Electronic Supplementary Information for

Porous hollow Co$_3$O$_4$ with rhombic dodecahedral structures for high-performance supercapacitors

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**Calculation** The specific capacitance of an electrode during galvanostatic charge/discharge can be calculated by the following equation:

$$C = \frac{i \cdot \Delta t}{m \cdot \Delta V}$$

Where $m$ is the mass of Co$_3$O$_4$ (5 mg), $\Delta V$ is the range of charge/discharge (V), and $i$ is the discharge current (A) applied for time $\Delta t$ (s).
**Fig. S1** XRD patterns of the as-prepared precursors.

**Fig. S2.** SEM images of as-prepared samples with different reaction time, a) 0.5 h, b) 8 h, c) 24 h, and d) 48 h. The scale bar= 1.0 μm
Fig. S3 TG curve of the as-prepared precursor.

Fig. S4 SAED patterns of the as-prepared Co$_3$O$_4$. 
Fig. S5. The capacitive performance of the conductive carbon measured at the same condition as Co$_3$O$_4$. 
**Fig. S6** a) SEM image, and b) TEM image of Co$_3$O$_4$ samples after 6000 cycles.
**Fig. S7.** Electrochemical impedance spectroscopy (EIS) analysis of as-prepared electrodes before and after 6000 cycling test.
Fig. S8. Ragone plot regarding specific energy and power density parameters of the as-prepared electrode.