

## Phillip B. Gedalanga

Department of Public Health  
California State University, Fullerton  
800 N. State College Boulevard  
KHS 234  
Fullerton, CA 92834

P: (657) 278-5498  
F: (657) 278-5317  
E: pgedalanga@fullerton.edu

### EDUCATION

2010 Ph.D. Environmental Health Science and Policy, University of California, Irvine  
2002 B.S. in Applied Ecology, University of California, Irvine

### PROFESSIONAL POSITIONS

#### California State University, Fullerton

2017 – Present Assistant Professor, Department of Public Health

#### University of California, Los Angeles

2017 Lecturer, Civil and Environmental Engineering  
2011 – 2017 Postdoctoral Scholar, Civil and Environmental Engineering

#### Chapman University

2011 Adjunct Faculty, Biological Sciences, Schmid College of Science,  
School of Earth and Environmental Science

### HONORS AND AWARDS

2016 Certificate of Merit for Outstanding Material Content and Presentation, American  
Chemical Society, Division of Environmental Chemistry  
2016 National Science Foundation – Professional Development Award  
2011 Supplemental Instruction Outstanding Professor, Tutor, Learning and Testing  
Center, Chapman University, Orange, California  
2009 Engineering Research Achievement Award, California Water Environment  
Association, Santa Ana River Basin Section

### TEACHING

#### California State University, Fullerton

HESC 415 – Environmental Health  
ENST 510 – Environmental Evaluation and Protection

#### University of California, Los Angeles

CEE 255B – Biological Processes for Water and Wastewater Treatment  
CEE 266 – Environmental Biotechnology

#### Chapman University

BIO204 – General Biology  
BIO205L – General Biology Laboratory

### INTRAMURAL AWARDS

#### Principal, Multiple, or Co-Principal Investigator

1. College of Health and Human Development Selection for Junior/Senior Intramural Award, 2019-2020, \$6,693 (3WTU Equivalent). Project Title: *Microbial source tracking of an urban watershed: Investigating fecal pollution sources and disparate exposures within the Santa Ana River.* **Role: PI**

2. Water Resources and Policy Initiatives, 2017-2018 Faculty Research Incentive Award, \$5,709 (3WTU Equivalent). Project Title: *Environmental Microbiomes for Improved Microbial Source Tracking in Impacted Water Bodies*. **Role: PI**

### EXTRAMURAL AWARDS

#### Principal, Multiple, or Co-Principal Investigator

1. South Orange County Wastewater Authority, 06/01/19 – 05/31/20, \$148,747. Project Title: *Application and validation of microbial source tracking biomarkers to differentiate viable and non-viable targets of human fecal pollution in natural and engineered environments throughout South Orange County, CA*. **Role: PI**
2. Picker Interdisciplinary Science Institute, Colgate University, Interdisciplinary Research Grant, 06/01/19 – 05/31/2021, \$116,000. Project Title: *Investigating the fate and transport of microplastics and their ecological impacts in natural and engineered systems*. **Role: Co-PI**
3. South Orange County Wastewater Authority, 06/1/18 – 08/31/18, \$21,121. Project Title: *Identification of Optimal Microbial Community Structures for Improved Biogas Production in an Anaerobic Digester*. **Role: PI**
4. Santa Ana Watershed Project Authority, 07/1/18 – 03/31/18, \$9,000. Project Title: *Microbial community signatures and gene-specific markers as indicators of water quality and potential health threats to disadvantaged communities in the Santa Ana River Watershed*. **Role: PI**

### PEER-REVIEWED PUBLICATIONS

(last author position usually indicates mentorship of the first author)

