

ZHIWU (DREW) WANG

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SUMMARY

Received \$2,589,433 personal share of funding; Published 53 journal articles and 17 book chapters; Published work has been cited for 1987 times to date (from [Google Scholar](#)); Earned an h-index score of 21 and i10-index score of 28 (from [Google Scholar](#)); Graduated 2 Ph.D. and 3 MS Thesis students; and Taught 10 courses.

PROFESSIONAL

2015 - present: Assistant Professor, Civil & Environmental Engineering, Virginia Tech
2017 - present: Co-Director, Center for Applied Water Research and Innovation, Virginia Tech
2014 - 2015: Director, Renewable Energy Program, The Ohio State University
2011 - 2014: Visiting Assistant Professor, The Ohio State University
2009 - 2011: Postdoctoral Research Associate, Oak Ridge National Laboratory
2007 - 2009: Postdoctoral Research Associate, Washington State University
2006 - 2007: Project Officer, Nanyang Technological University, Singapore

EDUCATION

2003 - 2007: Ph.D. degree in Environmental Engineering

Nanyang Technological University, Singapore

Dissertation: Insights into mechanism of aerobic granulation in sequencing batch reactor

Advisors: Joo Hwa Tay and Yu Liu

1996 - 2000: Bachelor Degree in Environmental (Water Supply & Drainage) Engineering

Harbin Institute of Technology, P.R.China

REGISTRATION

Registered Professional Engineer since 2011, Montana State No. 20462

RESEARCH INTERESTS

Technical Innovation at the Nexus of Nutrient-Energy-Water (NEW)

- **Water/wastewater treatment:** aerobic granulation; thermal hydrolysis, anaerobic digestion, sludge dewatering, odor control, ozonation-biofiltration, forward osmosis.
- **Nutrient removal/recovery:** partial denitrification-anammox, fermentative bio-P, biochar
- **Waste conversion to bioenergy/bioproducts:** fermentation of ethanol, butanol, PHAs, etc.

PUBLICATIONS

indicates my graduate students, * indicates me as the corresponding author.

Peer Reviewed Journal papers

1. **Sun Y.W.#**, Angelotti B., Brooks M.A., and **Wang Z.W.*** (2020) Feast/Famine Ratio Determined Continuous Flow Aerobic Granulation, *Science of the Total Environment*, DOI: <https://doi.org/10.1016/j.scitotenv.2020.141467>
2. Jin Q., **An Z.#**, Damle A., Poe N., Wu J., Wang H., **Wang Z.W.***, Huang H. (2020) High acetone-butanol-ethanol production from food waste by recombinant *Clostridium saccharoperbutylacetonicum* in batch and continuous immobilized-cell fermentation, *ACS Sustainable Chemistry & Engineering*, DOI: <https://doi.org/10.1021/acssuschemeng.0c02529>
3. Alfredo K., **Lin J.#**, Islam A., and Wang Z.W. (2020) Impact of activated carbon-block point-of-use (POU) filters on chloraminated water quality, *AWWA Water Science*, 2(3) e1180. DOI: <https://doi.org/10.1002/aws2.1180>
4. **Zhang D.#**, Strawn M., Broderick T., Novak J.T., **Wang Z.W.*** (2020) Effects of anaerobic digester solids retention time on odor emission and dewaterability of biosolids subjected to various shear intensity, polymer doses, and storage duration, *Environmental Science: Water Research & Technology*, 6, 1588-1596 DOI: <https://doi.org/10.1039/D0EW00028K>
5. **Zhang D.#**, **Sun Y.W.#**, Angelotti B., **Wang Z.W.*** (2020) Understanding the dewaterability of aerobic granular sludge formed in continuous flow bioreactors treating real domestic wastewater: is it really better than that of the activated sludge? *Journal of Water Process Engineering*, 36, 101253 DOI: <https://doi.org/10.1016/j.jwpe.2020.101253>
6. **Zhang D.#**, Feng Y.M., Huang H.B., Khunjar W.O., **Wang Z.W.*** (2020) Recalcitrant Dissolved Organic Nitrogen Formation in Thermal Hydrolysis Pretreatment of Municipal Sludge, *Environment International*, 138, 105629, DOI: <https://doi.org/10.1016/j.envint.2020.105629>
7. **Sun Y.#**, Vaidya R., Khunjar W.O., Rosenfeldt E., Selbes M., Wilson C., Bott C.B., Titcomb M., **Wang Z.W.*** (2019) Mathematical modeling of biologically active filtration (BAF) for potable water production applications, *Water Research*, 167, 115128 DOI: <https://doi.org/10.1016/j.watres.2019.115128>
8. **Kent T.R.#**, **Sun Y.W.#**, **An Z.H.#**, Bott C.B., **Wang Z.W.*** (2019) Mechanistic Understanding of the NOB Suppression by free ammonia inhibition in continuous flow aerobic granulation bioreactors, *Environment International*, 131, 105005 DOI: <https://doi.org/10.1016/j.envint.2019.105005>
9. Yu D.J., **Sun Y.W.#**, Wang W.J., O'Keefe S.F., Neilson A.P., Feng H., **Wang Z.W.**, Huang H.B. (2019) Recovery of protein hydrolysates from brewer's spent grain using enzyme and ultrasonication, *International Journal of Food Science and Technology* DOI: <https://doi.org/10.1111/ijfs.14314>
10. **Shah P.#** and **Wang Z.W.*** (2019) Using digital polymerase chain reaction to characterize microbial communities in wetland mesocosm soils under different vegetation and seasonal nutrient loadings, *Science of the Total Environment*, 689, 269-277 DOI: <https://doi.org/10.1016/j.scitotenv.2019.06.305>
11. **Sun Y.W.#**, Angelotti B., and **Wang Z.W.*** (2019) Continuous-flow aerobic granulation in plug-flow bioreactors fed with real domestic wastewater, *Science of the Total Environment*, 688, 762-770, DOI: <https://doi.org/10.1016/j.scitotenv.2019.06.291>
12. **Zhang D.#**, Angelotti B., Schlosser E., and **Wang Z.W.*** (2019) Using cerium chloride to control soluble orthophosphate concentration and improve the dewaterability of sludge: Part II. A case study, *Water Environment Research*, DOI: <https://doi.org/10.1002/wer.1142>

