

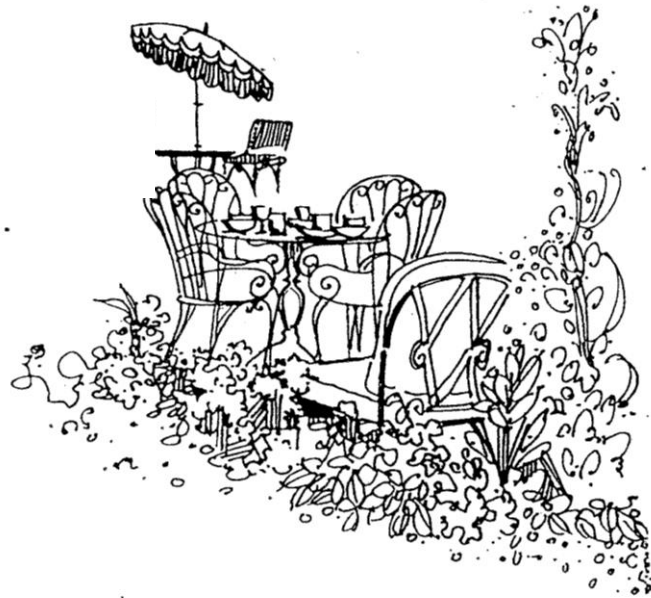
Chez Pierre

Presents ...

Friday, March 2, 2012

11:00am

MIT Room 4-331



SPECIAL CHEZ PIERRE SEMINAR

David Zhang

Harvard Medical School - Wyss Institute

"Towards Stimulus-Induced Behavior with Synthetic DNA Devices and Circuits"

Living cells and creatures are characterized by their ability to respond dynamically and in complex ways to physical and chemical stimuli. To fabricate systems and devices that exhibit similar stimulus-induced behavior, it is necessary to build and integrate reliable nanoscale sensors, processors, and actuators. Structural DNA nanotechnology has shown that DNA self-assembly allows spatial addressability and resolution at a scale not achievable by conventional top-down patterning, and can easily interface with other nanoscale materials. Now, dynamic DNA nanotechnology affords precise temporal and logical control over binding, self-assembly, and reconfiguration events. Consequently, nucleic acids have become leading nanoscale materials.

In this presentation, I will talk about our steady progress in building nucleic acid sensors, processors, and actuators towards the goal of a synthetic chemotactic nucleic acid device. Along the way, we have also worked on integrating our results with other technologies for applications such as improved PCR specificity, reduced bleaching in super-resolution optical microscopy, and quorum-gated drug release.