Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics

Supporting Information

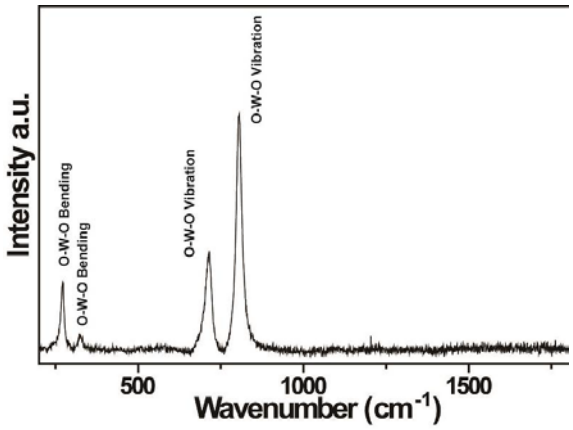

Figure S1. Raman spectrum of pristine WO_3 nanoplates.

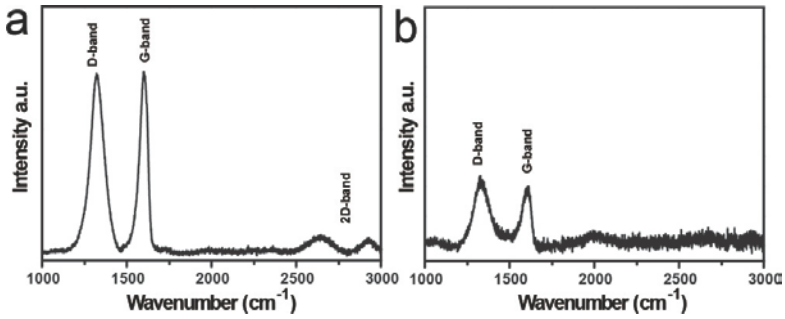

Figure S2. Raman Spectra of (a) RGO on composite and (b) free standing RGO in solution.

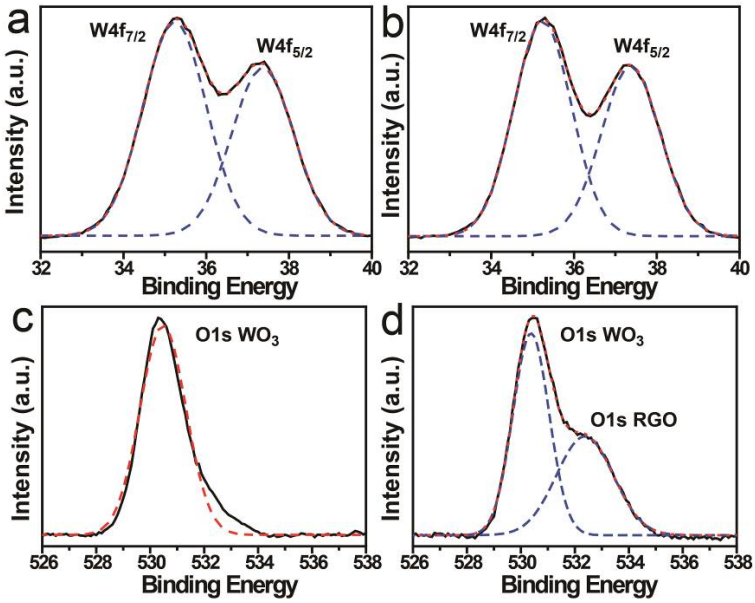

Figure S3. (a) Normalized W 4f XPS spectra of WO_3 nanoplates and (b) WO_3/RGO nanocomposites. The dashed lines correspond to the de-convoluted W $4f_{7/2}$ and W $4f_{5/2}$ peaks. (c) Normalized O 1s XPS spectra of WO_3 nanoplates and (d) WO_3/RGO nanocomposites. The O 1s of pristine WO_3 shows only a single peak centered at 530.4 eV. The O 1s XPS of WO_3/RGO composite was de-convoluted into two peaks centered at 530.4 and 532.4 eV (blue dash line), which can be assigned to O 1s in WO_3 and RGO, respectively.

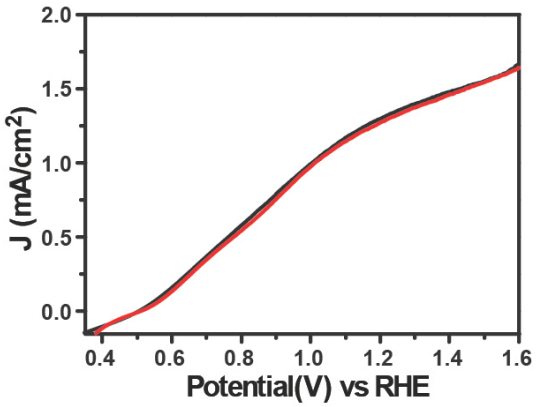

Figure S4. Photocurrent characterization of pristine WO_3 (black), and WO_3 after photo reduction in 1:1 water/ethanol solution for 2 h without GO (red).

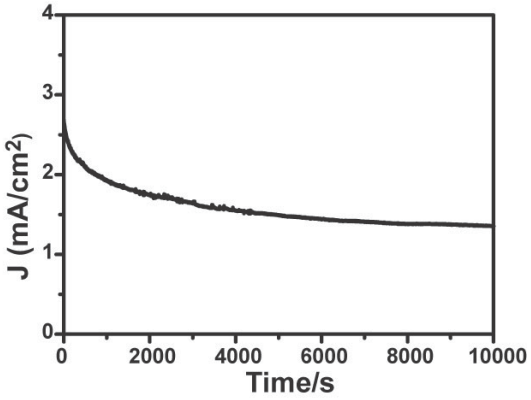

Figure S5. Time-dependent photocurrent density of WO_3/RGO photoanode under a continuous simulated sunlight illumination at 1.23 V vs. RHE.

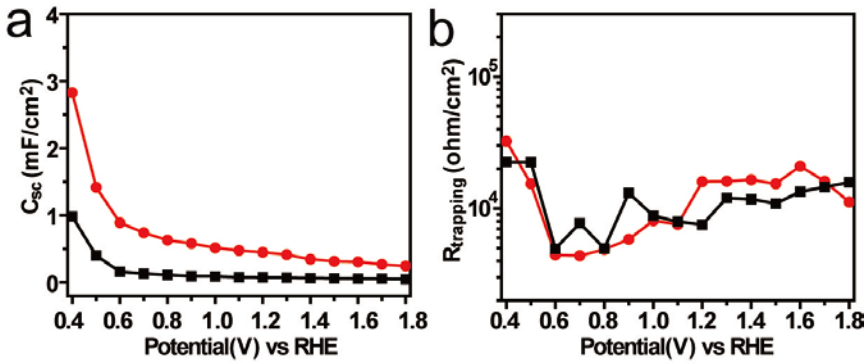

Figure S6. (a) The space charge capacity (C_{sc}) and (b) the resistance of trapped state ($R_{trapping}$) of WO_3 nanoplates (black) and WO_3/RGO nanocomposites (red), obtained from the fitting of EIS data in Figure 4a.