Electronic Supplementary Information

Enhanced Photoelectrocatalytic performance of α-MnO_2 by Sb and N charge compensation

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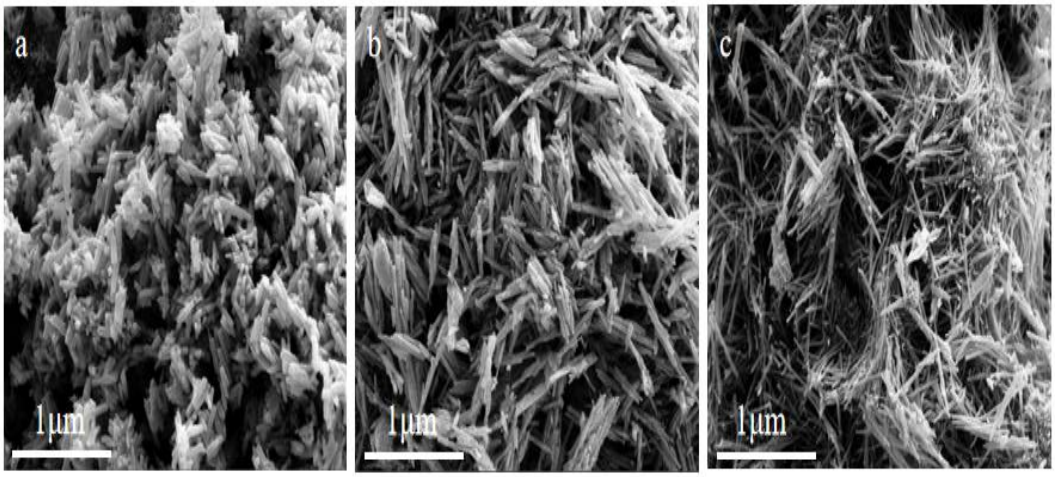

Fig. S1 The SEM images of 2% (Sb,N)-MnO_2(a), 4% (Sb,N)-MnO_2(b) and 8% (Sb,N)-MnO_2(c) nanorods

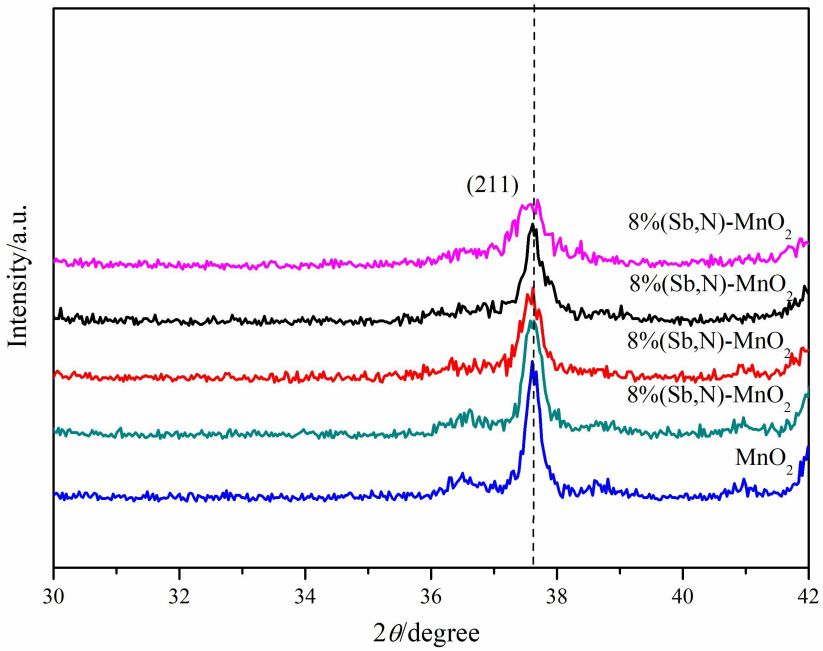

Fig. S2 The enlarged XRD patterns of pure MnO_2 and (Sb,N)-MnO_2 with different doping ratios nanorods

