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Supporting Information

Marangoni Ring-templated Vertically Aligned ZnO Nanotube Arrays with Enhanced Photocatalytic Hydrogen Production

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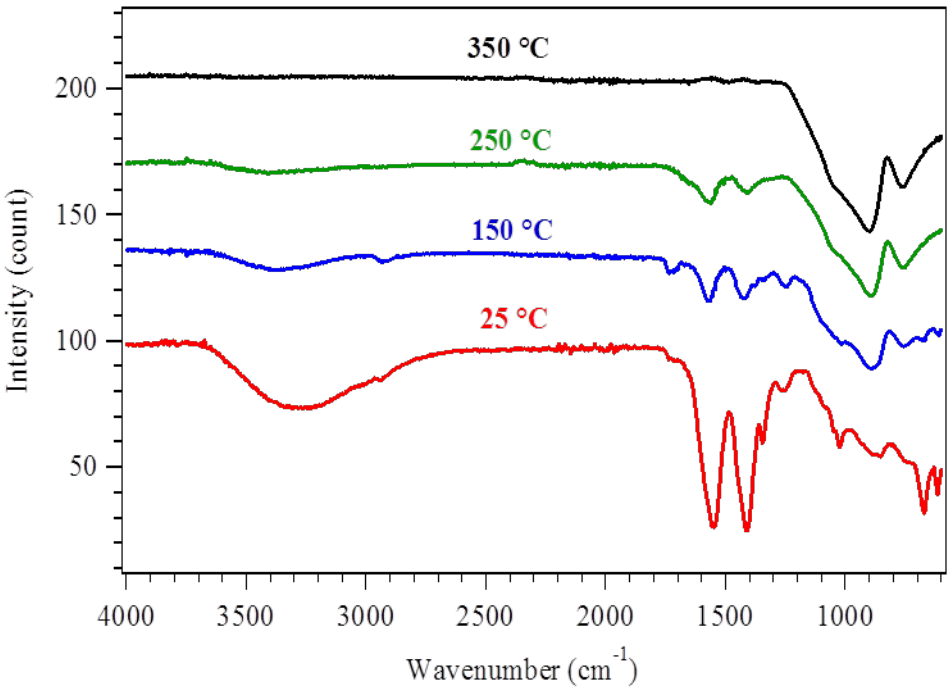
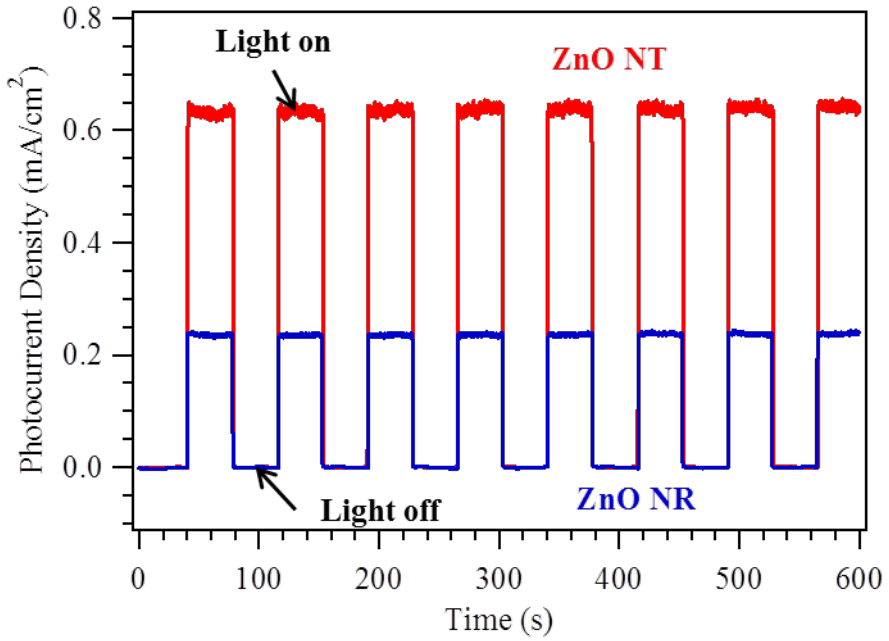
Figure S1. ATR-FTIR spectra of seeding layer at various annealing temperatures of 25°C, 150°C, 250°C and 350°C.



As annealing temperature increased, the vibrational peak intensities from both PVA and zinc acetate were reduced. At room temperature, peaks at 1570 cm^{-1} (zinc acetate) and 1410 cm^{-1} (PVA) had similar intensity [1, 2]. At 150ºC, the zinc acetate peak intensity became stronger. This suggests that the PVA began to decompose at a lower temperature than the zinc acetate. After annealing at 350ºC, most of the organic molecular peaks, associated with C and O disappeared. At this temperature, PVA has decomposed and zinc acetate is converted to ZnO.

Figure S2. Amperometric *I-t* curves of ZnO NTs and NRs at an applied voltage of 0.2 $V_{Ag/AgCl}$ at 100 mW cm^{-2} for 600 s with repeated light on-off cycles.



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