

## QIWEN CHENG (程琦雯), PH.D.

Biodesign Center for Health Through Microbiomes, Arizona State University  
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### APPOINTMENT

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**Postdoctoral Research Scholar** 2021-present  
Biodesign Center for Health Through Microbiomes, Arizona State University  
Supervisor: Rosa Krajmalnik-Brown

#### ENVIRONMENTAL MICROBIOME RESEARCH

*Studying the impact of pristine and aged microplastics on the Tempe Town Lake microbiome.*

#### HUMAN MICROBIOME RESEARCH

*Examining the correlations among aflatoxin exposure, gut microbiome, and impaired growth of Guatemalan children.*

*Investigating the effect of amyloid precursor protein processing on Alzheimer's gut microbiome.*

*Analyzing the association between gut microbiome and quality of relationship among older couples.*

*Studying the effect of environmental contaminants (e.g., microplastics) on the gut microbiome of healthy individuals.*

### EDUCATION

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**Ph.D. in Civil Engineering, Minor in Biotechnology** 2020  
North Carolina State University  
Committee Chair: Douglas Call  
Committee Members: Francis de los Reyes, Detlef Knappe, Morton Barlaz

*Dissertation Title: Understanding microbial transformations of organic matter under anaerobic conditions: experimental evaluation of mediating capabilities of pyrogenic carbonaceous materials and metagenomic characterization of mixed communities*

**M.S. in Civil Engineering** 2015  
University of Washington

**B.E. in Environmental Engineering** 2013  
Shandong University, China

## PUBLICATIONS

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5. De la Cruz, F., **Cheng, Q.**, Call, D. & Barlaz, M. (2021) Characterization of thermophilic waste decomposition at a landfill with elevated temperature regions. *Waste Management*, 124, 26-35.
4. **Cheng, Q.** & Call, D. (2021) Developing microbial communities containing a high abundance of exoelectrogenic microorganisms using activated carbon granules. *Science of the Total Environment*, 768, 144361.
3. Schupp, S., De la Cruz, F., **Cheng, Q.**, Call, D. & Barlaz, M. (2021) Evaluation of the temperature range for biological activity in landfills experiencing elevated temperatures. *ACS ES&T Engineering*, 1(2), 216-227.
2. **Cheng, Q.**, de los Reyes, F. & Call, D. (2018) Amending anaerobic bioreactors with pyrogenic carbonaceous materials: the influence of material properties on methane generation. *Environmental Science: Water Research & Technology*, 4(11), 1794-1806. Image selected for outside back cover.
1. **Cheng, Q.** & Call, D. (2016) Hardwiring microbes via direct interspecies electron transfer: mechanisms and applications. *Environmental Science: Processes & Impacts*, 18(8), 968-980. Invited manuscript for special issue on emerging investigators.

(Three manuscripts in preparation)

## GRANTS

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<b>NIH Research Project Grant Program (R01)</b>	2022-2027
Submitted	
Co-Investigator	
<b>Arizona Alzheimer's Consortium</b>	2021-2022
Funded	
Co-Investigator	

## HONORS AND AWARDS

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<b>Charles Smallwood Endowed Fellowship</b>	2020
North Carolina State University	
<b>Molecular Biotechnology Training Program Symposium Best Poster</b>	2019
North Carolina State University	
<b>Graduate Student Award in Environmental Chemistry</b>	2019
American Chemical Society	

<b>International Peace Scholarship</b> P.E.O. International	2017-2018
<b>First Place in Poster Presentation</b> North Carolina Water Resources Research Institute	2017
<b>University Graduate Fellowship</b> North Carolina State University	2015-2016
<b>Student Award for Research &amp; Innovation</b> Shandong University, China	2011
<b>Second Place in Poster &amp; Oral Presentations</b> National University Student Social Practice & Science Contest on Energy Saving & Emission Reduction, Ministry of Education, China	2011
<b>Outstanding Undergraduate Student</b> Shandong University, China	2010
<b>HSBC Bank Scholarship</b> HSBC Bank	2010

## **SELECTED PRESENTATIONS**

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(\* denotes presenter)

### ORAL PRESENTATIONS

Langer, S.\*, **Cheng, Q.** & Krajmalnik-Brown, R. (2022) *Avoidant marital communication is associated with poorer gut health*. Accepted by the 72<sup>nd</sup> Annual International Communication Association Conference, Paris, France.

**Cheng, Q.** & Call, D.\* (2021) *Replenishing the electron storage capacity of pyrogenic carbonaceous materials using microbial communities*. American Chemical Society, Atlanta, GA.

