

CONTACT INFORMATION

Assistant Professor, Environmental Engineering
Department of Civil and Environmental Engineering and Construction
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RESEARCH INTERESTS

- Environmental engineering: water quality and water/wastewater treatment
- Physical, chemical, and biological water/wastewater treatment processes
- Advanced oxidation processes (AOPs), transformation products, and disinfection byproducts (DBPs)
- Occurrence, fate, transport, and treatment of trace organic contaminants (TOrcs)
- Potable reuse: technology, public health, and public perception
- Environmental microbiology: occurrence and inactivation of microbial surrogates and pathogens, quantitative microbial risk assessment (QMRA), antibiotic resistance
- Advanced molecular techniques for quantifying microbial infectivity: integrated cell culture quantitative polymerase chain reaction (ICC-qPCR)

EDUCATION

Doctor of Philosophy, Environmental Engineering, Arizona State University

- Graduation: May 2008
- Cumulative University GPA: 4.00
- Dissertation: Photocatalytic Disinfection with TiO₂ and Low-Pressure UV Light
- Committee: John Crittenden, Morteza Abbaszadegan, Peter Fox
- Department of Homeland Security Fellow

Master of Science in Engineering, Environmental Engineering, Arizona State University

- Graduation: May 2005
- Cumulative University GPA: 3.92
- Integrative Graduate Education and Research Traineeship (IGERT) Fellow
- Phi Kappa Phi Fellow

Bachelor of Science in Engineering, Civil Engineering, Arizona State University

- Graduation: May 2004
- Cumulative University GPA: 4.00
- Member of Barrett Honors College
- Recipient of National Merit Scholarship
- Recipient of Flinn Finalist Scholarship (Arizona)

PROFESSIONAL EXPERIENCE

August 2012 – Present *University of Nevada, Las Vegas* *Las Vegas, Nevada*

Assistant Professor in the Department of Civil and Environmental Engineering and Construction

- Instructor for CEE 451/651 – Environmental Water Chemistry and Analysis
- Instructor for CEE 455/655 – Water Treatment Principles and Design
- Instructor for CEE 795 – Water Reuse Principles and Design
- Instructor for CEE 755 – Advanced Physicochemical Methods for Water Treatment

April 2011 – August 2012 *Trussell Technologies, Inc.* *San Diego, California*

Senior Engineer III under Rhodes Trussell, Shane Trussell, and David Hokanson

- Responsible for engineering design projects related to the use of ozone and biologically active filtration (BAF) in groundwater replenishment projects in California
- Project team member for WateReuse-11-02: Equivalency of advanced treatment trains for potable reuse

September 2011 – December 2011 *University of California, Riverside* *Riverside, California*

Visiting Lecturer in the Department of Chemical and Environmental Engineering

- Instructor for ENVE 171 – Fundamentals of Environmental Engineering

October 2008 – April 2011 *Southern Nevada Water Authority* *Las Vegas, Nevada*

Post Doctoral Researcher for Dr. Shane Snyder in the Applied R&D Center at SNWA

- Managed SNWA responsibilities related to WRF-08-05: Use of ozone in water reclamation for contaminant oxidation
- Managed SNWA responsibilities related to WRF-09-10: Use of UV and fluorescence spectra as surrogate measures for contaminant oxidation and disinfection in ozone/H₂O₂ advanced oxidation processes
- Managed SNWA responsibilities related to WERF-CEC4R08: Trace organic compound removal during wastewater treatment – Categorizing wastewater treatment processes by their efficacy in reduction of a suite of indicator TOxCs
- Evaluated conventional and advanced oxidation processes for the removal and destruction of trace organic contaminants (TOxCs), disinfection byproducts (DBPs) and precursors, and pathogenic and surrogate microorganisms
- Evaluated temporal variability and the effects of solids retention time in conventional activated sludge processes on the removal of trace organic compounds

May 2004 – September 2008 *Arizona State University* *Tempe, Arizona*

Environmental Engineering Graduate Research Assistant for John Crittenden and Morteza Abbaszadegan

- Evaluated TiO₂ photocatalysis for the destruction of DBPs and DBP precursors
- Evaluated TiO₂ photocatalysis for the inactivation of pathogenic and surrogate microbes
- Developed an integrated cell culture qPCR (ICC-qPCR) strategy to quantify infectious viruses
- Assisted in estimating the urban metabolism of Maricopa County in conjunction with an agent-based growth model known as UrbanSim

Summer 2006

Lawrence Livermore National Laboratory

Livermore, California

Department of Homeland Security (DHS) bioforensics internship focusing on the recovery of *Bacillus anthracis* (anthrax) spores from fibrous substrates