Table S1 Group space, lattice parameter, crystal size, BET surface area and pore volume of pure MnO_2 and (Sb,N)-MnO_2 with different doping ratios nanorods

	MnO_2	2% (Sb,N)-MnO_2	4% (Sb,N)-MnO_2	6% (Sb,N)-MnO_2	8% (Sb,N)-MnO_2
Group space	I4/m	I4/m	I4/m	I4/m	I4/m
Lattice Parameter a/Å	9.786	9.779	9.746	9.728	9.694
2θ	37.666	37.582	37.547	37.502	37.456
FWHM	0.267	0.310	0.347	0.353	0.533
Crystal size/nm	33	28	25	24	16
BET surface area/$m^2 \cdot g^{-1}$	37.098	49.286	67.609	103.642	58.984
Pore Volume /$cm^3 \cdot g^{-1}$	0.114	0.161	0.2603	0.452	0.189

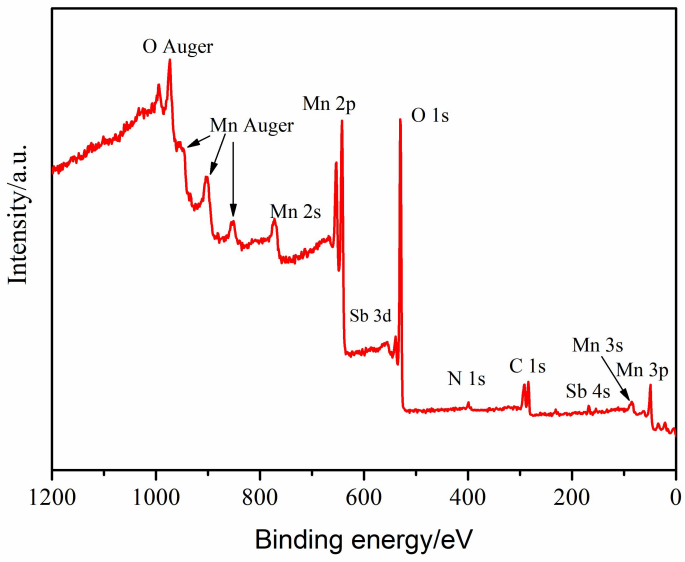

