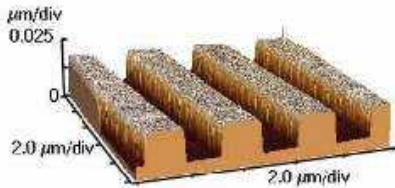


Introduction

- Nanometer
- Unique Properties of Nanoscale
- NNI Program Component Areas(PCAs)
- Impact of Nanotechnology
- Nanoelectronics and Computing
- Energy Production and Utilization
- Benefits of Neno in the Environment Sector
- Benefits of Nanotechnology in transportation
- Electrical Conductivity
- Physisorption
- Chemisorption
- Nanoporous Materials
- Multi functionality in Materials

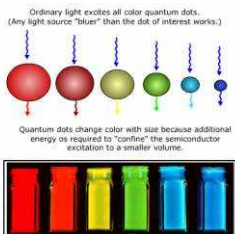
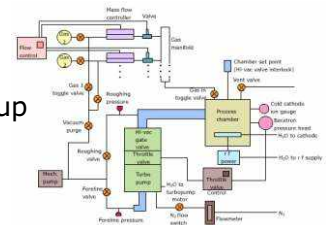


Tools

- Overview of Microscopy
- Schematic of E Gun & EM Lens
- Schematic of SEM
- Electron Scattering from Specimen
- STM Electronics
- Scanning Tunneling Spectroscopy
- AFM Models of Operation

Processing Techniques

- Top-down and Bottom-up Techniques
- Deposition Techniques
- Physical Deposition Approaches
- Chemical Vapour Deposition
- Plasma processes and Basics
- Glow Discharges
- Schematic of a Typical Plasma Reactor Seyup
- Microwave Discharge
- Soft Lithography
- Din-Pen Nanolithography

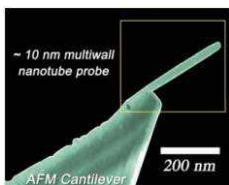
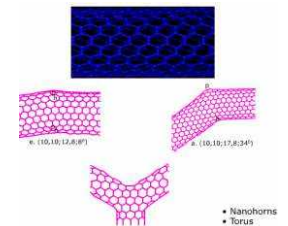


Nanomaterials Inorganic Nanowires

- Carbon Nanotube
- CNT Properties
- CNT Application Structural, Mechanical
- Catalyst Characterization
- Role of the Underlayer
- Multiwall Nanotube Towers
- Plasma Reactor for CNT Growth
- Functionalization
- Silicon Nanowires
- Nanomaterials in Drug Delivery

Nanoelectronics

- Resonant Tunneling Diode
- Graphene
- Shapes in Nature
- Quantum Conductance Experiment
- Semiclassical Picture
- Silicon Nanoelectronics Device Physics
- Tool Hot to Handle
- Nanoelectronics
- Inorganic Nanowire Devices
- Molecular Electronics



Nano-Other Applications

- Chemical Sensor
- Carbon Nanotube Chemical Force Sensor
- SWCNT Chemiresistoris
- SWCNT Sensor Performance
- Biosensor
- Fabrication of Genechip
- Field Emission Devices
- Thermoelectric Refrigeration

Nano-Bio

- DNA: The Basics
- Get Electrophoresis
- DNA Chips
- DNA Conductance
- Counter-ions
- Hemiltonian Path Problem
- Solution Implementation
- Nanopore Ion Conductance

