

*Supporting Information*

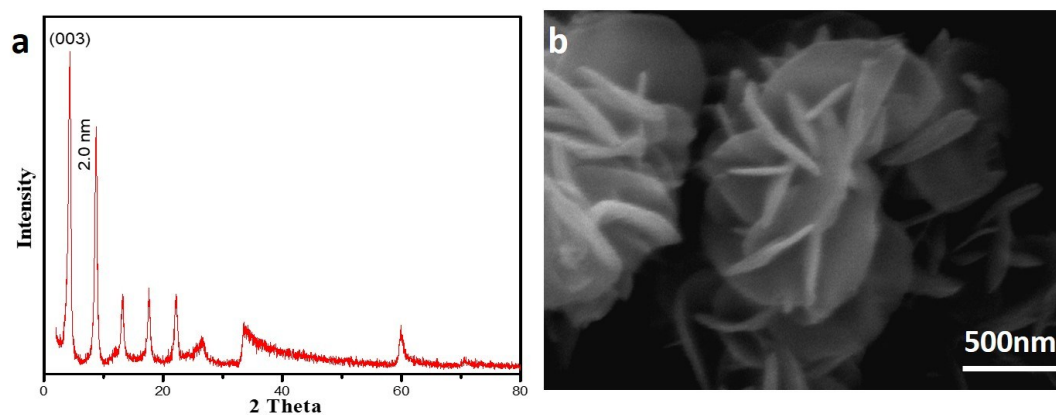
**Heterostructured NiFe Oxide/Phosphide Nanoflakes for Efficient  
Water Oxidation**

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**Figure S1.** (a) The XRD pattern and (b) TEM image of Ni<sub>2/3</sub>Fe<sub>1/3</sub> LDH.

