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Supporting Information

Facile synthesis of two-dimensional (2D) nanoporous NiO nanosheets from metal-organic frameworks with superior capacitive properties

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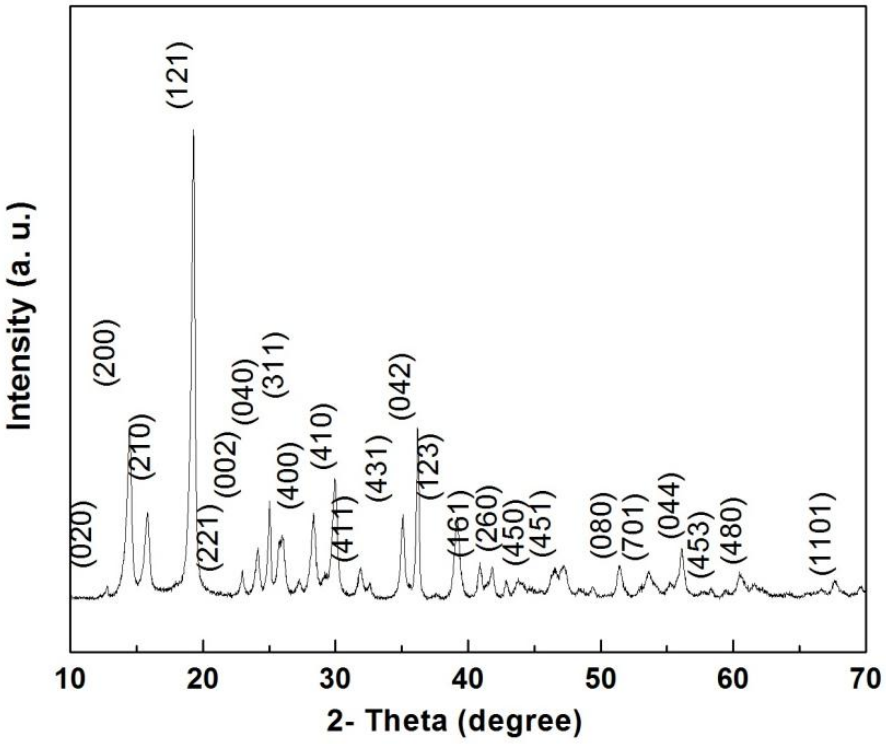

Figure. S1 XRD pattern of the obtained Ni-MOF precursors ($Ni(H_2O)_2[Ni(CN)_4]\cdot XH_2O$).

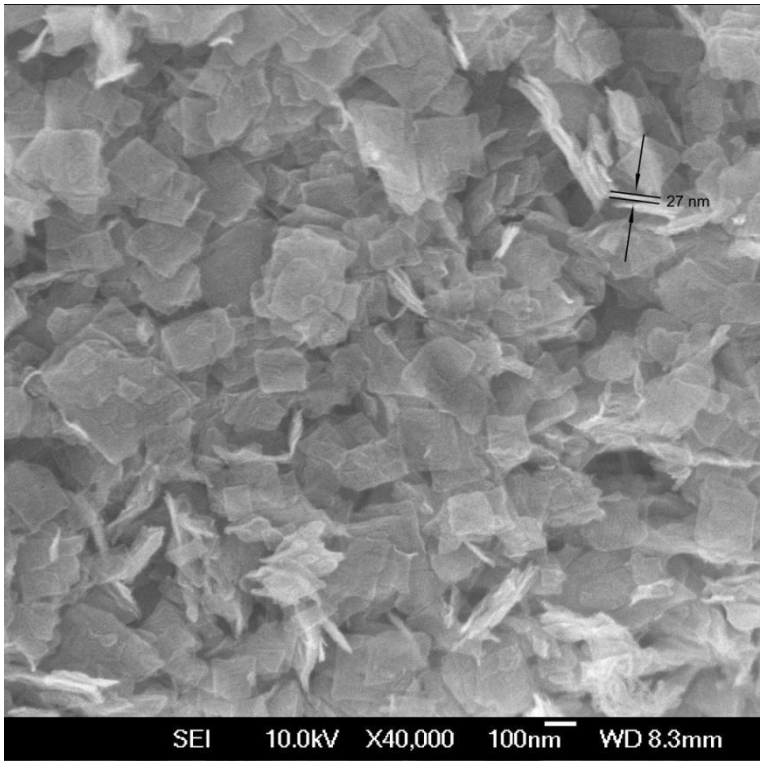

Figure. S2 FESEM image of NiO NSs.

