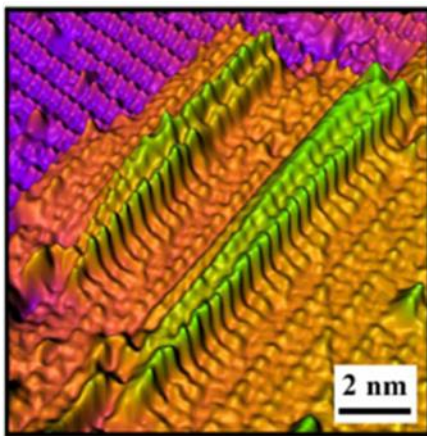


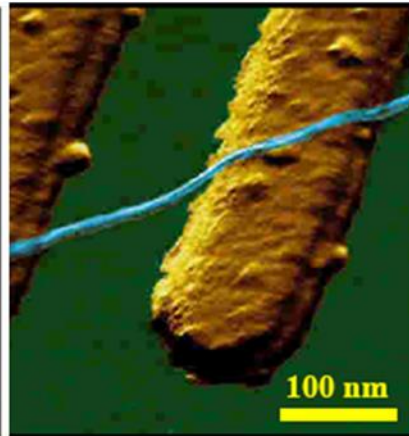
10.585 Engineering Nanotechnology

Prereq: 10.302, 10.213, equivalent or permission of instructor, Units: 3-0-9

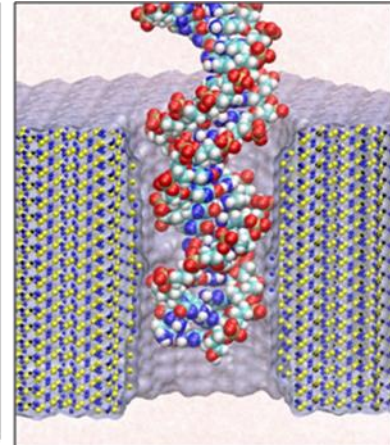
Advances in Nanotechnology, the control of matter on the nanometer length scale, are driving the development of new technologies across many scientific fields. This course will review the fundamental engineering concepts necessary to analyze problems at this length scale. Energy, mass and electron transport in materials confined or geometrically patterned at the nanoscale are addressed where departures from classical laws become dominant. Specific applications to contemporary engineering challenges are discussed including problems in energy, biology, medicine, electronics, and material design.



**Catalysis and
Reactivity**



**Thermal and
Electrical Transport**



**Mass
Transport**

Course objectives

- study how geometric constraints or patterning at the nanometer scale give rise to new or altered properties
- review fundamental engineering principles to analyze problems at the nanoscale
- calculate engineering estimates of certain physical properties at the nanoscale
- critically analyze the nanotechnology-related scientific literature
- study emerging industrial applications of nanotechnology
- communicate effectively and work within groups of inter-disciplinary students

Details: T and Th (66-110), 12:30-2 pm, 26 lectures, final project; for graduate students or advanced undergraduates

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