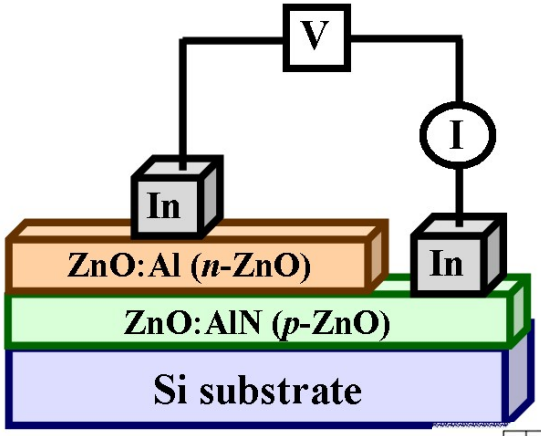
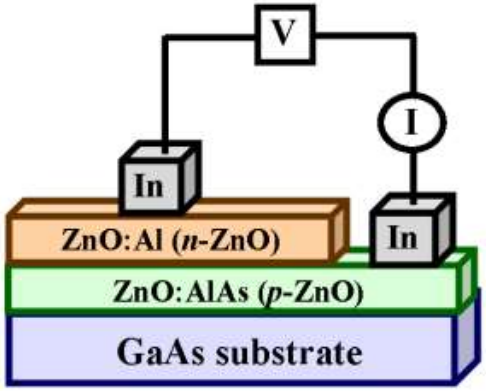
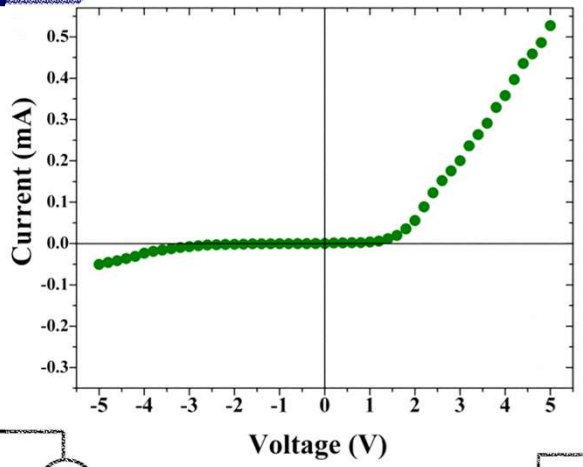
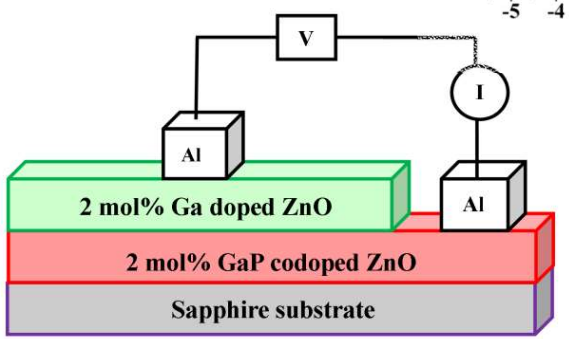
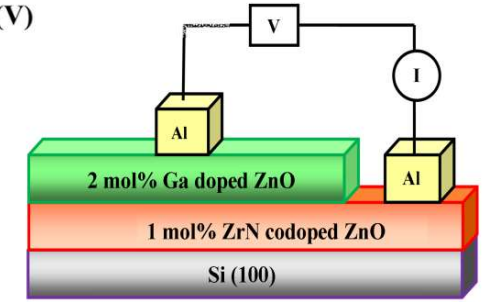
Fabrication of ZnO homo Junctions for LEDs applications



