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Supporting Information

Hierarchical Nanowire Arrays Based on Carbon Nanotubes and Co_3O_4 decorated ZnO for Enhanced Photoelectrochemical Water Oxidation

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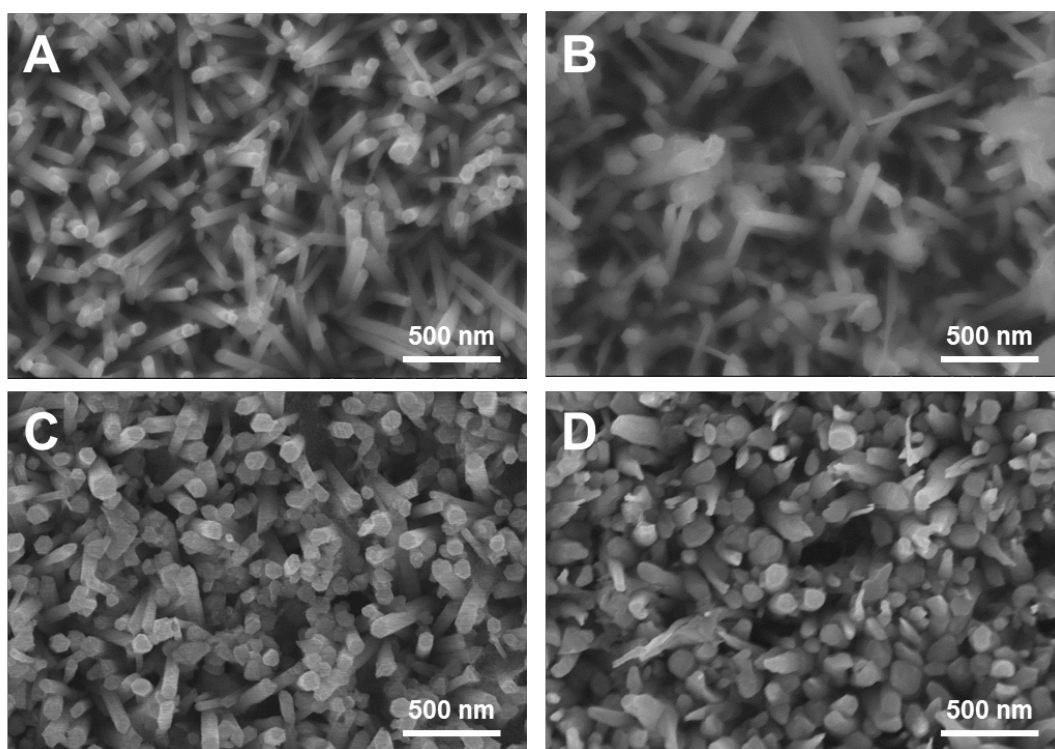


Figure S1. SEM images of ZnO NWs prepared in different hydrothermal synthesis conditions: (A) 0.04 M, (B) 0.05 M, (C) 0.06 M and (D) 0.07 M zinc nitrate and hexamethylenetetramine (HMT).

