Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics

Conformal Growth of Nanocrystalline CdX (X=S, Se) on Mesoscopic NiO and Their Photoelectrochemical Properties

Fatemeh Safari-Alamuti[†,§], *James R. Jennings*[†], *Md. Anower Hossain*[†], *Lanry Yung Lin Yue*[§], *and Qing Wang*[†,*]

[†] Department of Materials Science and Engineering, Faculty of Engineering, NUSNNI-NanoCore, National University of Singapore, Singapore 117576

[§] Department of Chemical and Biomolecular Engineering, Faculty of Engineering, National University of Singapore, Singapore 117576

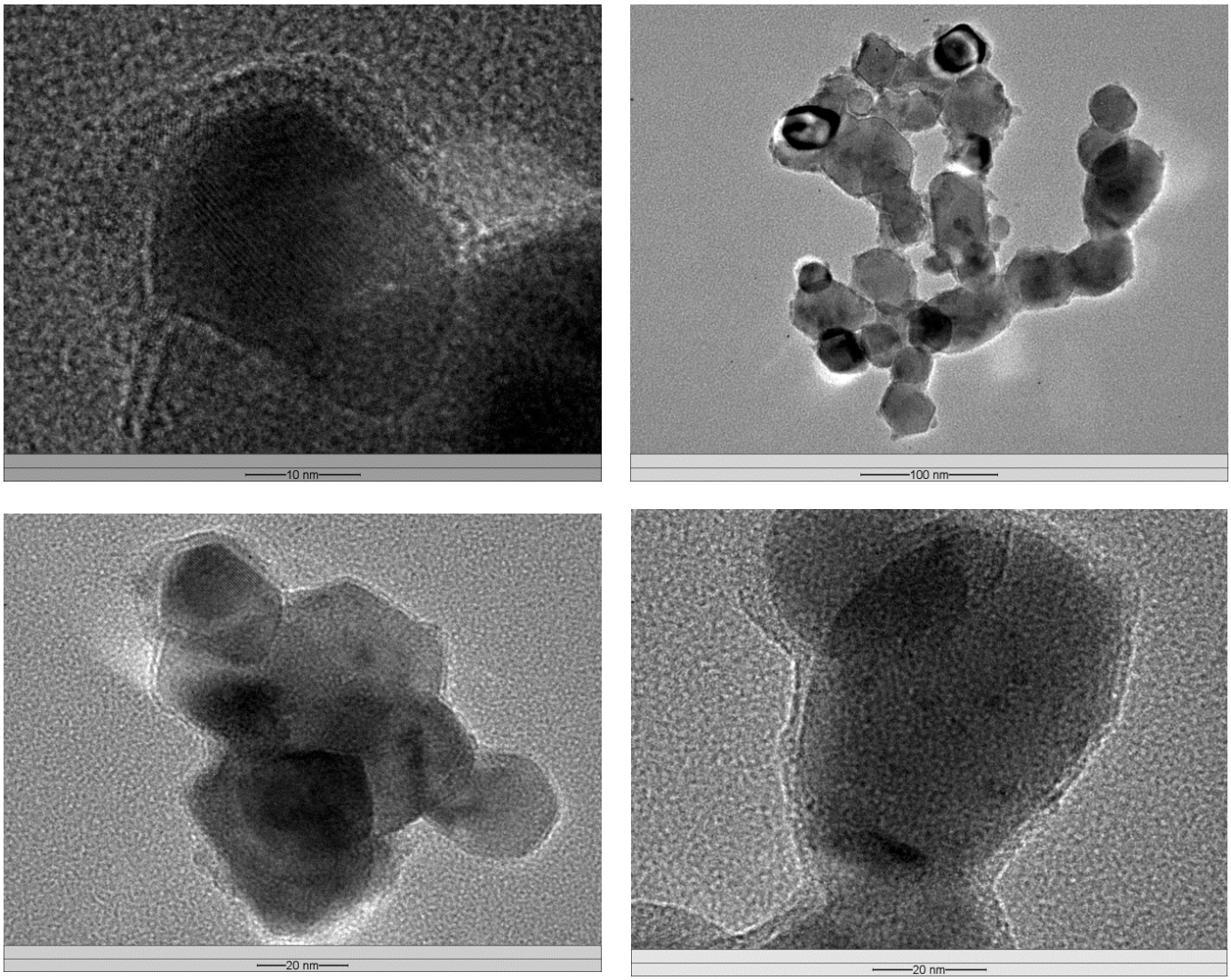

Figure S1. TEM and HRTEM images of CdS-coated NiO nano-particles after 10 SILAR deposition cycles.

