

**Visible-light Self-powered Photodetector and Recoverable
Photocatalyst Fabricated from Vertically Aligned Sn₃O₄ Nanoflakes
on Carbon Paper**

Weiwei Xia^{Ta}, Haoyu Qian^{Ta}, Xianghua Zeng^{a*}, Jing Dong^a, Juan Wang^b, Qin Xu^b

^a *College of Physics Science and Technology & Institute of Optoelectronic Technology, Yangzhou University, Yangzhou 225002, P.R. China*

^b *College of Chemistry and Chemical Engineering, Yangzhou University, Yangzhou 225002, P.R. China*

Supporting Information

A. High resolution SEM images of 3-D hierarchal Sn_3O_4 structures

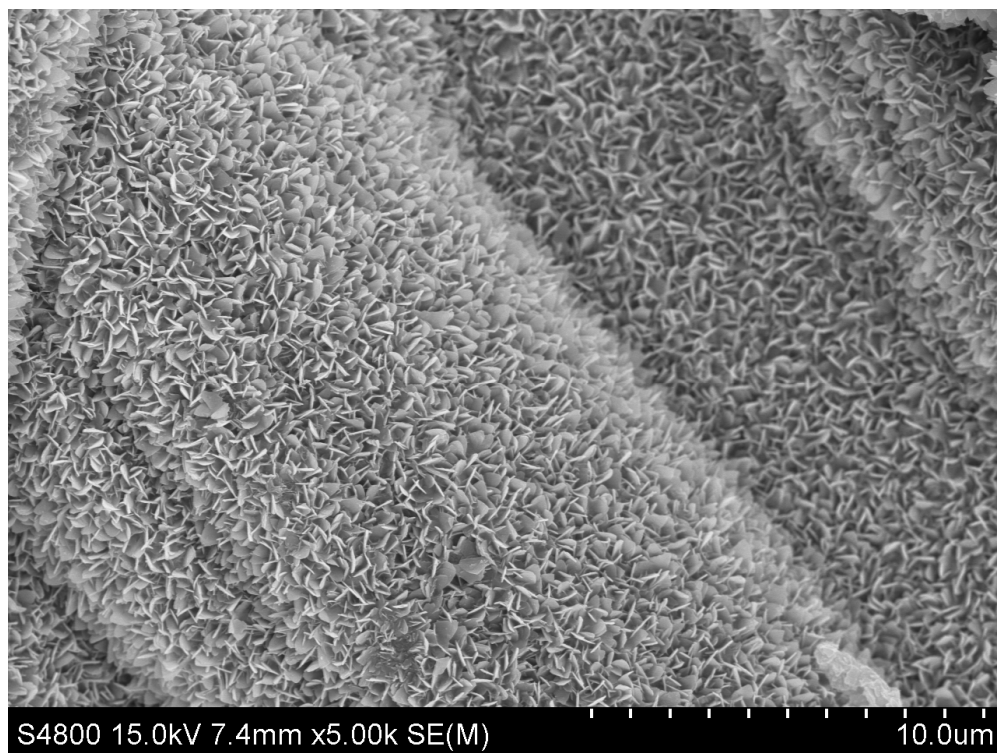


Figure S1 SEM images 3-D hierarchal Sn_3O_4 structures.

