Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Electronic Supplementary Information (ESI)

New insights into interfacial photocharge transfer in TiO_2/C_3N_4 heterostructures: effects of facet and defect

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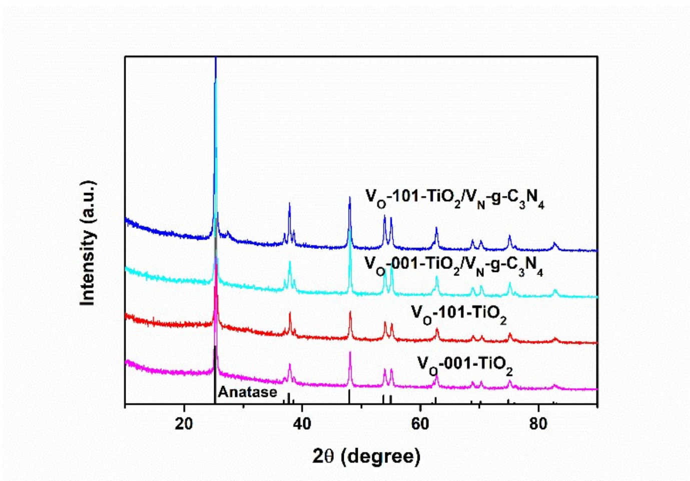

Fig. S1. XRD patterns of different types of V_O-TiO_2 and V_O-TiO_2/V_N-g-C_3N_4 heterostructures.

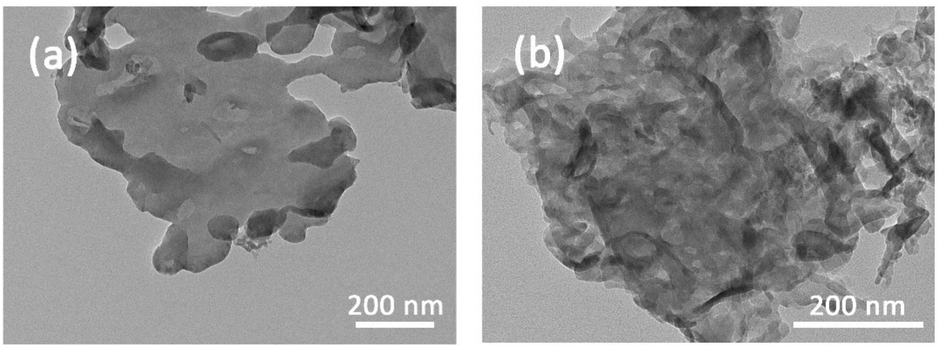

Fig. S2. TEM images of g-C_3N_4 (a) and V_N-g-C_3N_4 (b).

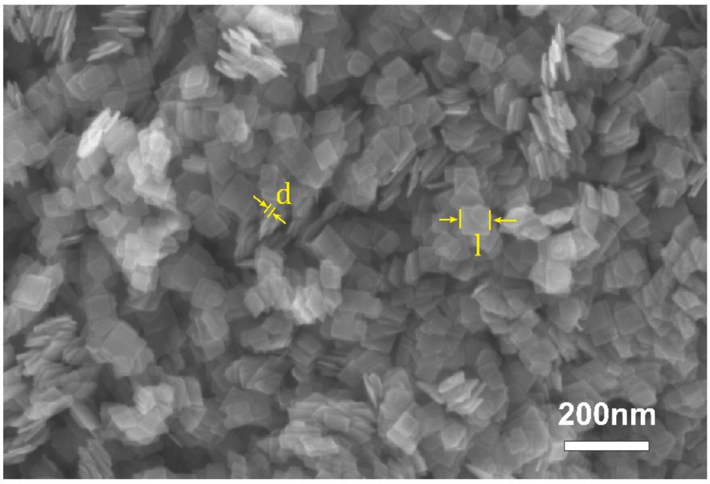

Fig. S3. SEM image of 001-TiO_2 nanosheets. The average length (l) and average thickness (d) of nanosheets are determined to be 55 and 5nm, separately.

