

# Connecticut Global Fuel Cell Center (CGFCC) Seminar Announcement

**Seminar Topic:** Battery Safety Analysis and Battery Management

**Presented by:** Dr. Vish Viswanathan, Pacific Northwest National Laboratory

**Date:** February 24, 2009

**Time:** 10:00-11:00 AM

**Location:** CGFCC Conference Room

## Abstract:

Battery safety analysis and management has gained an importance due to preponderance of batteries in hybrid vehicles, distributed power, energy storage for renewable energy such as wind/solar, and batteries in underwater vehicles. The versatile Li-ion battery has become the workhorse of several sectors, and with its increased use comes the need to manage it in terms of safety and performance. This presentation captures PNNL's experience in the area of battery safety management.

## About the Author:

Dr. Vilayanur Viswanathan is a Senior Research Engineer at Battelle Pacific Northwest National Laboratory, Energy Science and Technology Division. Dr. Viswanathan has over 15 years of experience in batteries, fuel cells and capacitor technology. He recently managed a program on lithium polymer battery development, which included fabrication of prismatic and coin cells. He recently led a Li-ion electrode development project within the laboratory, investigating anodes and cathodes. He has investigated safety issues for lithium polymer batteries using accelerated rate calorimetry, thermodynamic analysis and heat transfer modeling. He recently worked on a project investigating design and safety issues related with multi-cell cylindrical li-ion battery packs with series parallel configurations. Dr. Viswanathan has worked on various medical products related projects, investigating battery failure mechanisms, battery/charger design and safety aspects.

Dr. Viswanathan has significant experience with aqueous based battery systems such as Ni-Cd, Ni-MH and Ag-Zn batteries. He recently investigated the causes of failure of Silver-Zinc battery systems used by the US Navy, recommended various options for preventing failure, and developed the protocol for testing cells with various membranes. He has fabricated battery electrodes, and solid oxide fuel cell components such as solid electrolytes & cathodes. He fabricated and optimized electrodes using novel fiber substrates, investigated recombination kinetics in sealed Ni-Cd cells and lead-acid batteries, modeled impedance spectra of single cells and batteries, and optimized iron electrode design for use in Ni-Fe electric vehicle batteries. His current research areas in PEM fuel cells include water management and novel fabrication methods. Dr. Viswanathan is a member of AIChE and The Electrochemical Society.

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