13. **Zhang D.#**, Angelotti B., Schlosser E., Novak J.T., and **Wang Z.W.*** (2019) Using cerium chloride to control soluble orthophosphate concentration and improve the dewaterability of sludge: Part I. mechanistic understanding, *Water Environment Research*, DOI: <https://doi.org/10.1002/wer.1142>
14. **Li X.J.#**, **Sun Y.W.#**, **Wang Z.W.***, He Z. (2019) Theoretical understanding of the optimum conditions for a mainstream granular nitrification-anammox reactor coupled with anaerobic pretreatment, *Science of The Total Environment*, 669 (15): 683-691, DOI: <https://doi.org/10.1016/j.scitotenv.2019.03.117>
15. Ma J., Xie S., Yu L., Zhen Y., Zhao Q., Frear C., Chen S., **Wang Z.W.** and Shi Z. (2019) pH shaped Kinetic characteristics and microbial community of food waste hydrolysis and acidification. *Biochemical Engineering Journal*, 146, 52-59 DOI: <https://doi.org/10.1016/j.bej.2019.03.004>
16. **Sun Y.W.#**, Angelotti B., Brooks M., Dowbiggin B., Evans P.J., Devins B., and **Wang Z.W.*** (2018) A Pilot-Scale Investigation of Disinfection By-Product Precursor and Trace Organic Removal Mechanisms in Ozone-Biologically Activated Carbon Treatment for Potable Reuse, *Chemosphere*, 210:539-549, DOI: <https://doi.org/10.1016/j.chemosphere.2018.06.162>
17. **Kent, T.R.#**, Bott, C.B., and **Wang Z.W.*** (2018) State of the Art of Aerobic Granulation in Continuous Flow Bioreactors, *Biotechnology Advances*, 36(4): 1139-1166 DOI: <https://doi.org/10.1016/j.biotechadv.2018.03.015>
18. **Zhang D.#**, Strawn M., Novak J.T., and **Wang Z.W.*** (2018) Kinetic modeling of the effect of solids retention time on Methanethiol dynamics in Anaerobic Digestion, *Water Research*, 138, 301-311, DOI: <https://doi.org/10.1016/j.watres.2018.03.035>
19. Cui Y.W., Gong X.Y., Shi Y.P. and **Wang Z.W.** (2017) Salinity effect on production of PHA and EPS by *Haloferax mediterranei*, *RSC Advances*, 7(84): 53587-53595, DOI: <https://doi.org/10.1039/C7RA09652E>
20. **Sun Y.W.#**, **Zhang D.#**, and **Wang Z.W.*** (2017) The potential of using biological nitrogen removal technique for stormwater treatment, *Ecological Engineering*, 106: 482-495, DOI: <https://doi.org/10.1016/j.ecoleng.2017.05.045>
21. Luo S., **Wang Z.W.***, and He Z. (2017) Mathematical modeling of the dynamic behavior of an integrated photo-bioelectrochemical system for simultaneous wastewater treatment and bioenergy recovery, *Energy*, 124: 227-237, DOI: <https://doi.org/10.1016/j.energy.2017.02.039>
22. Cui Y.W., Zhang H.Y., Ji S.Y. and **Wang Z.W.** (2016) Kinetic Analysis of the Temperature Effect on Polyhydroxyalkanoate Production by *Haloferax mediterranei* in Synthetic Molasses Wastewater, *Journal of Polymers and the Environment*, 1-9, DOI: <https://doi.org/10.1007/s10924-016-0807-2>
23. Wang L.L., Li W.Z., Wang Z.J., **Wang Z.W.**, Sui C., Li Y. (2016) Effect of digestate application depth on soil nitrogen volatilization and vertical distribution, *International Journal of Agricultural & Biological Engineering*, 9: 101-107, , DOI: <https://doi.org/10.3965/j.ijabe.20160905.2396>
24. **Wang Z.W.***, **Xu F.Q.#**, **Manchala, K.R.#**, **Sun Y.W.#**, and Li Y. (2016) Fractal-like kinetics of the solid-state anaerobic digestion, *Waste Management*, 53: 55-61, DOI: <https://doi.org/10.1016/j.wasman.2016.04.019>
25. Xu F.Q., Li Y.B. and **Wang Z.W.*** (2015) Mathematical modeling of solid-state anaerobic digestion, *Progress in Energy and Combustion Science*, 51: 49-66, DOI: <https://doi.org/10.1016/j.peccs.2015.09.001>
26. Xu F.Q., **Wang Z.W.***, and Li Y.B. (2016) Converting Solid Waste into Renewable Energy with Solid-State Anaerobic Digestion, *Resource Magazine*, 23(4): 4-5
27. Sheets J.P., Yang L.C., Ge X.M., **Wang Z.W.**, and Li Y.B., (2015) Beyond land application: Emerging technologies for the treatment and reuse of anaerobically digested agricultural and food waste, *Waste Management*, 44: 94-115, DOI: <https://doi.org/10.1016/j.wasman.2015.07.037>

