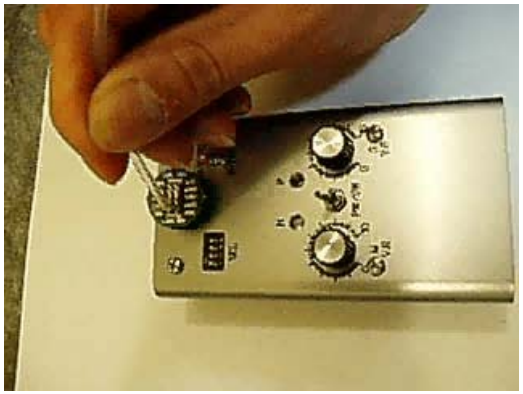
Device Applications of Semiconducting SWNTs

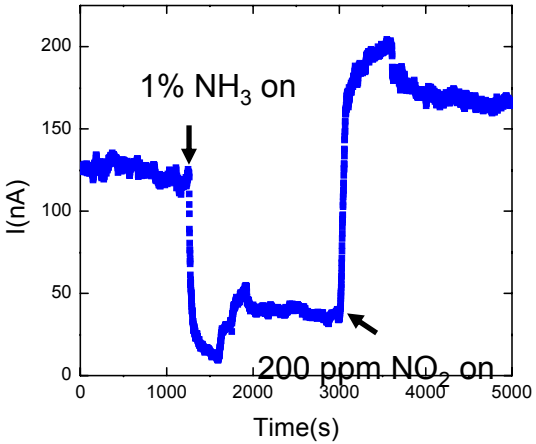
Jeong-O Lee

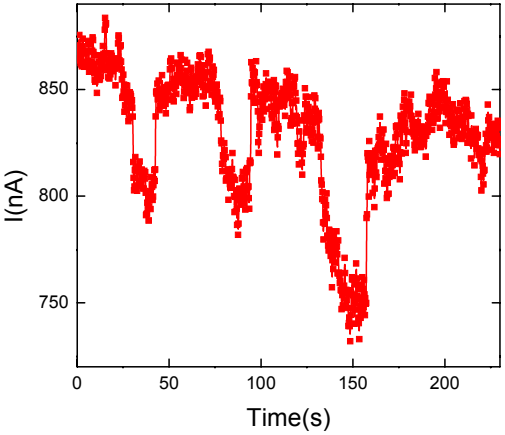
Korea Research Institute of Chemical Technology

