

Supporting Information

Annealing-Free Anatase TiO₂ Nanocrystal Film as Electron Collection Layer in Organic Solar Cells

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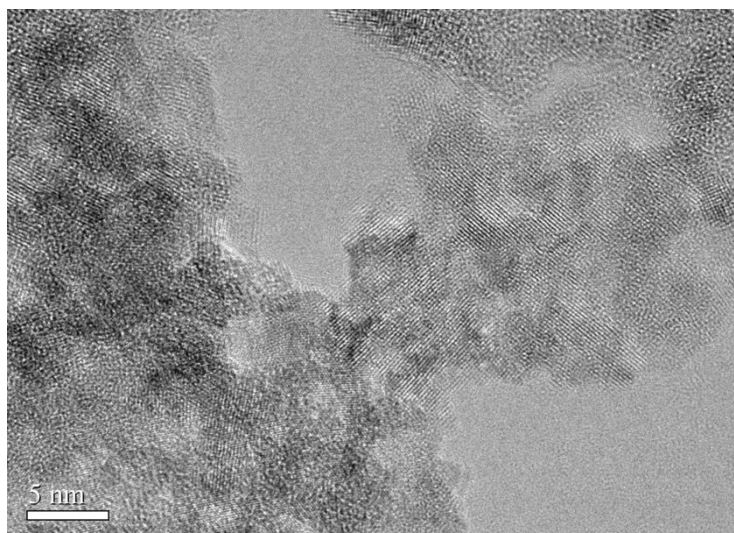


Fig. S1. HRTEM image of the assembled nanoparticles on the substrate.

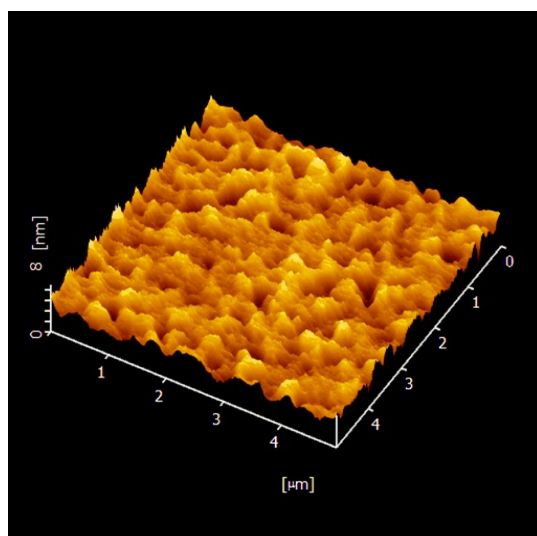


Fig. S2. AFM image of high-temperature annealed TiO₂.

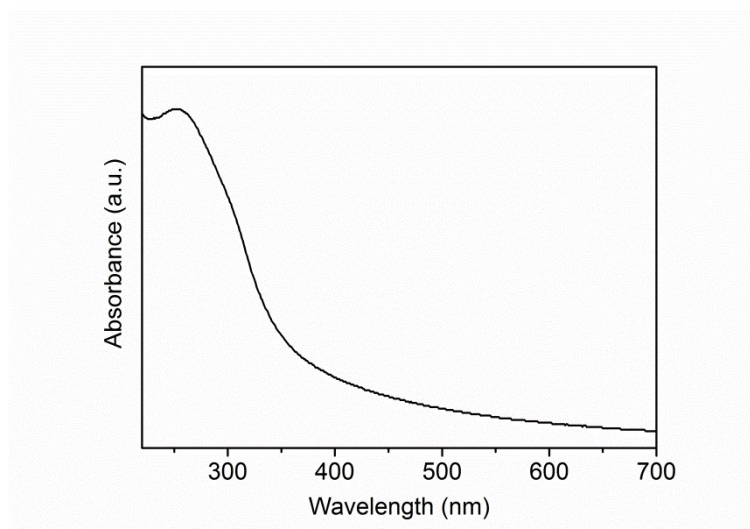


Fig. S3. UV–Vis absorption spectrum of nanocrystal TiO₂ film.

