

Electronic Supplementary Information

Oxygen Vacancy Regulation on Tungsten Oxides with Specific Exposed Facets for Enhanced Visible-light- driven Photocatalytic Oxidation

Jie Meng, Qingyun Lin, Tao Chen, Xiao Wei*, Jixue Li, Ze Zhang*

*Center of Electron Microscopy, State Key Laboratory of Silicon Materials, and
School of Materials Science and Engineering, Zhejiang University, Hangzhou,
310027, PR China*

*Corresponding author. Tel. +86 571 87952797; fax: +86 571 87952797;

E-mail address: mseweixiao@zju.edu.cn (X. Wei); zezhang@zju.edu.cn (Z. Zhang).

Tab. 1 Crystal parameters of as-prepared samples according to XRD analysis.

	a /Å	b/Å	c/Å	α/°	β/°	γ/°
Standard	7.297	7.539	7.688	90	90.91	90
WO₃-N	7.3070	7.5426	7.6917	90	90.75	90
WO₃-F	7.3021	7.5373	7.6914	90	90.65	90
WO₃-A	7.3061	7.5232	7.6917	90	90.84	90
WO₃-W	7.3066	7.5422	7.6916	90	90.55	90

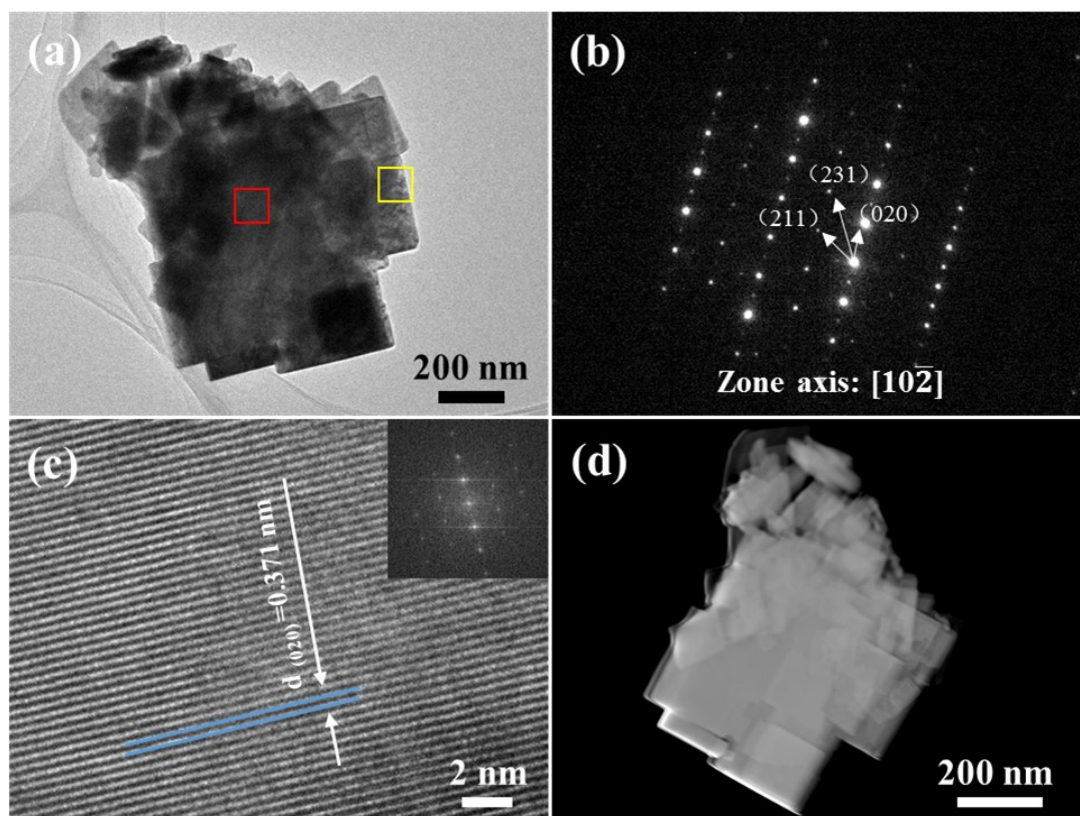


Fig. S1 (a) TEM images, (b) corresponding selected area electron diffraction (SAED) pattern, (c) HRTEM, and (d) STEM images of $\text{WO}_3\text{-F}$ (Red square for SEAD and yellow square for HRTEM).

