WAYNE STATE UNIVERSITY

Professional Record
Faculty

NAME: YONGLI ZHANG

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DATE PREPARED: August 19, 2014
DATE REVISED: June 30, 2020

DEPARTMENT/COLLEGE: Civil & Environmental Engineering/Engineering

PRESENT RANK & DATE OF RANK: Assistant Professor, August 2014 - Present

WSU APPOINTMENT HISTORY: Year Appointed / Rank: 2014 / Assistant Professor

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CITIZEN OF: CHINA

EDUCATION:

Baccalaureate: Sichuan University, BEng, Food Engineering, 1995

Graduate: Guangxi University, MSc, Microbiology, 2001
University of Virginia, PhD, Civil & Environmental Engineering, 2013

Postdoctoral: University of Virginia, 2014

PROFESSIONAL SOCIETY MEMBERSHIP (S):

- American Association for the Advancement of Science (AAAS)
- Association of Environmental Engineering & Science Professor (AEESP)

HONORS/AWARDS:

- Thank-A-Teacher Letter of Appreciation, Wayne State University - The Office for Teaching and Learning, 2019 (letter attached)
- Faculty Research Excellence Award, College of Engineering, Wayne State University, 2019
- Water Network Fellow, Michigan's University Research Corridor (URC), 2017
- Outstanding Reviewer, Algal Research, 2016
- Third Place IoT (Internet of Things) Detroit Competition, April 2016
- President's Research Enhancement Program Grant, Wayne State University, 2015

- University Research Grant, Wayne State University, 2015
- Excellence in Engineering Education (ExCEEd) Fellow, American Society of Civil Engineers (ASCE), 2015

BIOGRAPHICAL CITATIONS (National/Regional or Professional Directories):

828 citations total; 656 citations in last five years.

h-index: 9

i10-index: 8

I. TEACHING

A. Years at Wayne State

5 years & 4 months

B. Years at Other Colleges/Universities (please list)

N/A

C. Courses Taught at Wayne State University (* indicates new course of curriculum development)

1. Undergraduate

CE 4210 – Introduction to Environmental Engineering

This course is a required course for undergraduate students in the Department of Civil & Environmental Engineering. The purpose of this course is to provide students with an understanding of engineering approaches, quantitative problem-solving methods, important legislation, ethical considerations, and other current issues (e.g., sustainability) pertaining to environmental engineering problems. Students apply fundamental theories, engineering methods and mass balance approaches for solving a range of practical environmental problems in the areas of risk assessment, water quality, water and wastewater treatment, hydrology, groundwater, and air pollution. Additional skills in life cycle assessment, risk assessment, and decision-making will be included to practice sustainable engineering.

Students had positive feedback for this course. The following is an example from the “Thank-A-Teacher” program:

We are very pleased to forward to you the enclosed response from the "Thank-A-Teacher" site!

> *I just wanted to say how much I respect your method of teaching. I think you did a fabulous job during my time in your class. I didn't do as well as I hoped, but that wasn't a reflection of your teaching as much as it was the effort I put in. You made every attempt to ensure the success of your entire class and there have only ever been two other teachers at WSU I have had that have shared that mentality. Thank you for everything you do. Don't ever let any student make you believe you aren't among the best WSU has to offer.*
>
> *-Mark Ledbetter, CE 4210 –Winter 2018*

Please accept our thank you for all you do to ensure excellence in teaching and learning at WSU. All best wishes for continued success!

Sincerely yours,

The Office for Teaching & Learning Team

Offer Time	Enrollment	How would you rate this course (SET Q1, mean)?	How much have you learned in this course (SET Q2, mean)?	How would you rate the instructor's teaching in this course (SET Q24, mean)?	SUM (SET Q1+Q2+Q24, mean)
Winter 2016 (3 cr)	38	3.8/5.0	3.6/5.0	3.8/5.0	11.3/15.0
Winter 2017 (3 crs)	35	3.4/5.0	3.7/5.0	3.7/5.0	10.9/15.0
Winter 2018 (3 crs)	39	3.6/5.0	3.7/5.0	4.0/5.0	11.3/15.0

2. Graduate

2-1. *CE/STE 6270 – Sustainability Assessment and Management

A recreated course to cover topics related to sustainability assessment and management by using quantitative model tools such as life cycle assessment, material flow analysis, and economic input-output life cycle analysis. Enrolled students included undergraduate, master, and PhD students from multiple departments (Civil Engineering, Chemical Engineering, Geology, Energy, and Industrial and System Engineering). This course is a core course for the Graduate Certificate Program "Sustainable Engineering" at Wayne State University. In addition, since 2018 this course has been listed as a selective course for a NSF-funded multi-disciplinary program entitled "NRT: Transformative Research in Urban Sustainability and Training (T-RUST)". Although students in this course

had different background, they thought this course was very helpful for their disciplines: “A very good class, was very helpful”. The SET score dropped in Fall 2018. The course credit was changed from four credits to three credits in Fall 2018. Some contents of the course had to be cut off, which affected the topic coverage that students might felt that there were not enough topics covered.

