



University of Hawai'i at Mānoa

Hawai'i Natural Energy Institute

School of Ocean & Earth Science & Technology

Development of a Hybrid Enzyme/Microbial Fuel Cell

A hybrid enzyme/microbial fuel cell is being developed using chitosan/carbon nanotube electrodes for immobilization of enzymes and microbacteria in a multiple-component anode integrated into a flow-through-stack-cell biological fuel cell. Chitosan/carbon nanotube electrodes have been tested using cyclic voltammetry to confirm electrical functionality and performance. The electrodes have also been tested in microbial fuel cells at Prof. Nealson's lab at the University of Southern California to evaluate performance in a microbial fuel cell and its ability to support biofilm growth which will allow for direct electron transfer from the biofilm to the electrode in an anoxic environment. Data will be presented on the voltage versus time output for *Shewanella Oneidensis* strain MR1 inoculated on the chitosan/carbon nanotube electrodes, and comments given as to the long-term plan of this project.

Scott Higgins

Post-Doctoral Fellow

Hawai'i Natural Energy Institute

Tuesday, September 29, 2009

3:00 – 4:00 PM

POST 723

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