

Electronic Supplementary Information

Hierarchical anatase TiO₂ porous nanopillars with high crystallinity and controlled length: An effective candidate for dye-sensitized solar-cells

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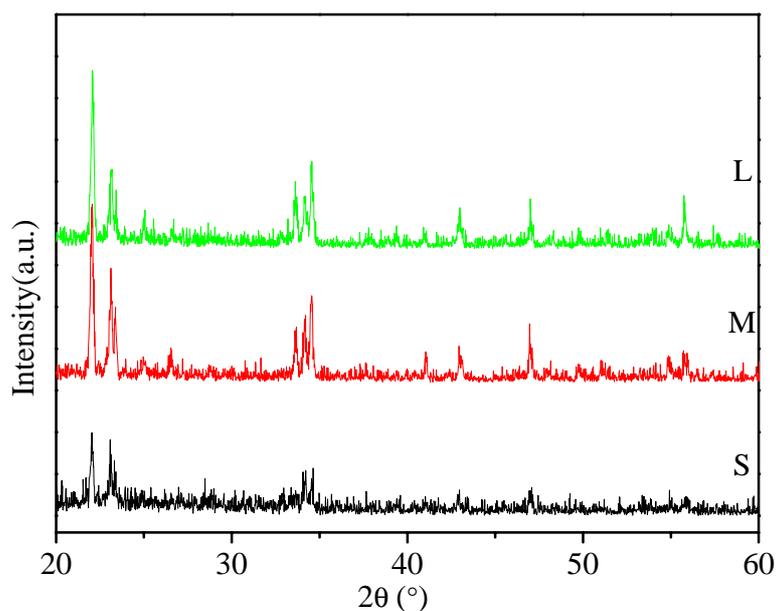


Figure S1. Typical XRD patterns of the precursors with different lengths.

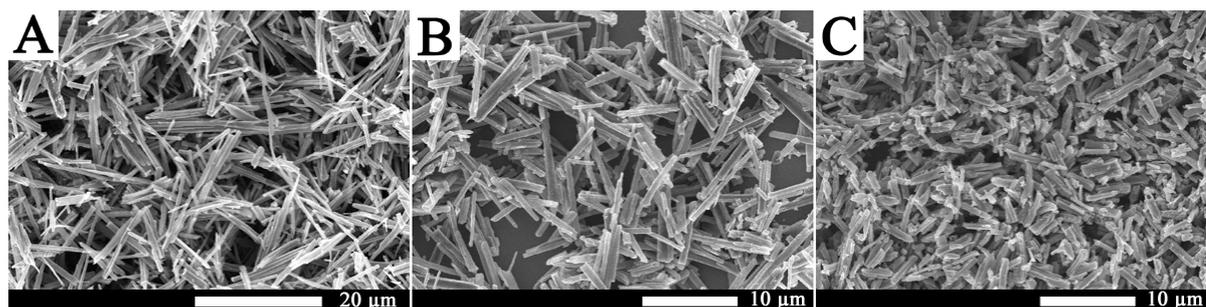


Figure S2. The SEM images of L-700 (A), M-700 (B) and S-700 (C), respectively.

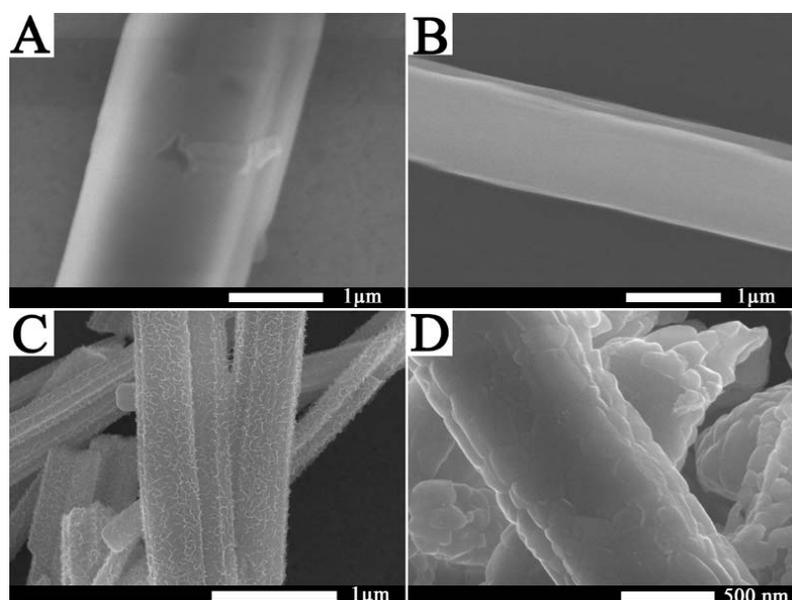


Figure S3. Magnified SEM images of the long precursor (A) and L-450 (B), L-EN-700 (C) and L-700 (D), respectively.