Offer Time	Enrollment	How would you rate this course (SET Q1, mean)?	How much have you learned in this course (SET Q2, mean)?	How would you rate the instructor’s teaching in this course (SET Q24, mean)?	SUM (SET Q1+Q2+Q24, mean)
Winter 2015 (4 cr)	18	3.8/5.0	4.0/5.0	3.8/5.0	11.6/15.0
Fall 2016 (4 cr)	18	4.1/5.0	4.2/5.0	4.3/5.0	12.6/15.0
Fall 2017 (4 cr)	14	4.8/5.0	4.6/5.0	4.8/5.0	14.2/15.0
Fall 2018 (3 cr)	8	3.5/5.0	3.2/5.0	3.8/5.0	10.6/15.0
Fall 2019 (3 cr)	11	NA	NA	NA	NA

2-2. *CE 7280 - Applied Environmental Microbiology

A new course designed for graduate students to provide fundamental knowledge of microbiology and practical applications to environmental concerns. Enrolled students included those from Civil Engineering, Environmental Health Science, Biology, and Geology. In addition, since 2018 this course has been listed as a selective course for a NSF-funded multi-disciplinary program entitled “NRT: Transformative Research in Urban Sustainability and Training (T-RUST)”. Students rated this course high: “Thank you for your great course design. Now I believe that I can understand the relation between microbiology and environment. It was something that I usually afraid of it”; “I am happy this course was offered and hope it will be offered again in the future”.

Offer Time	Enrollment	How would you rate this course (SET Q1, mean)?	How much have you learned in this course (SET Q2, mean)?	How would you rate the instructor’s teaching in this course (SET Q24, mean)?	SUM (SET Q1+Q2+Q24, mean)

Fall 2015 (4 cr)	5	4.2/5.0	4.0/5.0	4.4/5.0	12.6/15.0
Winter 2017 (4 cr)	5	There is no statistical data because students' responses are less than 3.			
Winter 2018 (4 cr)	5	There is no statistical data because students' responses are less than 3.			
Fall 2019 (3 cr)	9	3.9/5.0	3.6/5.0	4.0/5.0	11.4/15.0

2-3. *CE 5995/7997 – Food-Energy-Water (FEW) Nexus and Integrated Resource Recovery

A new course designed for senior undergraduate students and graduate students to 1) understand the concept of FEW nexus and integrated resource recovery from FEW systems and to 2) develop critical thinking and analytical skills for the management of complex systems and the development of integrated resource recovery strategies.

Offer Time	Enrollment	How would you rate this course (SET Q1, mean)?	How much have you learned in this course (SET Q2, mean)?	How would you rate the instructor's teaching in this course (SET Q24, mean)?	SUM (SET Q1+Q2+Q24, mean)
Winter 2019 (3 cr)	9	3.8/5.0	3.6/5.0	4.3/5.0	11.8/15.0

D. Essays/Theses/Dissertations/Research Directed

Postdoc Advisor

1. Kishore Gopalakrishn, *01/01/2016 – 10/31/2017*.

Research Project: Algal-Bacterial Consortium for Bioenergy Generation and Wastewater Treatment

Current Position: Postdoctoral Researcher, the Department of Biology at WSU.

Research Output: Number of journal paper published and under review - 3
Number of conference presentation – 4

2. Shariat Mobasser, *03/01/2019 – present*.

Research Project: (1) High Throughput Detection of Microplastics in the Environment Using Multimodal Optical Flow Cytometry; (2) Integrated IoT

Sensing and Edge Computing for Smart and Real-Time Monitoring and Mitigation of VOCs Intrusion

Research Output: Number of conference presentation – 2

Ph.D. Advisor

1. Javad Roostaei, Graduated Summer 2018

Dissertation: Sustainability Decision Making for Integrated Renewable Bioenergy Generation and Water Management

Current Position: Postdoctoral Research Associate, the University of North Carolina at Chapel Hill.

Research Output: 1) Number of journal paper published – 4
2) Number of conference presentation – 10
3) Aided in EPA P3 proposal application; Student Team Leader of the EPA P3 project "Stratified Multilayer Algal-Biofilm Reclamation Technology (SMART)"
4) Presented a Project "Stratified Multilayer Algal-biofilm Reclamation Technology" at USA Science and Engineering Festival, Washington D.C., 2018 April 7-8 (poster and exhibition presentation)
5) The First Place Award in 2017 WSU Graduate and Postdoctoral Research Symposium
6) The Second Place Award in 2017 WSU Student Innovation and Design Competition
7) The Third Place Award in Detroit IoT (Internet of Things) Competition in April 2016

2. Jonathan Weyhrauch, expected graduation in 2021
Research Project: Green Water Infrastructures for Ecosystem Services in Urban Environments

Research Output: 1) Number of conference presentation – 2;
2) Helped proposal preparation, resulting in a research project "Smart Management of Microplastic Pollution in the Great Lakes" funded by the Great Lakes Protection Fund;
3) Accepted to the Wege Prize international student design competition, Dec, 2019.

3. Rayyan Mizra, expected graduation in 2021

Research Project: Fate and Transport of Microplastics in the Great Lakes

4. Meisam Darabi, expected graduation in 2023
Research Project: Interactions of Emerging Contaminants with Environmental Microbiome

Ph.D. Committee Member

1. Annette Tremonti, "*Metal-DOM Complexation in Stormwater Using Fast-Scan Anodic Stripping Voltammetry*", Graduated Fall 2015, Department of Civil & Environmental Engineering, Wayne State University.

2. Mohsen Sadatiyan, "*Enhanced Pump Schedule Optimization for Large Water Distribution Networks to Maximize Environmental and Economic Benefits"*, Graduated Summer 2016, Department of Civil and Environmental Engineering, Wayne State University.

3. Jeremy Walker, "*Integrated Acoustic Streaming to Prevent Reverse Osmosis Membrane Fouling"*, Graduated Summer 2018, Department of Civil & Environmental Engineering, Wayne State University.

4. Varun Tahlan, "*Impact of natural antimicrobials on the biofilm formation of Listeria monocytogenes"*, Expected Summer 2020, Department of Nutrient & Food Science, Wayne State University.