28. Morrell-Falvey, J.L., Elkins, J.G. and **Wang, Z.W.***, (2015) Determination of the cellulase activity distribution in *Clostridium thermocellum* and *Caldicellulosiruptor obsidiansis* cultures using a fluorescent substrate. *Journal of environmental sciences*, 34: 212-218, DOI: <https://doi.org/10.1016/j.jes.2015.03.009>
29. Xu F.Q., **Wang Z.W.** and **Li Y.B.**, (2014) Predicting the methane yield of lignocellulosic biomass in mesophilic solid-state anaerobic digestion based on feedstock characteristics and process parameters, *Bioresource Technology*, 173:168–176, DOI: <https://doi.org/10.1016/j.biortech.2014.09.090>
30. Xu F.Q., **Wang Z.W.***, Tang L. and Li Y.B., (2014) A mass diffusion-based interpretation of the total solids effect on solid-state anaerobic digestion of cellulosic biomass, *Bioresource Technology*, 167:178-185, DOI: <https://doi.org/10.1016/j.biortech.2014.05.114>
31. Li X.K., Wang S.T., **Wang Z.W.**, and Ma J. (2013) In-depth characterization of secondary effluent from a conventional municipal wastewater treatment plant in northern China for tertiary treatment, *Water Science and Technology*, 69(7):1482-1488, DOI: <https://doi.org/10.2166/wst.2014.040>
32. **Wang Z.W.*** and Li Y.B., (2013) A theoretical derivation of the Contois equation for kinetic modeling of microbial growth on insoluble substrate, *Biochemical Engineering Journal*, 82(15) 134-138, DOI: <https://doi.org/10.1016/j.bej.2013.11.002>
33. **Wang Z.W.***, Lee S.H., Elkins J.G., Li Y.C., Hamilton-Brehm S., Morrell-Falvey, J.L. (2013) Continuous live cell imaging of cellulose attachment by microbes under anaerobic and thermophilic conditions using confocal microscopy, *Journal of Environmental Sciences*, 25(5): 1-8, DOI: [https://doi.org/10.1016/S1001-0742\(12\)60104-1](https://doi.org/10.1016/S1001-0742(12)60104-1)
34. Ma J.W., Frear C., **Wang Z.W.**, Yu L., Zhao Q.B., Li X.J., Chen S.L. (2012) A simple methodology for rate-limiting step determination for anaerobic digestion of complex substrates and effect of microbial community ratio, *Bioresource Technology*, 134: 391-395, DOI: <https://doi.org/10.1016/j.biortech.2013.02.014>
35. **Wang Z.W.**, Elkins J.G., Morrell-Falvey J.L. (2011) Spatial and temporal dynamics of cellulose degradation and biofilm **formation** by *Caldicellulosiruptor obsidiansis* and *Clostridium thermocellum*, *AMB Express* 1:30-40, DOI: <https://doi.org/10.1186/2191-0855-1-30>
36. Borole A.P., Reguera G., Ringeisen B., **Wang Z.W.**, Feng Y.J. and Kim, B.H. (2011) Electro-Active Biofilms: Current Status and Future Research Needs, *Energy and Environmental Science* 4: 4813-4834, DOI: <https://doi.org/10.1039/C1EE02511B>
37. **Wang Z.W.**, Hamilton-Brehm S.D., Elkins J.G., Lochner A., Morrell-Falvey J.L. (2010) Mathematical modeling of hydrolysate diffusion and utilization in cellulolytic biofilms of the extreme thermophile *Caldicellulosiruptor obsidiansis*, *Bioresource Technology* 102(3):3155-3162, DOI: <https://doi.org/10.1016/j.biortech.2010.10.104>
38. **Wang Z.W.**, Ma J.W. and Chen S.L. (2010) Bipolar effects of settling time on active biomass retention in anaerobic sequencing batch reactors digesting flushed dairy manure, *Bioresource technology* 102(2):697-702, DOI: <https://doi.org/10.1016/j.biortech.2010.08.045>
39. Frear C., **Wang Z.W.**, Li C.L. and Chen S.L. (2010) Biogas potential and microbial population distributions in flushed dairy manure and implications on anaerobic digestion technology, *Journal of Chemical Technology & Biotechnology* 86(1):145–152, DOI: <https://doi.org/10.1002/jctb.2484>
40. **Wang Z.W.**, Xie S. Liu Y. and Hung Y.T. (2009) Resistance of Aerobic Granules to Cr³⁺-Containing Wastewater, *International Journal of Environmental Engineering Science* 1(2):169-178
41. **Wang Z.W.** and Chen S.L. (2009) Potential of biofilm-based biofuel production, *Applied Microbiology and Biotechnology* 83(1):1-18, DOI: <https://doi.org/10.1007/s00253-009-1940-9>

