

Nanorobotic Manipulation Systems Using Nanoprobes

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Micro/Nano-Robotics Encompasses:

Programmable assembly and **manipulation** of micro- and nano-scale entities

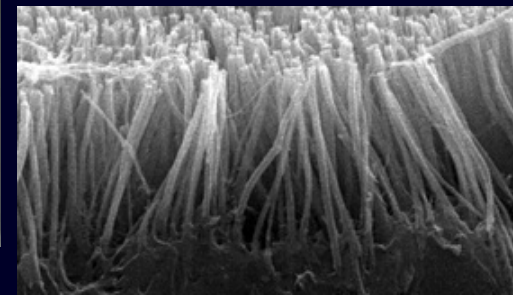
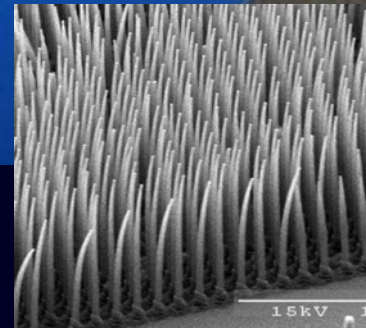
Design and fabrication of **miniature robots** down to sub-millimeter sizes

(Locomotion and dynamics dominated by the principles of micro/nano-physics)

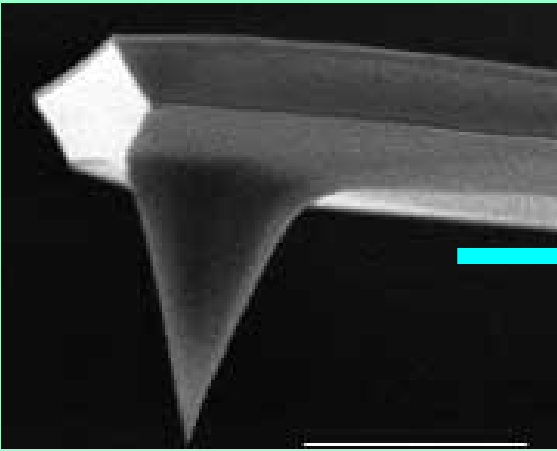
Programming and coordination of large number of these robots



Miniature Robots @ NanoRobotics Lab



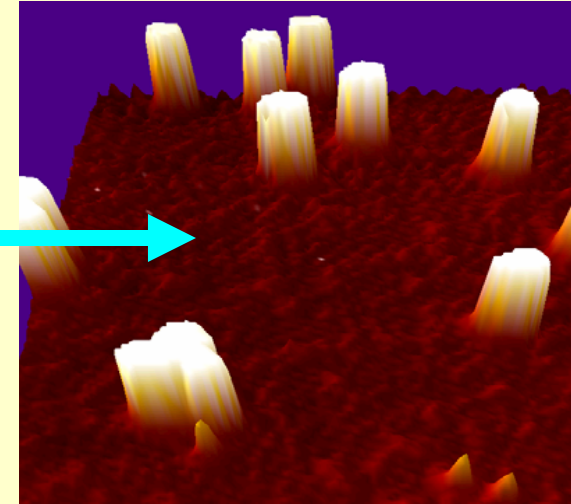
Micro/Nano-Manipulation



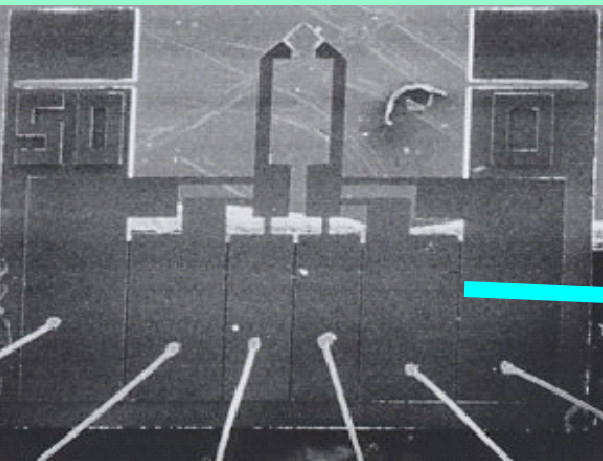
**Atomic Force
Microscope Probes**



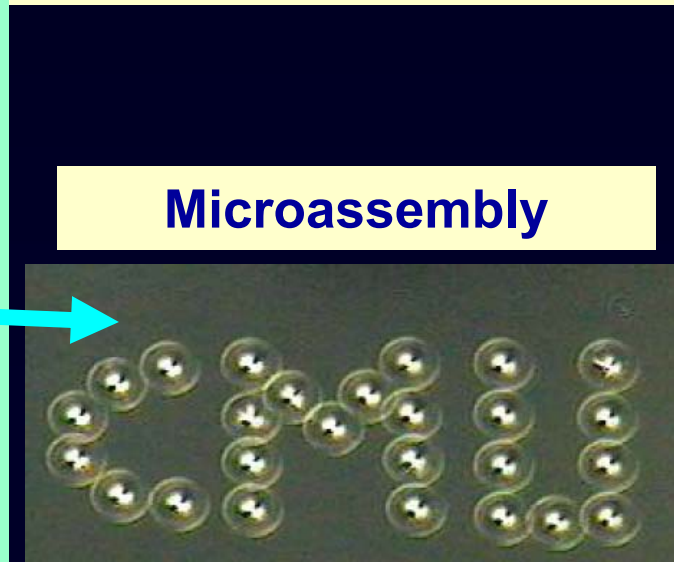
**Human-Machine Interface
(Nanorobot Control)**



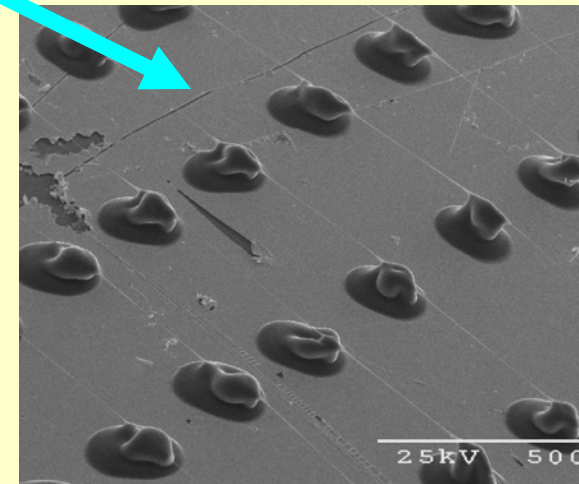
Nanomanipulation



Custom Nanogrippers



Microassembly



Micro/Nanofiber Pulling

NanoRobotics Lab

@ Carnegie Mellon



Graduate Students:

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THANKS...