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Supporting Information

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Earth-Abundant Oxygen Evolution Catalysts Coupled onto ZnO Nanowire Arrays for Efficient Photoelectrochemical Water Cleavage

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Supporting Information

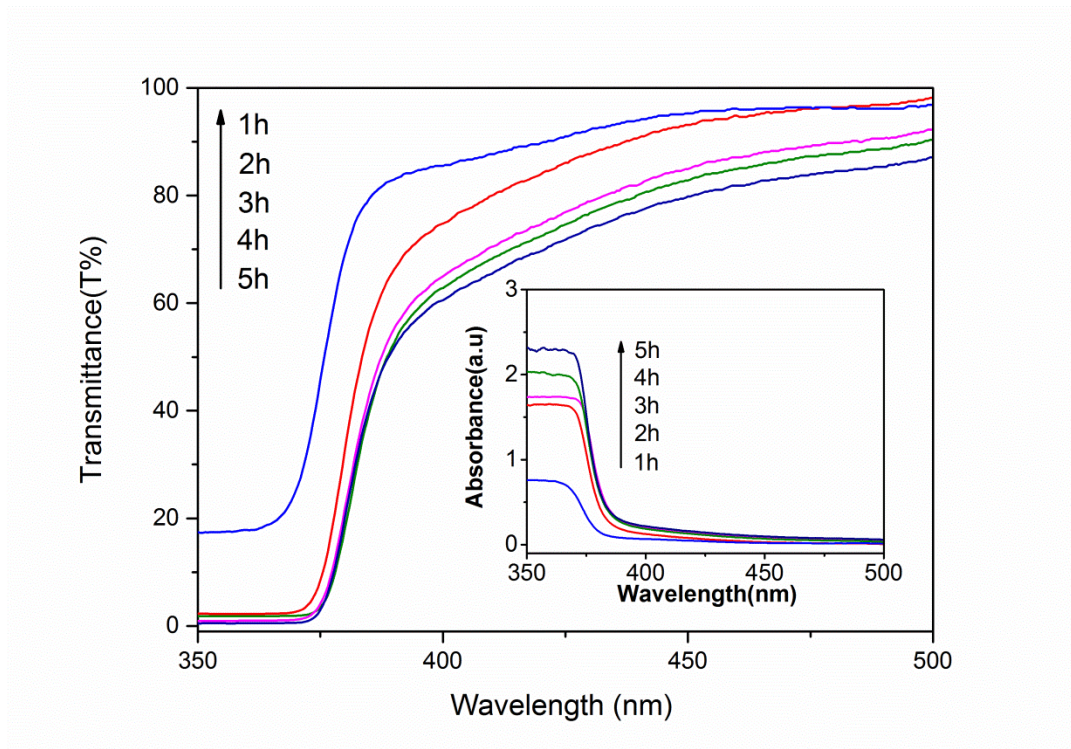


Figure S1: UV-Vis transmittance spectra of ZnO nanowires grown at 90°C (0.025M precursor concentration) as a function of reaction time. (Insert shows the corresponding UV-Vis absorption spectra)

