

**MECHANICAL ENGINEERING DEPARTMENT
ME/IE 8773-8774**

Co-Sponsored by the Initiative for Renewable Energy and the Environment

**Improvement of Bacteria as Electrical Catalysts:
Molecular and Engineering Targets**

by

**Dr. Daniel R. Bond
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**Wednesday, March 7, 2007
3:30-4:30 p.m.**

Room 402 Walter Library

Coffee and cookies will be available at 3:15 p.m. in Room 401 Walter Library before the seminar

ABSTRACT — Typically, bacteria are treated as sealed, insulated packets of biochemical activity. To communicate with bacteria, it was thought that one had to monitor changes in their external environment, or add chemical compounds to influence their metabolism. The recent discovery that a real interface exists between the microbial and electrical world, in the form of bacteria able to transfer electrons across their cell membranes to electrode surfaces, represents a new tool with implications in biological energy generation, biological sensing, and biological production of chemicals.

BIO — **Daniel Bond** has studied the physiology of anaerobic bacteria involved in animal nutrition, water quality, biotechnology and bioremediation. He recently joined the Department of Microbiology and Biotechnology Institute at the University of Minnesota. Through multiple collaborations, his laboratory has developed new tools for monitoring electrical signals and power generation by bacteria, models of electrode biofilm environments, techniques for immobilization of electricity-producing cells on electrode surfaces, and methods for high-throughput discovery of genes involved in this unique bio-electrical metabolism.

Informal Faculty Luncheon: Wednesday, March 7, 2007, 12:00 noon. Meet in 1100 ME and walk to lunch with other faculty. Prof. Daniel Bond will be able to attend.