# Supporting Information

## Preparation of $Fe_2Ni$ MOF on nickel foam as an efficient and stable electrocatalyst for the oxygen evolution reaction

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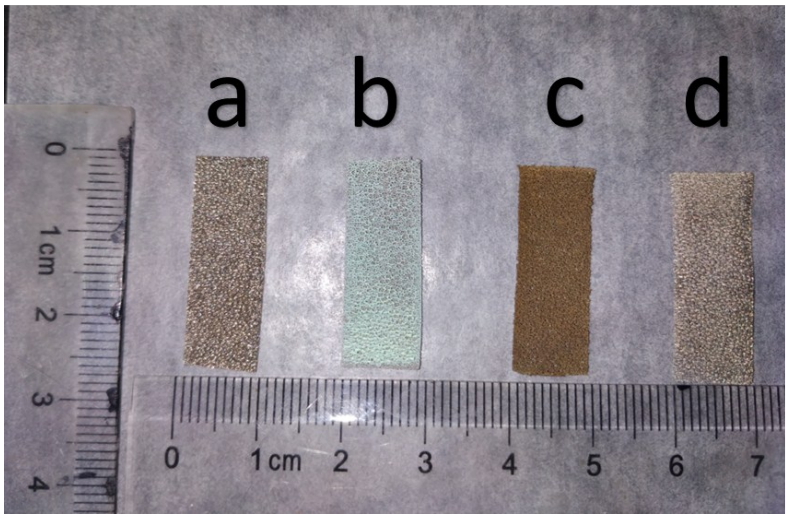


