

Zhiyong (Jason) Ren, Ph.D.

Assistant Professor
Environmental and Sustainability Engineering
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EXPERIENCE AND EDUCATION

Assistant Professor

2008 - Present
University of Colorado Denver

Research Interest:

Bioenergy production (electricity, hydrogen, methane, liquid fuels) from biomass and wastewater; microbial fuel cells (MFCs); environmental sustainability; water and wastewater treatment; environmental biotechnology.

Courses Teaching:

Introduction of Environmental and Sustainability Engineering; Biological Treatment in Water Quality Engineering, Environmental Microbiology and Lab.

Graduate Research Assistant

2004- 2008
The Pennsylvania State University

- Direct electricity generation from cellulosic waste and wastewater
- Correlation of microbial ecology and electrochemistry in MFCs
- Micro-fabricated micro microbial fuel cell (MMFC) for electricity production and biofilm analyses
- Direct H₂ production from cellulosic waste and wastewater
- Isolation and characterization of functional bacteria with anaerobic extracellular electron transfer capability

Graduate Teaching Assistant

2007-2008
The Pennsylvania State University

- Environmental Microbiology Lab
- Water and Wastewater Treatment

Environmental Engineer

2003 - 2004

North China Municipal Eng. Design and Research Ins. & Tianjin Spring Environ. Co., Ltd.

Biological Wastewater Treatment:

Feasibility study, preliminary and final design of wastewater treatment plants in China Three Gorge Reservoir Area

Water Reuse:

Research and development of the next generation of hollow fiber membrane bioreactor

Graduate Research Assistant

2000- 2002

Tianjin University, China

- Integrated system for safe drinking water treatment
- Ice-cream wastewater treatment

HONORS AND CERTIFICATES

Engineer-In-Training Certificate

Student Research Award, Pennsylvania Water Environment Association (PWEA), 2007

Student Travel Grant Award, American Society of Microbiology (ASM), 2007

Summer Fellowship, NSF PSU Center for Environmental Chemistry and Geochemistry, 2007

The School of Engineering Fellowship, Penn State University, 2004-2006

People Scholarship, Tianjin University, 2000-2002

Wang Kechang Scholarship, Tianjin Municipal Educational Commission, 2000

REFEREED PUBLICATIONS

Ren, Z., Ward, TW., and Regan, JM. (2007). Electricity production from cellulose in a microbial fuel cell using a defined binary culture. *Environ. Sci. Technol.* 41(13); 4781- 86.

Ren, Z., Ward, TW., Logan, BE., and Regan, JM. (2007). Characterization of the cellulolytic and hydrogen-producing activities of six mesophilic *Clostridium* species. *J. Appl. Microbiol.* 103(6); 2258-66.

Ren, Z., Steinberg, LM., and Regan, JM (2008). Electricity production and microbial biofilm characterization in cellulose-fed microbial fuel cells. *Water Sci. Technol.* 58(3): 623-628

Ramasamy, RP., **Ren, Z.**, Mench, MM., and Regan, JM. (2008). Impact of initial biofilm growth on anode impedance of microbial fuel cells. *Biotechnol. Bioeng.* 101(1): 101-108

Ren, Z., Qi, Y., and Li, R. (2002). Nitrogen removal by biological pre-treatment in water plant. *Urban Environment & Urban Ecology.* 15(3); 56-58.

Ji, M., **Ren, Z.**, et al. (2003). Combined UASCB-MBBR system for the treatment of ice-cream wastewater. *Environmental Engineering*. 21(1); 18-20

Ji, M., Liu, W., **Ren, Z.**, et al. (2004). Removal of organic matters and disinfection byproducts precursors from micro-polluted water by a new combined process. *Technology of Water Treatment*. 30(6); 333-337.

Ji, M., Li, R., **Ren, Z.**, et al. (2002). Approaches to the development and problems of research and application of activated sludge model. *Industrial Water & Wastewater*. 33(4); 4-6.

Jia, X., Li, R., **Ren, Z.**, et al. (2002). Comparison on biocontact oxidation tank and ceramisite biofilter process for micro-polluted raw water pre-treatment. *Water & Wastewater Engineering*. 28(10); 26-29.

Sun, L., Ji, M., **Ren, Z.**, et al. (2003). Treatment of slightly polluted raw water by ceramisite biofilter and activated micro-flocculation filter. *Water & Wastewater Engineering*. 29(12); 24-27.

