

Supporting information

For

Fabricating BiVO₄/FeOOH/ZnFe-LDH hierarchical core-shell nanorod arrays for visible-light-driven photoelectrochemical water oxidation

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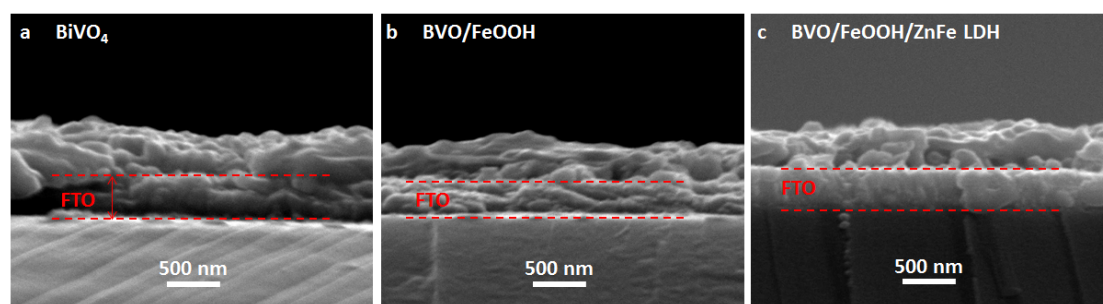


Fig. S1 The cross-section SEM images of (a) BiVO₄, (b) BVO/FeOOH, and (c) BVO/FeOOH/ZnFe LDH

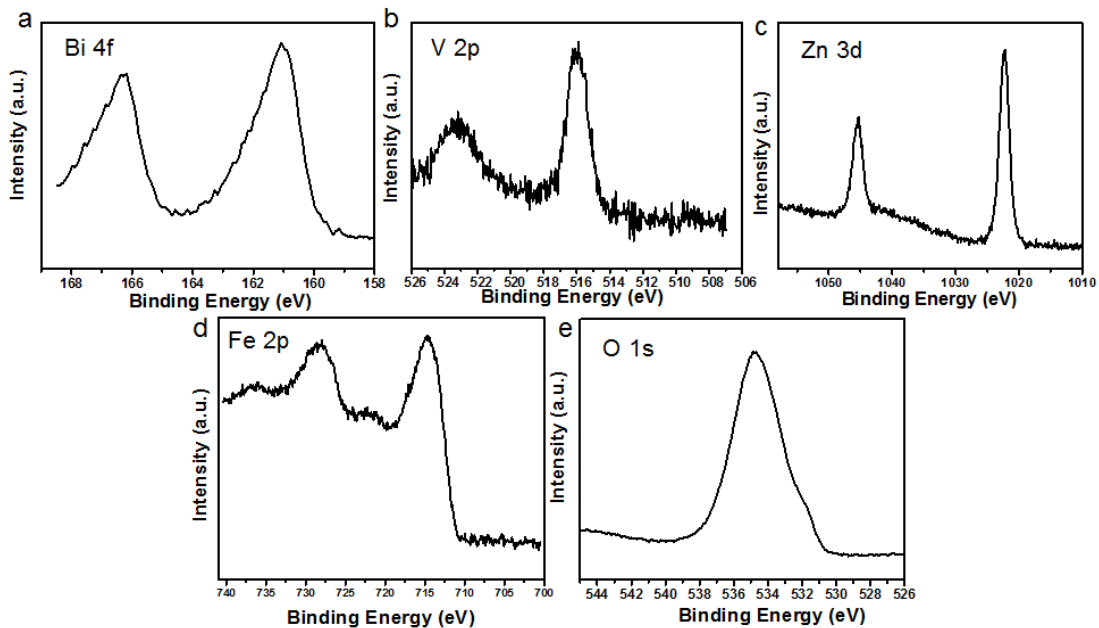


Fig. S2 XPS results of BVO/FeOOH/ZnFe LDH.