5. Xiaoyu Chen, "Quartz tuning fork based methane sensor for coal mine safey application", expected 2021, Department of Electrical and Computer Engineering, Wayne State University.

6. Chandra Tummala, "Biogeochemical cycling of phosphorus in freshwater systems", expected 2021, Department of Civil & Environmental Engineering, Wayne State University.

7. Sadaf Teimoori, "Groundwater in the Detroit region: modeling and assessing quantity and quality", expected 2021, Department of Civil & Environmental Engineering, Wayne State University.

8. Kate Osarhiemen Ekhator (dissertation project not decided yet), expected 2022, Department of Civil & Environmental Engineering, Wayne State University.

Master Student Research Directed

1. Anvesha Dogra, Graduated Summer 2016
Research Project: Algae Cultivation for Bioenergy Production
Research Output: Number of conference presentation – 2

Undergraduate Student Research Directed

1. Michael Dunne (Civil Engineering), Graduated Summer 2017

Research Project: Fate and Transport of Emerging Contaminants in Water Treatment Systems

Current Position: Plan Engineer, Detroit Water Treatment Plant

2. Vittoria Veltri (Civil Engineering), Graduated Winter 2018

Research Project: Fate and Transport of Emerging Contaminants in Water Treatment Systems

Current Position: Engineer, Great Lakes Water Authority

Research Output: 1) Number of conference presentation – 1
2) Recipient of College of Engineering Research Opportunities for Undergraduate Student (2017 – 2018)

3. Alexander J. Ochocki (Biochemistry), Graduated Summer 2017

Research Project: Mixotrophic Algae Cultivation for Bioenergy Production

Current Position: Graduate Student, Department of Biochem, Microbio, and Immunology at Wayne State University

Research Output: 1) Number of journal paper published - 1
2) Number of conference presentation – 1
3) The Third Place Award in Detroit IoT (Internet of Things) Competition in April 2016

4. Thanjila Uddin (Computer Science), Graduated Fall 2017

Research Project: Integrated Mixotrophic Algae Cultivation and Internet of Things (IoT) for Wastewater Treatment and Bioenergy Production

Current Position: Software Engineer, Ford Motor Credit Company

Research Output: Presented a Project "Stratified Multilayer Algal-biofilm Reclamation Technology" at USA Science and Engineering Festival, Washington D.C., 2018 April 7-8 (poster and exhibition presentation)

5. Allison Diehl (Civil Engineering), 01/01/2018 - present

Research Project: Fate and Transport of Microplastics in Drinking Water Treatment Systems

Research Output: 1) Number of paper (under review) - 1
2) Number of conference presentation – 2
3) Recipient of College of Engineering Research Opportunities for Undergraduate Student (2017 – 2018)
4) Recipient of Barber Interdisciplinary Research Scholarship (Summer 2018)

6. Ashton Lewandowski (Physics), 05/16/2018 - present

Research Project: Detection of Microplastics Using Nile Red Dye

Current Position: MD student, School of Medicine, Wayne State University

Research Output: 1) Number of paper (under review) - 1
2) Number of conference presentation – 2

3) Recipient of Barber Interdisciplinary Research Scholarship (Summer 2018)
4) Best Poster Award, 2019 WSU Undergraduate Research and Creative Projects, March 27 2019

7. Ajanta Dutta (Civil Engineering), 2017 - present

Research Project: Interactions of Emerging Contaminants and Water Microbiome

Research Output: Number of conference presentation – 1

8. Michael Ewing (Computer Science), 2017 - present

Research Project: Smart Environmental Monitoring by Integrating IoT Sensor Networks with Edge Computing

Research Output: 1) Number of journal paper published – 1

2) Presented a Project "Stratified Multilayer Algal-biofilm Reclamation Technology" at USA Science and Engineering Festival, Washington D.C., 2018 April 7-8 (poster and exhibition presentation)

9. Sara Abdulaziz (Civil Engineering), 2017 - present

Research Project: Mixotrophic Algae Cultivation for Bioenergy Production

E. Other Teaching Work

Served as the Co-Director of WSU Sustainable Engineering Graduate Certificate Program, February 2017 – Present.

II. RESEARCH

A. Research in Progress, Not Funded

2017- Algae-Based Sustainable Urban Reclamation Ecosystem (aSURE) _ An Integrated Approach to Sustaining Food-Energy-Water Supply. Collaboration with Drs. Simon Ng, Carol Miller, Yifan Zhang, Wei Zhang (MSU), Caisheng Wang, and Kai Yang.

B. Funded Research in Last Five Years

B-1. Funding Summary

Funding Source	Number of Projects Funded	Amount of Total Funding	Share
External Funding	**10**	**$8,085,473**	**$1,203,283**
Federal Agency (NSF, EPA)	4	$3,349,458	$360,337

Research Foundation (Great Lakes Protection Fund)	1	$929,000	$554,231
State Agency (State of Michigan, State of Montana)	3	$3,372,515	$122,515
Industry (Microsoft, Great Lakes Water Authority)	2	$205,000	$166,000
Internal Funding	**7**	**$428,000**	**$220,500**
Total Funding	**17**	**$8,513,473**	**$1,423,783**

B-2. List of Funded Projects

External Funding

[17] **Yongli Zhang (PI)**, with Dr. Carol Miller as co-PI. The Occurrence and Fate of Microplastics in Wastewater and Drinking Water Treatment Processes. *Great Lakes water Authority (Board Approved, Under Contract Negotiation)*, 01/01/2020 – 12/31/2021, $195,000 (share: $156,000). Funding announcement and the email message of contract paperwork are attached.