Call, D.\* & **Cheng, Q.** (2019) *Biological activated carbon systems harbor microorganisms that couple organic matter oxidation with activated carbon reduction*. Association of Environmental Engineering & Science Professors, Tempe, AZ.

Call, D.\* & **Cheng, Q.** (2019) *Identification of microbial communities that exchange electrons with pyrogenic carbonaceous materials in engineered systems*. American Chemical Society, Orlando, FL.

**Cheng, Q.\***, de los Reyes, F. & Call, D. (2018) *Impact of material electrical conductivity on the microbial community structure in anaerobic digesters*. American Chemical Society, New Orleans, LA.

Call, D.\*, **Cheng, Q.**, Murray, C., Tavares, V. & de los Reyes, F. (2016) *Accelerating*

*methane generation rates in anaerobic digesters with electrically conductive materials.* Water Environment Federation Technical Exhibition and Conference, New Orleans, LA.

**Cheng, Q.\***, Murray, C., Tavares, V., de los Reyes, F. & Call, D. (2016) *Electrically conductive particles supporting direct interspecies electron transfer (DIET) in anaerobic microbial communities.* American Chemical Society, Philadelphia, PA.

## POSTER PRESENTATIONS

**Cheng, Q.**, Krajmalnik-Brown, R., Tolson, M., Maldonado-Ortiz, J., Guest, A., DiBaise, J., Labonte, H. & Langer, S.\* (2022) *Relationship quality is associated with gut microbial composition in older adult couples.* Accepted by the Society of Behavioral Medicine's 43<sup>rd</sup> Annual Meeting & Scientific Sessions, Baltimore, MD.

**Cheng, Q.\***, Murray, C., de los Reyes, F. & Call, D. (2017) *Impact of electrically conductive particle type, size, and loading on the anaerobic digestion of swine wastewater.* Association of Environmental Engineering & Science Professors, Ann Arbor, MI.

**Cheng, Q.\***, de los Reyes, F. & Call, D. (2017) *Influence of electrically conductive particles on methane generation in swine wastewater fed anaerobic digesters.* North Carolina Water Resources Research Institute, Raleigh, NC.

**Cheng, Q.\***, de los Reyes, F. & Call, D. (2016) *Enhancing anaerobic digestion using electrically conductive materials.* North Carolina Water Resources Research Institute, Raleigh, NC.

## SEMINAR

**Cheng, Q.\***, Murray, C., Tavares, V., de los Reyes, F. & Call, D. (2017) *Influence of electrically conductive particle type, size, and loading on methane generation in swine wastewater fed anaerobic digesters.* BioLunch Graduate Seminar Series, Raleigh, NC.

## ADDITIONAL RESEARCH EXPERIENCE

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**Graduate Research Assistant**, with Seana Davidson 2014-2015  
University of Washington

*Cultivated the earthworm Eiseniae fetida to degrade petroleum hydrocarbons in soil.*  
*Investigated the formation and composition of Verminephrobacter eiseniae (E. fetida symbiont) biofilm.*

**Undergraduate Research Assistant**, with Haiyan Pei 2010-2013  
Shandong University, China

*Evaluated the impact of illumination conditions on biomass and lipid content of green algae*

*Chlorella vulgaris fed with monosodium glutamate wastewater.*

*Optimized the flocculation conditions to reduce cyanobacterial cell lysis and microcystin-LR release.*

**Undergraduate Research Assistant**, with Yongzheng Wang & Fengzhong Sun 2011  
Shandong University, China

*Led an undergraduate capstone project and designed an energy-saving system utilizing exhaust gas as heat resource to exsiccate desulfurized gypsum.*

## TEACHING EXPERIENCE

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### Graduate Teaching Assistant

North Carolina State University

Biological Principles of Environmental Engineering (CE 573) 2020

Fundamentals of Environmental Engineering (CE 373) 2020

### Graduate Teaching Assistant

University of Washington

Environmental Organic Chemistry (CEE 545) 2015

Environmental Engineering (CEE 357) 2015

### Reader/Grader

University of Washington

Aquatic Chemistry (CEE 543) 2014

## PROFESSIONAL DEVELOPMENT & WORKSHOPS

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**Multi-omics Modeling of Biochemical Pathways Summer School** 2021

Environmental Molecular Sciences Laboratory

**Writing Certificate** 2020

North Carolina State University Graduate School

**Certificate of Professional Chinese Proficiency (Advanced Level)** 2011

Ministry of Human Resources and Social Security, China

## PROFESSIONAL ASSOCIATIONS

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American Chemical Society 2016-present

Society of Petroleum Engineers 2014-2015