Stevens Institute of Technology

Nanotechnology Graduate Program

Nano-Scale Structures

Wednesday, September 26, 2007
Burchard 118, Time 11am

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Nanotechnology has been recognized by many as the future technology, critical for areas such as, electronics, optoelectronic fluid mechanics, chemistry and biotechnology. These hopes (and hypes) are surrounding carbon nanotubes (CNTs) as well. This talk follows the development of carbon nanotube based nanostructures. The role of these in bottom-up electronics, opto-electronics and bio-sensing are described. Examples include carbon nanotubes intra-connects (FIG. 1), CNT nano-junctions and bio-platforms, which enhance the signal of Raman spectroscopy by using nano-hole lattices on metal (FIG 2).

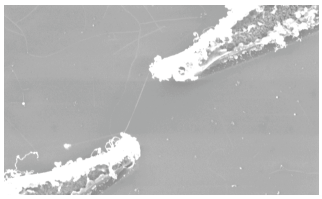

FIG.1. SWCNT intra-connect between two addressable and pre-fabricated electrodes. The bridge was later electroplated with conducting polymer in order to realize a field-effect structure (the distance between electrodes is one micrometer).

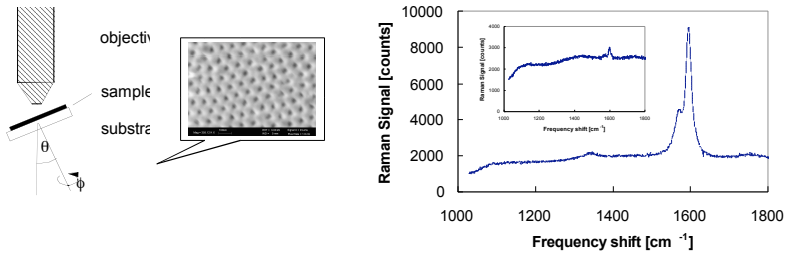

FIG. 2. Surface Enhanced Raman Spectroscopy (SERS). Left – experimental configuration. Right: Enhancement of Raman signal of CNT on the perforated substrate at resonance conditions. Inset: non-resonance conditions. These structures were used to enhance the Rama spectra of bio-species as well.

H. Grebel is a professor of Electrical and Computer Engineering and Director of the Electronic Imaging Center at NJIT. He received his Ph.D. in physics from the Weizmann Institute of Science, Israel. He spent three years at Stevens Institute of Technology before accepting a position at NJIT. His present interests are in nonlinear nano-scale systems. (grebel@njit.edu)

Light refreshments will be served prior to seminar

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