

Supporting Information

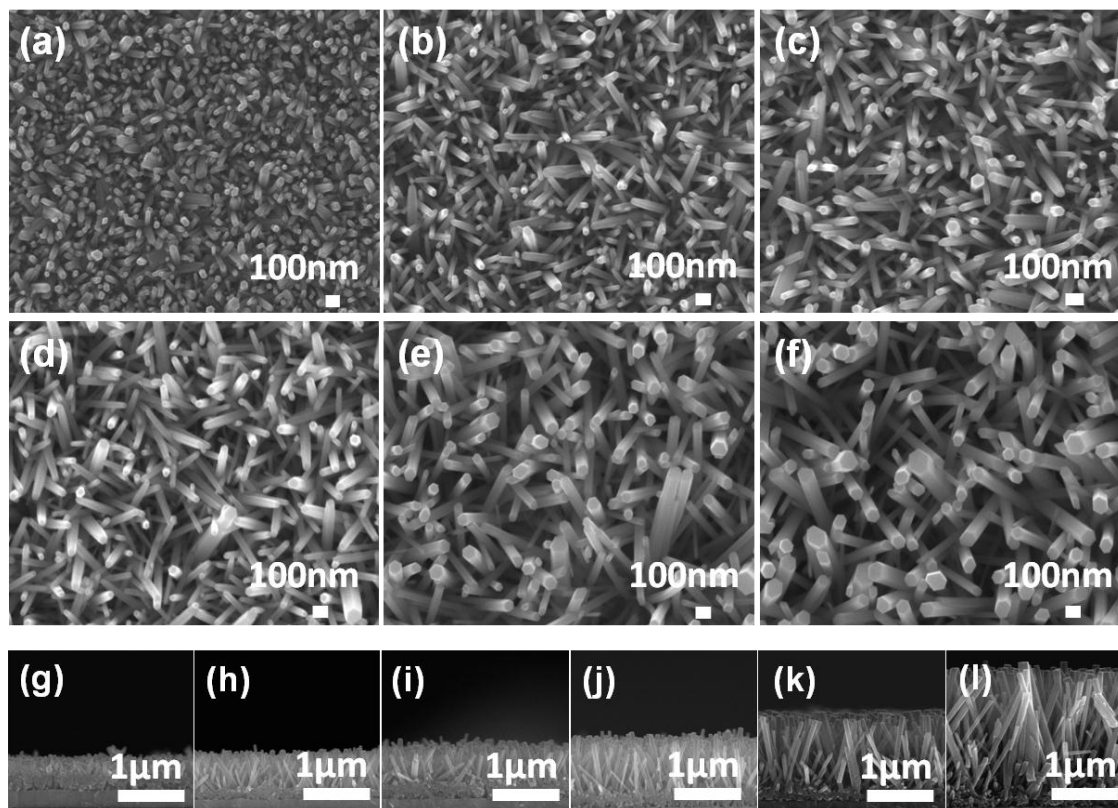
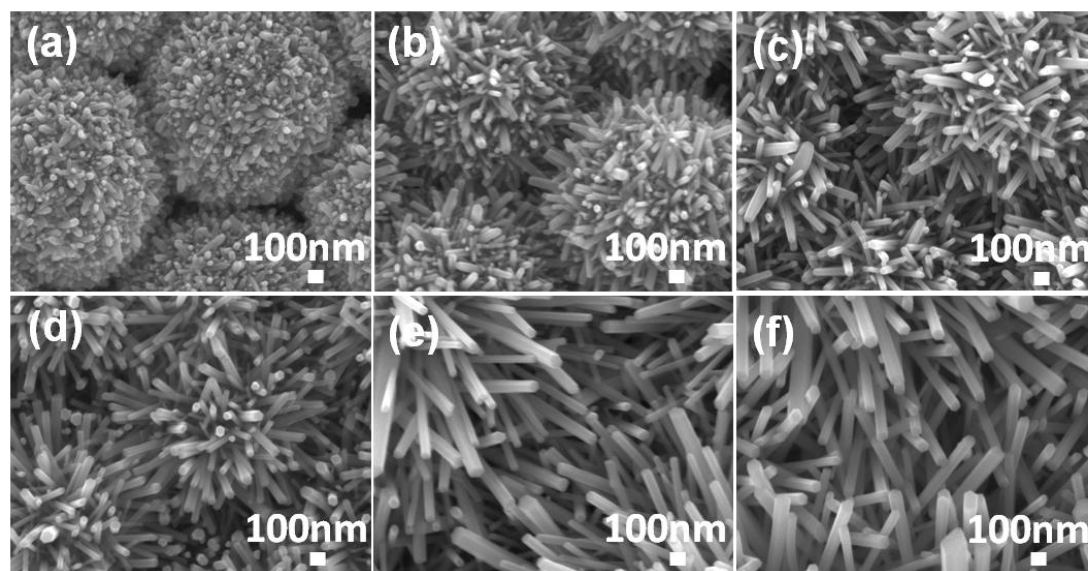


