

Supporting Information

Iron-Doped Nickel Phosphate as Synergistic Electrocatalyst for Water Oxidation

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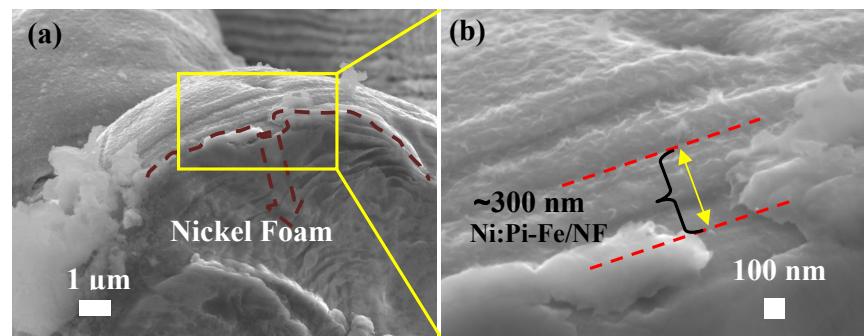


Figure S1. (a) Cross-section image of Ni:Pi-Fe/NF. (b) Magnified cross-section image of Ni:Pi-Fe/NF from the marked area in image (a).

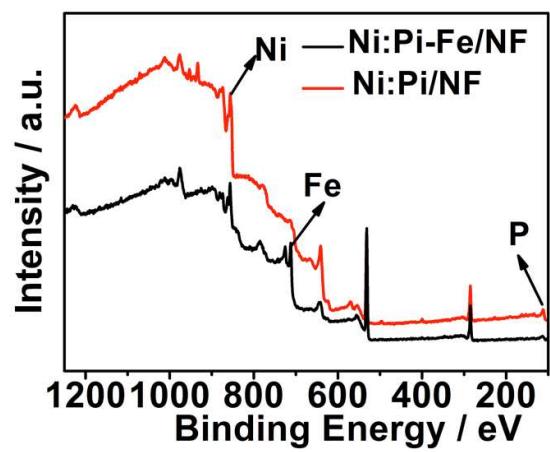


Figure S2. XPS survey spectra of Ni:Pi-Fe/NF and Ni:Pi/NF.

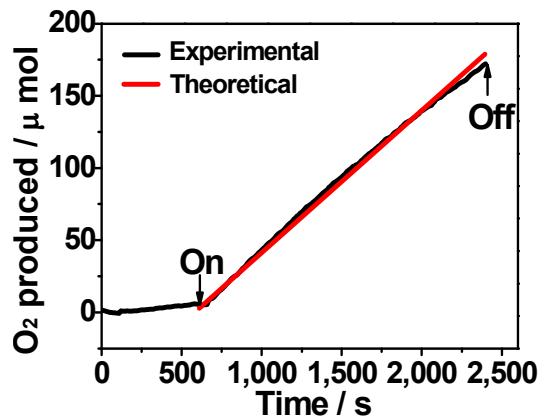


Figure S3. Detection of O_2 produced from Ni:Pi-Fe/NF electrode using fluorescent oxygen sensor (black line) and theoretical value (red line) during bulk water electrolysis in 1 M KOH at 1.63 V.

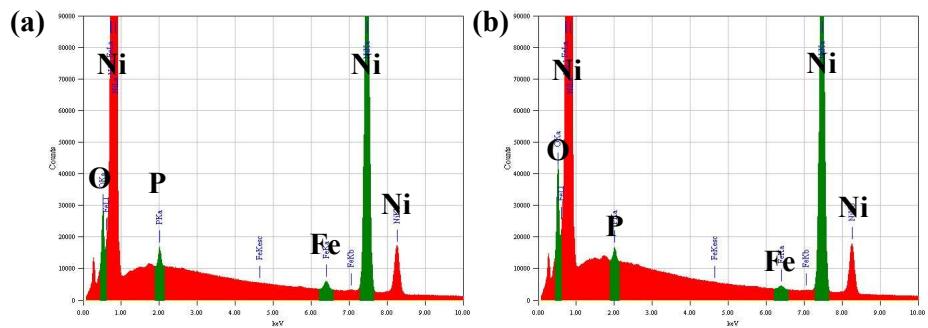


Figure S4. EDS spectra of the Ni:Pi-Fe/NF (a) before and (b) after OER.

