

Supporting Information (SI)

Solar Paint from TiO₂ Particles Supported Quantum Dots for Photoanodes in Quantum Dot-Sensitized Solar Cells

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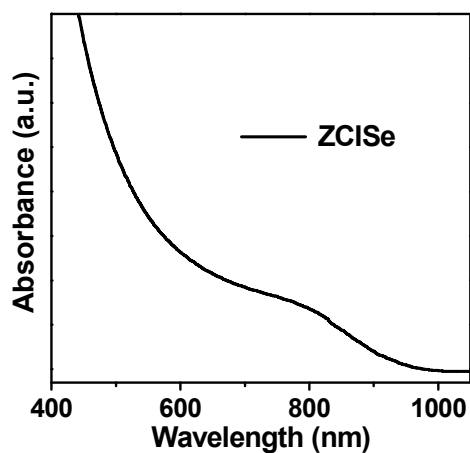


Figure S1. Absorption spectra of oil-soluble ZCISe QD dispersions in dichloromethane.

Table S1. The Individual Photovoltaic Parameters of QDSCs Corresponding to Different Contents of ZCISe QDs in the TiO₂ Suspension.

Content (mg)	V_{oc} (V)	J_{sc} (mA cm ⁻²)	FF	PCE (%)
	0.572	9.11	0.628	3.28
	0.578	9.47	0.625	3.42
45	0.575	8.82	0.636	3.22
	0.577	9.28	0.634	3.39
	0.576	9.28	0.637	3.40
Average	0.576 ± 0.002	9.19 ± 0.24	0.632 ± 0.005	3.34 ± 0.09
	0.584	10.59	0.621	3.83
	0.586	10.88	0.610	3.89
60	0.581	10.54	0.621	3.80
	0.586	10.44	0.620	3.80
	0.585	10.33	0.627	3.79
Average	0.584 ± 0.002	10.56 ± 0.21	0.620 ± 0.006	3.82 ± 0.04
	0.590	11.28	0.629	4.18
	0.584	11.11	0.623	4.04
75	0.588	10.81	0.640	4.07
	0.599	11.08	0.634	4.21
	0.589	11.27	0.627	4.17
Average	0.590 ± 0.006	11.11 ± 0.19	0.631 ± 0.007	4.13 ± 0.07
	0.590	11.58	0.626	4.25
	0.599	11.07	0.634	4.21
90	0.584	11.11	0.627	4.04
	0.583	10.85	0.649	4.11
	0.585	10.67	0.640	4.00
Average	0.588 ± 0.007	11.06 ± 0.34	0.635 ± 0.009	4.12 ± 0.11

Table S2. The Individual Photovoltaic Parameters of QDSCs Based on Different Thicknesses of Photoanode Film.

Thicknesses (μm)	V_{oc} (V)	J_{sc} ($\text{mA}\cdot\text{cm}^{-2}$)	FF	PCE (%)
9	0.602	10.18	0.610	3.74
	0.601	10.22	0.614	3.77
	0.601	9.75	0.618	3.62
	0.597	9.69	0.619	3.58
	0.591	10.09	0.613	3.66
Average	0.598 ± 0.005	9.99 ± 0.25	0.615 ± 0.004	3.67 ± 0.08
12	0.590	11.28	0.629	4.18
	0.584	11.11	0.623	4.04
	0.588	10.81	0.640	4.07
	0.599	11.08	0.634	4.21
	0.589	11.27	0.627	4.17
Average	0.590 ± 0.006	11.11 ± 0.19	0.631 ± 0.007	4.13 ± 0.07
15	0.582	9.98	0.635	3.69
	0.588	10.13	0.634	3.77
	0.582	9.82	0.644	3.68
	0.583	9.97	0.644	3.74
	0.589	10.13	0.640	3.82
Average	0.585 ± 0.003	10.01 ± 0.13	0.639 ± 0.005	3.74 ± 0.06

Table S3. Photovoltaic Parameters of QDSCs Prepared with Different Contents of PVDF in the Solar Paint. The numbers in Parentheses Represent the Values Obtained from the Champion Cells.

Content (mg)	V_{oc} (V)	J_{sc} (mA cm ⁻²)	FF	PCE (%)
10	0.575 (0.567)	7.80 (8.07)	0.633 (0.628)	2.85±0.08 (2.98)
15	0.583 (0.586)	10.19 (10.44)	0.618 (0.621)	3.68±0.08 (3.80)
20	0.590 (0.599)	11.11 (11.08)	0.631 (0.634)	4.13±0.07 (4.21)
25	0.585 (0.587)	9.99 (10.05)	0.617 (0.626)	3.61±0.06 (3.69)
30	0.580 (0.575)	8.99 (9.28)	0.635 (0.637)	3.31±0.08 (3.40)

Table S4. Photovoltaic Parameters of the Solar Paint Based QDSCs with Active Area of 1.0 cm².

	V_{oc} (V)	J_{sc} (mA cm ⁻²)	FF	PCE (%)
1	0.603	10.76	0.612	3.97
2	0.592	10.14	0.618	3.71
3	0.601	10.45	0.609	3.82
4	0.606	10.35	0.622	3.90
5	0.597	10.21	0.615	3.75
Average	0.600 ± 0.005	10.38 ± 0.24	0.615 ± 0.005	3.83 ± 0.11