- Performed culture and molecular-based (qPCR) experiments to characterize the recovery of *Bacillus anthracis* (anthrax) spores deposited onto fibrous substrates
- Taught microbiological techniques to fellow DHS interns

PEER-REVIEWED JOURNAL ARTICLES

- 2016** 30. Christian, E., Batista, J., Gerrity, D., 2016. Use of COD, TOC, and fluorescence spectroscopy to estimate BOD in wastewater. *Water Environ. Res.*, *under review*.
29. Gerrity, D., Lee, Y., Gamage, S., Lee, M., Pisarenko, A.N., Trenholm, R.A., von Gunten, U., Snyder, S.A., 2016. Development of semi-empirical models and correlations to predict trace organic contaminant abatement with UV and UV/H₂O₂. *Environ. Sci. Water Res. Technol.*, *under review*.
28. Lee, Y., Gerrity, D., Lee, M., Gamage, S., Pisarenko, A.N., Trenholm, R.A., Canonica, S., Snyder, S.A., von Gunten, U., 2016. Organic contaminant abatement in reclaimed water by UV/H₂O₂ and a combined process consisting of O₃/H₂O₂ followed by UV/H₂O₂: Prediction of abatement efficiency, energy consumption, and by-product formation. *Environ. Sci. Technol.*, *in press*.
- 2015** 27. Gerrity, D., Pisarenko, A.N., Marti, E., Trenholm, R.A., Geringer, F., Reungoat, J., Dickenson, E., 2015. Nitrosamines in pilot-scale and full-scale wastewater treatment plants with ozonation. *Water Res.* 72, 251-261.
26. Mayer, B.K., Yang, Y., Gerrity, D.W., Abbaszadegan, M., 2015. The impact of capsid proteins on virus removal and inactivation during water treatment processes. *Microbiol. Insights.* 8(Suppl 2), 15-28.
25. Pisarenko, A.N., Marti, E., Gerrity, D., Peller, J.R., Dickenson, E.R.V., 2015. Effects of molecular ozone and hydroxyl radical on formation of *N*-nitrosamines and perfluoroalkyl acids during ozonation of treated wastewaters. *Environ. Sci. Water Res. Technol.* 1, 668-678.
24. Ribeiro da Silva, G.H., Bruning, H., Gerrity, D., Daniel, L.A., 2015. UASB reactor effluent disinfection by ozone and chlorine. *J. Environ. Sci. Health Part A.* 50, 1215-1222.
- 2014** 23. Gerrity, D., Menzel, N., 2014. Assessing the effect of unsheltered homeless populations on recreational water quality: A University of Nevada, Las Vegas student nurse project. *Nevada RNformation* 23(3), 14-15.
22. Gerrity, D., Owens-Bennett, E., Venezia, T., Stanford, B.D., Plumlee, M.H., Debroux, J., Trussell, R.S., 2014. Applicability of ozone and biological activated carbon for potable reuse. *Ozone Sci. Eng.* 36, 123-137.
- 2013** 21. Gamage, S., Gerrity, D., Pisarenko, A., Wert, E.C., Snyder, S.A., 2013. Evaluation of process control alternatives for the inactivation of *Escherichia coli*, MS2 bacteriophage, and *Bacillus subtilis* spores during wastewater ozonation. *Ozone Sci. Eng.* 35, 501-513.
20. Gerrity, D., Holady, J.C., Mawhinney, D.B., Quinones, O., Trenholm, R.A., Snyder, S.A., 2013. The effects of solids retention time in full-scale activated sludge basins on trace organic contaminant concentrations. *Water Environ. Res.* 85, 715-724.
19. Gerrity, D., Pecson, B., Trussell, R.S., Trussell, R.R., 2013. Potable reuse treatment trains throughout the world. *J. Water Supply Res. Technol. AQUA* 62, 321-338.
18. Lee, Y., Gerrity, D., Lee, M., Bogeat, A.E., Salhi, E., Gamage, S., Trenholm, R.A., Wert, E.C., Snyder, S.A., von Gunten, U., 2013. Prediction of micropollutant elimination during ozonation of municipal