Applications of SWNT-FET in KRICT

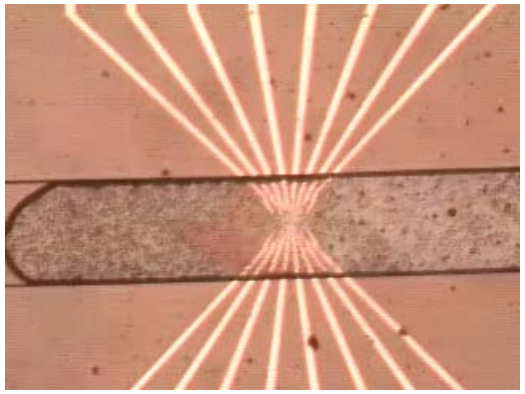
1. Gas sensors

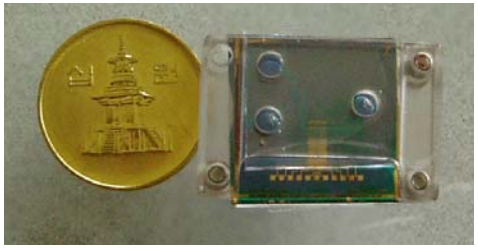


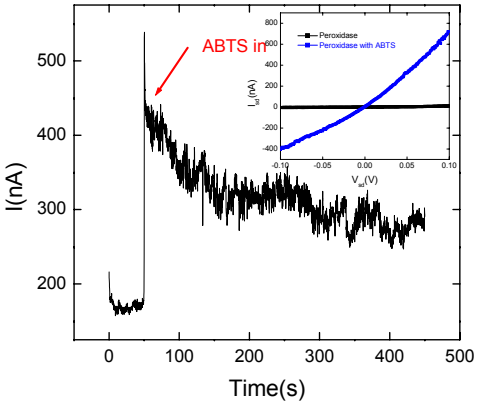




2. Biosensors





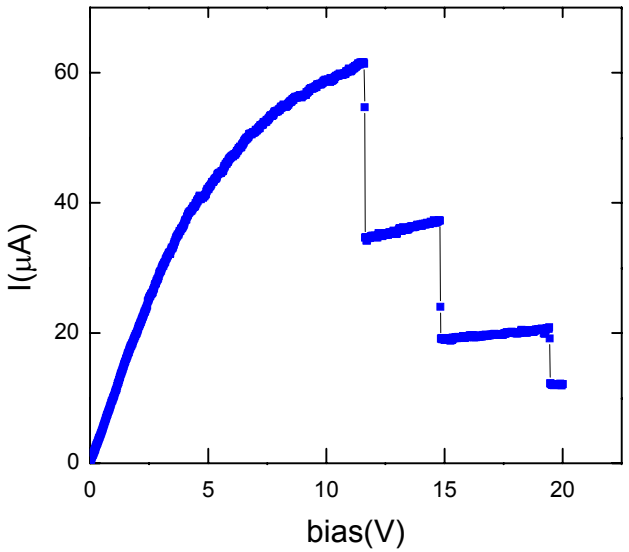


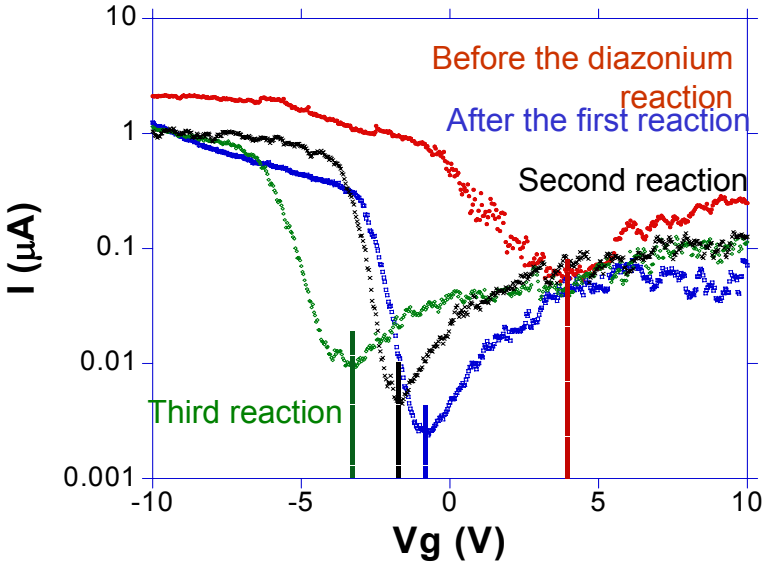
Fabrication of high performance SWNT-FET

Problems in SWNT-based electronic devices

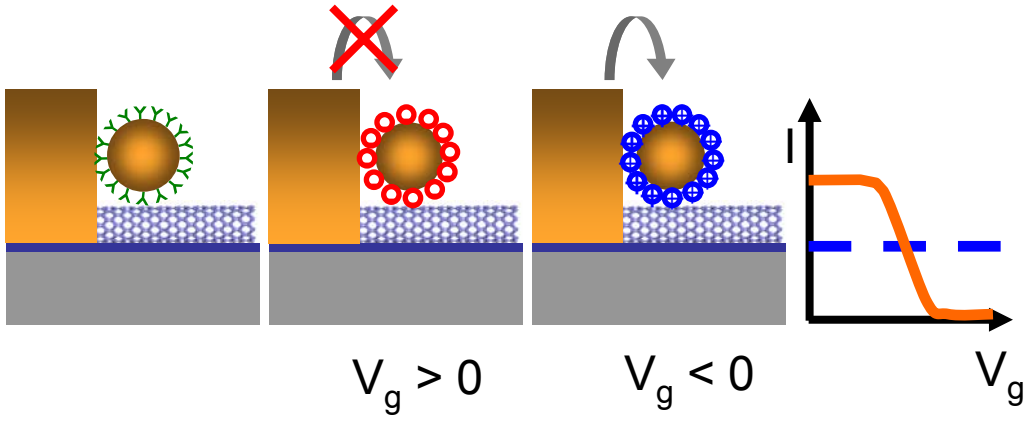
1. Chirality control is not possible
2. Reproducibility of the individual devices is poor
3. Stability of the devices

