Electronic Supplementary Material (ESI) for Dalton Transactions.

Electronic Supplementary Information

Fluorine and Tin Co-Doping Synergistically Improves the Photoelectrochemical Water Oxidation Performance of TiO_2 Nanorod Arrays by Enhancing the Ultraviolet Light Conversion Efficiency

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Fig. S1 Optical photograph of the hydrothermally prepared samples, from left to right: undoped TiO_2, Sn doped TiO_2, F doped TiO_2 and F/Sn co-doped TiO_2.

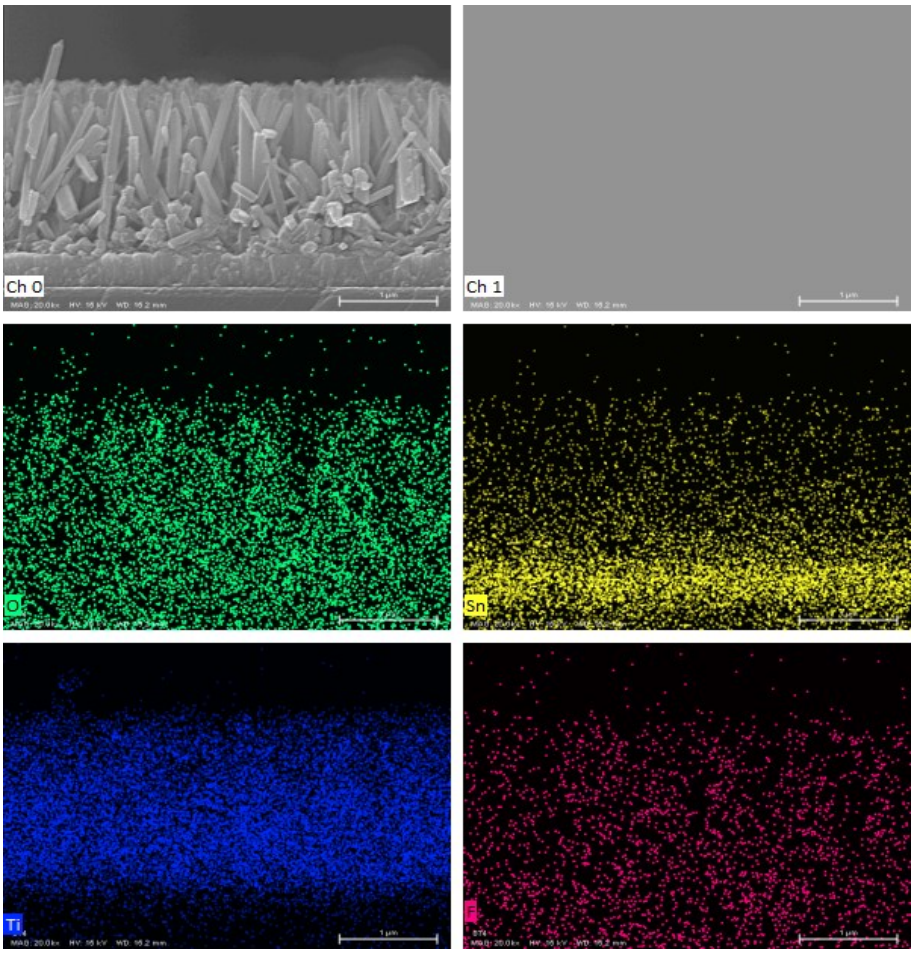
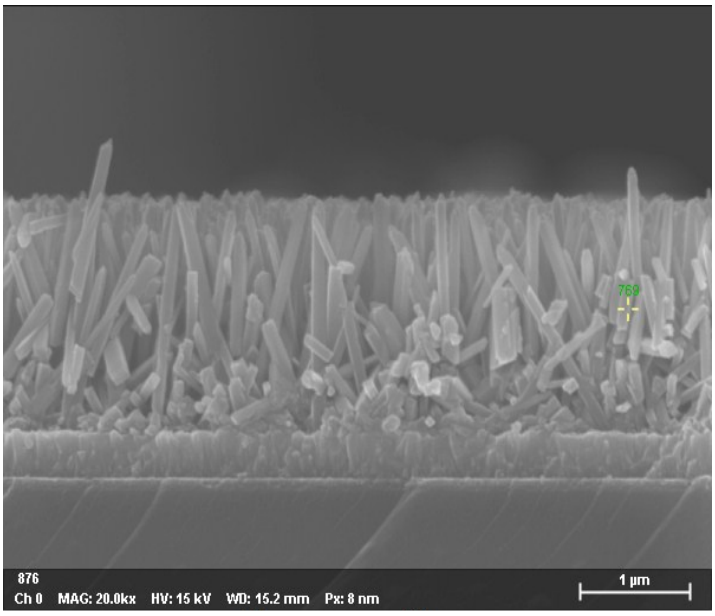


Fig. S2 EDS mapping for undoped TiO_2 sample.