- wastewater effluents: Use of kinetic and water specific information. *Environ. Sci. Technol.* 47, 5872-5881.
17. Mayer, B., Gerrity, D., Rittmann, B.E., Reisinger, D., Brabham, M., 2013. Innovative strategies to achieve low total phosphorus concentrations in high water flows. *Crit. Rev. Environ. Sci. Technol.* 43, 409-441.
- 2012** 16. Gerrity, D., Gamage, S., Jones, D., Korshin, G.V., Lee, Y., Pisarenko, A., Trenholm, R.A., von Gunten, U., Wert, E.C., Snyder, S.A., 2012. Development of surrogate correlation models to predict trace organic contaminant oxidation and microbial inactivation during ozonation. *Water Res.* 46, 6257-6272.
15. Pisarenko, A.N., Stanford, B.D., Yan, D., Gerrity, D., Snyder, S.A., 2012. Effects of ozone and ozone/peroxide on trace organic contaminants and NDMA in drinking water and water reuse applications. *Water Res.* 46, 316-326.
14. Rock, C., Sopol, F.I., Gerrity, D., 2012. Survey of statewide public perception regarding water reuse. *J. Water Supply Res. Technol. AQUA*, 61, 506-517.
- 2011** 13. Gerrity, D., Gamage, S., Holady, J.C., Mawhinney, D.B., Quinones, O., Trenholm, R.A., Snyder, S.A., 2011. Pilot-scale evaluation of ozone and biological activated carbon for trace organic contaminant mitigation and disinfection. *Water Res.* 45, 2155-2165.
12. Gerrity, D., Snyder, S., 2011. Review of ozone for water reuse applications: Toxicity, regulations, and trace organic contaminant mitigation. *Ozone Sci. Eng.* 33: 253-266.
11. Gerrity, D., Snyder, S., 2011. The economic value of water in metropolitan areas of the United States. *Water Pol.* 13, 443-458.
10. Gerrity, D., Trenholm, R.A., Snyder, S.A., 2011. Temporal variability of pharmaceuticals and illicit drugs in wastewater and the effects of a special event. *Water Res.* 45, 5399-5411.
- 2010** 9. Gerrity, D., Stanford, B.D., Trenholm, R.A., Snyder, S.A., 2010. An evaluation of a pilot-scale nonthermal plasma advanced oxidation process for trace organic compound degradation. *Water Res.* 44, 493-504.
8. Mayer, B.K., Ryu, H., Gerrity, D., Abbaszadegan, M., 2010. Development and validation of an integrated cell culture-qRT-PCR assay for simultaneous quantification of coxsackieviruses, echoviruses, and polioviruses in disinfection studies. *Water Sci. Technol.* 61, 375-387.
- 2009** 7. Even-Ezra, I., Mizrahi, A., Gerrity, D., Snyder, S., Salveson, A., Lahav, O., 2009. Application of a novel plasma-based advanced oxidation process for efficient and cost-effective destruction of refractory organics in tertiary effluents and contaminated groundwater. *Desalin. Water Treat.* 11, 1-9.
6. Gerrity, D., Mayer, B., Ryu, H., Crittenden, J., Abbaszadegan, M., 2009. A comparison of pilot-scale photocatalysis and enhanced coagulation for disinfection byproduct mitigation. *Water Res.* 43, 1597-1610.
- 2008** 5. Gerrity, D., Ryu, H., Abbaszadegan, M., 2008. UV inactivation of adenovirus type 4 measured by integrated cell culture qPCR. *J. Environ. Sci. Health, Part A* 43, 1628-1638.
4. Gerrity, D., Ryu, H., Crittenden, J., Abbaszadegan, M., 2008. Photocatalytic inactivation of viruses using titanium dioxide nanoparticles and low-pressure UV light. *J. Environ. Sci. Health, Part A* 43, 1261-1270.
3. Kalkstein, A.J., Kuby, M., Gerrity, D., Clancy, J.J., 2008. An analysis of air-mass effects on rail ridership in three U.S. cities. *J. Transport Geogr.* 17(3), 198-207.
2. Ryu, H., Gerrity, D., Crittenden, J., Abbaszadegan, M., 2008. Photocatalytic inactivation of *Cryptosporidium parvum* with TiO₂ and low-pressure ultraviolet irradiation. *Water Res.* 42, 1523-1530.

- 2007** 1. Li, K., Zhang, P., Crittenden, J., Guhathakurta, S., Chen, Y., Fernando, H., Sawhney, A., McCartney, P., Grimm, N., Kahhat, R., Joshi, H., Konjevod, G., Choi, Y., Fonseca, E., Allenby, B., Gerrity, D., Torrens, P., 2007. Development of a framework for quantifying the environmental impacts of urban development and construction practices. *Environ. Sci. Technol.* 41, 5130-5136.