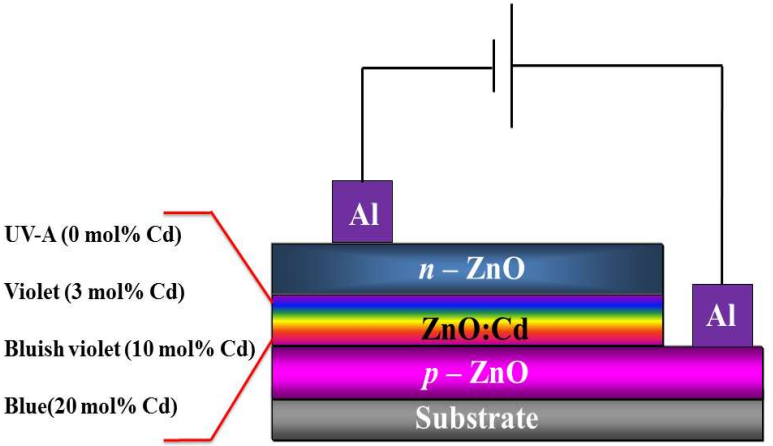


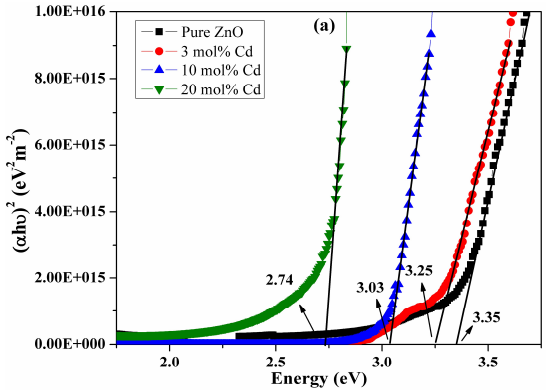


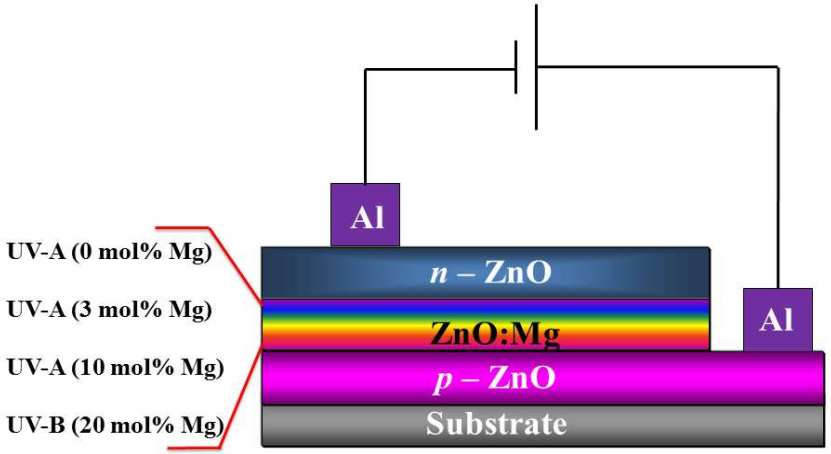


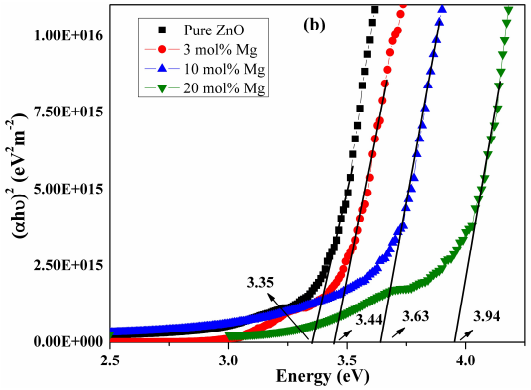


Band Gap engineering in ZnO p-n Junctions by Cd and Mg doping

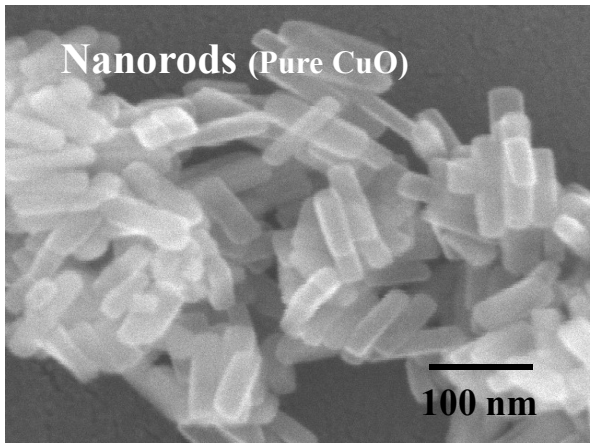