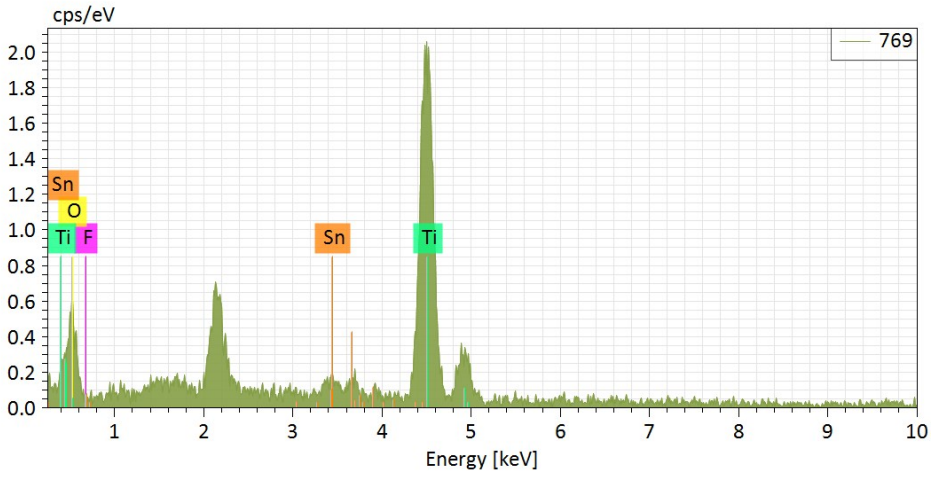


Fig. S3 EDS element analysis for undoped TiO_2 sample.