BOOK CHAPTERS

- 2015** 3. Gerrity, D., Rosario-Ortiz, F., Wert, E., 2015. Advanced Oxidation Processes. Application of ozone in water and wastewater. International Water Association, *under review*.
- 2012** 2. Gerrity, D., Snyder, S., 2012. Wastewater and drinking water treatment technologies. *Human Pharmaceuticals in the Environment*. Springer New York.
- 2011** 1. Gerrity, D.W., Benotti, M.J., Reckhow, D.J., Snyder, S.A., 2011. Pharmaceuticals and endocrine disrupting compounds in drinking water. *Biophysico-Chemical Processes of Anthropogenic Organic Compounds in Environmental Systems*. John Wiley & Sons, Inc.

OTHER PUBLICATIONS

- 2015** 12. Gerrity, D., Selvy, A., 2015. Recent advancements in potable reuse and their relevance to Nevada. The Water Spot. Nevada Water Environment Association.
- 2014** 11. Dickenson, E.R.V., Pisarenko, A.N., Marti, E.J., Gerrity, D., Vanderford, B., 2014. Formation of nitrosamines and perfluoroalkyl acids during ozonation in water reuse applications. Final report for WRF-11-08. WateReuse Research Foundation. Alexandria, VA.
10. Snyder, S., von Gunten, U., Amy, G., Debroux, J., Gerrity, D., 2014. Use of ozone in water reclamation for contaminant oxidation. Final report for WRF-08-05. WateReuse Research Foundation. Alexandria, VA.
- 2013** 9. Pisarenko, A.N., Marti, E., Gerrity, D., Peller, J.R., Dickenson, E., 2013. Formation of oxidation byproducts-nitrosamines and perfluoroalkyl acids during ozonation and advanced oxidation for water reuse: Role of molecular ozone and hydroxyl radical. Abstracts of Papers of the American Chemical Society.
8. Trussell, R.R., Salveson, A., Snyder, S.A., Trussell, R.S., Gerrity, D., Pecson, B.M., 2013. Potable reuse: State of the science report and equivalency criteria for treatment trains. WateReuse Research Foundation. Alexandria, VA.
7. Snyder, S.A., Korshin, G., Gerrity, D., Wert, E., 2013. Use of UV and fluorescence spectra as surrogate measures for contaminant oxidation and disinfection in the ozone/H₂O₂ advanced oxidation process. Final report for WRF-09-10. WateReuse Research Foundation. Alexandria, VA.
- 2012** 6. Rock, C., McLain, J.E., Gerrity, D., 2012. Water recycling FAQs. Arizona Cooperative Extension. AZ1568.
5. Rock, C., McLain, J.E., Gerrity, D., 2012. Common terminology of water recycling. Arizona Cooperative Extension. AZ1569.
- 2011** 4. Rauch-Williams, T., Dickenson, E., Drewes, J.E., Drury, D., Gerrity, D., Higgins, C., McAvoy, D., Salveson, A., Snyder, S., Vanderford, B., 2011. A proposed suite of indicators for assessing the efficiency of secondary treatment for the removal of organic trace compounds-WERF CEC4R08. Proceedings of the Water Environment Federation.
- 2010** 3. Rauch-Williams, T., Dickenson, E., Drewes, J.E., Drury, D., Gerrity, D., Higgins, C., Salveson, A., Snyder, S., Vanderford, B., 2010. Quantification of occurrence and fate of trace organic compounds during secondary wastewater treatment. Proceedings of the Water Environment Federation.

- 2008** 2. Gerrity, D., Ryu, H., Abbaszadegan, M., Crittenden, J.C., 2008. ENVR 163-Photocatalytic inactivation of viruses using titanium dioxide nanoparticles and low-pressure UV light. Abstracts of Papers of the American Chemical Society.
- 2007** 1. Kahhat, R., Crittenden, J., Fonseca, E., Li, K., Zhang, P., Guhathakurta, S., Chen, Y.S., Fernando, H., McCartney, P., Grimm, N., Joshi, H., Konjevod, G., Choi, Y.J., Allenby, B., Gerrity, D., Torrens, P.M., Sawhney, A., 2007. Development of a framework for quantifying the environmental impacts of urban development and construction practices. American Chemical Society.

