Electronic Supplementary Information for

Three-dimensionally ordered macro-/mesoporous Ni as a highly efficient electrocatalyst for hydrogen evolution reaction

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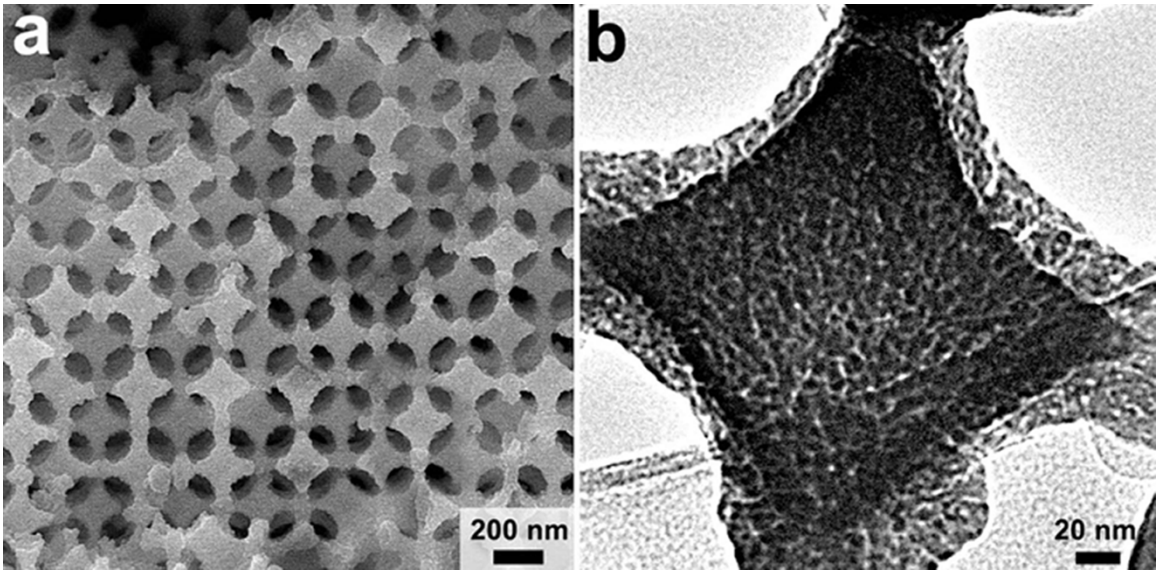

Fig. S1 (a) SEM image of 3D ordered macroporous (3DOM) Ni. (b) TEM image of 3DOM Ni.