**Fig. S1** Photos of nickel foams: (a) blank NF, (b) Ni MOF/NF, (c) $Fe_2Ni$ MOF/NF and (d) Fe MOF/NF.

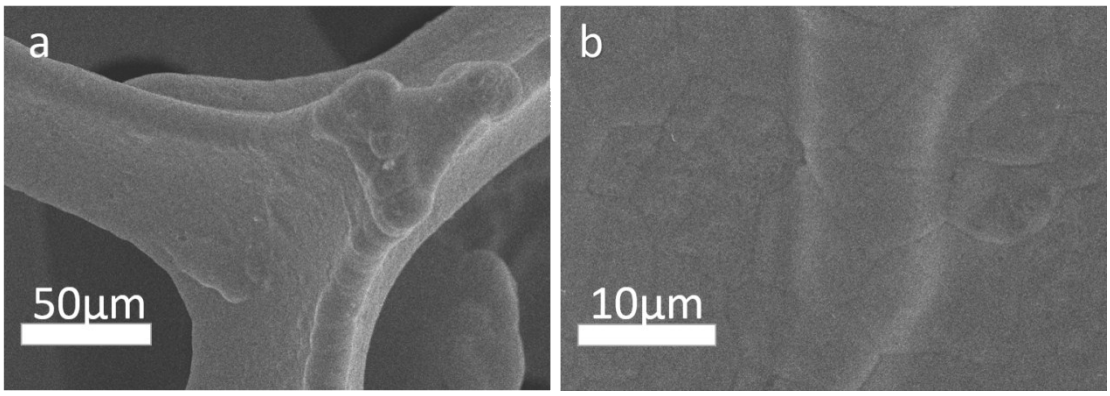


**Fig. S2** SEM images of Ni foam(a,b).

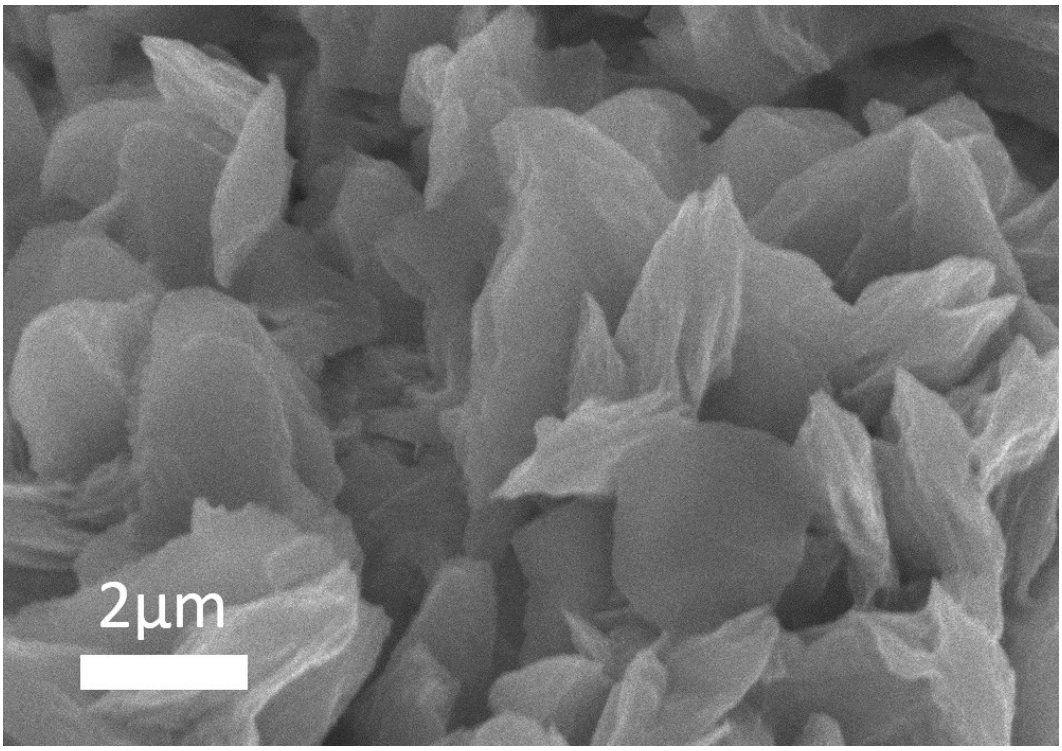


**Fig. S3** SEM image of $Fe_2Ni$ MOF/NF after stability test.

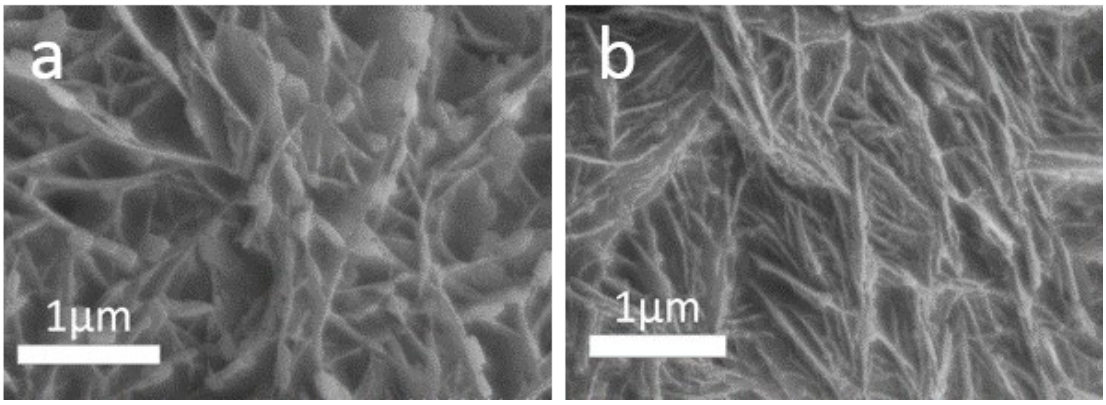


