Wahman, D. G, **Lee, W. H.,** and Pressman, J. G., EPA Drinking Water Distribution System Nitrification Research, *U.S. EPA 7th Annual Drinking Water Workshop: Small Drinking Water Systems - Compliance Strategies*, Cincinnati, OH, August 10-12, 2010.
12. Wahman, D. G, Pressman, J. G, Kleier-Schrantz, K. A., **Lee, W. H.,** and Bishop, P. L., Investigations into distribution system nitrification: simulated systems and microelectrode biofilm profiling, *Proceedings, American Water Works Association (AWWA) 2010 Inorganic Contaminants Workshop*, Denver, CO, February 28−March 2, 2010.

13. Choi, W-H., **Lee, W. H.,** Bishop, P. L., and Papautsky, I., Dissolved Oxygen-Compensated Needle-Type Sensor for Phosphate Analysis of Biological and Environmental Samples, *Proceedings, MicroTAS 2009, The 13th International Conference on Miniaturized Systems for Chemistry and Life Sciences*, Jeju, Korea, November 1−5, 2009.
14. **Lee, W. H.,** Pressman, J. G, Wahman D. G, and Bishop, P. L., *In Situ* Identification and Stratification of Monochloramine Inhibition Effects on Nitrifying Biofilms as Determined by the Use of Microelectrodes, *Proceedings, International Water Association (IWA) Specialized Conference on Processes in Biofilms: Fundamentals to Applications,* Davis, CA, September 13−16, 2009.
15. Pressman, J. G, **Lee, W. H.,** Wahman, D. G, and Bishop, P. L., Disinfectant Penetration into Nitrifying Drinking Water Distribution System Biofilm Using Microelectrodes, *Proceedings, 1st International Conference on Nitrification,* University of Louisville, KY, July 5−10, 2009.
16. **Lee, W. H.,** and Bishop, P. L., *In Situ* Microscale Analyses of Activated Sludge Flocs in Biological Phosphate Removal Process by In Situ Hybridization and the Use of Microelectrodes, *Ohio Water Environment Association (OWEA) Annual Meeting*, Cincinnati, OH, June 22−25, 2009.
17. **Lee, W. H.,** Pressman, J. G, Wahman, D. G, and Bishop, P. L., Biofilm Penetration of Monochloramine and Chlorine Using Microelectrodes, *Proceedings, The 8th International Symposium on Water Supply Technology*, Kobe, Japan, June 10−12, 2009.
18. **Lee, W. H.,** Pressman, J. G, Wahman, D. G, and Bishop, P. L., Monochloramine Microelectrode for *In Situ* Application within the Biofilm of Chloraminated Drinking Water Distribution Systems, *Proceedings, Water Quality Technology Conference and Exhibition*, Cincinnati, OH, November 16−20, 2008.
19. **Lee, W. H.,** Lee, J-H, Bishop, P. L., and Papautsky, I., Biological Application of MEMS Microelectrode Sensors for Direct Measurement of Phosphate in the Enhanced Biological Phosphorus Removal Process, *Proceedings, 81th Annual Water Environmental Federation Technical Exhibition and Conference*, Chicago, IL, Oct. 18−22, 2008.
20. **Lee, W. H.,** Lee, J-H, Bishop, P. L., and Papautsky, I., MEMS Microelectrode Sensor for Direct Determination of Phosphate and Its Biological Application for Environmental Analysis, Showcase 2008, University of Cincinnati, 2008.
21. **Lee, W. H.,** Lee, J-H, Bishop, P. L., and Papautsky, I., MEMS Microelectrode Sensor for *In situ* Monitoring of Phosphate in the Environmental Analysis, Graduate Poster Forum, University of Cincinnati, 2008.
22. Lee, J-H, **Lee, W. H.,** Bishop, P. L., and Papautsky, I., MEMS microelectrode sensor for *in situ* monitoring of phosphate in biological applications, *Proceedings, the 234th American Chemical Society National Meeting,* Boston, MA, August 19−23, 2007.
23. Seo, Y, **Lee, W. H.,** and Bishop, P. L., Application of a permeable reactive biobarrier for surfactant enhanced soil bioremediation, *Proceedings, the 234th American Chemical Society National Meeting,* Boston, MA, August 19−23, 2007.
24. **Lee, W. H.,** Seo, Y, and Bishop, P. L., Characterization and evaluation of the cobalt-based phosphate microelectrode for use in in-vivo environmental analysis, *Proceedings, the 234th American Chemical Society National Meeting,* Boston, MA, August 19−23, 2007.
25. **Lee, W. H.,** Seo, Y, and Bishop, P. L., Microscopic study on the enhanced biological phosphorus removal (EBPR) process using microelectrodes, *Proceedings, 37th Mid-Atlantic Industrial & Hazardous Waste Conference*, Cincinnati, USA, March, 2007.
26. **Lee, W. H.,** and Kim C-R., Trenchless Pipe Lining System with Revolvable Inversion Device by Water/Air Pressure, *Proceedings, 6th Korean Environmental Technology Conference*, Jeju, South Korea, October, 2005.
27. Yoo K-S, Kim C-R., and **Lee, W. H.,** The Reclamation of Rainwater including Non-point Pollutions using Rainwater Reuse System , *Proceedings, 42nd Japan Water Works Association Research Conference and Symposium,* Tokyo, Japan, July, 2005.
28. Yoo K-S, Kim C-R., Il Ho Kim, and **Lee, W. H.,** Development of Environmental-friendly Rainwater Treatment System Using Wasted-tire media and Membrane, *Proceedings, Korean Environmental Engineers Society Conference*, Joenju, Korea, 2004.