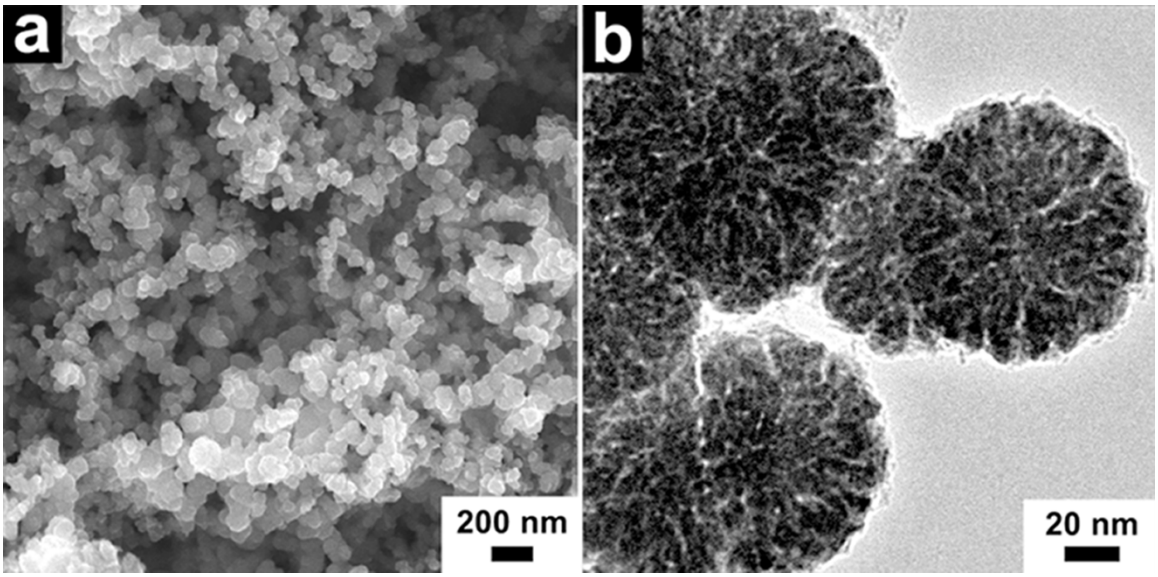

Fig. S2 (a) SEM image of Ni nanoparticles (Ni NPs). (b) TEM image of Ni NPs.

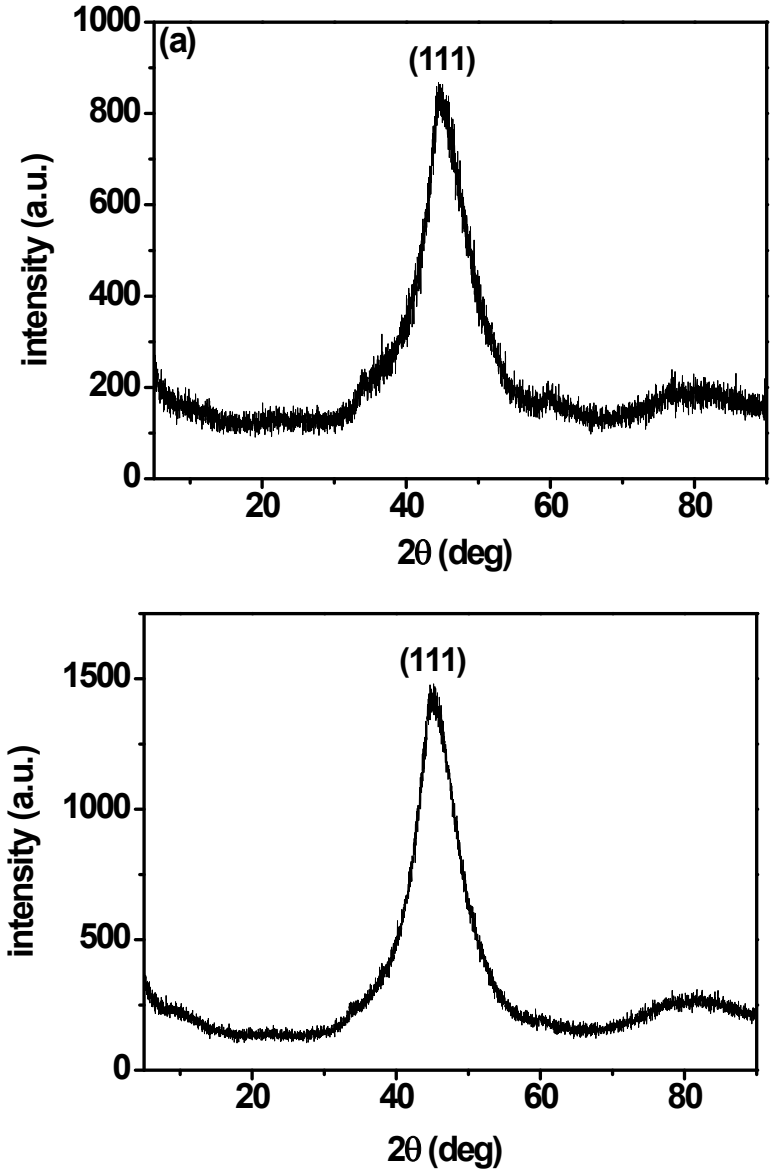

Fig. S3 Wide-angle powder XRD pattern of (a) 3DOM Ni, and (b) Ni NPs.