42. Li Y., Liu Y. and **Wang Z.W.** (2009) Stoichiometric analysis of dissolved organic carbon flux into storage and growth in aerobic granules culture. *Biotechnology Journal* 4(2): 238-246, DOI: <https://doi.org/10.1002/biot.200800191>
43. **Wang Z.W.**, Liu Y. Tay J.H. (2007) Biodegradability of extracellular polymeric substances produced by aerobic granules. *Applied Microbiology and Biotechnology* 74(2): 462-466, DOI: <https://doi.org/10.1007/s00253-006-0686-x>
44. **Wang Z.W.** and Liu Y. (2007) Mechanism of calcium accumulation in acetate-fed aerobic granule. *Applied Microbiology and Biotechnology* 74(2): 467-473, DOI: <https://doi.org/10.1007/s00253-006-0540-1>
45. **Wang Z.W.**, Li Y., Zhou J.Q. and Liu Y. (2006) The influence of short-term starvation on aerobic granules. *Process Biochemistry* 41: 2373-2378, DOI: <https://doi.org/10.1016/j.procbio.2006.06.009>
46. **Wang Z.W.**, Liu Y. and Tay J.H. (2006) The role of SBR mixed liquor volume exchange ratio in aerobic granulation. *Chemosphere* 62: 767-771, DOI: <https://doi.org/10.1016/j.chemosphere.2005.04.081>
47. **Wang Z.W.**, Liu Y. and Tay J.H. (2005) Distribution of EPS and cell surface hydrophobicity in aerobic granules *Applied Microbiology and Biotechnology* 69(4): 469-473, DOI: <https://doi.org/10.1007/s00253-005-1991-5>
48. Liu Y. and **Wang Z.W.** (2008) Uncertainty of preset-order kinetic equations in description of biosorption data. *Bioresource Technology* 99(8): 3309-3312, DOI: <https://doi.org/10.1016/j.biortech.2007.06.026>
49. Liu Y., **Wang Z.W.**, Qin L., Liu Y.Q. and Tay J.H. (2005) Selection pressure-driven aerobic granulation in a sequencing batch reactor. *Applied Microbiology and Biotechnology* 67(1): 26-32, DOI: <https://doi.org/10.1007/s00253-004-1820-2>
50. Liu Y., **Wang Z.W.** and Tay J.H. (2005) A unified theory for upscaling aerobic granular sludge sequencing batch reactors. *Biotechnology Advances* 23(5): 335-344, DOI: <https://doi.org/10.1016/j.biotechadv.2005.04.001>
51. Liu Y., **Wang Z.W.**, Liu Y.Q., Qin L. and Tay J.H. (2005) A generalized model for settling velocity of aerobic granular sludge. *Biotechnology Progress* 21(2): 621-626, DOI: <https://doi.org/10.1021/bp049674u>
52. Liu Y., Liu Y.Q., **Wang Z.W.**, Yang S.F. and Tay J.H. (2005) Influence of substrate surface loading on the kinetic behavior of aerobic granules. *Applied Microbiology and Biotechnology* 67(4): 484-488, DOI: <https://doi.org/10.1007/s00253-004-1785-1>
53. Ivanov V., Tay S.T.L., Liu Q.S., Wang X.H., **Wang Z.W.**, and Tay J.H. (2005) Formation and structure of granulated microbial aggregates used in aerobic wastewater treatment. *Water Science and Technology* 52(7): 13-19, DOI: <https://doi.org/10.2166/wst.2005.0175>

Book Chapters

1. Wang S., **Zhaohui An#**, **Wang Z.W.*** (2020) Bioconversion of methane to chemicals and fuels by methane oxidizing bacteria. In: "Advances in Bioenergy, volume 5", Elsevier Inc., Cambridge, MA. DOI: <https://doi.org/10.1016/bs.aibe.2020.04.005>
2. **Manchala K.R.#**, **Sun Y.#**, **Zhang D.#** and **Wang Z.W.*** (2016) Anaerobic Digestion Modeling. In: "Advance in Bioenergy 2", Elsevier Inc., Cambridge, MA. DOI: <https://doi.org/10.1016/bs.aibe.2017.01.001>

