

Fig. S1. Schematic model of light scattering for the (a) ZHS, (b) UTS-2 and (c) ZHS+UTS-2 film.

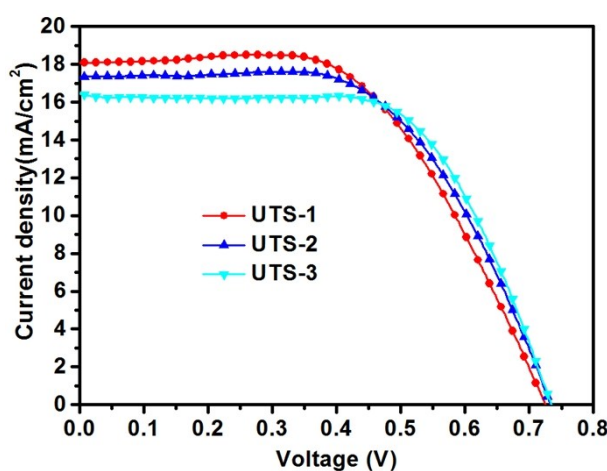


Fig. S2. I-V curves for DSSCs with three kinds of UTSS based photoanodes.

DSSCs	J_{sc} (mA cm ⁻²)	V_{oc} (V)	FF (%)	η (%)
UTS-1	17.96	0.73	59	7.73
UTS-2	17.34	0.73	69	8.28
UTS-3	16.50	0.73	65	7.92

Table S1. The photovoltaic properties of the three different DSSCs derived from the above I-V curves.

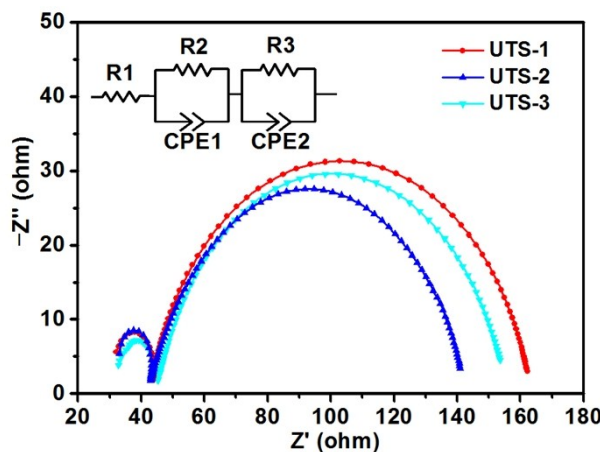


Fig. S3. Nyquist plots of UTS-1, UTS-2 and UTS-3 based DSSCs.

DSSCs	$R_1(\Omega)$	$R_2(\Omega)$	$R_3(\Omega)$
UTS-1	30.8	11.8	127.7
UTS-2	30.7	11.4	103.8
UTS-3	30.1	10.4	119.3

Table S2. Simulative value of resistance (R_1 , R_2 and R_3) from EIS spectra calculated by equivalent circuit as shown in Fig. S3.

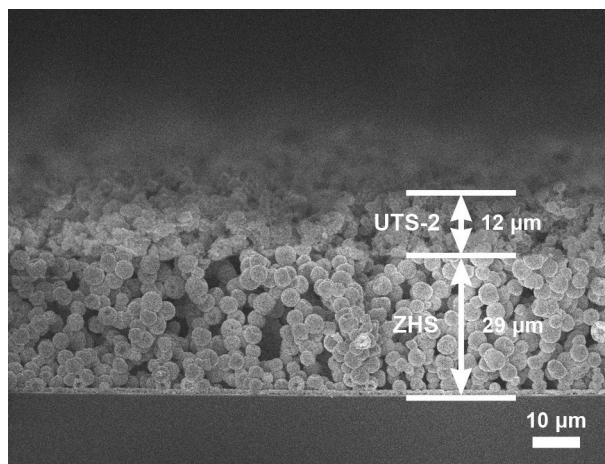


Fig. S4. SEM cross-sectional image of the bi-layer ZHS+UTS-2 photoanode (before dye-loading).