

## Electronic supplementary information

### Influence of the porosity of the TiO<sub>2</sub> film on the performance of the perovskite solar cell

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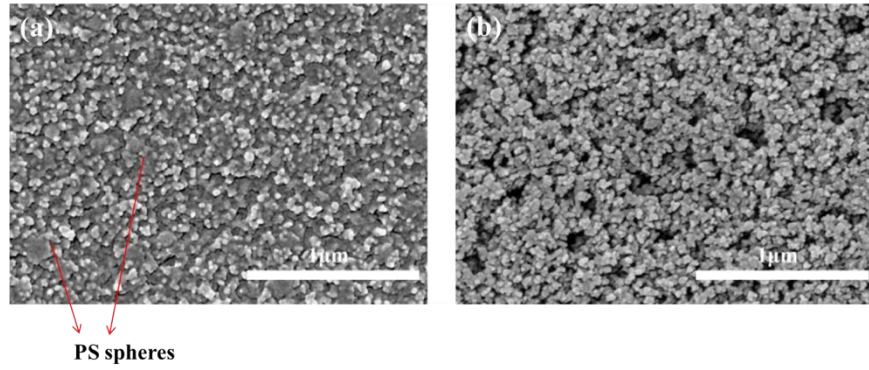


Figure S1 SEM images of sample PS-1.0 (a) before heat treatment (b) after heat treatment

Table S1 Statistic numbers of size of pores in TiO<sub>2</sub> film

Mass fraction(%)	Total	Max./nm	Min./nm	Mean/nm
0	30	45.71	14.04	26.45
0.5	30	116.21	31.88	70.09
1.0	30	99.22	59.97	80.01
1.5	30	145.76	49.93	93.90

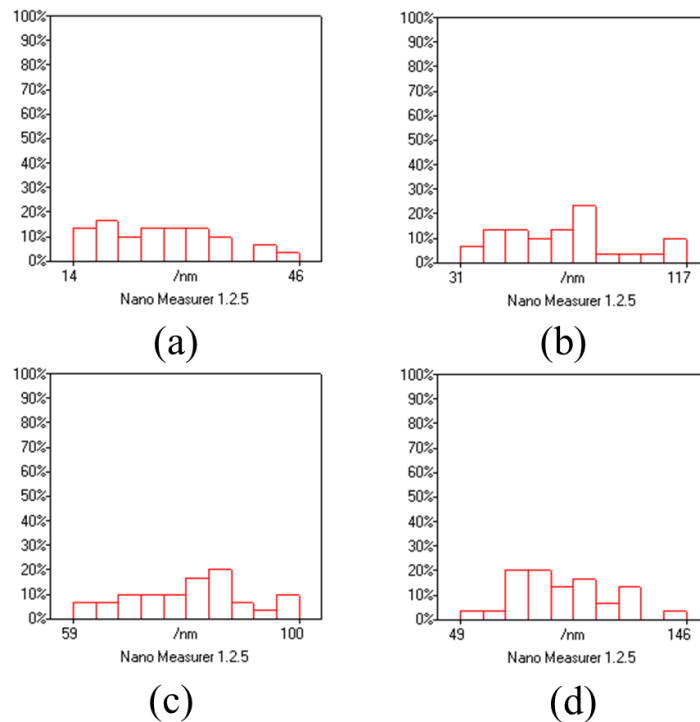


Figure S2 The histogram of pore size distribution in TiO<sub>2</sub> film prepared by doping (a) 0 wt% (b) 0.5 wt% (c) 1.0 wt% (d) 1.5 wt% PS spheres in TiO<sub>2</sub> paste

Table S2 Deviation values of  $J_{sc}$ ,  $V_{oc}$ , FF, and PCE of different sample

	PS-0	PS-0.5	PS-1.0	PS-1.5
$J_{sc}$	0.36	0.35	0.26	0.13
$V_{oc}$	0.04	0.02	0.02	0.01
FF	2.21	1.84	2.01	1.89
PCE	0.43	0.44	0.40	0.35