

Fall 2006 SEMINAR SERIES

F21C Bioprocessing & Biosensing Center

• DIVISION OF FOOD SYSTEMS & BIOENGINEERING •

PRESENTER: Hao Li

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Mechanical and Aerospace Engineering Department
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**TITLE: Synthesis and Applications of Carbon Based
Nanomaterials**

ABSTRACT:

The excellent properties of carbon nanotubes (CNTs) and SiC nanowires are driving research into creation of new materials and devices, such as strong and tough nanocomposites and sensor devices. Research on the synthesis-structure-property relationships of these carbon based nanomaterials will be presented. In the present study, multi-walled CNTs were fabricated with chemical vapor deposition (CVD), plasma enhanced CVD (PECVD), supramolecular disk assembly, and a hybrid method of CVD and supramolecular disk assembly. Scanning electron microscope (SEM) and high resolution transmission electron microscope (HRTEM) show distinct structures, such as variations in graphitic layer orientations and in the degree of ordering. It is expected such carbon nanotubes with well controlled microstructures will have different mechanical and surface properties, which may be useful for some biomedical applications. Both free-standing and horizontally aligned SiC nanofibers have been fabricated with chemical vapor deposition (CVD) methods. The free-standing SiC nanofibers have been used as reinforcing materials in various polymers matrix nanocomposites as hard tissue or soft tissue implants. The horizontally aligned SiC nanofibers are useful for sensor applications. At last, Dr. Li will present some of his other works on materials for biomedical applications.

DATE • TIME • LOCATION:

**Tuesday, December 5, 4:00pm
Ag Eng Bldg 105 • Refreshments**