



Center for Nanoscale
Chemical-Electrical-Mechanical
Manufacturing Systems

Recent Results and Directions with Carbon Nanotubes

This talk will present our latest research on single walled carbon nanotubes. We have been using carbon nanotube as a model system to study interesting nanoscale problems concerning materials synthesis, solid-state physics and devices, surface science and nanobiotechnology. This presentation will cover our latest results in, (1) Controlled synthesis of nanotube structures on catalytically patterned surfaces. (2) Coherent quantum electron transport and diffusive electron-phonon scattering phenomena in suspended nanotubes. (3) Pushing the performance limit of nanotube transistors, and (4) interfacing carbon nanotubes with living cells, and the potential of nanotubes as a novel class of material for drug delivery and near-infrared therapy for cancer cell destruction.



Wednesday, December 7, 2005
4:00 pm
B02 Coordinated Science Lab

Hongjie Dai
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Professor Hongjie Dai received his B.S. degree from TsingHua University, Beijing, an M.S. in Applied Sciences from Columbia University, and an M.A. and Ph.D. in Applied Physics and Physical Chemistry from Harvard University. Dr. Dai's work has resulted in more than 60 publications in the past ten years including Nature, Science, Physical Review Letters, and Journal of the American Chemical Society; and numerous features in newspapers and magazines including The New York Times. His novel synthetic method for chemical vapor deposition for ordered nanotubes and other academic achievements have won him many awards, such as the Packard Fellowship for Science and Engineering, the Sloan Fellowship, and the Pure Chemistry Award of 2002 from the American Chemical Society. Dr. Dai has developed nanotube chemical and biological sensors, as well as integrated nanotubes for a variety of electrical, mechanical, and electromechanical devices.