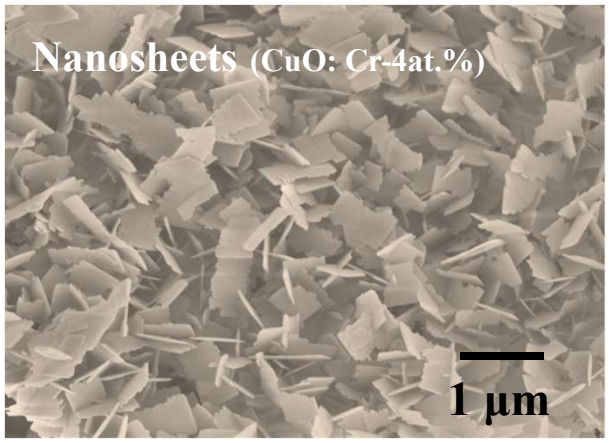


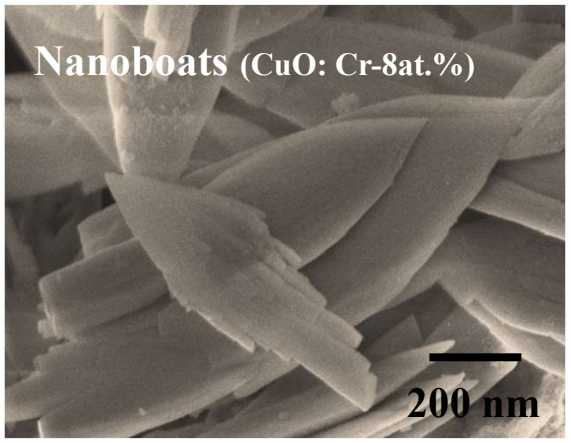


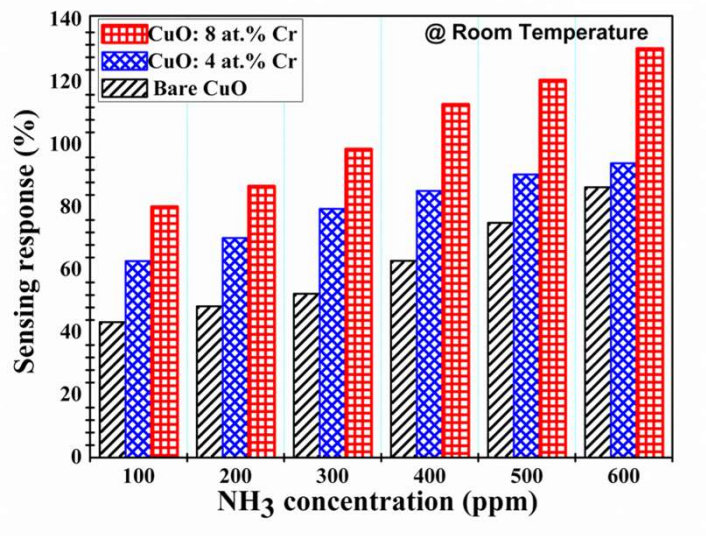


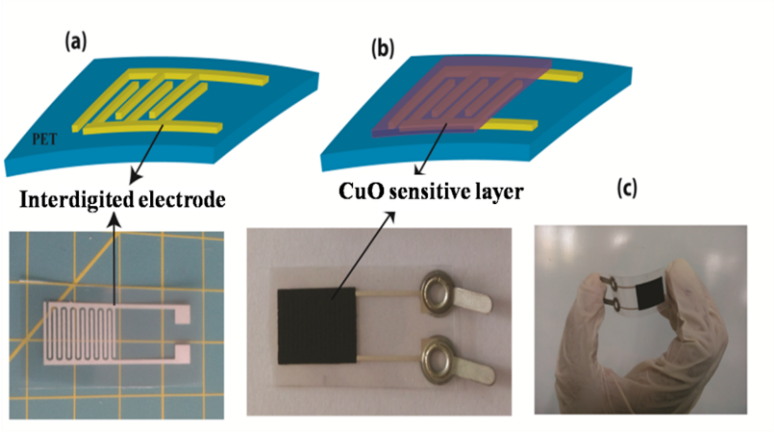
Effect of Morphology on NH_3 sensing in CuO:Cr nanostructures