29. Kim K-J, **Lee, W. H.,** and Kim, H-M., SS removal and disinfection process using Ozoflotation, *Proceedings, 3rd Korean Environmental Technology Conference*, Sokcho, South Korea, August, 2002.
30. Rhu, D-H., **Lee, W. H.,** Kim, J-Y.,and Choi, E., PHA production from waste, *Proceedings, Environmental Biotechnology*, New Zealand, April , 2002.
31. **Lee, W. H.,** Rhu, D-H., Ji Kim, J-Y.,and Choi, E., Factors affecting the production of PHA (Poly-hydroxyalkanoates) using SBR, *Proceedings, Korean Environmental Engineers Society Conference*, Gwangju, South Korea, April, 2001.

INVITED SEMINARS AND PRESENTATIONS

1. *In Situ* Monitoring Environmental Microsensors for Biofilm and Corrosion Research, 2014 Korean-American Scientists and Engineers Association (KSEA) Southeastern Regional Conference, Sonesta Gwinnett Place, Atlanta, GA, Mar 8th, 2014
2. Drinking Water Disinfectants Penetration and Nitrifying Biofilm Activity and Viability, UNISENSE Workshop, UNISENSE, Aarhus, Denmark, Jan. 24, 2014.
3. *In Situ* Monitoring Needle-type Environmental Microsensors for Biofilm Study in Aqueous Systems, Environmental Research Interdisciplinary Colloquium (ERIC) seminar, University of South Florida, Tampa, FL, Nov. 6, 2013.
4. Disinfectant Biofilm Penetration and the Effect on Biofilm Activity, Viability, and Recovery using Microelectrodes and Live/Dead BacLight, CECS-COM joint conference, University of Central Florida, Orlando, FL, Oct. 18, 2013.
5. *In Situ* Monitoring Microsensors for Biofilm and Corrosion Research, Water Supply and Water Resources Division (WSWRD) Brach Chiefs meeting, U.S. Environmental Protection Agency, Cincinnati, OH, May 16, 2013.
6. Drinking Water Disinfectants Penetration and Nitrifying Biofilm Activity and Viability, Seminar in the Department of Civil Engineering, University of New Mexico, Albuquerque, NM, March 28, 2013.
7. Free Chlorine and Monochloramine Penetration and Associated Nitrifying Biofilm Activity and Viability: Periodic Chlorine Switch Implications, Seminar in the Department of Civil, Environmental and Construction Engineering, University of Central Florida, Orlando, FL, February 6, 2013.
8. Environmental Microsensors for *In Situ* Chemical/Biological Compound Monitoring and Their Applications for Biofilm Research, Graduate Seminar in the School of Energy, Environmental, Biological, and Medical Engineering, University of Cincinnati, Cincinnati, OH, January 11, 2013.
9. Environmental Microsensors for *In Situ* Water Quality Monitoring and Their Applications for Biofilm Research, Seminar in the Department of Civil and Environmental Engineering, Florida International University, Miami, FL, June 8, 2012.
10. Microsensors for Biofilm Research with Application for Protection of Human Health and the Environment, Seminar in the Department of Civil Engineering and Construction Engineering, California State University, Long Beach, CA, April 25, 2012.
11. Microsensors for Biofilm Research with Application for Protection of Human Health and the Environment, Seminar in the Department of Civil and Environmental Engineering, South Dakota State University, Brookings, SD, April 16, 2012.
12. Microsensors for Biofilm Research with Application for Protection of Human Health and the Environment, Seminar in the Department of Civil and Environmental Engineering, West Virginia University(WVU), Morgantown, WV, March 13, 2012.
13. Needle-type Electrochemical Microsensors for *In Situ* Monitoring of Biological and Chemical Compounds and Applications for Biofilm Research, Seminar in the Department of Civil and Environmental Engineering, Michigan Technological University, Houghton, MI, February 6, 2012.

