

University of South Florida – Civil & Environmental Engineering
Environmental and Water Resources Engineering Graduate Seminar – Spring 2016

Microbial Fuel Cell Technology for Energy Generation and Nitrogen Removal

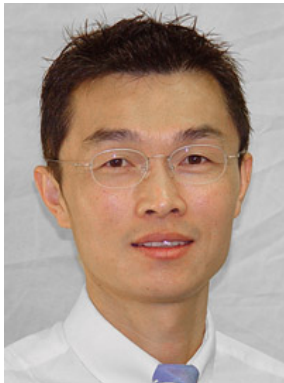
Gang Chen, Ph.D., P.E.

Civil & Environmental Engineering, Florida A&M University - Florida State University

Friday, January 15, 12:20-1:10

Room 4 ENG Building

Abstract: Two continuous microbial fuel cell (MFC) reactors, i.e., an ammonium oxidation/MFC reactor and a MFC/Anammox reactor were designed and compared for the treatment of landfill leachate in terms of power generation, organic compound decomposition, and nitrogen removal. For both of the reactors, carbon decomposition and nitrogen removal were achieved in addition to energy generation. Nitrate served as the electron acceptor for the ammonium oxidation/MFC reactor and nitrite served as the electron acceptor for the MFC/Anammox reactor. In the cathodic chamber, nitrogen was removed through nitrate reduction or nitrite reduction. Both of these two reactors were “loop-operated”, during which the treated landfill leachate was looped from the anodic chamber to the cathodic chamber. The acidity produced in the anodic chamber could partially offset the alkalinity produced by nitrate or nitrite reduction.



Biosketch: Dr. Gang Chen is an associate professor and program coordinator for water resources and environmental engineering at the FAMU-FSU College of Engineering. He finished his Ph.D. at the University of Oklahoma in 2002. Before that, he studied at Harbin Institute of Technology and Cornell University. He joined Florida State University in 2005 after working three years as a postdoctoral research associate at Washington State University.

Dr. Chen's visit is supported by the Environmental Protection Agency supported *Center for Reinventing Aging Infrastructure for Nutrient Management (RAINmgt)*

Semester seminar schedule found at: <http://ce.eng.usf.edu/docs/EWRE-SeminarSchedule.pdf>

Learn more how integrated water, energy, and nutrient systems are fundamental to social, economic, and environmental well-being and prosperity: <http://usf-reclaim.org/>