Supporting Information

Hollow Sphere Formation by Self Aggregation of Nanocrystals Perovskite Fluoride $NaNiF_3$ and Ultrahigh Performance Asymmetric Supercapacitor

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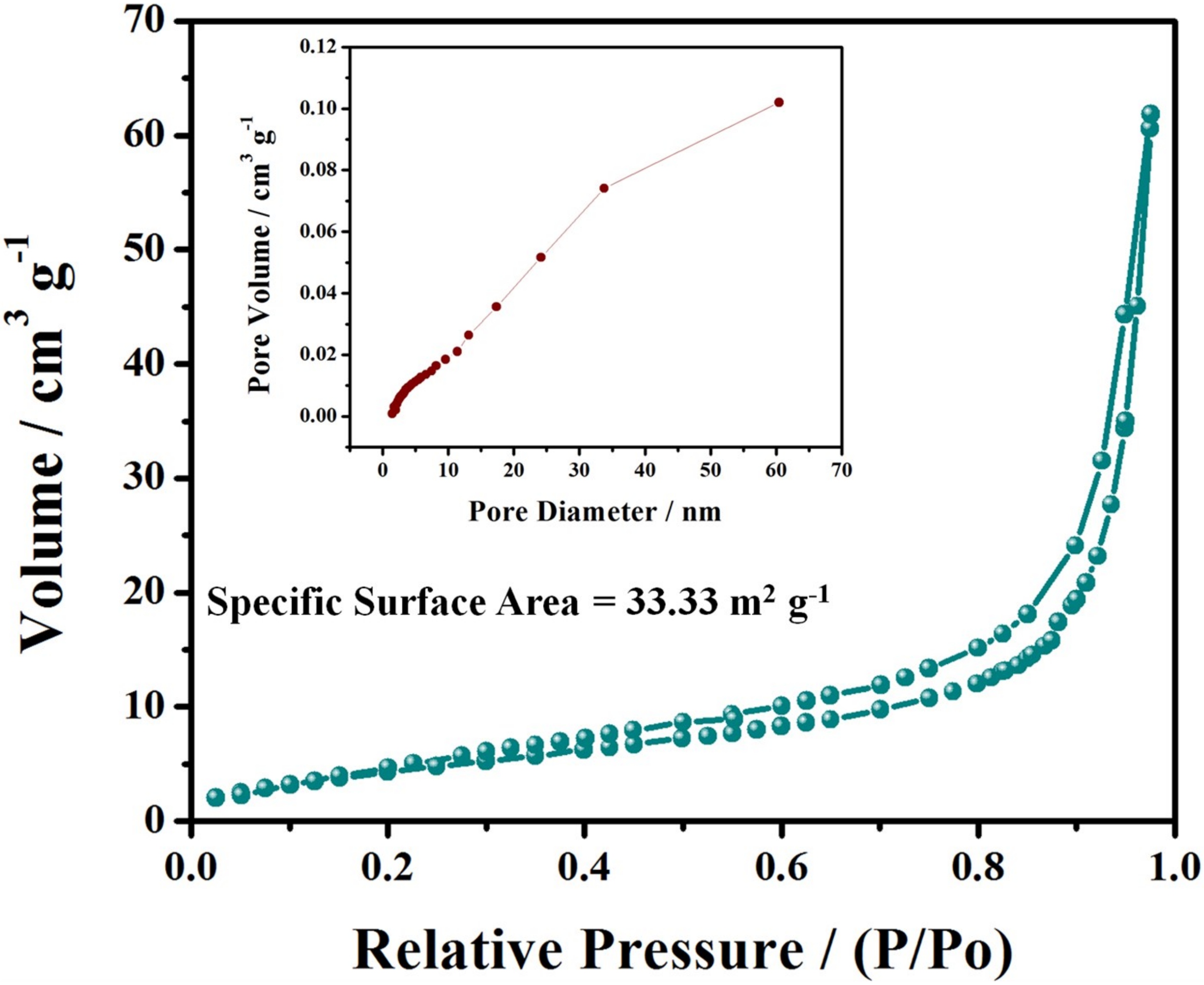

Fig. S1 Adsorption-desorption isotherm and Pore size distribution of as prepared hollow spheres Perovskite fluoride $NaNiF_3$.