3. **Wang Z.W.** and Liu Y. (2011) Dissolved oxygen biological process for sludge reduction. In: “Biological sludge minimization and biomaterials/bioenergy recovery technologies”, John Wiley & Sons, Inc., NY. DOI: <https://doi.org/10.1002/9781118309643.ch7>
4. Shen L., **Wang Z.W.**, Fang S.Q. and Liu Y., (2008) Biosorption isotherms and thermodynamics. In: “Fundamentals and applications of biosorption isotherms, kinetics and thermodynamics”, Nova Science Publishers, NY.
5. Shen L., Liu Y and **Wang Z.W.**, (2008) Biosorption kinetics. In: “Fundamentals and applications of biosorption isotherms, kinetics and thermodynamics”, Nova Science Publishers, NY.
6. **Wang Z.W.** and Liu Y. (2007) Aerobic granulation at different SBR cycle times. In: “Wastewater purification: aerobic granulation in sequencing batch reactor”, Taylor & Francis Group LLC - CRC Press, Florida. DOI: <https://doi.org/10.1201/9781420053685.ch3>
7. **Wang Z.W.** and Liu Y. (2007) Roles of SBR volume exchange ratio and discharge time in aerobic granulation. In: “Wastewater purification: aerobic granulation in sequencing batch reactor”, Taylor & Francis Group LLC - CRC Press, Florida. DOI: <https://doi.org/10.1201/9781420053685.ch5>
8. **Wang Z.W.** and Liu Y. (2007) Internal structure of aerobic granule. In: “Wastewater purification: aerobic granulation in sequencing batch reactor”, Taylor & Francis Group LLC - CRC Press, Florida. DOI: <https://doi.org/10.1201/9781420053685.ch11>
9. **Wang Z.W.** and Liu Y. (2007) Biodegradability of extracellular polymeric substances produced by aerobic granules. In: “Wastewater purification: aerobic granulation in sequencing batch reactor”, Taylor & Francis Group LLC - CRC Press, Florida. DOI: <https://doi.org/10.1201/9781420053685.ch12>
10. **Wang Z.W.**, Li Y. and Liu Y. (2007) Calcium accumulation in acetate-fed aerobic granule. In: “Wastewater purification: aerobic granulation in sequencing batch reactor”, Taylor & Francis Group LLC - CRC Press, Florida. DOI: <https://doi.org/10.1201/9781420053685.ch13>
11. Li Y., **Wang Z.W.** and Liu Y. (2007) Diffusion of substrate and oxygen in aerobic granule. In: “Wastewater purification: aerobic granulation in sequencing batch reactor”, Taylor & Francis Group LLC - CRC Press, Florida. DOI: <https://doi.org/10.1201/9781420053685.ch8>
12. Liu Y., **Wang Z.W.** (2007) Selection pressure theory for aerobic granulation in sequencing batch reactor. In: “Wastewater purification: aerobic granulation in sequencing batch reactor”, Taylor & Francis Group LLC - CRC Press, Florida. DOI: <https://doi.org/10.1201/9781420053685.ch6>
13. Liu Y., **Wang Z.W.** (2007) Essential roles of cell hydrophobicity in aerobic granulation. In: “Wastewater purification: aerobic granulation in sequencing batch reactor”, Taylor & Francis Group LLC - CRC Press, Florida. DOI: <https://doi.org/10.1201/9781420053685.ch9>
14. Liu Y., **Wang Z.W.** (2007) Essential roles of extracellular polymeric substances in aerobic granulation. In: “Wastewater purification: aerobic granulation in sequencing batch reactor”, Taylor & Francis Group LLC - CRC Press, Florida. DOI: <https://doi.org/10.1201/9781420053685.ch10>
15. Liu Y., **Wang Z.W.** and Liu Q.S (2007) Influence of starvation on aerobic granulation. In: “Wastewater purification: aerobic granulation in sequencing batch reactor”, Taylor & Francis Group LLC - CRC Press, Florida. DOI: <https://doi.org/10.1201/9781420053685.ch14>
16. Liu Y., **Wang Z.W.** and Liu Q.S (2007) Improved stability of aerobic granules by selecting slow-growing bacteria. In: “Wastewater purification: aerobic granulation in sequencing batch reactor”, Taylor & Francis Group LLC - CRC Press, Florida. DOI: <https://doi.org/10.1201/9781420053685.ch16>
17. **Wang Z.W.** and Liu Y. (2007) Modeling of heavy metal biosorption by aerobic granules. In: “Focus on Colloid and Surface Research”, ed. Columbus F., Nova Science Publishers, Inc., New York