[16] **Yongli Zhang (PI)**, with Drs. Mark Cheng, Weisong Shi, Carol Miller, Donna Kashian, and Rahul Mitra as co-PIs. Smart Management of Microplastic Pollution in the Great Lakes. *Great Lakes Protection Fund*, #1151, 10/26/2018 – 10/25/2021, $929,000 (share: $554,431).

[15] **Yongli Zhang (PI)**, with Weisong Shi as the MPI. AI for Earth: A Cloud-based Analytics for Real-time Monitoring of Landfills/Superfund Sites and the Adjacent Watershed. *Microsoft*, 01/01/2018 – 06/30/2019, $10,000.

[14] **Yongli Zhang (Sole WSU PI)**. Independent Risk Analysis for the Straits Pipelines. *The State of Michigan*, 01/01/2018 - 10/31/2018, $16,000.

[13] **Yongli Zhang (Sole PI)**. Stratified Multilayer Algal-biofilm Reclamation Technology (SMART). *United States Environmental Protection Agency*, # SU839295, 11/01/2017 – 10/31/2018, $15,000.

[12] **Yongli Zhang (Co-I)**, with Donna Kashian as the PI. NRT: Transformative Research in Urban Sustainability Training (T-RUST). *National Science Foundation*, #1735038, 09/01/2017 – 08/31/2022, $ 2,999,976 total (share: $329,997)

[11] **Yongli Zhang (Sole WSU PI)**. Advanced Bio-Based Chemicals and Next-Generation Fuels from Montana's Agricultural Crops. *The State of Montana through Montana Research and Economic Development Initiatives*, sub-contract through Montana State University Northern, 01/01/2017 – 06/30/2017, $ 6,515.

[10] **Yongli Zhang (Co-I)**, with Shawn McElmurry as the PI. Flint Area Community Health and Environment Partnership (FACHEP) – PHASE II. *The State of Michigan*, 06/01/2016-12/21/2017, $3,350,000 total (share: $100,000).

[9] **Yongli Zhang (Co-I)**, with Rickli, J as the PI. REU: Summer Academy in Sustainable Manufacturing. *National Science Foundation*, EEC-1461031, 11/01/2015 –

10/31/2018, $370,642 total (share: $24,000).

[8] **Yongli Zhang (Co-PI)**, with Carol Miller as the PI. A Workshop for Integrative and Sustainable Food, Energy, and Water in Transitioning Urban Landscapes. *National Science Foundation*, CBET- 1541869, 07/15/2015 – 01/14/2016, $28,840.

Internal Funding

[7] **Yongli Zhang (PI)**, with Tracie Baker as the MPI. The Occurrence of Microplastics in Drinking Water and the Consequential Impact on Human Health. *NIEHS Center for Urban Response to Environmental Stressors (CURES) Pilot Project*, 10/01/2018 – 3/31/2020, $65,000 (share: $37,500).

[6] **Yongli Zhang (PI)**, with Tracie Baker as the MPI. The Occurrence of Microplastics in Drinking Water Treatment Systems and the Consequential Impact on Ecological and Human Health. *Richard Barber Interdisciplinary Research Program*, 05/01/2018 – 08/31/2018, $25,000 (share: $12,500).

[5] **Yongli Zhang (Sole PI)**. INFEWS/T3: Algae-based Sustainable Urban Reclamation Ecosystem (aSURE) _ An Integrated Approach to Sustaining Food-Energy-Water Supply. *WSU Grant Boost*, 04/01/2018 – 03/31/2019, $35,000.

[4] **Yongli Zhang (Co-PI)**, with David Pitts as the PI. Emerging and Endocrine Disrupting Chemicals in Detroit Drinking Water. *WSU Seed Grant*, 09/01/2016 – 03/01/2018, requested amount $100,000.

[3] **Yongli Zhang (PI)**, with Thomas Kocarek as the Co-PI. Evaluating Removal of Emerging Contaminants by Mixed Algae Culture Integrated with Wastewater Treatment for Sustainable Preservation of Healthy Urban Water Systems. *WSU President's Research Enhancement Program*, 01/01/2016 – 05/31/2018, $ 100,000 (share: $60,000).

[2] **Yongli Zhang (PI)**, with Shawn McElmurry and David Pitts as Co-PIs. Optimization of EDCs Removal in Drinking Water Treatment System. *WSU Healthy Urban Waters*, 09/01/2015 – 08/31/2016, $28,000 (share $28,000).

[1] **Yongli Zhang (Sole PI)**. Creating a spatially and temporally life cycle assessment tool: understanding the realistic potential of algae biofuel. *WSU University Research Grant*, 06/01/2015 - 05/31/2016, $10,000.

C. Fellowships/Grants/Special Awards in Last Five Years

[4] Faculty Research Excellence Award, College of Engineering, Wayne State University, 2019

[3] Third Place IoT (Internet of Things) Detroit Competition, April 2016

[2] President's Research Enhancement Program Grant, Wayne State University, 2015

[1] University Research Grant, Wayne State University, 2015

D. Proposal Pending

[2] **Yongli Zhang (WSU PI).** EFRI E3P Preliminary Proposal: Recycling End-of-Life Polyvinyl Chloride Microplastic. *National Science Foundation*, #2012565, 09/01/2020 – 08/31/2025, total amount requested $1,999,999 (share $500,000).

[1] **Yongli Zhang (WSU PI, with Dr. Ruhal Mitra as the WSU Co-PI).** Novel Surface-Oxygenated Biochar Unlocking Phosphorus and Better Retaining Soil Water/Nutrients for Sustainable Agricultural Systems. *USDA Agriculture and Food Research Initiative - Sustainable Agricultural Systems*, #190704, 04/01/2020 – 03/31/2025, WSU amount requested $711,558 (share $498,091).

