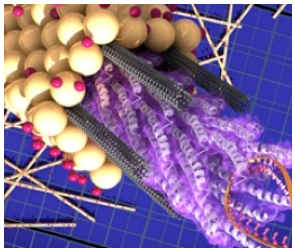
Biomaterials Engineering

M3D2
11.17.11

Phage provide architecture for SWNTs



SWNTs have different amounts of metallic and semiconducting materials on them which can short circuit electron paths

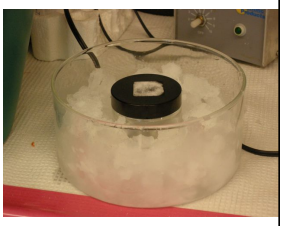
To optimize electron collection: vary ratio of SWNTs:phage

- Solvent exposed surface for TiO2
- Unbundle SWNTs

Image from MIT news

Reactions with titanium isopropoxide

1. Retrieve phage:SWNTs from dialysis, chill
2. Make ice+salt bath
3. Cool 7 ml EtOH in hood
4. +50 ul of Ti(l-pro)4 per 100 ul SWNTs, >5'
5. +phage:SWNTs, 10-15'



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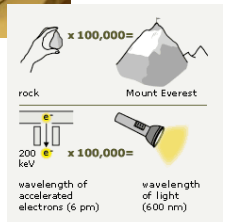
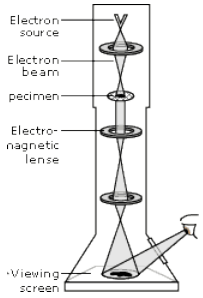
Danger

OSHA Hazards
Combustible Liquid, Irritant

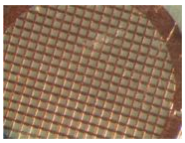
GHS Classification
Flammable liquids (Category 3)
Acute toxicity, Inhalation (Category 3)
Skin irritation (Category 3)
Eye irritation (Category 2A)

TEM





TEM grid + harvest



1. Vortex your samples
2. Retrieve grid with tweezers
   - hold EDGE of grid!
   - look for # under microscope
3. Place 5ul of nanocomposite onto grid
4. 5' then wick away any moisture
5. Wash with 100% EtOH (30'' + wick)
6. Wash with H2O (30'' + wick)
7. Harvest remaining materials 3K, 10'
   - supernatant to chem waste
   - wash with H2O
   - Spin and decant sup to waste

DONE! (have a great T-day!!)