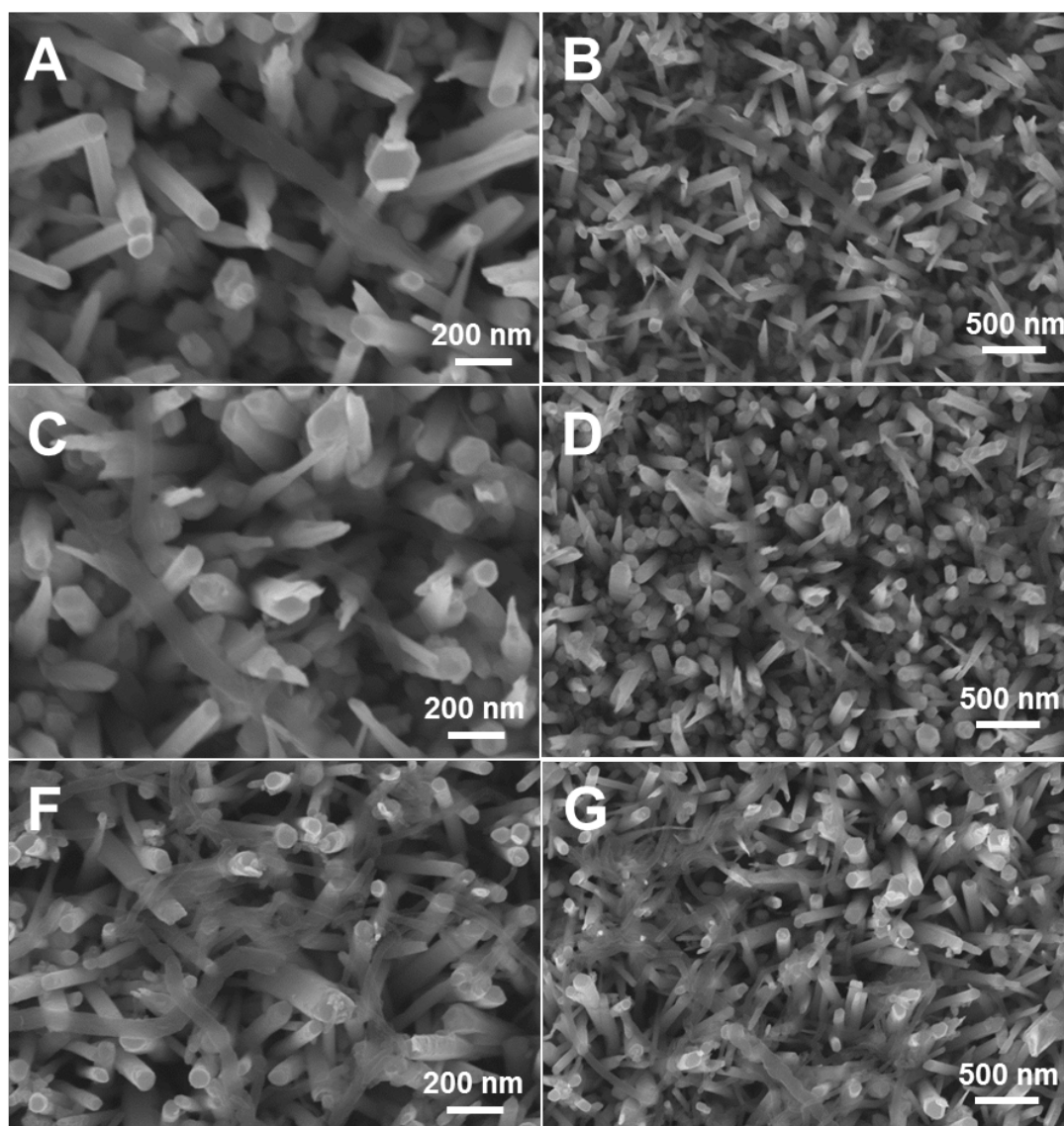


Figure S2. SEM images of CNTs-ZnO NWs prepared in different concentrations of CNTs aqueous solution: (A), (B) 0.25 mg mL⁻¹; (C), (D) 0.50 mg mL⁻¹; (F), (G) 1.00 mg mL⁻¹.

