

# Electronic Supporting Information

## Novel TiO<sub>2</sub>/Sb<sub>2</sub>S<sub>3</sub> Heterojunction with Whole Visible-light Response for Photoelectrochemical Water Splitting Reactions

Yung-Tao Song,<sup>1†</sup> Lu-Yin Lin<sup>1†\*</sup>, Yu-Shiang Chen,<sup>1</sup> Hong-Qin Chen,<sup>1</sup> Zong-De Ni,<sup>1</sup>

Chao-Chi Tu,<sup>1</sup> and Sheng-Sian Yang<sup>1</sup>

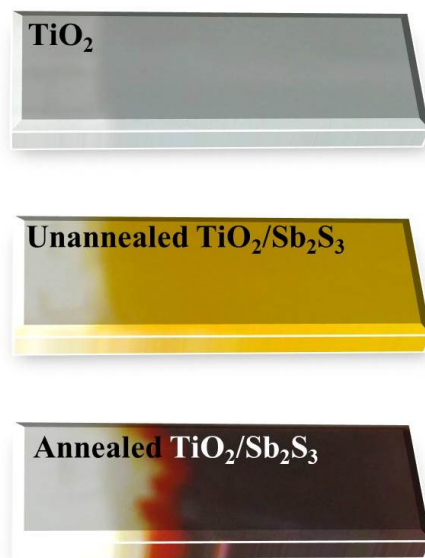
<sup>1</sup>Department of Chemical Engineering and Biotechnology, National Taipei

University of Technology, 1 Sec. 3, Zhongxiao E. Rd., Taipei 10608, Taiwan

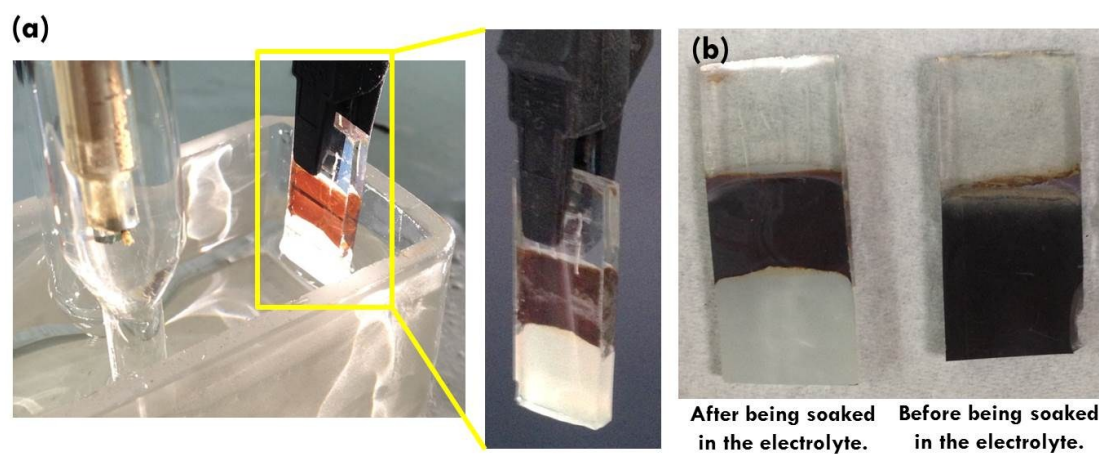
<sup>†</sup>The authors contributed equally.

\*Corresponding author: Tel: +886-2-2771-2171 ext. 2535; Fax: +886-2-2731-7117

E-mail (L. Y. Lin): [lylin@ntut.edu.tw](mailto:lylin@ntut.edu.tw)



**Figure S1** The photos for the TiO<sub>2</sub> NR array, unannealed TiO<sub>2</sub>/Sb<sub>2</sub>S<sub>3</sub>, and annealed TiO<sub>2</sub>/Sb<sub>2</sub>S<sub>3</sub> nanocomposites.



**Figure S2** (a) The annealed TiO<sub>2</sub>/Sb<sub>2</sub>S<sub>3</sub> photoanode soaked in the electrolyte containing 0.5 M Na<sub>2</sub>S and 0.5 M Na<sub>2</sub>SO<sub>4</sub> along with a reference electrode and the enlarged picture for the electrode, and (b) the annealed TiO<sub>2</sub>/Sb<sub>2</sub>S<sub>3</sub> photoanode after being soaked in the electrolyte and before soaked in the electrolyte.