

Electronic Supporting Information (ESI) for

Modulating oxygen vacancies concentration on $\text{Bi}_4\text{V}_2\text{O}_{11}$ nanorods for synergistic photo-driven plastic waste oxidation and CO_2 reduction

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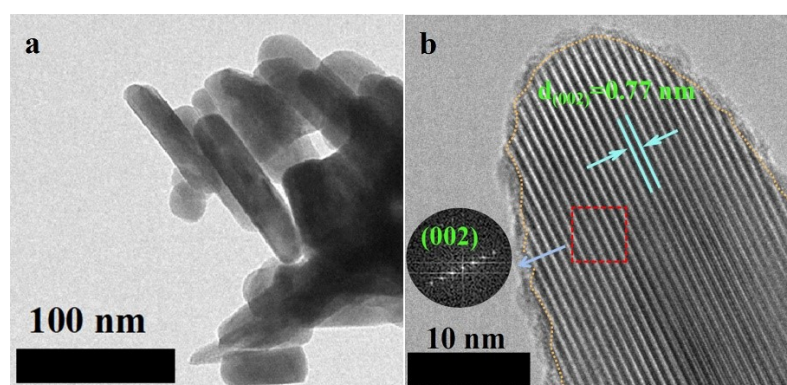


Fig.S1. TEM (a) and HRTEM (b) images of Vo-BVO-15 after photocatalytic reaction

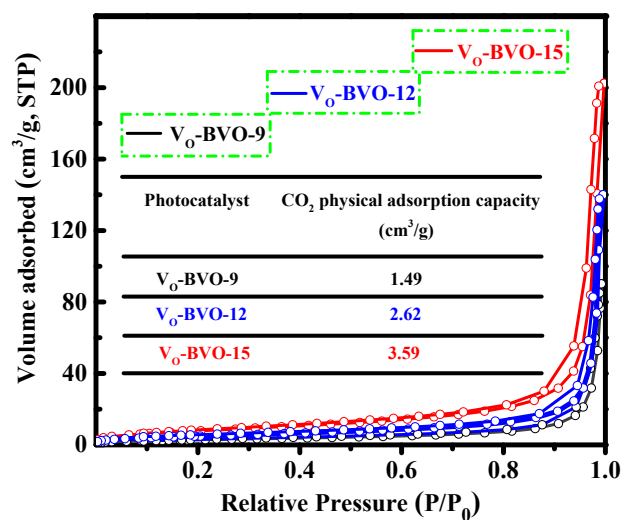


Fig. S2. N_2 adsorption-desorption isotherms of $\text{V}_0\text{-BVO-9}$, $\text{V}_0\text{-BVO-12}$ and $\text{V}_0\text{-BVO-15}$.

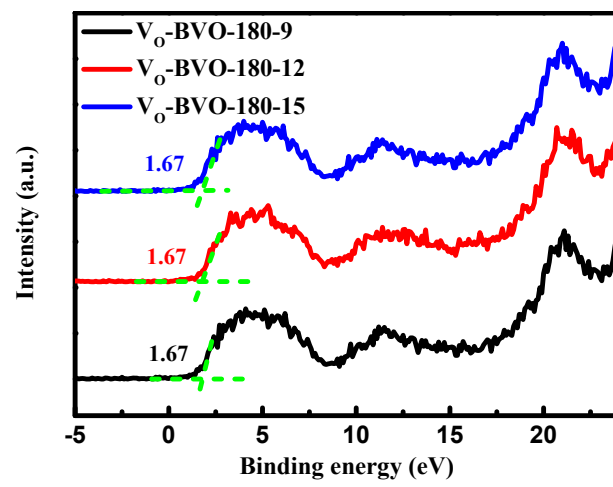


Fig. S3. XPS valence band spectra

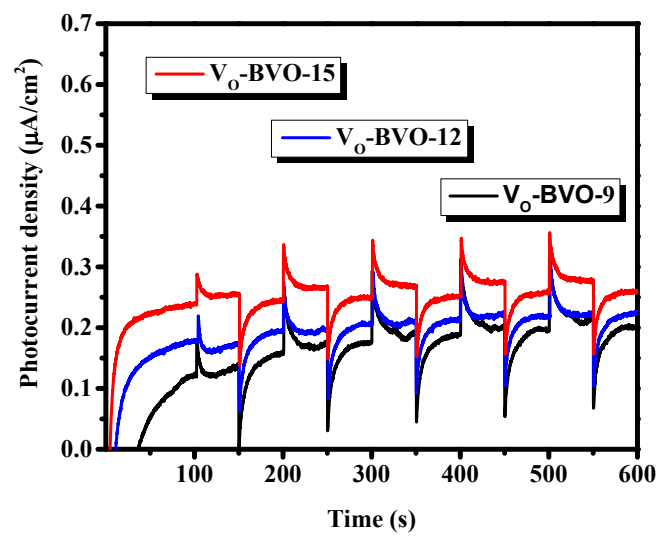


Fig. S4. Photocurrent response of V₀-BVO-9, V₀-BVO-12 and V₀-BVO-15.

Table. S1. Integral values of different adsorption modes in TPD diagram of V₀-BVO-9, V₀-BVO-12 and V₀-BVO-15 samples.

Basic sites at desorption temperature (Td) ($\mu\text{mol}\cdot\text{g}^{-1}$)				
Temperature ($^{\circ}\text{C}$)	50-150	350-525	525-630	Total
V ₀ -BVO-9	7.73	73.26	43.15	124.14
V ₀ -BVO-12	3.21	80.40	54.20	137.81
V ₀ -BVO-15	8.94	105.20	69.75	183.89

Table. S2. Time-resolved PL spectral correlation data of V₀-BVO-9, V₀-BVO-12 and V₀-BVO-15 samples.

Sample	τ_1 (ns)	τ_2 (ns)	A_1 (%)	A_2 (%)	χ^2	$\tau_{av.}$ (ns)
V ₀ -BVO-15	2.32	30.88	93.49	6.51	0.991	16.1
V ₀ -BVO-12	1.25	9.76	82.87	17.13	0.996	6.5
V ₀ -BVO-9	1.16	6.67	83.54	16.46	0.997	4.1