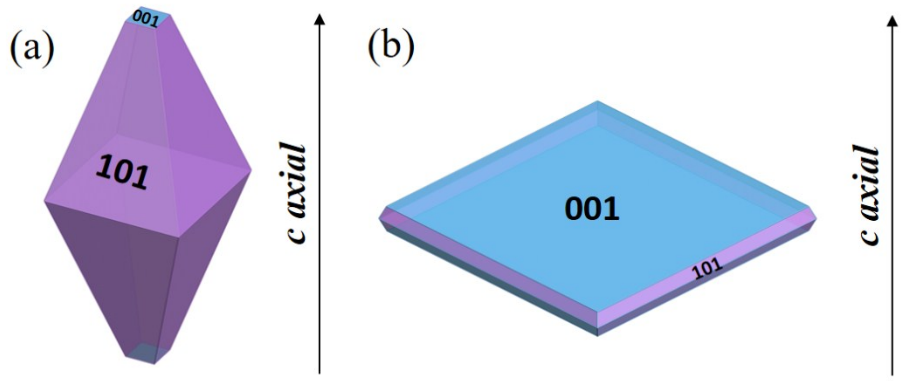

Fig. S4. Schematic illustration of 101-TiO_2 (a) and 001-TiO_2 (b).

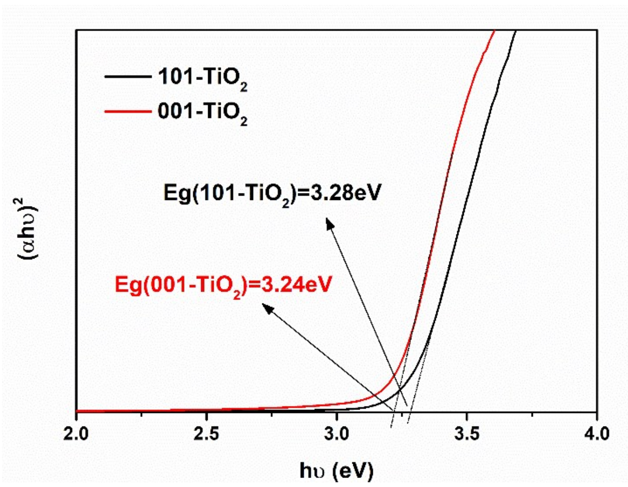

Fig. S5. Kubelka-Munk function curves plotted against photon energy for 101- and 001-faceted TiO_2.

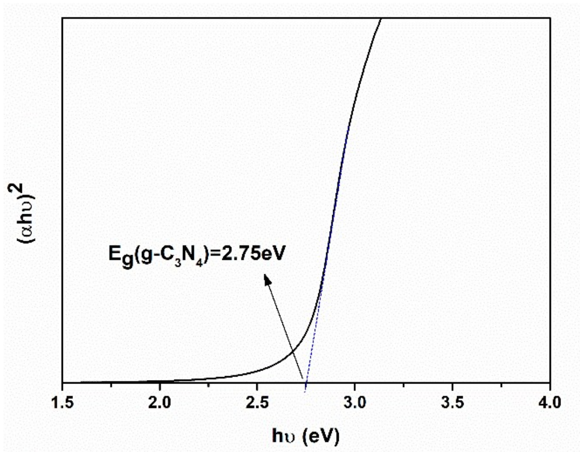

Fig. S6. Kubelka-Munk function curve plotted against photon energy for g-C_3N_4.

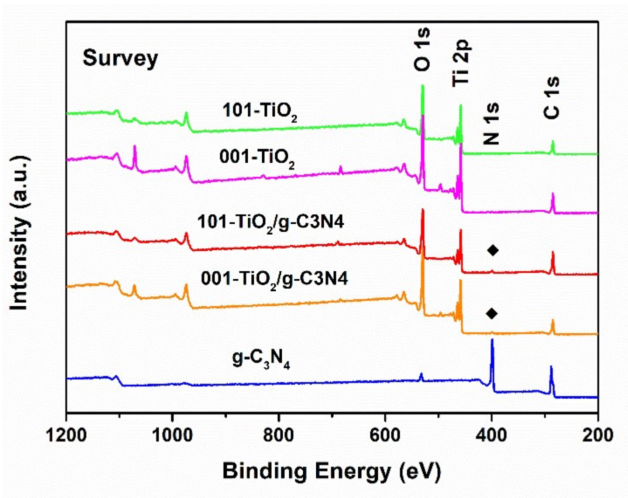

Fig S7. XPS survey spectra of g-C_3N_4, 101-TiO_2, 001-TiO_2, 101-TiO_2/g-C_3N_4 and 001-TiO_2/g-C_3N_4.

