Ni–Fe Bimetallic Carbon Nanotube Catalysts Derived from a Two-Dimensional Metalloporphyrin Fe-MOF Precursor for Oxygen Reduction and Oxygen Evolution Reactions

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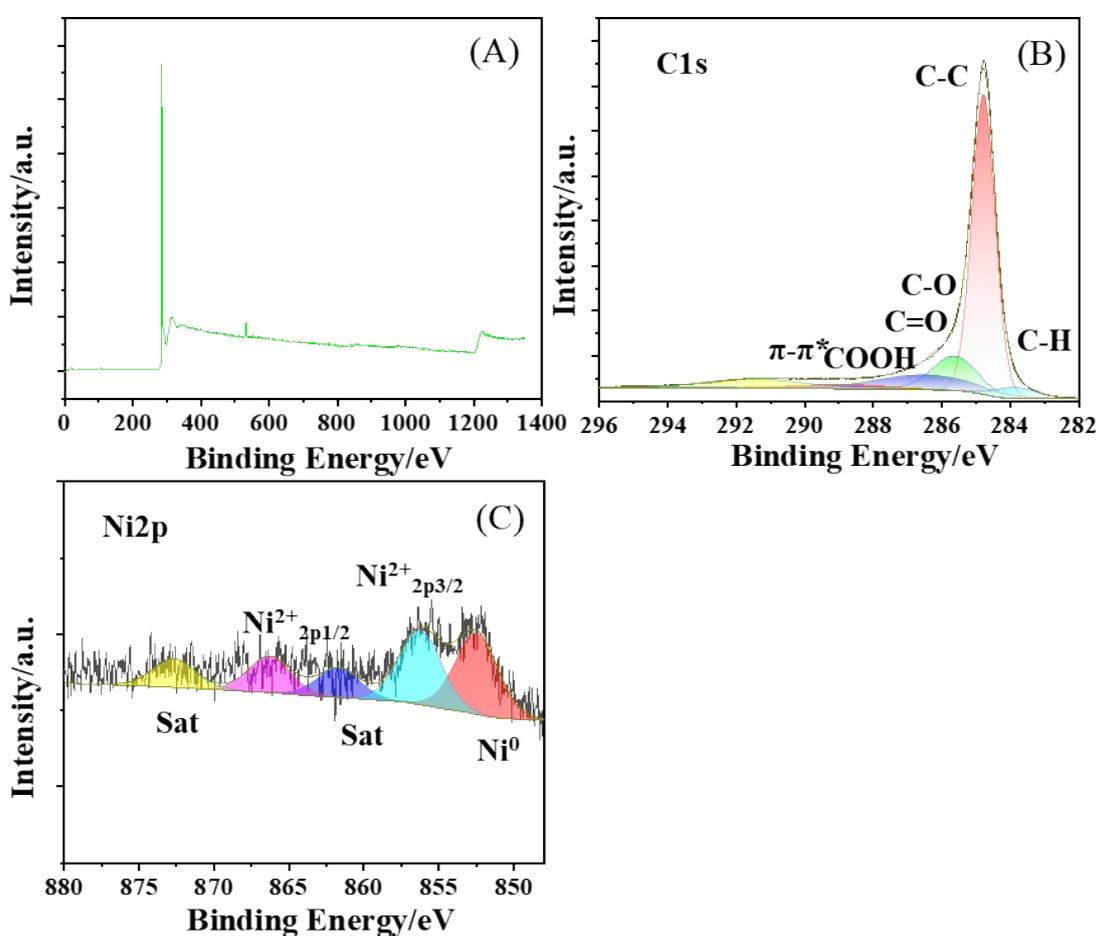## Supplementary Information