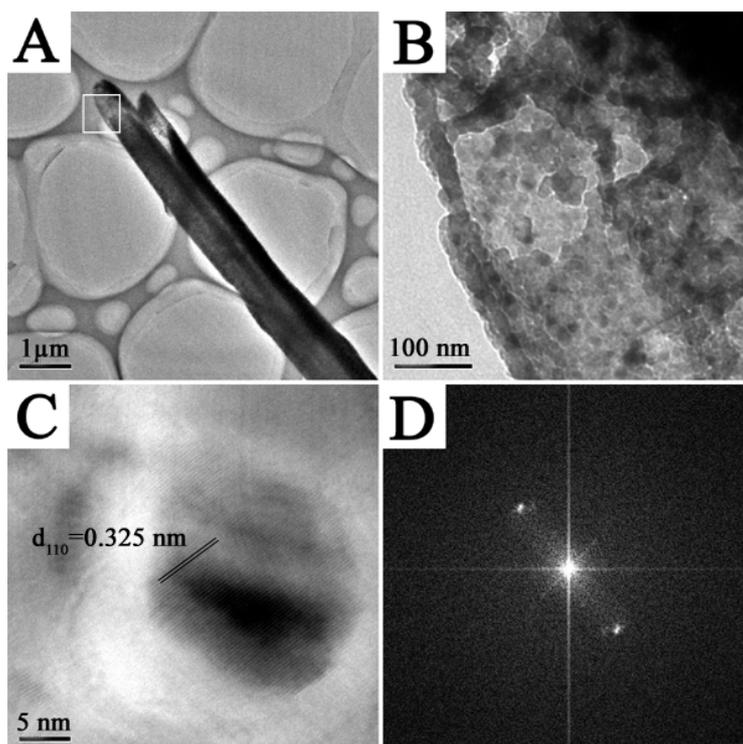


Figure S4. Typical TEM micrographs at three different magnifications of L-700 (A, B, C) and its corresponding Fourier transforms (D). (A) is the TEM micrograph of L-700 which exhibits pillar-like structure. (B) is the magnification of the defined area of (A). (C) is the HRTEM micrograph of L-700 which clearly exhibits (110) faces (Rutile: $d_{110}=0.325$ nm).

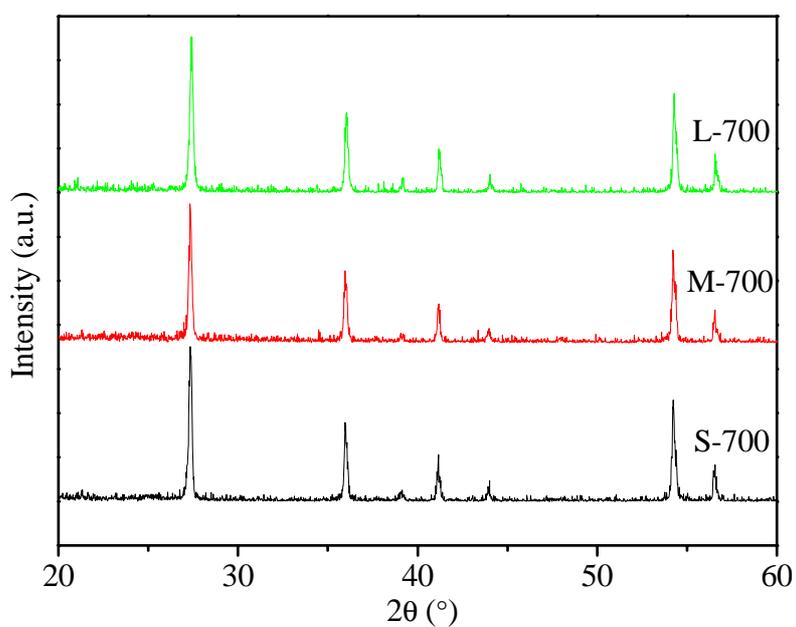


Figure S5. The typical XRD patterns of L-700, M-700 and S-700, respectively.

