

2011-2012

# Special Seminar

## The Department of Mechanical Engineering – Engineering Mechanics

Proudly Presents

### **Dr. Eric Funkenbusch, Program Director 3M Fuel Cell Components Program**



Eric Funkenbusch has been the Program Director of the 3M Fuel Cell Components Program beginning in 2004. In this position he has global responsibility for 3M's fuel cell development, manufacturing, and business activities. Prior to his current assignment, he was the Business Unit Manager of 3M's Electronic Finishing Systems Business Unit. In this position he worked closely with customers in the Semiconductor, Hard Disk Drive and Telecommunications markets and commercialized a number of successful and innovative new products. His technical work while at 3M has resulted in a number of patents and technical publications. He is a past winner of the 3M Corporate Technical Circle of Excellence award and was a Visiting Industrial Scientist in the Metals and Ceramics Division of Oak Ridge National Laboratories. He is a member of 3M's Technical and Sales and Marketing Councils and serves on the Board of Directors of the Fuel Cell and Hydrogen Energy Association.

He earned a Ph.D. in Physical Chemistry from Michigan Technological University in 1982.

**Thursday, Feb. 9, 2012**

**2:00 – 3:00 p.m.**

**Room 112, ME-EM Bldg.**

### **Membrane Electrode Assembly Development for Low Temperature Proton Exchange Membrane Fuel Cells**

Low temperature proton exchange membrane (PEM) fuel cells are in the early stages of commercialization in applications such as back-up power supplies and forklift trucks. In addition PEM fuel cells are in active development at nearly all major automotive companies for the propulsion of future vehicles. Fuel Cell Vehicles (FCVs) offer the range and rapid refueling time of internal combustion engine vehicles. The heart of these fuel cells is the Membrane Electrode Assembly (MEA) where hydrogen is oxidized to produce electric power, water, and heat. While the MEA is simple in concept, the requirements for materials, components, and precise integration are severe, especially for automotive applications. In addition, cost reduction is needed to enable the production of competitive vehicles.

This presentation will provide a quick overview of PEM technology and applications and highlight some of the technical challenges and opportunities facing MEA developers. 3M has been at the forefront of MEA development in collaboration with the Department of Energy, National Laboratories, Universities, and fuel cell developers for more than a decade. An overview of 3M activities in the development of electrodes, membranes, and MEA integration capabilities will be given.

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