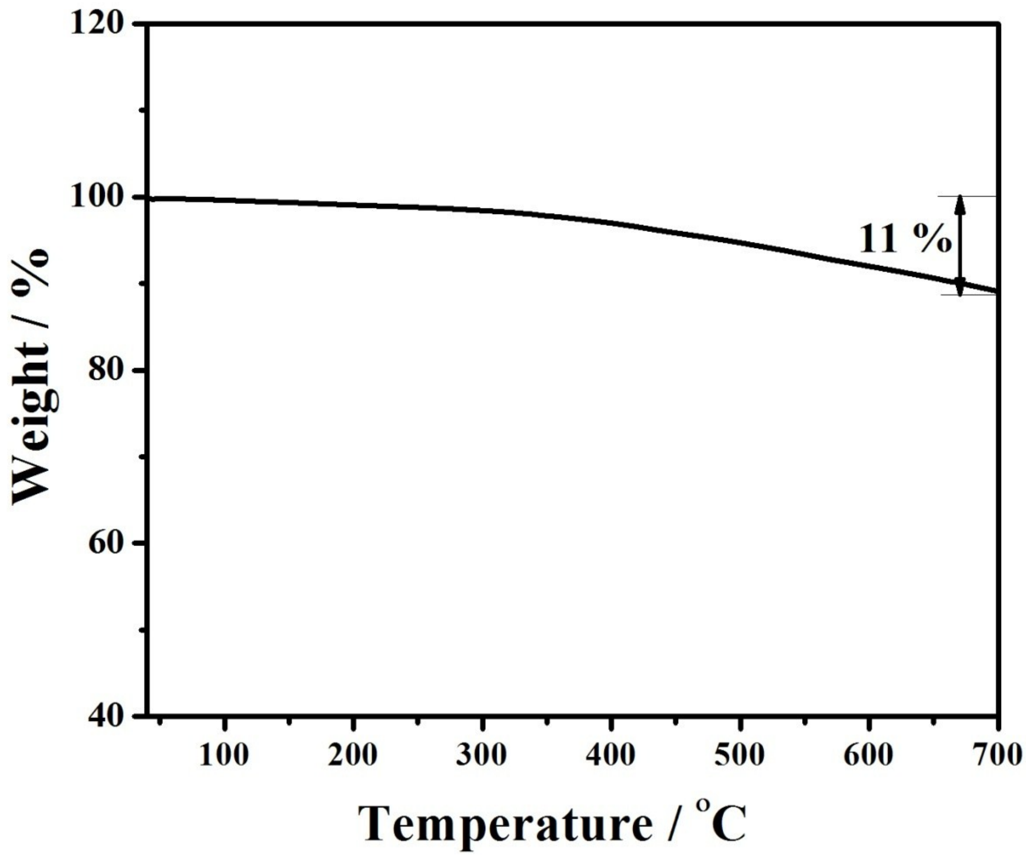

Fig. S2 TGA curve obtained from 10 to 700 ºC in air of as prepared hollow spheres Perovskite fluoride $NaNiF_3$