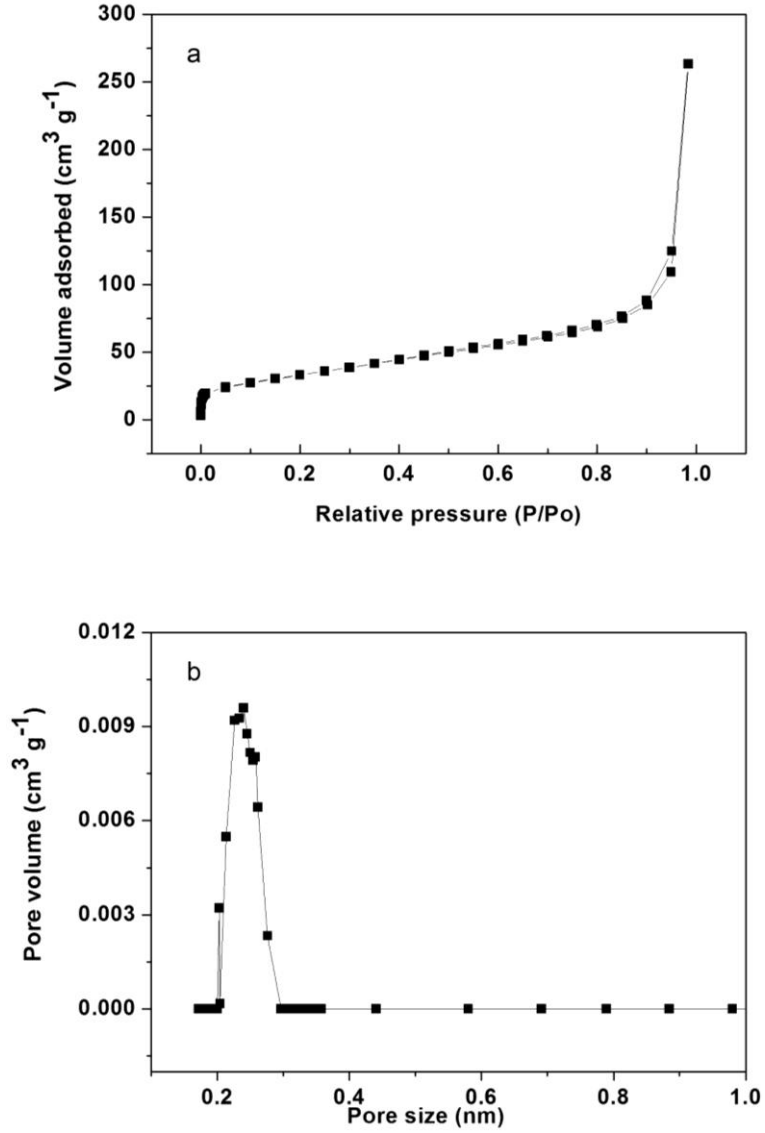

Figure. S3 The nitrogen adsorption and desorption analysis of NiO NSs: (a) isotherms of NiO NSs; (b) pore size distribution curve of NiO NSs.

