Electronic Supplementary Material (ESI) for Nanoscale.

Jahn–Teller Distortion Boosts Holey NiMn-Hydroxide Nanosheets Ultrahigh Areal Capacity and Cycling Robustness for Flexible Energy Storage Devices

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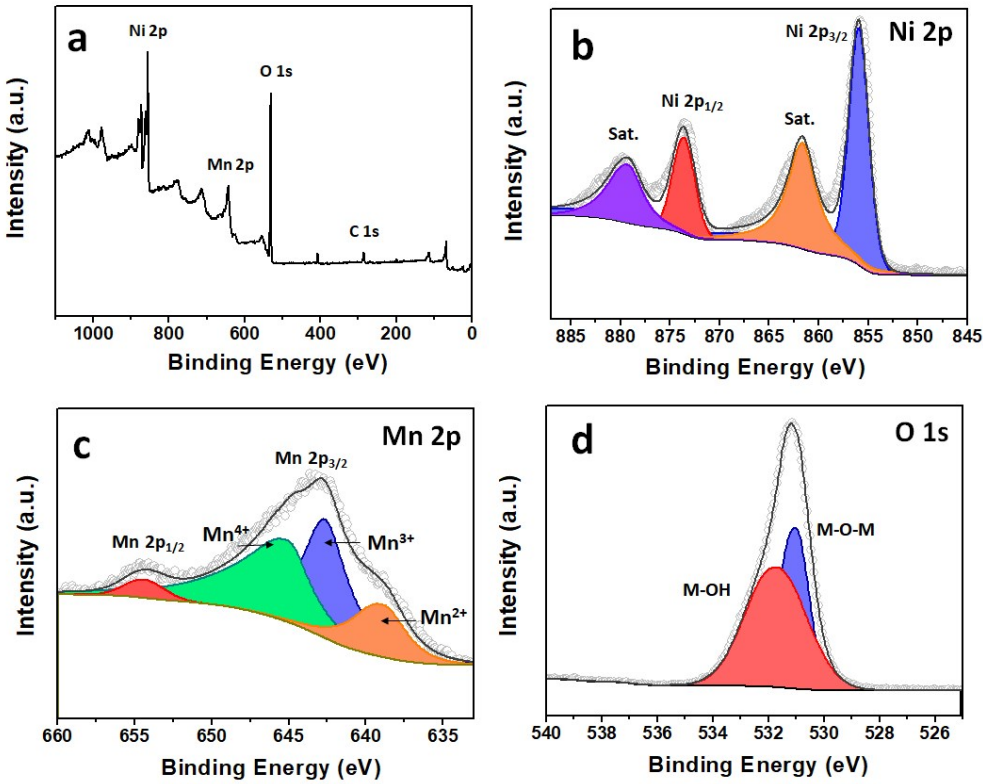

Fig. S1 (a) XPS surface survey. (b) Ni 2p, (c) Mn 2p, and (d) O 1s core-level XPS spectra of NiMn-OH-50%.

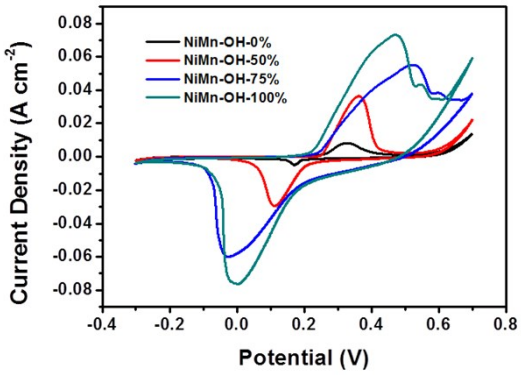

Fig. S2 CV curves of NiMn-OH-0%, NiMn-OH-50%, NiMn-OH-75%, and NiMn-OH-100%.

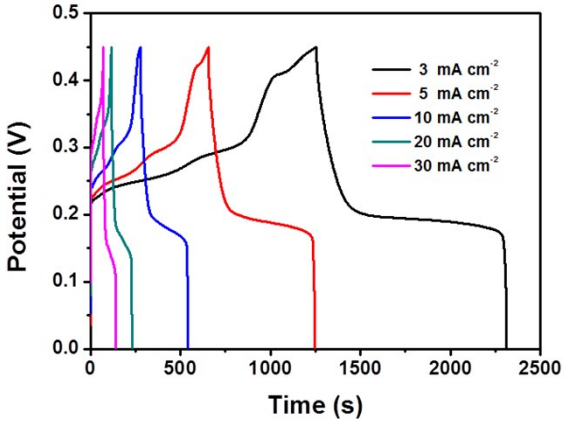

Fig. S3 GCD curves for NiMn-OH-100% at different currents.

