

Supplementary Information

Highly crystalline, small size, monodisperse α -NiS nanocrystal ink as an efficient counter electrode for dye-sensitized solar cells

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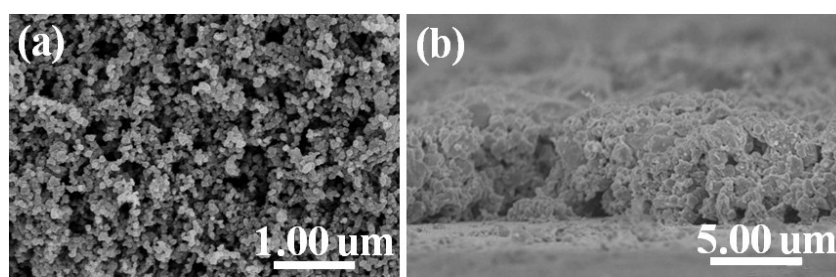


Figure S1 Top (a) and cross-sectional (b) SEM images of the densely packed $E_{NiS-300}$.

Table S1. The FWHM values with different planes of NiS-250 and NiS-300.

Different planes	(100)	(101)	(102)	(110)
FWHM (NiS-250)	0.833	0.887	1.109	0.890
FWHM (NiS-300)	0.624	0.632	0.837	0.684

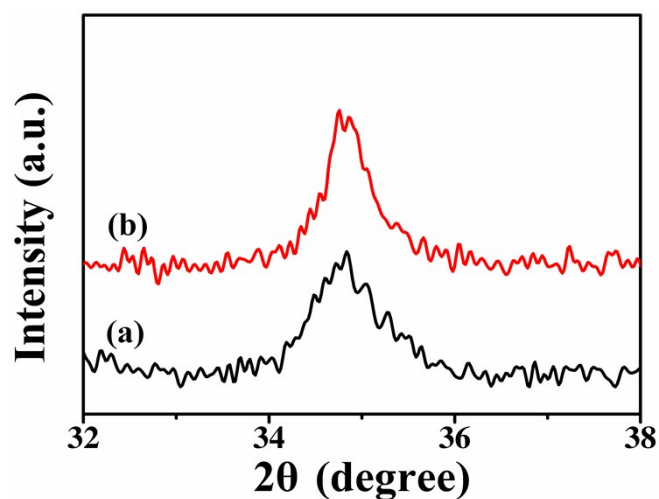


Figure S2 The magnified XRD patterns of NiS-250 (a), NiS-300 (b), respectively.

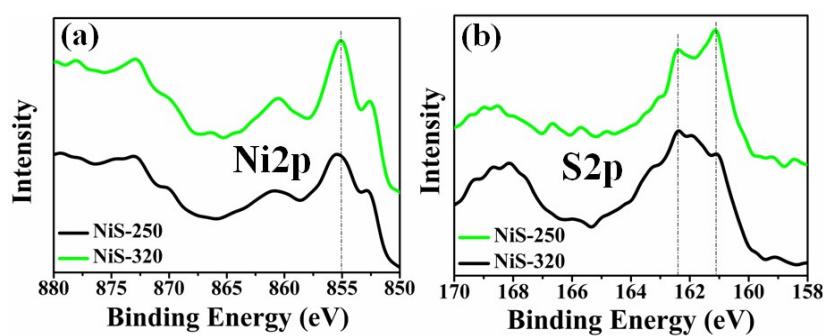


Figure S3 XPS of NiS-250 and NiS-320 for Ni 2p region (a) and S 2p region (b), respectively.

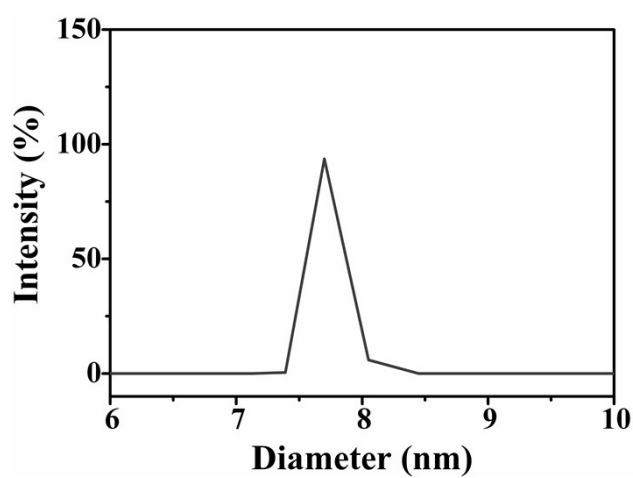


Figure S4 Dynamic light scattering measurements of NiS-300.