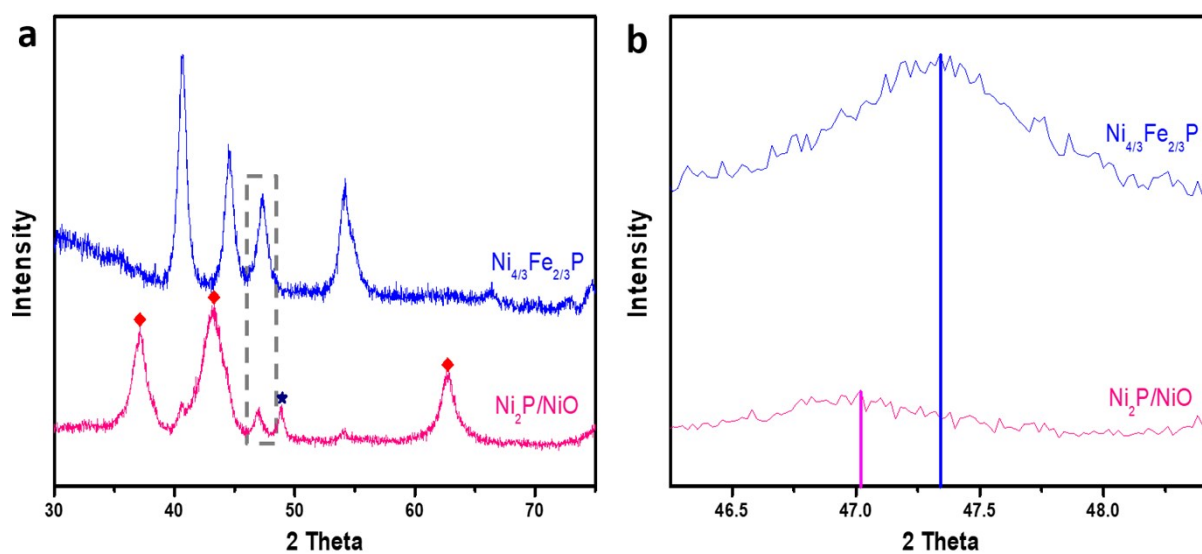


Figure S2 (a) XRD patterns of monometallic  $\text{Ni}_2\text{P}/\text{NiO}$  and the  $\text{Ni}_{4/3}\text{Fe}_{2/3}\text{P}$  samples, (b) magnification of the (210) peak of  $\text{Ni}_{4/3}\text{Fe}_{2/3}\text{P}$  and  $\text{Ni}_2\text{P}$  phases as marked by the framework in (a). “◆” and “★” refer to NiO phase and possible tetragonal  $\text{Ni}_{12}\text{P}_5$  ( $a = 8.65 \text{ \AA}$ ,  $c = 5.07 \text{ \AA}$ ; space group:  $I4/m$ ) impurity, respectively. A clear shift towards higher diffraction angle could be observed for  $\text{Ni}_{4/3}\text{Fe}_{2/3}\text{P}$ , indicating the successful doping of Fe atoms into the  $\text{Ni}_2\text{P}$  lattices.

