

# Zhichao Zhou, PhD

---

## CONTACT

4545 Microbial Sciences Building  
1550 Linden Drive  
Madison, WI, 53706, USA

zczhou2017@gmail.com  
+1-318-545-5635

## RESEARCH INTERESTS

Marine and freshwater microbiological ecology/Environmental microbiology/Diversity and function of carbon and nitrogen cycling associated microbes/Soil enzymology/High throughput sequencing application on microbial ecology/Omics-mediated microbial ecology studies/Biogeochemical process related microbial ecology/Microbial evolution/Sulfur-related microbiome research

## SAMPLING EXPERIENCE

- Mai Po mangrove wetland in the northwestern part of Hong Kong, many times;
- Tsim Bei Tsui coastal wetland in the northwestern part of Hong Kong, many times;
- Mangrove coastal wetlands in the eastern part of Hong Kong, many times;
- Futian Mangrove Ecological Park (National Nature Reserve) in Shenzhen city, many times;
- Multiple places in Hong Kong searching for tree disease-causing fungus, many times;
- Seawater and sediment sampling in Deep Water Bay (between Shenzhen and Hong Kong), and Pearl River Estuarine Region, two times;
- Sai Kung rural and coastal areas for rhizospheric soil samples, many times;
- CUHK campus for legume rhizospheric soil collection, many times

## QUANTITATIVE SKILLS

- Skillful in QIIME, mothur, and related R-based visualization method
- Good at Quantitative software, e.g., SPSS, GraphPad Prism, Origin, etc.
- Good at Perl scripting, and know about Python

## WORK EXPERIENCE

Department of Bacteriology, University of Wisconsin - Madison

Dec 2018 — Present

Postdoctoral Research Associate

Trained in Anantharaman Microbiome Lab (Advisor: Assis. Prof. Karthik Anantharaman)

School of Life Sciences, The Chinese University of Hong Kong

May 2017 — Nov 2018

Postdoctoral Research Associate

Trained in Microbial Evolution and Ecology Lab affiliated to Simon F. S. Li Marine Science Laboratory, CUHK (Advisor: Assis. Prof. Luo Haiwei)

## EDUCATION

MBL Microbial Diversity summer course  
2016

Jul 1, 2016 — Aug 17, 2016

Marine Biological Laboratory, Woods Hole, MA

Ph.D. in Environmental Microbiology

Aug 2012 — Apr 2017

School of Biological Sciences, The University of Hong Kong

Trained in Environmental Microbiology & Toxicology Lab (Supervisors: Assoc. Prof. Ji-Dong Gu & Assoc. Prof. Yiliang Li)

B.S. of National Biological Base Class

Sep 2006 — Jul 2010

College of Life Sciences, Wuhan University

Trained in Lab of Microbial Genetics (Supervisor: Prof. Zhixiong Xie), Dept. of Microbiology & China Center for Type Culture Collection (Supervisors: Assoc. Prof. Fang Peng & Prof. Chengxiang Fang)