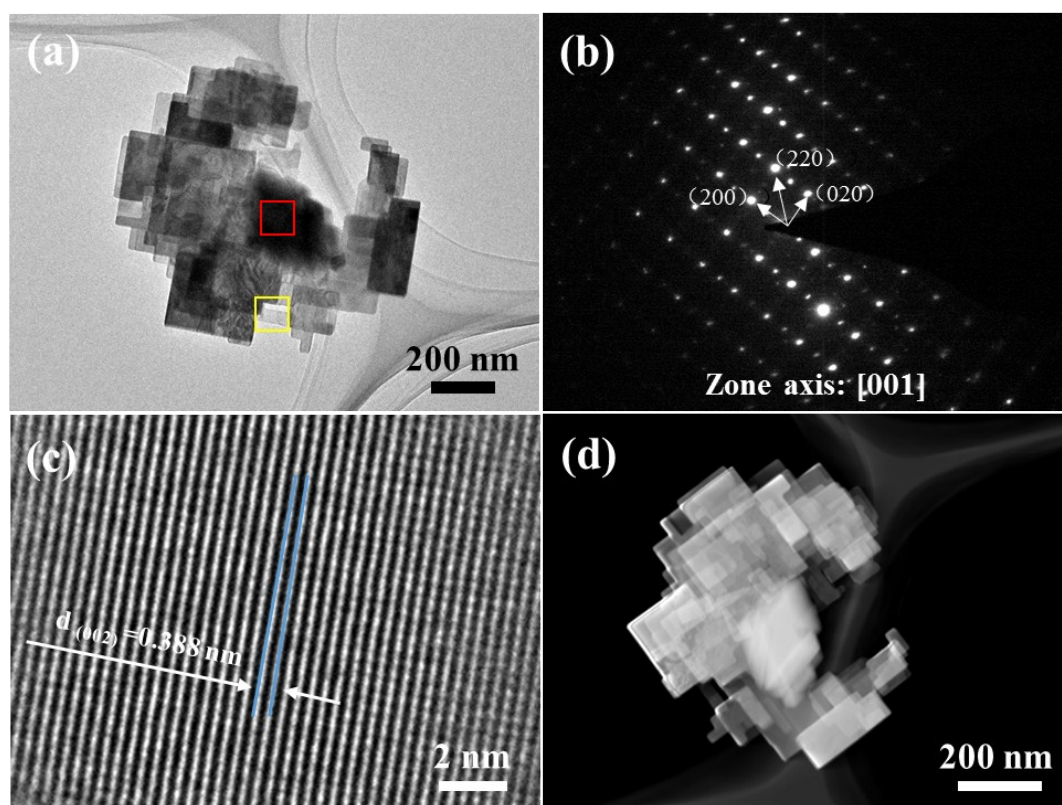


Fig. S2 (a) TEM images, (b) corresponding selected area electron diffraction (SAED) pattern, (c) HRTEM, and (d) STEM images of WO₃-A (Red square for SEAD and yellow square for HRTEM).