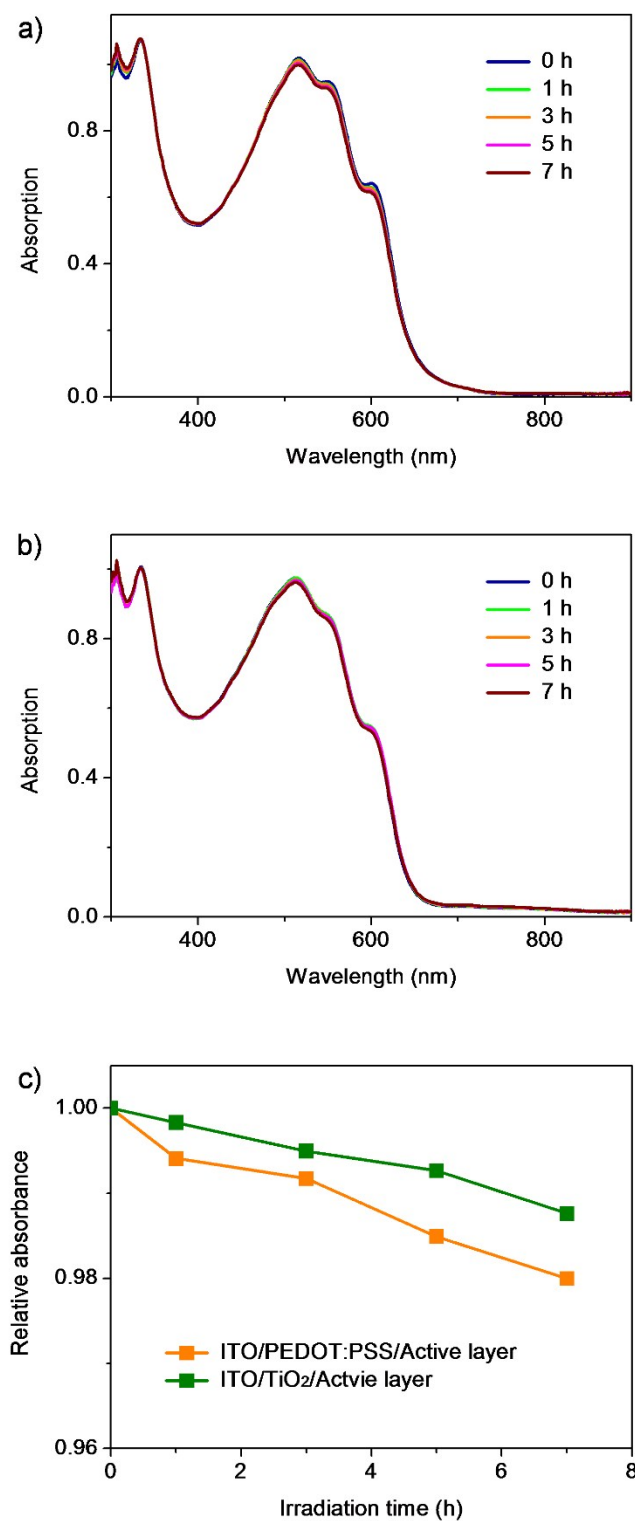


Fig. S4. Time-dependent absorption spectra of P3HT:PCBM on the ITO/PEDOT:PSS substrate (a) and ITO/TiO₂ substrate (b) under the irradiation of simulated AM 1.5 sunlight, and relative absorbance along with irradiation time (c).

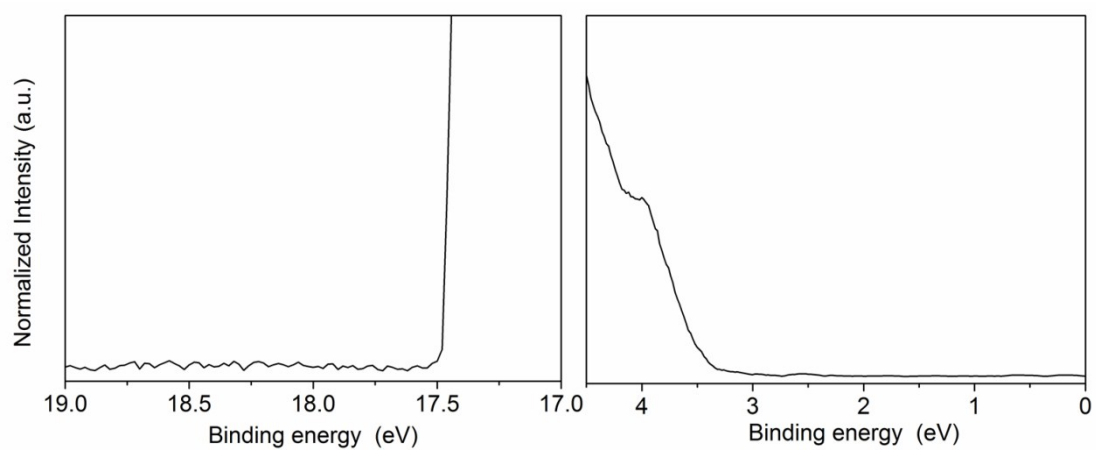


Fig. S5. UPS spectrum of the nanocrystal TiO_2 film.