SELECTED FUNDED RESEARCH PROJECTS

- 2015** 16. Department of Energy (DOE), 2015. Chromium contamination remediation using activated carbon coated with polysulfide rubber (PSR) and zeolites coated with surfactants (Co-PI; total project budget of \$282,105). Solicited Proposal.
15. Environmental Protection Agency (EPA), 2015. Framework for quantifying microbial risk and sustainability of potable reuse systems in the United States (PI; total project budget of \$329,650). Early Career Awards: Human and Ecological Health Impacts Associated with Water Reuse and Conservation Practices. EPA-G2014-STAR-F2. Solicited Proposal.
14. Tesla Motors, 2015. Assessment, purification, and reuse of Tesla Gigafactory wastewater streams (PI; total project budget of \$50,000). Solicited Proposal.
13. Water Environment Research Foundation (WERF), 2015. Occurrence, proliferation, and persistence of antibiotics and antibiotic resistance during wastewater treatment (PI; total project budget of \$108,906). Unsolicited Proposal.
- 2014** 12. Coeur Alaska, 2014. Removal of ammonia from mine wastewaters (Co-PI; total project budget of \$57,192). Solicited Proposal.
11. Nevada Department of Transportation (NDOT), 2014. Assessing the lead leaching potential of reflective glass beads used for lane striping on Nevada roads (PI; NDOT funding used for undergraduate summer research assistant). Unsolicited Proposal.
- 2013** 10. Faculty Opportunity Award, 2013. Occurrence, proliferation, and persistence of antibiotic resistance during wastewater treatment (PI; total project budget of \$25,000). Solicited Proposal.
9. Nevada Water Resources Research Institute, 2013. Optimization of Ozone-Biological Activated Carbon Treatment for Potable Reuse Applications (PI; total project budget of \$166,310). Solicited Proposal.
8. Regional Transportation Commission of Southern Nevada, 2013. University of Nevada Las Vegas Community Transit Services (Co-PI; total project budget of \$36,926). Solicited Proposal
- 2012** 7. WateReuse Research Foundation, 2012. WateReuse-11-01: Monitoring for Reliability and Process Control of Potable Reuse Applications (Co-PI; total project budget of \$1,714,161). Solicited Proposal.
6. WateReuse Research Foundation, 2012. WateReuse-11-02: Equivalency of Advanced Treatment Trains for Potable Reuse (Co-PI; total project budget of \$1,342,947). Solicited Proposal.
- 2011** 5. WateReuse Research Foundation, 2011. WRF-11-08: Formation of nitrosamines and perfluorochemicals during ozonation in water reuse applications (Co-PI; total project budget of \$390,487). Unsolicited Proposal.
- 2009** 4. WateReuse Research Foundation, 2009. WRF-09-10: Use of UV and Fluorescence Spectra as Surrogate Measures for Contaminant Oxidation and Disinfection in the Ozone/H₂O₂ Advanced Oxidation Process (Co-PI; total project budget of \$255,730). Unsolicited Proposal.
3. WateReuse Research Foundation, 2009. WRF-08-05: Use of ozone in water reclamation for contaminant oxidation (Co-PI; total project budget of \$1,318,459).

2. Water Environment Research Foundation, 2009. WERF-CEC4R08: Trace organic compound removal during wastewater treatment – Categorizing wastewater treatment processes by their efficacy in reduction of a suite of indicator TOxCs (Project Team Member; total project budget of \$689,534).
- 2007 1. National Science Foundation Water Quality Center, 2007. Catalytic oxidation of disinfection byproducts in drinking water distribution systems (Co-PI; total project budget of \$30,000).