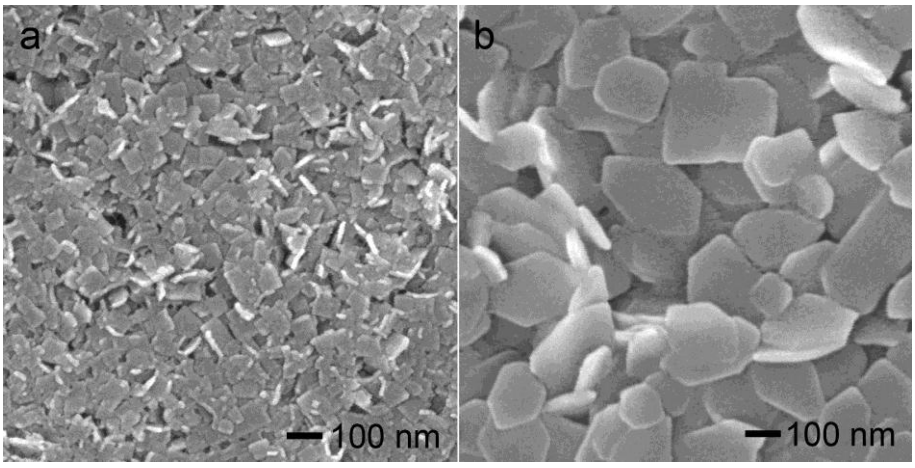

Figure. S4 FESEM images of Ni-MOF precursors synthesized with different amounts of sodium citrate dehydrate: (a) 1 mmol and (b) 4 mmol. Other conditions are unchanged. No calcination was applied to these samples

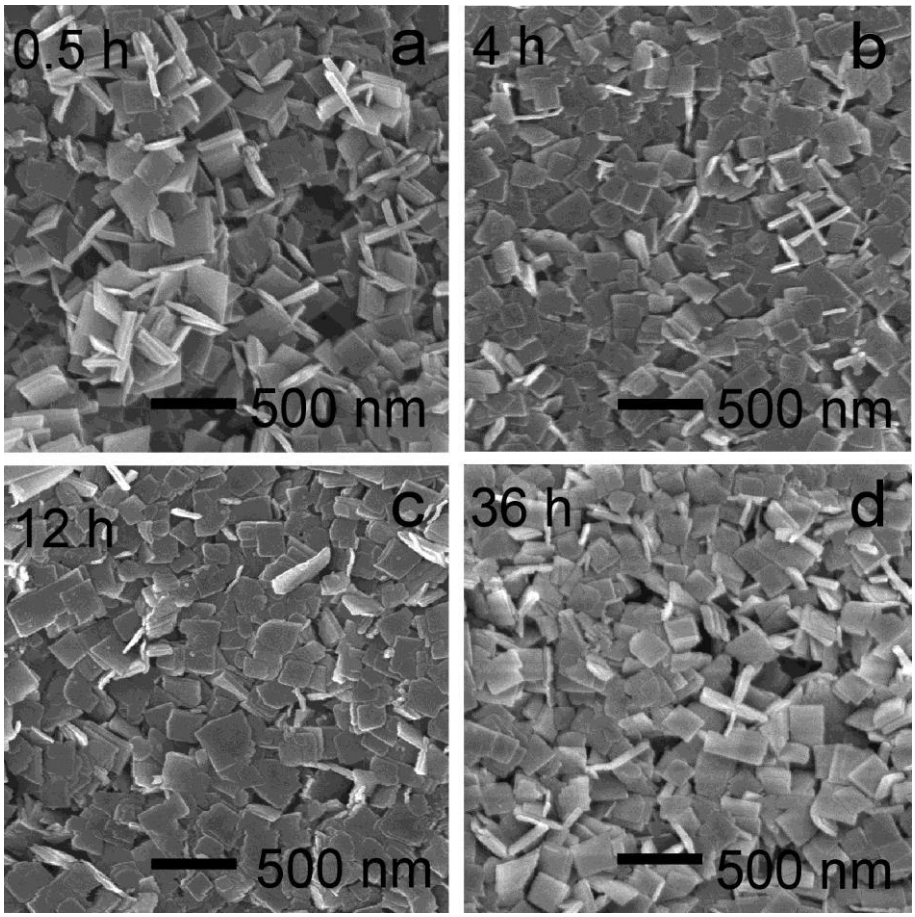

Figure. S5 FESEM images of Ni-MOF precursors synthesized with different duration times. Other conditions are unchanged. No calcination was applied to these samples.