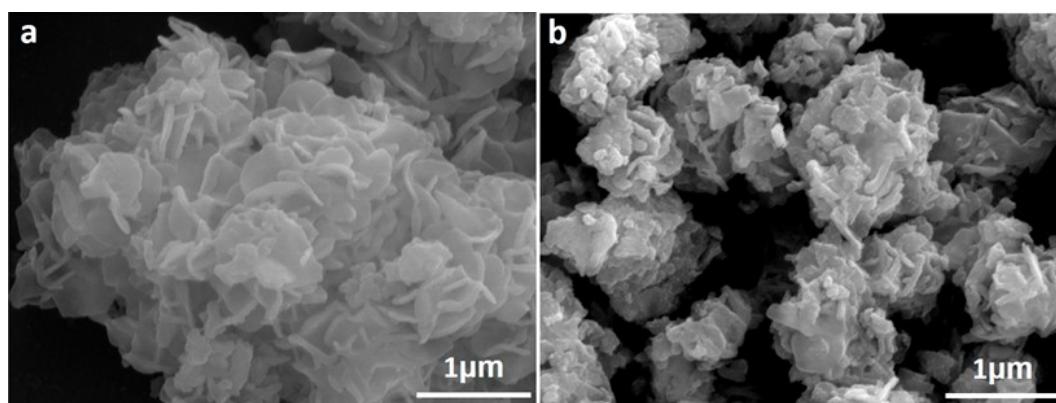
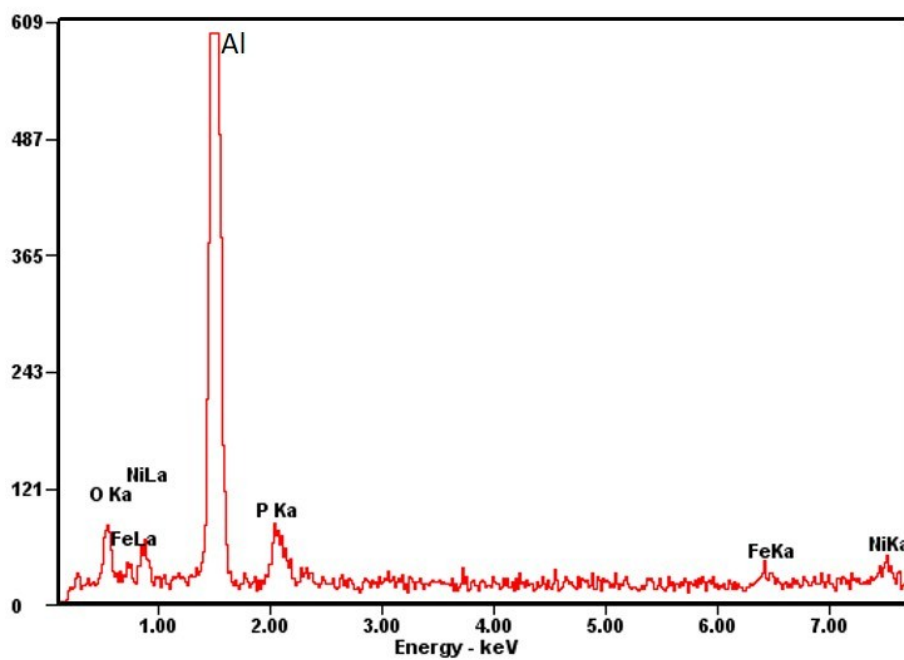
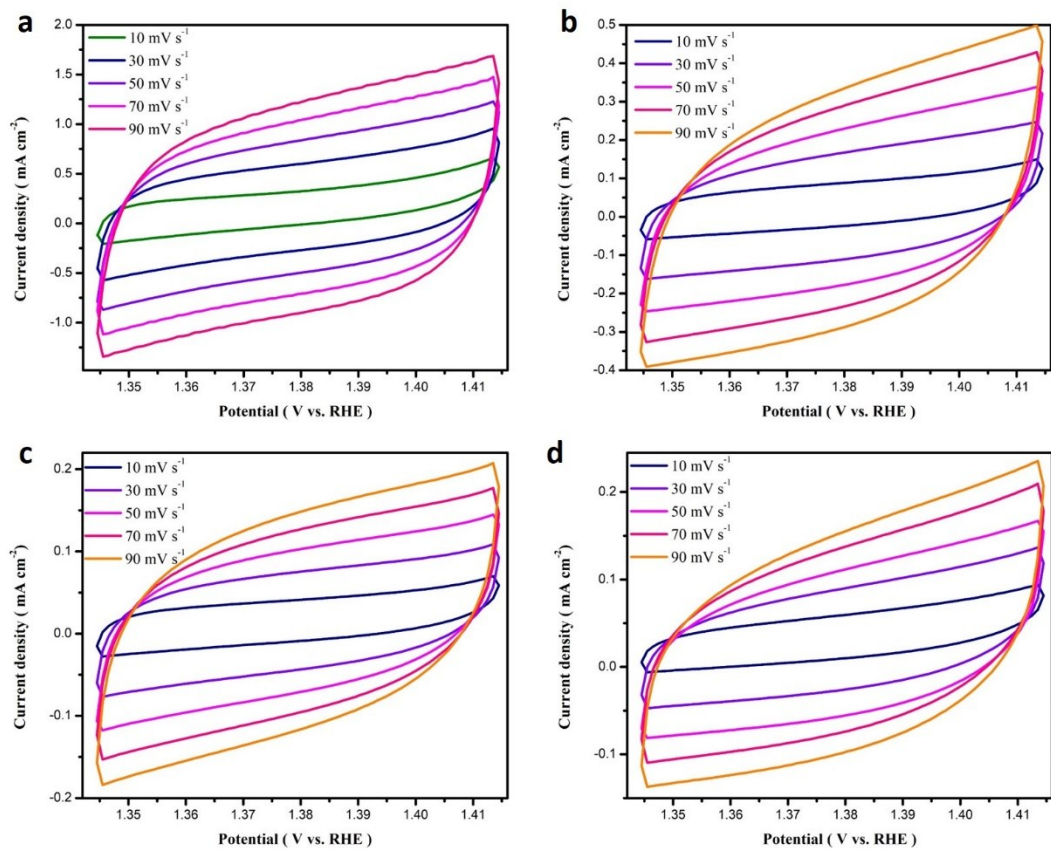


Figure S3. TEM images of (a)  $\text{Ni}_{4/3}\text{Fe}_{2/3}\text{P}$ -1 and (b)  $\text{Ni}_{4/3}\text{Fe}_{2/3}\text{P}$ -2.



**Figure S4.** EDS spectrum of  $\text{Ni}_{2/3}\text{Fe}_{1/3}\text{O}/\text{Ni}_{4/3}\text{Fe}_{2/3}\text{P}$  (the Al signal was from the conductive Al foil substrate).



**Figure S5.** The CV curves of (a) Ni<sub>2/3</sub>Fe<sub>1/3</sub>O/ Ni<sub>4/3</sub>Fe<sub>2/3</sub>P, (b) Ni<sub>2/3</sub>Fe<sub>1/3</sub>O, (c) Ni<sub>4/3</sub>Fe<sub>2/3</sub>P-1 and (d) Ni<sub>4/3</sub>Fe<sub>2/3</sub>P-2.