

Electronic Supplementary Information (ESI)

Influence of Linker Molecules on Interfacial Electron Transfer and Photovoltaic Performance of Quantum Dot Sensitized Solar Cells

Junwei Yang, Takuya Oshima, Witoon Yindeesuk, Zhenxiao Pan, Xinhua Zhong*, and Qing Shen*

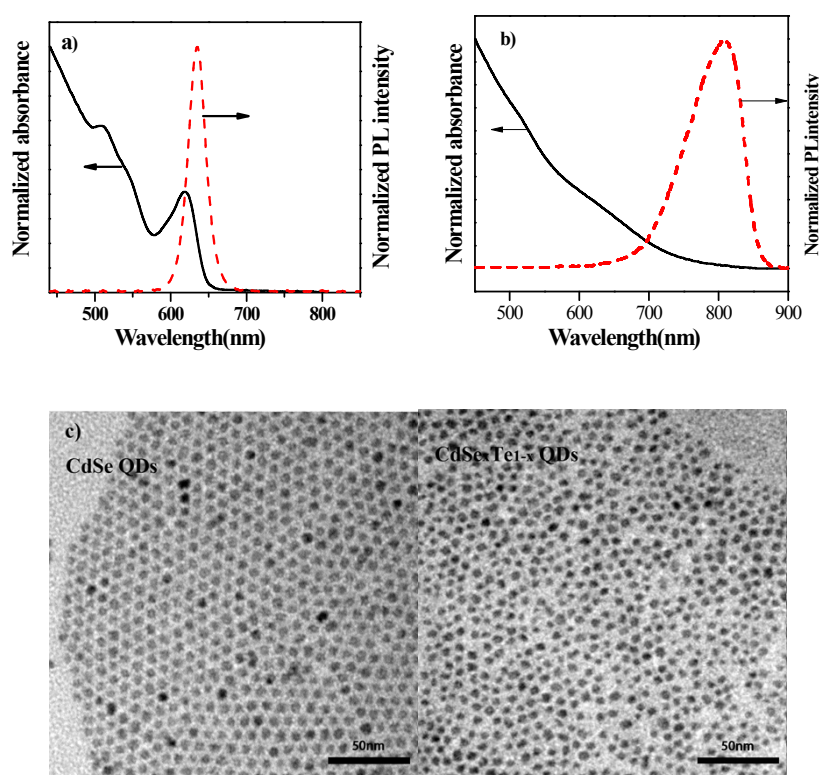


Fig. S1 UV-vis absorption (black solid lines) and PL emission (red dashed lines, $\lambda_{\text{ex}} = 410$ nm) spectra of CdSe (a), and CdSe_xTe_{1-x} (b) QD dispersions in toluene; (c) TEM images of the obtained CdSe QDs and CdSe_xTe_{1-x} QDs, respectively.

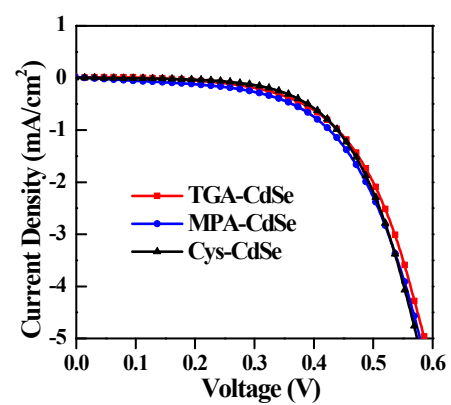


Fig. S2 The J - V curves under dark condition of QDSCs based on different linker molecules.

Table S1. Photovoltaic Parameters for 5 QDSCs in parallel based on Different Link-molecules Capped CdSe QD Sensitizers.

linkers	J_{sc} (mA·cm ⁻²)	V_{oc} (V)	FF (%)	η (%)	η (%) ^a
TGA	15.48	0.568	0.612	5.38	5.40±0.04
	15.47	0.569	0.609	5.36	
	15.30	0.576	0.616	5.43	
	15.37	0.572	0.609	5.36	
	15.51	0.575	0.611	5.45	
MPA	14.72	0.566	0.611	5.09	5.06±0.05
	14.39	0.568	0.609	4.98	
	14.63	0.566	0.611	5.06	
	14.48	0.570	0.614	5.07	
	14.80	0.567	0.610	5.12	
Cys	14.12	0.560	0.608	4.81	4.72±0.07
	13.68	0.565	0.612	4.73	
	13.91	0.560	0.610	4.75	
	13.51	0.562	0.615	4.67	
	13.71	0.563	0.601	4.64	

Table S2. Photovoltaic Parameters for 5 QDSCs in parallel based on Different Link-molecules Capped CdSe_xTe_{1-x} QDs Sensitizers.

Linkers	J_{sc} (mA·cm ⁻²)	V_{oc} (V)	FF (%)	η (%)	η (%) ^a
TGA	19.25	0.581	0.590	6.60	6.68±0.06
	19.20	0.583	0.596	6.67	
	19.41	0.582	0.593	6.70	
	19.55	0.583	0.593	6.76	
	19.77	0.577	0.583	6.65	
MPA	18.30	0.578	0.606	6.41	6.33±0.07
	17.91	0.588	0.592	6.24	
	18.11	0.580	0.599	6.29	
	18.12	0.581	0.607	6.39	
	18.47	0.581	0.587	6.30	
Cys	17.19	0.571	0.598	5.87	5.95±0.06
	17.27	0.577	0.598	5.96	
	17.33	0.576	0.601	6.00	
	17.31	0.580	0.589	5.91	
	17.28	0.575	0.605	6.01	