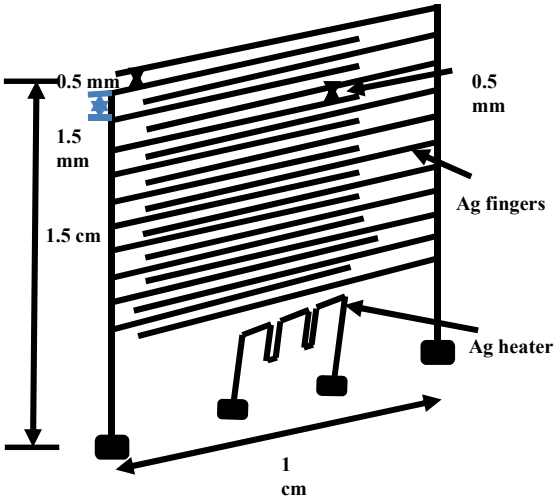


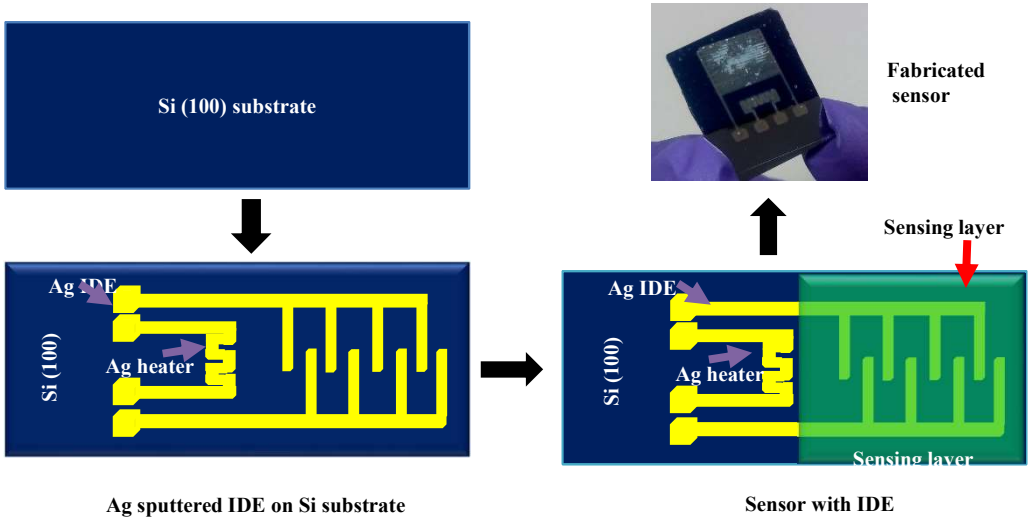


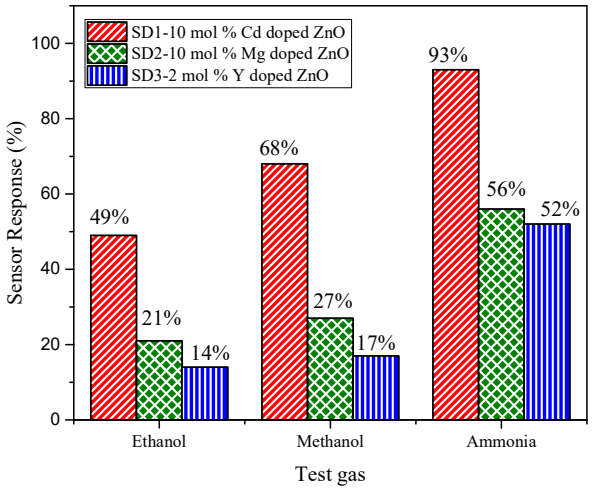


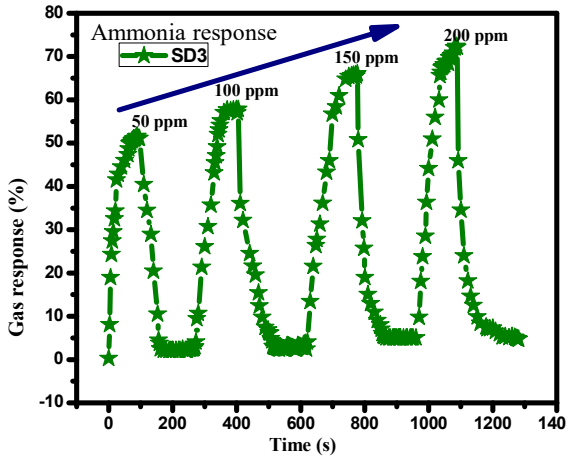
Flexible CuO sensor on PET substrate by screen printing

Fabrication of ZnO-Ag Interdigitated electrode (IDE) Sensor by sputtering









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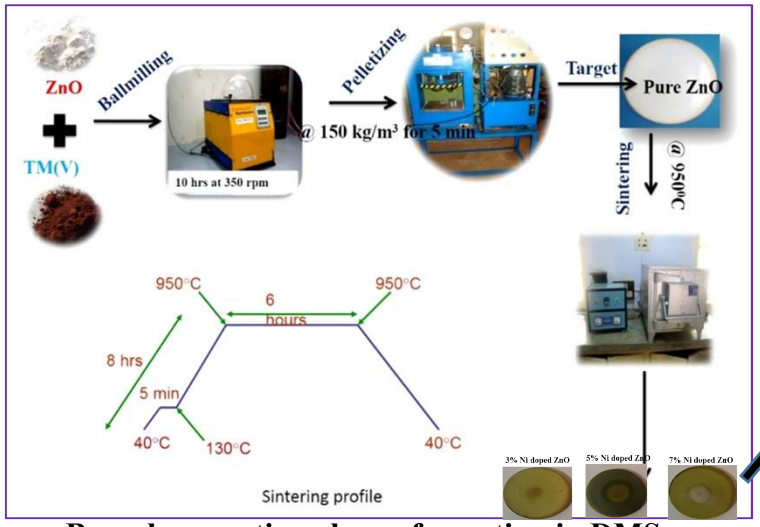
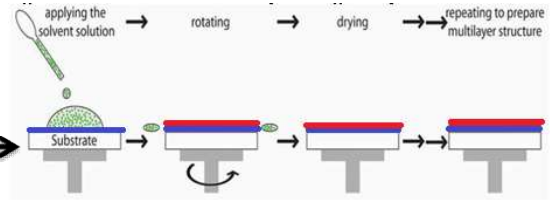
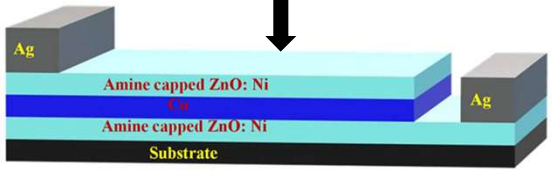
Surface functionalization in TM doped ZnO thin films for Spintronics Applications

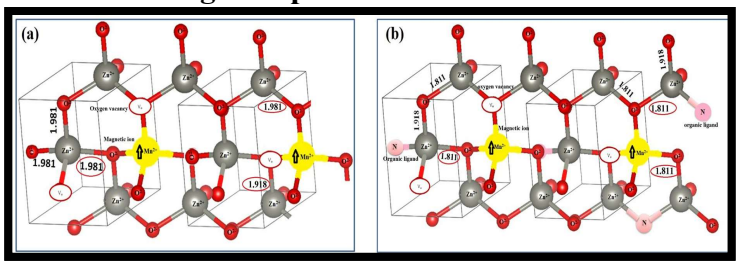
- Transition Metals (TM) doped ZnO films are grown by R.F Sputtering
- The grown films are capped using organic ligands to enhance Ferromagnetism
- These films are used to fabricate GMR/TMR structures.



