Supporting Information

Performance Improvement in Polymer/ZnO Nanoarray Hybrid Solar Cells by Formation of ZnO/CdS-Core/Shell Heterostructures

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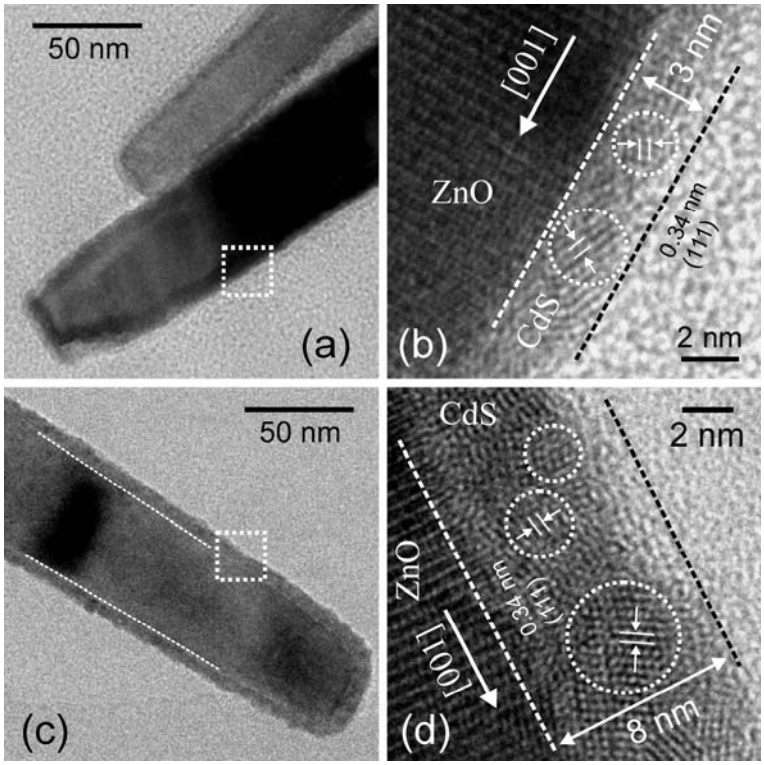

Figure S1. TEM (a, c) and HRTEM (b, d) images of ZnO/CdS-core/shell nanorods with L = 3 (a, b) and 8 (c, d) nm. The HRTEM images were taken from the marked regions in the corresponding TEM images. The cycles in (b, d) identify individual CdS quantum dots, and the lattice fringes therein match the spacing distances of (111) crystal planes of cubic CdS. The quantum dots are about 2–3 nm for L = 3 nm and 2–5 nm for L = 8 nm. HRTEM results indicate that a thicker CdS shell contains more larger CdS quantum dots, in agreement with the XRD data in the text.

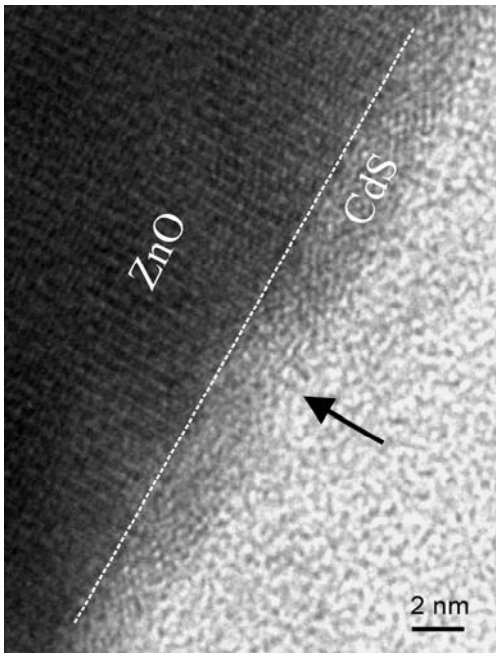

Figure S2. HRTEM image of a ZnO/CdS-core/shell nanorod with L = 3 nm. The arrow shows the ZnO region that was not well passiviated by CdS due to the quite thin CdS layer formed.

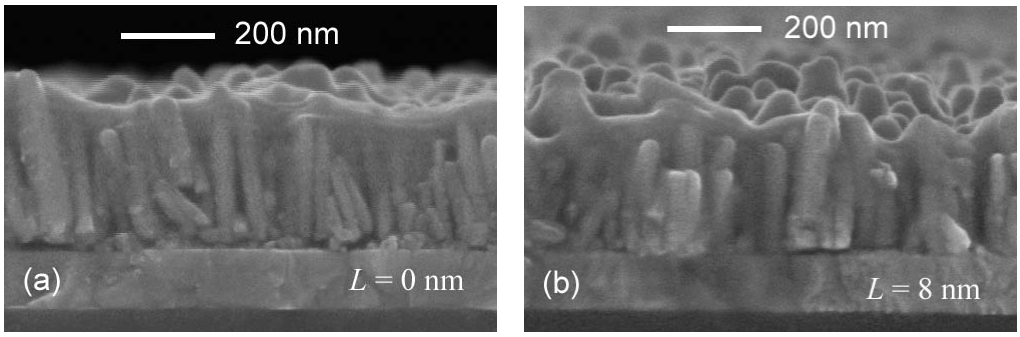

Figure S3. SEM images of MEH-PPV/ZnO-NA (a) and MEH-PPV/ZnO-CdS-NA (b) composite films, showing the good polymer infiltration in the interspaces between nanorods.

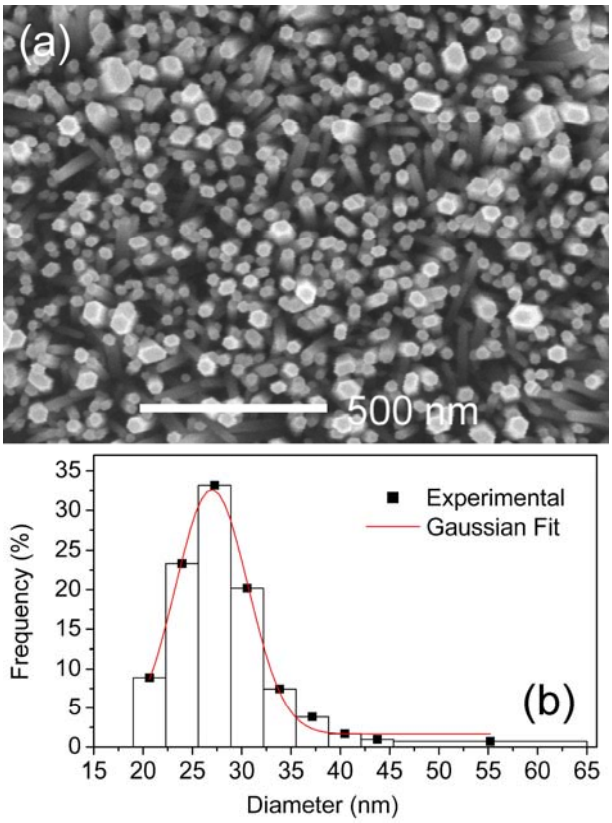

Figure S4. (a) SEM image of ZnO-NA, (b) Statistical histogram showing distribution of ZnO nanorod diameter in the ZnO-NA. ZnO nanorods had a number density of about 420/μm^2 and statistically an averaged diameter of ca. 28 nm.