

Supplementary information

## ZnO thin film-nanowire array homo-structures with tunable photoluminescence and optical band gap

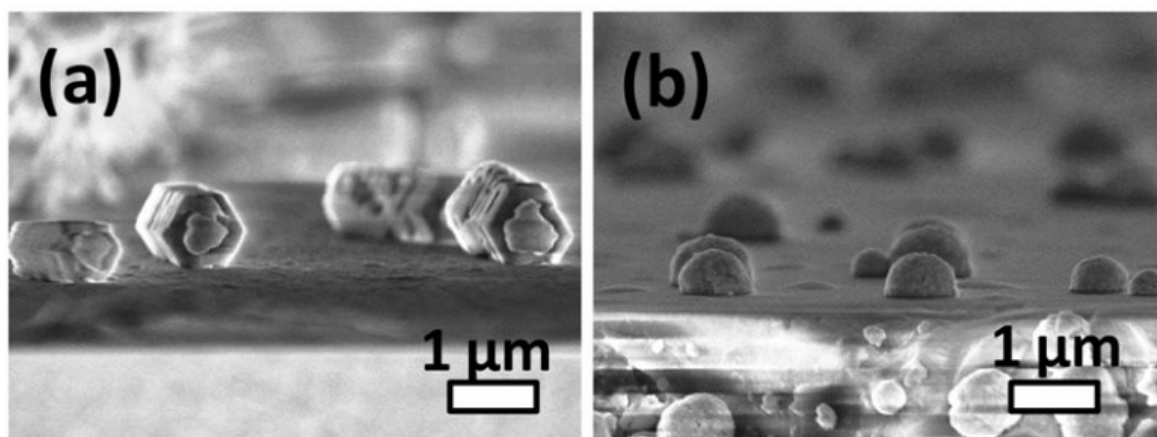
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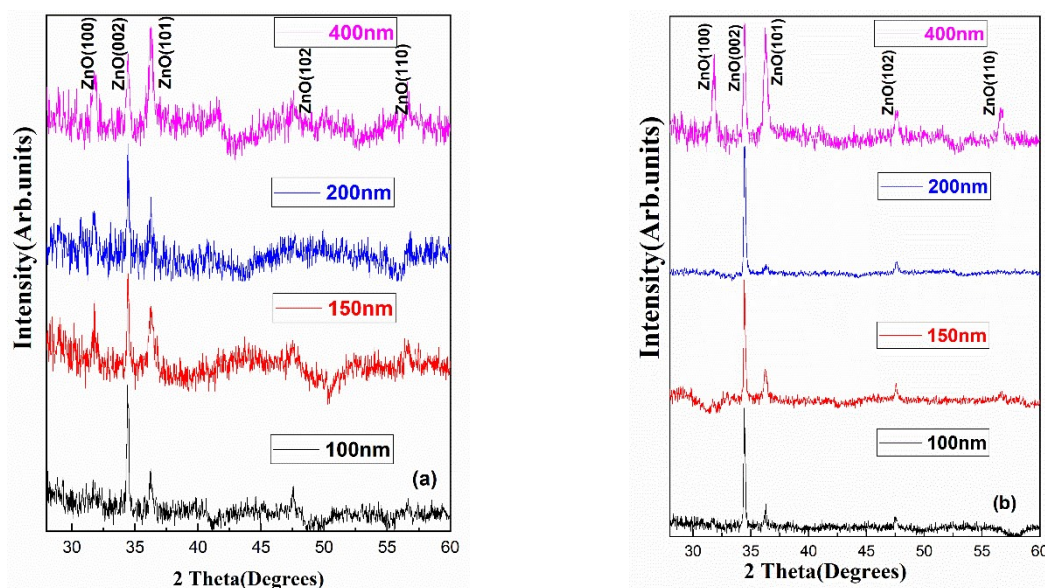
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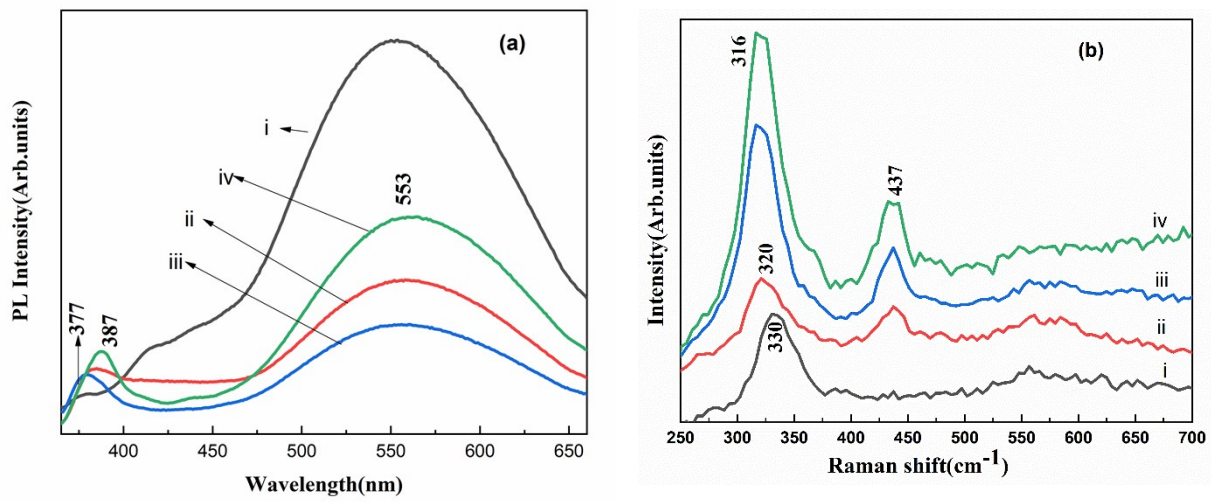
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**Fig.S1** Scanning electron microscope images showing the effect of (a) NaOH and (b)  $\text{NH}_3$  precursor on the growth of hydrothermally processed ZnO clearly demonstrating the lack of nanowire formation.



**Fig.S2** X-ray diffraction patterns of hydrothermally processed ZnO at  $120^\circ\text{C}$  for (a) 10 min and (b) 1 hr on ZnO thin films of different thickness as indicated.



**Fig. S3** Effect of thickness of ZnO films on the (a) photoluminescence, (b) Raman spectra i=100 nm; ii=150 nm; iii=200 nm; iv=400 nm.