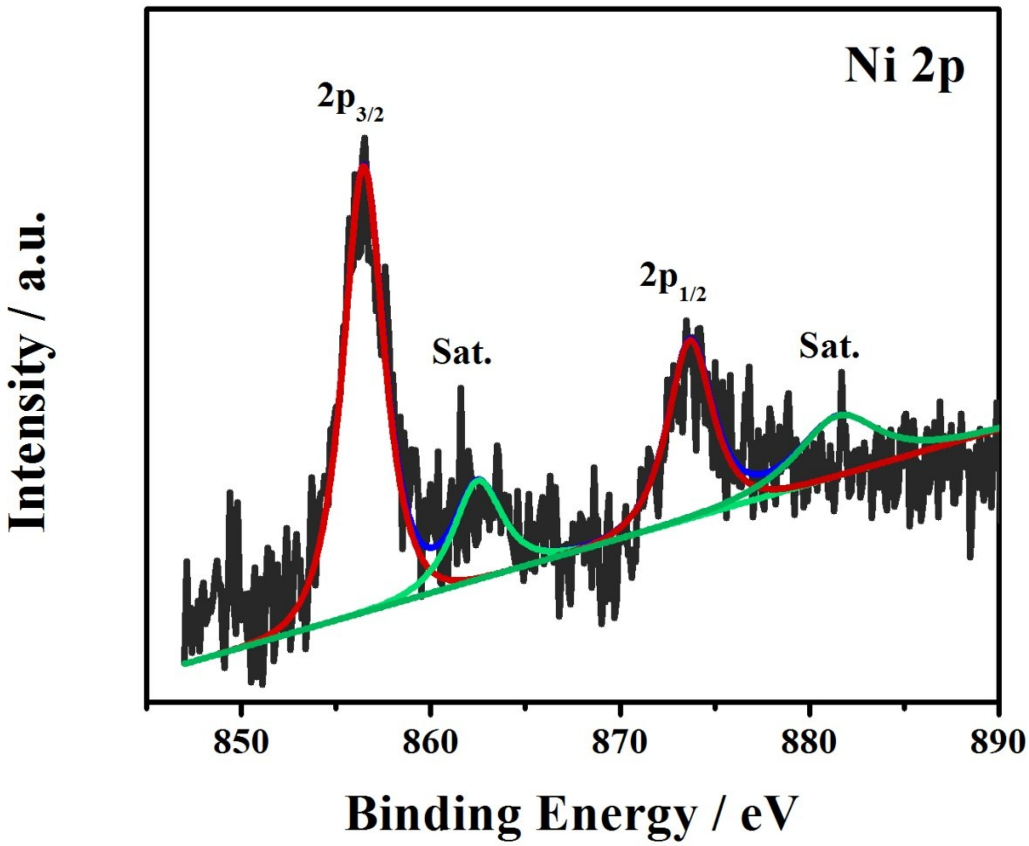

Fig. S3 Ni 2p XPS spectra of NaNiF3 at charged state in three-electrode system.

