



Supplementary Materials: Efficient Nanocrystal Photovoltaics via Blade Coating Active Layer

Kening Xiao ¹, Qichuan Huang ¹, Jia Luo ¹, Huansong Tang ¹, Ao Xu ¹, Pu Wang ¹, Hao Ren ¹, Donghuan Qin ^{1,2,*}, Wei Xu ^{1,2,*} and Dan Wang ^{1,2,*}

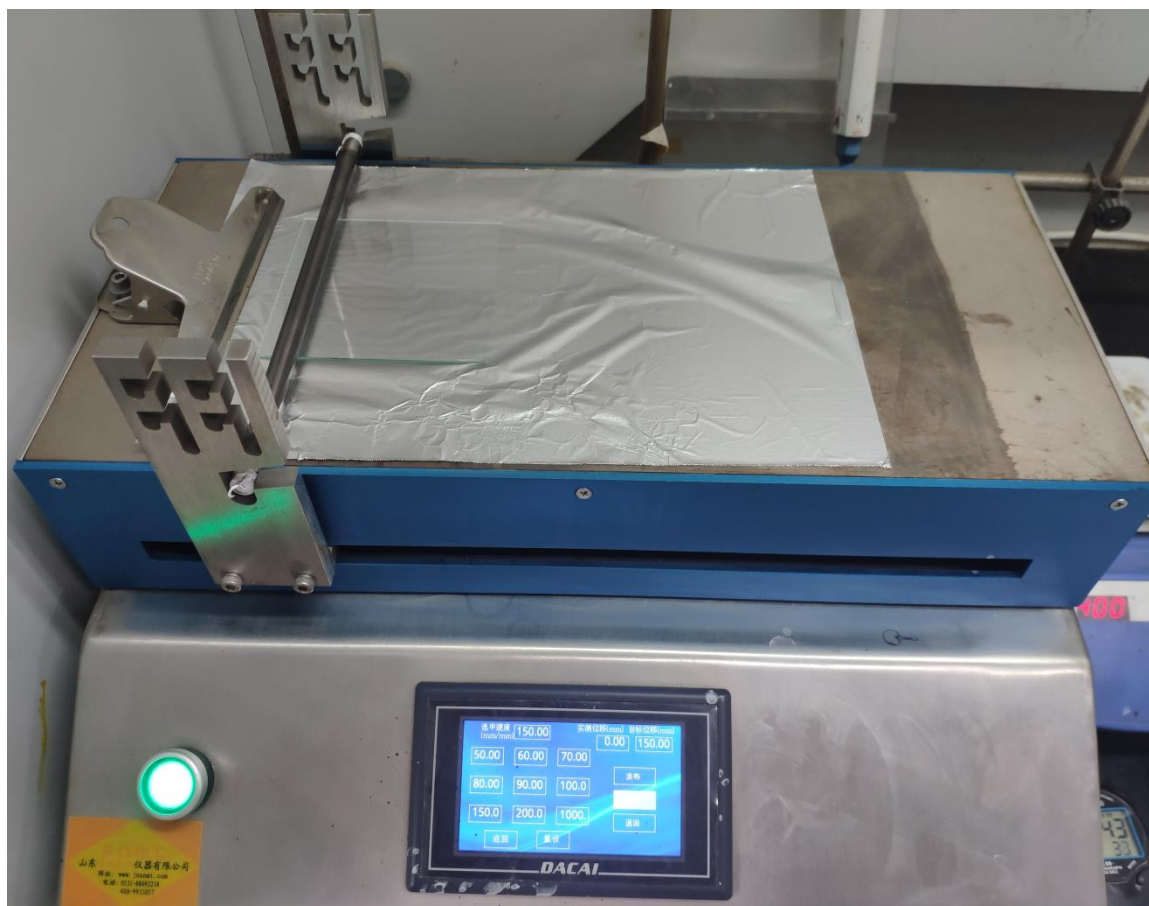


Figure S1. Equipment for doctor-blading preparation devices.

