

iFAST: The International Forum on Advanced Environmental Sciences and Technology

A series of distinguished seminars by eminent scientists

Wednesday, September 30, 2020 9:00 am EDT

Sep. 30 1:00 pm GMT; 6:00 am MST; 8:00 am CDT; 9:00 pm Beijing



Bruce E. Rittmann

Arizona State University

<https://biodesign.asu.edu/bruce-rittmann>

Prof. Bruce E. Rittmann is Regents' Professor of Environmental Engineering and director of the Biodesign Swette Center for Environmental Biotechnology at Arizona State University. His research focuses on the science and engineering needed to "manage microbial communities to provide services to society." Services include generating renewable energy, cleaning water and soil, and improving human health. He is a member of the National Academy of Engineering; a Fellow of AAAS, WEF, IWA, AEESP, and NAI; and a Distinguished Member of ASCE. He was awarded the first Clarke Prize for Outstanding Achievements in Water Science and Technology from the NWRI, the Walter Huber Research Prize and the Simon Freese Award from ASCE, the G.M. Fair Award from AAEES, and the Perry L. McCarty/AEESP Founders Award. He is the co-winner of the 2018 Stockholm Water Prize. He has published over 740 journal articles, books, and book chapters, and has 17 patents. With Prof. Perry McCarty, Prof. Rittmann co-authored the textbook *Environmental Biotechnology: Principles and Applications* (McGraw-Hill Book Co.), which is now out in its second edition.

Understanding the Biofilm Anode in Microbial Electrochemical Cells (MXCs)

This talk presents recent results that characterize the key phenomena occurring in the biofilm anode: (1) The unique properties of anode-respiring bacteria (ARB). (2) The Nernst-Monod expression to quantify the relationship between the rate of electron conduction and the electrical potential in the biofilm anode. (3) How the rate of electron transport can be controlled by slow H⁺ transport more than slow electron conduction for high-performance biofilm anodes. (4) The interactions of ARB with other microorganisms in the biofilm anode.



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**Organizing Committee Chair: Jizhong Zhou (University of Oklahoma, USA; <https://www.ou.edu/ieg>)
Xueduan Liu (Central South University, China)**