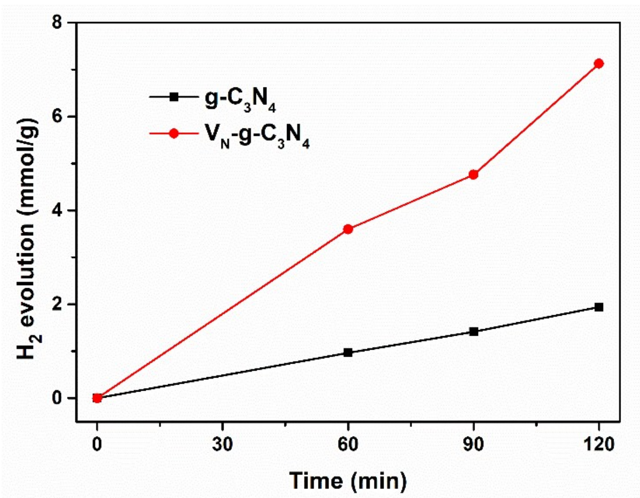

Fig. S8. Time course of photocatalytic H_2 evolution over g-C_3N_4 and V_N-g-C_3N_4.

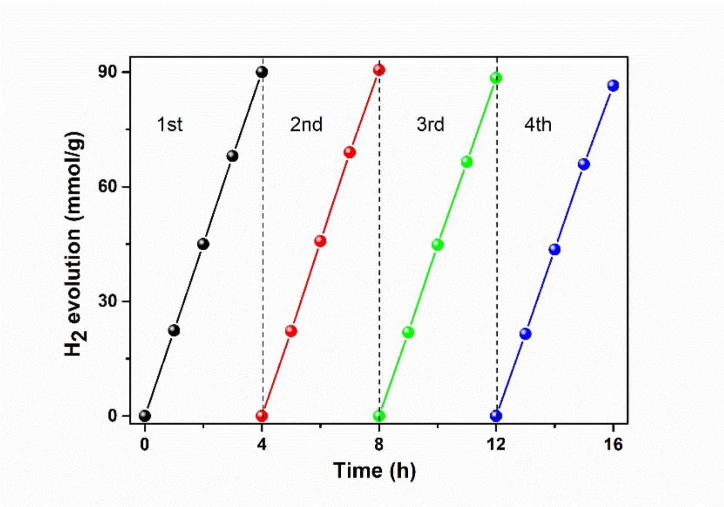

Fig. S9. The recyclability tests of the V_O-101-TiO_2/V_N-g-C_3N_4 for hydrogen evolution.

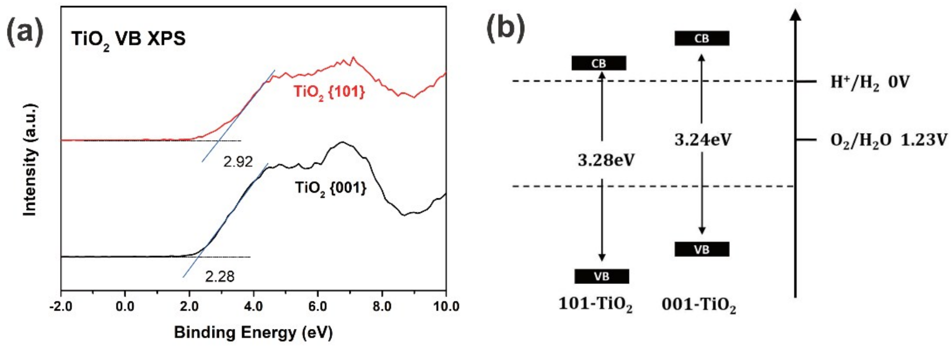

Fig. S10. (a) Valence-band (VB) XPS spectra of 101- and 001-faceted TiO_2. (b) Band positions of 101-TiO_2 and 001-TiO_2.

Table S1. Calculated facet percentage of 101-TiO_2 and 001-TiO_2

Sample	l/nm	d/nm	{001} facets %	{101} facets %
101-TiO_2	13	24	2.7	97.3
001-TiO_2	55	5	82.8	17.2

Table S2. Elemental analysis of g-C_3N_4 and V_N-g-C_3N_4

Samples	N (wt%)			C (wt%)	C/N mole ratio
	C-N-C	N-(C)$_3$	C-N-H_x		
g-C_3N_4	21.03	25.09	12.36	41.52	0.710
V_N-g-C_3N_4	33.00	15.53	8.19	43.18	0.761