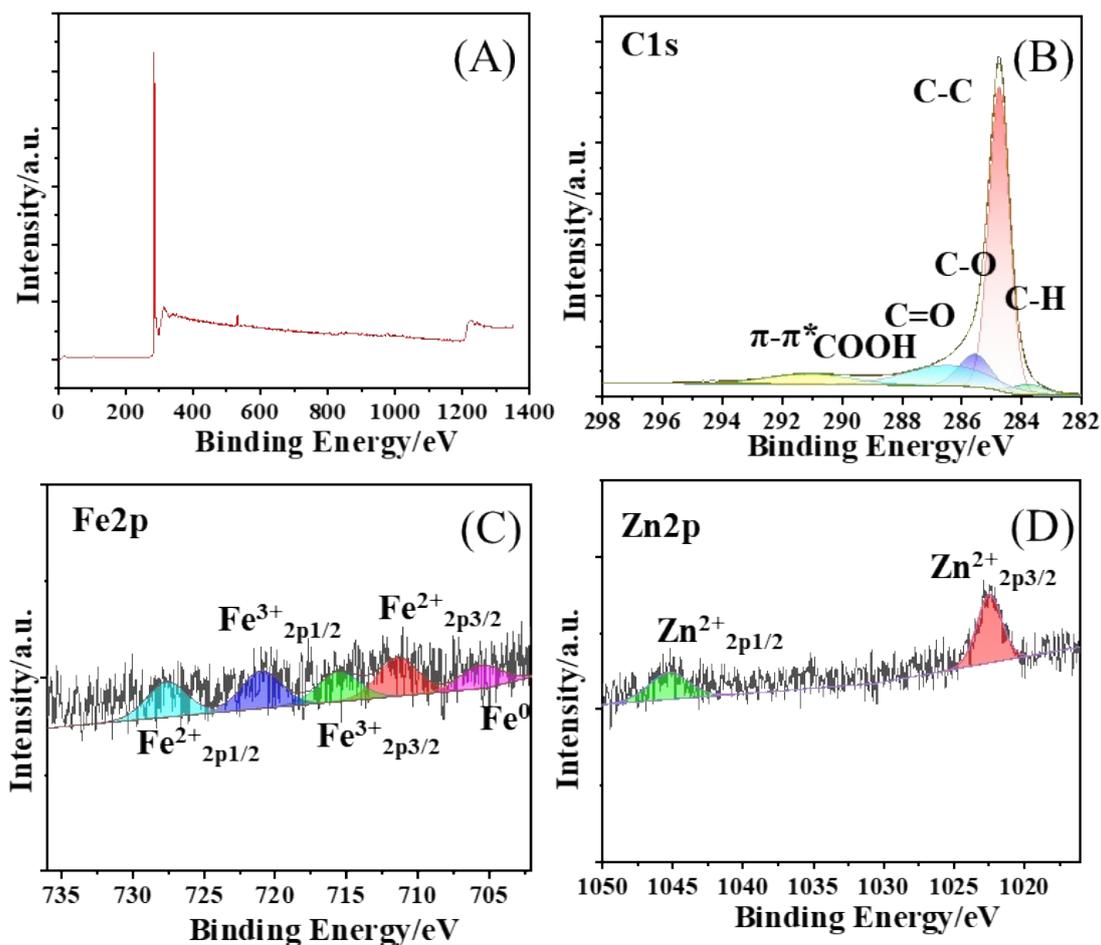Fig. S1 XPS spectra of Ni@CNT. (A) general scan, (B) C 1s, (C) Ni 2p.

Fig. S2 XPS spectra of ZnFe@CNT. (A) general scan, (B) C 1s, (C) Fe 2p, (D) Zn 2p.
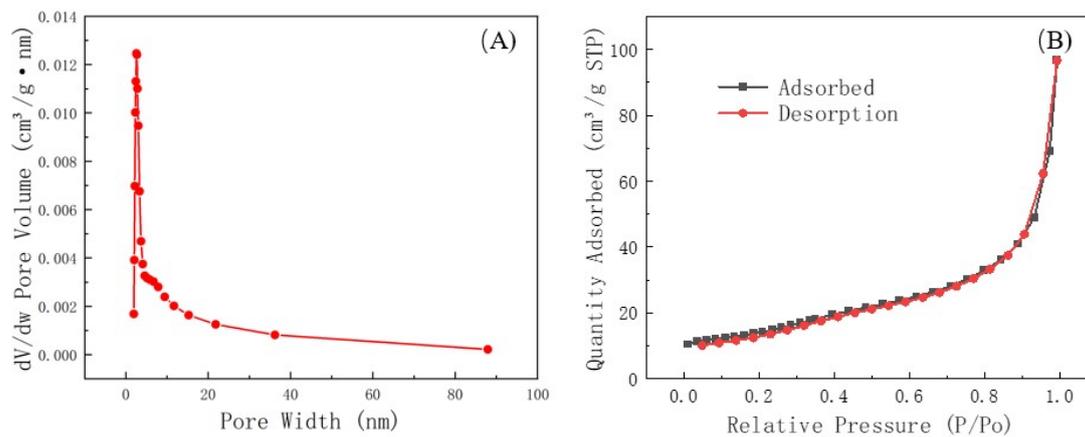

Fig. S3 N$_2$ adsorption/desorption isotherm (A) and pore size distribution (B) of Ni@CNT
