



University of Hawai'i at Mānoa

## **Hawai'i Natural Energy Institute**

School of Ocean & Earth Science & Technology

### **Non-Platinum Electrocatalysts for Fuel Cells**

The general objective of the electrocatalysis program at UNM is to establish formulations and develop technology for synthesis of non-platinum (non-noble metal) electrocatalysts for PEM and direct methanol fuel cells. Our templating method for catalyst synthesis is based on deposition of the precursor on a non-carbon dispersed carrier, followed by pyrolysis of the compound and chemical extraction of the carrier. The resulting materials are highly dispersed, self-supported nano-composites, which demonstrate superior performance as electrocatalysts.

The seminar will discuss our strategy for synthesis of this novel class of non-platinum electrocatalysts for fuel cells by templating pyrolyzed transition metal macrocycles on mono-dispersed silica followed by the removal of the support. The resulting nano-composites were thoroughly studied by BET, PSD, XRD, XPS, SEM, TEM and FTIRS. These studies revealed material chemical structure and physical morphology. Our current effort focuses on a development of the templating approach that yields more control over pore structure. We will discuss this new level of control over the catalyst pore structure and its potential contributions to overall electrocatalytic activity.

**Plamen Atanassov**

University of New Mexico

**Tuesday, November 14, 2006**

**3:15 – 4:15 PM**

**HIG Auditorium, Room 110**

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