

Luguang Wang

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Department of Biological Engineering, Utah State University

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EDUCATION:

Doctor of Philosophy in Biological and Ecological Engineering, Oregon State University 09/2013 - 06/2020

Advisor: Dr. Hong Liu

Bio-electricity and bio-hydrogen production using bioelectrochemical systems

Machine learning for modeling biosystems and predicting bioreactor performance

Bachelor of Science in Microbiology, Shandong University, China 09/2009 - 06/2013

Undergraduate Research Advisor: Dr. Yuezhong Li

Genetic engineering of Myxobacteria for cellulose degradation

Bachelor of Science in Business Administration (minor), Shandong University, China 07/2010 - 06/2013

PROFESSIONAL EXPERIENCES:

Assistant Professor, Utah State University 08/2023 – Present

Bioenergy and bioproducts production using bioelectrochemical systems

Carbon dioxide capture

Biosystem modeling using machine learning algorithms

Postdoctoral Fellow, The Johns Hopkins University 06/2023 - 07/2023

Analysis of electrochemical performance of bioelectrochemical systems

Research Associate, Oregon State University 07/2020 - 05/2023

Bioelectrochemical hydrogen production using membrane-less microbial electrolysis cells

Bioelectrochemical production of single cell protein

RESEARCH GRANTS AND PROJECTS:

Funded Projects as PI:

Novel Microbial Electrochemical Technology for Producing Single Cell Proteins and Energy from Bio-refinery Wastewater,

Sun Grant – Western Regional Center. \$30,000. 01/2018 - 06/2018

Accelerator Innovation and Development Funding, Oregon State University. \$15,000. 09/2022 - 02/2023

Participated Projects as Key Personnel:

Novel Hybrid Microbial Electrochemical System for Efficient Hydrogen Generation from Biomass,

U.S. Department of Energy. \$1,500,000.

01/2016 - 12/2019

Scalable and Highly-Efficient Microbial Electrochemical Reactor for Hydrogen Generation from Lignocellulosic Biomass

and Wastes, U.S. Department of Energy. \$1,500,000.

01/2020 - 12/2023

PUBLICATIONS:

Citations=850; h-index=16; i10-index=19

a) First-authored Publications:

1. **Wang L**, Linowski K and Liu H*. Scalable Membrane-less Microbial Electrolysis Cell with Multiple Compact Electrode Assemblies for High Performance Hydrogen Production. *Chemical Engineering Journal*. 2022. **Impact factor: 16.744.**
2. **Wang L**, Long F, Liang D, Xiao X and Liu H*. Hydrogen Production from Lignocellulosic Hydrolysate in an Up-scaled Microbial Electrolysis Cell with Stacked Bio-electrodes. *Bioresource Technology*. 2021. **Impact factor: 11.889.**
3. **Wang L**, Chen Y, Long F, Singh L, Trujillo S, Xiao X* and Liu H*. Breaking the Loop: Tackling Homoacetogenesis by Chloroform to Halt Hydrogen Production-Consumption Loop in Single Chamber Microbial Electrolysis Cells. *Chemical Engineering Journal*. 2020. **Impact factor: 16.744.**
4. **Wang L**, Long F, Liao W and Liu H*. Prediction of Anaerobic Digester Performance and Identification of Critical Operational Parameters Using Machine Learning Algorithms. *Bioresource Technology*. 2020. **Impact factor: 11.889.**
5. **Wang L**, Trujillo S and Liu H*. Selective Inhibition of Methanogenesis by Acetylene in Single Chamber Microbial Electrolysis Cells. *Bioresource Technology*. 2019. **Impact factor: 11.889.**
6. **Wang L**, Singh L and Liu H*, Revealing the Impact of Hydrogen Consumption-Production Loop against Efficient Hydrogen Recovery in Single Chamber Microbial Electrolysis Cells. *International Journal of Hydrogen Energy*. 2018. **Impact factor: 7.139.**
7. **Wang L**, Xie B, Gao N, Min B and Liu H*. Urea Removal Coupled with Enhanced Electricity Generation in Single-Chambered Microbial Fuel Cells. *Environmental Science and Pollution Research*. 2017. **Impact factor: 5.034.**

b) Co-authored Publications:

