The Department of Mechanical Engineering/College of Engineering and Applied Sciences
Stony Brook University

Mechanical Engineering Seminar

Changhong Ke

State University of New York at Binghamton

Lecture Title: Experimental Nanomechanics of Low Dimensional Nanostructures

Friday, October 5, 2012, 2PM, Room 173 Light Engineering

Abstract

Low dimensional nanostructures (LDNs) (e.g. nanotubes and nanosheets) possess many extraordinary physical properties and are the building blocks for a variety of devices and material systems in nano science and engineering, such as nano electronics, sensors and composites. Due to their large surface to volume ratios, the interface in LDNs plays important roles in their structural and physical properties and applications. In this talk, I will present some of our recent work on the nanomechanical characterization of the interfacial properties in carbon nanotube nanostructures, focusing on the tube-tube, tube-substrate, and tube-polymer interactions. I will also discuss our latest results of testing the radial elasticity of individual carbon and boron nitride nanotubes and mechanically engineering radial deformations in nanotubes using an ultrathin nanomembrane covering scheme. Our research work helps to better understand the mechanical and interfacial properties of LDNs, and sheds new light on how to design and manufacture nanotube-based materials and devices with tunable properties and operations through engineering the interface.

Biography

Dr. Changhong Ke is currently an assistant professor in the Department of Mechanical Engineering at the State University of New York at Binghamton. He received his BS (1997) and MS (2000) degrees from Beijing Institute of Technology in China, and his PhD degree (2006) from Northwestern University. After finishing his PhD, he worked as a postdoctoral fellow at Duke University (2006-2007). Dr. Ke is a recipient of the 2011 AFOSR Young Investigator Program Award. His current research interests include experimental mechanics of 1D and 2D nanostructures, nanoscale adhesion and interfaces, nanocomposites, bio-inspired hybrid nano-systems, and nanoelectromechanical systems.

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