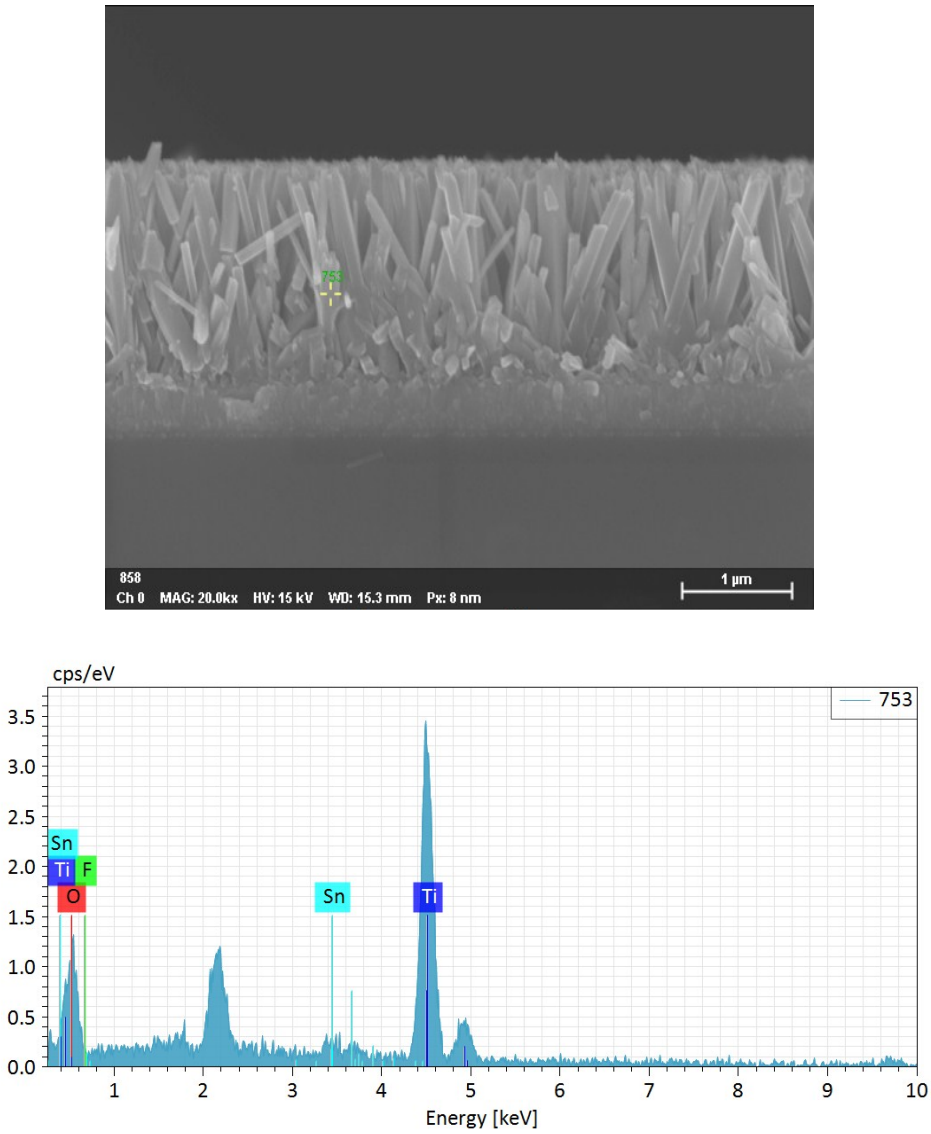


Fig. S4 EDS element analysis for F/Sn co-doped TiO_2 sample.

Table S1 The quantification of Ti, O, F and Sn of the nanorod for the undoped and F/Sn co-doped TiO_2 samples.

		undoped TiO_2		F/Sn co-doped TiO_2	
El	AN	Norm. C/[wt.%]	Norm. C /[atm.%]	Norm. C/[wt.%]	Norm. C /[atm.%]
Ti	22	58.31	33.12	49.05	25.79
O	8	38.32	65.11	44.20	69.56
F	9	0.84	1.20	2.89	3.83
Sn	50	2.53	0.58	3.86	0.82

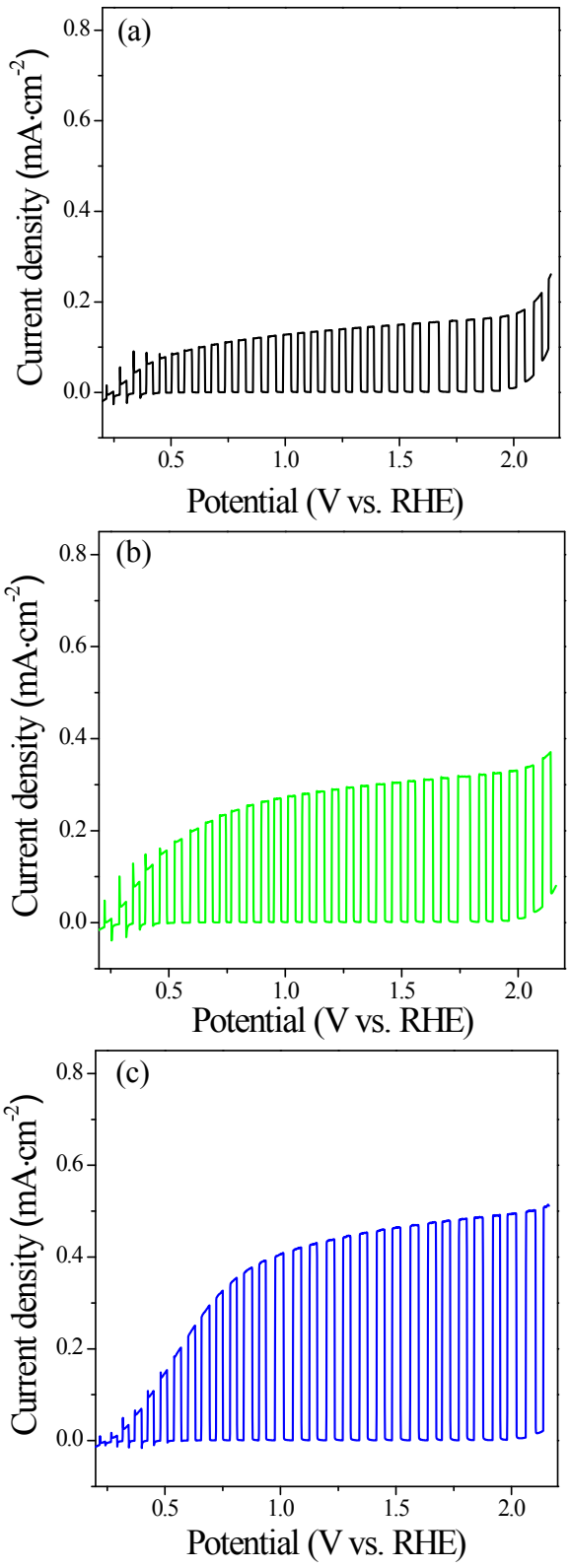


Fig. S5 Chopped LSV curve for the undoped TiO_2 (a), Sn doped TiO_2 (b), F doped TiO_2 (c) measured under AM1.5G illumination at 100 mW·cm^{-2}.

