Supporting Information

Hollow Metal Composite Phosphides Derived from MOFs as Highly Efficient and Durable Bifunctional Electrocatalyst for Water Splitting

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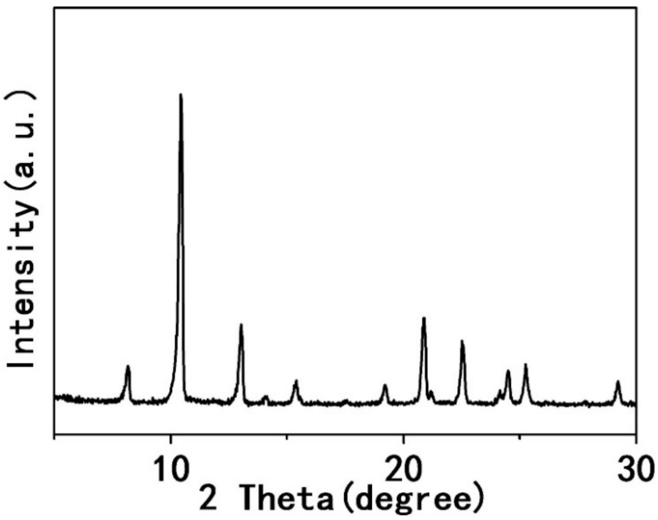