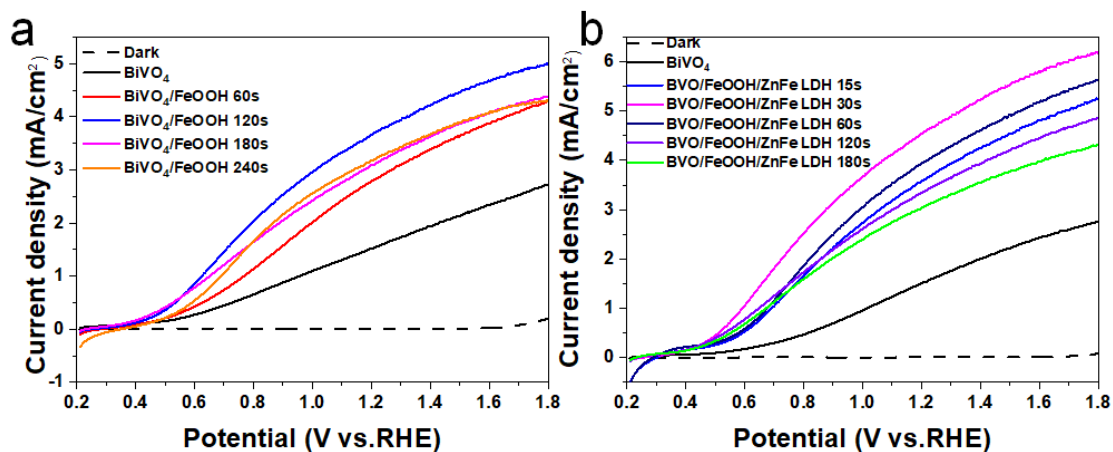


Fig. S3, The LSV of photoanodes from different deposition time for (a) BVO/FeOOH and (b) BVO/FeOOH/ZnFe LDH.

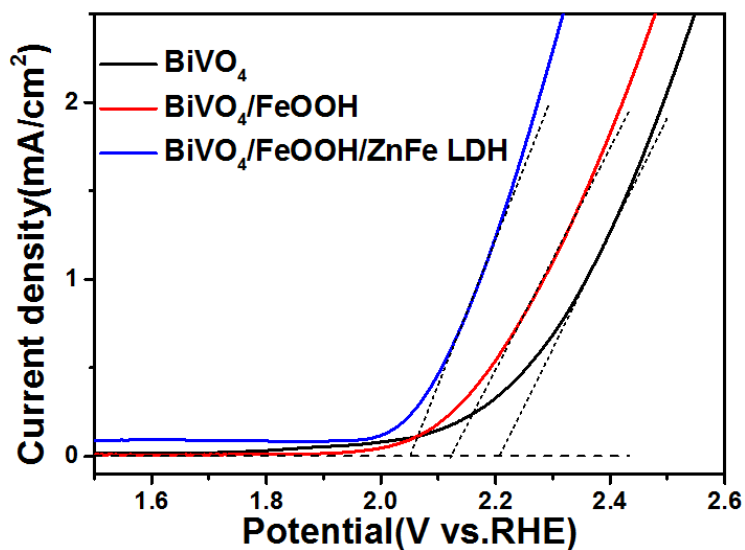


Fig. S4 LSV curves of BiVO₄, BVO/FeOOH, and BVO/FeOOH/ZnFe LDH samples measured in the dark.

