

# MRSEC SEMINAR SERIES

## “Molecular- and polymer-based electronic devices”



The idea of utilizing individual molecules as the electronic components in future ultrahigh-density electronic devices has generated tremendous attention. Obtaining transistor action from molecular orbital control has been the outstanding challenge of the field of molecular electronics since its inception. In this talk, a direct electrostatic modulation of orbitals in a molecular transistor configuration will be explained, with both effective gate control and enhanced resonant coupling of the orbitals to the source and drain electrodes. A recently developed understanding on the electrical transport characteristics through various types of molecular junctions on flat or flexible substrates will also be discussed, along with a summary on general characteristics of the materials, device structures, and switching mechanisms used in organic resistive non-volatile memory devices. Strategies for performance enhancement, integration, and advanced architectures in these devices, along with other research results on nanoscale logic circuits and graphene-electrode optoelectronic devices, will be presented.

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**Monday, June 24, 2013**

**Cook 2058**

**2:00 - 3:00 p.m.**

**NU-MRSEC**

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