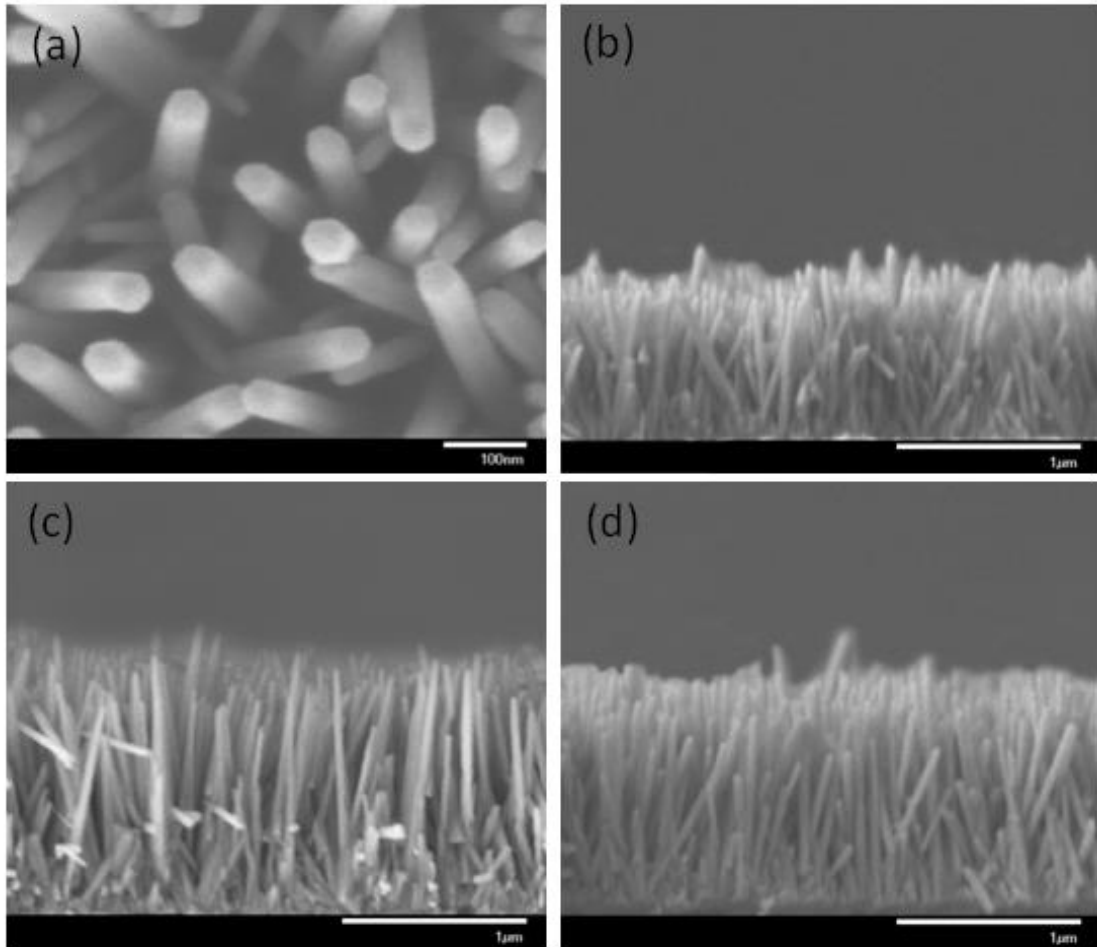


Figure S2: SEM images of ZnO nanowire arrays grown by hydrolysis-condensation reaction with 0.025M precursor concentration at 90°C for different growth times (a) Top view of ZnO wires with reaction time of 4h; (b-d): Side-on view of 3h, 4h, 5h grown ZnO nanowires, respectively.

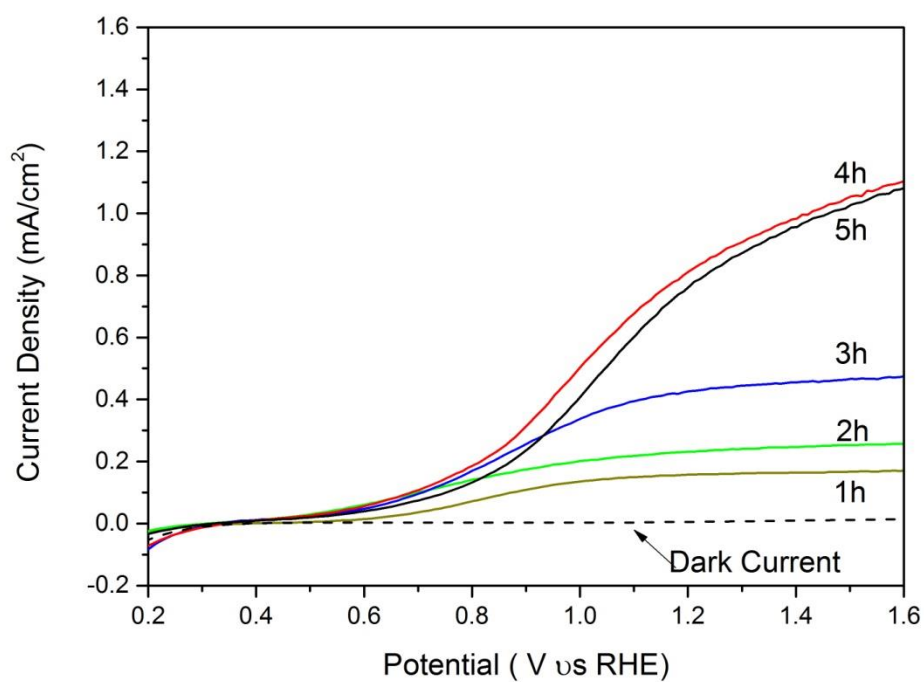


Figure S3: I-V curves measured in a 0.2M Na₂SO₄ solution with phosphate buffer (pH=7) for ZnO films prepared at 90°C with 0.025M precursor concentration for varying reaction time; Dark Scan was indicted by dashed line.