Fig. S3 XPS survey spectra of 6% (Sb,N)-MnO_2 nanorods

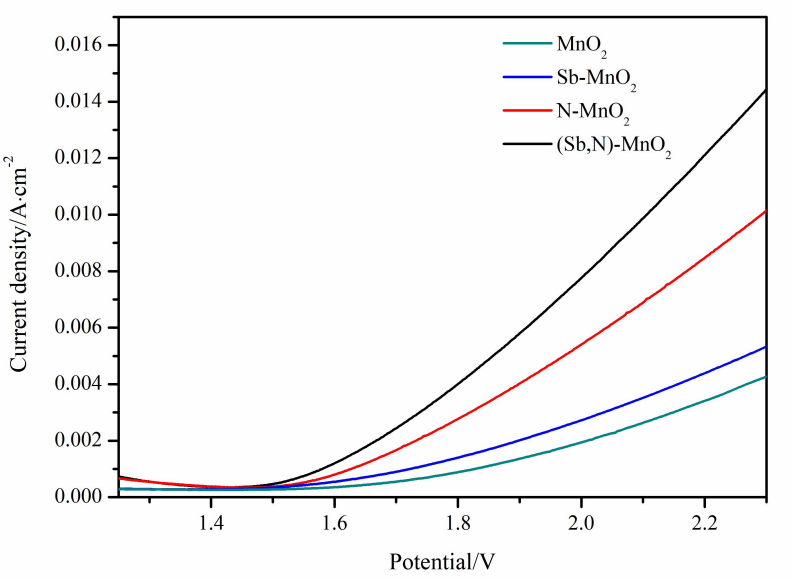

Fig. S4 LSV curves of pure MnO_2, Sb-MnO_2, N-MnO_2 and (Sb,N)-MnO_2 electrodes

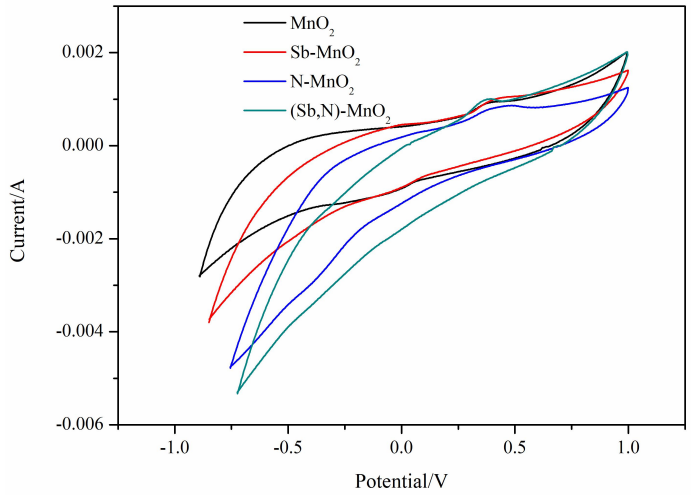

Fig. S5 CV curves of pure MnO_2, Sb-MnO_2, N-MnO_2 and (Sb,N)-MnO_2 electrodes

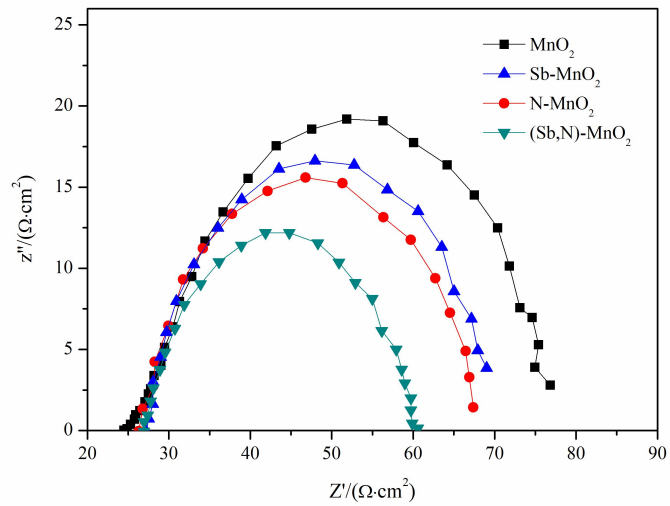

Fig. S6 EIS curves of pure MnO_2, Sb-MnO_2, N-MnO_2 and (Sb,N)-MnO_2 electrodes

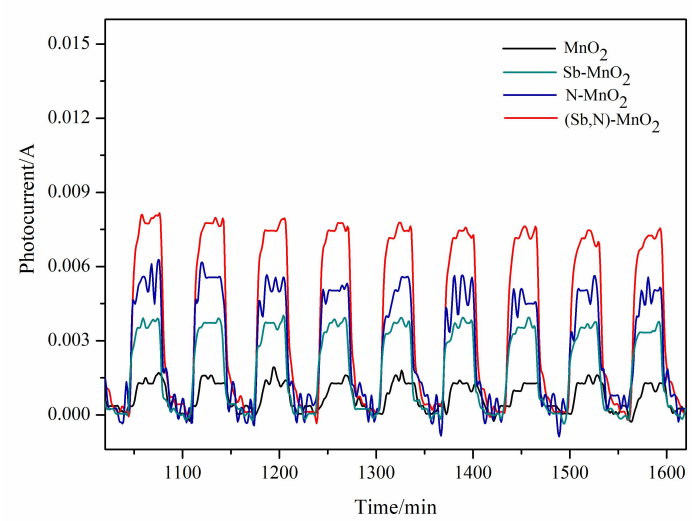

Fig. S7 Transient photocurrent response of pure MnO_2, Sb-MnO_2, N-MnO_2 and (Sb,N)-MnO_2 electrodes