1. Johnson NW, **Gedalanga PB**, Zhao L, Gu B, Mahendra S. 2020. Cometabolic biotransformation of 1,4-dioxane in mixtures with hexavalent chromium using attached and planktonic bacteria. *Sci. Total Environ. In press*.
2. Miao Y, Johnson NW, **Gedalanga PB**, Adamson D, Newell C, Mahendra S. 2019. Response and recovery of microbial communities subjected to oxidative and biological treatments of 1,4-dioxane and co-contaminants. *Water Res.* 149:74-85.
3. Polasko A, Zulli A, **Gedalanga PB**, Pornwongthong P, Mahendra S. 2018. A mixed microbial community for the biodegradation of chlorinated ethenes and 1,4-dioxane. *Environ. Sci. Technol. Lett.* 6(1):49-54.
4. Miao Y, Johnson NW, Heck K, Guo S, Powell CD, Phan T, **Gedalanga PB**, Adamson DT, Newell CJ, Wong MS, Mahendra S. 2018. Microbial responses to combined oxidation and catalysis treatment of 1,4-dioxane and co-contaminants in groundwater and soil. *Front. Env. Sci. Eng.* 12(5):1-13.
5. Reyes VC, **Gedalanga PB**, Merino N, Van Nostrand JD, Keely SP, De Long SK, Zhou J, Mahendra S. 2018. Differential sensitivity of wetland-derived nitrogen cycling microorganisms to copper nanoparticles. *ACS Sustain. Chem. Eng.* 6(9):11642-11652.
6. Zhang S, Merino N, Okamoto A, **Gedalanga PB\***. 2018. Inter-Kingdom microbial consortia mechanisms to guide biotechnological applications. *Microb. Biotechnol.* 11(5):833-847.
7. Myers MA, Johnson NW, Zercero E, Pornwongthong P, Liu Y, **Gedalanga PB**, Mahendra S. 2018. Abiotic and bioaugmented granular activated carbon for the treatment of 1,4-dioxane-contaminated water. *Environ. Pollut.* 240:916-924.
8. Jasmann JR, **Gedalanga PB**, Borch T, Mahendra S, Blotevogel J. 2017. Synergistic treatment of mixed 1,4-dioxane and chlorinated solvent contaminations by coupling electrochemical oxidation with aerobic biodegradation. *Environ. Sci. Technol.* 51(21):12619-12629.
9. Zhang S, **Gedalanga PB**, Mahendra S. 2017. Advances in Bioremediation of 1,4-Dioxane Contaminated Waters. *J. Environ. Manage.* 204:765-774.