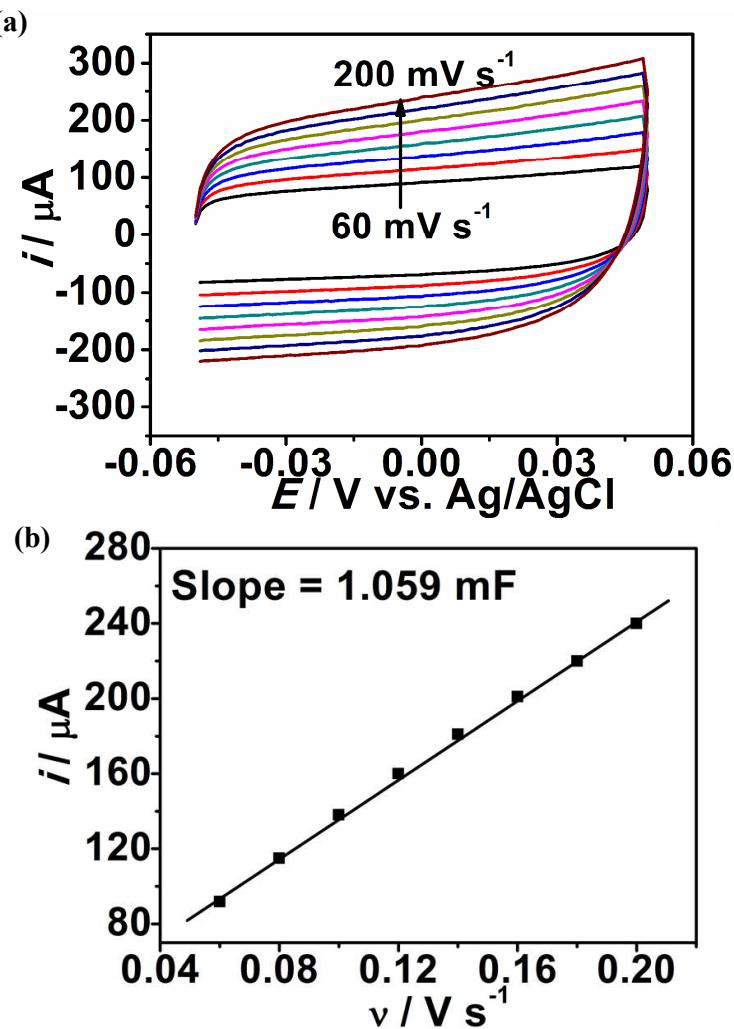


Figure S5. Double-layer capacitance measurement for determining electrochemically active surface area for Ni:Pi-Fe/NF from cyclic voltammetry in 1 M KOH. (a) Cyclic voltammograms were measured in a non-Faradaic region of the voltammogram at scan rate from 60 to 200 mV s^{-1} . (b) The current density at 0.0 V (vs. Ag/AgCl) was plotted vs. scan rate.

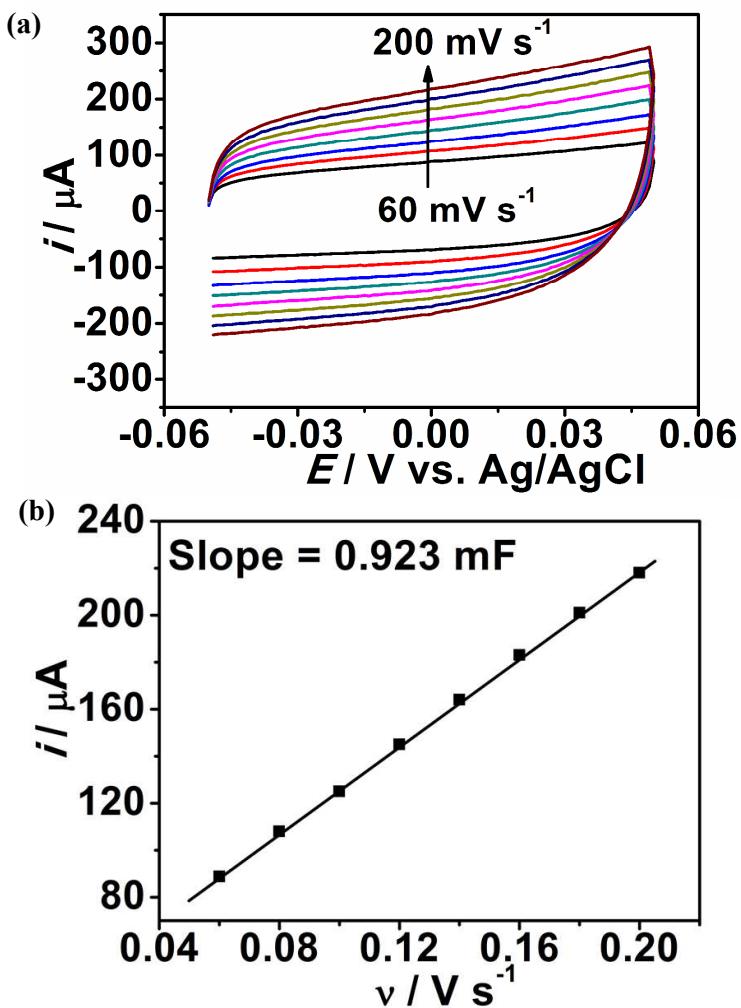


Figure S6. Double-layer capacitance measurement for determining electrochemically active surface area for Fe/NF from cyclic voltammetry in 1 M KOH. (a) Cyclic voltammograms were measured in a non-Faradaic region of the voltammogram at scan rate from 60 to 200 mV s^{-1} . (b) The current density at 0.0 V (vs. Ag/AgCl) was plotted vs. scan rate.