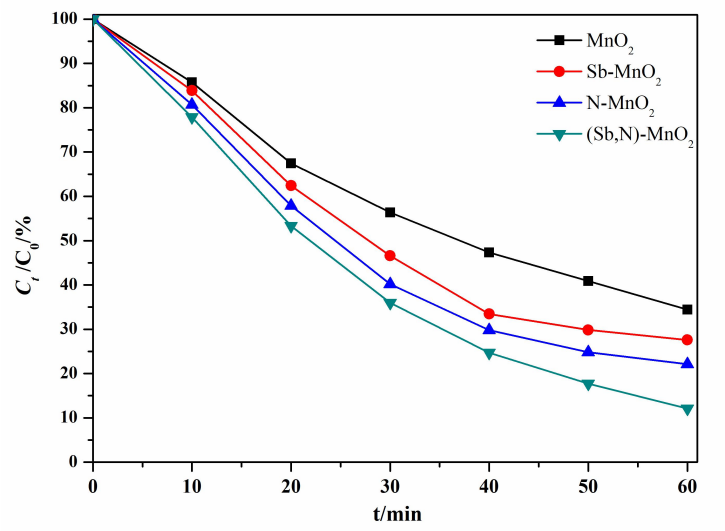

Fig. S8 Relationship curves of photocatalytic time and the MB degradation efficiency of pure MnO_2, Sb-MnO_2, N-MnO_2 and (Sb,N)-MnO_2 nanorods

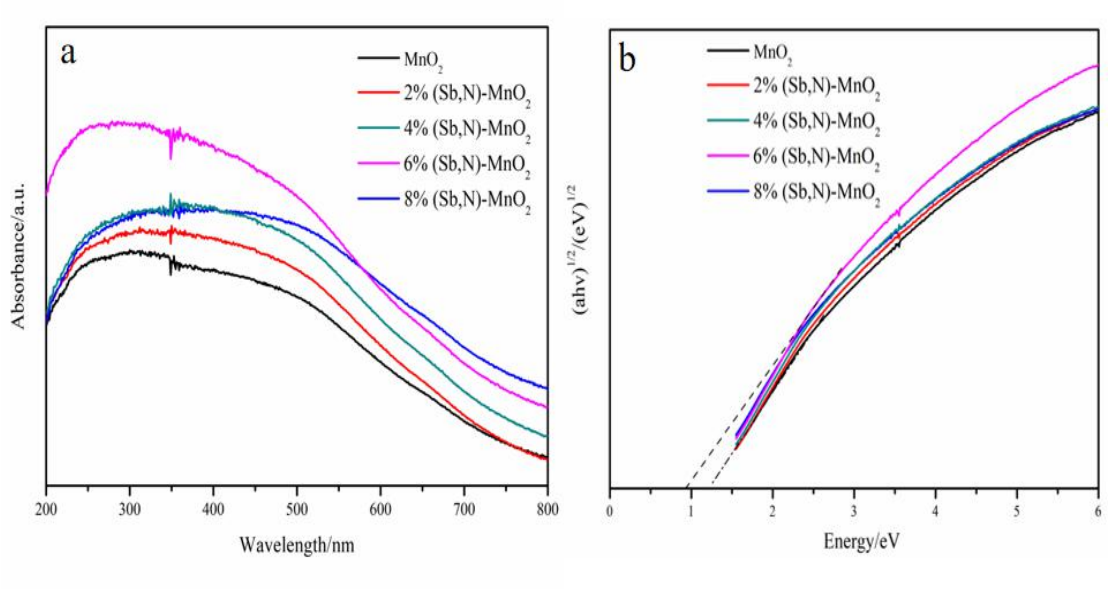

Fig. S9 UV-Vis absorbance spectra (a)and plots of $(ahv)^{1/2}$ vs photon energy (b) of different ratios of pure MnO_2 and different ratios of (Sb,N)-MnO_2