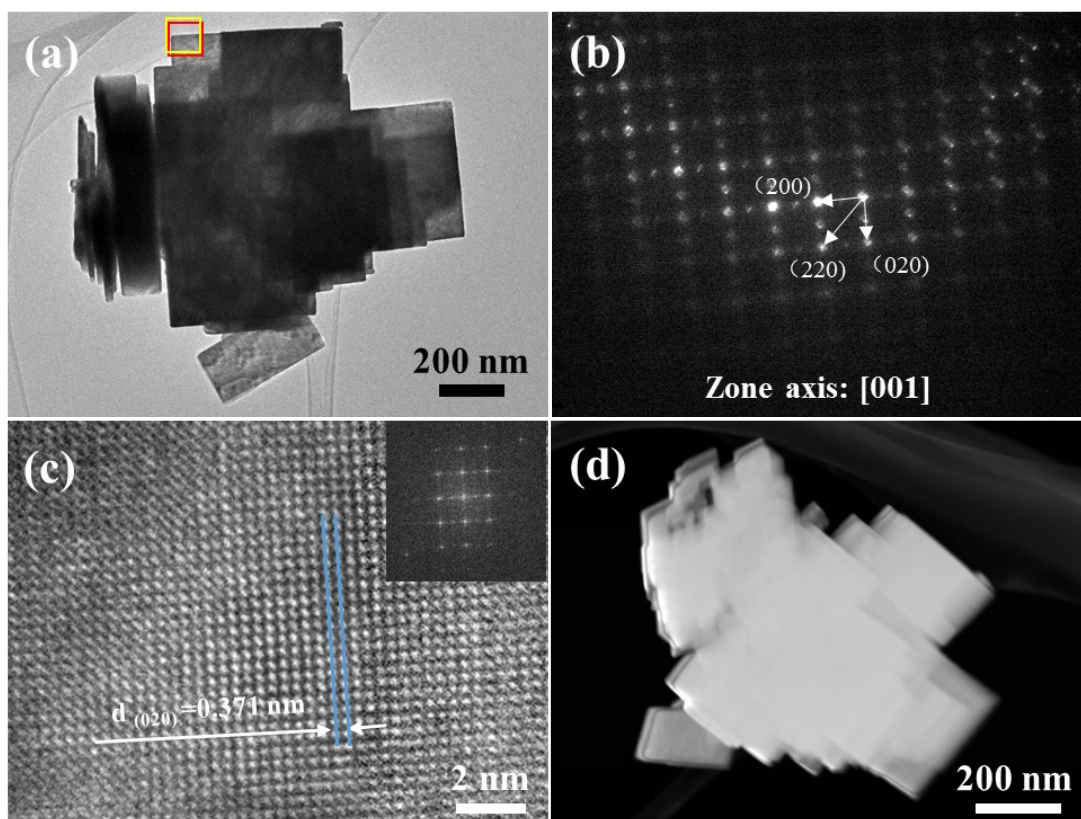


Fig. S3 (a) TEM images, (b) corresponding selected area electron diffraction (SAED) pattern, (c) HRTEM, and (d) STEM images of WO₃-W (Red square for SEAD and yellow square for HRTEM).

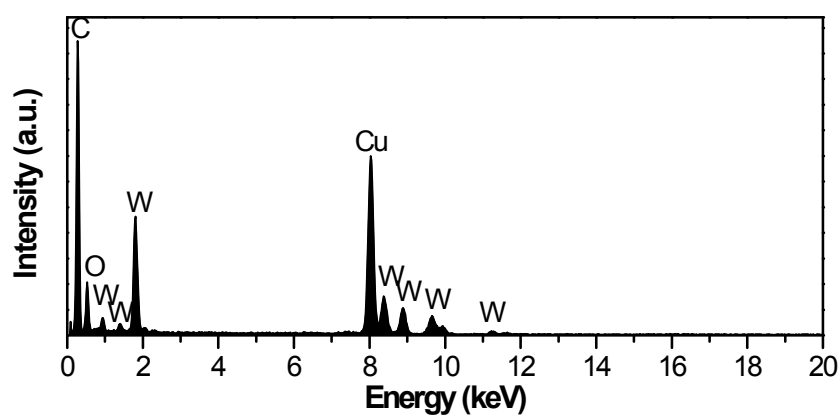


Fig. S4 EDS spectrum of WO₃-A.

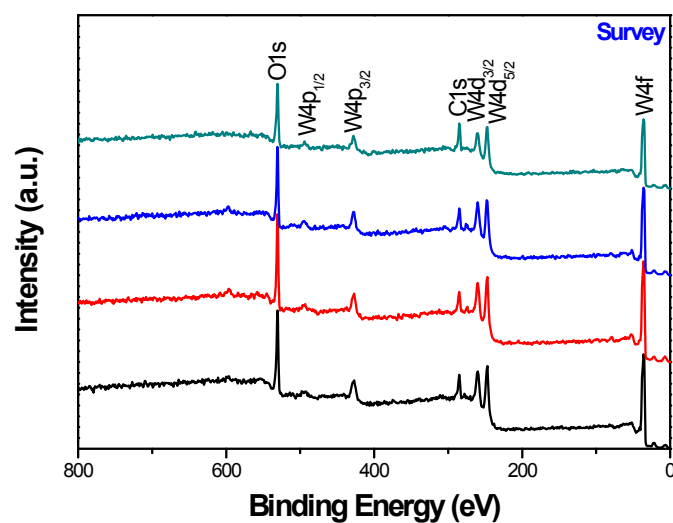


Fig. S5 XPS spectra for survey of as-prepared WO_3 samples.