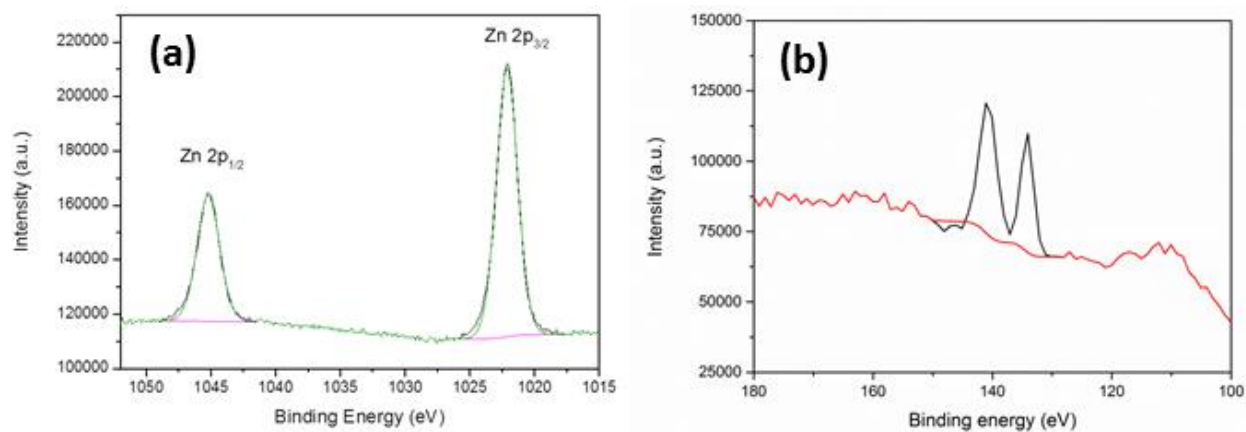


Figure S4: (a) XPS spectrum of Zn 2p; (b) XPS spectrum of bare ZnO nanowires showing contribution from either Zn 3s and/or Sn 4s signals.

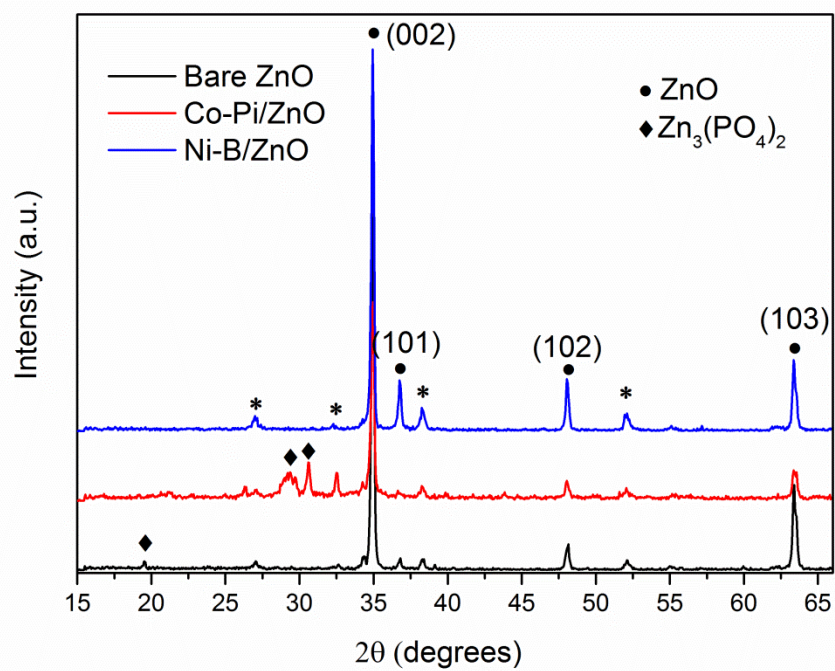


Figure S5: XRD patterns of ZnO nanowire arrays after 1h PEC measurement, (*) corresponds to the peak of SnO₂ (FTO substrate).

