

# PHYSICAL MATHEMATICS SEMINAR

## COMPUTATIONAL ENGINEERING OF DNA DEVICES

**NILES A. PIERCE**

Applied & Computational Mathematics and Bioengineering  
California Institute of Technology

### **ABSTRACT:**

Single-stranded DNA is a versatile construction material that can be programmed to self-assemble into nanoscale devices driven by the free energy of base pair formation. This talk will describe our ongoing efforts to develop a general computational framework for the analysis and design of DNA systems. Experimental demonstrations will include the locomotion of a synthetic DNA walker and biosensing using the mechanism of hybridization chain reaction.

**TUESDAY, MAY 10, 2005**

**2:30 PM**

**Building 2, Room 338**

*Refreshments at 3:30 PM in Building 2, Room 349.*



Massachusetts Institute of Technology  
Department of Mathematics  
Cambridge, MA 02139