Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Highly Ordered Mesoporous $NiCo_2O_4$ with Superior Pseudocapacitance Performance for Supercapacitors

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Part I: Calculations

The specific capacitance (C) of the electrode was calculated from the discharge curves using the following formula[1]:

$$C = \frac{I \times \Delta t}{m \times \Delta V}$$

where I (A), Δt (s), m (g), and ΔV (V) are the discharge current, discharge time consumed in the potential range of ΔV, mass of the active materials, and the potential windows, respectively.

The energy density (E) and power density (P) are calculated from the discharge curves using the following formula:

$$E = \textbf{Error!} \times C \times \Delta V^2$$

$$P = \frac{E}{\Delta t}$$

1. J. Yan, E. Khoo, A. Sumboja and P. S. Lee. *ACS Nano*, 4 (2010), 4247.

Part II: Supplementary Figures

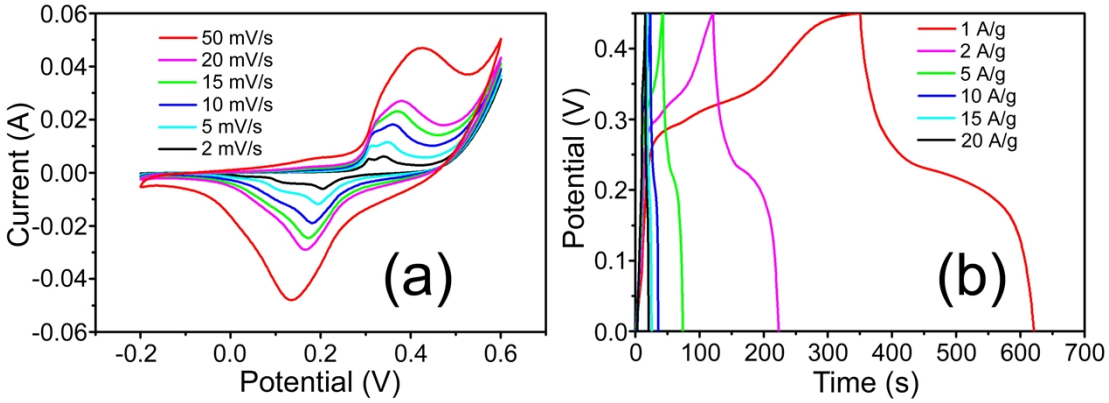

Fig. S1 (a) CV curves at different scan rates and (b) galvanostatic charge-discharge curves at different current densities of the conventional $NiCo_2O_4$, respectively.

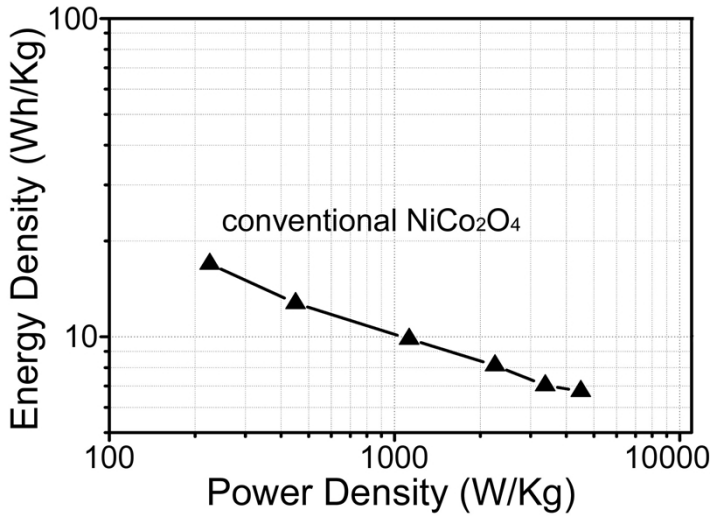

Fig. S2 Ragone plot (energy density vs. power density) of the conventional $NiCo_2O_4$.

