

## CURRICULUM VITAE

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### EDUCATION

2017 Ph.D., Environmental Science, The Ohio State University, Wooster, OH, USA  
2011 M.Sc., Environmental Engineering, Nanyang Technological University, Singapore  
2010 Summer Program, Environmental Studies, Stanford University, Stanford, CA, USA  
2010 B.Eng., Environmental Engineering, Sun Yat-sen University, Guangzhou, China

### PROFESSIONAL EXPERIENCE/ACHIEVEMENTS

1/2021 –

#### **Wai Environmental Solutions AS**

##### *Chief Scientific Officer*

WAI Environmental Solutions AS is a Norwegian technology company focusing on developing and implementing environmental technologies within wastewater treatment, bio-sludge treatment, nutrients and resources recovery, hazardous waste and soil remediation and aquaculture.

Responsible for development of technology and solutions, R&D projects, pilot-scale demo, etc.

10/2017 – 10/2020 **University of Alberta, Edmonton, Canada**

##### *Postdoctoral Fellow*

- Managed eight research and industrial projects from planning, designing, implementation, cost control, data analysis, to report/paper writing and final result presentation.
- Designed and conducted research projects to enhance electron transfer in anaerobic microbial communities using advanced molecular biology and bioinformatics tools.
- Assessed technical feasibility of new technologies for resource recovery from wastewater/solid wastes in lab scale and scaled up the operation with industrial partners.
- Provided advisory service on the technical and economic feasibility of anaerobic digestion facilities.
- Provided technical service to evaluate the degradable carbon content of organic wastes for carbon accounting purposes.
- Created database for lab management, resulting in 50% improvement of efficiency in lab management.
- Contributed to development of proposals that secured funding >\$300K in total.
- Mentored nine undergraduate/graduate students on research and technical writing.

8/2013 – 8/2017 **The Ohio State University, Wooster, USA**

##### *Graduate Research Associate*

- Conducted independent research on bioenergy recovery from agricultural residues using high-solid anaerobic digestion in comparison to composting from technical, microbial, and economic aspects.
- Scaled up the high-solid anaerobic digester in pilot scale and commercial scale with industrial partners.
- Developed new technology and concepts on wastewater treatment and contributed to the proposal that secured >\$200K funding.

- Developed standard operation procedures (SOP) for bioprocesses, standard analytical methods for advanced instruments (GC, HPLC, IC, ICP-MS), and assisted lab management for the entire group.
- Published six first-authored peer-reviewed journal articles.

9/2011 – 7/2013 **Nanyang Technological University, Singapore**

*Project Officer*

- Developed computational fluid dynamics (CFD) models to simulate the hydrodynamic conditions in a membrane bioreactor (MBR) to control membrane fouling in wastewater treatment.
- Simulated hydraulic design of side weirs for flood control in Singapore.
- Provided consultant service on CFD modeling of a pilot-scale MBR.
- Mentored two undergraduate students for capstone projects on computational modeling.

9/2009 – 10/2009 **The Affiliated Environmental Engineering Co., Ltd., Sun Yat-sen University, Guangzhou, China**

*Engineering Intern*

- Conducted on-site survey of the existing sewage pipeline network in Guangzhou.
- Measured water level, water speed, etc. of sewage in the pipeline.
- Assisted in the design of sewage pipeline network using the software AutoCAD.

