Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

Optimizing CdS Intermediate Layer of CdS/CdSe Quantum Dot-Sensitized Solar Cells to Increase Light Harvesting Ability and Improve Charge Separation Efficiency

Jiaqiao Jiang, Kefeng Wang, Qingqing Liu and Jin Zhai**

Key Laboratory of Bio-Inspired Smart Interfacial Science and Technology of Ministry of Education, Beijing Key Laboratory of Bio-inspired Energy Materials and Devices, School of Chemistry and Environment, Beihang University, Beijing, 100191, P. R. China. E-mail: zhaijin@buaa.edu.cn

Henan Key Laboratory of Biomolecular Recognition and Sensing, Shangqiu Normal University, Shangqiu, 476000, P. R. China. E-mail: wangkf2007@163.com

1. ***J-V* curves of QDSSCs based on TEA-CdS and CdS sensitized photoanodes.**

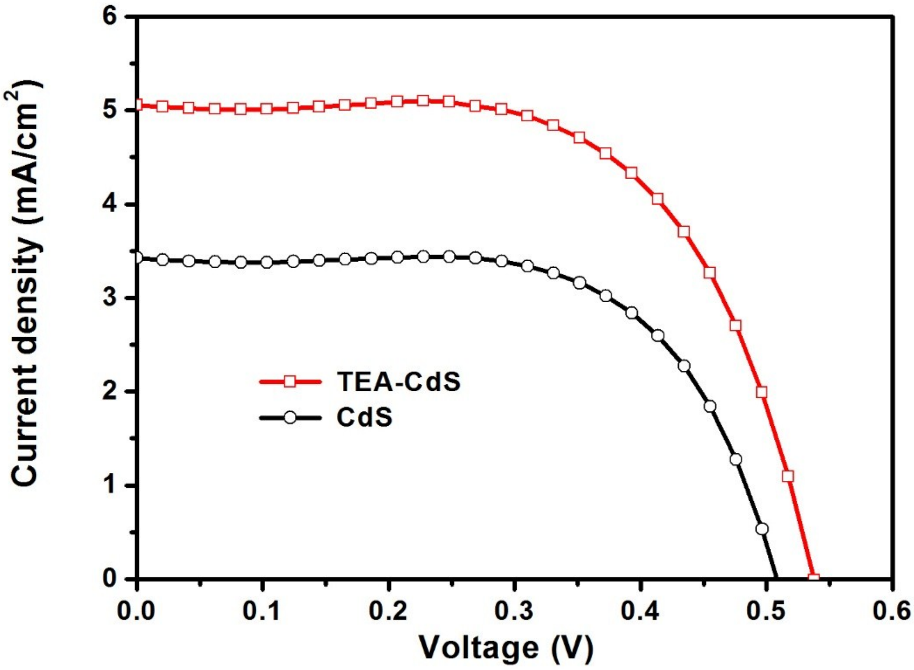

Fig. S1. *J-V* curves of QDSSCs based on TEA-CdS and CdS sensitized photoanodes. The measurements were carried out under the illumination of an AM 1.5G simulated sunlight with a power density of 100 mW/cm^2. PbS formed on the Pb foil as the counter electrode and polysulfide in methanol-water solution as the electrolyte.

2. **IPCE spectra of the QDSSCs based on CdS and TEA-CdS sensitized photoanodes.**