14. Development and Use of Microelectrodes to Evaluate Nitrification within Chloraminated Drinking Water System Biofilms, Seminar in the Department of Civil Engineering, Kansas State University, Manhattan, KS, April 25, 2011.
15. Development and Use of Microelectrodes to Evaluate Nitrification within Chloraminated Drinking Water System Biofilms, and the Effects of Phosphate on Nitrifying Biofilm, Seminar in the Department of Chemical, Biochemical, and Environmental Engineering, University of Maryland, Baltimore County, Baltimore, MD, March 4, 2011.
16. Development and Use of Microelectrodes to Evaluate Nitrification within Chloraminated Drinking Water System Biofilms, Seminar in the Department of Civil and Environmental Engineering, Syracuse University, Syracuse, NY, February 22, 2011.
17. Needle-type Microsensors for *In Situ* Monitoring of Nutrients and Biological Compounds, Joint Seminar in the College of Engineering & Applied Sciences and the School of Freshwater Sciences, University of Wisconsin-Milwaukee, Milwaukee, WI, November 29, 2010.
18. Disinfection Penetration and Effect on Nitrifying Biofilm: Monochloramine vs. Free Chlorine, 2010 EPA-China Workshop for Drinking Water Distribution Systems, U.S. Environmental Protection Agency, Cincinnati, OH, February 23, 2010.
19. Research Overview on Disinfection Penetration and Effect on Nitrifying Biofilm: Monochloramine vs. Free Chlorine, Treatment Technology Evaluation Branch meeting, U.S. Environmental Protection Agency, Cincinnati, OH, January 14, 2010.

PROFESSIONAL REGISTRATION

- Registered Professional Engineer (P.E.), State of Ohio, 2012– Present
- Waste Treatment Engineer, Korea, 2005– Present
- Water Pollution Environmental Engineer, Korea, 2001– Present

PROFESSIONAL SERVICE

Service to Professional Societies

- American Society of Civil Engineers (ASCE), 2012 – Present
- Water Environmental Federation (WEF), 2008 − Present
- American Water Works Association (AWWA), 2008 – Present
  - Distribution System Water Quality Committee (Jan. 2014 – June 2016)
- Association of Environmental Engineering and Science Professors (AEESP), 2009 – Present
  - Membership Committee, AEESP, 2011
  - Judge for AEESP Research and Education Conference Student Poster Competition , July 12, 2011

Proposal Reviewer

- NSF Proposal Review Panel for Civil, Mechanical and Manufacturing Innovation (CMMI) unsolicited proposals in Materials Engineering and Processing (MEP) program, Feb. 14, 2014
- Annual In-State Competitive Research Grants Program, Ohio Water Resources Center (OWRC), National Water Resources Research Institutes(NIWR), U.S. Geological Survey (USGS), January 4, 2013
- NSF Proposal Review Panel for Chemical, Bioengineering, Environmental and Transport Systems (CBET) unsolicited proposals in Environmental Engineering, Washington, DC, May 2-3, 2011

Journal Reviewer

- International Journal of Environmental Science and Technology (JEST)
- Sensors & Actuators: B. Chemical
- Environmental Earth Sciences (EES)
- Journal of Micromechanics and Microengineering (JMM)
- British Journal of Environmental and Climate Change (BJECC)
- Environmental Science & Technology (ES&T)

- Journal of Environmental Engineering
- Bioelectrochemistry
- Journal of Nanotechnology
- Water Environment Research (WER)

Technical Reviewer
- Water Environmental Federation (WEF) "Introduction to Wastewater Treatment Plant Design", November, 2012
- U.S. EPA Nutrient Control Design Manual, Water Environmental Federation (WEF), 2009

Conference Abstract Reviewer
- Reviewer for the IWA Water, Energy and Climate Conference 2014 (Mexico City, Mexico), 2014
- International Water Association (IWA) World Water Congress 2014 (Lisbon, Portugal), 2014
- International Water Association (IWA) World Water Congress 2012 (Busan, Korea), 2012