SELECTED CONFERENCE PRESENTATIONS AND SEMINARS

- 2016 39. American Water Works Association (AWWA) International Potable Reuse Symposium (Long Beach, CA), 2016. Potable Reuse Conference. Use of O₃/DOC and UV/DOC as dosing parameters for advanced oxidation processes in potable reuse applications. Oral Presentation.
- 2015 38. AZ Water Research Conference (Tempe, Arizona), 2015. Water: The center of debate. Treatment technology options. Expert panel participant.
37. Water Environment Federation (WEF) webinar series, 2015. Use of O₃/DOC and UV/DOC as dosing parameters for advanced oxidation processes in potable reuse applications. Oral Presentation.
- 2014 36. 29th Annual WateReuse Symposium (Dallas, Texas), 2014. Join the debate: What is the most significant threat to potable reuse? Chemical contaminants. Organizer for special session. Oral Presentation.
35. Tri-State Seminar (Las Vegas, Nevada), 2014. Water recycling frequently asked questions. Oral presentation.
34. WateReuse California Annual Conference (Newport Beach, California), 2014. Alternative treatment trains for potable reuse applications. Workshop on ozonation, advanced oxidation processes, and disinfection. Oral Presentation.
33. WateReuse Webinar Series, 2014. Formation of nitrosamines and perfluoroalkyl acids during ozonation in water reuse applications. Oral Presentation.
32. WateReuse Webinar Series, 2014. Potable reuse in the United States. Oral Presentation.
- 2013 31. CA-NV American Water Works Association Spring Conference (Las Vegas, Nevada), 2013. Applicability of ozone and biological activated carbon (O₃-BAC) for potable reuse. Oral Presentation.
30. CSG-WEST 2013 Annual Meeting (Las Vegas, Nevada), 2013. Water and Environment Committee. Water reuse applications. Oral Presentation.
29. Fluorofest (Forth Worth, Texas), 2013. Use of absorbance and fluorescence in water reuse applications. Oral Presentation.
28. IOA/IUVA World Congress & Exhibition (Las Vegas, Nevada), 2013. Applicability of ozone and biological activated carbon for potable reuse. Oral Presentation.
27. QMRAII (Sao Paulo, Brazil), 2013. Risk management of Giardia exposure in South American communities. Oral Presentation.
26. Technology Toolbox Workshop for the Steering Committee on Arizona Potable Reuse (SCAPR) (Phoenix, Arizona), 2013. Potable reuse treatment trains. Oral Presentation.
25. University Forum Lecture Series (Las Vegas, Nevada), 2013. How thirsty are you? Quenching the world's thirst with wastewater. Oral Presentation.
24. WateReuse Advanced Water Recycling Treatment Technology Workshop (San Jose, California), 2013. Applicability of ozone and biological activated carbon for potable reuse. Oral Presentation.
23. WateReuse Advanced Water Recycling Treatment Technology Workshop (Orange County, California), 2013. Applicability of ozone and biological activated carbon for potable reuse. Oral Presentation.
22. Water Reuse and Desalination Research Conference (Phoenix, Arizona), 2013. Future directions in water reuse research. Oral Presentation.

21. WateReuse Arizona (Flagstaff, Arizona), 2013. Alternatives to MF-RO-AOP for addressing compounds of emerging concern. Oral Presentation.
- 2012** 20. Tri-State Seminar (Primm, Nevada), 2012. Use of ozone in water reclamation for contaminant oxidation. Oral Presentation.
19. WateReuse-11-01 Project Workshop: Monitoring for reliability and process control of potable reuse applications (Tucson, Arizona), 2012. Treatment technologies for potable reuse. Oral Presentation.
18. WateReuse California Annual Conference (Sacramento, California), 2012. Online monitoring of process performance for indirect potable reuse treatment trains. Oral Presentation.
17. WateReuse Research Foundation (Online), 2012. Summaries of recent ozone-related research. Webinar.
16. Water Reuse and Desalination Research Conference (San Diego, California), 2012. Use of ozone in water reclamation for contaminant oxidation. Oral Presentation.
- 2011** 15. 26th Annual WateReuse Symposium (Phoenix, Arizona), 2011. Use of ozone in water reclamation for contaminant oxidation and disinfection. Workshop for WRF-08-05. Oral Presentation and Workshop Organizer.
14. International Congress on Sustainability Science and Engineering (Tucson, Arizona), 2011. Economic metrics and advanced treatment technologies to mitigate water scarcity. Oral Presentation.
13. Water Reuse and Desalination Research Conference (Las Vegas, Nevada), 2011. Use of ozone in water reclamation for contaminant oxidation and disinfection. Oral Presentation.
- 2010** 12. Annual Conference of the International Ozone Association (IOA) – Pan American Group (Seattle, Washington), 2010. Use of ozone in water reclamation for contaminant oxidation and disinfection. Oral Presentation.
11. AEEESP Special Session of WEFTEC: Fate and transport of trace organic chemicals (TOrc) in wastewater treatment and water reclamation facilities (New Orleans, Louisiana), 2010. Effects of solids retention time in full-scale activated sludge basins on trace organic contaminant concentrations. Oral Presentation.
- 2009** 10. Americana (Montreal, Canada), 2009. Overview of the emerging issues, occurrence, and potential treatments of EDCs/PPCPs. Oral presentation.
9. National Ground Water Association, 7th International Conference on Pharmaceuticals and Endocrine Disrupting Chemicals in Water (Baltimore, Maryland, USA), 2009. Innovative advanced oxidation processes for the treatment of pharmaceuticals and EDCs. Oral Presentation.
8. WEFTEC (Orlando, Florida, USA), 2009. Innovative advanced oxidation processes for the treatment of pharmaceuticals and EDCs. Workshop – Reclaimed Water Facilities: Meeting Existing and Emerging Challenges. Oral presentation.
7. WEFTEC (Orlando, Florida, USA), 2009. New directions for ozone applications. Workshop – Using ozone for disinfection and advanced oxidation. Oral presentation.
- 2008** 6. American Chemical Society (ACS) 235th National Meeting (New Orleans, Louisiana, USA), 2008. Photocatalytic inactivation of viruses using titanium dioxide nanoparticles and low-pressure UV light. Oral presentation.
5. American Society for Microbiology (ASM) General Meeting (Boston, Massachusetts, USA), 2008. Bench-scale and pilot-scale photocatalytic inactivation of viruses with titanium dioxide nanoparticles. Poster presentation.
4. WEFTEC (Chicago, Illinois, USA), 2008. Advanced oxidation processes: Titanium dioxide photocatalysis. Workshop: Disinfection strategies to keep pace with reuse trends. Oral presentation.