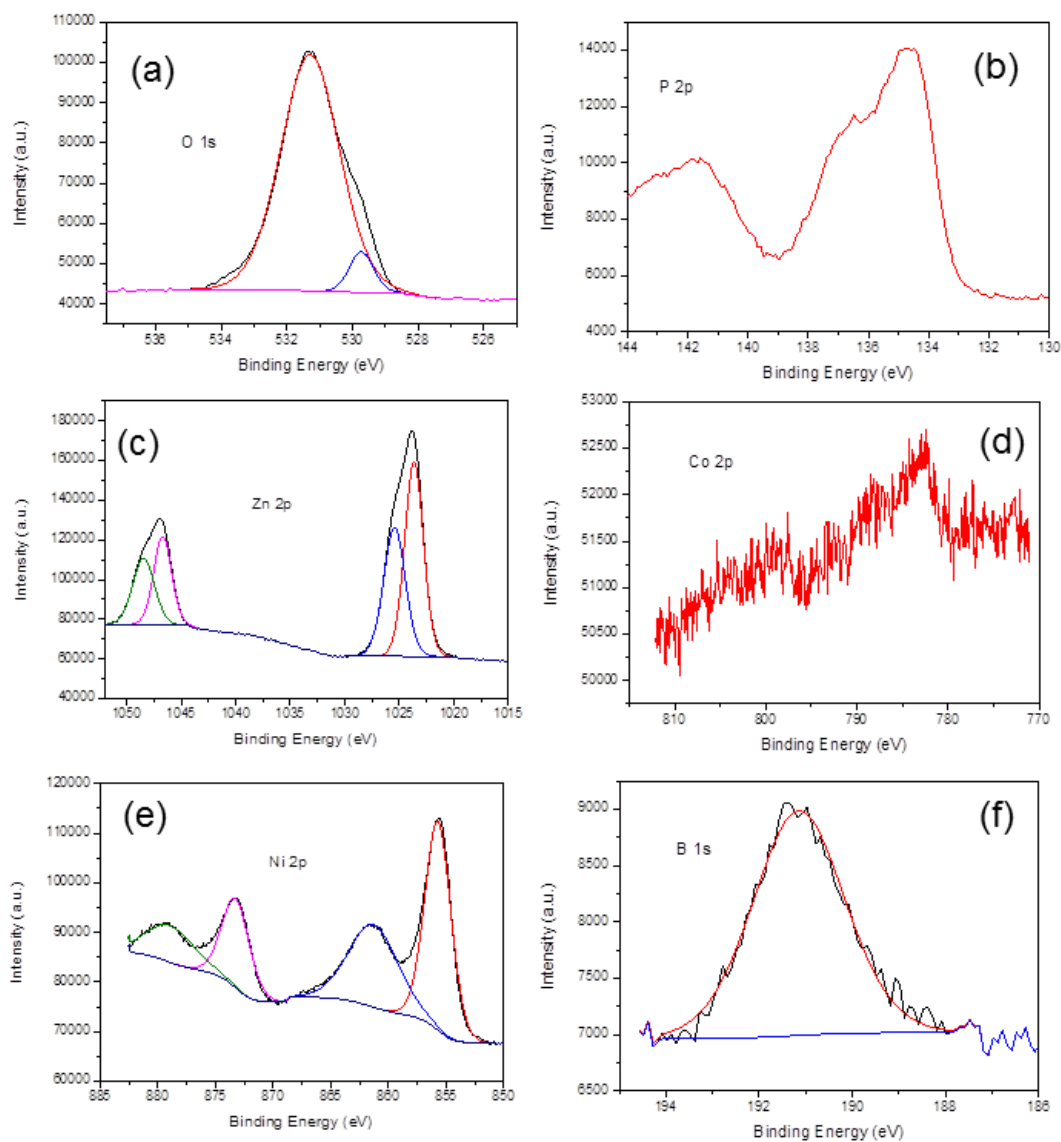


Figure S6: XPS spectra of ZnO samples after PEC measurements: (a) O 1s and (b) P 2p regions of bare ZnO nanowires indicating additional $\text{Zn}_3(\text{PO})_4$ formation, (c) Zn 2p and (d) Co 2p regions of Co-Pi/ZnO revealing distortion of Zn peaks and removal of cobalt species, (e) Ni 2p and (f) B 1s regions revealing no change in sample and excellent stability.