Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

Anatase TiO_2 nanosheets with exposed highly reactive (001) factes as an efficient photoanode for quantum dot-sensitized solar cells

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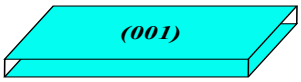
On the basis of the SEM and TEM results in our manuscript, the TiO_2-NSs can be approximately regarded as the square sheet, the percentage of exposed (001) crystal planes can be roughly calculated by the following equation.

$$Percentage = \frac{Length \times Width \times 2}{Length \times Width \times 2 + Length \times Thickness \times 2 + Width \times Thickness \times 2}$$

Table S1. the percentage of exposed (001) crystal planes in single TiO_2 nanosheet.

TiO_2 nanosheets	*Length(nm)*	*Width(nm)*	*Thickness(nm)*	*Percentage*
	~30	*~30*	*~5.7nm*	*~72%*
	~40	*~40*	*~5.7nm*	*~78%*
	*~50*	*~50*	*~5.7nm*	*~81%*
	~60	*~60*	*~5.7nm*	*~84%*
	~70	*~70*	*~5.7nm*	*~86%*

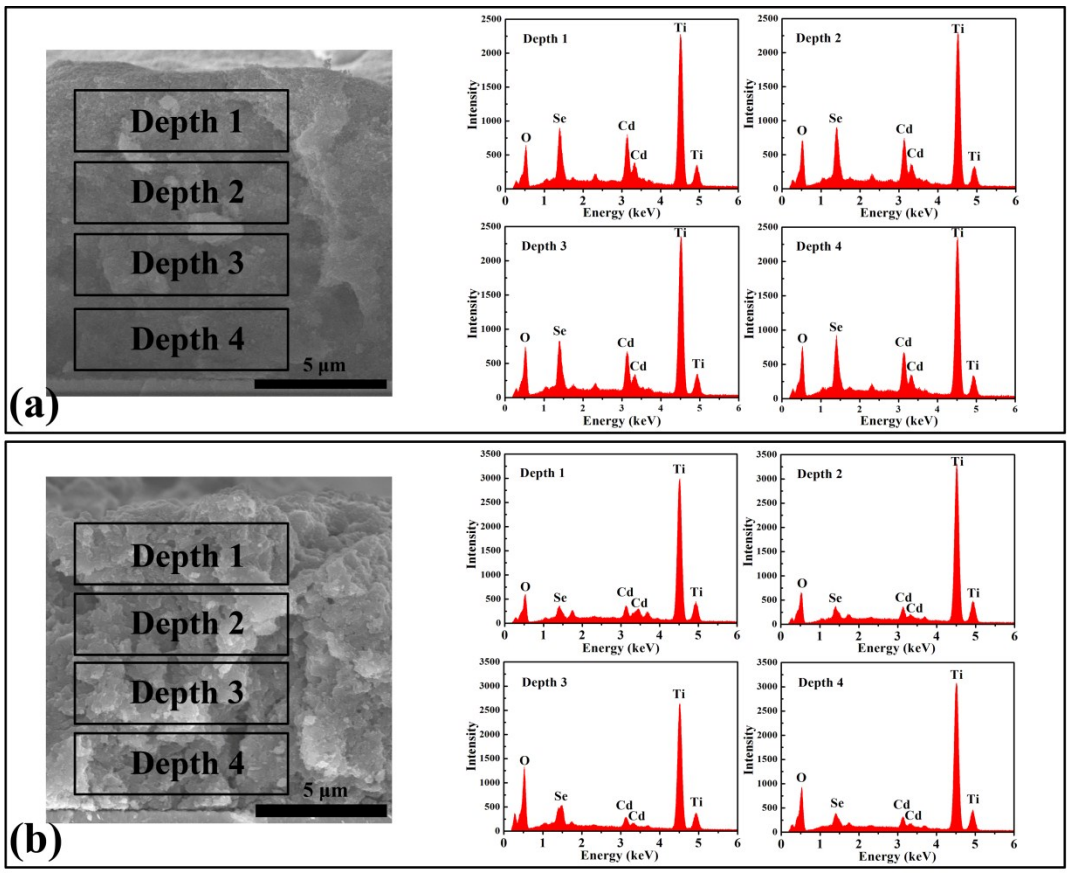


Figure S1. EDX images corresponding to different depths of the TiO_2-NSs/CdSe film (a) and TiO_2-NPs/ CdSe film (b).

Table S2 Comparison of physical properties of TiO_2-NSs, TiO_2-NPs.[a]

Samples	fwhm	Crystallite size/nm	Relative crystallinity	$S_{BET}/m^2\ g^{-1}$	Maximum pore size/nm
NP	0.91	9 (A)	1	133	7.8
NS	0.62	13 (A)	1.26	85	12.4

[a] A: anatase. Relative anatase crystallinity: the relative intensity of the diffraction peak from the anatase (101) plane (reference = TiO_2-NPs).

Table S3 Detailed photovoltaic parameters of QDSSCs based on different photoanodes.

Photoanode	J_{sc} (mA/cm^2)	V_{oc} (mV)	*FF* (%)	η (%)
NP	12.60	582	0.42	3.08
NS	16.95	591	0.50	5.01

Table S4 Electrochemical impedance results of QDSSCs.

Photoanode	R_S (Ω)	R_2 (Ω)	τ_r (ms)
NP	16.35	61.39	65
NS	14.79	144.52	142