- 2007
3. American Society for Microbiology (ASM) General Meeting (Toronto, Canada), 2007. Photocatalytic inactivation of viruses using low-pressure ultraviolet light in a titanium dioxide suspension. Poster presentation.
 2. International Water Association (IWA) Health-Related Water Microbiology (HRWM) Conference, WaterMicro07 (Tokyo, Japan), 2007. Photocatalytic inactivation of viruses using titanium dioxide nanoparticles. Poster presentation and workshop.
 1. American Society for Microbiology (ASM) General Meeting (Orlando, Florida, USA), 2006. Photocatalytic inactivation of surrogate bacteriophages using low-pressure ultraviolet light in a titanium dioxide suspension. Poster presentation.

PROFESSIONAL SERVICE

- Reviewer for the following agencies:
 - National Science Foundation
 - Environmental Protection Agency
- Reviewer for the following journals:
 - Central European Journal of Biology
 - Chemosphere
 - Desalination and Water Treatment
 - Environmental Engineering Science
 - Environmental Science & Technology
 - Journal of Environmental Engineering
 - Journal of Environmental Science and Health, Part A
 - Journal of Water Supply: Research and Technology-AQUA
 - Science of the Total Environment
 - Water Research
 - Water Science and Technology
- Industry Committee Member:
 - Board of Trustees, Regulatory and Policy Subcommittee Member, Nevada Section of the WaterReuse Association, 2014-Present.
 - Conference Committee Chair for the Water Reuse and Desalination Research Conference in Las Vegas, 2014.
 - Independent Advisory Panel Member, Padre Dam Municipal Water District Full Advanced Treatment Demonstration Project at the Roy Stoyer Water Reclamation Facility, Appointed by the National Water Research Institute, 2013-present.
 - Project Advisory Committee Member for the WaterReuse Research Foundation, WRF-15-11: Demonstration of High Quality Drinking Water Production Using Multi-Stage Ozone-Biological Filtration (BAF): A Comparison of DPR with Existing IPR Practice, 2015-Present.
 - Project Advisory Committee Member for the WaterReuse Research Foundation, WRF-10-18: Regulated and Emerging Disinfection By-Products during the Production of High Quality Recycled Water, 2011-2015.
- University/College/Department Committee Member:
 - UNLV CEEC: Listening to Departments II Committee Member
 - UNLV CEEC: Curriculum and Assessment Committee Member
 - UNLV CEEC: Structural Faculty Search Committee Member
 - UNLV College of Education: Science and Engineering Faculty Search Committee Member
 - Desert Research Institute: Advanced Water Technology Faculty Search Committee Member

- Contributor to the following publications:
 - EPA Guidelines for Water Reuse, 2012
- FE Exam Review:
 - Chemistry, 2012-2013
 - Environmental Engineering, 2014
- Outreach Activities:
 - Las Vegas Sun Podcast: “Water pipeline faces setback”, 2013.
 - Preparation and implementation of a professional development module for middle school teachers in Northern Nevada, UNLV GEAR UP, 2013
 - Interviewed by 8 News Now for an I-Team Investigative Report on the installation of septic tanks in Coyote Springs, Nevada, 2012
- Faculty Advisor:
 - UNLV Student Chapter of the American Water Works Association, 2013-Present
 - UNLV Student Chapter of Engineers without Borders, 2012-Present

RECENT PROFESSIONAL ORGANIZATIONS

- American Society of Civil Engineers (ASCE)
- Chi Epsilon (National Civil & Environmental Engineering Honor Society)
- International Ozone Association (IOA)
- Phi Kappa Phi (National Honor Society)
- Tau Beta Pi (National Engineering Honor Society)