B. SEM image and XRD pattern of carbon fiber paper

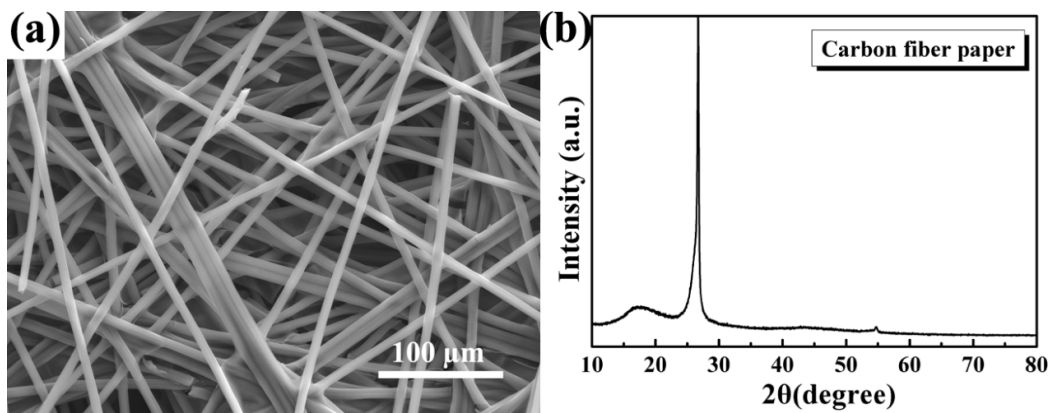


Figure S2 (a) SEM image of carbon fiber paper; (b) XRD pattern of carbon fiber paper.

C. Photocurrent responses

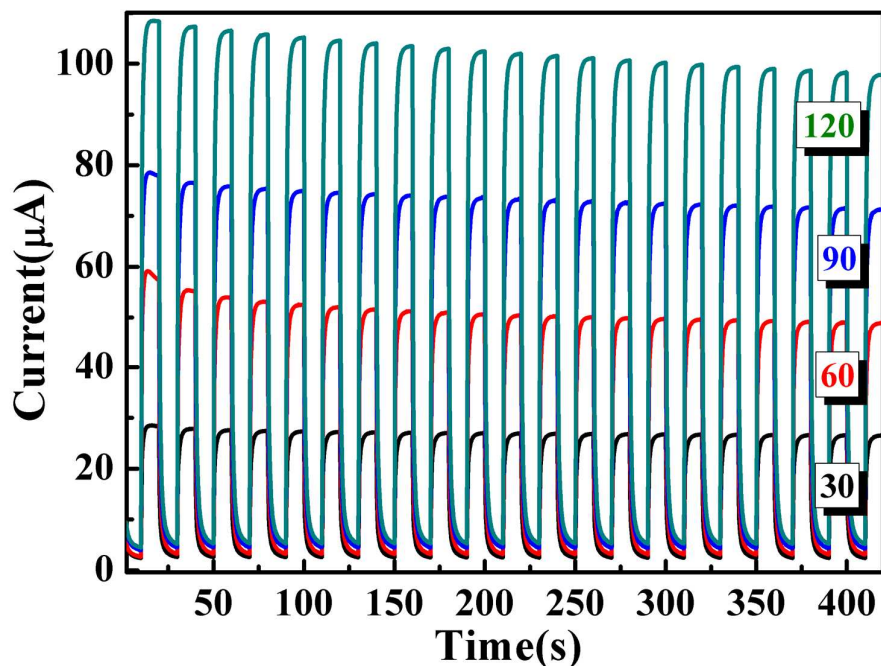


Figure S3. Photocurrent response under on/off of 10 s at 0.0 V vs. Ag/AgCl for incident intensity equal to 30, 60, 90 and 120 mW/cm² with 20 cycle runs.