## **PUBLICATIONS**

1. Ting H.N.J., Lin L., Cruz R.B., Chowdhury B., Karidio I., Zaman H., Dhar B.R. (2020) Transitions of microbial communities in the solid and liquid phases during high-solids anaerobic digestion of organic fraction of municipal solid waste. *Bioresource Technology*. 317, 123951.
2. Lin L., Chowdhury B., Zakaria B.S., Dhar B.R. (2020) Temperature-dependent (20-55°C) electrocatalytic characteristics during ethanol/propionate degradation by methanogenic communities grown on conductive carbon fibers. *Chemical Engineering Journal*. 391, 123566.
3. Ryue J., Lin L., Kakar F.L., Elbeshbishy E., Al-Mamun A., Dhar B.R. (2020) A critical review of conventional and emerging methods for improving process stability in thermophilic anaerobic digestion. *Energy for Sustainable Development*. 54, 72-84.
4. Jiang D., Ge X., Lin L., Zhang T., Liu H., Hu J. (2020) Continuous photo-fermentative hydrogen production in a tubular photobioreactor using corn stalk pith hydrolysate with a consortium. *International Journal of Hydrogen Energy*. 45, 3776-3784.
5. Lin L., Zakaria B.S., Hosseini Koupaie H., Bazayar Lakeh A.A., Hafez H., Elbeshbishy E., Dhar B.R. (2019) Evaluation of sludge liquors from acidogenic fermentation and thermal hydrolysis process as feedstock for microbial electrolysis cells. *International Journal of Hydrogen Energy*. 44, 30031–30038.
6. Lin L., Hosseini Koupaie E., Azizi A., Lakeh A., Dhar B., Hafez H., Elbeshbishy E. (2019) Comparison of two process schemes combining hydrothermal treatment and acidogenic fermentation of source separated organics. *Molecules* (invited). 24, 1466.
7. Chowdhury B., Lin L., Dhar B.R., Islam M.N., McCartney D., Kumar A. (2019) Enhanced biomethane recovery from fat, oil, and grease through co-digestion with food waste and addition of conductive materials. *Chemosphere*. 236, 124362.
8. Zakaria B.S., Lin L., Dhar B.R. (2019) Shift of biofilm and suspended bacterial communities with changes in anode potential in a microbial electrolysis cell treating primary sludge. *Science of the Total Environment*. 689, 691–699.

9. Ryue J., Lin L., Liu Y., Lu W., McCartney D., Dhar B.R. (2019) Comparative effects of GAC addition on methane productivity and microbial community in mesophilic and thermophilic anaerobic digestion of food waste. *Biochemical Engineering Journal*. 146, 79–87.
10. Barua S., Zakaria B.S., Lin L., Dhar B.R. (2019) Magnetite doped GAC as an additive for high-performance anaerobic digestion. *Materials Science for Energy Technologies (invited)*. 2, 377–384.
11. Barua S., Zakaria B.S., Lin L., Dhar B.R. (2019) Shaping microbial communities with conductive carbon fibers to enhance methane productivity and kinetics. *Bioresource Technology Reports*. 5, 20–27.
12. Lin L., Shah A., Keener H., Li Y. (2019) Techno-economic analyses of solid-state anaerobic digestion and composting of yard trimmings. *Waste Management*. 85, 405–416.
13. Lin L., Xu F., Ge X., Li Y. (2018) Improving the sustainability of waste management practices in the food-energy-water nexus: a comparative review of anaerobic digestion and composting. *Renewable & Sustainable Energy Reviews* 89 (February), 151–167.
14. Lin L., Yu Z., Li Y. (2017) Sequential batch thermophilic solid-state anaerobic digestion of lignocellulosic biomass via recirculating digestate as inoculum – Part II: Microbial diversity and succession. *Bioresource Technology*. 241, 1027–1035.
15. Lin L., Li Y. (2017) Sequential batch thermophilic solid-state anaerobic digestion of lignocellulosic biomass via recirculating digestate as inoculum – Part I: Reactor performance. *Bioresource Technology*. 236, 186–193.
16. Xu F., Wang F., Lin L., Li Y. (2016) Comparison of digestate from solid anaerobic digesters and dewatered effluent from liquid anaerobic digesters as inocula for solid state anaerobic digestion of yard trimmings. *Bioresource Technology*. 200, 753–760.
17. Lin L., Yang L., Li Y. (2015) Effect of feedstock components on thermophilic solid-state anaerobic digestion of yard trimmings. *Energy & Fuels*, 29, 3699–3706.
18. Lin L., Yang L., Xu F., Michel F.C. Jr., Li Y. (2014) Comparison of solid-state anaerobic digestion and composting of yard trimmings with effluent from liquid anaerobic digestion. *Bioresource Technology*, 169, 439–446.
19. Abou Asi M., He C., Su M., Xia D., Lin L., Deng H., Xiong Y., Qiu R., Li X. (2011) Photocatalytic reduction of CO<sub>2</sub> to hydrocarbons using AgBr/TiO<sub>2</sub> nanocomposites under visible light. *Catalysis Today*. 175, 256–263.
20. He C., Shu D., Su M., Xia D., Abou Asi M., Lin L., Xiong Y. (2010) Photocatalytic activity of metal (Pt, Ag, and Cu)-deposited TiO<sub>2</sub> photoelectrodes for degradation of organic pollutants in aqueous solution. *Desalination*. 253, 88–93.