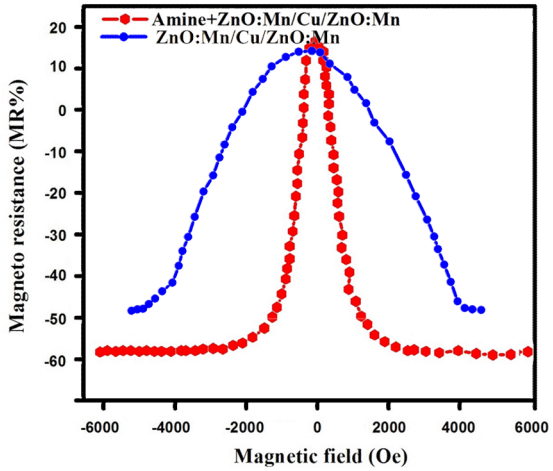


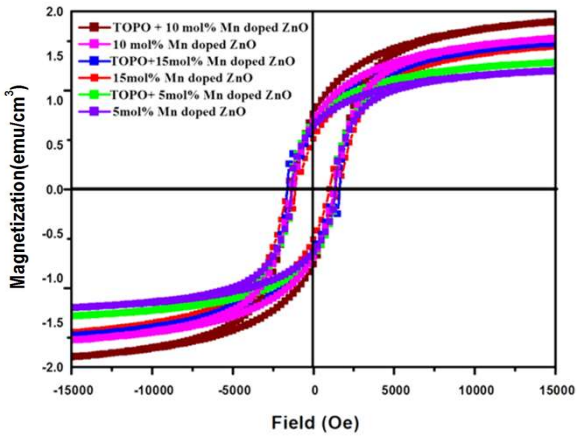


Bound magnetic polaron formation in DMS

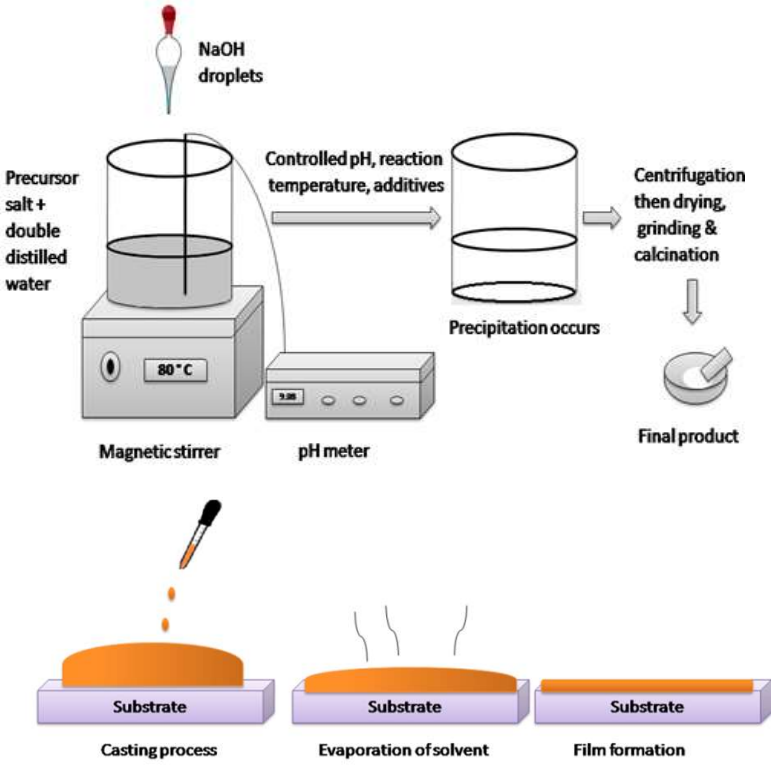


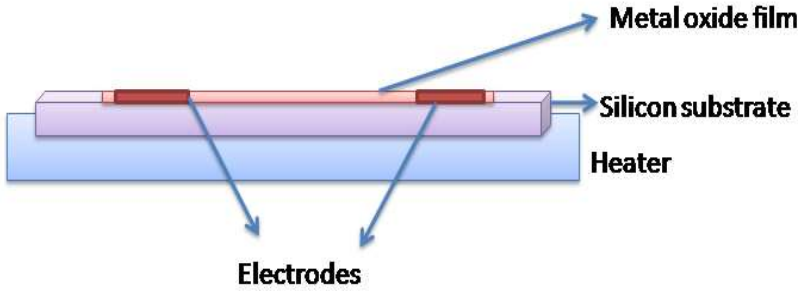
Negative MR ratio of GMR

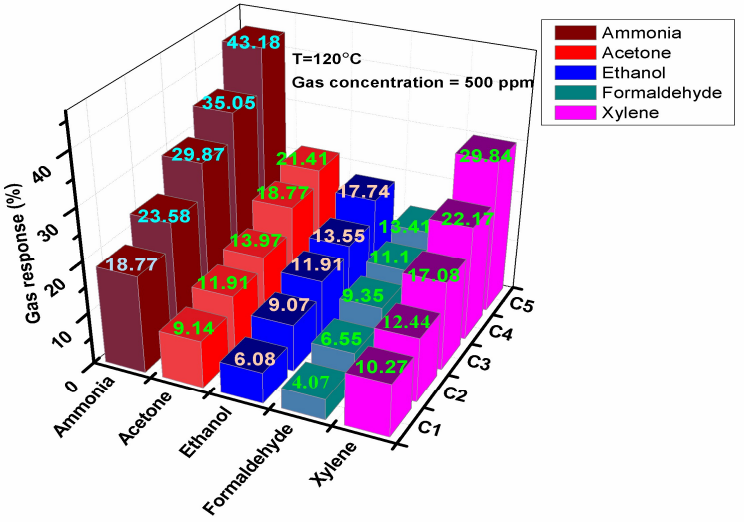




ZrO_2 nanostructure for gas sensing







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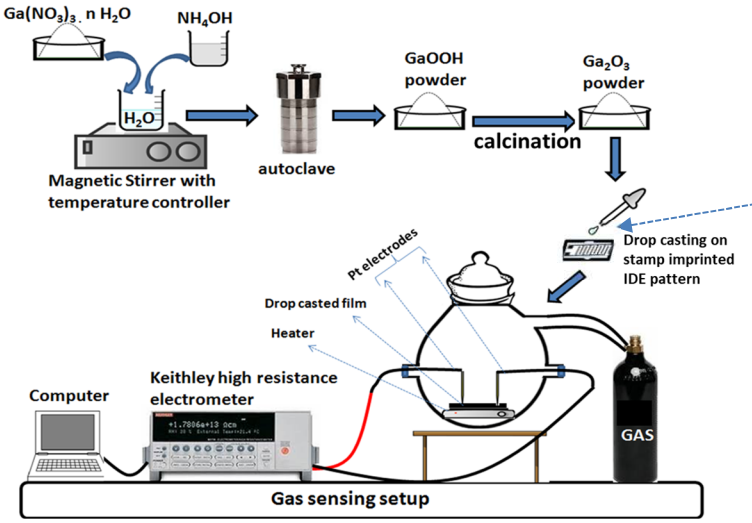
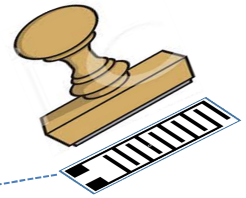