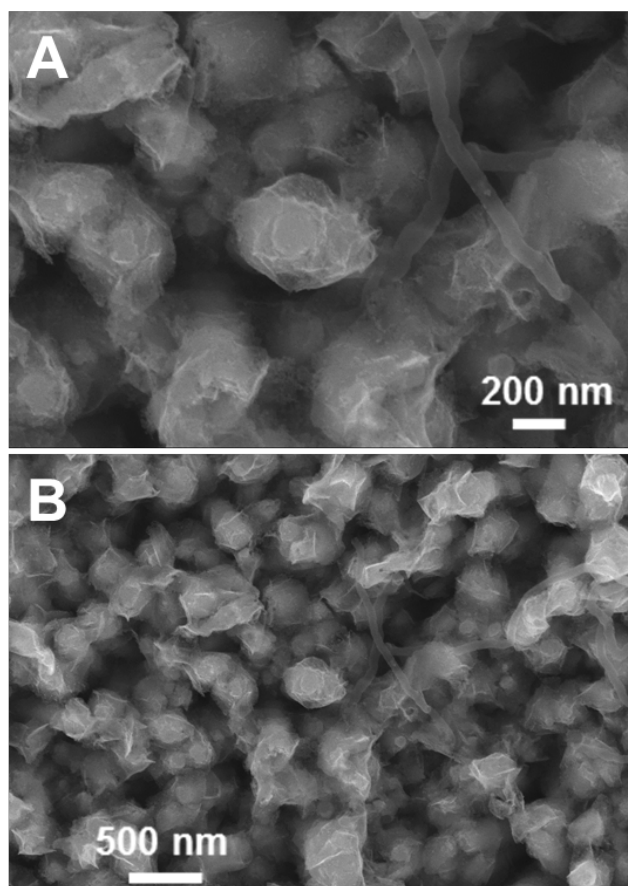


Figure S3. SEM images of CNTs-ZnO-Co₃O₄ NWs with the electrosynthesis duration extended 70s.

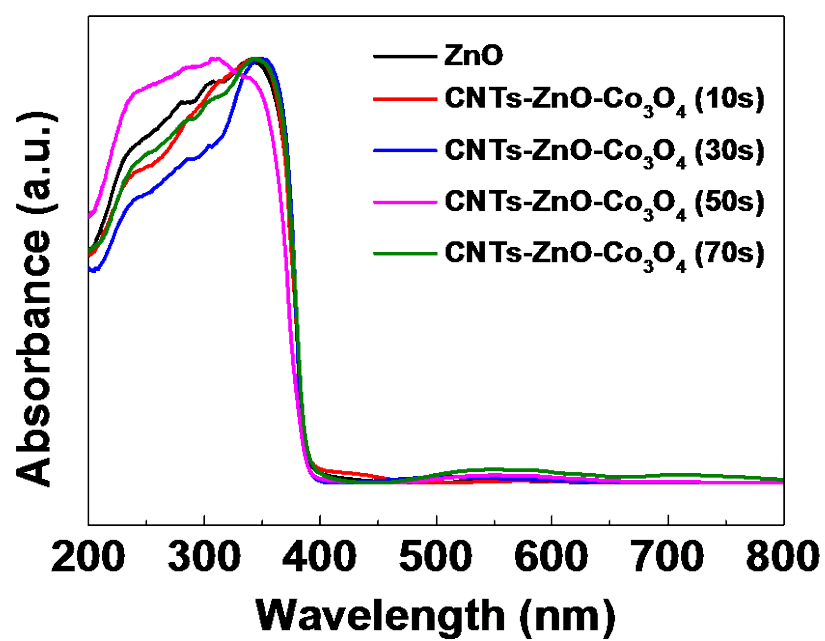


Figure S4. UV-vis absorption spectra of CNTs-ZnO-Co₃O₄ NWs arrays with various electrodeposition durations.