**Fig. S4** (a) SEM images of Fe:Ni=3:7 and (b) Fe:Ni=5:5.

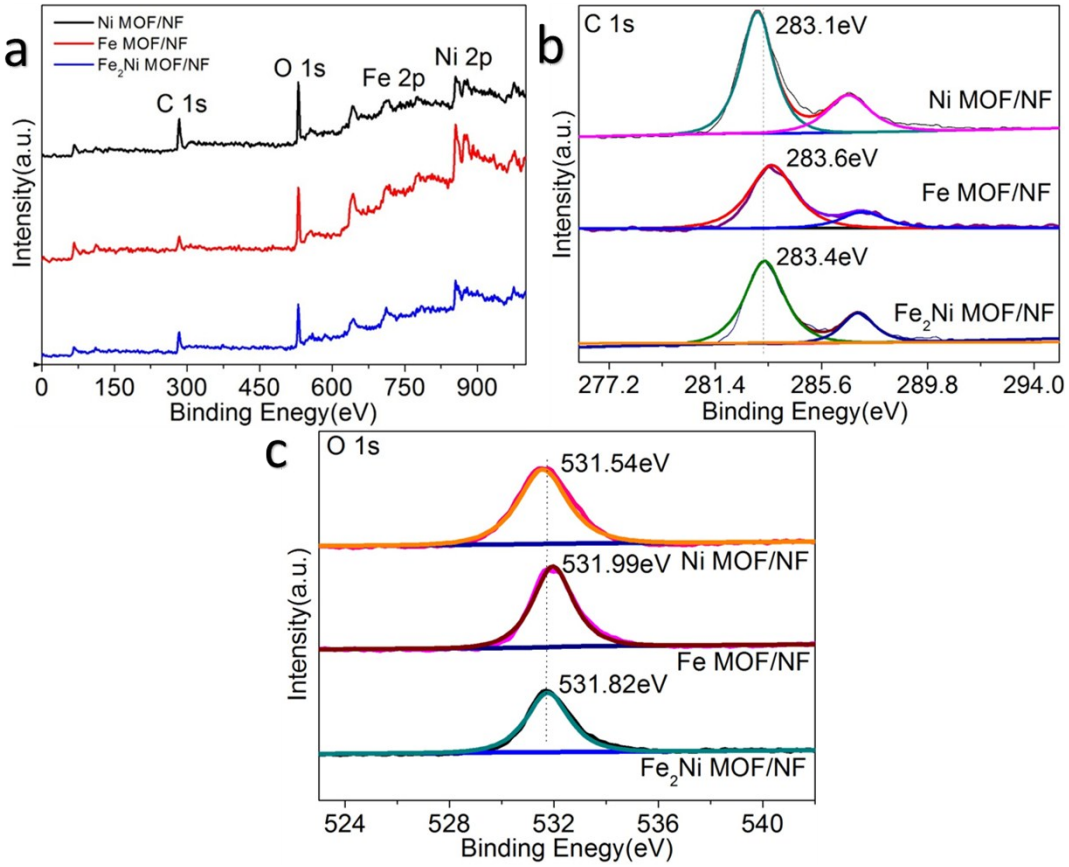


**Fig. S5** (a) Fully measured XPS spectra of $Fe_2Ni$ MOF/NF, Ni MOF/NF and Fe MOF/NF, High-resolution XPS spectra of (b) C 1s and (c) O 1s of the as-prepared samples.