10. **Gedalanga PB**, Madison A, Miao Y, Richards T, Illes R, Hatton J, DiGuseppi WH, Wilson J, Mahendra S. 2016. A multiple lines of evidence framework to evaluate intrinsic biodegradation of 1,4-dioxane. *Remed J.* 27(1): 93-114.
11. Zhang S, **Gedalanga PB**, Mahendra S. 2016. Biodegradation kinetics of 1,4-dioxane in chlorinated solvent mixtures. *Environ Sci. Technol.* 50(17): 9599-9607.
12. Asvapathanagul P, Olson BH, **Gedalanga PB**, Hashemi A, Huang ZH, La J. 2015. Identification and quantification of *Thiothrix eikelboomii* using qPCR for early detection of bulking incidents in a full-scale water reclamation plant. *Appl. Microbiol. Biotechnol.* 99(9):4045-4057.
13. **Gedalanga PB**, Pornwongthong P, Mora R, Chiang SYD, Baldwin B, Ogles D, Mahendra S. 2014. Identification of biomarker genes to predict biodegradation of 1,4-dioxane. *Appl. Environ. Microbiol.* 80(10): 3209-3218.
14. Pornwongthong P, Mulchandani A, **Gedalanga PB**, Mahendra S. 2014. Transition metals and organic ligands influence biodegradation of 1,4-dioxane. *Appl. Biochem. Biotechnol.* 173(1): 291-306.
15. **Gedalanga PB**, Kotay SM, Sales CM, Butler CS, Goel R, Mahendra S. 2013. Novel applications of molecular biological and microscopic tools in environmental engineering. *Water Env. Res.* 85(10): 917-950.
16. Asvapathanagul P, Huang ZH, **Gedalanga PB**, Baylor A, Olson BH. 2012. Interaction of operational and physicochemical factors leading to *Gordonia amarae*-like foaming in an incompletely nitrifying activated sludge plant. *Appl. Environ. Microbiol.* 78(23): 8165-8175.
17. Chiang SYD, Mora R, Diguseppi WH, Davis G, Sublette K, **Gedalanga PB**, Mahendra S. 2012. Characterizing the intrinsic bioremediation potential of 1,4-dioxane and trichloroethene using innovative environmental diagnostic tools. *J. Environ. Monit.* 14(9): 2317-2326.
18. Mahendra S, **Gedalanga PB**, Kotay SM, Torres CI, Butler CS, Goel R. 2012. Advancements in molecular techniques and applications in environmental engineering. *Water Env. Res.* 84(10): 814-844.
19. Huang ZH, **Gedalanga PB**, Asvapathanagul P, Olson BH. Influence of physicochemical and operational parameters on *Nitrobacter* and *Nitrospira* communities in an aerobic activated sludge bioreactor. 2010. *Water Res.* 44(15): 4351-4358.
20. **Gedalanga PB** and Olson BH. 2009. Development of a quantitative PCR method to differentiate between viable and non-viable bacteria in environmental water samples. *Appl. Microbiol. Biotechnol.* 82(3): 587-596.
21. Jiang SC, Chu W, Olson BH, He JW, Choi SC, Zhang J, Le JY, **Gedalanga PB**. Microbial source tracking in a small southern California urban watershed indicates wild animals and growth as the source of fecal bacteria. 2007. *Appl. Microbiol. Biotechnol.* 76(4): 927-934.

#### PEER-REVIEWED PRESENTATIONS

1. Park V, Renick VC, **Gedalanga PB**. 2020. Characterization of microplastics at a large wastewater treatment plant. Ocean Sciences Meeting. San Diego, CA.
2. Miao Y, Johnson NW, **Gedalanga PB**, Heck K, Adamson D, Newell C, Wong MS, Mahendra S. 2019. Monitoring, assessment, and prediction of microbial shifts in coupled abiotic-biological treatment for contaminant mixtures in soil and groundwater. Annual meeting for the American Society of Microbiology. San Francisco, CA.
3. **Gedalanga PB**, Zhang S, Myers M, Mahendra S, Mora R, Chiang D, Baldwin B, Ogles D. 2016. Evaluation of ALDH and DXMO as biomarkers for 1,4-dioxane biodegradation in an impacted aquifer. 10th International Conference on Remediation of Chlorinated and Recalcitrant Compounds. Palm Springs, CA.
4. Myers M, Pornwongthong P, **Gedalanga PB**, Mahendra S. 2016. Bioaugmented granular activated carbon treatment of 1,4-dioxane and CVOCs. 10th International Conference on Remediation of Chlorinated and Recalcitrant Compounds. Palm Springs, CA.

