



THE CHINESE UNIVERSITY OF HONG KONG

Department of Physics
Centre of Optical Sciences

COLLOQUIUM

Advanced Nanomaterials for Electric Energy Storage & Conversion

by

Dr. Shirley Meng (孟穎博士)

Department of Materials Science & Engineering
University of Florida

Date: June 25, 2009 (Thursday)

Time: 4:00 - 5:00 p.m.

Place: L2, Science Centre, CUHK

(Light refreshments will be served 20 minutes prior to the colloquium.)

ALL INTERESTED ARE WELCOME

Abstract

New and improved materials for energy storage are urgently required to make more efficient use of our finite supply of fossil fuels, and to enable the effective use of renewable energy sources. **Lithium ion batteries** are a key source for mobile energy and one of the most promising solutions for environment-friendly transportation. However the state-of-art electrode materials for lithium ion batteries are cobalt based oxides, which are expensive, introduce safety issues and have poor rate capability for high power applications (such as plug-in HEV). I will demonstrate how to combine knowledge-guided synthesis/characterization and *ab initio* computation to develop and optimize new higher energy/power density cathode materials. In addition, using thin film nano-electrode, we are able to explore intrinsic ionic diffusivity and phase transformations in nanomaterials, developing a new approach to understand thermodynamic and transport properties of functional nanomaterials for energy storage and conversion.

Enquiries: 2609 6339