

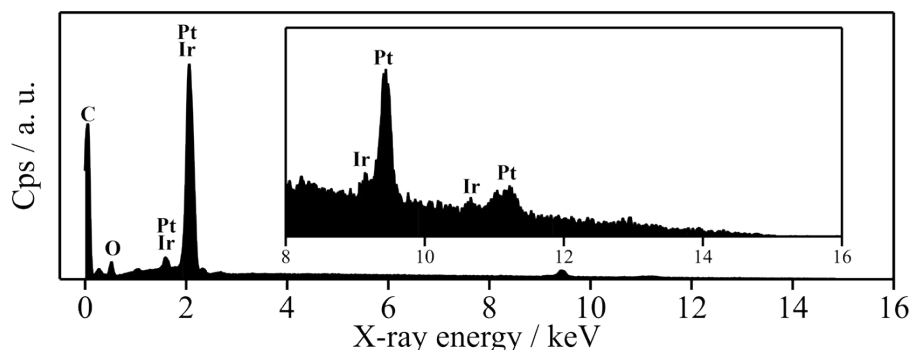
### Supporting information

**Table S1. XPS binding energies, full-width at half-maximum (FWHM) values and area ratios of Ir 4f of IrO<sub>x</sub>-Pt.**

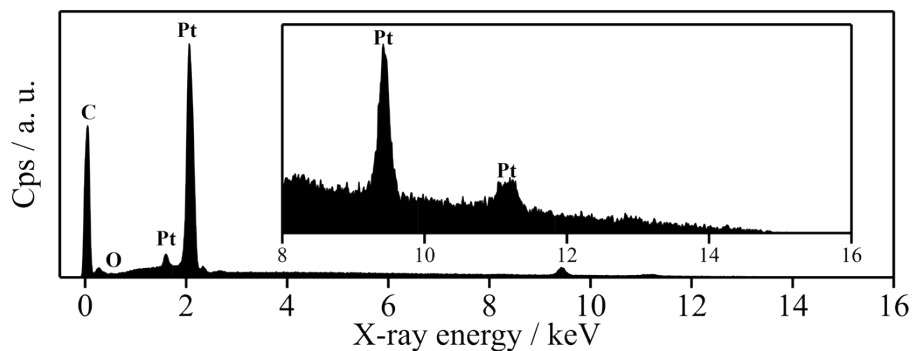
	IrO <sub>2</sub>	IrO <sub>2</sub>	Ir <sub>2</sub> O <sub>3</sub>	Ir <sub>2</sub> O <sub>3</sub>
	4f <sub>7/2</sub>	4f <sub>5/2</sub>	4f <sub>7/2</sub>	4f <sub>5/2</sub>
Position / eV	63.06	66.17	62.21	65.21
FWHM / eV	2.61	2.57	1.27	1.31
Area ratio	0.701	0.526	0.298	0.223

**Table S2. XPS binding energies, FWHM values and area ratios of O 1s of IrO<sub>x</sub>-Pt.**

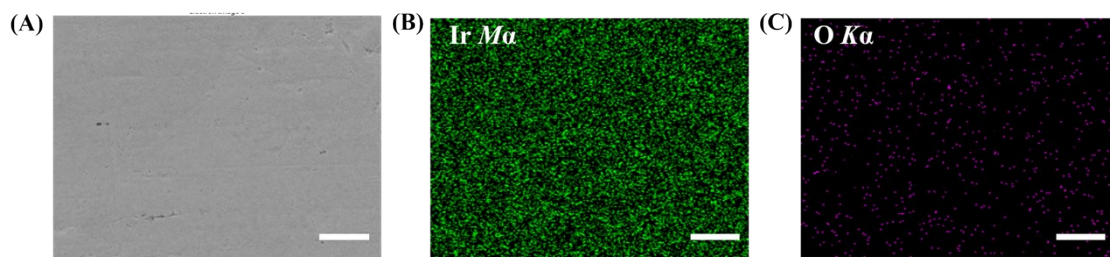
	O <sup>2-</sup>	OH <sup>-</sup>	hydrating H <sub>2</sub> O
Position / eV	530.46	531.62	533.37
FWHM / eV	1.85	1.75	2.82
Area ratio	0.458	0.490	0.0527



**Fig. S1. EDX spectrum of IrO<sub>x</sub>-Pt electrode. Inset: enlarged image of higher energy region.**



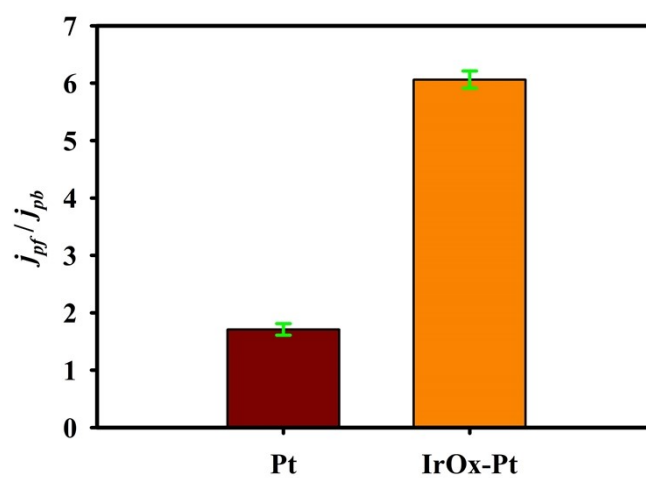
**Fig. S2. EDX spectrum of Pt electrode. Inset: enlarged image of higher energy region.**



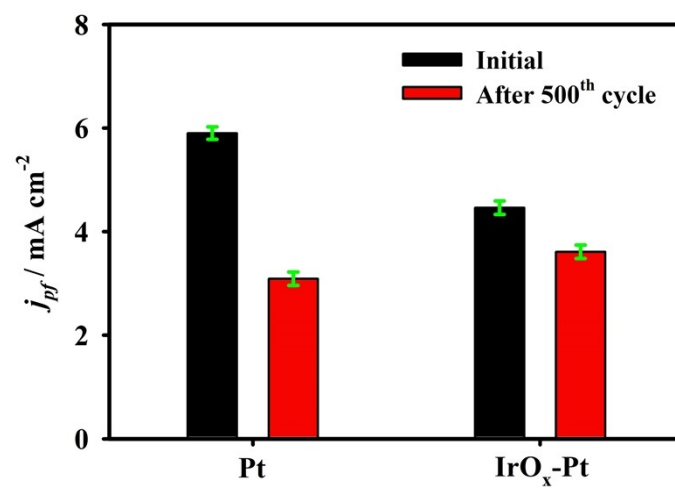
**Figure S3.** (A) SEM image of Pt electrode, same as Fig. 3(A). (B) and (C) 2D elemental mapping of (B) Ir and (C) O with the same field of view as (A). Scale bar: 5  $\mu\text{m}$  for all panels.

**Table S3.** Atomic compositions of (left) before and (right) after  $\text{IrO}_x$  deposition on Pt.

	Before deposition	After deposition
	Atomic%	Atomic%
C	53.37	37.02
O	4.54	34.06
Ir	0.00	3.12
Pt	41.99	25.80



**Figure S4.** Ratio of anodic and cathodic peak current density of bare Pt and  $\text{IrO}_x\text{-Pt}$  obtained from Fig. 4(A) & (B).



**Figure S5. Comparison of anodic peak current densities obtained initially and after 500 incessant cycles by both bare Pt and  $\text{IrO}_x\text{-Pt}$  (extracted from Fig. 7(A) & (B)).**