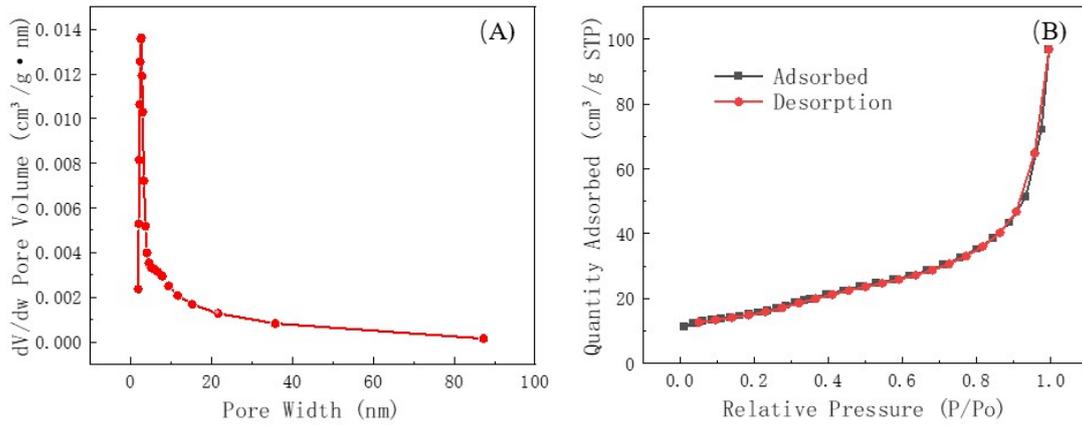
Fig. S4 N$_2$ adsorption/desorption isotherm (A) and pore size distribution (B) of ZnFe@CNT
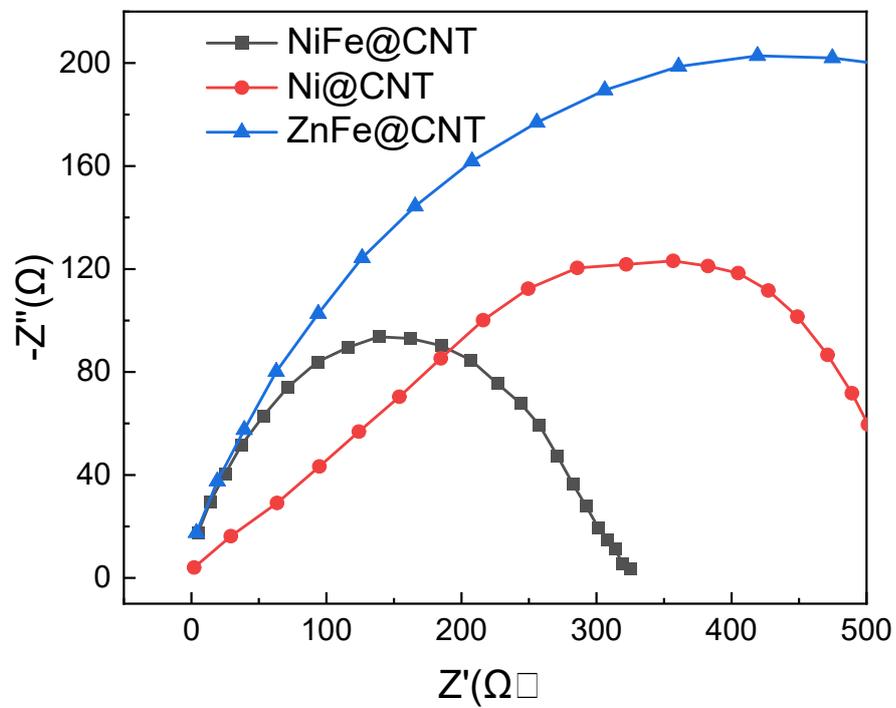

Fig. S5 EIS spectrum of NiFe@CNT, Ni@CNT and ZnFe@CNT in an alkaline environment of the three catalysts in 0.1 M KOH solution.