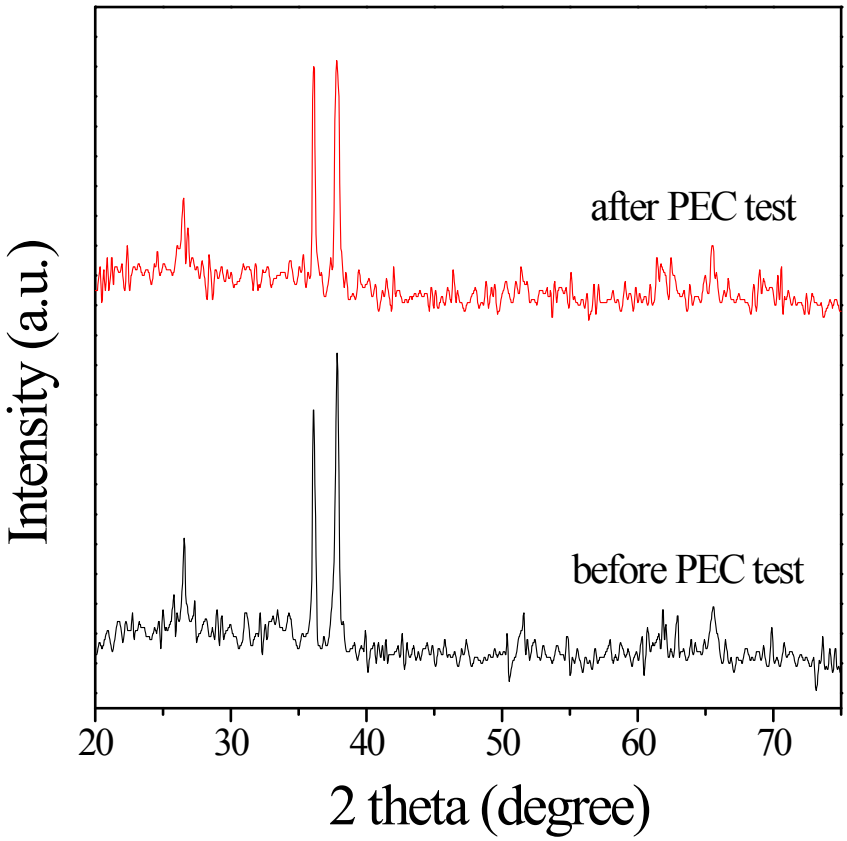


Fig. S6 XRD patterns of the F/Sn co-doped TiO_2 sample before and after 250 min of PEC test.

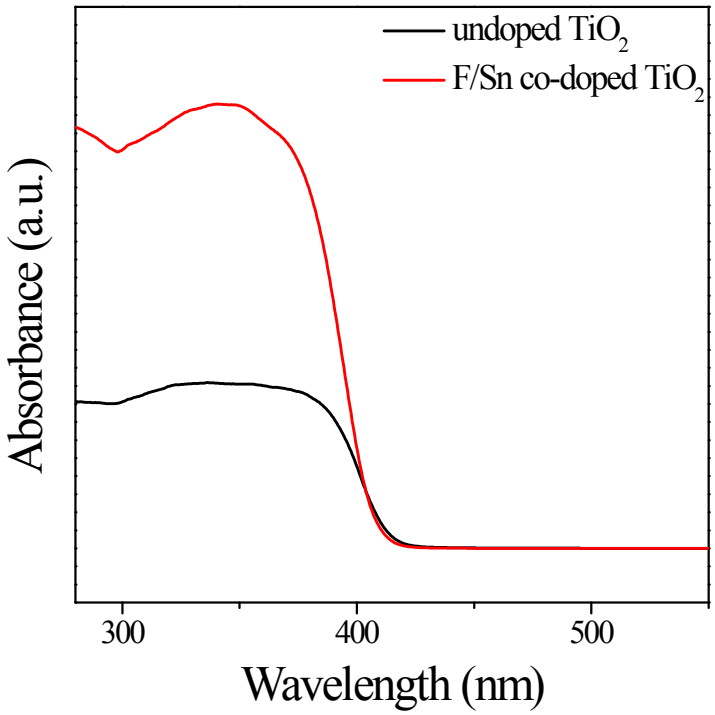


Fig. S7 Reflective UV-vis spectra of the undoped and F/Sn co-doped TiO_2 powder samples