III. PUBLICATION

A. Chapters Published

[2] Harris, C., Miller, C., Lyon, N., Pothukuchi, K., Treemore-Spears, L., **Zhang, Y.** (equal contribution). "Chapter 18 - Cities in the Nexus", *Introduction to the Food-Energy-Water Nexus*, Edited by Saundry, O. & Ruddell B (Springer Nature, in press). The notification of publication was attached.

[1] Xi, C.W., Bush, K., Lachmayr, K.L., **Zhang, Y.,** and Ford, T.E. "Interactions between environmental microbial ecosystems and humans: the case of the water environment and antibiotic resistance," *Food-Borne Microbes: Shaping the Host Ecosystem*, edited by Lee-Ann Jaykus, Hua H. Wang, and Larry S. Schlesinger (ASM Press, April 2009).

B. Journal Articles Published (*Corresponding Author)

Refereed Journals (IF means 5-year impact factor if available, otherwise it means the impact factor in the year when article is published; SJR means SCImago Journal Rank in 2018).

[16] ***Zhang, Y.,** Diehl, A., Lewandowski, A., Gopalakrishnan, K., Baker, T. "Removal Efficiency of Micro- and Nanoplastics During Drinking Water Treatment", *Science of the Total Environment* (IF 5.7), in press.

[15] Melstrom, R., *Reeling, C., Gupta, L., Miller, S., **Zhang, Y.,** Lupi, F. "Economic damages from a worst-case oil spill in the Straits of Mackinac", *Journal of Great Lakes Research* (IF 2.5, 0 citations), in press (available online 2 November 2019). The notification of publication was attached.

[14] Yurko, G., Roostaei, J., Dittrich, T., Xu, L., Ewing, M., **Zhang, Y.,** *Shreve, G. "Real-Time Sensor Response Characteristics of 3 Commercial Metal Oxide Sensors for Detection of BTEX and Chlorinated Aliphatic Hydrocarbon Organic Vapors", *Chemosensors* (SJR 0.63, 0 citations), 2019.

[13] Roostaei, J., ***Zhang, Y.,** Gopalakrishnan, K., Ochocki, A. "Mixotrophic Microalgae Biofilm for Improved Productivity and Cost-efficiency of Algal Biofuel Production," *Nature Scientific Reports* (IF 4.5, 9 citations), 2018.

[12] Gopalakrishnan, K., Roostaei, J., ***Zhang, Y.** "Mixed Culture of *Chlorella* sp. and Wastewater Wild Algae for Enhanced Biomass and Lipid Accumulation in Wastewater Medium," *Frontier of Environmental Science and Engineering* (IF 3.9, 3 citations), 2018.

[11] Roostaei, J., ***Zhang, Y.** "Spatially explicit life cycle assessment: opportunities and challenges of integrating algae cultivation with wastewater for biofuel production," *Algal Research* (IF 4.5, 33 citations), 2017. https://doi.org/10.1016/j.algal.2016.08.008.

[10] **Zhang, Y.,** Liu, X.W., White, M.A., *Colosi, L.M. "Economic evaluation of algae biodiesel based on meta-analyses," *International Journal of Sustainable Energy* (SJR 0.43, 10 citations), 2017.

[9] *Treemore-Spears, L., Grove, M., Harris, C., Lemke, L., Miller, C., Pothukuchi, K., Zhang, Y., **Zhang, Y.** "A workshop on transitioning cities at the food-energy-water nexus," *Journal of Environmental Studies and Sciences* (SJR 0.6, 6 citations), 2016.

[8] *Colosi, L.M., Resurreccion, E.P., **Zhang, Y.** "Assessing the energy and environmental performance of algae-mediated tertiary treatment of estrogenic compounds," *Environmental Science: Processes & Impacts* (IF 2.6, 6 citations), 2015.

[7] **Zhang, Y.,** Habteselassie, M.Y., Resurreccion, E.P., Mantripragada, V., Peng, S.S., Bauer, S., *Colosi, L.M. "Evaluating removal of steroid estrogens by a model alga as a possible sustainability benefit of hypothetical integrated algae cultivation and wastewater treatment systems," *ACS Sustainable Chemistry & Engineering* (IF 7.0, 28 citations), 2 (11), 2014.

[6] **Zhang, Y.,** *Colosi, L.M. "Practical ambiguities during calculation of energy ratios and their impacts on life cycle assessment calculations," *Energy Policy* (IF 5.5, 30 citations), 2013.

[5] **Zhang, Y.,** *Colosi, L.M. "What are we missing by focusing on algae biodiesel?" *Biofuels* (SJR 0.43, 2 citations), 2013 (Invited Editorial).

[4] **Zhang, Y.,** White, M.A., *Colosi, L.M. "Environmental and economic assessment of integrated systems for dairy manure treatment coupled with algae bioenergy production," *Bioresource Technology* (IF 6.7, 57 citations), 2013.

[3] *Colosi, L.M., **Zhang, Y.,** Clarens, A.F., White, M.A. "Will algae produce green? Using published life cycle assessments as a starting point for economic evaluation of future algae-to-energy systems," *Biofuels* (SJR 0.43, 15 citations), 2012.

[2] **Zhang, Y.,** Marrs, C.F., Simon, C., *Xi, C.W. "Wastewater treatment contributes to selective increase of antibiotic resistance among Acinetobacter spp.," *Science of the Total Environment* (IF 5.7, 272 citations), 2009.

[1] *Xi, C.W., **Zhang, Y.,** Marrs, C.F., Ye, W., Simon, C., Foxman, B., and Niragu, J. "Prevalence of antibiotic resistance in drinking water treatment and

distribution systems," *Applied and Environmental Microbiology* (IF 4.1, 357 citations), 2009.