## PUBLICATION

18. Pan, J., Chen, Y., Wang, Y., Zhou, Z. & Li, M. Vertical Distribution of Bathyarchaeotal Communities in Mangrove Wetlands Suggests Distinct Lifestyle of Bathyarchaeota Subgroup-6. *Microbial Ecology*, doi:10.1007/s00248-018-1309-7(2018).
17. Zhou, Z., Liu, Y., Lloyd, K. G., Pan, J., Yang, Y., Gu, J.-D. & Li, M. Genomic and transcriptomic insights into the ecology and metabolism of benthic archaeal cosmopolitan, Thermopfundales (MBG-D archaea). *The ISME Journal*, doi: 10.1038/s41396-018-0321-8 (2018).
16. Zhou, Z., Zhang, G.-X., Xu, Y.-B. & Gu, J.-D. Successive transitory distribution of thaumarchaeota and partitioned distribution of bathyarchaeota from the Pearl River estuary to the northern South China Sea. *Applied Microbiology and Biotechnology*, doi:10.1007/s00253-018-9147-6 (2018).
15. Zhou, Z.\*, Wei, Q.\* , Yang, Y., Li, M. & Gu, J.-D. Practical applications of PCR primers in detection of anammox bacteria effectively from different types of samples. *Applied Microbiology and Biotechnology*, doi:10.1007/s00253-018-9078-2 (2018).
14. Zhou, Z., Pan, J., Wang, F., Gu, J.-D. & Li, M. Bathyarchaeota: globally distributed metabolic generalists in anoxic environments. *FEMS Microbiology Reviews*, fuy023-fuy023, doi:10.1093/femsre/fuy023 (2018).
13. Zhou, Z.\*, Liu, Y.\* , Li, M. & Gu, J.-D. Two or three domains: a new view of tree of life in the genomics era. *Applied Microbiology and Biotechnology*, 1-10, doi:10.1007/s00253-018-8831-x (2018).
12. Liu, Y., Zhou, Z., Pan, J., Baker, B. J., Gu, J.-D. & Li, M. Comparative genomic inference reveals mixotrophic lifestyle of Thorarchaeota. *The ISME Journal*, doi:10.1038/s41396-018-0060-x (2018).
11. Liu, X., Li, M., Castelle, C. J., Probst, A. J., Zhou, Z., Pan, J., Liu, Y., Banfield, J. F. & Gu, J.-D. Insights into the ecology, evolution, and metabolism of the widespread Woese archaeal lineages. *Microbiome* 6, 102, doi:10.1186/s40168-018-0488-2 (2018).
10. Zhou, Z., Meng, H., Liu, Y., Gu, J.-D. & Li, M. Stratified Bacterial and Archaeal Community in Mangrove and Intertidal Wetland Mudflats Revealed by High Throughput 16S rRNA Gene Sequencing. *Frontiers in Microbiology* 8, 2148, doi:10.3389/fmicb.2017.02148 (2017).
9. Zhou, Z., Chen, J., Meng, H., Dvornyk, V. & Gu, J.-D. New PCR primers targeting hydrazine synthase and cytochrome biogenesis proteins in anammox bacteria. *Applied Microbiology and Biotechnology* 101, 1267-1287, doi:10.1007/s00253-016-8013-7 (2017).
8. Liang, B., Wang, L.-Y., Zhou, Z., Mbadinga, S. M., Zhou, L., Liu, J.-F., Yang, S.-Z., Gu, J.-D. & Mu, B. High frequency of *Thermodesulfobiosspp.* and *Anaerolineaceae* in association with *Methanoculleus* spp. in a long-term incubation of *n*-alkanes-degrading methanogenic enrichment culture. *Frontiers in Microbiology* 7, 1431, doi: 10.3389/fmicb.2016.01431 (2016).