5. Zhang S, Guo S, **Gedalanga PB**, Mahendra S. 2016. Bioprocesses for simultaneously removing hexavalent chromium and 1,4-dioxane. 251st American Chemical Society National Meeting & Exposition. San Diego, CA.
6. Myers M, Zhang S, Liu Y, **Gedalanga PB**, Mahendra S. 2016. Bioaugmented sorbents for removing 1,4-dioxane and CVOVs from water. 251st American Chemical Society National Meeting & Exposition. San Diego, CA.
7. Blotevogel J, Jasmann J, Sale T, Glezakou V, Myers M, **Gedalanga PB**, Mahendra S, Borch T. 2016. Abiotic and biotic catalysis of electrolytic 1,4-dioxane oxidation. 251st American Chemical Society National Meeting & Exposition. San Diego, CA.
8. Jasmann JR, Borch T, Sale TC, Myers M, **Gedalanga PB**, Mahendra S, Blotevogel J. 2016. Novel electrochemical oxidation treatments for 1,4-dioxane employing synergistic benefits from inter-electrode catalyst and microbial stimulation. Emerging Contaminants Summit. Westminster, Colorado.
9. Mora R, Holbrook H, Chiang D, Mahendra S, **Gedalanga PB**, Dworatzek S, Bodour A, Anderson RH. 2016. Bioaugmentation to enhance biodegradation of 1,4-dioxane. 10th International Conference on Remediation of Chlorinated and Recalcitrant Compounds. Palm Springs, CA.
10. Blotevogel J, Jasmann J, Myers M, **Gedalanga PB**, Borch T, Mahendra S. Electrolytic stimulation of aerobic 1,4-dioxane biodegradation. 2015. Annual Meeting of the University Consortium for Field-Focused Groundwater Contamination Research. Guelph, Ontario, Canada.
11. Mahendra S, Mora R, Chiang D, **Gedalanga PB**, Zhang S, Phan T, Gu B. 2015. Effect of hexavalent chromium on the biodegradation of 1,4-dioxane. 3rd International Symposium on Bioremediation and Sustainable Environmental Technologies. Miami, Florida.
12. Zhang S, **Gedalanga PB**, Mahendra S. 2015. Simultaneous degradation of 1,4-dioxane and chlorinated solvents by propane-oxidizing bacteria. RemTEC Summit. Westminster, Colorado.
13. Chiang D, Mora R, **Gedalanga PB**, Pornwongthong P, Mahendra S, Baldwin B, Ogles D, Anderson JK, Bodour AA. 2014. Field application of biomarker-based tools to validate 1,4-dioxane biodegradation. 9th International Conference on Remediation of Chlorinated and Recalcitrant Compounds. Monterey, California.
14. Pornwongthong P, Mulchandani A, Folker T, Phan TN, **Gedalanga PB**, Mahendra S. Mechanistic toxicology of copper in a 1,4-dioxane degrading bacterium. 2014. 248th American Chemical Society National Meeting and Exposition. San Francisco, California.
15. Pornwongthong P, Mulchandani A, **Gedalanga PB**, Mahendra S. 2014. Influence of transition metals and organic ligands on 1,4-dioxane biodegradation. General Meeting of the American Society of Microbiology. Boston, Massachusetts.
16. **Gedalanga PB**, Pornwongthong P, Chiang D, Mora R, Baldwin B, Ogles, D, Anderson JK, Bodour A, Mahendra S. Genetic tools for monitoring 1,4-dioxane biodegradation in environmental samples. 2013. 2nd International Symposium on Bioremediation and Sustainable Environmental Technologies. Jacksonville, Florida.
17. **Gedalanga PB**, Pornwongthong P, Mora R, Chiang SYD, Baldwin B, Ogles D, Mahendra S. Molecular biological tools for monitoring biodegradation of 1,4-dioxane in pure cultures of *Pseudonocardia dioxanivorans* CB1190. 2013. Association for Environmental Health and Sciences Foundation. 23rd Annual International Conference on Soil, Water, Energy and Air. San Diego, California.
18. Asvapathanagul P, **Gedalanga PB**, Tsai CY, Wang T, Wallace T, Hayden D, Rosso D, Olson BH. Dynamics and control of activated sludge processes using molecular tools. 2012. Proceedings from the Water Environment Federation Technical Exhibit and Conference. New Orleans, Louisiana.
19. **Gedalanga PB**, Pornwongthong P, Mahendra S. Molecular and isotopic tools for validating biodegradation of 1,4-dioxane. 2012. Association for Environmental Health and Sciences Foundation. 22nd Annual International Conference on Soil, Water, Energy and Air. San Diego, California.