MANUSCRIPT UNDER REVIEW OR PREPARATION

Ren, Z., Ramasamy, RP., Cloud-Owen, SS., Mench, MM., and Regan, JM. Time-course correlation of biofilm properties and electrochemical performance in single chamber microbial fuel cells.

Ren, Z., Ward, TW., and Regan, JM. Isolation and characterization of microorganisms capable of extracellular electron transfer using a hydrous ferric oxide (HFO) plate assay and microbial fuel cells.

Terrill, JB., **Ren, Z.**, and Regan, JM. The effects of settling on cellulose degrading microbial fuel cells.

Mao, X., **Ren, Z.**, Shi, J., Huang, TJ., Mench, MM., and Regan, JM. Correlation of biological constraints and electricity production using a micro-microbial fuel cell (MMFC).

PRECEEDINGS AND PRESENTATIONS

Ren, Z., and Regan, JM. Electricity production and microbial biofilm characterization in cellulose fed microbial fuel cells. International Water Association (IWA) biofilm technologies conference, Singapore, Jan. 8-10, 2008. Conference proceedings on CD-ROM.

Ren, Z., and Regan, JM. Cellulose-derived electricity production in microbial fuel cells by a defined binary culture and a natural inoculum. Water Environment Federation (WEFTEC) 80th

Annual Exhibition & Conference, San Diego, Oct. 13-17, 2007. Conference proceedings on CD-ROM.

Ren, Z., Mao, X., Shi, J., Huang, T.J., Mench, M.M., and Regan, J.M. Correlation of biological constraints and electricity production using a micro-microbial fuel cell (MMFC). Microbial Fuel Cells First International Symposium, University Park, PA, May 27-29, 2008.

Ren, Z., and Regan, J.M. Renewable electricity production from cellulose in microbial fuel cells. Association of Environmental Engineering and Science Professors Association (AEESP) Education and Research Conference, Virginia Tech, VA, Jul. 28-Aug. 1, 2007.

Ren, Z., Ward, T.W., and Regan, J.M. A plate assay for isolating microorganisms capable of anaerobic extracellular electron transfer. American Society of Microbiology (ASM) 107th General Meeting, Toronto, Canada, May 21-25, 2007.

Ren, Z., Ward, T.W., Logan, B.E., and Regan, J.M. Characterization of the cellulolytic and hydrogen-producing activity of six mesophilic *Clostridium* species. Penn State Hydrogen Day, University Park, PA, November 14, 2006.

Ren, Z., Ji, M. et al. A pilot test of integrated treatment process for safe drinking water. 2002 French-Chinese conference on Water Resource and Technology, Shanghai, China, Nov.6-9, 2002.

Ramasamy, R.P., **Ren Z.**, Cloud-Owen, S.S., Mench M.M., and Regan J.M. Effect of biofilm properties on the electrochemical performance of microbial fuel cells. Microbial Fuel Cells First International Symposium, University Park, PA, May 27-29, 2008.

Ramasamy, R.P., **Ren Z.**, Mench M.M., and Regan J.M. Electrochemical impedance spectroscopy studies on microbial fuel cells. American Chemical Society (ACS) 234th National Meeting & Exposition Boston, MA, Aug. 19-23, 2007

Ramasamy, R.P., **Ren Z.**, Cloud-Owen, S.S., Mench M.M., and Regan J.M. Effect of biofilm properties on the electrochemical performance of microbial fuel cells. 213th meeting of the Electrochemical Society, Phoenix, AZ, May 18-22, 2008

Regan J.M., Ramasamy, R.P., **Ren Z.**, and Mench M.M. Microbial fuel cells for wastewater treatment. 212th meeting of the Electrochemical Society, Washington D.C., Oct. 7-12, 2007.

INVITED TALKS

Hydrogen and Electricity Production from Cellulose: U.S. Department of Agriculture National Center For Agricultural Utilization Research, Peoria, IL, April 20, 2008

SERVICE

Committee on Student Services: Association of Environmental Engineering and Science Professors Association (AEESP)

Faculty Member: NSF IGERT Program in Sustainable Urban Infrastructure, University of Colorado Denver

Manuscript Referee: Environmental Science and Technology, Journal of Applied Microbiology, Biotechnology & Bioengineering, Water Science and Technology, etc.

PROFESSIONAL MEMBERSHIPS

Association of Environmental Engineering and Science Professors (AEESP)

Water Environment Federation (WEF)

American Chemical Society (ACS)

American Society of Microbiology (ASM)

International Water Association (IWA)

Sigma Xi - The Scientific Research Society