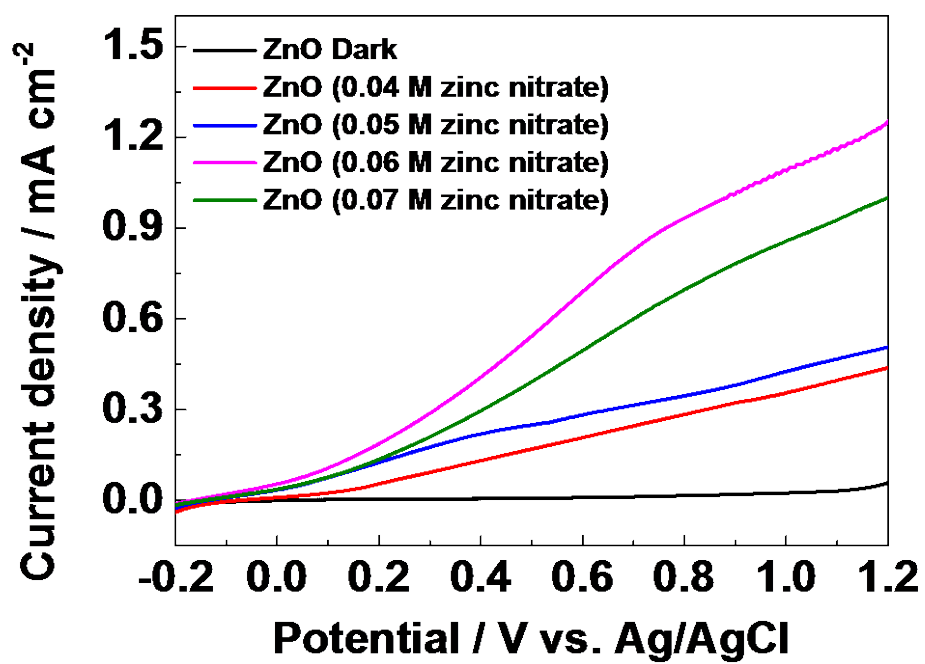


Figure S5. Current-voltage curves of pristine ZnO NWs prepared in different hydrothermal synthesis conditions.

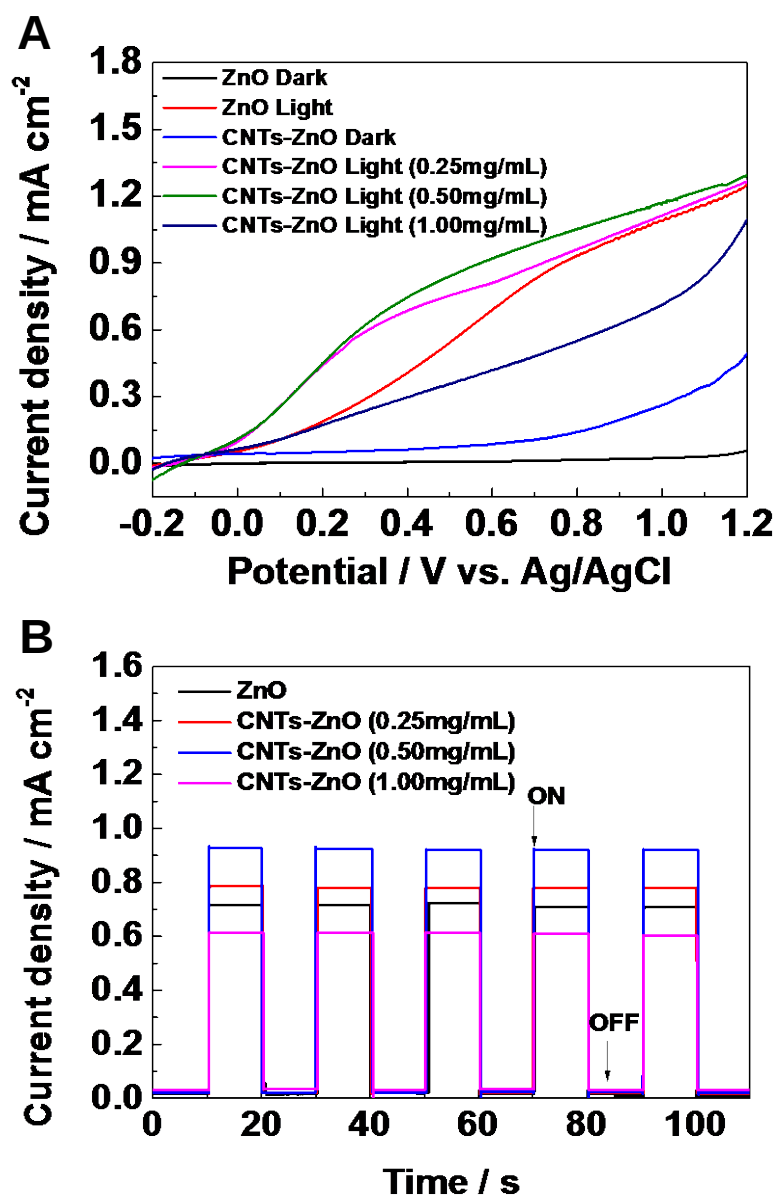


Figure S6. (A) Current-voltage curves and (B) amperometric I-t curves measured at 0.6V of CNTs-ZnO NWs prepared in different concentrations of CNTs aqueous solution.