7. Zhou, Z., Chen, J., Cao, H., Han, P. & Gu, J.-D. Analysis of methane-producing and metabolizing archaeal and bacterial communities in sediments of the northern South China Sea and coastal Mai Po Nature Reserve revealed by PCR amplification of *mcrA* and *pmoA* genes. *Frontiers in Microbiology* 5, 789, doi:10.3389/fmicb.2014.00789 (2015).
6. Luo, L., Zhou, Z. & Gu, J.-D. Distribution, diversity and abundance of bacterial laccase-like genes in different particle size fractions of sediments in a subtropical mangrove ecosystem. *Ecotoxicology* 24, 1508-1516, doi:10.1007/s10646-015-1452-6 (2015).
5. Chen, J., Zhou, Z. & Gu, J.-D. Complex community of nitrite-dependent anaerobic methane oxidation bacteria in coastal sediments of the Mai Po wetland by PCR amplification of both 16S rRNA and *pmoA* genes. *Applied Microbiology and Biotechnology* 99, 1463-1473, doi:10.1007/s00253-014-6051-6 (2015).
4. Zhou, Z., Han, P. & Gu, J.-D. New PCR primers based on *mcrA* gene for retrieving more anaerobic methanotrophic archaea from coastal reedbed sediments. *Applied Microbiology and Biotechnology* 98, 4663-4670, doi:10.1007/s00253-014-5599-5 (2014).
3. Chen, J., Zhou, Z. & Gu, J.-D. Occurrence and diversity of nitrite-dependent anaerobic methane oxidation bacteria in the sediments of the South China Sea revealed by amplification of both 16S rRNA and *pmoA* genes. *Applied Microbiology and Biotechnology* 98, 5685-5696, doi:10.1007/s00253-014-5733-4 (2014).
2. Su, W., Zhou, Z., Jiang, F., Chang, X., Liu, Y., Wang, S., Kan, W., Xiao, M., Shao, M., Peng, F. & Fang, C. *Iodobacter limnosediminis* sp. nov., isolated from Arctic lake sediment. *International Journal of Systematic and Evolutionary Microbiology* 63, 1464-1470, doi:10.1099/ijs.0.039982-0 (2013).
1. Zhou, Z., Jiang, F., Wang, S., Peng, F., Dai, J., Li, W. & Fang, C. *Pedobacter arcticus* sp. nov., a facultative psychrophile isolated from Arctic soil, and emended descriptions of the genus *Pedobacter*, *Pedobacter heparinus*, *Pedobacter daechungensis*, *Pedobacter terricola*, *Pedobacter glucosidilyticus* and *Pedobacter lentus*. *International Journal of Systematic and Evolutionary Microbiology* 62, 1963-1969, doi:10.1099/ijs.0.031104-0 (2012).

## ACADEMIC ACTIVITIES

- Jun 20-24, ASM Microbe 2019, San Francisco; giving poster: Genomic and transcriptomic insights into the ecology and metabolism of benthic archaeal cosmopolitan, Thermoproteales (MBG-D archaea)
- Jun 8-11, The 7th National Geomicrobiology Conference, Shanghai Jiao Tong University, Shanghai; co-first contributor to an oral presentation: Two or three domains: a new view of tree of life in the genomics era
- Nov 25-26, 2017 Attend the 2nd Shenzhen Forum on Ocean Sciences for Young Scholars, Southern University of Science and Technology, Shenzhen, China
- Oct 14, 2017 Attend State Key Laboratory of Agrobiotechnology (SKL)-Institute of Plant Molecular Biology and Agricultural Biotechnology (IPMBAB) series meeting 2017, at Yasumoto International Academic Park (YIA), CUHK
- Jun 14, 2017 Attend WUN Symposium cum Research Summit 2017: Impacts of Grain Legume Research and Development in Developing Countries at The Chinese University of Hong Kong, Hong Kong
- Jun 13, 2017 Attend "The Second Interdisciplinary forum: Wisdom Gathered in Ocean: Exploring, Developing and Conserving" held by Shenzhen University
- Jun 10-12, 2017 The 6th National Geomicrobiology Conference, Sun Yat-Sen University, Guangzhou; giving poster: Core Bacterial Microbiome of Hydrocarbon Degradation from Petroleum Reservoirs with Different Temperatures Across China
- Dec 07, 2016 Attend "Big Data Workshop" at Faculty of Science, The University of Hong Kong
- Sep 1-