C. Papers Presented (* Corresponding Author; Presenter)

1. Invited and/or Refereed Internationally or Nationally

[24] *Zhang, Y., Diehl, A., Baker, T., Lewandowski, A. Characterizing the Removal Efficiency of Small Microplastics (< 100 um) During Drinking Water Treatment. *2020 Borchardt Conference - 25th Triennial Symposium on Advancements in Water & Wastewater*, Ann Arbor, MI, February 25-26, 2020 (oral presentation).

[23] Mobasser, D., Dittrich, T., *Zhang, Y. A Rapid-Screening Approach to Detect Microplastics Based on Nile Red Fluorescence and Raman Spectroscopy. *2020 Borchardt Conference - 25th Triennial Symposium on Advancements in Water & Wastewater*, Ann Arbor, MI, February 25-26, 2020 (poster presentation).

[22] Mobasser, D., Roostaei, J., Zhang, Y., Shi, W., Dittrich, T., and Miller, C. Internet of Things-based Edge Computing (IoTEC) Sensor Network and Integrated Air Purifier for Rapid Response Vapor Intrusion Identification and Potential Mitigation. *NIEHS SRP 2019 Annual Conference*, Seattle WA, November 18-20, 2019 (Poster Presentation).

[21] *Zhang, Y. Microplastic Pollution in Urban Areas: What Should We Know and What Can We Do? *Sustainable Urban Subsurface Systems Workshop*, Brooklyn New York, 2019 June 24-25 (Invited Talk).

[20] *Zhang, Y., Cheng, M., Shi, W., Miller, C., Kahisan, D. Smart Management of Microplastic Pollution in the Great Lakes, *IAGLR 2019 Annual Conference*, Brockport NY, 2019 June 10-14 (Oral Presentation).

[19] *Zhang, Y., Diehl, A., Lewandowski, A., Cheng, M., Miller, C. Occurrence and Fate of Microplastics in Water Treatment Systems, *IAGLR 2019 Annual Conference*, Brockport NY, 2019 June 10-14 (Oral Presentation).

[18] Roostaei, J., Shi, W., Dittrich, T., *Zhang, Y. IoT-based Edge Computing (IoTEC) for Environmental Sensing: A Case Study of Monitoring Vapor Intrusion, *AEESP 2019 Research and Education Conference*, Phoenix AZ, 2019 May 14 – 16 (Oral Presentation).

[17] Roostaei, J., *Zhang, Y. Stratified Multilayer Algal-biofilm Reclamation Technology, *USA Science and Engineering Festival*, Washington D.C., 2018 April 7-8 (Poster and Exhibition Presentation);

[16] *Zhang, Y., Vittoria Veltri, Kishore Gopalakrishnan [a], Carol Miller [a], Shawn McElmurry. Occurrence and Fate of Chemicals of Emerging Concern (CECs) and Their Interactions with Microbiome in Urban Water Cycles. *NIEHS SRP 2017 Annual Conference*, Philadelphia, December 06-08, 2017 (Poster Presentation).

[15] *Zhang, Y., Roostaei, J., Gopalakrishnan, K. Algae-Based Sustainable Urban-Wastewater Reclamation Ecosystem (aSURE): An Integrated Approach

for Sustainable Food-Energy-Water Supply. *254th ACS National Meeting 2017*, Washington, D.C., Aug 20-24, 2017 (Oral Presentation).

[14] *Zhang, Y. Algae-Based Sustainable Urban-Wastewater Reclamation Ecosystem (aSURE): An Integrated Approach for Sustainable Food-Energy-Water Supply. *EITC Conference 2017*, Ann Arbor, July 1 2017 (Invited Talk).

[13] Roostaei, J., *Zhang, Y., Pitts, D., McElmurry, S. Comparing the Removal Efficiency of 4-Nonylphenol by UV, Chlorination and Algae Cultivation. *Association of Environmental Engineering and Science Professors (AEESP)* 2017, Ann Arbor, June 20 – 22, 2017 (Oral Presentation).

[12] Gopalakrishnan, K., *Zhang, Y., Roostaei, J. Optimization for Wastewater Treatment Efficiency and Biofuel Productivity by Chlorella sp. and Mixed Wastewater Algae (MWWA) Using Response Surface Methodology (RSM). *Association of Environmental Engineering and Science Professors (AEESP)* 2017, Ann Arbor, June 20 – 22, 2017 (Poster Presentation).

[11] Roostaei, J., Ochocki, A. J., *Zhang, Y. Using Internet of Things (IoT) to Optimize Algae Yield for Wastewater-based Algae Cultivation. *Association of Environmental Engineering and Science Professors (AEESP)* 2017, Ann Arbor, June 20 – 22, 2017 (Poster Presentation).

[10] *Zhang, Y., Roostaei , J., Gopalakrishnan, K. Algae-based Sustainable Urban-wastewater Reclamation Ecosystem (aSURE): Removal of Endocrine Disrupting Compounds. *International Association for Great Lakes Research (IAGLR)* 2017, Detroit, May 15-19, 2017 (Oral Presentation).

[9] *Zhang, Y., Roostaei , J. Spatially Explicit Life Cycle Assessment of Integrating Algae Cultivation with Wastewater Treatment for Biofuel Production. *Algal Biomass Summit* 2015, Washington D.C., Sep 29-Oct 2, 2016 (Poster).

[8] *Zhang, Y., Roostaei , J. Spatially explicit life cycle assessment: opportunities and challenges of integrating algae cultivation with wastewater for biofuel production. *Algal Biomass, Biofuels, and Bioproducts 2016*, San Diego, June 26-29, 2016 (Oral Presentation).