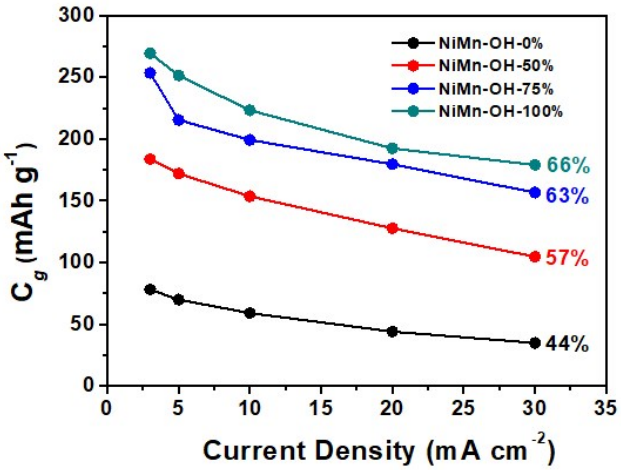

Fig. S4 The capacities of NiMn-OH-0%, NiMn-OH-50%, NiMn-OH-75%, and NiMn-OH-100% at different current densities.

Table S1 Performance comparison of our electrode and others reported in literatures.

Electroactive materials	**Areal capacity (μAh cm^{-2})**	**Mass capacity (mAh g^{-1})**	**Current density**	**Rate capability**	**Reference**
NiMn-OH	881	269	3 mA cm^{-2} (0.92 A g^{-1})	66% (30 mA cm^{-2})	This work
$CoNiO_2$@$Ni(OH)_2$	674	539	1 mA cm^{-2}	70% (10 mA cm^{-2})	1
H-CoO_x@$Ni(OH)_2$	820.4	335.5	5.2 mA cm^{-2} (2 A g^{-1})	68% (50 A g^{-1})	2
Ni_3S_2@$Ni(OH)_2$	588.2	158.5	5.1 A g^{-1}	38% (19.8 A g^{-1})	3
Cu-Doped NiCo-LDH/CuO	310	193.3	1.5 mA cm^{-2}	79% (40 mA cm^{-2})	4
$Cu_3Mo_2O_9$ NCAs	449.5	112.3	2 mA cm^{-2}	44% (30mA cm^{-2})	5
$CuCo_2O_4$@$CoMoO_4$	500	-	2 mA cm^{-2}	66.7% (80 mA cm^{-2})	6
$CuCo_2O_4$@$Ni(OH)_2$	439	-	2 mA cm^{-2}	82.7% (80 mA cm^{-2})	7
$Ni_{0.54}Co_{0.46}O_2$ nanosheet	438	238	1 mA cm^{-2}	90.3% (80 mA cm^{-2})	8
$Ni_{0.54}Co_{0.46}O_2$ nanowire	394.1	218.9	1 mA cm^{-2}	55% (40 mA cm^{-2})	8
$NiCo_2S_4$@$Ni(OH)_2$	680	240.3	5 mA cm^{-2}	94.9% (100 mA cm^{-2})	9
NiS	410	177.1	2.3 mA cm^{-2}	49% (10 A g^{-1})	10