Conference Presentations

1. **Zhang D.#**, Broderick T., Strawn M., Santha H., **Wang Z.W.*** (2019) A Comparison Between Temperature-Phased Anaerobic Digestion and Thermal Hydrolysis As A Pretreatment Method for Enhanced Anaerobic Digestion of Biosolids, WFETEC 2019, Chicago, September 23-25
2. **Zhang D.#**, Angelotti B., Schlosser E., **Wang Z.W.*** (2019) Orthophosphate Control & Sludge Dewaterability Improvement by Using Cerium Chloride, WFETEC 2019, Chicago, September 23-25
3. **An Z.H.#**, **Kent T.R.#**, Bott C., **Wang Z.W.*** (2019) Resistance of NOB to free ammonia inhibition developed over long-term acclimation in continuous flow aerobic granulation reactor performing partial nitrification, WFETEC 2019, Chicago, September 23-25
4. **Sun Y.W.#**, Vaidya R., Khunjar W., Rosenfeldt E., Selbes M., Wilson C., Bott C.B., **Wang Z.W.*** (2019) Model-guided strategies for headloss control in the biological activated carbon filters for potable water reuse, WFETEC 2019, Chicago, September 23-25
5. **Kent T.R.#**, **Sun Y.W.#**, **An Z.H.#**, Bott C., **Wang Z.W.*** (2019) The Impact of Free Ammonia Inhibition and Granule Size on the suppression of Nitrite Oxidizing Bacteria in Continuous Flow Bioreactors, WFETEC 2019, Chicago, September 23-25
6. **Sun Y.W.#**, Angelotti B., Brooks M., **Wang Z.W.*** (2019) Continuous flow aerobic granulation in real municipal wastewater: a pilot-scale evaluation of the effects of feast/famine and sludge settling velocity selection, WFETEC 2019, Chicago, September 23-25
7. **Zhang D.#**, Angelotti B., Schlosser E., **Wang Z.W.*** (2019) Dissolved phosphate control & sludge dewaterability improvement by using cerium chloride, WaterJam 2019, Virginia Beach, Virginia, September 9-12
8. **Kent T.R.#**, **Sun Y.W.#**, **An Z.H.#**, Bott C., **Wang Z.W.*** (2019) The impact of granule size on the inhibition of nitrite oxidizing bacteria by free ammonia in continuous flow bioreactors treating, WaterJam 2019, Virginia Beach, Virginia, September 9-12
9. **An Z.H.#**, **Kent T.R.#**, Bott C., **Wang Z.W.*** (2019) Free ammonia resistance of NOB developed in continuous flow aerobic granulation reactor performing partial nitrification, WaterJam 2019, Virginia Beach, Virginia, September 9-12
10. **Sun Y.W.#**, Vaidya R., Khunjar W., Rosenfeldt E., Selbes M., Wilson C., Bott C.B., **Wang Z.W.*** (2019) Mathematical modeling of deep-bed biofiltration to describe contaminant control and headloss development, ASABE 2019, Boston, Massachusetts, July 8-10
11. **Sun Y.W.#**, Angelotti B., Brooks M., **Wang Z.W.*** (2019) Pilot-scale evaluation of the effects of settling velocity-based selection and feast/famine conditions on continuous flow aerobic granulation, ASABE 2019, Boston, Massachusetts, July 8-10
12. **Kent T.R.#**, **Sun Y.W.#**, **An Z.H.#**, Bott C.B., **Wang Z.W.*** (2019) Free Ammonia Inhibition as a Means of Suppressing Nitrite Oxidizing Bacteria in Differently Sized Granules Treating Agricultural Wastewater, ASABE 2019, Boston, Massachusetts, July 8-10
13. **An Z.H.#**, Huang H.B., Shuai D.M., **Wang Z.W.*** (2019) Granulation of *Clostridium beijerinckii* P260 in continuous flow reactors converting food waste to butanol simultaneously recovered through pervaporation membrane, ASABE 2019, Boston, Massachusetts, July 8-10
14. **Zhang D.#**, Broderick T., Strawn M., Santha H., **Wang Z.W.*** (2019) Process Intensification of Anaerobic Digestion through Temperature Phased Anaerobic Digestion and Thermal Hydrolysis Pretreatment, ASABE 2019, Boston, Massachusetts, July 8-10

15. **An Z.H.#, Kent T.R.#, Bott, C.B., Wang Z.W.*** (2019) Stabilization of full or partial nitrification aerobic granules in continuous flow reactors without hydraulic selection pressure, ASABE 2019, Boston, Massachusetts, July 8-10
16. **An Z.H.#, Kent T.R.#, Bott C.B., Wang Z.W.*** (2019) Free ammonia resistance of NOB in continuous flow air-lift reactor performing partial nitrification, ASABE 2019, Boston, Massachusetts, July 8-10
17. **Zhang D.#, Khunjar W., Wang Z.W.*** (2019) The effect of pH and ferric ion on recalcitrant dissolved organic nitrogen production from the thermal hydrolysis of biosolids, ASABE 2019, Boston, Massachusetts, July 8-10
18. **Zhang D.#, Angelotti B., Schlosser E., and Wang Z.W.*** (2019) Using Cerium Chloride to Control Soluble Orthophosphate Concentration and Improve the Dewaterability of Sludge, WEF/IWA Residuals and Biosolids Conference 2019, Fort Lauderdale, Florida, May 7-10
19. **Zhang D.# and Wang Z.W.*** (2018) Using cerium salt as an economical precipitant for complete phosphorus recovery and effective dewatering of anaerobic digestate, ASABE 2018, Detroit, Michigan, July 29- Aug 1.
20. **Sun Y.W.# and Wang Z.W.*** (2018) Fast-growing can be taken as an alternative strategy to fast-settling by microorganism to survive extreme selection pressures in aerobic granulation reactors, ASABE 2018, Detroit, Michigan, July 29- Aug 1.
21. **Zhang D.# Novak J, and Wang Z.W.*** Manipulating methanethiol formation and degradation rates for odor emission control, doi:10.13031/aim.201701221, 2017 ASABE, Spokane, Washington, July 16-July 19
22. **Sun Y.W.# and Wang Z.W.*** (2017) Biological nitrogen removal of stormwater, ASABE 2017, Spokane, Washington, July 16-July 19
23. Xu F.Q., **Wang Z.W.**, Li Y., (2014) Mathematical modeling of solid-state anaerobic digestion system for bioenergy production and waste management. ASABE 2014, Montreal, Quebec Canada July 13 – July 16.
24. **Manchala K.R.#, Novak J.T., and Wang Z.W.*** (2016) Impact of surfactant addition on anaerobic bioreactor landfill performance. WEF/IWA Residuals and Biosolids Conference 2016, Orlando, Florida July 17 – July 20