Figure S1. XRD patterns of Fe-MIL-88A

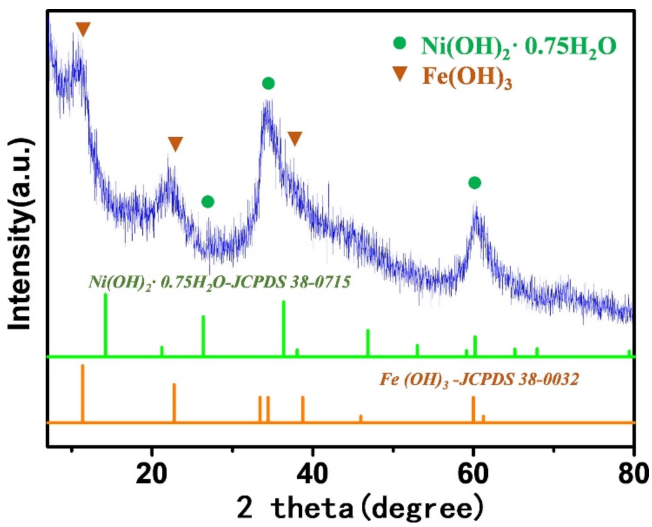

Figure S2. XRD patterns of $Fe(OH)_3@Ni(OH)_2{\cdot}0.75H_2O$

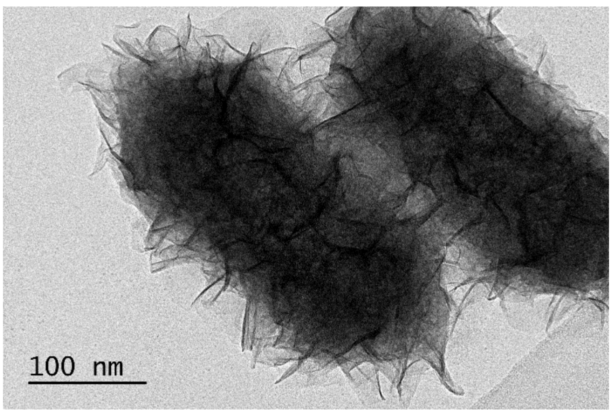

Figure S3. TEM image of $Fe(OH)_3@Ni(OH)_2{\cdot}0.75H_2O$

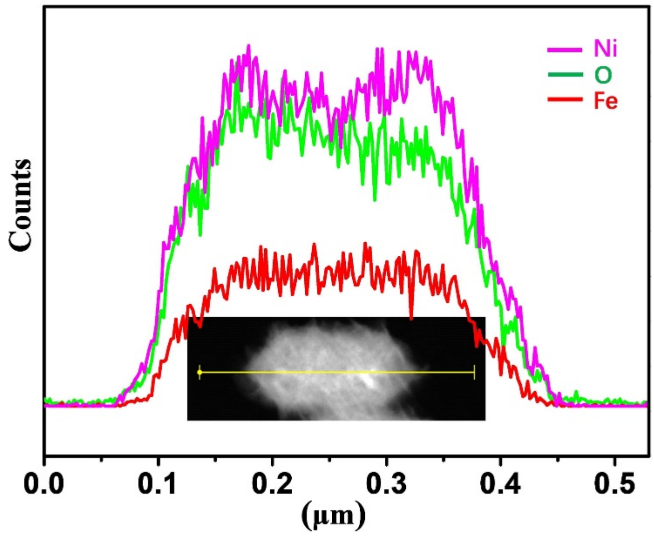

Figure S4. TEM -EDS elemental line-scan of $Fe(OH)_3@Ni(OH)_2 \cdot 0.75H_2O$

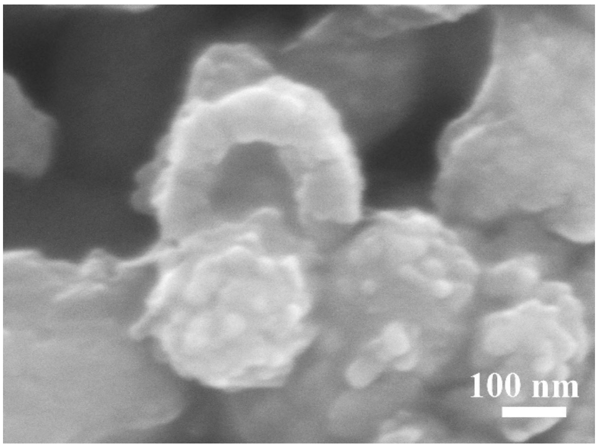

Figure S5. SEM image of a broken Fe_2P @ Ni_2P/Ni_5P_4 nanospindle

Table S1. Comparison of HER and OER catalytic performance of hollow $Fe_2P@Ni_5P_4/Ni_2P$ nanospindles and other reported metal phosphides electrocatalysts in acidic and basic conditions.

Materials	**Electrolyte**	**Catalyst loading**	**Overpotential (η_{10}, mV)**	**Long-time stability**	**Ref**
$Ni_2P@NC$	OER 1M KOH	1.0 mg cm^{-2}	320	10h (η_{10})	43
$Ni_{12}P_5@NC$	OER 1M KOH	1.0 mg cm^{-2}	330	-	43
CoP@NC	OER 1M KOH	1.0 mg cm^{-2}	348	-	43
$Co_2P@NC$	OER 1M KOH	1.0 mg cm^{-2}	383	-	43
FeP@NC	OER 1M KOH	1.0 mg cm^{-2}	409	-	43
$Fe_2P@NC$	OER 1M KOH	1.0 mg cm^{-2}	415	-	43
NiFeP	OER 1M KOH	7.0 mg cm^{-2}	231	20h (η_{100})	47
Fe_2P/Ni_2P	OER 1M KOH	5.0 mg cm^{-2}	185	100h (η_{20})	48
$Fe_2P–Ni_2P$	OER 1M KOH	0.085 mg cm^{-2}	317	20h (η_{10})	49
Co-doped Ni_5P_4	HER 0.5M H_2SO_4	0.05 mg cm^{-2}	310	18h (η_{10})	50
$Ni_2P@C$	HER 1M KOH	0.64 mg cm^{-2}	148	24h (η_{10})	51
$Ni_2P@C$	OER 1M KOH	0.64 mg cm^{-2}	328	24h (η_{20})	51
$Ni_5P_4@FeP$	OER 1M KOH	-	205	50h (η_{50})	52
$Fe_2P@Ni_5P_4/Ni_2P$	HER 1M KOH OER 1M KOH	1.0 mg cm^{-2} 1.0 mg cm^{-2}	376 (η_{20}) 230	110h (η_{50}) 49h (η_{20})	This work