

Supplementary Information

Amorphous NiCo₂O₄ modified NiCoP heterojunction enhanced electrochemical oxygen evolution reaction performance

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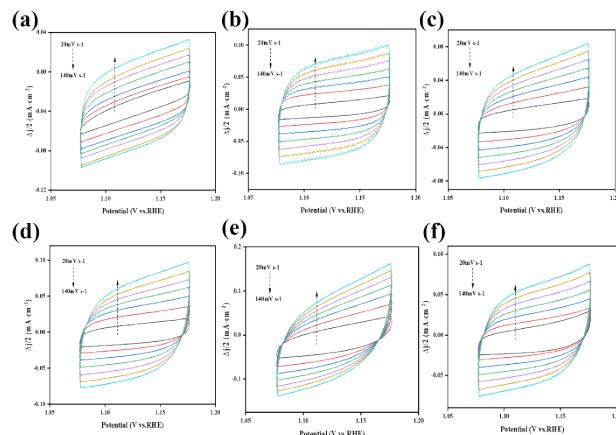


Fig. S1 Cyclic voltammograms of NCO-250 (a), NCO-300 (b), NCO-400 (c), NCP-250 (d), NCP-300 (e) and NCP-400 (f) samples at scan rates of 20-140 mV s^{-1} .

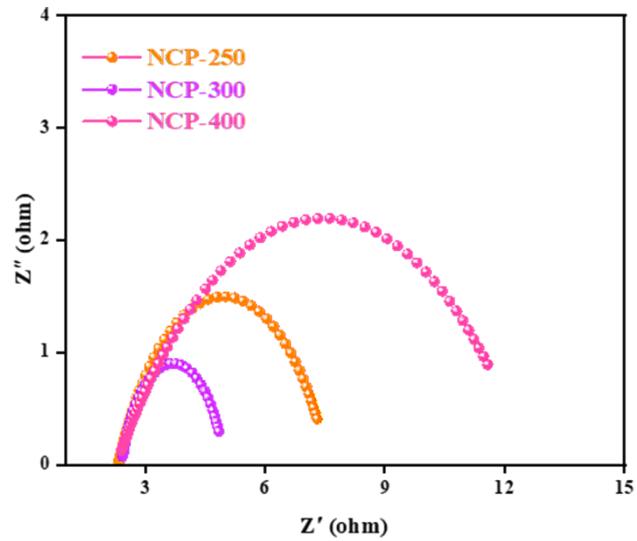


Fig. S2 Nyquist plots of EIS of NCP at different temperatures

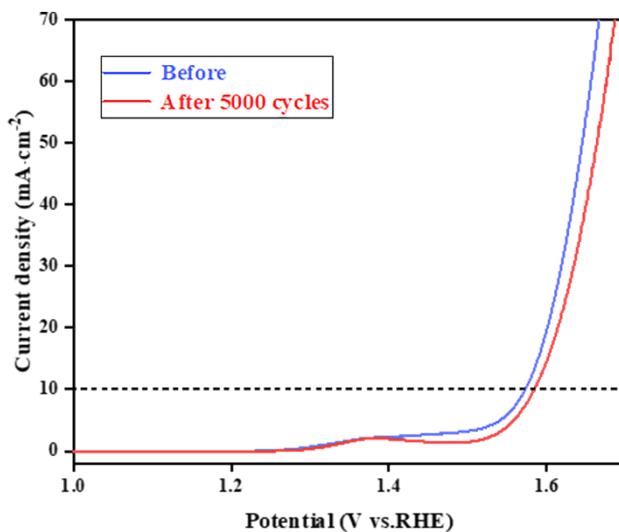


Fig. S3 Comparison of LSV performance before and after 5000 cycles of cyclic voltammetry.

Table S1 The OER catalytic activity of a-NiCo₂O₄/NiCoP-300 was compared with other reported high-performance OER catalysts in 1.0 M KOH.

Catalysts	Electrolyte	η_{10} (mV)	Ref.
a-NiCo ₂ O ₄ /NiCoP-300	1M KOH	332	This work
P-NiCo ₂ O ₄	1M KOH	370	[1]
P-(Zn _{3.3} Ni _{3.3} Mn _{3.3})Co ₂ O ₄	1M KOH	349	[2]
g-C ₃ N ₄ /NiCoP/NF	1M KOH	370	[3]
NiCo ₂ O ₄ /NiCoP	1M KOH	325	[4]
NiCo ₂ O ₄ /NiO	1M KOH	360	[5]
Ni _{1.5} Co _{1.5} P/MF	1M KOH	314	[6]
Ni ₂ P	1M KOH	400	[7]
CoP/GCE	1M KOH	490	[8]

Notes and references

- [1] X. Zhong, C. Shu, X. M. Su, W. K. D. Wang and J. Y. Gong, Mater. Today Commun., 2022 **31** 103708.
- [2] L. L. Yao, W. X. Yang, Y. J. Niu, J. M. Liu, S. Zhang, S. Y. Wu, et al., CrystEngComm, 2021 **23** 1849-1858.
- [3] Y. P. Dong, J. B. Chen, J. Ying, Y. X. Xiao, Y. Tian, L. Shen, et al., Chem. Eng. J., 2024 **495** 153452.
- [4] Z. Kayış and D. Akyüz, Phys. Chem. Chem. Phys., 2024 **26** 14908-14918.
- [5] C. Mahala and M. Basu, ACS Omega, 2017 **2** 7559-7567.
- [6] T. Y. Chen, M. Qian, X. F. Tong, W. H. Liao, Y. Y. Fu, H. J. Dai, et al., Int. J. Hydrogen Energy, 2021 **46** 29889-29895.
- [7] L. A. Stern, L. G. Feng, F. Song and X. L. Hu, Energy Environ. Sci., 2015 **8** 2347-2351.
- [8] R. B. Wu, D. P. Wang, K. Zhou, N. Srikanth, J. Wei and Z. Chen, J. Mater. Chem. A, 2016 **4** 13742-13745.