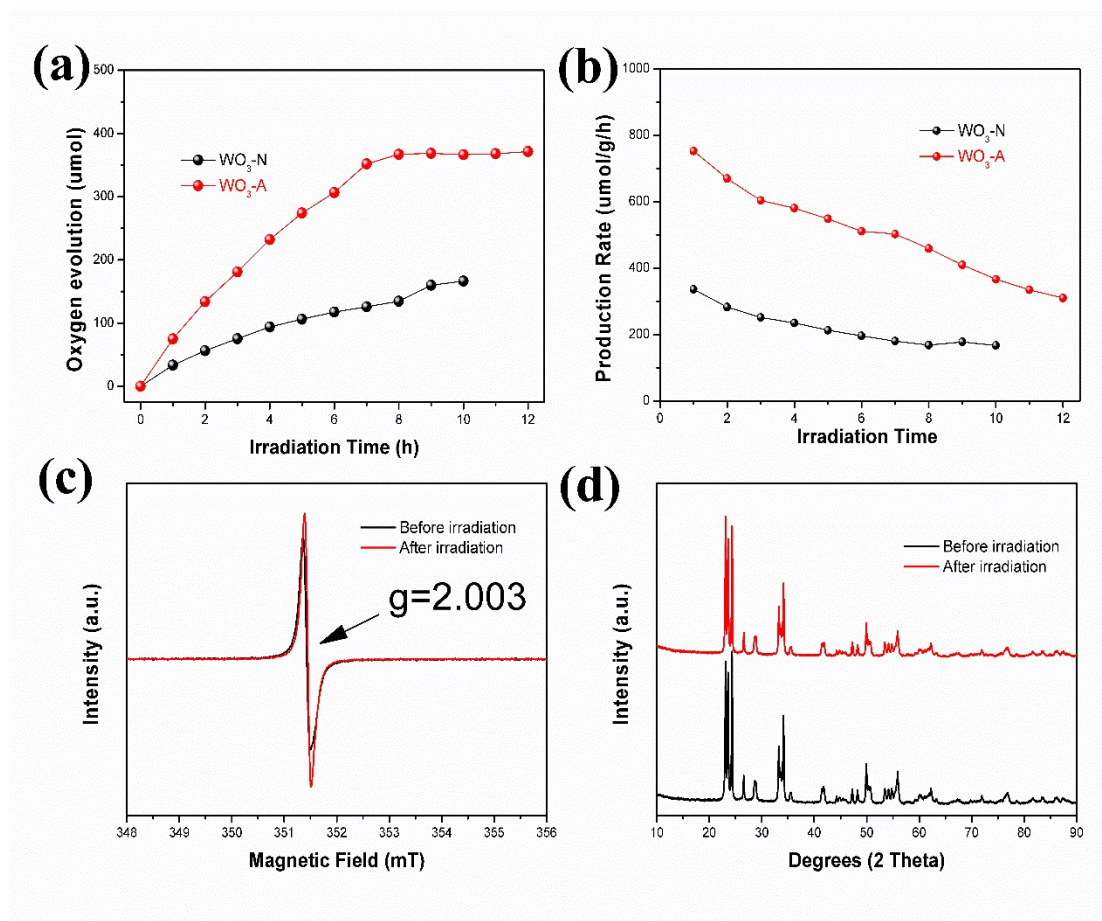


Fig. S6 (a) Photocatalytic oxygen evolution and (b) photocatalytic oxygen evolution rate after long time irradiation, Catalysts: 0.1g, AgNO_3 : 0.5g, H_2O :100 mL, $\lambda > 400$ nm; (c) EPR spectra ($g=2.003$) and XRD patterns of $\text{WO}_3\text{-A}$ before and after irradiation.

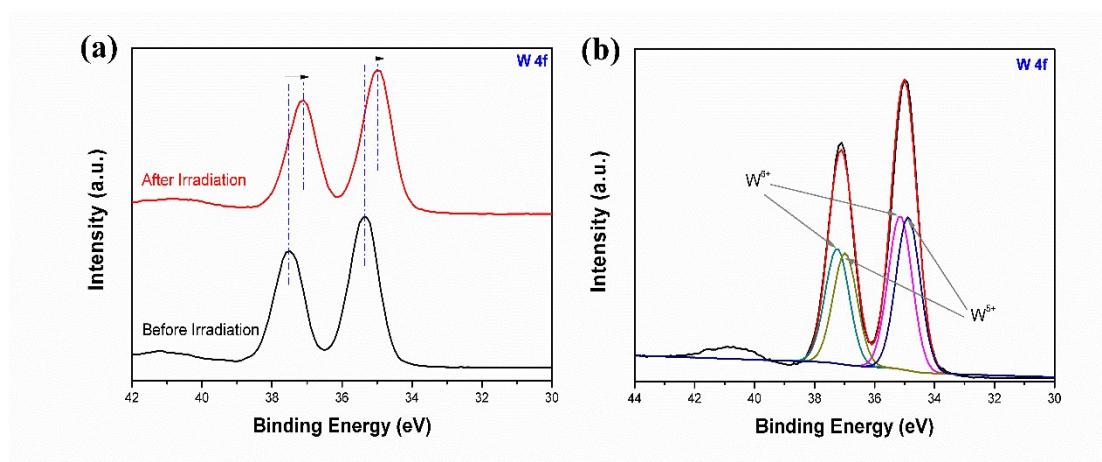


Fig. S7 (a-b) XPS W4f spectra of $\text{WO}_x\text{-A}$ before and after irradiation, (b) XPS W4f fitting spectra of $\text{WO}_x\text{-A}$ after irradiation.