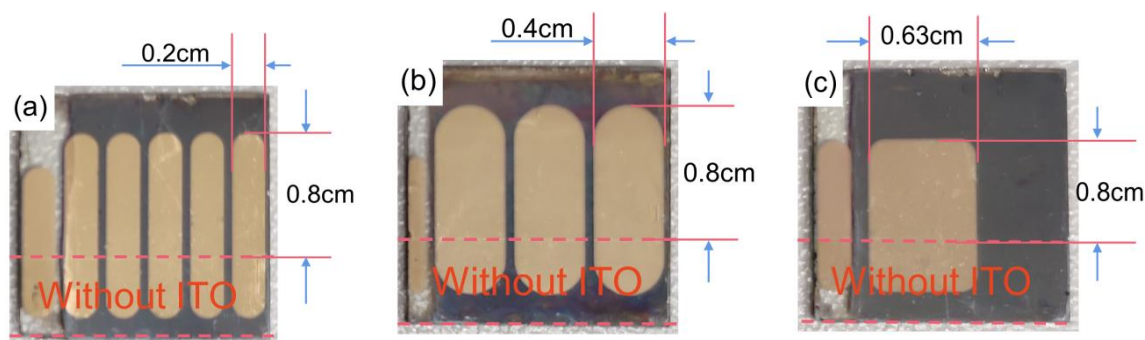


Figure S2. Devices with different active areas (a) 0.16 cm²; (b) 0.3 cm²; (c) 0.5 cm².

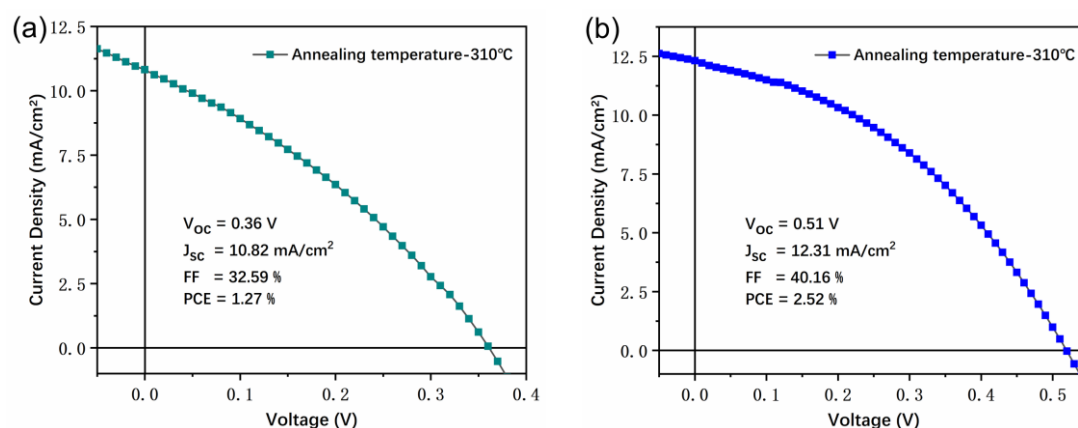


Figure S3. J–V curves of ITO/ZnO/CdSe/CdTe/Au with different CdTe layers at 310 °C (a) three layers (b) five layers.

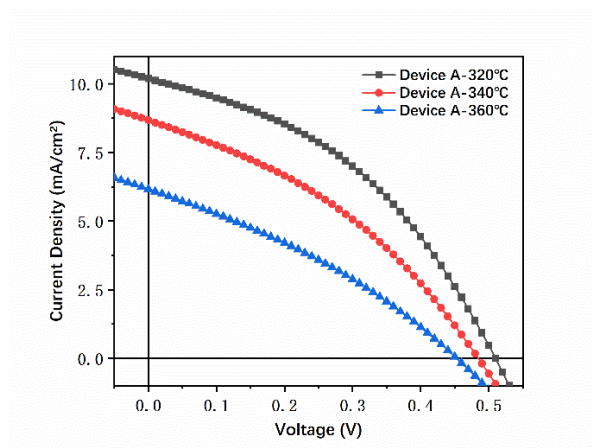


Figure S4. J–V curves of ITO/ZnO/CdSe/CdTe/Au at different annealing temperatures (Device A:320 °C, Device B:340 °C, Device C:360 °C) under light with 0.5 cm² active area.

Table S1. Summarized performance of NC solar cells with different annealing temperatures (Figure S4).

Device	Temperature (°C)	V_{oc} (V)	J_{sc} (mA/cm²)	FF (%)	PCE (%)
A	320	0.50	10.19	41.40	2.11
B	340	0.48	8.67	36.59	1.52
C	360	0.45	6.16	32.39	0.90

Equipment information

The cross-section diagram was obtained from Zeiss Sigma300's scanning electron microscope (SEM). The atomic force microscopy (AFM) images were obtained using a NanoScope NS3A system (Veeco, CA, USA). The external quantum efficiency (EQE) was measured by a Zolix instrument (Solar Cell Scan100, Zolix Instruments Co., Ltd., Beijing, China). The J–V characteristics were measured with a Keithley 2400 under an illumination of 100 mW/cm² with an air mass 1.5 (AM 1.5) solar simulator (Oriel model 91192).