[7] *Zhang, Y. Sustainability Decision Making for Integrated Renewable Bioenergy Generation and Water Management Systems. *Energy and Water – Symposium and Industry Summit* 2016, Windsor, Canada, June 22-23, 2016 (Panel Presentation).

[6] *Zhang, Y. Sustainable water management: coupling wastewater treatment and renewable bioenergy generation. *International Conference on Sustainable Civil Engineering* 2016, Cape Town, South Africa, June 20-21, 2016 (Virtual Conference Presentation).

[5] Dogra, A., Roostaei , J., *Zhang, Y. Integrating Algal-Bacterial Mixed Culture with Wastewater Treatment for Cost-Efficient Production of Algae Feedstock. *Algal Biomass Summit* 2015, Washington D.C., Sep 29-Oct 2 (Poster).

[4] Roostaei , J., *Zhang, Y., Spatially Explicit Life Cycle Assessment of Integrating Algae Cultivation with Wastewater Treatment for Biofuel Production. *Bioenergy* 2015, Washington D.C., June 23-24 (Poster).

[3] Zhang, Y., Clarens, A.F., White, M.A., *Colosi, L.M. Algal biodiesel is financially promising: an economic meta-analysis of algae-to-fuel systems. *Advanced Energy* 2013, New York, April 30 – May 1 (Poster).

[2] Zhang, Y., White, M.A., Clarens, A.F., *Colosi, L.M. Comparative LCA and Economic Analysis of Integrated Algae-Dairy Manure Treatment Systems for Small Farms. *LCA-XI International Conference* 2012, Chicago, Illinois, USA, Oct 4-6 (Oral Presentation).

[1] Zhang, Y., Marrs, C., Simon, *C., Xi. Profile of antibiotic resistance of Acinetobacter spp. and antibiotic resistant genes in the wastewater treatment process and its receiving water. *108th American Society for Microbiology General Meeting* 2008, Boston, Ma, USA, June 2-6 (Poster).

2. Invited and/or Refereed Locally/Regionally

[9] *Zhang, Y. Characterizing Removal Efficiency of Small Microplastics During Drinking Water Treatment. *WSU-GLWA Symposium*, Detroit MI, November 12, 2019 (Oral Presentation).

[8] *Zhang, Y. Microplastic Pollution in the Environment: What Should We Know and What Can We Do? *Sustainability in Education*, Detroit MI, October 15, 2019 (Invited Talk).

[7] *Zhang, Y. High Throughput Detection of Small Microplastics. *Sources and Sinks of PFAS & Microplastics: Landfills and Wastewater Treatment Plants,* Howell MI, September 17th, 2019 (Invited Talk).

[6] *Zhang, Y., Weyhrauch, J. Smart Management of Microplastic Pollution in the Great Lakes, *Stormwater Management Forum 2018*, Clinton MI, 2018 Nov 8th (Invited Talk).

[5] *Zhang, Y. Healthy Urban Waters: Emerging Contaminants (ECs) and Water Quality, *Good Morning Detroit*, Detroit MI, 2018 May 16th (Invited Talk).

[4] *Zhang, Y. Sustainable Water-Environment-Energy Technologies (SWEET), *WSU-GLWA Research Symposium*, Detroit MI, 2018 May 10th (Oral Presentation).

[3] *Zhang, Y., Baker, T., Pitts, D. Healthy Waters – Emerging Contaminants (ECs) and Water Quality. *St. Clair - Detroit River System Initiative Annual Meeting 2018*, Ann Arbor, March 1, 2018 (Invited Talk).

[2] Zhang, Y., Marrs, C., Simon, *C., Xi. Profile of antibiotic resistance of Acinetobacter spp. in the wastewater treatment process and its receiving water. *Graham Environmental Sustainability Institute Meeting 2008: Water, Health, and the Environment*, Ann Arbor, MI, USA, March 26-27 (Poster).

[1] Zhang, Y., Marrs, C., Simon, *C. Profile of antibiotic resistance of Acinetobacter spp. in the wastewater treatment process and its receiving water. *Borchardt Conference* 2008, Ann Arbor, MI, USA, Feb 27-28 (Poster).

D. Invited Seminars or Lectures Presented in Last Five Years

[4] Control Microplastic Pollution in the Great Lakes, *WSU EES Seminar*, 2019 April 19th (Invited Seminar).

[3] Healthy Urban Waters: Emerging Contaminants (ECs) in Urban Water Systems. *Oakland University Seminar*, Rochester Michigan, 2018 October 17 (Invited Seminar).

[2] Algae-Based Integrated Approach for Sustainable Food –Energy-Water (FEW) Supply. *Sustainability@Wayne*, Detroit MI, 2017 January 31 (Invited Seminar).

[1] Sustainability decision making for integrated biofuel production and water management. *Chemical Department Seminar*, Wayne State University, Detroit MI, 2015 March 3 (Invited Seminar).

E. Other Scholarly Work

1. Patent

[1] Cheng, M., **Zhang, Y.,** Shi, W. Low-Cost and Portable Sensors for Real-time Identification of Micro/nano Plastics, invention/technology disclosure approved, provisional patent filing underway.

2. Report

[1] Melstrom, R., Miller, S., Reeling, C., **Zhang, Y.** "Task GI: Estimating the Amount of Natural Resource and Other Economic Damages, Public and Private, That Would Result from a Worst-case Release", Independent Risk Analysis for the Straits Pipelines – Final Report to the State of Michigan, 2018 September 15.

3. Media releases related to my research work at Wayne State University

[9] "Pontiac becomes test site for $929,000 microplastics study by Wayne State researchers", The Oakland Press, 2019 May 10.