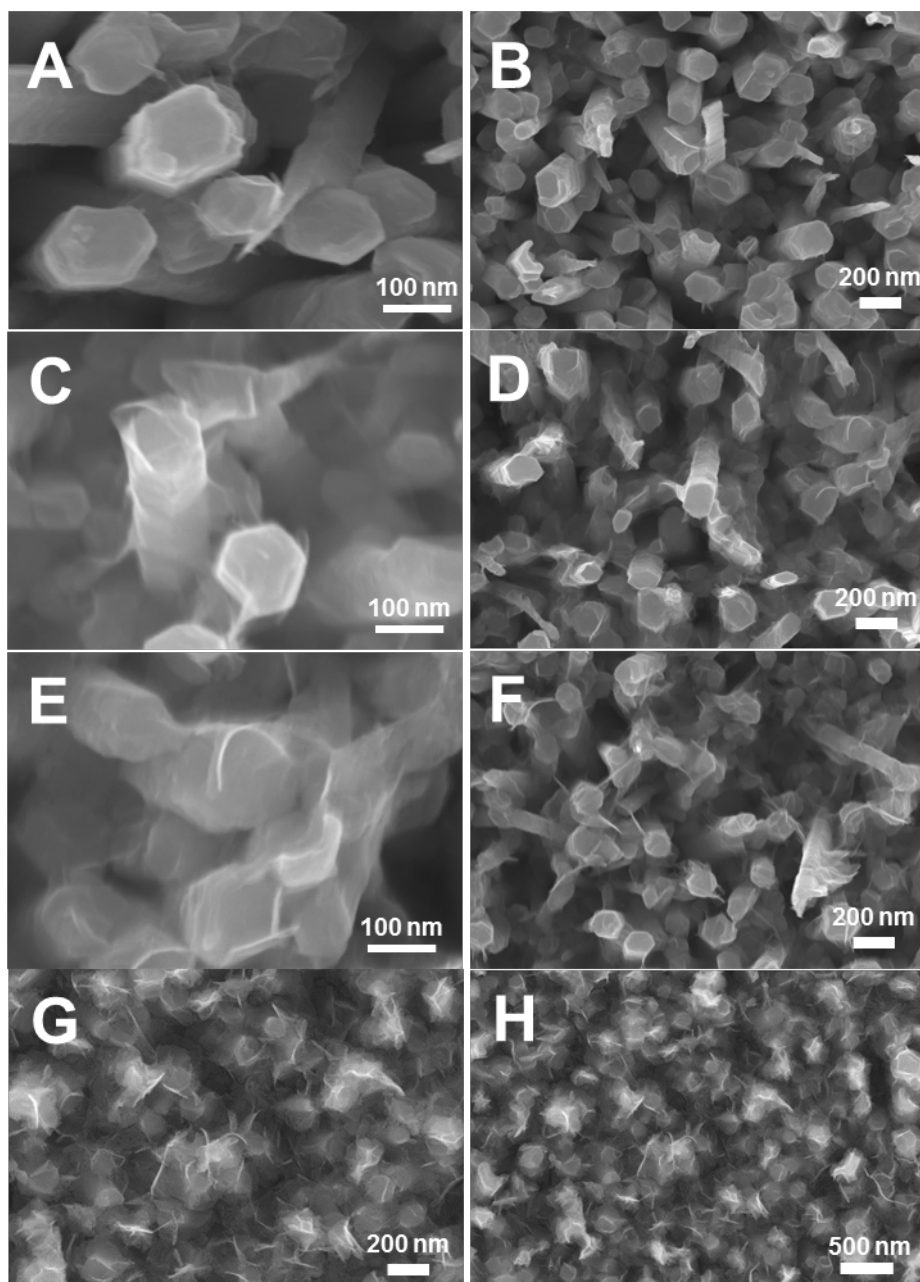


Figure S7. SEM images of $\text{Co}_3\text{O}_4\text{-ZnO}$ NWs arrays with various electrodeposition time: (A), (B) 10s; (C), (D) 30s; (E), (F) 50s and (G), (H) 70s.

