Supporting Information

Rational Design of Tripartite Layered TiO_2 Photoelectrode: A Candidate for Enhanced Power Conversion Efficiency in Dye Sensitized Solar Cells

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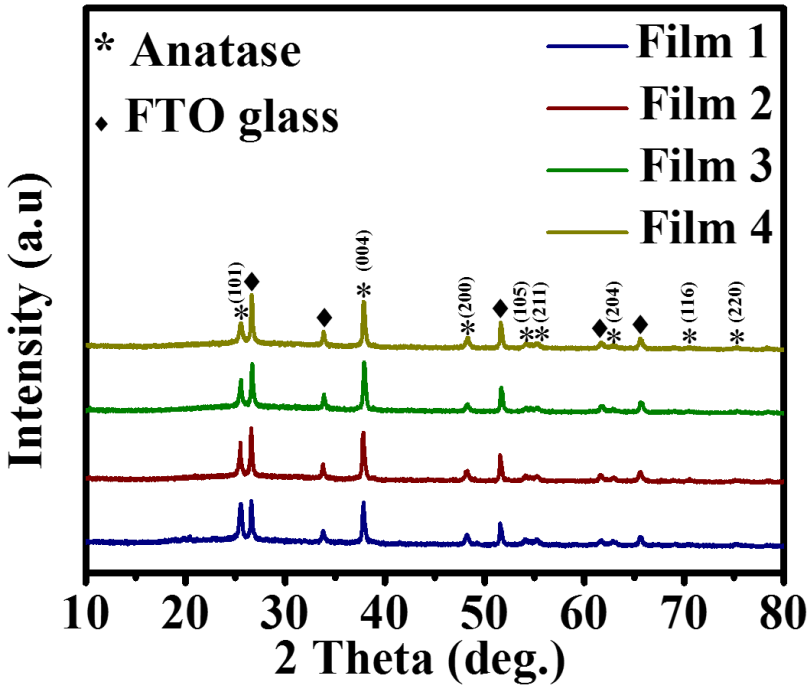

Fig. S1. Powder XRD patterns of films based on hydrothermally synthesized TiO_2 nanostructures.

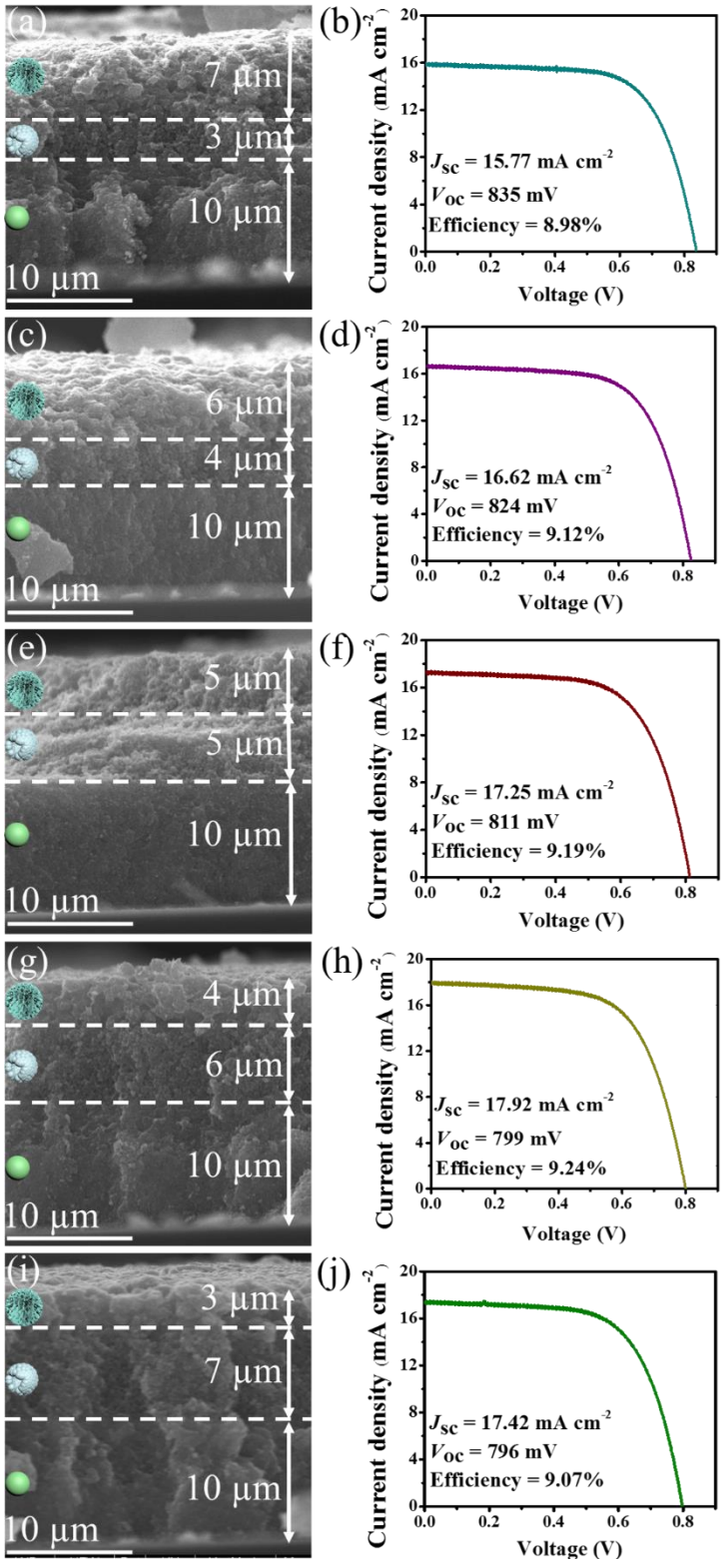

Fig. S2. Cross-sectional FE-SEM images (a, c, e, g, i) and their related J–V characteristics (b, d, f, h, j) of tri-layered (HTNPs + SHTMSs + HTMSs) DSSCs with different layer thicknesses: (a, b) 10 + 3 + 7 µm; (c, d) 10 + 4 +6 µm; (e, f) 10 + 5 + 5 µm; (a, b) 10 + 6 + 4 µm; (a, b) 10 + 7 + 3 µm, respectively.