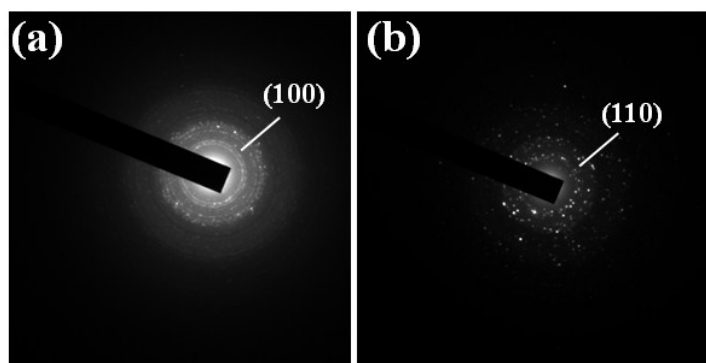


Figure S5 SAED images of the NiS-250 (a) and NiS-320 (b).

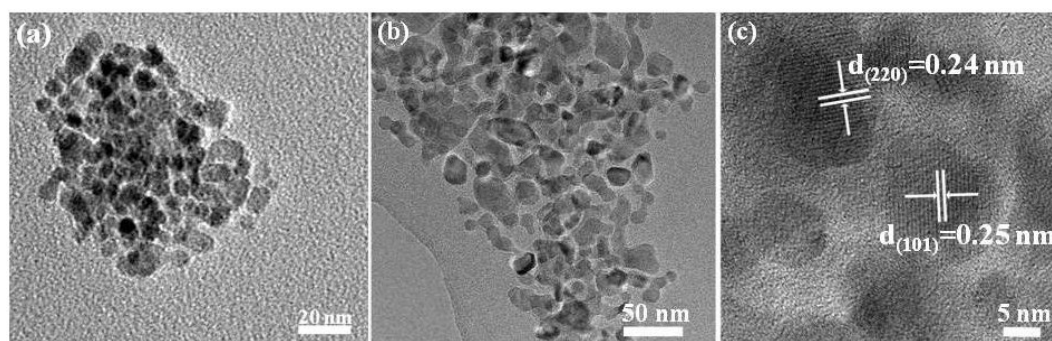


Figure S6 TEM image of NiS-250 (a) and NiS-320 (b), the HRTEM of NiS-320(c).

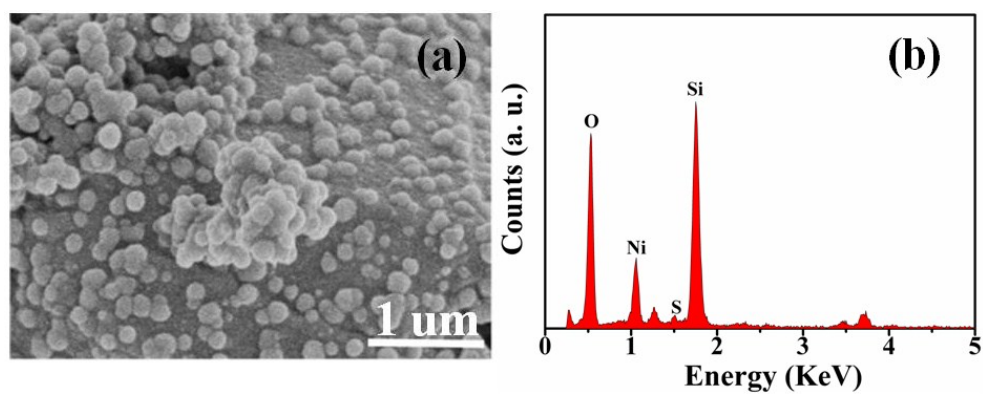


Figure S7 SEM image of bulk NiS with large size and corresponding EDS.