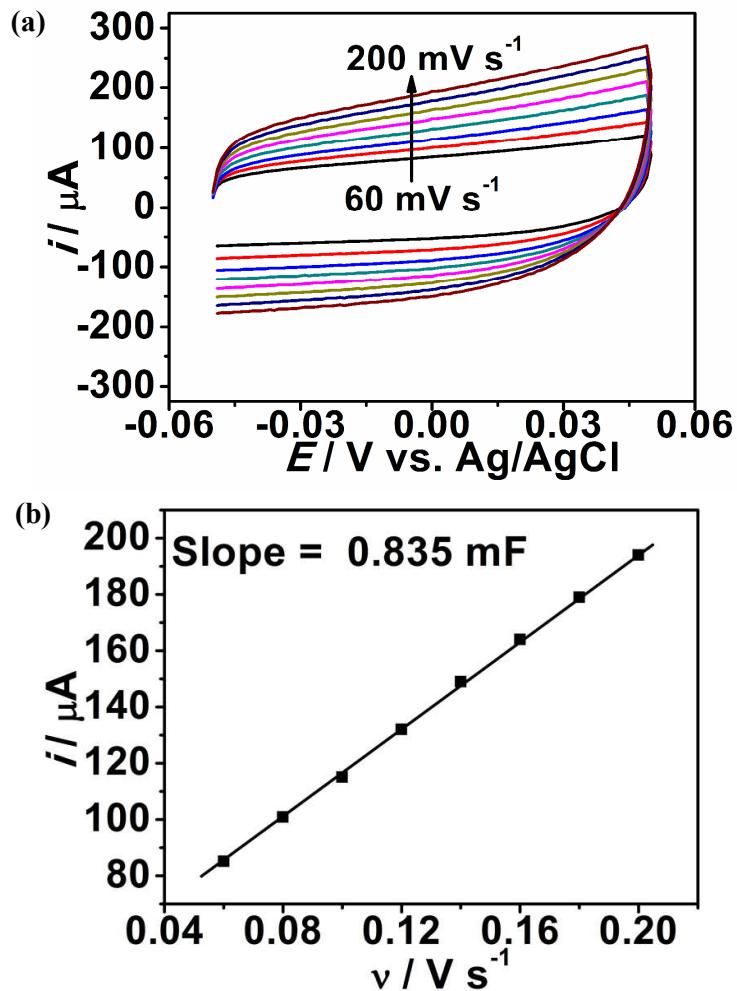


Figure S7. Double-layer capacitance measurement for determining electrochemically active surface area for Ni:Pi/NF from cyclic voltammetry in 1 M KOH. (a) Cyclic voltammograms were measured in a non-Faradaic region of the voltammogram at scan rate from 60 to 200 mV s^{-1} . (b) The current density at 0.0 V (vs. Ag/AgCl) was plotted vs. scan rate.

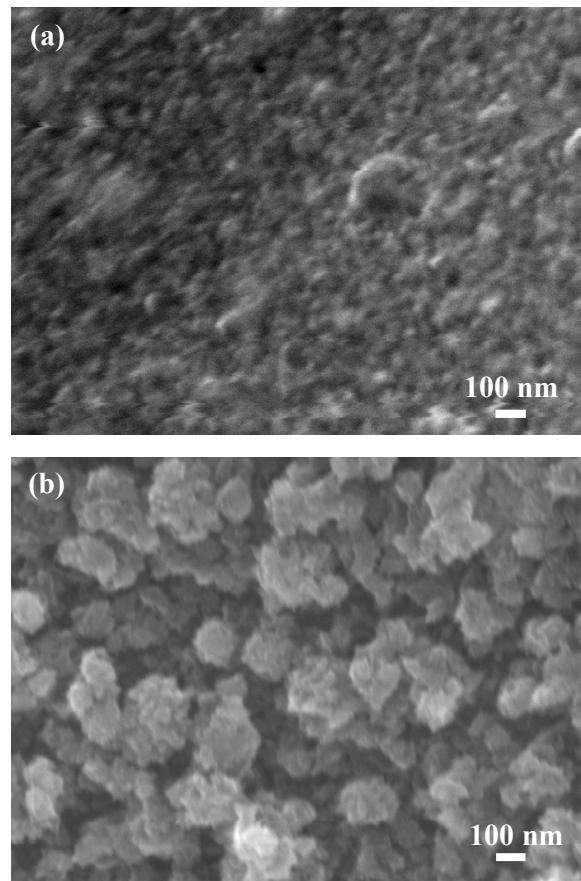


Figure S8. SEM images of Ni:Pi-Fe/NF deposited in (a) 1.5 mM and (b) 6 mM $\text{Fe}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}$ solution.

Table S1. OER activities of some benchmark electrocatalysts with a current density of 10 mA cm⁻² in 1 M KOH.

Material	η /mV	Reference
Ni:Pi-Fe/NF	220	This work
NiFe/NF	215	R1
NiFe-LDH/CNT	247	R2
Ni ₂ P	290	R3
NiFeOx/C	280	R4
NiFe LDH/Ni foam	240	R5
NiCo LDH	367	R6
Ni ₅ P ₄	290	R7
Activated stainless steel	212 (12 mA cm ⁻²)	R8

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