[8] "Wayne State gets $1M grant to fight Great Lakes growing microplastic problem", FOX 2 Detroit, January 7, 2019.

[7] "Micropalstics", NPR Detroit, 2018 November 14.

[6] "Wayne State University Researchers Secure Nearly $1M for Microplastics Pollution Research", dbusiness, 2018 November 12.

[5] “WSU Gets Nearly $1 Million To Attack Microplastic Pollution”, MITECHNEWS, 2018 November 9.

[4] “Lake-oil-spill in Michigan Would Cost Nearly 2 Billion”, ABC News, 2018 July 19.

[3] “Lake-oil-spill in Michigan Would Cost Nearly 2 Billion”, Washingtion Post, 2018 July 19.

[2] “CURES Center Member Wins ‘AI for Earth’ Award to Address Environmental Issues”, NIEHS Feature Story, 2018 May.

[1] “EPA Awards Grant to Wayne State University for Innovative Technology Project”, EPA News Releases, 2018 March 22.

4. Other

Helped WSU secure a partnership with the “Cooperative Institute for Great Lakes Research (CIGLR)” Regional Consortium, April 2019: https://clas.wayne.edu/news/wayne-state-partners-with-ciglr-to-keep-the-great-lakes-great-35604

Served as the Project Director, Smart Management of Microplastic Pollution in the Great Lakes, Nov 2018 – present.

Served as the Project Director, WSU Center for Leadership in Environmental Awareness and Research (CLEAR) – Core Project E2, March 2018 – Present.

Served as the Director of the Healthy Urban Waters Research Station at the Great Lakes Water Authority Water Treatment Plant, January 2016 – October 2018.

IV. SERVICE TO DEPARTMENT/DIVISION, UNIVERSITY & PUBLIC

A. Administrative Appointments at Wayne State in Last Five Years

None

B. Administrative Appointments at Other College/University in Last Five Years

None

C. Committee Assignments in Last Five Years

1. University Committee Membership

2017	Graduate Research Symposia (Judge), March 8th, 2017.
2016-2017	University Research Grant Committee (Physical and Mathematical Sciences Subcommittee)
2016	Graduate Research Symposia (Judge), March 24th, 2016.

2. College/Department Committee Membership

2019	Departmental Chair Search Committee
2018	College of Engineering Academic Standards Committee (ASC)
2017 – 2019	College of Engineering Executive Committee – Faculty Assembly
2016 – 2018	College of Engineering Research Advisory Committee (RAC)
2015-2018	Departmental Faculty Search Committee
2014-2015	College of Engineering Technology Advisory Committee (TAC)
2014-2015	College of EngineeringUndergraduate Research Opportunity Program (UROP)
2014-2015	College of Engineering Academic Oversight Committee (AOC)

D. Positions Held in Professional Associations in Last Five Years

[5] International Association for Great Lakes Research (IAGLR) 2019 Annual Conference, Brockport NY, 2019 June 10-14, Session Chair of "Microplastics in the Environment: Source, Fate, Impact, Detection, and Mitigation".

[4] Association of Environmental Engineering and Science Professors (AEESP) 2017 Research and Education Conference, Ann Arbor MI, 2017 June 20-22, Organizing Committee.

[3] 2017 International Conference on Structural and Civil Engineering（ICSCE 2017）, Lyon, France, 2017 September 21-23, Technical Committee.

[2] International Conference on Sustainable Civil Engineering, Cape Town, South Africa, 2016 June 20-21, Organizing Committee.

[1] World Summit on Recycling and Environmental Management, Malaysia, 2017 May 22 -24, Organizing Committee.

E. Membership/Offices Held in Public or Private Agencies Related to Discipline in Last Five Years

[2] National Science Foundation, panel review (Environmental Engineering), 2016, 2017.

[1] The Michigan Department of Environmental Quality 2017 Michigan Sustainability Conference (MISCON), Detroit, 2017 September 14, Conference Steering Committee Member.

F. Professional Consultation

1. Public Presentations as an Expert in Discipline

[3] 2016	Competition Judge, Michigan Smart Competition, Southfield MI, 2016 May 15.
[2] 2016	Competition Judge, Future City Competition, Novi MI, 2016 January 25.

[1] 2014 Detroit Climate Action Collaborative (Climate Change Youth Summit 2014), Detroit MI, 2014 Nov 13. Representative of Department of Civil & Environmental Engineering.

2. Testimony before Public Bodies

None

3. Consulting to Public Agencies, Foundations, Professional Associations

[2] 2016 Department of Energy, National Algal Biofuels Technology Roadmap, 2016 March, report review.

[1] 2017- present Role model for the STEMinista Project in Michigan Science Center (http://www.mi-sci.org/steminista/yongli-zhang/).

4. Consulting to Private Enterprises

NA

G. Journal/Editorial Activity

NA

H. Other Professionally Related Service

1. Journal Paper Review

[10] Environmental Science & Technology (1)

[9] Applied Energy (1)

[8] Water Research (4)

[7] Environmental Science: Process and Impact (2)

[6] Water Science &Technology: Water Supply (6)

[5] Environmental Science & Pollution Research (1)

[4] *Algal Research (8)

[3] Sustainability (1)

[2] Science of Total Environment (4)

[1] Scientific Report (1)

*Recognized as Outstanding Reviewer: Algal Research, 2016.

2. Conference Paper Review

[2] The American Society of Mechanical Engineers (ASME) 2015 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference (IDETC/CIE) (1)

[1] The American Society of Mechanical Engineers (ASME) 2016 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference (IDETC/CIE) (1)