

State University of New York
Binghamton University
Materials Science & Engineering and NSF Undergraduate Nanotechnology Education Program

COLLOQUIUM

Ultrathin Films of Single Walled Carbon Nanotubes for Analog RF
and Digital Electronics

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The excellent electronic, thermal and mechanical properties of single-walled carbon nanotubes (SWNTs), together with the ability to integrate them onto a wide range of substrate types, create opportunities for their use in various areas of electronics, ranging from heterogeneously integrated systems for applications in communications to large area distributed circuits for flexible displays. In these cases, sub-monolayer coverages of aligned arrays or random networks of pristine SWNTs can provide effective thin film type semiconductors for scalable circuit integration. This talk describes our research in this area, and highlights (1) methods for self-aligned growth of large scale, perfectly aligned arrays of perfectly linear SWNTs, (2) scaling properties of random network nanotube semiconductors, and (3) device and circuit implementations, including high mobility transistors with GHz switching speeds, carbon nanotube transistor radios and medium-scale digital logic circuits on plastic substrates.

Professor John A. Rogers obtained his PhD degree in physical chemistry in 1995. He served as Director of the Condensed Matter Physics Research Department at Bell Laboratories. He currently holds the Lee J. Flory-Founder Chair in Engineering at UIUC. Rogers' research includes fundamental and applied aspects of nano and molecular scale fabrication as well as materials and patterning techniques for unusual format electronics and photonic systems. He has published >200 papers, and is co-inventor on >70 patents and patent applications, more than 40 of which are licensed or in active use by large companies and startups. His research has been recognized with many awards including DOD's National Security Science and Engineering Faculty Fellowship (2008), UIUC's Daniel Drucker Eminent Faculty Award (2007), and the ACS's Leo Hendrick Baekeland Award (2007). He is a Fellow of the APS (2006), MRS (2007) and AAAS (2008).

DATE: *Wednesday, February 11, 2009*

TIME: *12:00 noon*

PLACE: *Academic Complex A, room G007 (AA G007)*

ALL ARE INVITED