

NANO HOUR

Wednesday, November 16, 2005

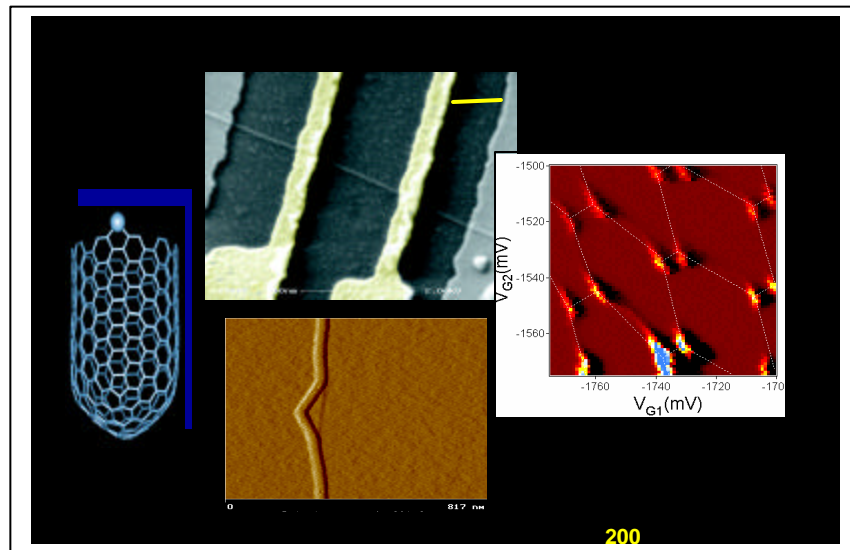
3:00 PM

Beckman Institute - Room 3269

Controlling Quantum Properties of Carbon Nanotubes

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Department of Physics



This talk will focus on the fabrication and measurement of carbon nanotube quantum devices. I will first discuss previous work, where we used multiple electrostatic gates to fabricate and control electronic constrictions (“quantum point contacts”) and confined regions (“quantum dots”). I will present results on single-electron charging effects and charge interactions in nanotube-based quantum dots, as well as on the appearance of quantized conductance steps in point contact devices. The ability to control nanotube quantum point contacts and dots is especially important for applications such as quantum computation. I will then show how we will extend our fabrication techniques to study correlated electron states in nanotubes, focusing on studies of Luttinger liquid and superconducting states. I will end with a brief discussion of other research on nanostructured superconductors.

Coffee and cookies will be served.