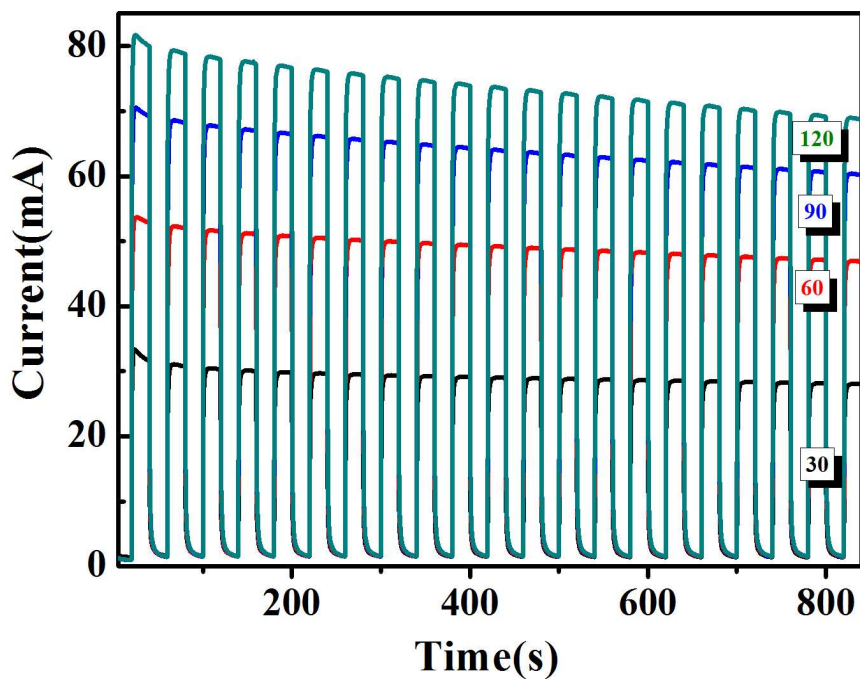


Figure S4. Photocurrent response under on/off of 20 s at 0.0 V vs. Ag/AgCl for incident intensity equal to 30, 60, 90 and 120 mW/cm² with 20 cycle runs.

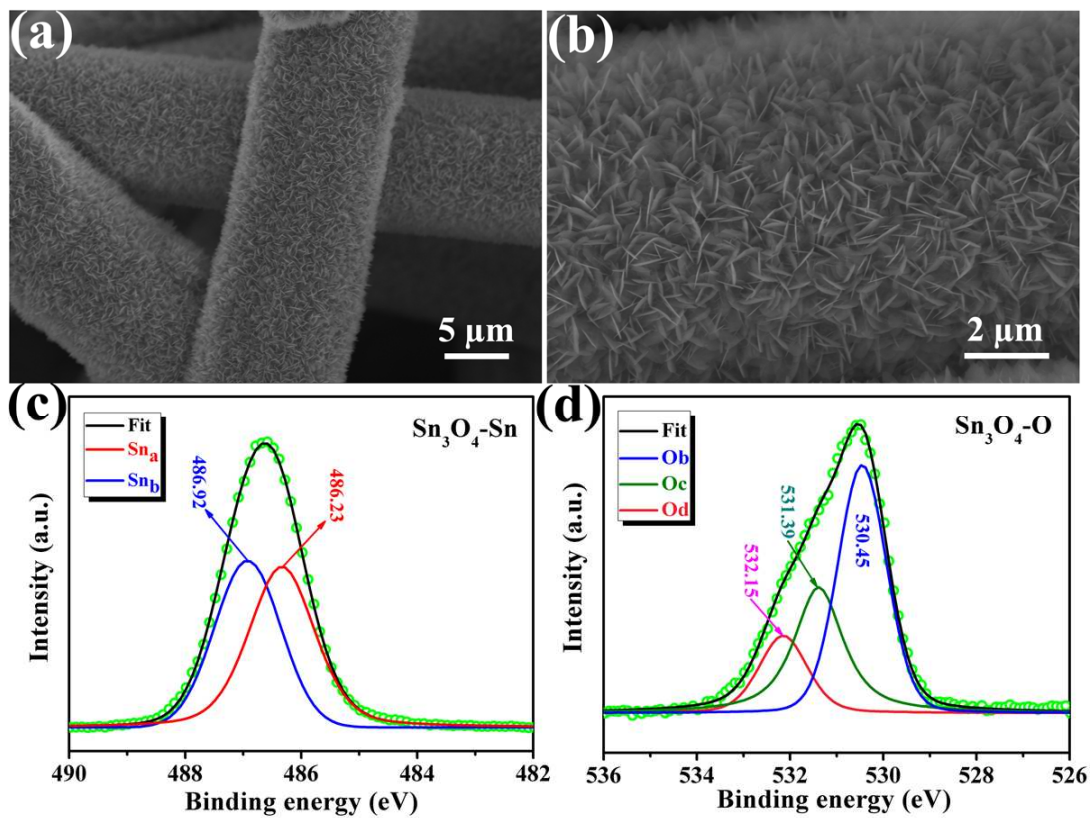


Figure S5 (a) and (b) low-magnification SEM and magnified SEM images; (c) High-resolution Sn 3d spectra; (e) High-resolution O 1s spectra for Sn_3O_4 microstructures after PEC reaction.