



Northeastern University

College of Engineering

Please join us for a
Chemical Engineering Seminar

Wednesday, April 27, 2011

315 Behrakis Building

11:45 a.m. – 1:00 p.m.

***"Nanotechnology and The Challenges of The New
Decade: Energy, Health, and The Environment"***

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ABSTRACT

Since the 1959 lecture titled "there's plenty of room at the bottom" by Richard Feynman, nanotechnology has become part of many aspects of our daily life that a decade ago were science fiction. This fast growing field has applications ranging from electronics to medicine. The application of nanotechnology in biotechnology is often referred to as nanobiotechnology; similarly, the application of nanotechnology in medicine, is referred to as "nanomedicine".

In this talk, I will describe the behavior of biological molecules such as enzymes in nano-confinement and how to exploit new properties exhibited by these enzymes. By entrapping multi-enzyme systems inside nanoporous materials, complex reactions were catalyzed, bringing us a step closer to task-specific artificial bacteria. I will also describe the use of traditional and new nanosized materials for detection of molecular anomalies in biological systems in vitro.

The findings suggest a great marriage between nanotechnology and biology in which chemical engineers are key players. Biologically-skilled chemical engineers will advance the field by utilizing unique skills that combine modeling, thermodynamics, fluid mechanics, and their understanding of events at the molecular level.

Refreshments will be served