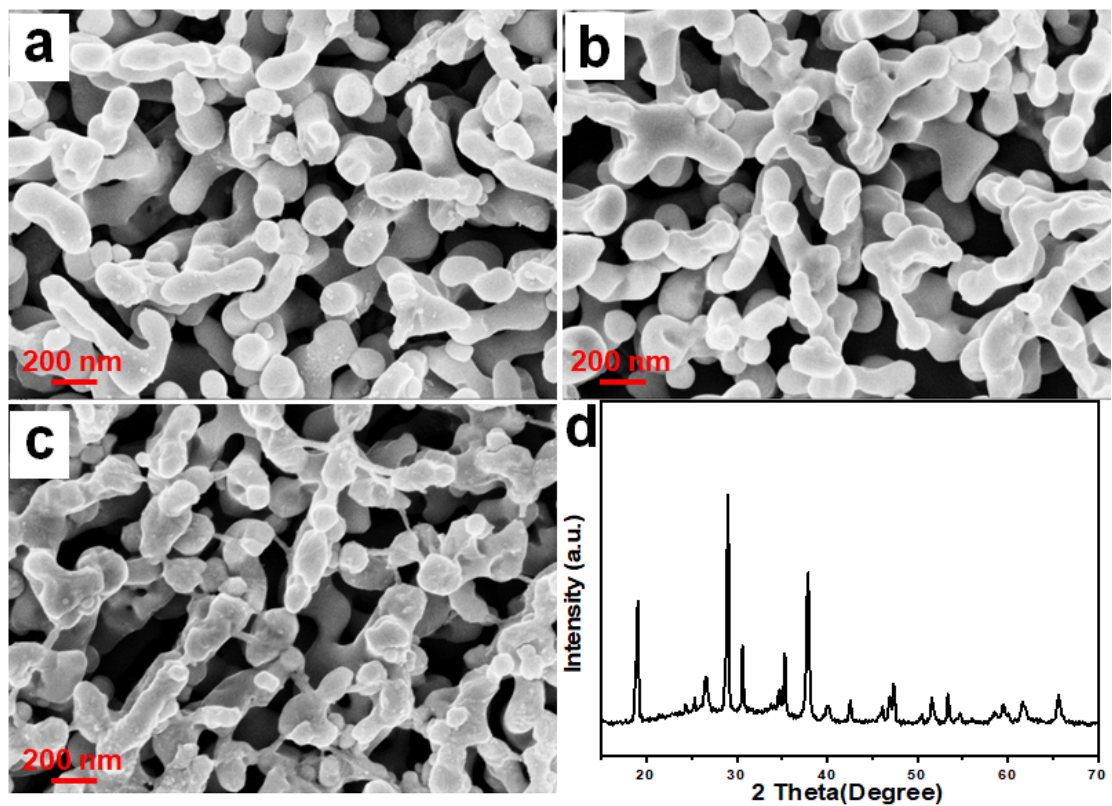


Fig.S5 SEM images of (a) pristine BiVO₄, (b) BVO/FeOOH, and (c) BVO/FeOOH/ZnFe LDH after long-term i-t testing. (d) XRD pattern of BVO/FeOOH/ZnFe LDH after long-term i-t testing.

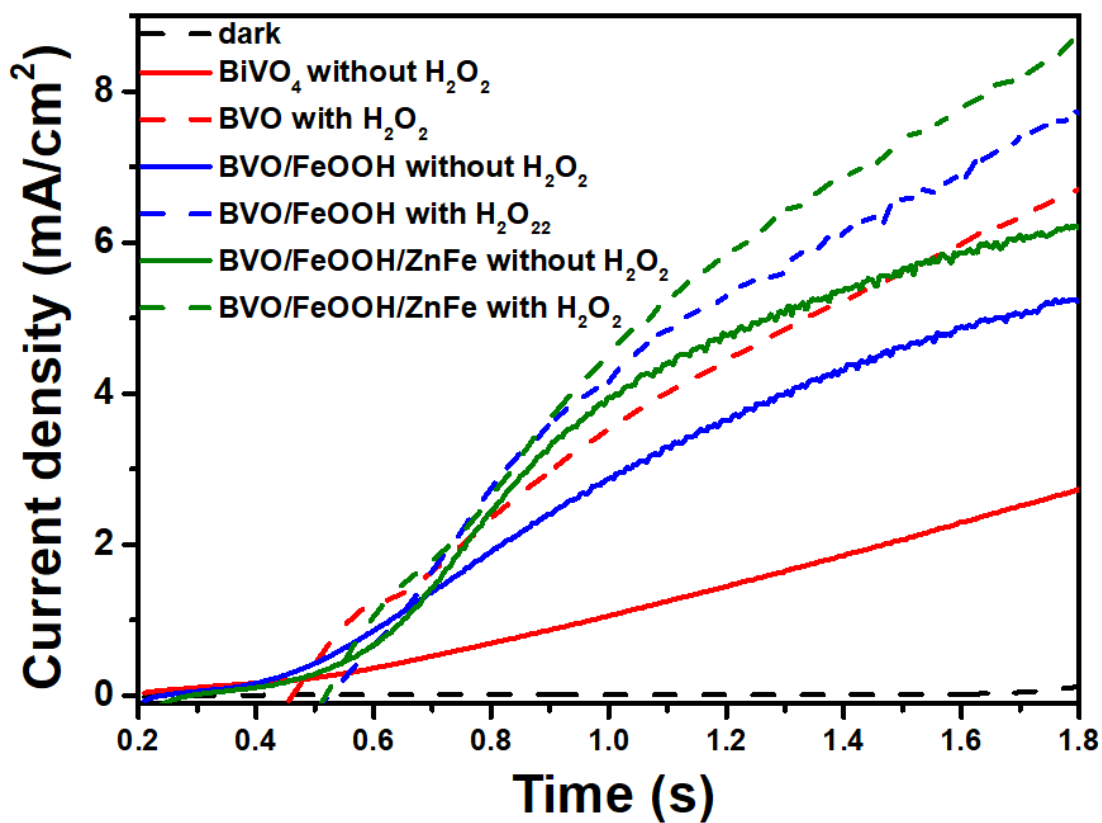


Fig.S6 The LSV results for BiVO_4 , BVO/FeOOH, and BVO/FeOOH/ZnFe LDH obtained with/without H_2O_2 in electrolyte.