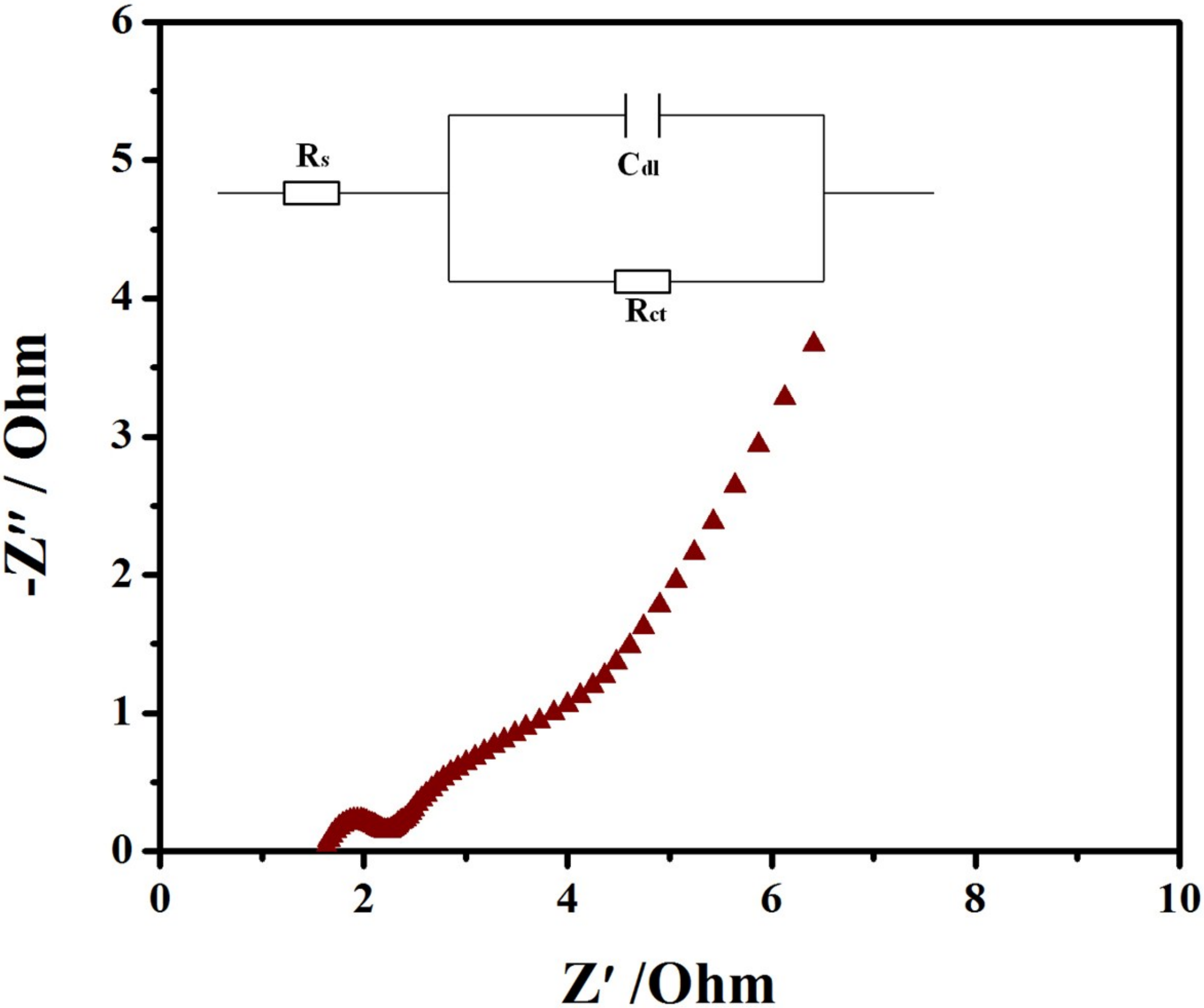

Fig. S4 Nyquist plots of perovskite fluorides $NaNiF_3$ measured at open circuit potential.

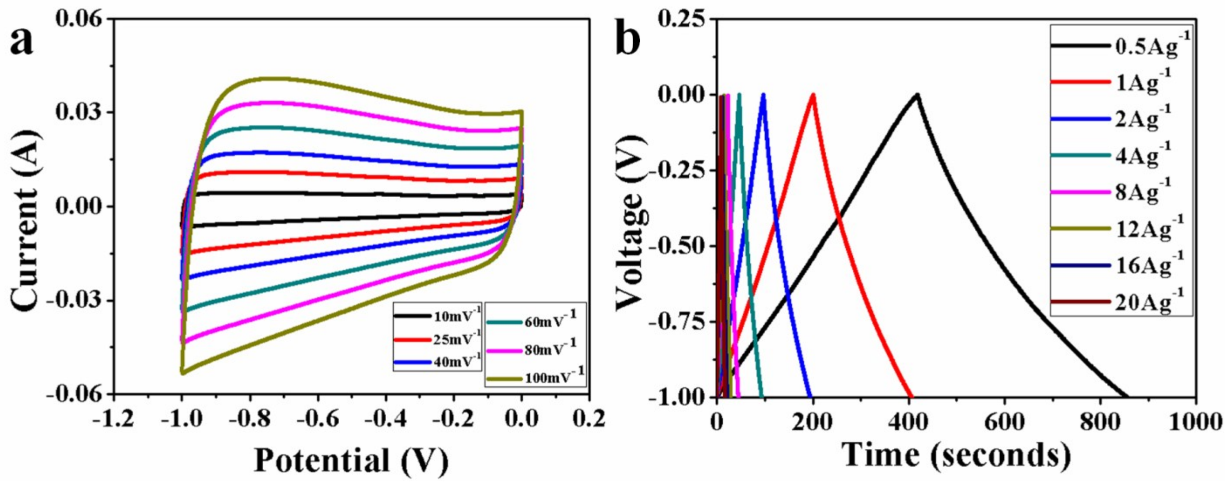

Fig. S5 (a) CV curves of AC at different scan rates (10-100 mV s^{-1}) within the voltage window from -1 to 0 V. (b) Galvanostatic charging/discharging curves of activated carbon at different current densities within voltage window -1~0 V

