

The Waterloo Institute for Nanotechnology

Presents

Carbon Nanotube based Flexible Electronics

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Carbon nanotubes, since their discovery by Ijima in 1991, has garnered significant amount of interest owing to their fascinating properties. The high current carrying capacity of the metallic carbon nanotubes make them an ideal candidate for future interconnects while the high aspect ratio and partially conducting behavior of semiconducting carbon nanotubes have proved to be useful for making field-effect transistors, logic circuits, sensors, and field emitters. The exceptional thermal properties of carbon nanotubes and the numerous diverse applications have made this area extremely exciting. Despite the current progress in nanotube synthesis and the promise and need for high performance, miniature nanosystems, several challenges remain prior to the realization of nanotube based systems. Using solution based processing methods, nanotube based devices can be readily realized on polymeric substrates for low cost, large area electronics and/or sensor applications. Furthermore, combining nanomaterials with Complementary Metal Oxide Semiconductor (CMOS) technology, not only enables novel high performance applications, but also will produce miniature portable nanosystems of the future. The first part of my talk I will focus on flexible nanoelectronics using carbon nanotubes. In the second part, I will focus on integration of nanotubes onto a CMOS platform for sensing applications.