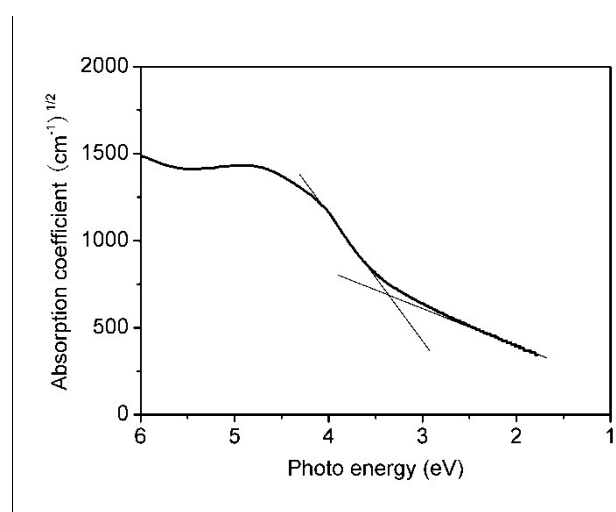


Fig. S6. Absorption coefficient of the nanocrystal TiO_2 film.

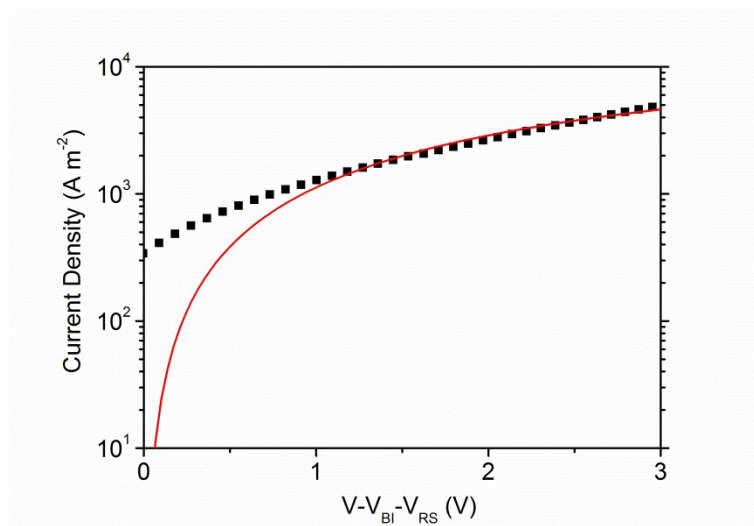


Fig. S7. Electron mobility of nanocrystal TiO₂ film measured by SCLC method.

Table S1. Complied device performance data of 30 repetitions.

Devices	V_{oc} (V)	J_{sc} (mA/cm²)	FF	η (%)
1	0.59	9.58	0.56	3.16
2	0.6	9.92	0.52	3.10
3	0.59	9.91	0.53	3.12
4	0.59	9.97	0.56	3.05
5	0.58	9.56	0.55	3.05
6	0.58	9.61	0.54	3.00
7	0.57	10.05	0.53	3.03
8	0.59	9.86	0.53	3.08
9	0.56	10.7	0.54	3.24
10	0.58	9.43	0.58	3.17
11	0.58	9.75	0.57	3.22
12	0.56	10.62	0.52	3.11
13	0.58	9.63	0.57	3.17
14	0.58	9.58	0.58	3.20
15	0.57	10.19	0.53	3.07
16	0.58	8.95	0.58	3.00
17	0.59	10.15	0.52	3.09
18	0.58	9.16	0.59	3.12
19	0.59	8.99	0.58	3.10
20	0.58	9.05	0.57	3.01
21	0.59	9.27	0.61	3.35
22	0.58	9.20	0.58	3.11
23	0.58	9.51	0.55	3.04
24	0.60	10.08	0.55	3.34
25	0.59	10.27	0.56	3.39
26	0.58	9.63	0.57	3.21
27	0.58	9.68	0.56	3.16
28	0.58	8.99	0.57	2.99
29	0.57	10.13	0.52	3.00
30	0.58	9.77	0.53	2.98