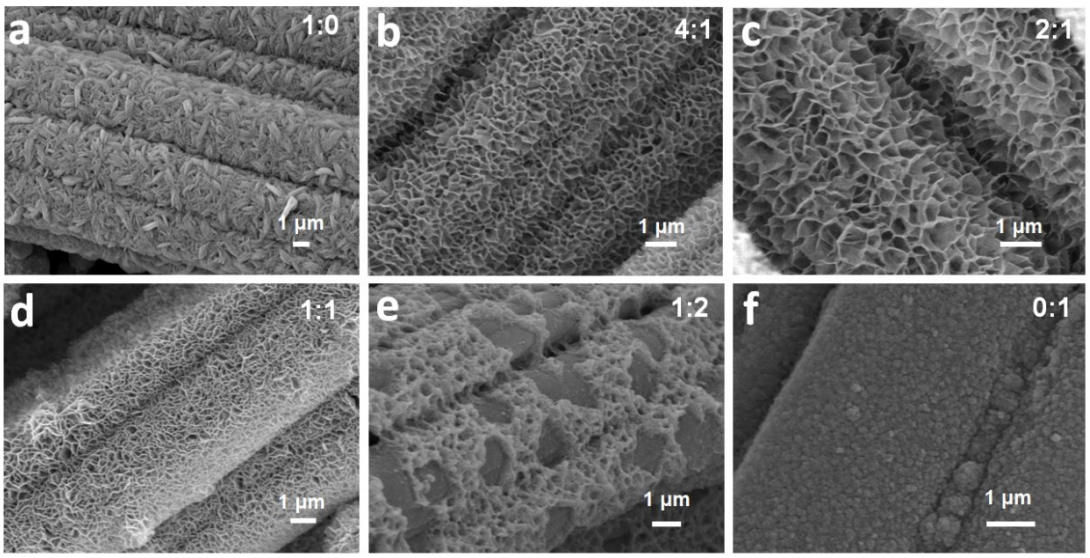

Fig. S5 SEM images of the products from different Ni and Mn feeding mole ratios: (a) 1:0, (b) 4:1, (c) 2:1, (d) 1:1, (e) 1:2, (f) 0:1.

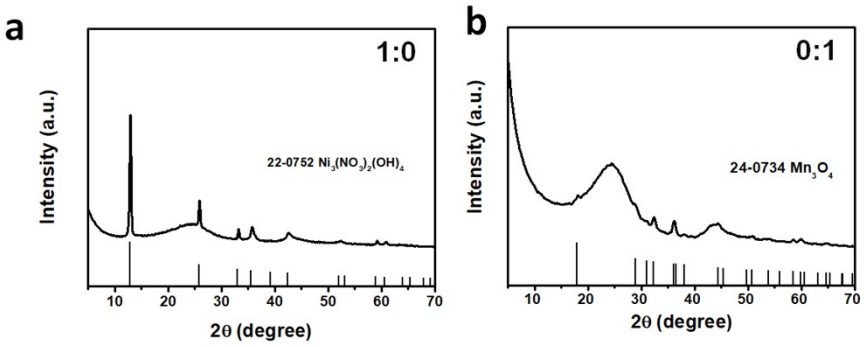

Fig. S6 XRD pattern of the products from Ni and Mn feeding ratio of (a) 1:0 and (b) 0:1.

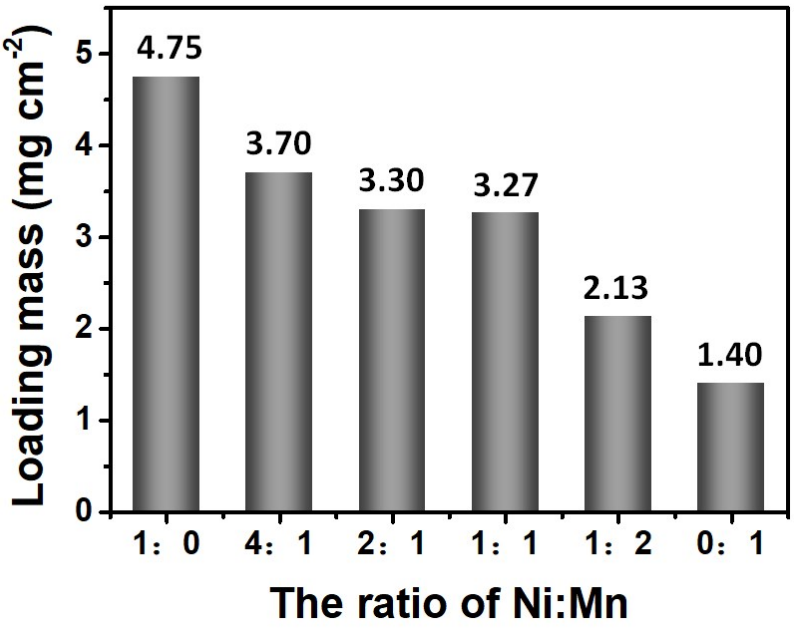

Fig. S7 The mass loading of solvothermal products as a function of different Ni:Mn ratio.

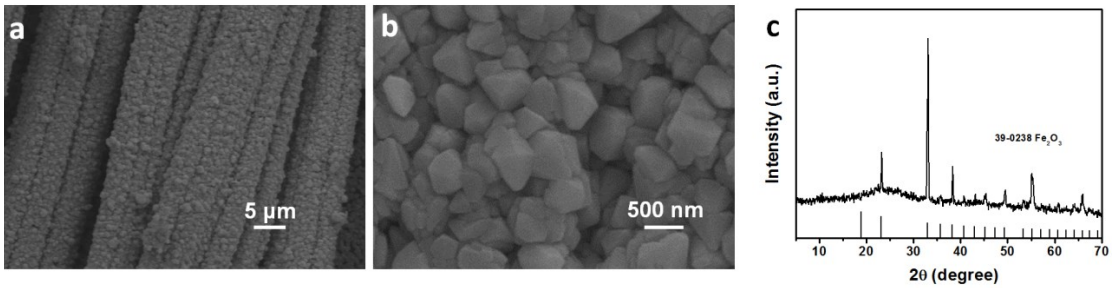

Fig. S8 (a, b) SEM images and (c) XRD pattern of Fe_2O_3/CC.