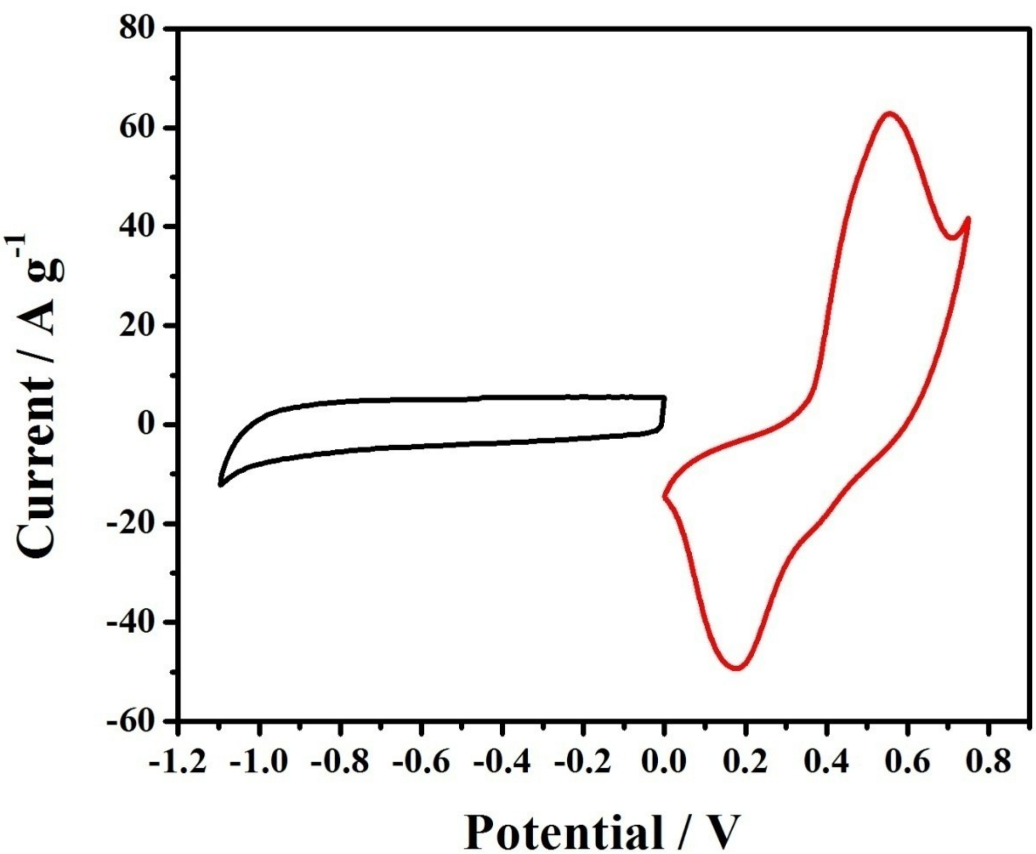

Fig. S6 CV curves of AC and $NaNiF_3$ hollow spheres at scan rate of 20 mV s^{-1} in a mixture of KOH and LiOH (3M+0.5M).

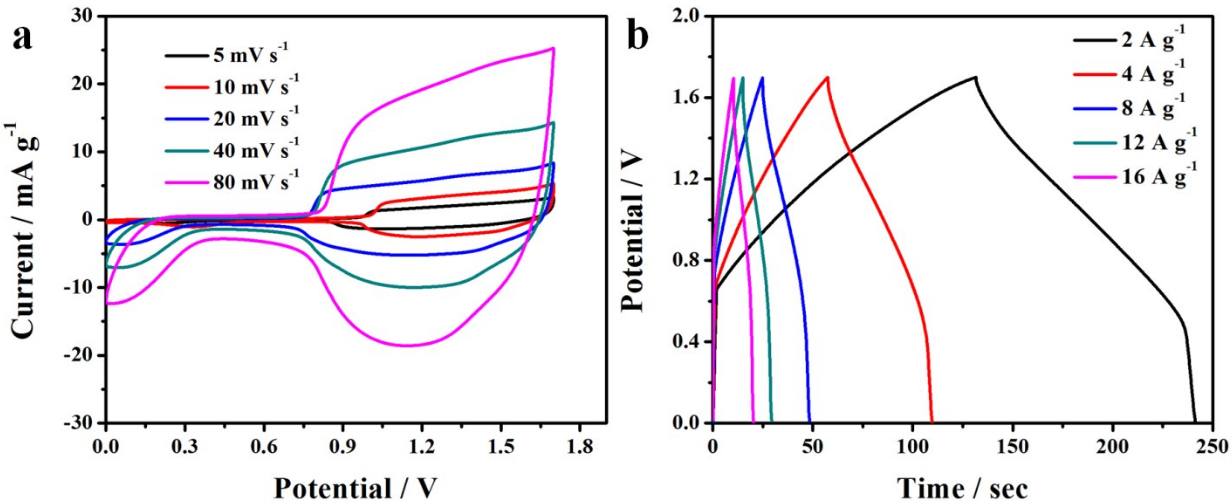

Figure S 7 Electrochemical performance of $NaNiF_3$//AC ASC device using carbon paper as current collector. (a) CV curves at different scan rates (5-80 mV s^{-1}) within the voltage window 0-1.7 V. (b) Galvanostatic charging/discharging curves at different current densities within voltage window 0-1.7 V.