1. Long F, **Wang L**, Cai W, Lesnik K and Liu H*. Predicting the Performance of Anaerobic Digestion Using Machine Learning Algorithms and Genomic Data. *Water Research*. 2021. **Impact factor: 13.400.**
2. Singh L, Miller A, **Wang L** and Liu H*. Scaling-up Up-flow Microbial Electrolysis Cells with a Compact

- Electrode Configuration for Continuous Hydrogen Production. *Bioresource Technology*. 2021. **Impact factor: 11.889.**
3. Xu W, Long F, Zhao H*, Zhang Y, Liang D, Wang L, Lesnik K, Cao H, Zhang Y* and Liu H*. Performance Prediction of ZVI-based Anaerobic Digestion Reactor using Machine Learning Algorithms. *Waste Management*. 2020. **Impact factor: 8.816.**
 4. Xiao X, Ma X, Wang L, Long F, Li T, Zhou X, Liu H, Wu L and Yu H*. Anaerobic Reduction of High-polarity Nitroaromatic Compounds by Electrochemically Active Bacteria: Roles of Mtr Respiratory Pathway, Molecular Polarity, Mediator and Membrane Permeability. *Environmental Pollution*. 2020. **Impact factor: 9.988.**
 5. Xu H, Wang L, Lin C, Zheng J, Wen Q*, Chen Y*, Wang Y and Qi L. Improved Simultaneous Decolorization and Power Generation in a Microbial Fuel Cell with the Sponge Anode Modified by Polyaniline and Chitosan. *Applied Biochemistry and Biotechnology*. 2020. **Impact factor: 2.926.**
 6. Han X, Wang L, Long F, Ma X, Liu C, Feng Y, Yang M and Xiao X*. Impact of Nano-TiO₂ on Horizontal Transfer of Resistance Genes Mediated by Filamentous Phage Transduction. *Environmental Science: Nano*. 2020. **Impact factor: 9.473.**
 7. Xiao X, Han X, Wang L, Long F, Ma X, Xu C, Ma X, Wang C and Liu Z*. Anaerobically Photoreductive Degradation by CdS Nanocrystal: Biofabrication Process and Bioelectron-driven Reaction Coupled with *Shewanella oneidensis* MR-1. *Biochemical Engineering Journal*. 2020. **Impact factor: 4.446.**
 8. Gao N, Fan Y, Wang L, Long F, Deng D and Liu H*. Accelerated Tests for Evaluating the Air-Cathode Aging in Microbial Fuel Cells. *Bioresource Technology*. 2020. **Impact factor: 11.889.**
 9. Xie X, Luo L, Wang L, Miller A, Li J, Zhang Y, Du L, Pan H, Estevez L, Engelhard M, Wei Z, Liu H*, Wang C* and Shao Y*. Electrocatalytic Hydrogen Evolution in Neutral pH Solutions: Dual Phase Synergy. *ACS Catalysis*. 2019. **Impact factor: 13.700.**
 10. Xu H, Wang L, Wen Q*, Chen Y*, Qi L, Huang J and Tang Z. 3D Porous NCNT Sponge Anode Modified with Chitosan and Polyaniline for High-performance Microbial Fuel Cell. *Bioelectrochemistry*. 2019. **Impact factor: 5.760.**
 11. Miller A, Singh L, Wang L and Liu H*. Linking Internal Resistance with Design and Operation Decisions in Microbial Electrolysis Cells. *Environment International*. 2019. **Impact factor: 13.352.**
 12. Li C, Wang L and Liu H*, Enhanced Redox Conductivity and Enriched *Geobacteraceae* of Exoelectrogenic Biofilms in Response to Static Magnetic Field. *Applied Microbiology and Biotechnology*. 2018. **Impact factor: 5.560.**
 13. Gao N, Lesnik K, Li C, Wang L and Liu H*. Rigging the Game: Can Exoelectrogens Outcompete Non-exoelectrogens in Microbial Fuel Cells? *Conference: ISMET*. 2015.

