

Supplementary Material for

Thermal Evaporation Synthesis of Vertically Aligned $\text{Zn}_2\text{SnO}_4/\text{ZnO}$ Radial Heterostructured Nanowire Arrays

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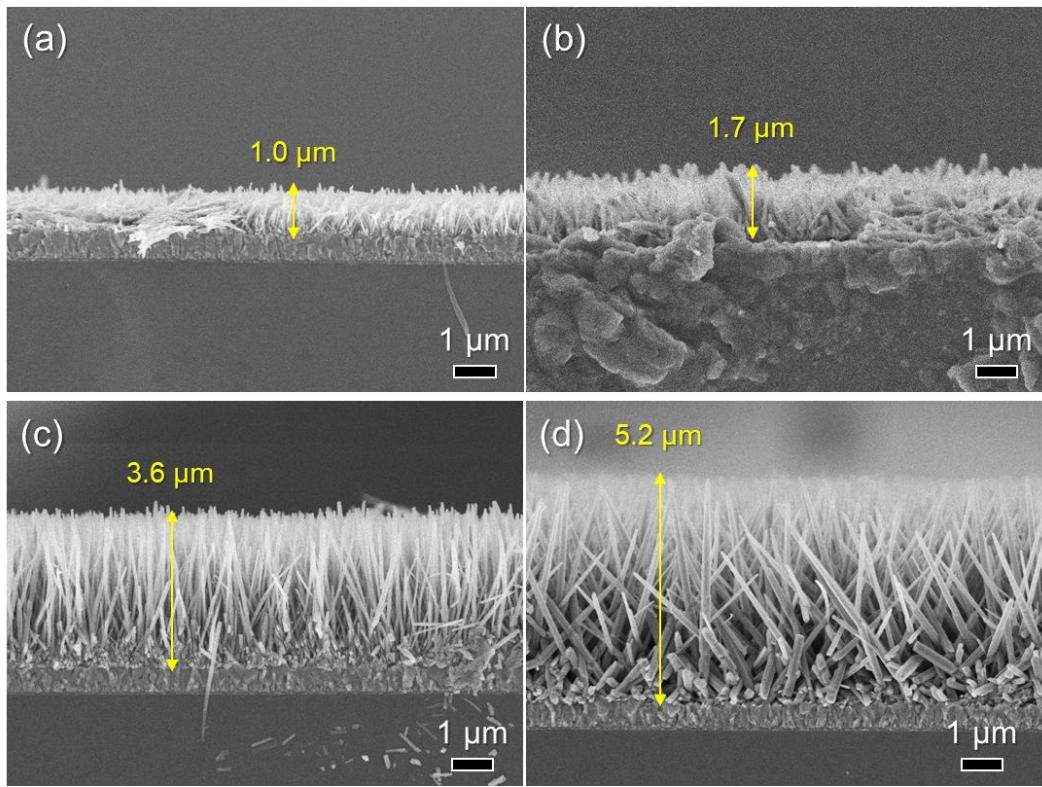


Figure S1. Effect of NH_4OH amount on the morphology and length of ZnO NWs synthesized at $100\text{ }^\circ\text{C}/2\text{h}$ with polyethylenimine (PEI, 1 g) and addition of NH_4OH (a) 1 ml, (b) 2 ml, (c) 3 ml, and (d) 4 ml.