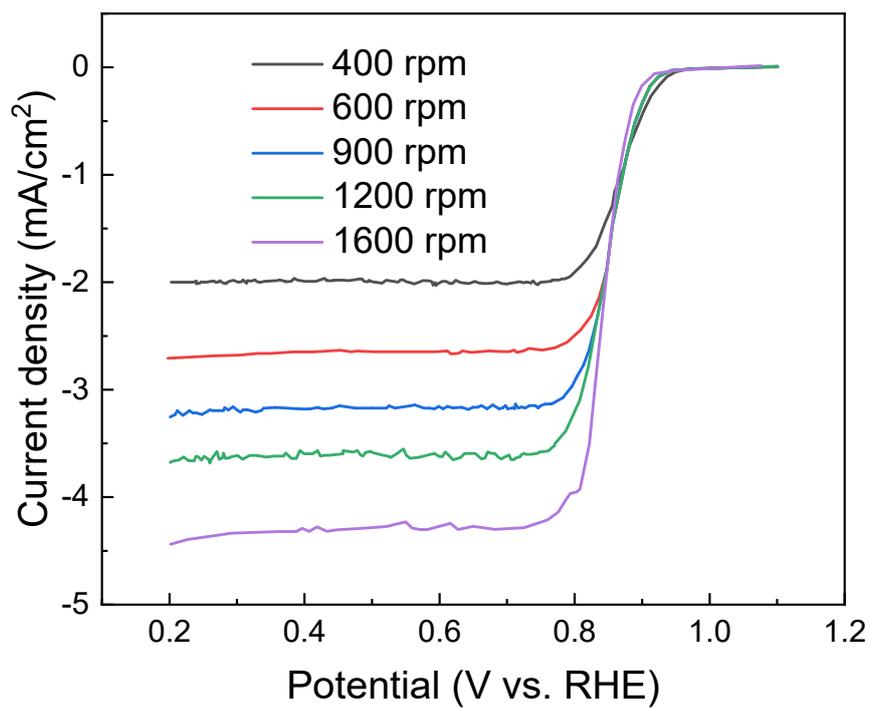
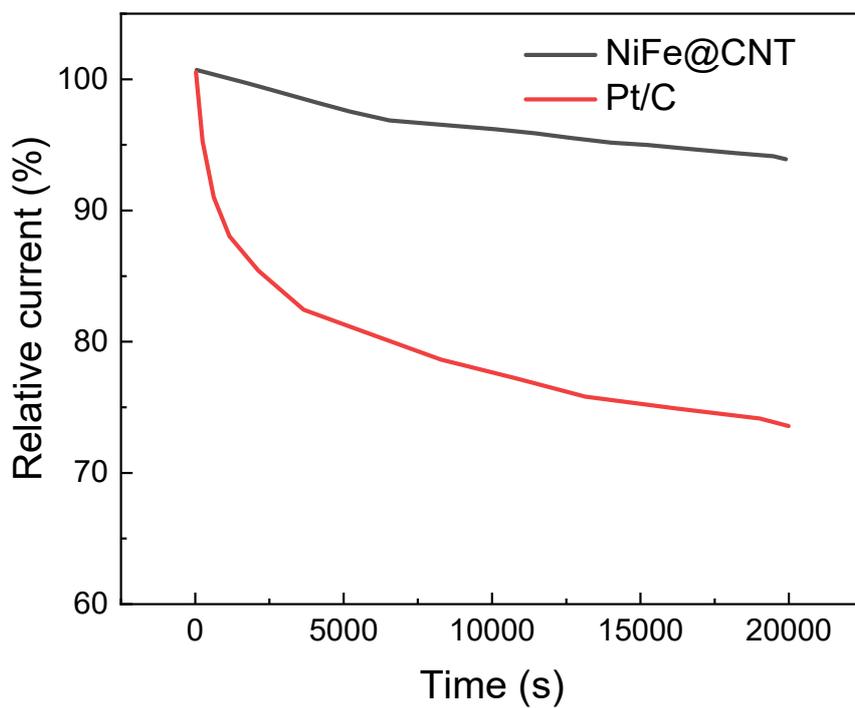Fig. S6 LSV curves of NiFe@CNT at different rotation speeds

Fig. S7 Constant potential timing (i−t) curve of NiFe@CNT and Pt/C