

## MATERIALS SCIENCE COLLOQUIUM

SPEAKER: PROF. JOHN A. ROGERS

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TITLE: Aligned Arrays and Multilayer Superstructures of Single Walled Carbon Nanotubes for High Performance Thin Film Type Electronics

DATE: Thursday, May 10, 2007

TIME: 11:00 a.m.

PLACE: Building 212, Room A-157

HOST: Axel Hoffmann

Refreshments will be available at 10:45 a.m.

### Abstract:

The excellent electronic, thermal and mechanical properties of single-walled carbon nanotubes (SWNT) create interest in their possible use in various areas of electronics, ranging from heterogeneously integrated systems for applications in communications to large area distributed circuits for applications in flexible displays. In these cases, organized, horizontally aligned arrays of pristine SWNTs represent a scalable pathway to these and other device implementations of SWNTs. This talk describes (1) methods for guided growth of large scale, aligned arrays of long (>100 microns), linear SWNTs, where nearly perfect levels of alignment and linearity can be achieved, (2) transfer methods that allow these arrays to be integrated with a wide range of substrate types in single or multilayer superstructure layouts and (3) characteristics of thin film type field effect transistors that use these aligned arrays as the channel material, where excellent device level properties can be realized.