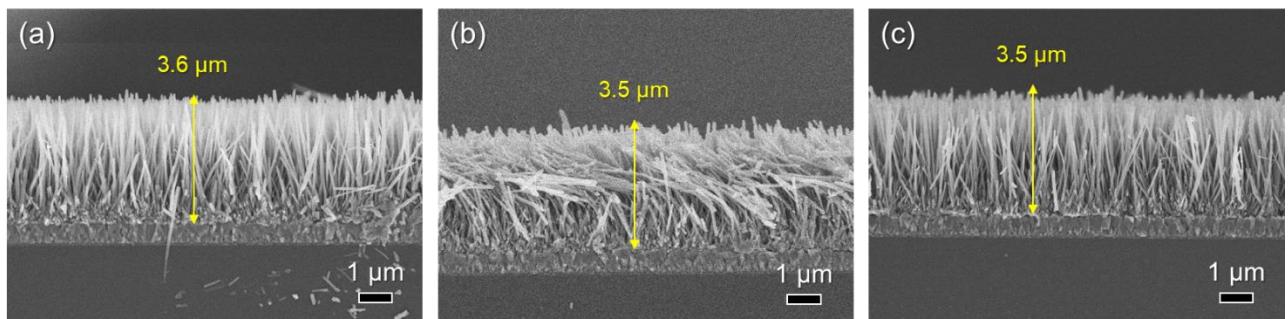


Figure S2. Effect of growth time on the morphology and length of ZnO NWs synthesized at 100 °C with polyethylenimine (PEI, 1 g) and addition of NH₄OH (3 ml). (a) 2 h. (b) 4 h. (c) 6 h. The growth time has little impact on the morphology and length of ZnO NWs.

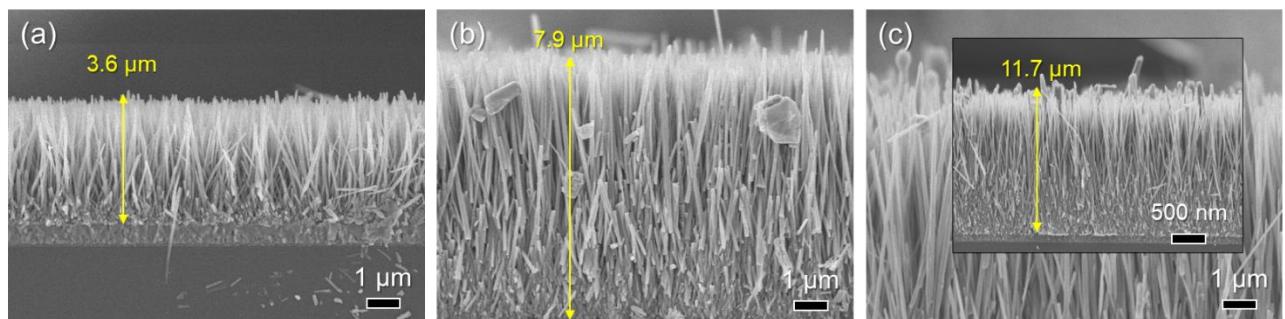


Figure S3. Effect of growth cycle on the morphology and length of ZnO NWs synthesized at 100 °C/2 h with polyethyleneimine (PEI, 1 g) and addition of NH₄OH (3 ml). (a) 1 cycle. (b) 3 cycles. (c) 5 cycles.