TEACHING

Courses previously taught at Virginia Tech:

CEE 3104 Introduction to Environmental Engineering (Asynchronized online course, 3-credit, Spring and Summer 2018-2019)

CEE 4174 Solid and Hazardous Waste Management (Synchronized online course, 3-credit, Fall 2015-2019)

CEE 5100 Stormwater Treatment (Synchronized online course, 3-credit, Spring 2016, 2017, 2019)

CEE 5984 Biofilms Science and Technology (Synchronized online course, 3-credit, Spring 2017, 2018)

Courses previously taught at The Ohio State University:

2010T Introduction to Renewable Energy (3-credit, Fall 2012, 2013, 2014)

2020T Bioconversion Systems (3-credit, Spring 2012, 2013, 2014, 2015)

2030T Biomass Feedstock Evaluation (3-credit, Fall 2012, 2013, 2014)

2040T Project planning, Development, and Operation (3-credit, Spring 2012, 2013, 2014, 2015)

2189T Renewable Energy Practicum (2-credit, 2012, 2013, 2014, 2015)

2191T Renewable Energy Internship (2-credit, Summer 2012, 2013, 2014)

1201T Exploring Renewable Energy (0.5-credit, Fall 2012, 2013, 2014)

ADVISEES

Current Ph.D. students

- Karthik Reddy Manchala (Spring 2016 – present)
- Alexandria Gagnon (Fall 2016 – present)
- Zhaohui An (Fall 2018 – present)
- Hao Luo (Spring 2019 – present)
- Jiefu Wang (Fall 2019 – present)
- Jeffrey Nicholson (Fall 2014 – present)

Current M.S. students

- Adam Taylor (Fall 2016 – present)
- Matt Wisniewski (Fall 2016 – present)

Graduated Ph.D. students

- Yewei Sun (Fall 2016 – Spring 2020), currently as a Scientist in Hazen & Sawyer
Dissertation: [Advanced Biofilm and Aerobic Granulation Technologies for Water and Wastewater Treatment](#)
- Dian Zhang (Spring 2017 – Spring 2020), currently as a Civil Engineer in Stantec
Dissertation: [Effects of process intensification techniques on biosolids management](#)

Graduated M.S. students

- Parita Raj Shah (Fall 2016 - Fall 2018), currently as a Civil Engineer in SCS Engineers
Thesis: [Evaluation of Digital PCR \(dPCR\) for the Quantification of Soil Nitrogen Turnover Bacteria in Wetland Mesocosms in Response to Season, Fertilization, and Plant Species Richness](#)
- Timothy Robert Kent (Fall 2016 - Fall 2018), currently as a Civil Engineer in AECOM
Thesis: [Mechanistic Understanding of the NOB Suppression by Free Ammonia Inhibition in Continuous Flow Aerobic Granulation Bioreactors \(Received 2019 AEESP thesis award\)](#)
- Jie Lin (Fall 2016 - Spring 2018), currently as a MS in Operations Research, Columbia University
Thesis: [Statistical evaluation of the factors causing microbial growth in point-of-use filters](#)
- Yewei Sun (Fall 2015 - Summer 2016), currently as a Ph.D. student in Environmental Engineering, Virginia Tech
Project Report: Biological nitrogen removal of stormwater

Visiting Scholar

- Dong Li (2017, Beijing University of Technology, China)
- Youwei Cui (2018, Beijing University of Technology, China)
- Li Tang (2013-2014, Shanghai Jiaotong University, China)

HONORS AND AWARDS RECEIVED BY ADVISEES

- Jiefu Wang, Recipient of Sussman Foundation Internship Award, 03/2020
- Hao Luo, Recipient of Sussman Foundation Internship Award, 03/2020