1. Chirality control?

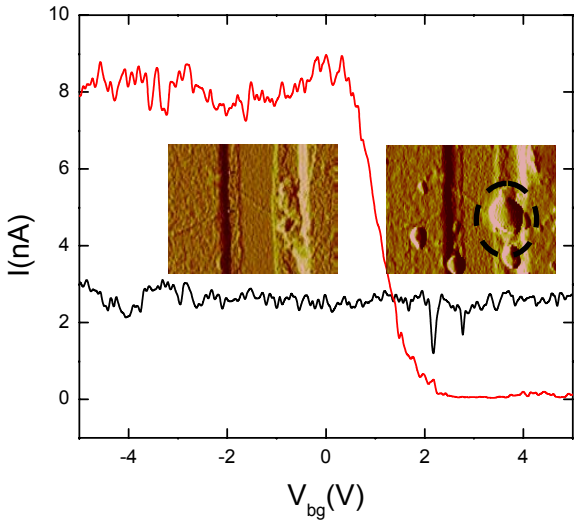


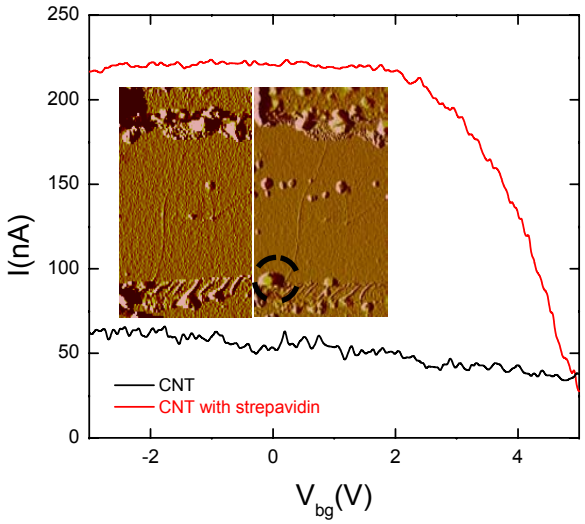


Fabrication of FET with metallic SWNT

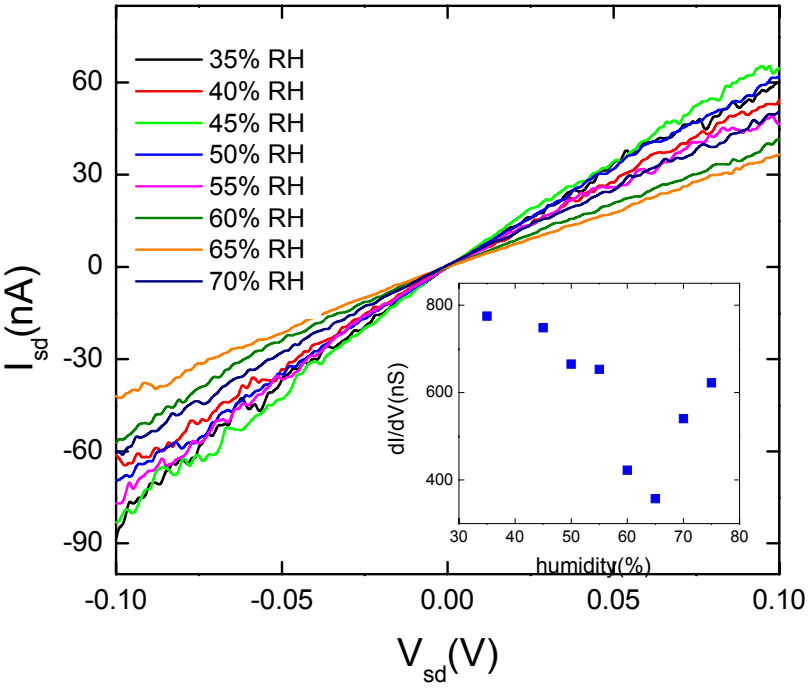


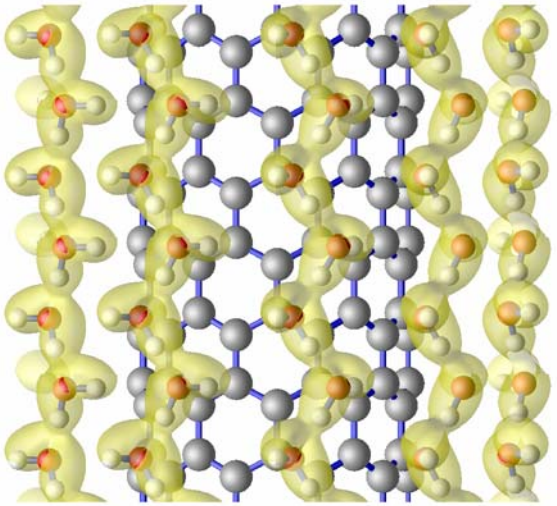
Contact barrier control with charged protein-nanoparticles