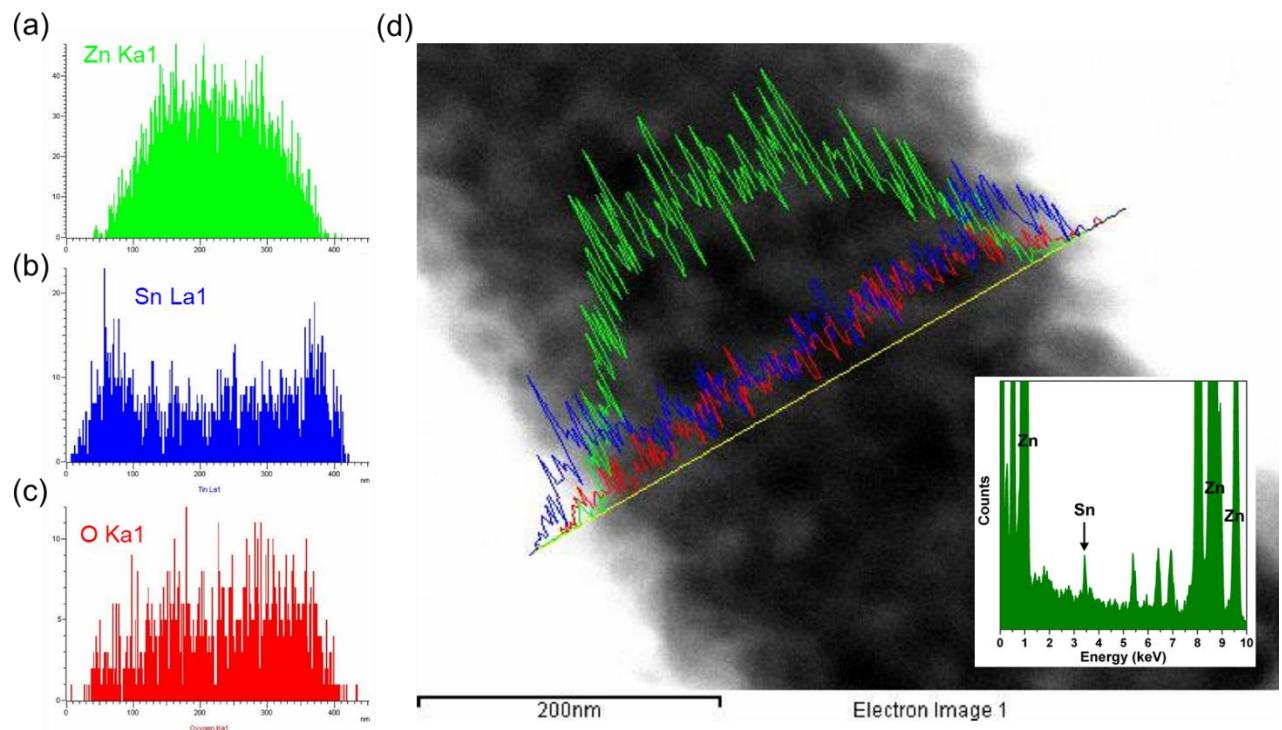


Figure S4. TEM-EDS analysis of ZSO/ZnO NW. (a-c) EDS line scan spectra. (d) STEM image. Inset shows EDS spectrum.