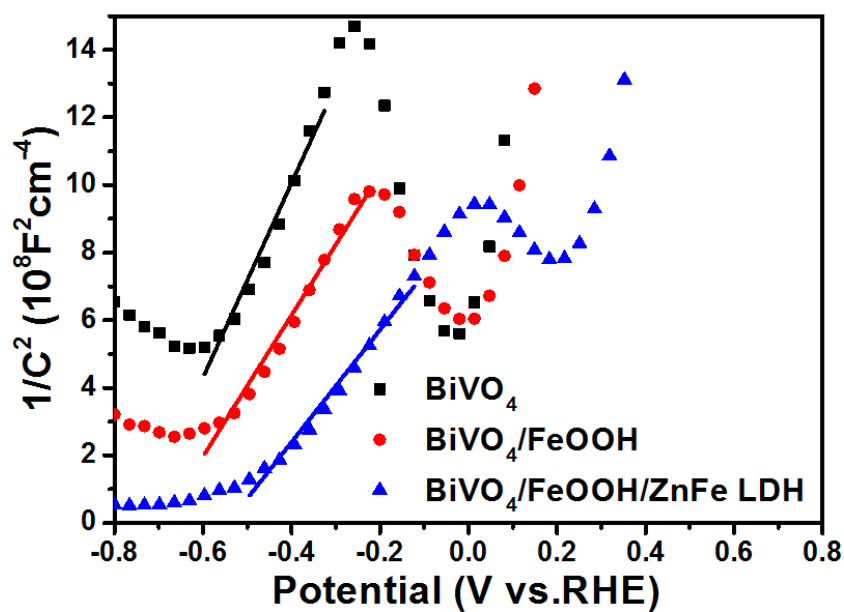


Fig. S7 Mott-Schottky results of pristine BiVO_4 , BVO/FeOOH, and BVO/FeOOH/ZnFe LDH measured in dark.

Table S1 EIS fitting parameters of BiVO₄, BVO/FeOOH, and BVO/FeOOH/ZnFe LDH samples.

	R _S (Ω)	C (×10 ⁻⁵)	n	R _{CT} (Ω)
BiVO ₄	60.33	14.90	0.8027	411.8
BVO/FeOOH	54.29	14.20	0.8187	331.5
BVO/FeOOH/ZnFe LDH	52.82	16.94	0.8176	308.5

Table S2 The comparison of PEC performance

Photoanode	Electrolyte	Current density at 1.23 V vs. RHE (mA cm ⁻²)	References
<i>BVO/FeOOH/ZnFe LDH</i>	<i>1 M Na₂SO₄</i>	<i>4.92</i>	<i>This work</i>
Pt-BiVO ₄	1.0 M KBi	4.2	Adv. Energy Mater. 2021, 2102384
BiVO ₄ /Co-Sil	0.5M K ₂ B ₄ O ₇	5.0	Appl. Catal. B: Environ. 2020, 277 119189 3
BiVO ₄ (040)/Co SAs-NC	0.1 M phosphate buffer solution	0.69	Chem. Eng. J. 2022, 427, 131011
Pt-BiVO ₄	1.0 M KBi	5.45	Adv. Energy Mater. 2021, 2102384
Cu ₂ S/BiVO ₄	0.5 M phosphate buffer saline	3.07	J. Phys. Chem. C 2021, 125, 15890
CoNi-MOFs/BiVO ₄	0.5 M Na ₂ SO ₄	3.2	Appl. Catal. B: Environ. 2020, 266 118513
NiFeY/BiVO ₄	1.0 M KBi	3.2	ACS Catal. 2020, 10, 10570
BiVO ₄ /GQDs/Co-Pi	0.1M phosphate buffer	5.03	Chem. Eng. J. 2019, 372, 399