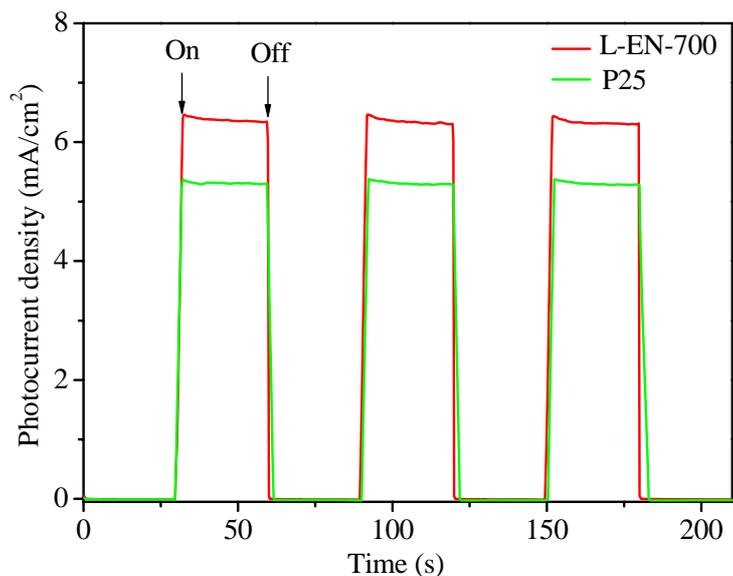


Figure S6. Photocurrent response vs time profiles of the cells composed of P25 (two layer P25 nanoparticles) and L-EN-700 (sandwich structure photoanode with two layer P25 nanoparticles and the middle layer of L-EN-700), respectively.

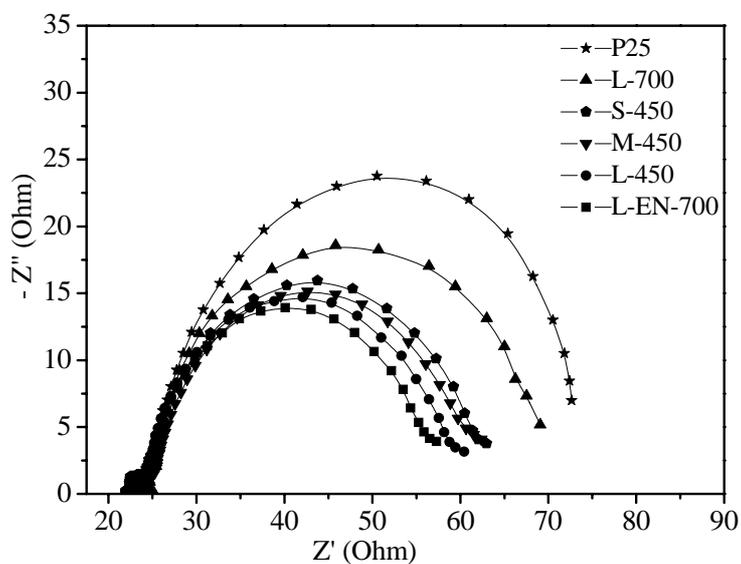


Figure S7. Nyquist plots of cells composed of P25 nanoparticles and the sandwich structure photoanodes with L-EN-700, L-450, M-450, S-450 and L-700, respectively, under the light intensity of 100 mW cm⁻².

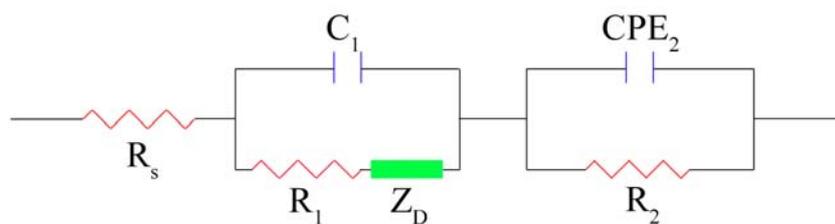


Figure S8. Equivalent circuit used to represent interfaces in composite solar cells composed of FTO | TiO₂-dye | I₃⁻/I⁻ || Pt | FTO. The symbols of R and C represented a resistance and a capacitance, respectively, O represented finite-length Warburg diffusion (Z_D) and CPE is the symbol for the constant phase element.