Fig. S1 Vertically aligned ZnO-NAs. (a–f) Planar views with various growth times (1, 2, 3, 4, 6, and 12 h). (g–l) Cross-sectional views.



5 Fig. S2 ZnO-UL structures. (a–f) Planar views with various growth times (1, 2, 3, 4, 6, and 12 h).

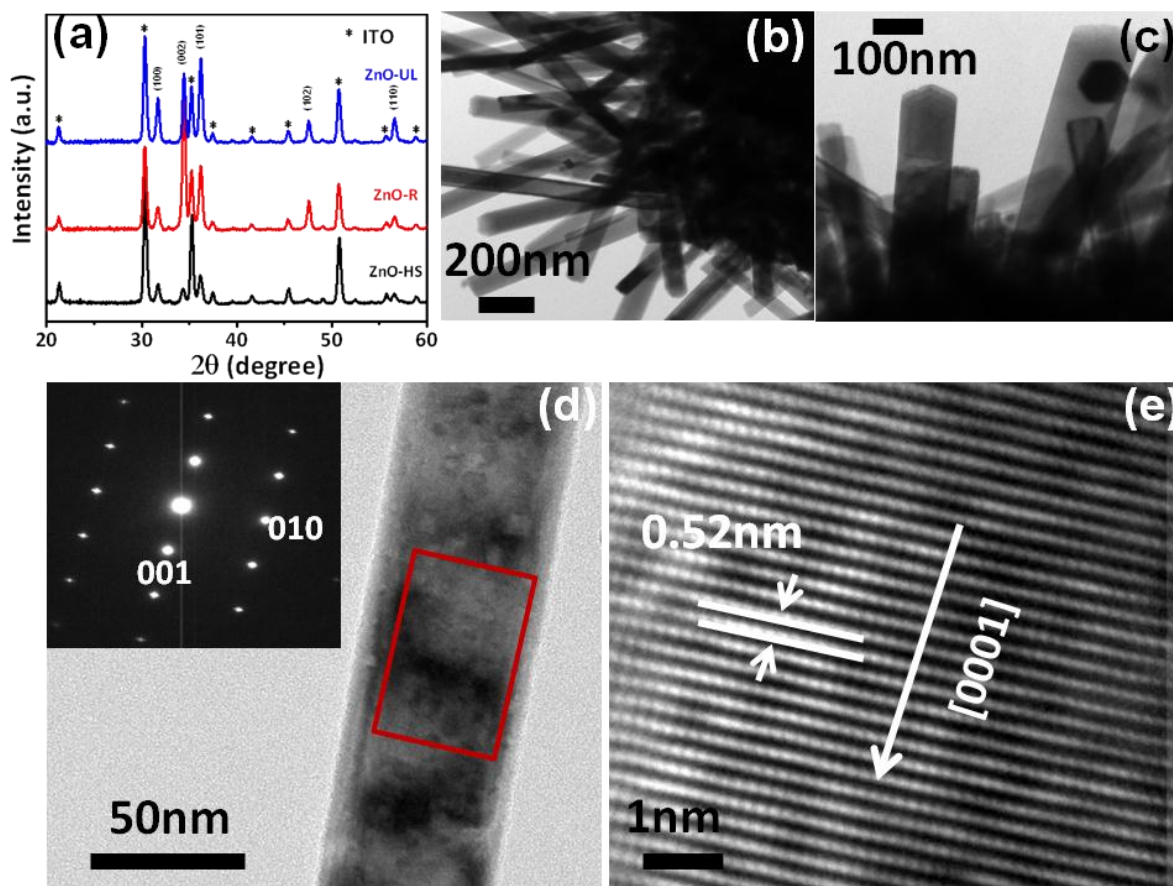
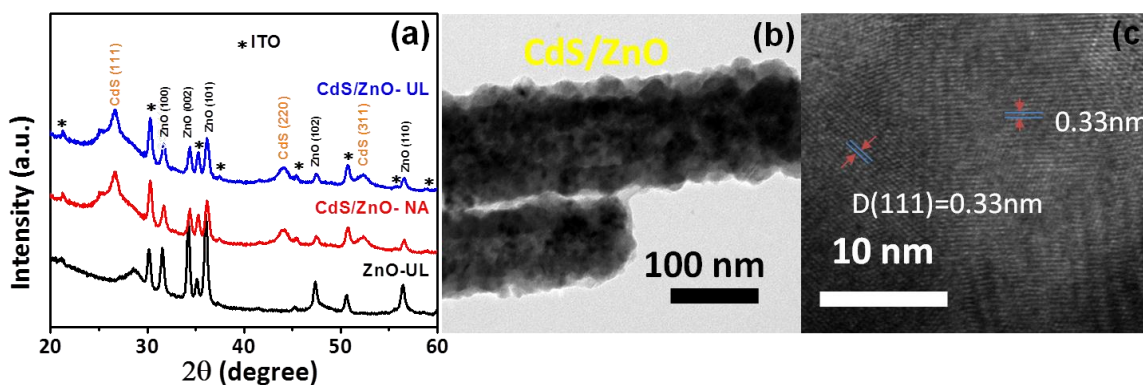