Nov 1, 2016	Cooperative research work in Institute for advanced study, Shenzhen University
Jul-Aug, 2016	Conduct the miniproject "Investigating on microbial community of Trunk River shore sediment core profile by CARD-FISH and qPCR" in MBL microbial diversity summer course
2016	SCNC1112 Fundamentals of Modern Science as lab demonstrator
2016	BIOL2103 Biological Sciences Laboratory course as lab demonstrator
2015	BIOL2614/3110 Environmental Toxicology as lab demonstrator
May 27- 31, 2015	Next Generation Sequencing Data Analysis Workshop in Hong Kong May-Jun 2015, HKU, Hong Kong
2015	BIOL3317/4402 Microbial Biotechnology as lab demonstrator
Nov 25, 2014-Feb 11, 2015	Cooperative research work in Chengdu Institute of Biology, Chinese Academy of Sciences
Aug 24- 29, 2014	The 15th ISME conference; giving poster: Comparison of Communities of both Methane-producing and Metabolizing Archaea and Bacteria in Sediments between the Northern South China Sea and Coastal Mai Po Nature Reserve Revealed by PCR Amplification of mcrA and pmoA Genes
May 17- 20, 2014	The 114th General Meeting ASM; giving poster (see below)
Jun 3, 2014	Accomplish online course: An Introduction to Interactive Programming in Python offered by Coursera Website
2013, 2014	Accomplish Course BIOL3325_2A Molecular phylogenetics and evolution [2013]
2014	Course BIOL2606 Environmental Microbiology as lab demonstrator
Oct 18- 28, 2013	External cooperative research work in SCME at ECUST, Shanghai
Oct, 2013	Student guide for professor and student visiting delegates from "Hong Yi" preeminent class, College of Life Sciences, Wuhan University
2013	Course BIOL2119 Genetics as lab demonstrator
2013, 2014	Course BIOL0135/BIOL1111 Introductory microbiology HKU+SPACE as lab demonstrator
2012, 2013	Course BIOL6001 Presentation Skills and Research Seminars in Biological Sciences, Ecology & Biodiversity Module as student helper
Sep 20- 29, 2009	Attend the 7th "Evolutionary Genomics" summer course in Kunming Institute of Zoology, Chinese Academy of Science, Kunming, China supported by Morningside Foundation

## CONFERENCES

Sep 3, 2019	33rd Annual Kenneth B. Raper Symposium, UW-Madison
Jun 20- 24, 2019	ASM Microbe 2019, San Francisco  Poster: Genomic and transcriptomic insights into the ecology and metabolism of benthic archaeal cosmopolitan, Thermopfundales (MBG-D archaea)
Jun 8-11, 2018	The 7th National Geomicrobiology Conference, Shanghai Jiao Tong University, Shanghai;  Co-first contributor to an oral presentation: Two or three domains: a new view of tree of life in the genomics era

- Nov 6-10, 2017 International Society for Subsurface Microbiology, 2017 Conference; Rotorua, New Zealand  
Poster: Successive transition of thaumarchaeotal community and partitioned distribution of bathyarchaeotal community from Pearl River estuary to northern South China Sea
- Jul 23-28, 2017 Marine Molecular Ecology (Gordon Research Conference); The Hong Kong University of Science and Technology  
Poster: Stratified bacterial and archaeal community in mangrove and intertidal wetland mudflats revealed by high throughput 16S rRNA gene sequencing
- Jun 10-12, 2017 The 6th National Geomicrobiology Conference, Sun Yat-Sen University, Guangzhou, China  
Poster: Core Bacterial Microbiome of Hydrocarbon Degradation from Petroleum Reservoirs with Different Temperatures Across China
- Aug 21-26, 2016 The 16th International Symposium on Microbial Ecology (ISME16), Montreal, Canada  
Poster: Core Bacterial Microbiome of Hydrocarbon Degradation from Petroleum Reservoirs with Different Temperatures Across China
- Jun 28-Jul 1, 2015 The 4th International Conference on Nitrification (and Related Processes), University of Alberta, Edmonton, Alberta, Canada  
Poster: PCR amplification based community analysis of methane-producing and metabolizing archaea and bacteria in sediments of northern South China Sea and coastal Mai Po Nature Reserve
- Aug 11-16, 2013 Marine Molecular Ecology (Gordon Research Conference); The Hong Kong University of Science and Technology  
Poster: Codehop based primers retrieving more mcrA gene copies from ANME archaea

## AWARDS

- 2016 Lorus J. & Margery J. Milne Scholarship (Marine Biological Laboratory)
- 2012-2016 University Postgraduate Fellowship ("UPF" awarded by HKU, University level)
- 2009 University's excellent student (Wuhan University)
- 2007-2010 Financial aid by American Bodhi Education Foundation
- 2006-2010 Annual third-prize university scholarships for four times 2006-2010 (Wuhan University)

## PROFESSIONAL SOCIETIES

- American Society for Microbiology (ASM)  
International Society for Microbial Ecology (ISME)  
American Geophysical Union (AGU)