Table S1. Comparison of photovoltaic parameters of CdS, CdSe and CdS/CdSe cells under simulated AM 1.5, 100 mW cm^{-2} illumination.

CdS/CdSe	V_{oc} (mV)	j_{sc} (mA cm^{-2})	FF (%)	j_{sc} obtained from IPCE (mA cm^{-2}) [a]
10/0	58	0.16	20.8	0.35
0/10	66	0.63	31.7	1.29
5/5	66	0.71	29.3	2.12
3/10	86	0.87	32.3	2.22

[a] Calculated by integrating IPCE over AM1.5 solar irradiance.

Table S2. Comparison of photovoltaic parameters of CdSe and CdS/CdSe cells under 1 Sun and 0.1 Sun illumination intensities.

Light intensity	*Sensitizer*	Voc (mV)	j_{sc} (mA cm^{-2})	FF (%)	*Efficiency*
1 Sun	CdSe	66	0.63	31	0.014
0.1 Sun	CdSe	32	0.24	30	0.023
1 Sun	CdS/CdSe	86	0.87	32	0.02
0.1 Sun	CdS/CdSe	40	0.45	27	0.05

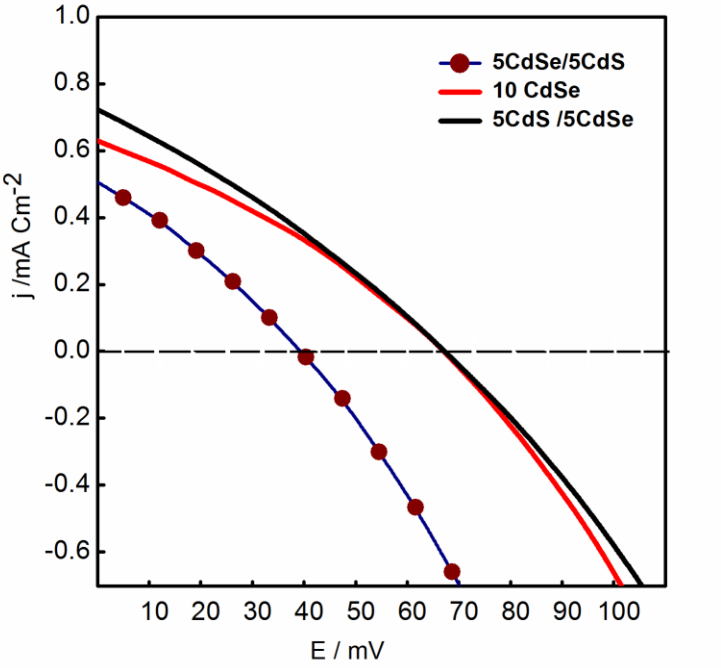

Figure S2. Cell performance comparison for different cascade structures.

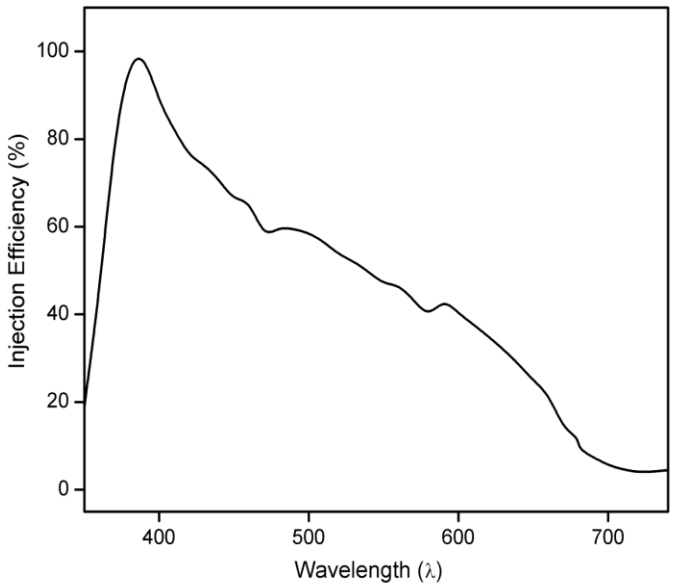

Figure S3. Injection efficiency vs. wavelength calculated for a 10 CdSe/NiO cell.