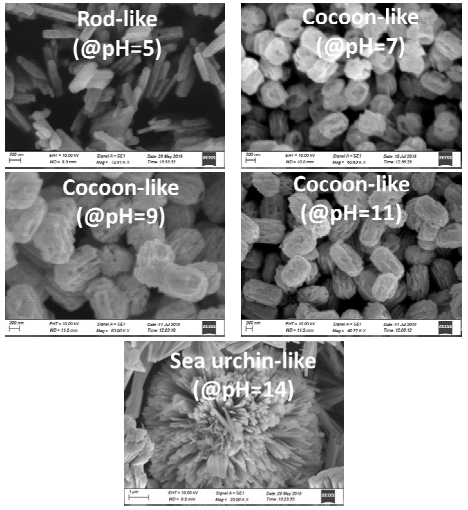
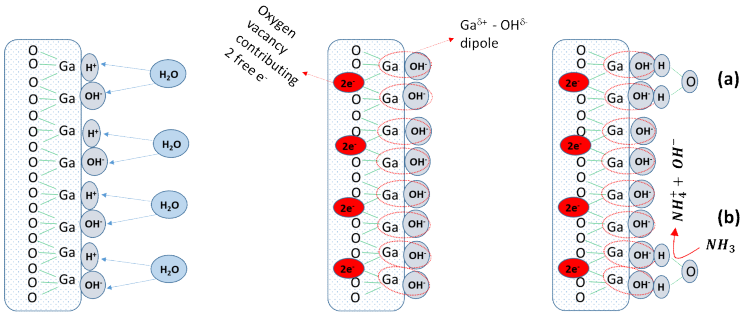
Hydrothermal Synthesis of β-Ga_2O_3 for room temperature NH_3 sensing





Stamp imprinted silver IDE pattern on glass substrate

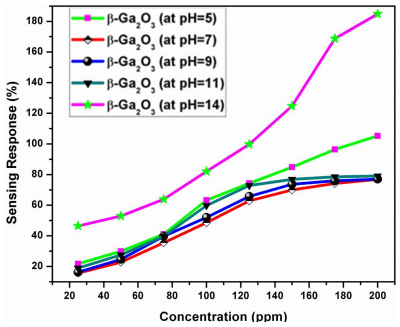


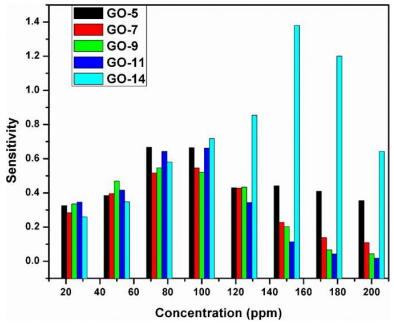


Dissociative adsorption of H_2O

Oxygen vacancy creation and Ga-OH dipole formation

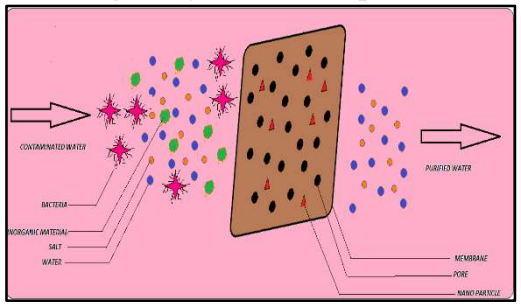
(a) Formation of electrolytic layer
(b) Electrolytic dissociation of NH_3