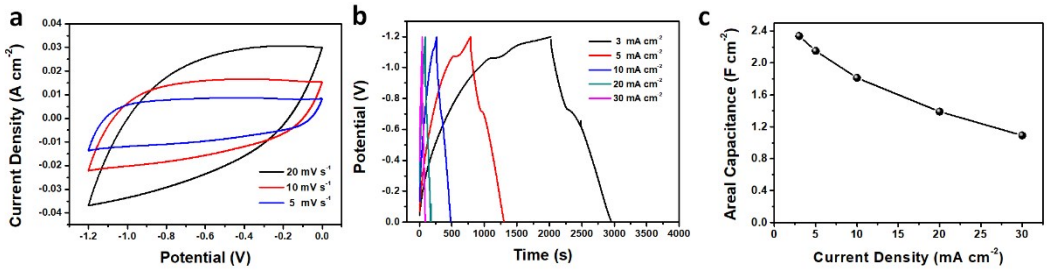

Fig. S9 (a) CV and (b) GCD curves of Fe_2O_3/CC electrode. (c) The areal capacitance of Fe_2O_3/CC electrode at different current densities.

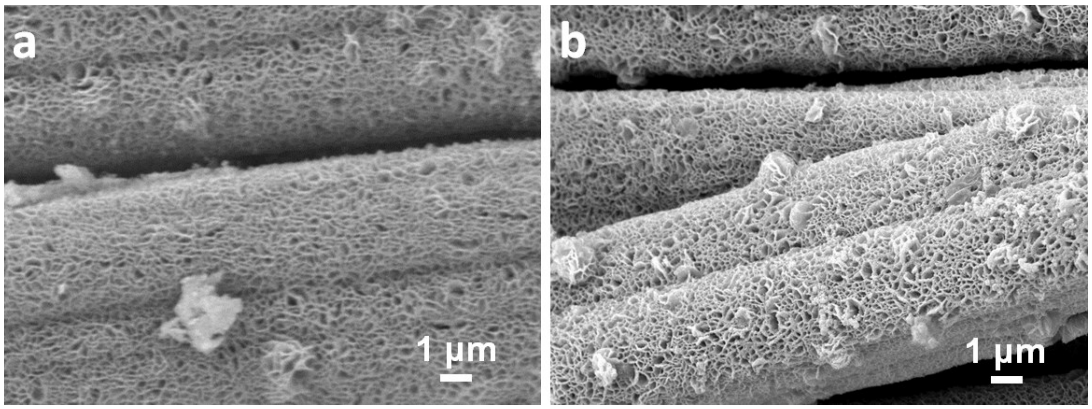

Fig. S10 SEM images of NiMn-OH-100% electrode (a) before and (b) after 10000 GCD cycles.

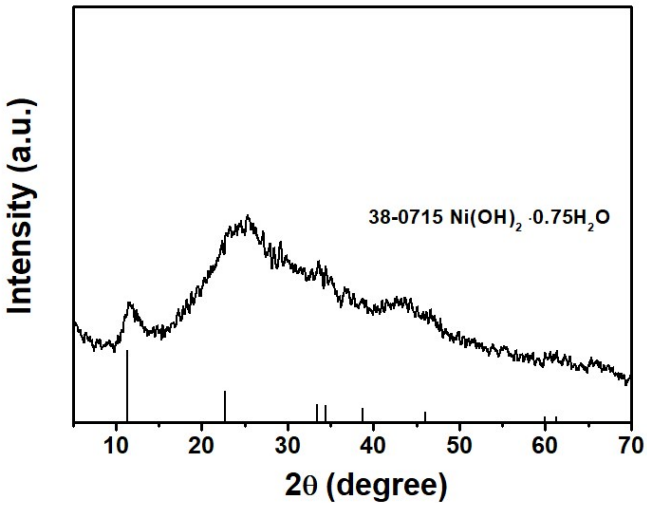

Fig. S11 XRD pattern of NiMn-OH-100% electrode after 10000 GCD cycles.

Reference

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