20. **Gedalanga PB**, Pornwongthong P, Mahendra S, Mora R, Chiang D, Diguisseppi WH. Genomic analysis of *Pseudonocardia dioxanivorans* CB1190 for 1,4-dioxane degradation biomarkers. 2012. Groundwater Resources Association of California 25th Symposium: Compounds of Emerging Concern in Groundwater. Concord, California.
21. Tsai CY, Wang TZ, Asvapathanagul P, **Gedalanga PB**, Olson BH. 2012. *Thauera* sp., another prominent denitrifying bacterium in methanol-fed activated sludge. Proceedings from the Water Environment Federation Technical Exhibit and Conference. New Orleans, Louisiana.
22. **Gedalanga PB**, Pornwongthong P, Mahendra S. 2012. Development and application of functional biomarkers to indicate potential biodegradation of 1,4-dioxane. General Meeting of the American Society of Microbiology. San Francisco, California.
23. Pornwongthong P, **Gedalanga PB**, Paradis GL, Mora R, Chiang D, Diguisseppi WH, Mahendra S. 2012. Stable carbon isotope fractionation during biodegradation of 1,4-dioxane. 8th International Conference on Remediation of Chlorinated and Recalcitrant Compounds. Monterey, California.
24. Asvapathanagul P, Huang ZH, **Gedalanga PB**, Olson BH. Predicting and proposed control of *Gordonia amarae* occurrence in an activated sludge process and physicochemical factors in plant operation related to the foaming event. 2011. Proceedings from the Water Environment Federation Technical Exhibit and Conference. Los Angeles, California.
25. Olson BH, **Gedalanga PB**, Huang ZH, Asvapathanagul P, Tsai CY. Nitrite levels in an incomplete nitrifying plant and how increasing denitrification could decrease nitrate and disinfection issues. 2011. Proceedings from the Water Environment Federation Technical Exhibit and Conference. Los Angeles, California.
26. **Gedalanga PB**, Rosso D, Olson BH. Application of molecular tools to engineering practice to increase process sustainability in water reclamation. 2011. Association of Environmental Engineering and Science Professors Education and Research Conference. Tampa, Florida.
27. **Gedalanga PB**, Rosso D, Olson BH. 2011. Optimization of oxygen requirements in the activated sludge process using oxygen uptake rates complemented with specific microbial population analysis. 8th International Water Association Symposium on Systems Analysis and Integrated Assessment. San Sebastian, Spain.
28. Huang ZH, **Gedalanga PB**, Olson BH. Distribution of *Nitrobacter* and *Nitrospira* communities in an aerobic activated sludge bioreactor and their contributions to nitrite oxidation. 2010. Proceedings from the Water Environment Federation Technical Exhibit and Conference. New Orleans, Louisiana.
29. **Gedalanga PB** and Baylor A. An introduction to emerging molecular techniques for wastewater laboratories. 2010. California Water Environment Association Annual Meeting. Sacramento, California.
30. Huang ZH, **Gedalanga PB**, Olson BH. 2010. Influence of environmental variables on nitrite oxidizing bacteria in a full-scale aerobic activated sludge bioreactor. General Meeting of the American Society of Microbiology. San Diego, California.
31. **Gedalanga PB**, Bae HY, Asvapathanagul P, Boone A, Olson BH. Molecular analysis of ammonia oxidizing bacteria as an indicator of treatment processes at a municipal wastewater treatment plant. 2009. Proceedings from the Water Environment Federation Technical Exhibit and Conference. Orlando, Florida.
32. **Gedalanga PB** and Olson BH. Development of a quantitative PCR method to differentiate between viable and non-viable bacteria in environmental effluent water samples. 2009. California Water Environment Association Annual Meeting. Palm Springs, California.
33. **Gedalanga PB**, Bae HY, Asvapathanagul P, Boone A, Olson BH. 2009. Molecular analysis of activated sludge as an indicator of treatment processes at a municipal wastewater treatment plant. General Meeting of the American Society of Microbiology. Philadelphia, Pennsylvania.
34. **Gedalanga PB** and Olson BH. 2008. Comparison of *Escherichia coli* populations in a lake reservoir enumerated using EMA-qPCR with direct DNA analysis for viable but non-culturable bacteria and membrane filtration on mTEC media. General Meeting of the American Society of Microbiology. Boston, Massachusetts.