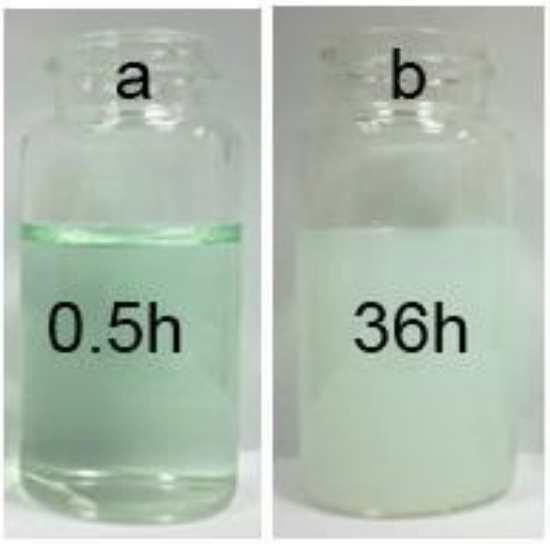

Figure. S6. Optical images of Ni-MOF precursors synthesized at different duration times: 0.5 h (a) and 36 h (b). Other conditions are unchanged.

As can be seen from Figure S6, the color of Ni-MOF precursors in solution is still transparent, when the reaction time is 0.5 h. However, the color of Ni-MOF precursors in solution displays green white precipitate, when the reaction time is 36 h. It is indicated that the product yield of Ni-MOF increases from 0.5 h to36 h.

Table 1. Summary of the specific capacitance values reported in the recent literature for NiO electrode.

NiO structure	Preparation method I (reaction time)	Preparation method II (reaction time)	C_a	Reference
hierarchical NiO spheres	hydrothermal reaction (190 °C-12h)	thermal annealing (300 °C-2h)	300 Fg^{-1} (i_b = 5 A g^{-1})	S1
NiO Nanowires	hydrothermal reaction (220 °C-12h)	thermal annealing (400 °C-2h)	130 Fg^{-1} (i_b = 5 A g^{-1})	S2
NiO Nanosheets	solution method (90°C-48 h)	thermal annealing (300 °C-5h)	100 Fg^{-1} (i_b = 5 A g^{-1})	S3
NiO Nanoflakes	hydrothermal reaction (120 °C-24h)	thermal annealing (300 °C-3h)	321 Fg^{-1} (v_c = 5 mV s^{-1})	S4
NiO nanosheets hollow spheres	solution method (80°C-12 h)	thermal annealing (450 °C-2h)	402 Fg^{-1} (v^c = 5 mV s^{-1})	S5
NiO nanoflakes	microwave radiation (5 min)	thermal annealing (300 °C-1h)	263 Fg^{-1} (v_c = 5 mV s^{-1})	S6
NiO nanoparticles	Without template method	thermal annealing (550 °C-5h)	368 Fg^{-1} (i_b = 1 A g^{-1})	S7
Mesoporous NiO nanosheets	solution method (120 °C-8h)	thermal annealing (300 °C-1h)	168 Fg^{-1} (i_b = 1 A g^{-1})	S8
Hexagonal NiO nanoplatelet arrays	two-step strategy (precipitating hydroxides process, 120 °C-8h)	thermal annealing (300 °C-1h)	1008 Fg^{-1} (i_b = 6 A g^{-1})	S9
NiO nanosheets	solution method (room temperature-0.5 h)	thermal annealing (300 °C-1h)	509.3 Fg^{-1} (v_c = 5 mV s^{-1}); 401.1 Fg^{1} (i_b = 5 A g^{1})	in this work

a) C_a = specific capacitance reported; b) i_b = current density; c) v_c = potential scan rate

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