Supporting information for

Defect engineering and surface polarization of TiO_2 nanorod arrays toward efficient photoelectrochemical oxygen evolution

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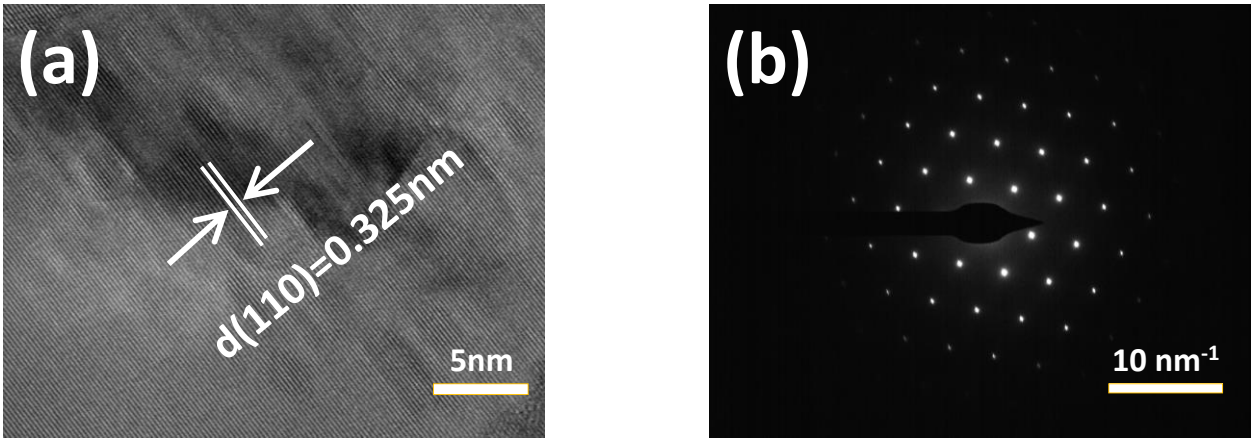

Figure S1. (a) HRTEM and(b) SAED pattern of TiO_2.

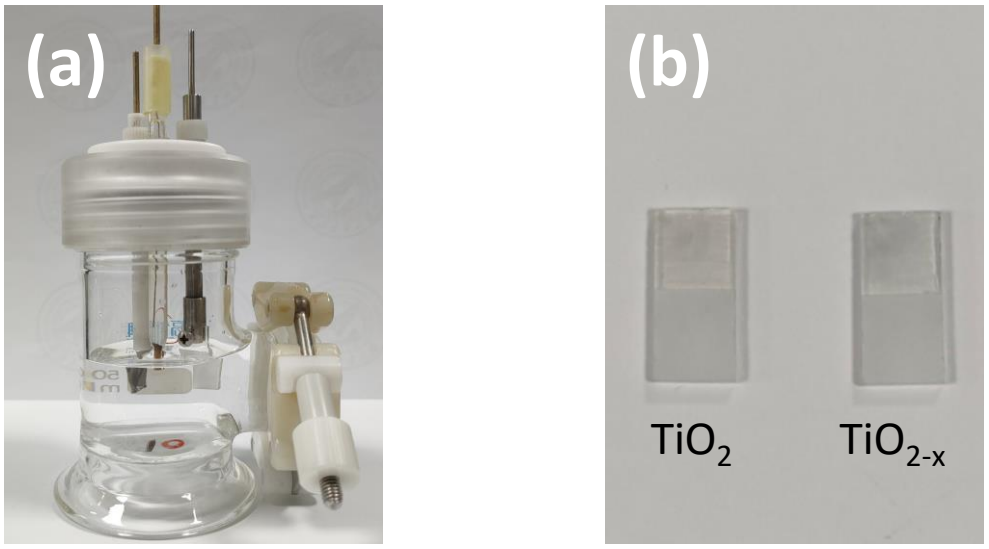

Figure S2. Digital images of (a) the electrochemical cell and (b) as-prepared TiO_2 and TiO_{2-x} samples.

Table S1. Comparison of PEC performance for TiO_2-based photoelectrodes.

Sample	Light source ($mW \cdot cm^{-2}$)	Electrolyte (pH)	j ($mA\ cm^{-2}$) at 1.23 V vs. RHE		Ref.
			Bare	Sample	
TiO_2/NH_2-MIL($Fe_{0.25}Ni_{0.75}$)-88	100	0.5M PBS (7)	0.6	1.56	[1]
CQDs/E-TiO_2	100	0.2 M Na_2SO_4 (7)	0.256	2.55	[2]
UiO-67@TiO_2	100	1 M KOH (14)	0.5	2.38	[3]
LaCo(OH)x/Au/Sb-TiO_2	100	0.5 M Na_2SO_4 (7)	0.3	2.0	[4]
Gly-TiO_2	100	1M NaOH (13.6)	0.6	1.41	[5]
1-Bi/TiO2	100	0.05 M PBS (7)	0.4	1.65	[6]
TiO_2/STO/CdS NRs	100	0.35M Na_2SO_3 and 0.25 M Na_2S (12.5)	0.25	1.85	[7]
NiFe-MOF/TiO_2	100	0.5 M Na_2SO_4 (6.8)	0.3	0.77	[8]
PCN/Cu-TNA	100	0.2 M Na_2SO_3 (10.2)	0.5	1.42	[9]
r-TiO_2/a-TiO_2/ZnFe-LDH	100	0.1 M Na_2SO_4 (6.8)	0.73	1.86	[10]
Sn_3O_4/TiO_2/Au	100	0.1 M NaOH (13.6)	0.6	2.5	[11]
TiO_{2-x} NRAs	100	0.2 M Na_2SO_4 (7)	0.81	1.68	[12]
MnO_2/N-TiO_2 NTs	100	1M NaOH (13.9)	0.57	1.95	[13]
V_O/Ti-Si-O NTs	100	1 M KOH (13.6)	0.3	1.63	[14]
TiO_{2-x} NTAs	100	1M NaOH (13.9)	0.2	0.73	[15]
TiO_{2-x}	100	1 M NaOH (13.9)	1.5	2.62	This work

Table S2. The fitted values of Nyquist plots according to the equivalent circuit in Figure 5c.

	R_S (Ω cm^{-2})	R_{ct1} (Ω cm^{-2})	R_{ct2} (Ω cm^{-2})
TiO_2	9.04	139.9	767.5
TiO_{2-x}	5.3	17.48	90.5

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