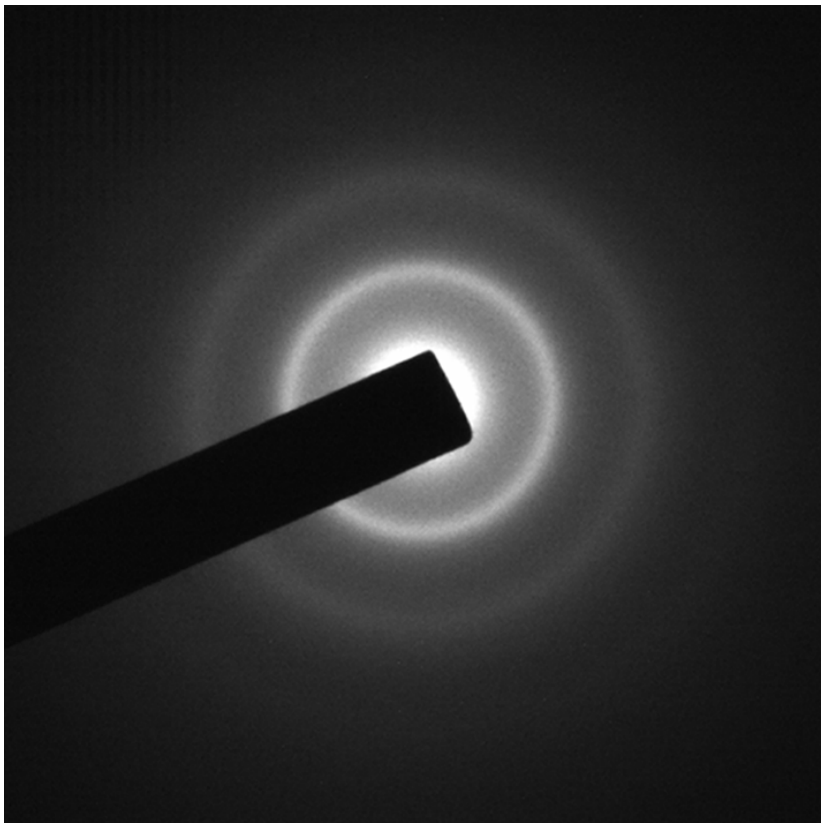

Fig. S4 Selected-area electron diffraction (SAED) pattern of 3DOM/m Ni.

Table S1 Summary of results for representative non-precious-metal HER electrocatalysts reported in the literature.

Catalyst	Electrolyte	Catalyst loading (mg cm^{-2})	Onset overpotential (mV)	Tafel slope (mV dec^{-1})	j_0 (mA cm^{-2})
Ni dendrite[1]	6 M NaOH	n.a.	200	102.7	4.65×10^{-2}
Ni_2P nanoparticles[2]	1 M KOH	1	~80	n.a.	n.a.
porous Mo_2C nanorods[3]	1 M KOH	0.43	67	45	1.1×10^{-2}
$Ni_{i3}S_2$/carbon nanotube nanocomposite[4]	1 M KOH	0.26	~400	167	4.8×10^{-3}
Ni_xCo_{10-x}/C nanoflakes[5]	0.1 M NaOH	0.35	~200	126	9.1×10^{-3}
Mo_2C[6]	1 M NaOH	0.8	~100	54	2.0×10^{-3}
MoB[6]	1 M NaOH	2.3	~100	59	2.0×10^{-3}
Ni_2P particles[7]	0.5 M H_2SO_4	0.071	~170	70	3.84×10^{-3}
sea urchin-like NiSe nanofiber[8]	0.5 M H_2SO_4	0.28	200	64	n.a.
3D nanoporous CoP nanowires[9]	0.5 M H_2SO_4	0.8	~45	65	n.a.
nanoporous Mo_2C nanowires[10]	0.5 M H_2SO_4	0.21	70	53	n.a.
MoS_2 nanoparticles/mesoporous graphene foams[11]	0.5 M H_2SO_4	0.21	~100	42	3.0×10^{-3}
Core-shell MoO_3-MoS_2 nanowires[12]	0.5 M H_2SO_4	n.a.	150-200	50-60	n.a.
MoS_2/ordered mesoporous carbon nanospheres[13]	0.5 M H_2SO_4	0.19	~100	41	n.a.
Ni/NiO/$CoSe_2$ nanocomposite[14]	0.5 M H_2SO_4	0.28	30	39	1.4×10^{-2}
$NiMoN_x$/C[15]	0.1 M $HClO_4$	0.25	78	35.9	0.24
3DOM/m Ni-B[16]	1 M NaOH	0.28	63	52	0.11

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