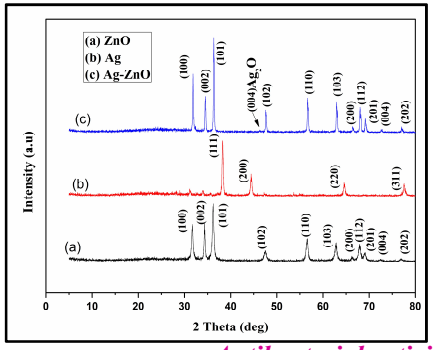


Nanofillers (ZnO, Ag & Ag-ZnO) Incorporated PSF/PVP Membranes for Water Purification

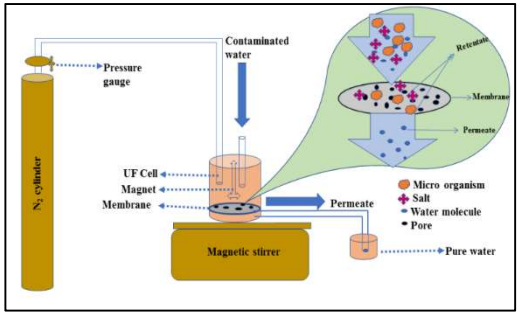
Schematic diagram of membrane separation



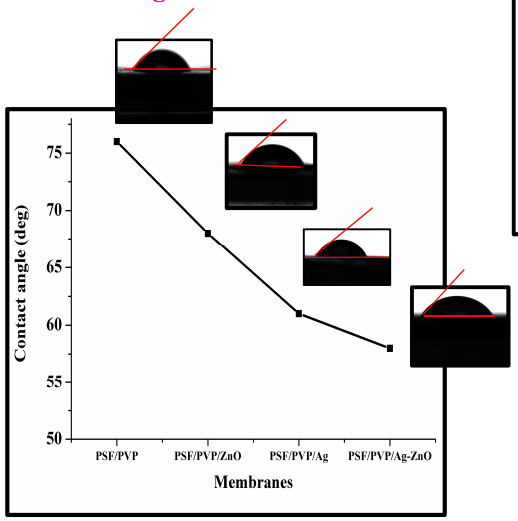
XRD analysis - nanofillers



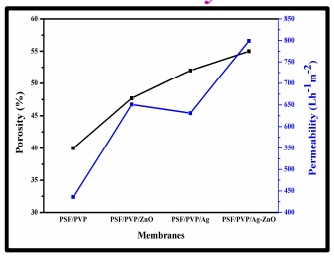
Dead end Ultra-filtration setup



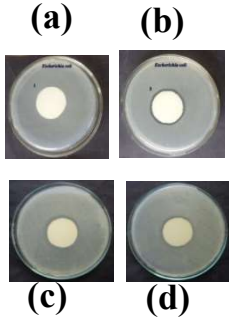
Contact angle measurement

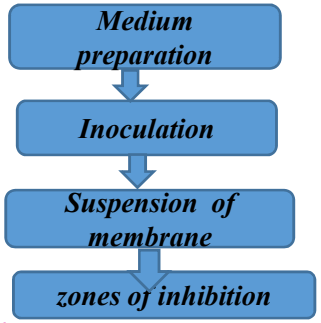


Water Permeability

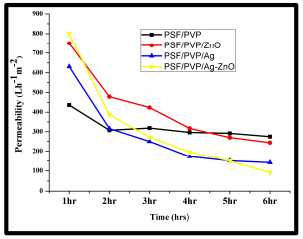


Antibacterial activity- Disc diffusion method





Time dependent Water Permeability

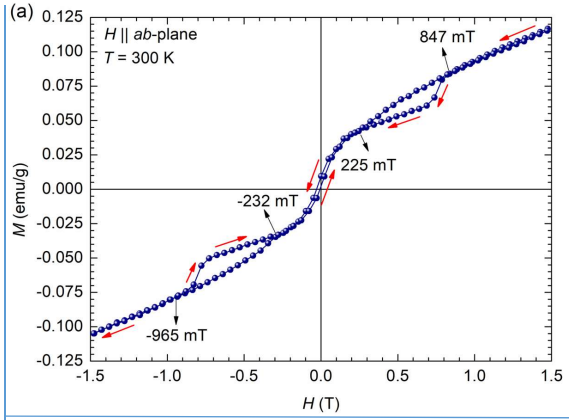


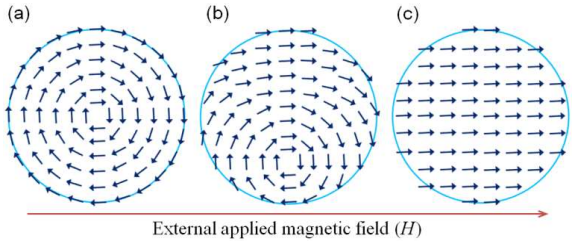
Inhibition Zone width

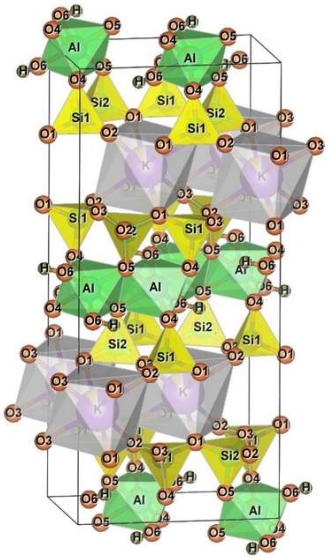
(a)PSF/PVP – 0.0mm
(b)PSF/PVP/ZnO - 1.20mm
(c)PSF/PVP/Ag - 20 mm
(d)PSF/PVP/Ag-ZnO – 19.13 mm