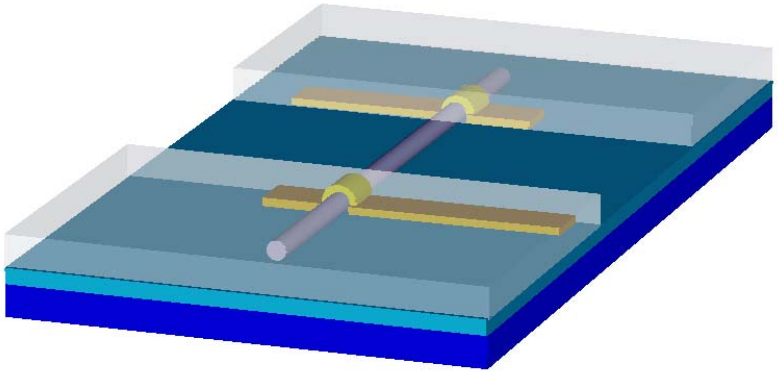
Effect of humidity on SWNT-FETs

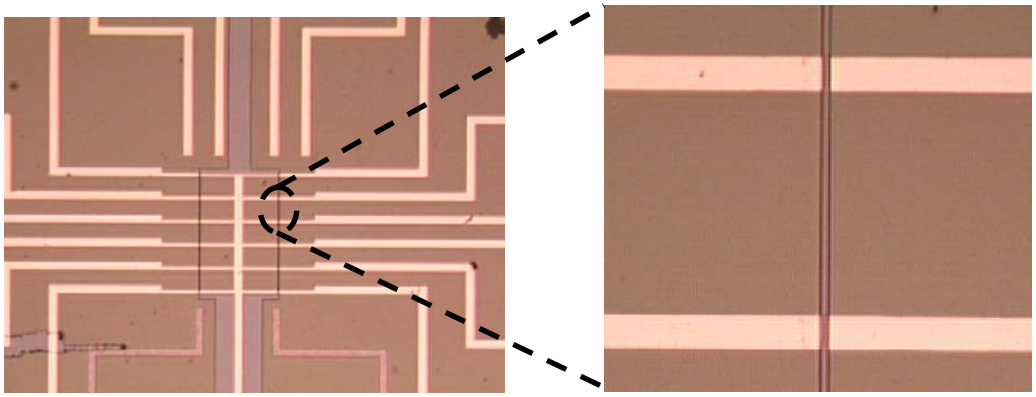


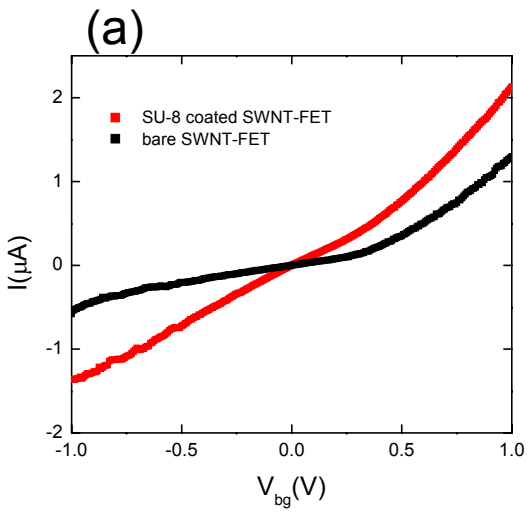


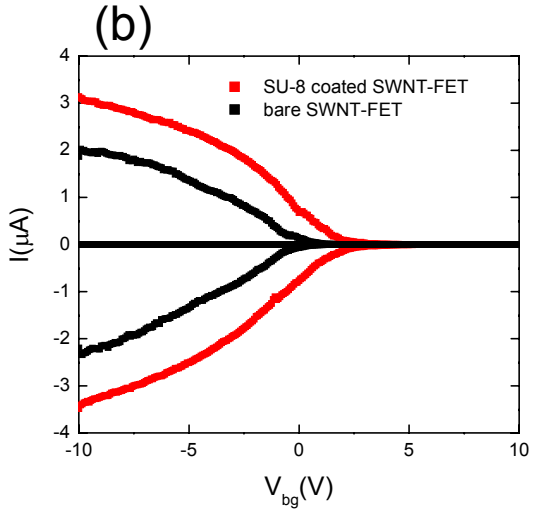
Water molecules can dope carbon nanotubes; At full coverage, 0.007e/H_2O will be donated to the tube

Effective p-doing of SWNT-FET with SU-8









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