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## **Supplementary Information**

**Figure S1.** (A) SEM images of CdS/TNRs/TNTs prepared by hydrothermal reaction for (a) 2 h, (b) 3 h, (c) 4 h, (d) 8 h and S-CBD 15 cycles. (B) J-t curve of CdS/TNRs/TNTs with different hydrothermal reaction times.





Figure S2. J-t curve of CdS/TNRs/TNTs with different S-CBD cycles.



In contrast, CdS/TNRs/TNTs prepared by hydrothermal reaction for 4 h and 15 S-

CBD cycles exhibited the highest photocurrent density.

**Figure S3.** (A) SEM images of CdS/TNRs prepared by hydrothermal reaction for 4 h and S-CBD 15 cycles. (B) J-t curve of CdS/TNTs, CdS/TNRs and CdS/TNRs/TNTs.