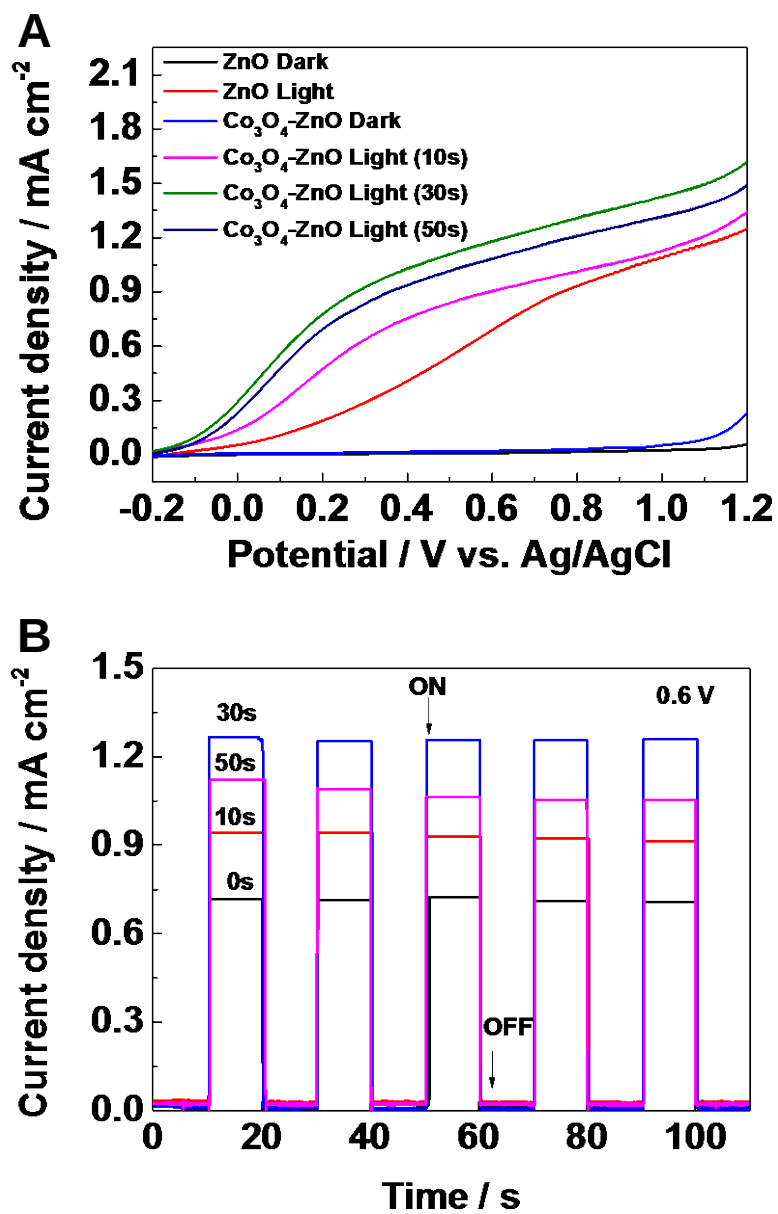


Figure S8. (A) Current-voltage curves and (B) amperometric I-t curves measured at 0.6V of Co_3O_4 -ZnO NWs prepared in various electrodeposition time.