Table S1. Three electrode performance Comparison of hollow sphere perovskite fluorides $NaNiF_3$ with reported perovskite fluorides, perovskite oxides and other state of art electrode materials.

Electrode material	Electrolyte	Specific Capacitance	Current density	Stability	Ref.
$NaNiF_3$	3 M KOH + 0.5 M LiOH	1342 F g^{-1}	5 A g^{-1}	90 % after 8,000 cycles	This work
PerovskiteFluorieds					
$KNi_{0.8}Co_{0.2}F_3$	3 M KOH + 0.5 M LiOH	1530 F g^{-1}	1 A g^{-1}	-	1
K-Co-Mn-F	3 M KOH + 0.5 M LiOH	226 F g^{-1}	1 A g^{-1}	118 % after 5,000 cycles	2
Perovskite Oxides					
$SrCo_{0.9}Nb_{0.1}O_{3-\delta}$	6 M KOH	786.1 F g^{-1}	1 A g^{-1}	95.7 % after 3000 cycles	3
$SrRuO_3$; $La_{0.2}Sr_{0.8}Mn_{0.2}Ru_{0.8}O$	6 M KOH	270 F g^{-1}; 160 F g^{-1}	20 mV s^{-1}		4
$BiFeO_3$	1 M NaOH	81 F g^{-1}	20 mV s^{-1}		5
$TiO_2/BiFeO_3$	0.5 M Na_2SO_4	440 F g^{-1}	1.1 A g^{-1}		6
$LaNiO_3$; $MnO_x/LaNiO_3$	1 M Na_2SO_4	6.2; 160 F g^{-1}	10; 0.01 V s^{-1}		7
$LaNiO_3/NiO$	7 M KOH	213.2 F g^{-1}	1 A g^{-1}		8
$La_{0.85}Sr_{0.15}MnO_3$;$LaMnO_3$	1 M KOH	198;187 F g^{-1}	0.5 A g^{-1}		9
$(La_{0.75}Sr_{0.25})_{0.95}MnO_{3-\delta}$	1 M Na_2SO_4	56 F g^{-1}	2 mV s^{-1}		10
$La_xSr_{1-x}NiO_{3-\delta}$	1 M Na_2SO_4	719 F g^{-1}	2 A g^{-1}		11
$La_xSr_{1-x}Co_{0.1}Mn_{0.9}O_{3-\delta}$	1 M KOH	485 F g^{-1}	1 A g^{-1}		12

$LaMO_3$ (M=Ni, Mn, Fe, Cr)		106.58, 56.78, 16.43, 24.40 F g $^{-1}$	1 A g^{-1}		13
Non perovskite materials					
$Ni_{0.67}Co_{0.33}Se$	6 M KOH	535 F g $^{-1}$	1 A g^{-1}	82 % after 2,000 cycles	14
Ni-Co-P	3 M KOH + 0.5 M LiOH	1448 F g $^{-1}$	1 A g^{-1}		15
Ni-Co-F	3 M KOH + 0.5 M LiOH	564 F g $^{-1}$	1 A g^{-1}		16
$NiCo_2O_4$	6 M KOH	351 F g $^{-1}$	1 A g^{-1}		17
Ni-P@$NiCo_2O_4$	3 M KOH + 0.5 M LiOH	1240 F g $^{-1}$	1 A g^{-1}		18
$NixCo_{2-x}P$	6 M KOH	571 F g $^{-1}$	1 A g^{-1}		19
$CoMoO_4$-$NiMoO_4$•xH_2O	2 M KOH	1039 F g $^{-1}$	1 A g^{-1}		20
$NiCo_2S_4$@$Ni_3V_2O_8$	6 M KOH	512 C g^{-1}	1 A g^{-1}		21
$NiCo_2S_4$/Co_9S_8	6 M KOH	749 F g $^{-1}$	4 A g^{-1}		22
$NiCo_2O_4$@$NiWO_4$	6 M KOH	1384 F g $^{-1}$	1 A g^{-1}		23
Co–Ni–W–B–O/20rGO	6 M KOH	1189.1 F g $^{-1}$	1 A g^{-1}		24
OMC/MoO_2	1 M H_2SO_4	37 mA h g^{-1}	0.2 A cm^{-2}		25

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