STUDENTS ADVISED

- Ph.D. Research (Committee Chair for 2 students)
 - Committee Member – Faegheh Moazeni, Environmental Engineering, University of Nevada, Las Vegas: Growing algae for fuel in Southern Nevada, Graduated in 2013.
 - **Committee Chair** – Majid Neyestani, Environmental Engineering, University of Nevada, Las Vegas: Occurrence, proliferation, and mitigation of antibiotic resistance during wastewater treatment, Current.
 - **Committee Chair** – Erfaneh Amoueyan, Environmental Engineering, University of Nevada, Las Vegas: Static and dynamic quantitative microbial risk assessments for potable reuse paradigms, Current.
 - Committee Member – Sichu Shrestha, Environmental Engineering, University of Nevada, Las Vegas: Backwash frequency impact and control measures for media losses in fluidized bed reactors used for perchlorate removal, Current.
 - Committee Member – Erica Marti, Environmental Engineering, University of Nevada, Las Vegas: Nitrosamines and perfluorinated compounds in wastewater, Current.
- M.S. Research (Committee Chair for 4 students)
 - **Committee Chair** – Evelyn Christian, Environmental Engineering, University of Nevada, Las Vegas: The use of COD, TOC, fluorescence, and absorbance spectroscopy to estimate biochemical oxygen demand in wastewater, Graduated in 2015.
 - **Committee Chair** – Ashley Selvy, Environmental Engineering, University of Nevada, Las Vegas: Optimization of ozone-biological activated carbon for potable reuse applications, Graduated in 2015.

- Committee Member – John Gonzales, Environmental Engineering, University of Nevada, Las Vegas: Fluoride and phosphorus removal from industrial and domestic wastewaters using cerium chloride, Graduated in 2015.
- Committee Member – Michael Strileski, Environmental Engineering, University of Nevada, Las Vegas: Phosphorus removal from EBPR sludge dewatering liquors using lanthanum chloride, aluminum sulfate and ferric chloride, Graduated in 2013.
- Committee Member – Xiaolu Wei, Water Resources Management, University of Nevada, Las Vegas: Understanding selenium distribution in Lake Mead using hydrodynamic based water quality model, Graduated in 2013.
- **Committee Chair** – Marco Velarde, Environmental Engineering, University of Nevada, Las Vegas: Combination of ozone and biological filtration for advanced wastewater treatment, Current.
- **Committee Chair** – Mayara Aquino, Environmental Engineering, University of Nevada, Las Vegas: Disinfection byproduct formation following ozone and biological filtration in potable reuse applications, Current.
- **Committee Chair** – Mayra Sarria, Environmental Engineering, University of Nevada, Las Vegas: Use of fluorescence to monitor the potential for organic fouling on membranes in potable reuse applications, Current.
- Committee Member – Regina Dennis, Environmental Engineering, University of Nevada, Las Vegas: Contribution of underground storage tanks and septic tanks to volatile organic carbon and nitrate contamination in groundwater wells, Current.
- Committee Member – Stefan Walston, Environmental Science, University of Arizona: Quantifying the effects of wastewater treatment on the proliferation of antibiotic resistance genes, Graduated in 2013.
- Undergraduate Research (Advisor for 4 students)
 - Advisor – Westin Chan, Microbiology, University of Nevada, Reno: Monitoring the quality of urban runoff in the Las Vegas Valley, Nevada EPSCoR, Summer of 2015.
 - Advisor – Jhoana Duran, Civil Engineering, University of Nevada, Las Vegas: Detection of the urinary metabolite urobilin using fluorescence spectroscopy and zinc addition, 2014-2015.
 - Advisor – Casey Barber, Biology, University of Nevada, Las Vegas: Assessing the lead leaching potential of reflective glass beads used for lane striping on Nevada roads, Nevada Department of Transportation Internship, Summer of 2014.
 - Advisor – Marco Velarde, Civil Engineering, University of Nevada, Las Vegas: Construction of sequencing batch reactors for simulated biological wastewater treatment, Summer of 2013.
 - Advisor – Mayara Aquino, Civil Engineering, University of Nevada, Las Vegas: Standardization of fluorescence excitation emission matrices and their use in characterizing wastewater identity, 2012-2013.
- High School Research (Advisor for 1 student)
 - Advisor – Hailey Peterson, Faith Lutheran High School: Enhanced coagulation for the removal of viruses from drinking water, Summer of 2015.
- Elementary School Research (Advisor for 1 student)
 - Advisor – Sofia Martinez, Our Lady of Las Vegas School: Assessment of bacteriological water quality of tap water, Fall of 2015.

REFERENCES

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