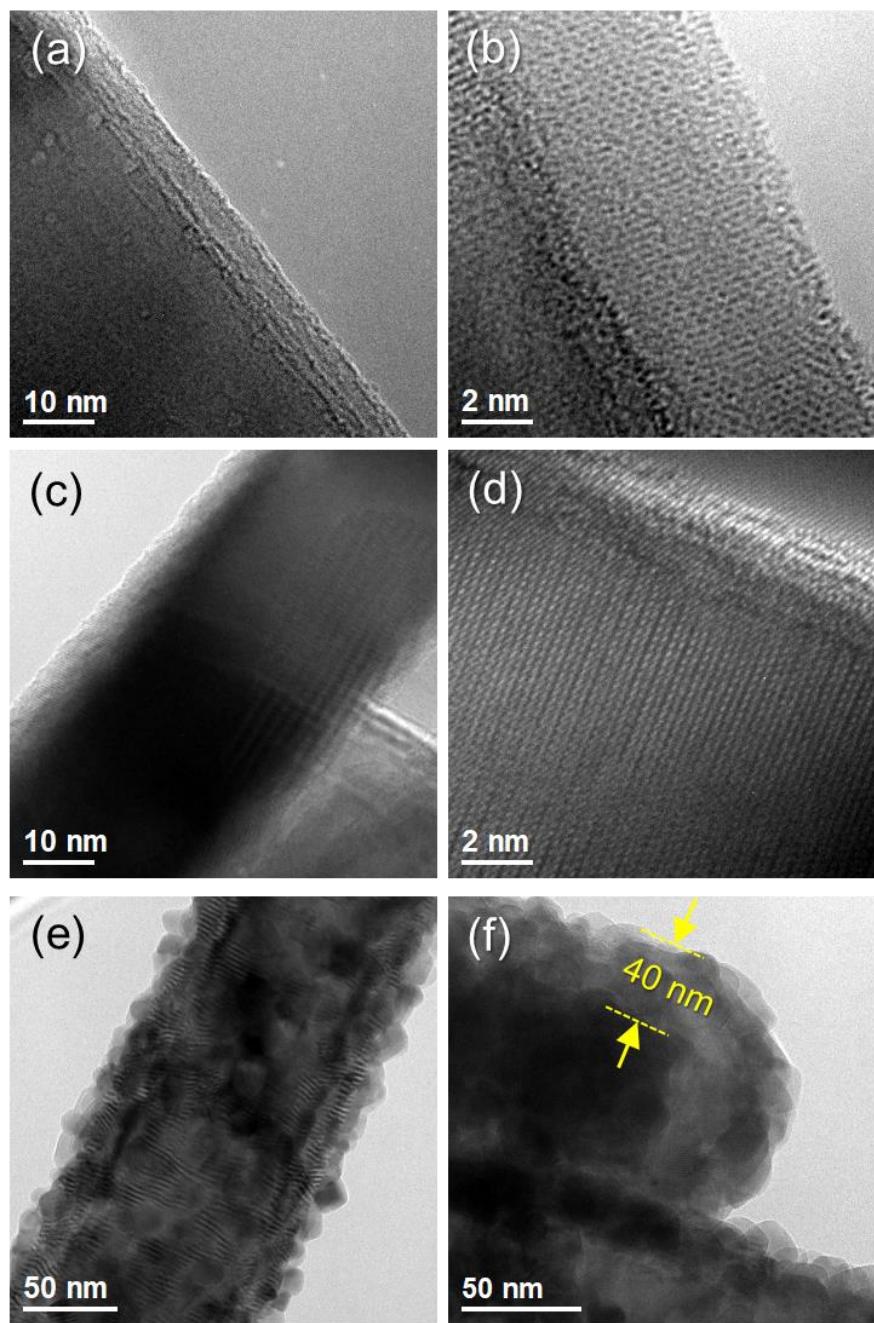


Figure S5. TEM and HR-TEM images of ZSO/ZnO NWs. (a,b) Zn/Sn evaporation for 30 min, without post-annealing. (c,d) Zn/Sn evaporation for 30 min, with a post-annealing at 550 °C/1h. (e,f) Zn/Sn evaporation for 2 h, with a post-annealing at 550°C/1h.

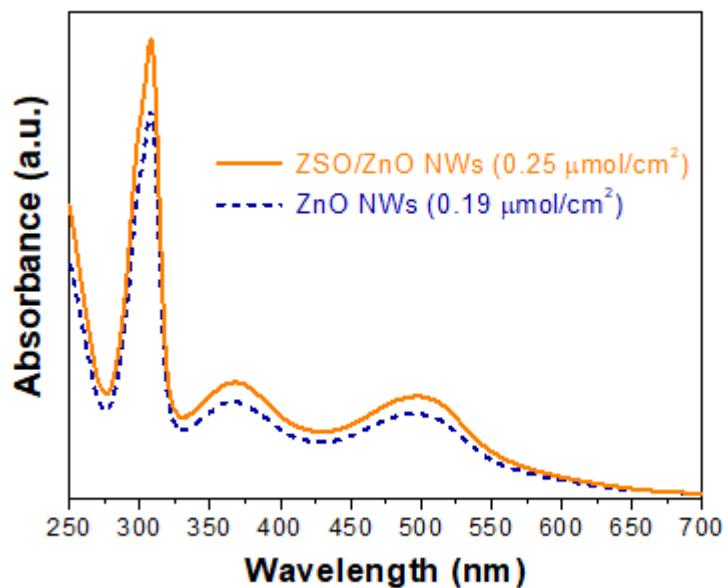


Figure S6. Amount of dye adsorption (N719) measurement by UV-Vis spectroscopy. The ZSO/ZnO HNA exhibited 130% larger dye adsorption, indicating a larger surface (or surface roughness) area than the ZnO NW.