Fig. S3 (a) XRD pattern of ZnO-HA, ZnO-Nas, and ZnO-UL (with 4 h growth time), (b, c, d, and e) TEM and HRTEM images of ZnO-UL (4 h). Inset in (d) shows the selected area of the diffraction pattern.



5 Fig. S4 (a) XRD patterns of the three structures, ZnO-UL, CdS/ZnO-NA, and CdS/ZnO-UL, with rods grown for 4 h and with 30 min of dipping in CdS. The peaks at (100), (002), (101), (102), and (110) have a wurtzite ZnO structure with hexagonal phases. The peaks at (111), (220), and (311) have cubic phases of CdS coexisting with hexagonal-phased ZnO in the XRD patterns. This finding indicates that the sample is composed of CdS and ZnO, and the broadening of the CdS peaks demonstrates that CdS grown on the surface of ZnO consists of nanosized particles. (b) The low-magnification TEM image of CdS/ZnO-UL shows the 9 nm CdS nanoparticles uniformly coating the ZnO nanorods. (c) The high-resolution TEM images of the CdS regions with lattice spacing of 0.33 nm correspond to the (111) planes with cubic phase.

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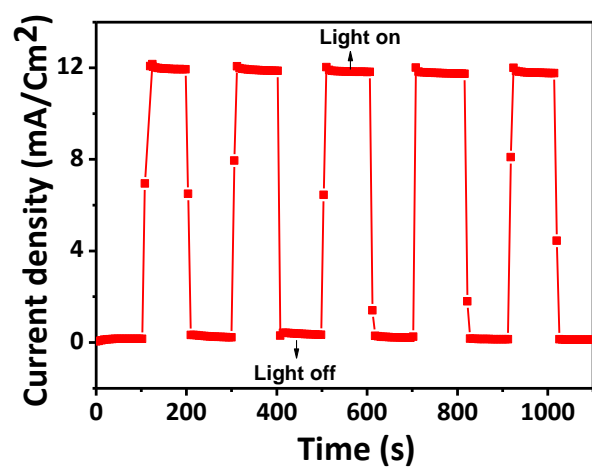


Fig. S5 The photocurrent density measured under cyclic light on-and-off at 0 V (vs. SEC) with time for the CdS/ZnO-UL electrode.