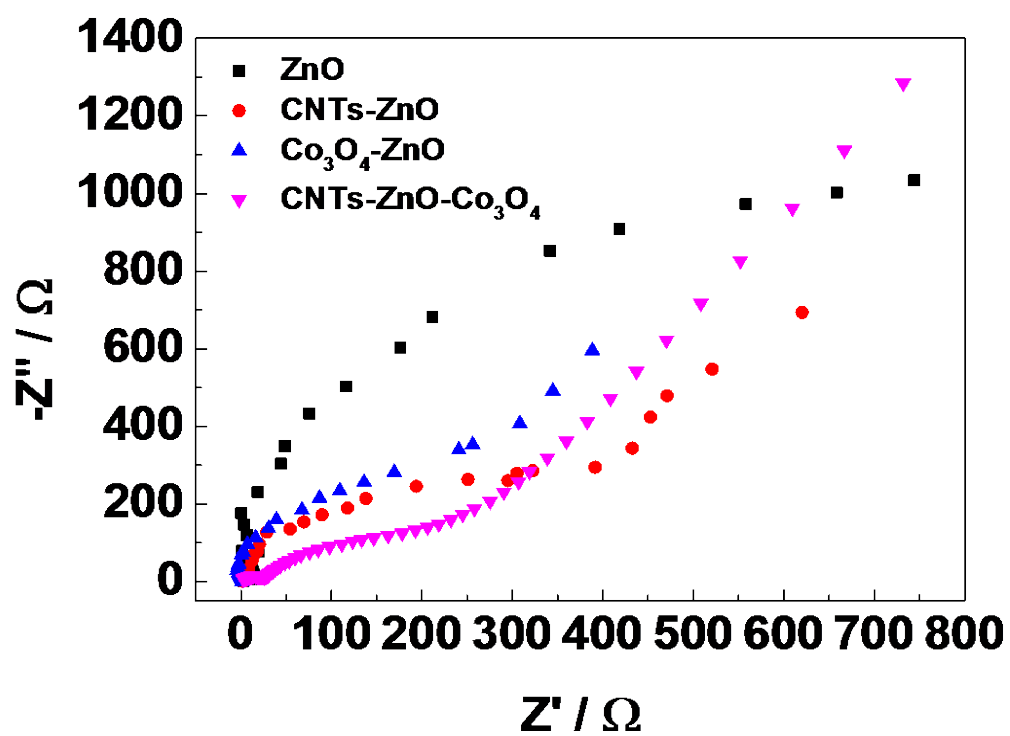


Figure S9. EIS plots of the pristine ZnO NWs, binary CNTs-ZnO NWs, Co_3O_4 -ZnO NWs and the ternary CNTs-ZnO- Co_3O_4 NWs arrays.

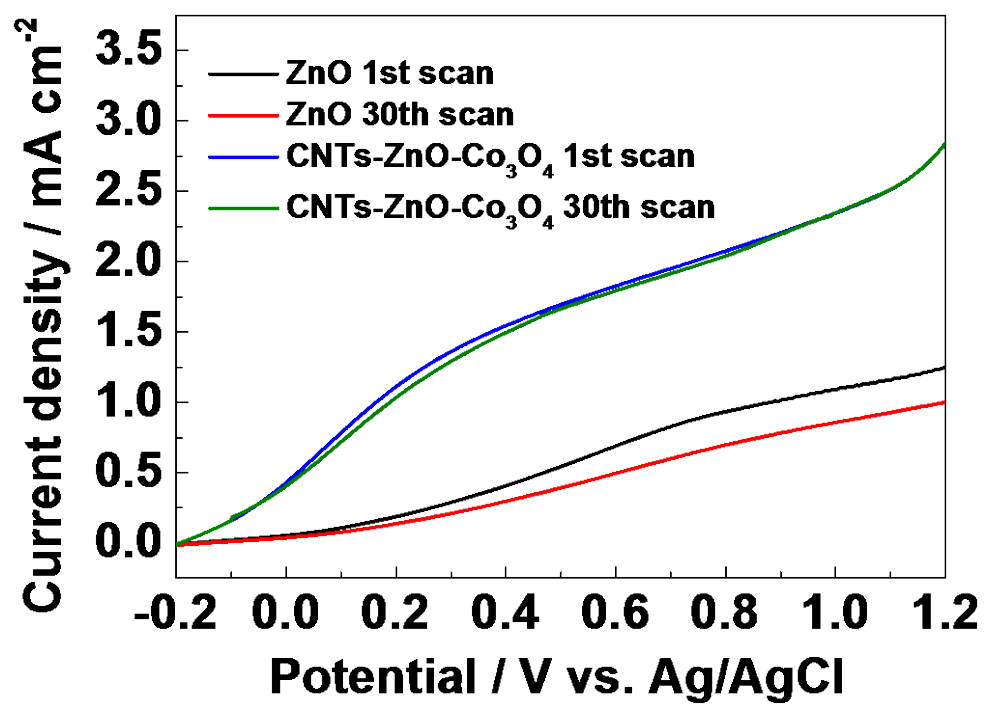


Figure S10. Stability tests for PEC performance of ZnO NWs and CNTs-ZnO-Co₃O₄ NWs after 30 scans.