

Electronic Supplementary Information for Energy & Environmental  
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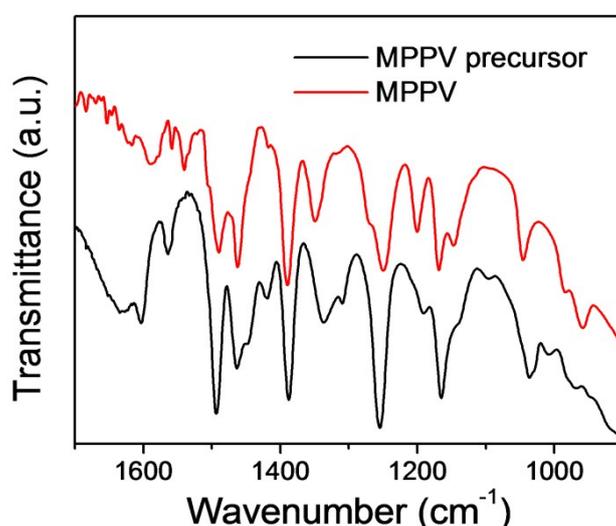
Electronic Supplementary Information

**Efficient Aqueous-Processed Hybrid Solar Cells from Wide Bandgap Polymer**

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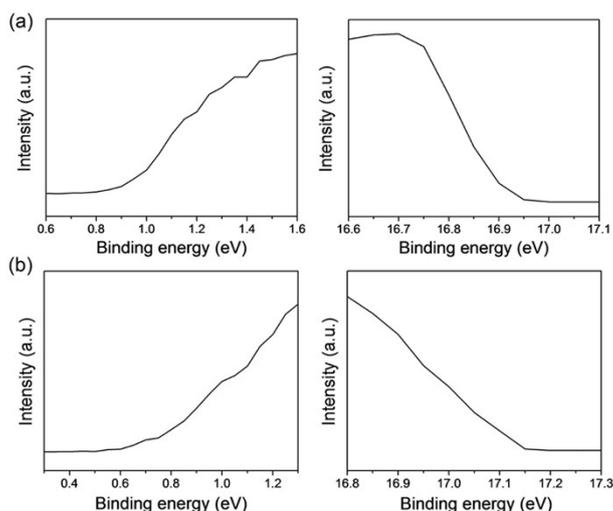
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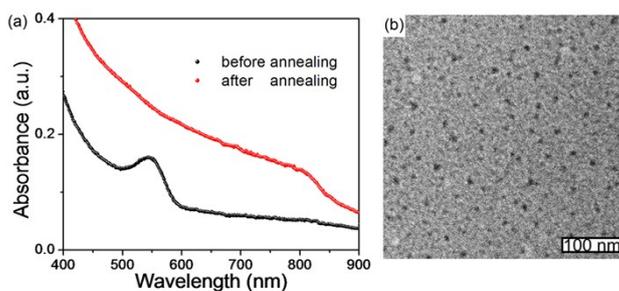
**Figure S1.** The FT-IR spectra of MPPV and its precursor. The band at 964  $\text{cm}^{-1}$  is characteristic of the trans-vinylene C-H out-of-plane bending mode. Therefore, thermal annealing leads to the formation of a predominantly trans-vinylene structure.

	C	H	O
theoretical	81.79	6.10	12.11
measured	82.18	5.74	12.08

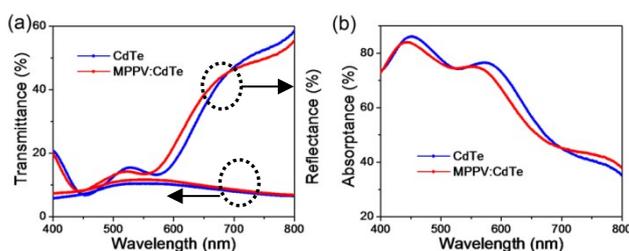
**Table S1.** The element analyzer of MPPV. The polymer precursors were dropped on glasses and subsequently annealed at 300 °C for an hour. The powder of the polymer was scratched from the glasses.



**Figure S2.** Ultraviolet photoelectron spectra of (a) PPV and (b) MPPV. Based on the intersection of baseline with the tangent line of the spectra, the HOMO energy levels of MPPV and PPV are determined as  $-5.35$  eV and  $-5.5$  eV.



**Figure S3.** (a) UV-vis spectra of CdTe NCs films before and after annealing. (b) TEM images of the as-prepared CdTe NCs.



**Figure S4.** (a) Transmission, reflection and (b) calculated absorption spectra of the CdTe NCs solar cells and MPPV HSCs. For reflection spectrum, 200 nm Ag film vacuum-deposited on quartz is used as the reference. For Transmission spectrum, air is used as the reference.