

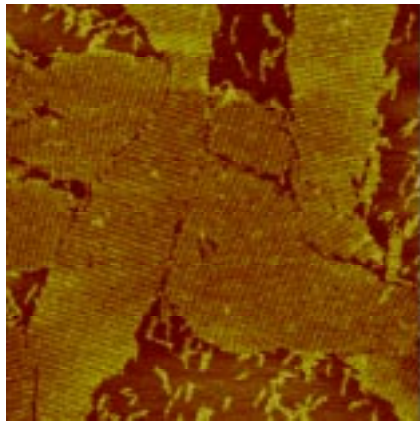
# CALTECH SUBCONTRACT

## Computational and Experimental Design of DNA Devices

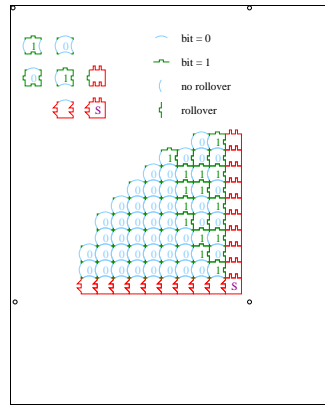
Erik Winfree and Niles Pierce

### Scientific Objectives:

DNA sequence design of self-assembled devices for  
Reliable lattice assembly & patterned nanostructures



AFM image of striped lattice



Binary Counter

### New Ideas:

Algorithmic self-assembly of DNA tiles  
forming templates for electronic circuits

Thermodynamic partition functions  
and dynamic simulation for multi-stranded  
DNA systems

Algorithms for positive and negative  
DNA sequence design

### Impact:

Reliable automated design  
of complex molecular systems

Ability to pattern nanostructures using  
self-assembled DNA lattice

Nanoelectronics, nanorobotics, nanosensors,  
nanoactuators

### Schedule:

