Resistive Memory Devices

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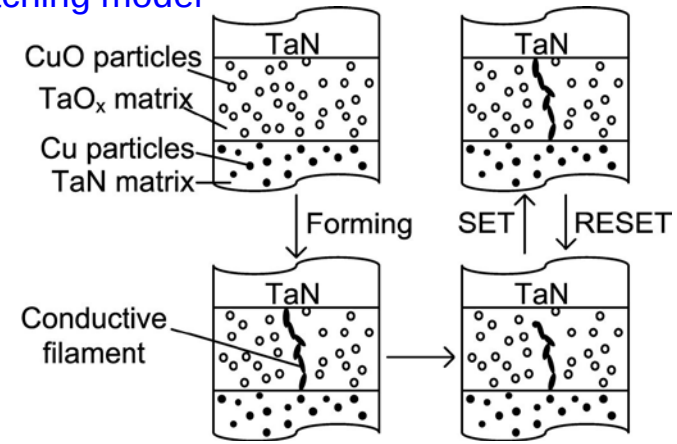
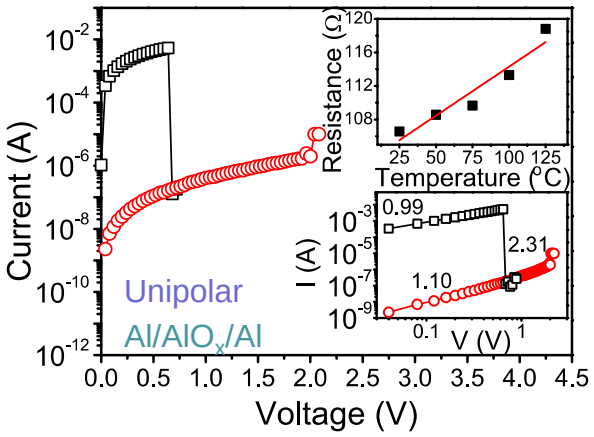
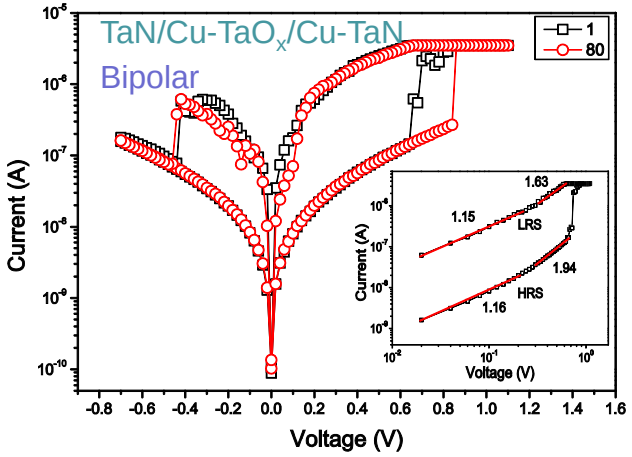
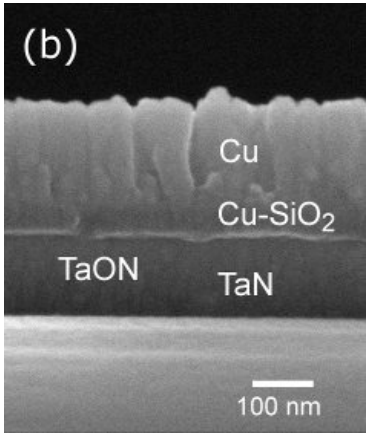
1) Various oxide-based MIM devices are developed for RRAM.
2) Interfacial structures govern bipolar or unipolar switching of resistance.

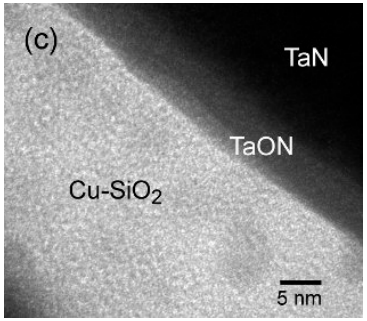
A switching model

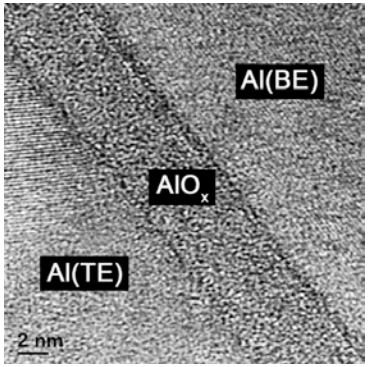












Mesoscopic Materials

Mesoscopic materials by thin film technologies are developed for various applications.

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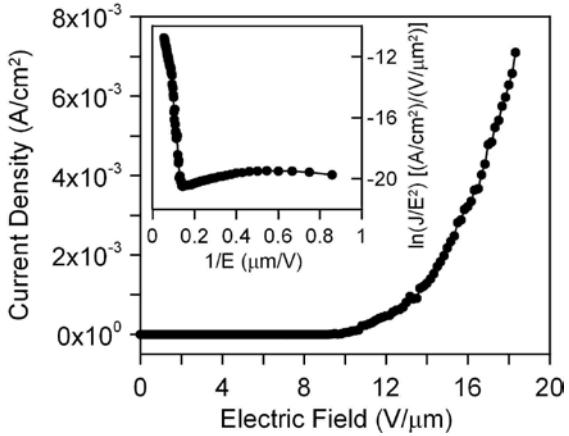
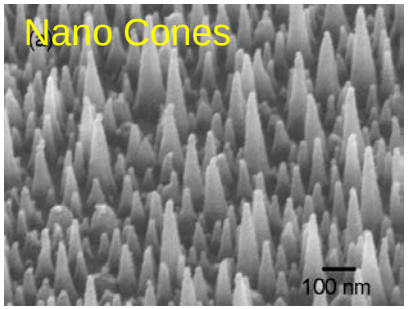
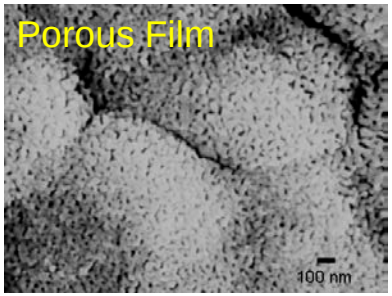
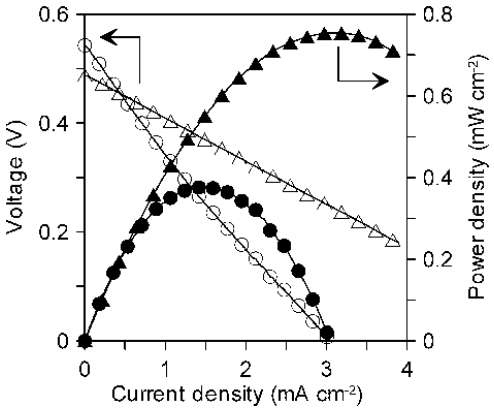
Electron emission

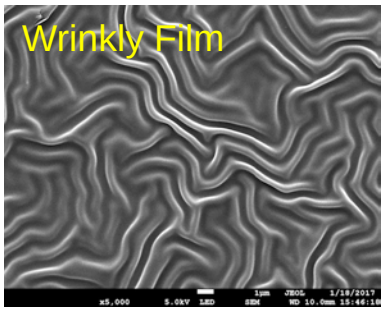




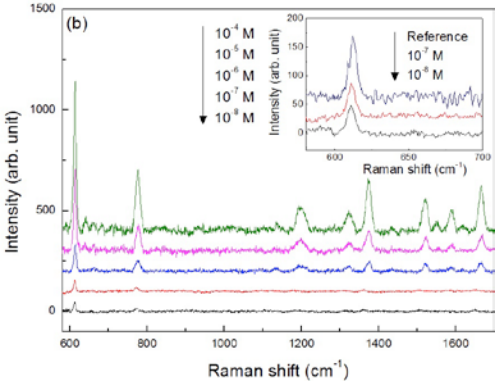
Electrodes for energy and sensing devices







Raman enhancement



Graphene

1) Monolayer and multilayer graphene
2) Primitive and doped graphene
3) Graphene quantum dots (GQDs)

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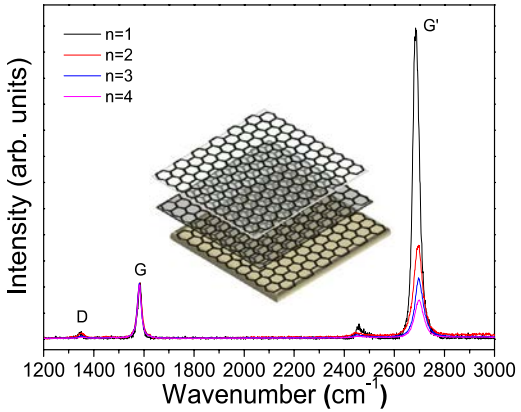
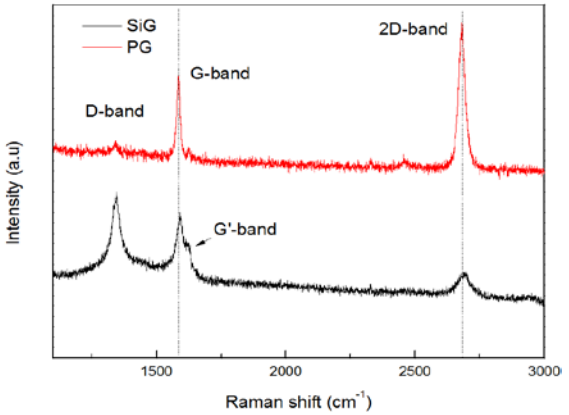
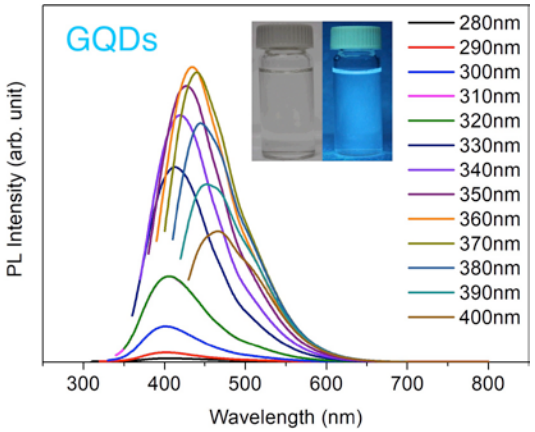
1~4 layered graphene



Undoped & doped graphene





Graphene/Silicon Photodetector