35. **Gedalanga PB** and Olson BH. 2007. Optimizing ethidium monoazide bromide treatment and qPCR to determine viable Escherichia coli in wastewater effluents. General Meeting of the American Society of Microbiology. Toronto, Ontario, Canada.
36. **Gedalanga PB** and Olson BH. 2006. Identification of Escherichia coli O157:H7 specific genes fliC and stx1 in environmental matrices using quantitative PCR coupled with magnetic capture hybridization. Orlando, Florida.
37. **Gedalanga PB**, Williams-Hill D, Olson BH. 2004. Determining the effects of environmental interferences on real-time quantitative PCR efficiency. General Meeting of the American Society of Microbiology. New Orleans, Louisiana.
38. Le J, **Gedalanga PB**, Olson BH. 2003. Comparison of mTEC and mTEC supplemented with Congo Red dye media in the growth of E. coli carrying LTIIIa, tsh, and ralG toxin genes. General Meeting of the American Society of Microbiology. Washington, D. C.

### **INVITED PRESENTATIONS**

1. Hamilton R, Brousseau M, Rangel K., **Gedalanga PB**. 2019. Homelessness and Water Quality. Patagonia Pasadena. Pasadena, CA. November 7, 2019.
2. **Gedalanga PB**. 2019. Microbial Source Tracking in the Santa Ana River. Middle Santa Ana River TMDL Task Force Meeting. Riverside, CA. February 19, 2019.
3. **Gedalanga PB**, Miao Y, Pornwongthong P., Mahendra S. 2018. Biodegradation of 1,4-dioxane: Remediation of contaminated aquifers. 28th Annual Korean Scientists & Engineers Association Southern California Chapter Regional Conference. Fountain Valley, CA.
4. **Gedalanga PB**. 2018. Taste of Graduate School Lecture. Allied Health Academy, California State University, Fullerton. Fullerton, CA.

### **STUDENT MENTORSHIP**

1. Cheri Plaza, MPH, graduate independent study, Spring 2020
2. Megan Enciso, undergraduate independent study, Spring 2020
3. Velvet Park, ENST MS, graduate independent study, Fall 2019, Spring 2020
4. Josue Romero, undergraduate independent study, Spring 2019, Fall 2019
5. Marcus Lynam, undergraduate independent study, Summer 2019
6. Andrew Yacoub, undergraduate independent study, Summer 2019
7. Cameron Lukos, ENST MS, graduate independent study, Spring 2019
8. Loanne Nguyen, undergraduate research intern, 2018-2019
9. Cindy Puga, MPH research intern, 2018-2019

### **UNIVERSITY SERVICE**

#### California State University, Fullerton

Faculty Preceptor, Allied Health Academy Summer Research Experience, Summer 2019

Judge, United Nations Association, 1<sup>st</sup> Annual UNA-USA Water Case Crisis Competition, Spring 2019

Mentor, Faculty/Graduate Student Mentoring Program, 2017-Present

#### Department of Public Health

2019-Present Chair, MPH Admissions committee

2018-19 Member, MPH Admissions committee

2017-Present Member, Graduate committee

2017-Present Course Lead, PUBH 415

2017-18 Member, Faculty Search committee

**PROFESSIONAL SERVICE**

Manuscript Reviewer, *EnvironmentAsia*, *Environmental Pollution*, *Environmental Science & Technology*,  
*Groundwater Monitoring & Remediation Journal*, *Journal of Bioscience and Bioengineering*,  
*Microbial Biotechnology*

Member, International Advisory Committee, Thai Society for Biotechnology and International  
Conference 2017

**COMMUNITY SERVICE**

Member, Bight '18 Microbiology Planning Committee, Southern California Coastal Water Research  
Project

**PROFESSIONAL MEMBERSHIP**

American Society of Microbiology