### **BOOK CHAPTERS**

1. Lin L.<sup>†</sup>, Zakaria B.S.<sup>†</sup>. (†co-first authors), Chung T., Dhar B.R. (2020). An overview of complementary microbial electrochemical technologies for advancing anaerobic digestion. 1st ed, *Advances in Bioenergy*. Elsevier Inc.
2. Lin L., Xu F., Ge X., Li Y. (2019) Biological treatment of organic materials for energy and nutrients production—Anaerobic digestion and composting. 1st ed, *Advances in Bioenergy*. Elsevier Inc.

### **TECHNICAL REPORTS**

1. Lin L., Zhou P., Mirsoleimani-azizi S.M., Dhar, B.R. (2019) Biochemical methane potential (BMP) test of landfill waste samples. Prepared for the Aerobic Landfill Technologies Inc. AB, Canada, 45 pgs.
2. Lin L., McCartney D. (2018) Conceptual assessment of small-scale anaerobic digestion facility technical memorandum. Prepared for the University of Alberta. 69 pgs.

3. Rossillo D., Lin L., Mahoor N., McCartney D. (2018) Degradable organic carbon (DOC) testing of biosolids, Prepared for the City of Medicine Hat, AB, Canada. 22 pgs.

### **SELECTED CONFERENCE PRESENTATIONS**

1. Lin L., Chowdhury B., Barua S., Zakaria B.S., Dhar B.R. Temperature-dependent (20-55°C) differences in ethanol/propionate degradation by methanogenic communities grown on conductive carbon fibers. 11<sup>th</sup> Western Canadian Symposium on Water Quality Research. Edmonton, AB, Canada, May 10, 2019
2. Lin L., Zakaria B.S., Hosseini Koupaie H., Bazyar Lakeh A.A., Hafez H., Elbeshbishy E., Dhar B.R. Assessment of Bio-electrochemical H<sub>2</sub> potential of sludge liquors from acidogenic fermentation and thermal hydrolysis processes. 11<sup>th</sup> Western Canadian Symposium on Water Quality Research. Edmonton, AB, Canada, May 10, 2019
3. Lin L., Li Y. Recirculating digestate as inoculum for semi-continuous solid-state anaerobic digestion: reactor performance and microbial communities. ASABE Annual Meeting. Orlando, FL, July 17-20, 2016
4. Lin L., Yang L., Li Y. Side-by-side comparison of solid-state anaerobic digestion and composting of yard trimmings with effluent from liquid anaerobic digestion. ASABE Annual meeting, Montreal, QC, Canada. July 13–16, 2014. Paper No. 141897526
5. Lin L., Xu F., Michel F.C. Jr., Li Y. Yard trimmings and liquid AD effluent - dry digestion vs. composting comparisons. BioCycle 13<sup>th</sup> Annual Conference, Columbus, OH. October 20–23, 2013
6. Lin L., Xia L., Law A.W.K., Fane A.G. CFD simulations of a bubble column reactor with a submerged hollow fiber membrane module: relevance to MBRs. MBR Asia 2013: 3<sup>rd</sup> International Conference on Membrane Bioreactors (MBR) for Wastewater Treatment, Bangkok, Thailand, January 21–22, 2013

### **LANGUAGES**

- English – full professional fluency, both written and spoken
- Cantonese – basic professional fluency, conversational
- Chinese – mother tongue