- Yewei Sun, Recipient of 1st place award in water poster competition in WaterJam, 09/2019
- Yewei Sun, Featured Speaker of WEFTEC 2019, 09/2019
- Yewei Sun, Recipient of Sonny Roden Graduate Scholarship, 09/2019
- Yewei Sun, Recipient of Tom Grizzard Scholarship, 09/2019
- Yewei Sun, Featured Speaker in 2019 WEFTEC conference, 09/2019
- Zhaohui An, Recipient of Sussman Foundation Internship Award, 03/2019
- Timothy Robert Kent, Recipient of AEESP Master's Thesis Award, 05/2019
- Yewei Sun, Recipient of AEESP student travel award, 06/2017
- Dian Zhang, Recipient of Sussman Foundation Internship Award, 03/2017
- Jie Lin, Recipient of NASSCO Scholarship, 04/2017
- Yewei Sun, Recipient of Sussman Foundation Internship Award, 03/2016

SERVICE

Departmental Service

- Served as the member of distance learning committee.
- Served in the doctoral qualifying exam committee, 2015-Present
 - Katharine Santizo- Hester
 - Craig Powers- Marr
 - Ryan Costello
 - Dongmei Alvi Wang
 - Yang Song
 - Qishen Huang
 - Seth Lotts
 - Maria Amaya
 - Conrad Brendel
 - Michael Lee
 - Anmol Haque
- Served in the thesis and dissertation committee, 2015-Present
 - Mancell-egala Abdul (Ph.D.)
 - Mah Joshua (Ph.D.)
 - Ramola Vaidya (Ph.D.)
 - Stephanie Klaus (Ph.D.)
 - Jain Akshay (M.S.)
 - Syeed Md Iskander (Ph.D.)
 - Pranav Sai Shankar Sampara (M.S.)
 - Shiqiang Zou (Ph.D.)
 - Erin Lynn Ress (M.S.)
 - Ke Li (M.S.)
 - Lu Guan (M.S.)
 - Shuai Luo (Ph.D.)
 - Pengyu Yan (M.S.)
 - Jing Wang (M.S.)
 - Xiaojin Li (Ph.D.)
 - Yishuang Wang (M.S.)
 - Zhenyu Wu (M.S.)

Victory Oghenerabome Odize (Ph.D.)
Jian Li (Ph.D.)
Matthew Stephen Ferby (M.S.)
Bin Xu (Ph.D.)
Zixuan Wang (M.S.)

- Served in the none-thesis MS degree committee, 2015-Present
Tue Phung (M.S.)
Nevetha Ramesh (M.S.)
Michael Anthony Gallo (M.S.)
Jay Sim (M.S.)
Dipika Dinesh (M.S.)
Danny Hermes (M.S.)
Dylan Cowell (M.S.)
Divyang Pavan Baldota (M.S.)
Kyung Sun Chung (M.S.)
Yi Shuang (M.S.)
Yu Dong (M.S.)
Khantil Buch (M.S.)

Professional Service

- Associate Editor, Water Environment Research, 2017 – 2018
- Editorial board member
Water Environment Research, 2019 – present
Journal of Environmental Sciences, 2013 – present
Journal of Environmental and Toxicological Studies, 2017 – present
- Peer reviews for scientific journals:
Applied Microbiology and Biotechnology
African Journal of Biotechnology
Biochemical Engineering Journal
Biofouling
Biomass and Bioenergy
Bioprocess and Biosystems Engineering
Bioresource Technology
Biotechnology Advances
Biotechnology and Bioengineering
Biotechnology for Biofuels
CLEAN – Soil, Air, Water; Chemosphere
Colloids and Surfaces B: Biointerfaces
Critical Reviews in Environmental Science and Technology
Environmental Pollution
Environmental Science and Technology
Environment International
International Journal of Environment and Waste Management
International Journal of Microbiology

Journal of Biobased Materials and Bioenergy
Journal of Chemical Technology & Biotechnology
Journal of Chemical & Engineering Data
Journal of Environmental Sciences
Journal of Industrial & Engineering Chemistry Research
Journal of Waste Management
Process Biochemistry
Resources, Conservation & Recycling
Transactions of the ASABE
Water Research

Grant proposal reviewer

- NSF-INFEWS (2017)
- NSF-CBET (2017)
- NSF-CDS&E (2017)
- USDA-Sun Grant (2013, 2016)
- USAID-S&T (2017)
- Netherlands Organisation for Scientific Research (2017)
- Natural Sciences and Engineering Research Council of Canada (2013)

Center Director

- Co-Director, Center for Applied Water Research and Innovation (CAWRI), Virginia Tech, 2017-present
- Director, Renewable Energy Program, The Ohio State University, 2014 - 2015

Community Service

- Lectured Environment Classes in Flint Hill Upper School on 10/20/16, 3/3/17, 11/11/17, 4/17/18, 11/9/18, 4/8/19
- Gave a career day presentation to the Forestville Elementary School on 6/3/19
- Mentored the 2019 summer internship of Pierre Quan from Langley High School and Steve Jia from Thomas Jefferson High School
- Lectured a class for the Ashby Ponds Retirement Community on 2/15/17

PROFESSIONAL AFFILIATIONS

- Association of Environmental Engineering and Science Professors (2015-present)
- American Society of Agricultural and Biological Engineering (2013-present)
- Water Environment Federation (2015-present)
- Virginia Water Environment Association (2015-present)
- American Society of Civil Engineers (2018-present)