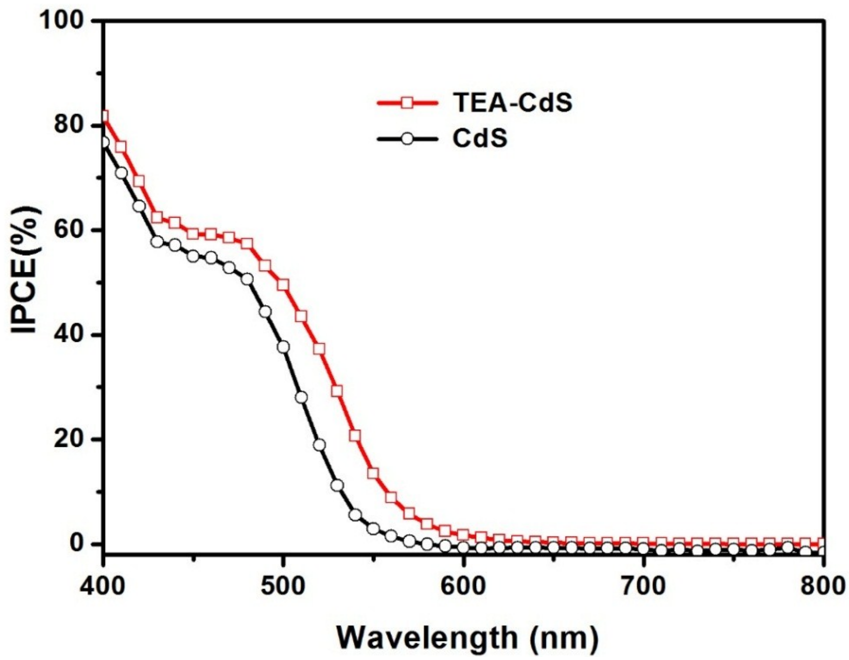

Fig. S2. IPCE spectra of the QDSSCs based on CdS and TEA-CdS sensitized photoanodes.

3. Corresponding photovoltaic parameters for different QDSSCs.

Table S1. Corresponding photovoltaic parameters for different solar cells.

	J_{sc} (mA/cm^2)	V_{oc} (V)	FF	PCE (%)
CdS	3.43	0.51	0.61	1.12
TEA-CdS	5.05	0.54	0.63	1.70

4. Stability of TEA-CdS/CdSe QDSSCs.

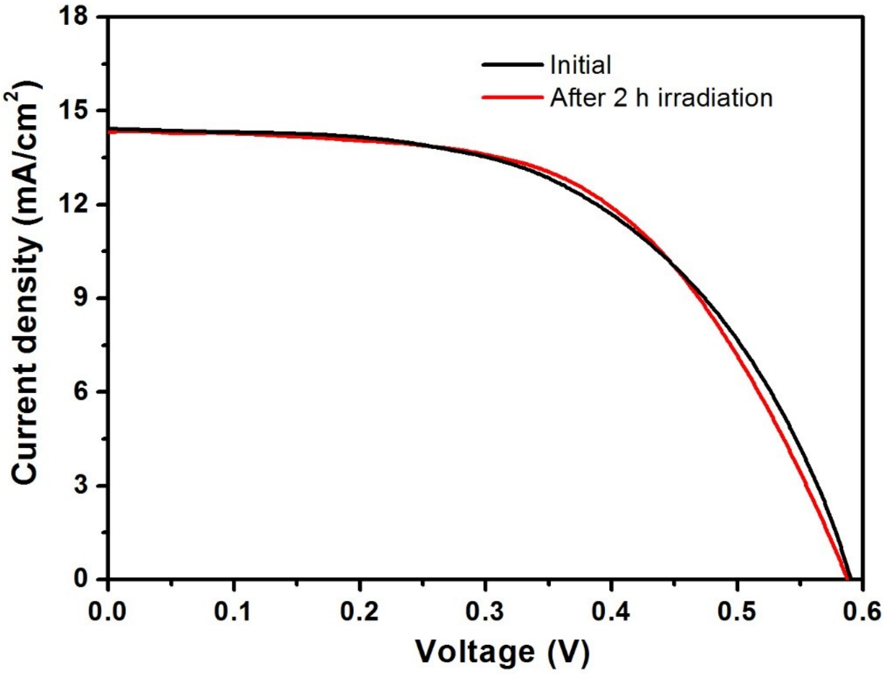

Fig. S3. J-V curves of QDSSCs based on TEA-CdS/CdSe sensitized electrodes. The measurements were carried out under the illumination of an AM 1.5G simulated sunlight with a power density of 100 mW/cm^2. PbS formed on the Pb foil as the counter electrode and polysulfide in methanol-water solution as the electrolyte. The red curve was measured 2 hours later than the black curve, and they were still nearly coincident, so the solar cells kept stable in this condition.