14. Wu W, Lesnik K, Xu S, **Wang L** and Liu H*. Impact of Tobramycin on the Performance of Microbial Fuel Cell. *Microbial Cell Factories*. 2014. **Impact factor: 6.352**
15. Han K*, Li Z, Peng R, Zhu L, Zhou T, **Wang L**, and Li S. Extraordinary Expansion of a *Sorangium cellulosum* Genome from an Alkaline Milieu. *Scientific Reports*. 2013. **Impact factor: 4.380.**

PATENT:

Provisional Patent Application: Microbial Electrosynthesis of Single Cell Protein. Liu H and **Wang L**. **09/2022**

PROFESSIONAL MEMBERSHIP:

The International Society for Microbial Electrochemistry and Technology (ISMET)

CONFERENCE ACTIVITIES:

Invited Guest Lectures

Advances in Biomedical Research Seminar Series, University of Ottawa. **01/2021**

Presentations

The ISMET, Stanford University. **10/2016**

The ISMET, Arizona State University. **10/2015**

TEACHING EXPERIENCES:

Instructor, Oregon State University **01/2021 - 03/2021**

Course: BEE 468/568 Bioremediation Engineering.

Guest Lecturer, Oregon State University **05/2017**

Course: WSE 473/573 Bioenergy and Environmental Impact.

Guest Lecturer, Oregon State University **09/2016**

SMILE Summer Bridge Program.

Graduate Teaching Assistant, Oregon State University **10/2014 - 01/2015**

Instructor-student coordination, homework and exam grading, lab session design and preparation, and after-class discussion.

AWARDS:

John W. and Matha B. Wolfe Memorial Scholarship, Oregon State University. **2018**

Oversea Exchange Scholarship, Shandong University, China. **2012**

Annual Top Ten Excellent Students of School of Life Science, Shandong University, China. **2012**

Research and Innovation Scholarship, Shandong University, China. **2010**

Outstanding Prize of the 7th “Challenge Cup” Entrepreneurship Competition for College Students (First author),
Shandong Province, China. **2010**

SERVICE:

To Profession

Guest Editor for *Sustainability*, Special Issue “Progress toward Sustainability through Environmental Science and
Technology”. **2021**

Ad-Hoc Reviewer:

Environmental Science and Technology; Environmental Science and Technology Letters; Water Research;
Bioresource Technology; Journal of Power Sources; Applied and Environmental Microbiology; Environmental
Science and Ecotechnology; Chemosphere; Bioelectrochemistry; Bioengineering; Microorganisms; Molecules;
Sustainability; Biochemical Engineering Journal; Process Biochemistry; Biofilm; International Journal of
Environmental Research and Public Health; Fermentation; Applied Sciences; International Journal of Molecular
Sciences.

To Institution

Master’s Committee Member, Mikihiko Kurimura. “Inhibiting Methanogens and Homoacetogens to Enhance Hydrogen
Production in Microbial Electrolysis Cells (MECs)”. **2021**

Undergraduate research supervisor, Cassandra Knutson **2022**

Undergraduate research supervisor, Hung Phan **2021**

Undergraduate research supervisor, Robert Main **2019**

Undergraduate research supervisor, Mora Camplair **2018**

Undergraduate research supervisor, Stephanie Trujillo **2017**

Undergraduate research supervisor, Cameron Platner **2017**

Undergraduate research supervisor, Natalie Green **2017**

Undergraduate research supervisor, Haixin Lu **2016**

Undergraduate research supervisor, Merissa Schneider **2014**

Undergraduate research supervisor, Francisco Rivera **2014**