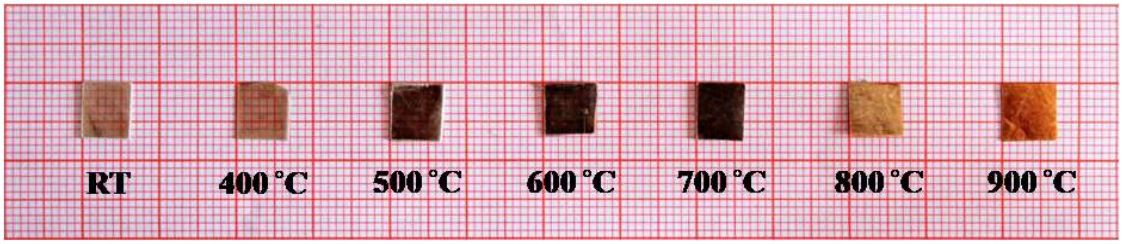
- ✓ Enhanced hydrophilicity
- ✓ Nanoporous structure
- ✓ High water Permeability
- ✓ High antibacterial activity

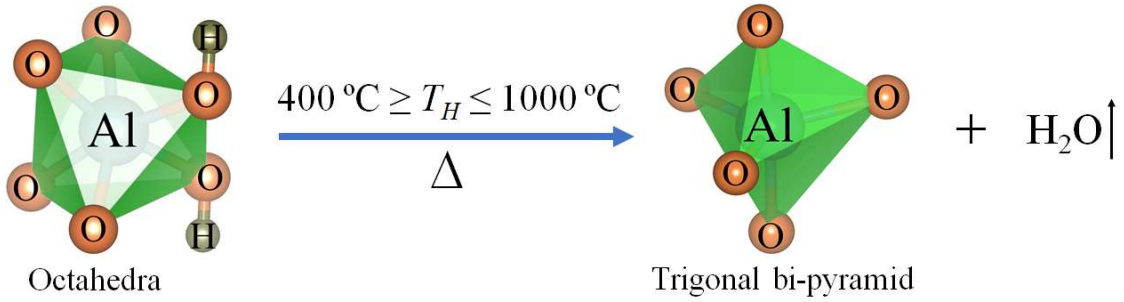
Experimental investigation on the graphene-like 2D materials: Muscovite and Biotite





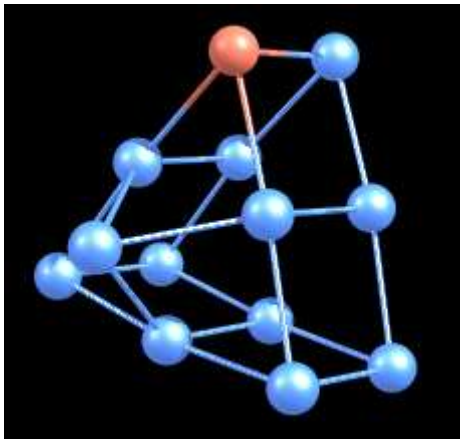




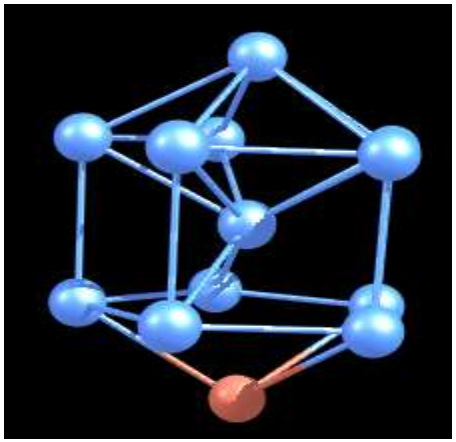


M. Kirubanithy, N. Gopalakrishnan, K. Balamurugan, *Mater. Res. Exp.*, 5 (2018) 096103

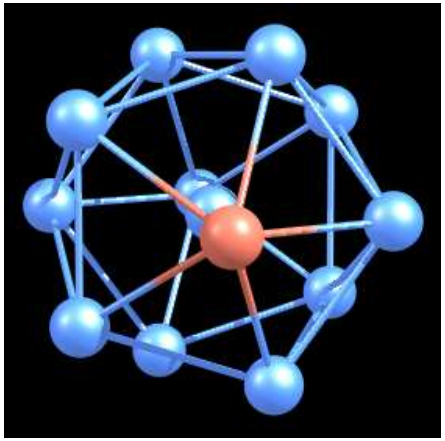
Optimization of Pt-M13 atom by Density Functional Theory (DFT)



2 Triangles+1



Decahedron



Icosahedron

- Measuring the charge transfer across the atoms
- Calculation of magnetic moment with finite value
- Measuring the HOMO/LUMO values
- Calculation of Density of States and Binding energy