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## Supplementary Material

# Facile Synthesis of 4, 4'-biphenyl Dicarboxylic Acid-Based Nickel Metal Organic Frameworks with a Tunable Pore Size towards High-Performance Supercapacitors

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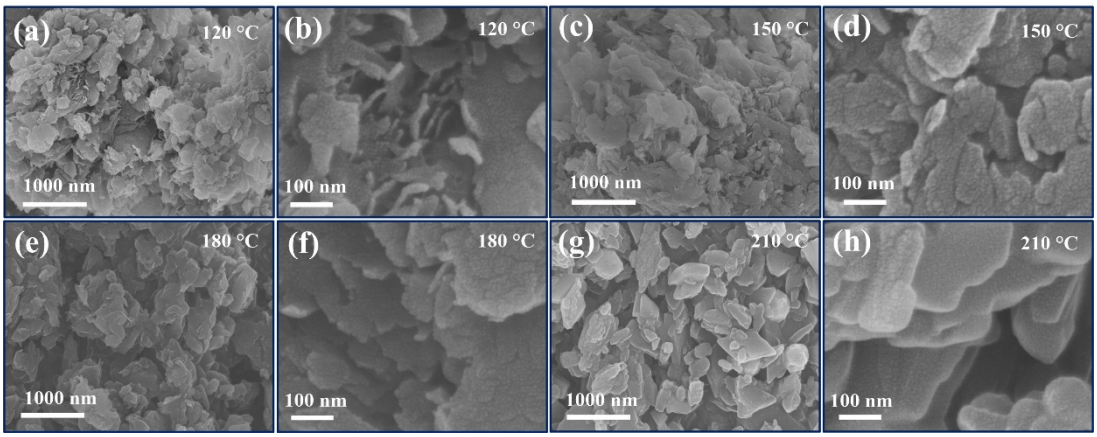


**Figure S1.** SEM graphs of Ni-BPDC-MOF samples with different hydrothermal temperature. (**a**,**b**) Sample synthetized at 120 °C. (**c**,**d**) Sample synthetized at 150 °C. (**e**,**f**) Sample synthetized at 180 °C. (**g**,**h**) Sample synthetized at 210 °C.

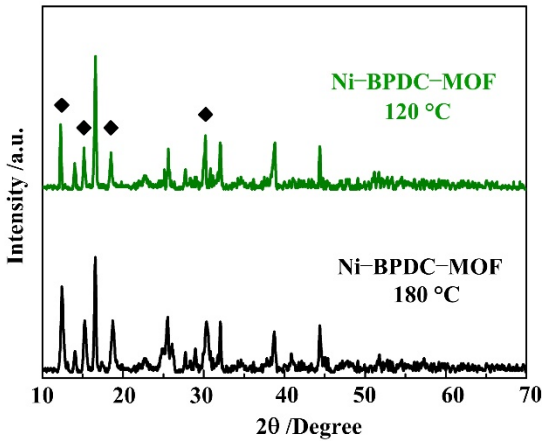


**Figure S2.** XRD patterns of Ni−BPDC−MOF with hydrothermal temperatures of 120 °C and 180 °C. The characteristic diffraction peaks of Ni−BPDC−MOF are remarked in diamond pattern.

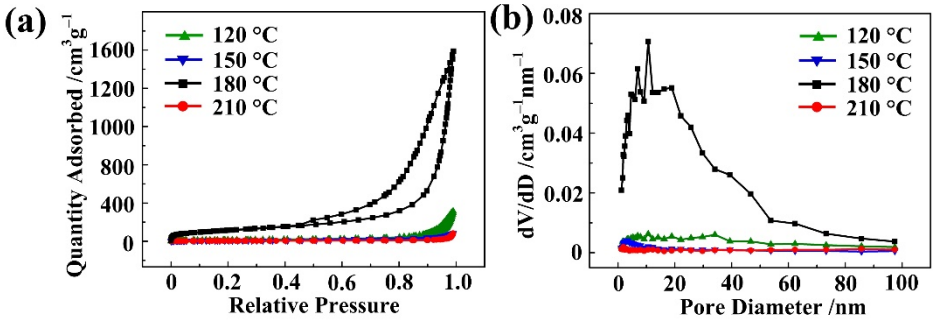


**Figure S3.** (**a**) $N_2$ adsorption/desorption isotherms and (**b**) corresponding pore size distribution curve of Ni-BPDC-MOF samples with different hydrothermal temperature.

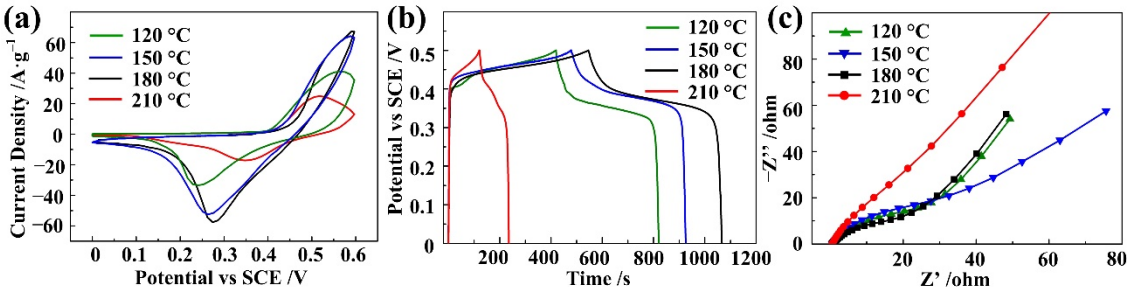


**Figure S4.** Capacitance performances of Ni-BPDC-MOF samples with different hydrothermal temperature. (**a**) CV curves at scan rate of 100 mV·s$^{-1}$. (**b**) GCD curves at current density of 0.5 A·g$^{-1}$. (**c**) Nyquist plots.

**Table S1.** The comparison for porosity and supercapacitive performance of Ni-BPDC-MOF samples with different hydrothermal temperature. The capacitance was calculated from GCD curves with current density of 0.5 F·g$^{-1}$.

| Synthetized Temperature | Surface Area (m$^2$·g$^{-1}$) | Average Diameter (nm) | $R_{ct}$ (Ω) | $R_s$ (Ω) | Capacitance (F·g$^{-1}$) |
|---|---|---|---|---|---|
| 120 °C | 137.72 | 12.54 | 21.43 | 0.52 | 400 |
| 150 °C | 87.10 | 8.69 | 21.08 | 0.61 | 448 |
| **180 °C** | **311.99** | **29.16** | **18.55** | **0.49** | **521** |
| 210 °C | 62.00 | 7.54 | 36.22 | 0.45 | 116 |