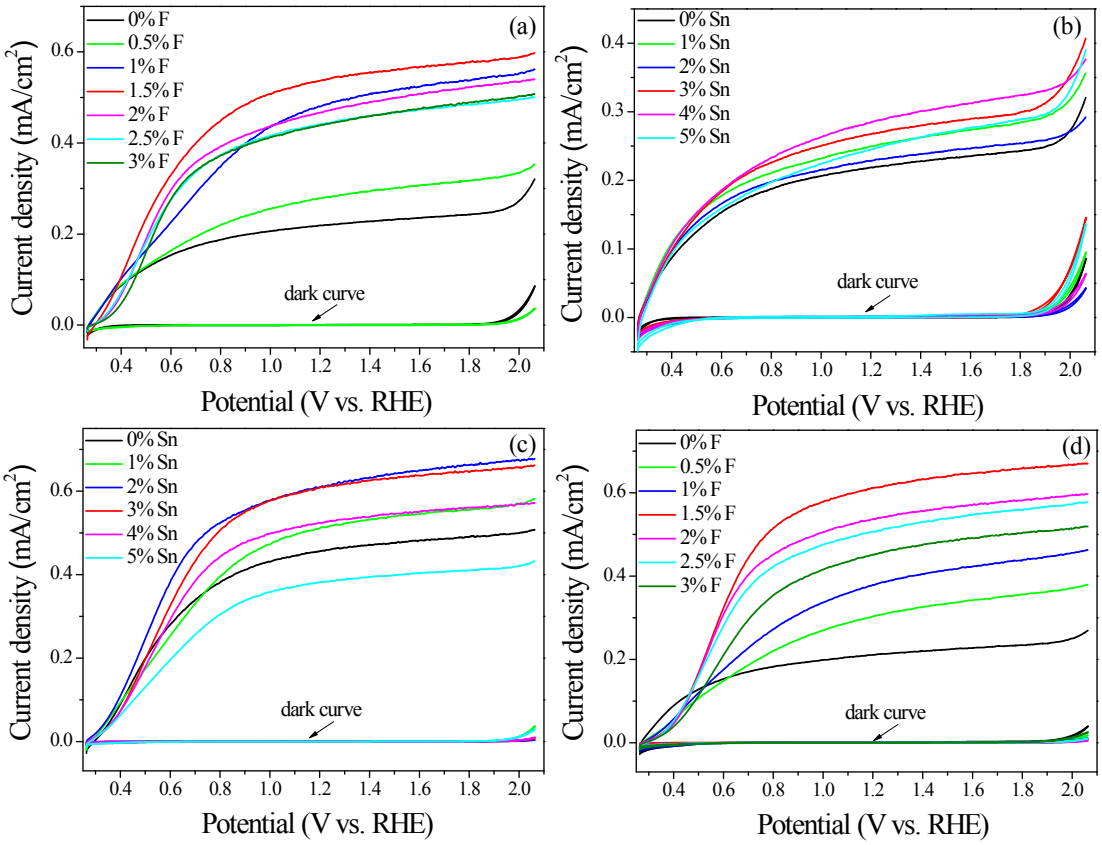


Fig. S8 LSV curves of F doped TiO_2 (a), Sn doped TiO_2 (b), F doped TiO_2 with 2.0 atm% Sn doping(c) and Sn doped TiO_2 with 1.5atm% F doping(d) measured under AM1.5G illumination at 100 mW·cm^{-2} and in the dark.

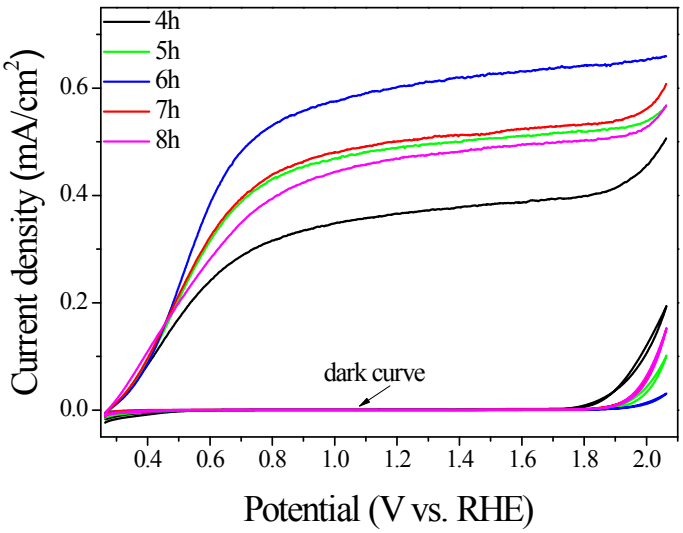


Fig. S9 LSV curves of the 1.5 atm% F and 2.0 atm% Sn co-doped TiO_2 sample prepared with different growth time measured under AM1.5G illumination at 100 mW·cm^{-2} and in dark.