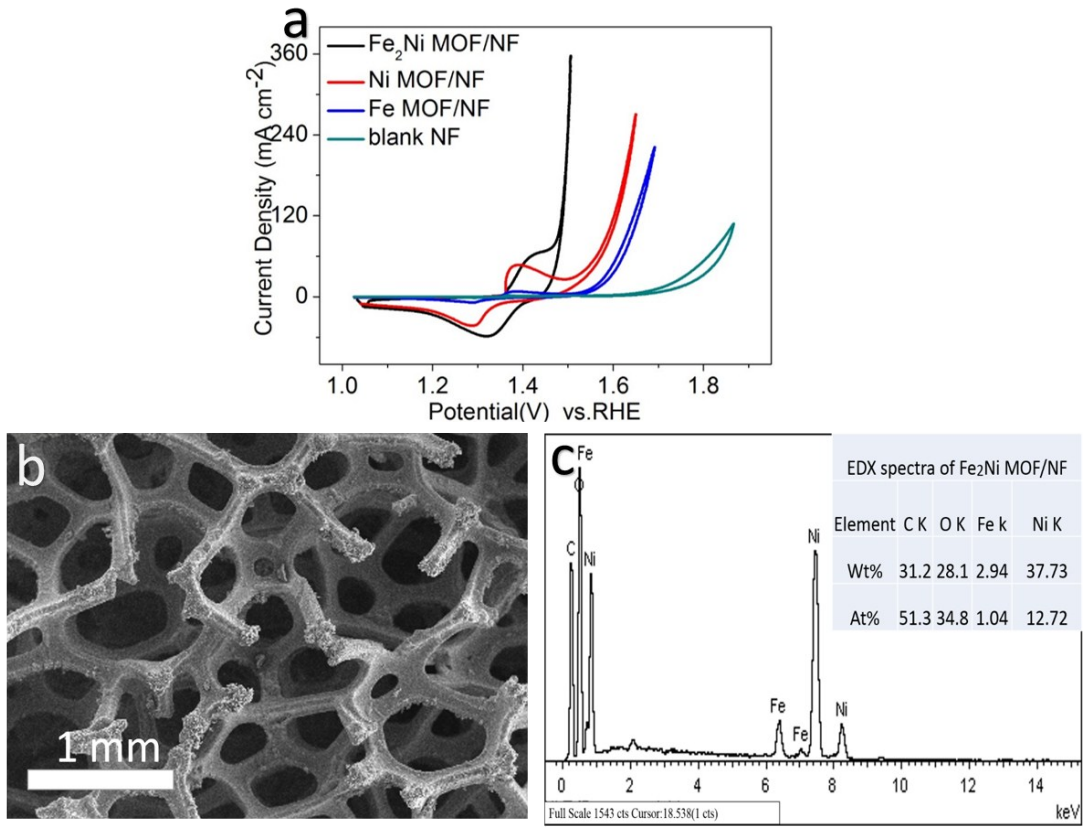


**Fig. S6** (a) CV curves of $Fe_2Ni$ MOF/NF, Ni MOF/NF, Fe MOF/NF and blank NF , (b) SEM images with corresponding (c) EDX results of $Fe_2Ni$ MOF/NF, (Inset of c) : table of elemental composition.

**Table S1** OER performances for blank NF, Fe MOF/NF, Ni MOF/NF and $Fe_2Ni$ MOF/NF.

| Catalysts | η(at 10 mA cm 2 ) | Tafel slope |
|---|---|---|
| blank NF | 494 mV | 206.4 mV $dec^{-1}$ |
| Fe MOF/NF | 327 mV | 134.4 mV $dec^{-1}$ |
| Ni MOF/NF | 268 mV | 132.5 mV $dec^{-1}$ |
| $Fe_2Ni$ MOF/NF | 222 mV | 42.4 mV $dec^{-1}$ |

**Table S2** OER performances for Fe:Ni=3:7, Fe:Ni=5:5 and Fe:Ni=7:3.

| Catalysts | η(at 10 mA cm 2 ) | Tafel slope |
|---|---|---|
| Fe:Ni=3:7 | 236 mV | 51.4 mV $dec^{-1}$ |
| Fe:Ni=5:5 | 231 mV | 50.3 mV $dec^{-1}$ |
| Fe:Ni=7:3 | 222 mV | 42.4 mV $dec^{-1}$ |

**Table S3** Comparison of OER performance in alkaline media with other reported non-precious electrocatalysts.

| Catalysts | η (mV @ mA cm-2 ) | Tafel slope (mV dec-1 ) | Ref |
|---|---|---|---|
| $Fe_2Ni$ MOF/NF | 222@10 | 42.4 | This work |
| MNF-MOFs/NF | 235@50 | 55.4 | Nano Energy. 2019, 57 1–13. |
| $Fe_{0.1}$-Ni-MOF/NF | 243@50 | 69.8 | J. Mater. Chem. A. 2019, 7, 8771. |
| NFN-MOF/NF | 240@10 | 58.8 | Adv. Energy Mater. 2018, 8, 1801065. |
| Fe-MOF/NF | 240@50 | 72 | Inorg. Chem. Front. 2018,51, 405. |
| Ni-MOF/NF | 320@100 | 123 | Inorg. Chem. Front. 2018, 5, 1570. |
| FeNi-DOBDC | 270@50 | 34 | ACS Sustainable Chem. Eng. 2019, 7, 9743−9749 |
| NiFe-MOF-74 | 223@10 | 71.6 | Chem. Commun., 2018, 54, 7046—7049 |
| NiFe-NFF | 227@10 | 38.9 | Adv. Funct. Mater. 2019, 29, 1807418 |
| $Co_3S_4$/EC-MOF | 226@10 | 132 | Adv. Mater. 2019, 31, 1806672 |
| $NixCo_{3-x}O_4$/NF | 287@10 | 88 | Nanoscale, 2019,11, 11765-11773 |
| FeNi-MOF | 270@50 | 49 | ACS Sustainable Chem. Eng. 2019, 7, 9743−9749 |
| $(Ni2Co1)_{0.925}Fe_{0.075}$-MOF-NF | 257@10 | 41.3 | Adv. Mater. 2019, 31, 1901139 |
| Ni–Fe–MOF NSs | 221@10 | 56.0 | Angew. Chem. Int. Ed. 2019, 58, 7051 – 7056 |
| CoNi-MOF/rGO | 318@10 | 48 | ACS Appl. Mater. Interfaces 2019, 11, 15662−15669 |
| EC-MOF | 215@20 | 37 | ACS Appl. Energy Mater. 2019, 2, 2138−2148 |
| $(Co,Ni)Se_2$@NiFe LDH | 277@10 | 75 | ACS Appl. Mater. Interfaces 2019, 11, 8106−8114 |