Supplemental Information Section

Quasi-Core-Shell TiO_2/WO_3 and WO_3/TiO_2 Nanorod Arrays Fabricated by Glancing Angle Deposition for Solar Water Splitting

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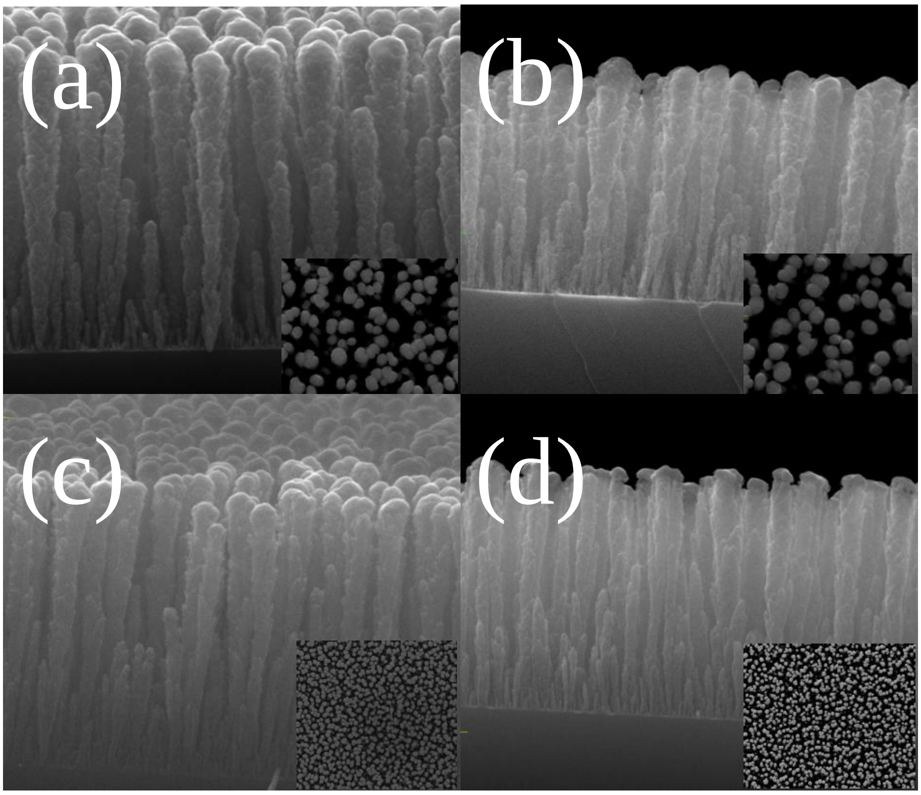

Figure S.1: Cross-sectional SEM images of a WO_3-core/TiO_2-shell nanorod array before annealing (a), and after annealing at 500^{o}C (b), and the TiO_2-core/WO_3-shell nanorod array before annealing (c), and after annealing at 500^{o}C (d). Insets in each figure show top-view images of the nanorod arrays.

SEM images were taken of each core-shell sample (WO_3-core/TiO_2-shell and TiO_2-core/WO_3-shell) before and after annealing to see if there were any morphological changes. From these images, it appears that the nanorods keep their same overall shape and size after annealing, and appear to become slightly thinner. In general, the post-deposition annealing seemed to not have a significant effect on the nanorod morphologies.

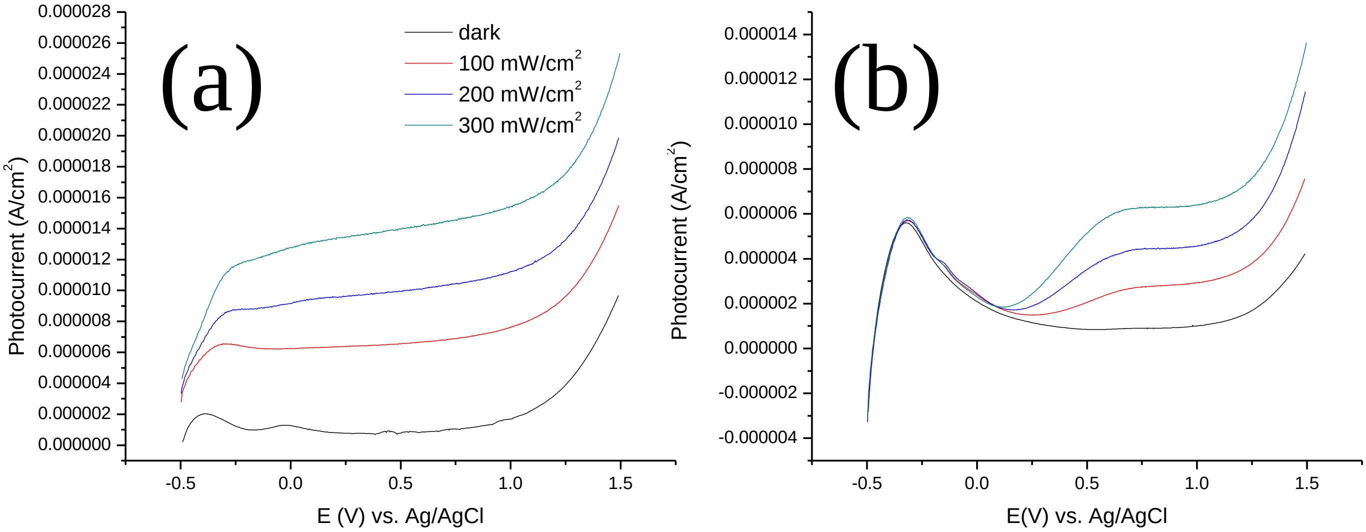

Figure S.2: The linear sweep voltammograms of a pure TiO_2 nanorod array (a), and a pure WO_3 nanorod array (b).

We have reported earlier on the PEC properties of pure TiO_2 nanorods, and different WO_3 nanostructures. For clarity, we have included above the I-V curves for pure TiO_2 (S.2 (a)) and WO_3 nanorods (S.2 (b)), respectively, and will introduce them into the supplementary information section. From both of these graphs, we can see that the individual nanorod structures show less photocurrent generation under 100mW/cm^2 illumination (TiO_2 max = 6μA, WO_3 max = 3μA) than their core-shell counterparts (TiO_2/WO_3 max = 30~35μA, WO_3/TiO_2 max = 25μA). Adding these additional graphs and data will strengthen the case for the enhancement via core-shell morphology.