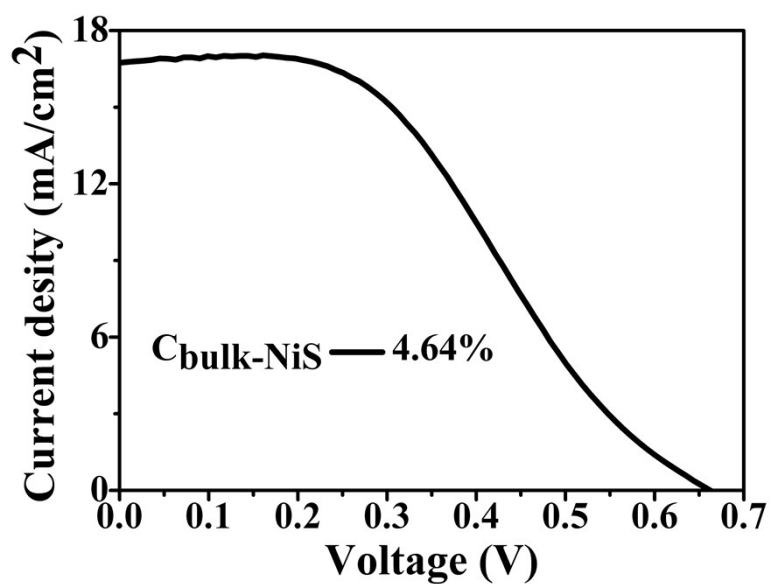


Figure S8 Current-voltage characteristics of the DSSCs with $C_{\text{bulk-NiS}}$ under one sun illumination.

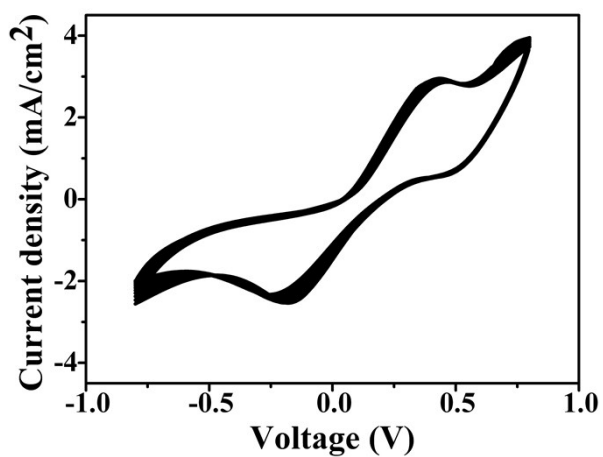


Figure S9 Twenty consecutive CV curves for the E_{pt} at a scan rate of 25 mV s^{-1} .

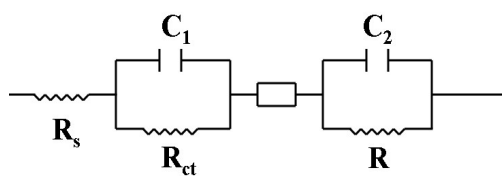


Figure S10 equivalent circuit used to represent interfaces in dummy cells composed of two identical counter electrodes.

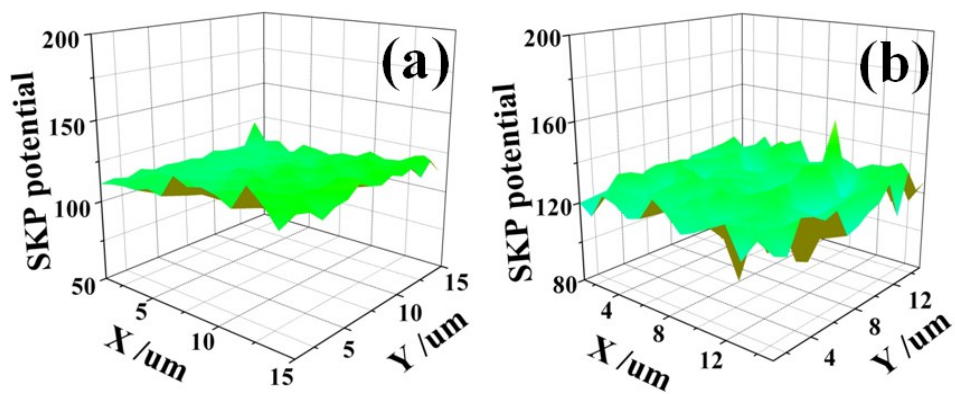


Figure S11 Work function map of NiS-250 (a) and NiS-320 (b).