



Biomedical Engineering Department Seminar

Wednesday, March 7, 2007

Location: Fenster Hall, Room 698

Time: 12:00 - 1:00 PM

Nano-/Micro-technology for Linking Mechanics to Biochemistry in Molecular and Cellular Behavior

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The link between mechanics and biochemistry has been implicated in a myriad of scientific and medical problems, from orthopaedics and cardiovascular medicine, to cell motility and division, to signal transduction and gene expression. Most of these studies have been focused on organ-level issues, yet cellular and molecular research has become essential over the last decade in this field thanks to the revolutionary developments in microelectronics, genetics, biotechnology, and information technology. Here, I will present some of our latest work with micro- and nano-technology developments that are being patented and how they are being used to probe scientific questions related to cellular and molecular structure. I will illustrate why the link between mechanics and biochemistry matters to biology and medicine with respect to the structural regulation in living cells. I will then present complementary computational approaches, which help us delve further into our experimental findings. Furthermore, by combining novel approaches through engineering and technology, these multidisciplinary ideas can make a significant impact to the studies on human health and diseases as well as have applications in entrepreneurial enterprises.

Refreshments will be served.