Training
- Microelectrode sensors fabrication and biofilm/corrosion study application training, National Risk Management Research Laboratory (NRMRL), U.S. EPA, Cincinnati, OH, May 28 – 31, 2013

Doctoral Dissertation Committee (UCF)
- Committee, Ph.D. student (Kazi Tasneem), Chair: Dr. Boo Hyun Nam, Title: TBD, 2013-present
- Committee, Ph.D. student (Marzieh Ghasemi), Chair: Dr. Andrew Randall, Title: Use of Biodiesel Waste Glycerin/Methanol for Enhanced Biological Phosphorus Removal and Denitrification in Advanced Wastewater Treatment, 2013-present
- Co-Chair, Ph.D. student (Saeed Hadian), Chair: Dr. Kaveh Madani, Title: A Systems Approach to Sustainable Energy Portfolio Development, 2013-present

Thesis Committee (UCF)
- Committee, M.S. student (Xiaochen Wang) in Mechanical and Aerospace Engineering, Chair: Dr. Hyoung Jin Cho, Title: TBD, 2014- present.
- Committee, M.S. student (Golam Mohiuddin), Chair: Dr. Ni-Bin Chang, Title: TBD, 2013-present.
- Committee, M.S. student (Anthony James Crawford), Chair: Dr. Ni-Bin Chang, Title: Field-scale Implementation of New BMPs with Integrated Electrochemical Sensors for Nutrient Removal in Stormwater Systems and Wet Detention Ponds, 2013-present
- Honors Thesis committee for BS student (Angela Rodriguez), Advisor: Dr. Steven Duranceau, (2013 – Present)

External Doctoral Dissertation Committee
- External doctoral dissertation committee for Ph.D. student (Linxi Chen) in Environmental Engineering Program, School of Energy, Environmental, Biological and Medical Engineering, University of Cincinnati. Advisor: Dr. Margaret J. Kupferle (2010 – present)

Service to the Community
- High School Students Mentoring: Karina Yap and Sakeenah Khan at Hagerty High School (Oviedo, FL) for The Intel International Science and Engineering Fair (Intel ISEF) (Sept. 2013 – present)

Service at UCF
- Introduction to Water Resources and Environmental Engineering, College of Engineering and Computer Science (CECS) Open House, Nov. 23, 2013.
- Serving as a mentor of EXCEL/COMPASS sophomore students, Development and Application of Environmental Micro/nanosensors for Engineered and Natural Water Systems (2013 – present)

*EXCEL/COMPASS is NSF supported $1.8M STEM program (2012-2017)

- Member of the Graduate Faculty in the College of Graduate Studies (2013 – present)

Service in CECE department at UCF

- Department Representative, CECS Open House, November 23, 2013.
- Department Representative, Introduction to Environmental Engineering, Freshman Engineering Course (ENG 1006), Oct. 4, 2013.
- Water Resources Faculty Search Committee, Department of Civil, Environmental, and Construction Engineering, 10/2013 – present
- Office Assistant Search Committee Chair, Department of Civil, Environmental, and Construction Engineering, 8/2013 – 10/2013

STUDENTS DIRECTED

Doctoral Students (Dissertation)

- Xiangmeng Ma (Fall 2013 – present): Microelectrode Investigation of the Reaction of Pipe Materials with Drinking Water Disinfectants

Master Students (Thesis)

- Rojina Rawut (Summer 2014 – present): Florida Hospital Water Project
- Jared Church (Fall 2013 – present): The Graywater Recycling System and Related Water Quality Standard

Master Students (Non-thesis)

- Kayla Ledergerber (TBD, Fall 2014)
- Ana Arsova (Spring 2014 – present)
- Banan Abuhannoud (Fall 2013 – present)
- April Verpoorten (Fall 2013 – present)

Undergraduate Students

- Rhea Dorris (Fall 2013 – present): Feasibility Study of Alum Sludge Reuse from Nutrient Reduction Facility (NuRF) in Lake County

PATENTS

- Solid state amperometric chloramine sensor (US patent, EROI submitted to EPA OGC, #13/939,959)
- Apparatus for Oil Collection and Recovery from Oil Pollution in the Ocean (South Korea 10-0939107)
- Apparatus for Treating Wastewater using Membrane (South Korea 10-2005-0089189)
- Apparatus and Method for Treating Wastewater using Membrane (South Korea 10-2005-0034399)