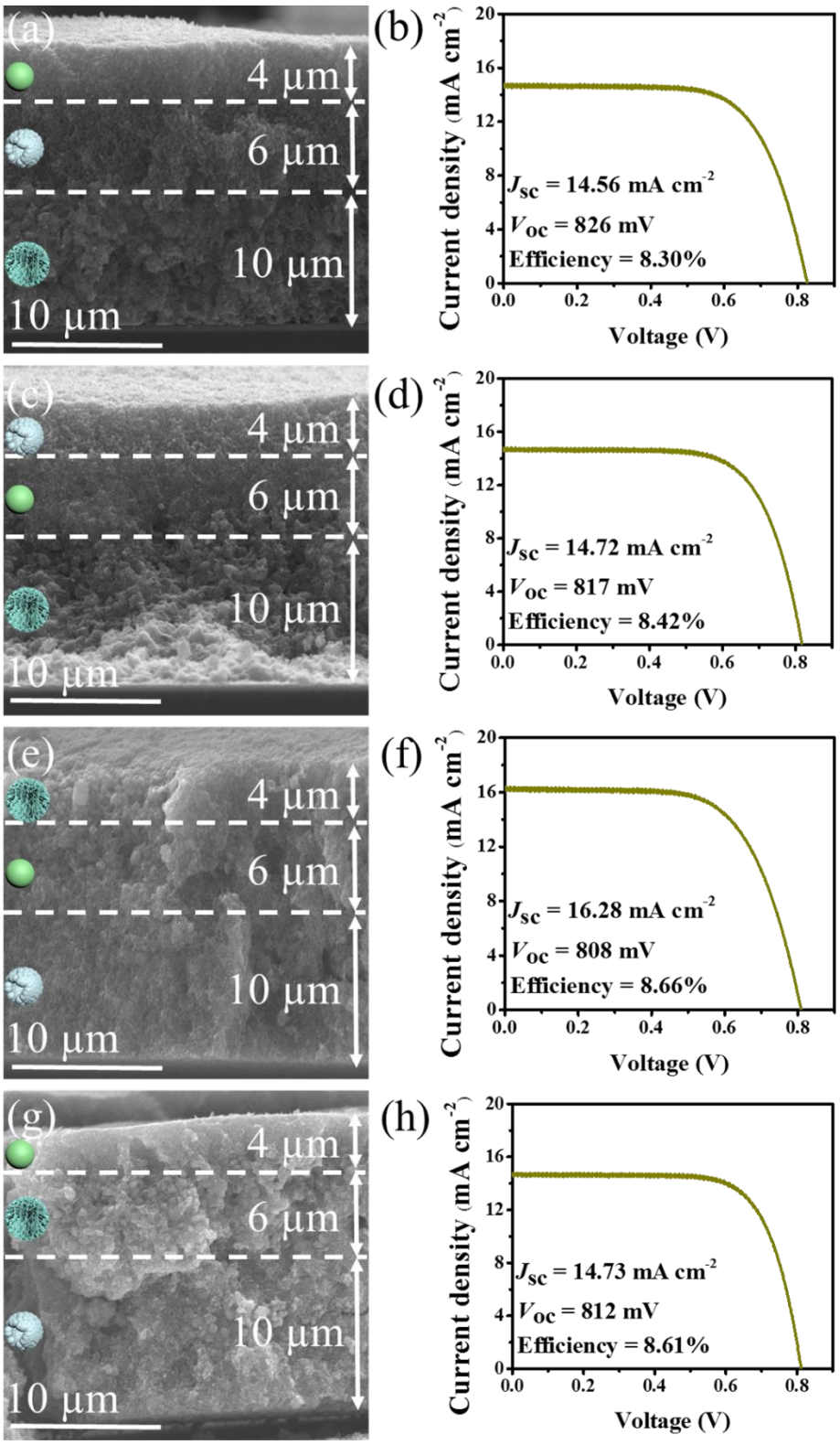

Fig. S3. Cross-sectional SEM images of the tri-layered DSSCs while changing the sequence of the layers: (a) 10 µm HTMSs + 6 µm SHTMSs + 4 µm HTNPs, (c) 10 µm HTMSs + 6 µm HTNPs + 4 µm SHTMSs, (e) 10 µm SHTMSs + 6 µm HTNPs + 4 µm HTMSs (g) 10 µm SHTMSs + 6 µm HTMSs + 4 µm HTNPs, and their resultant current-voltage (*I-V*) studies (b, d, f and h, respectively).

Table S1. Simulated values of resistance R_1 and R_2 from the EIS spectra of concentration dependent TiO_2 hollow nanoparticles.

Sample	R_1 (Ω)	R_2 (Ω)
Film 1	3.36	66.50
Film 2	3.75	118.2
Film 3	3.94	146.8
Film 4	4.70	196.3