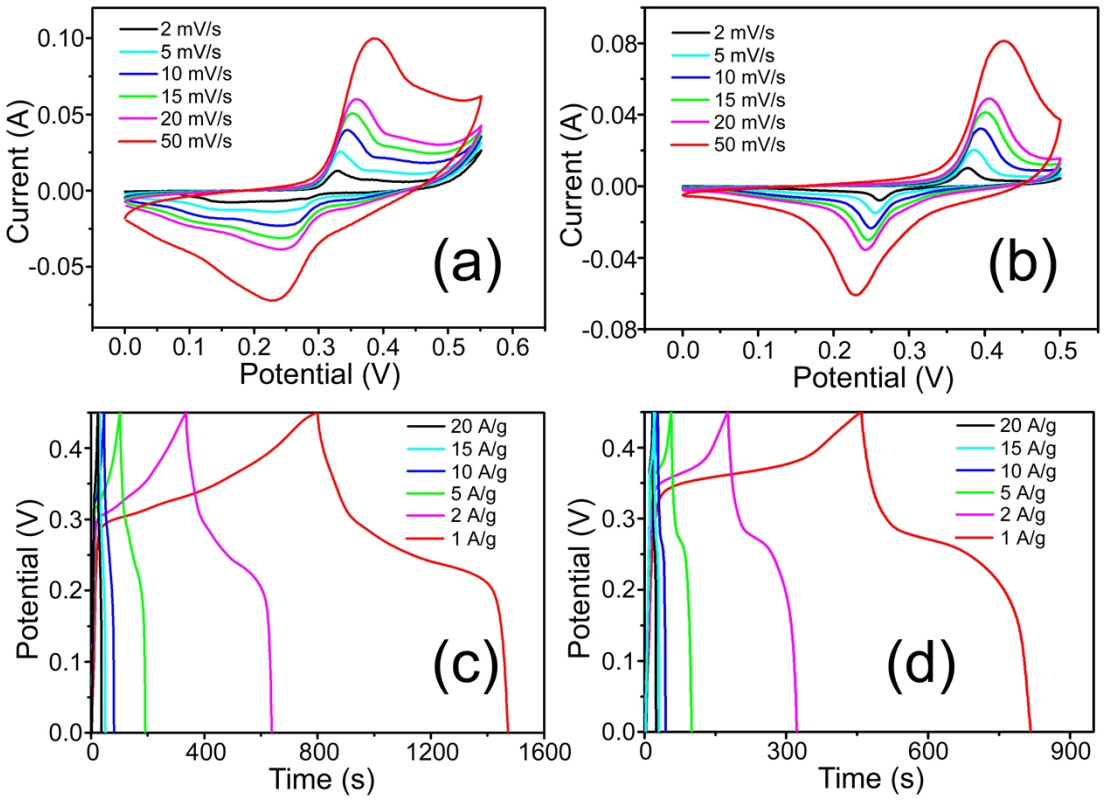

Fig. S3 CV curves at different scan rates and galvanostatic charge-discharge curves at different current densities of the mesoporous Co_3O_4 (a, c) and mesoporous NiO (b, d) , respectively.

Table S1 A comparison of the capacitance for the highly ordered mesoporous $NiCo_2O_4$ electrode material with other reported $NiCo_2O_4$ electrodes in previous literatures.

Electrode Materials	Specific Capacitance	Ref.
Highly ordered mesoporous $NiCo_2O_4$	1699 F/g at 1 A/g	This work
Porous $NiCo_2O_4$ hetero-structure arrays	891 F/g at 1 A/g	16
$NiCo_2O_4$ nanorods	565 F/g at 1 A/g	18
Porous $NiCo_2O_4$ nanowires	743 F/g at 1 A/g	20
Porous $NiCo_2O_4$ flowerlike nanostructure	658 F/g at 1 A/g	21
Porous $NiCo_2O_4$ nanostructures	1197 F/g at 1 A/g	25
porous spinel $NiCo_2O_4$	726.8 F/g at 1 A/g	36
Flower-shaped $NiCo_2O_4$ microsphere	1006 F/g at 1 A/g	37

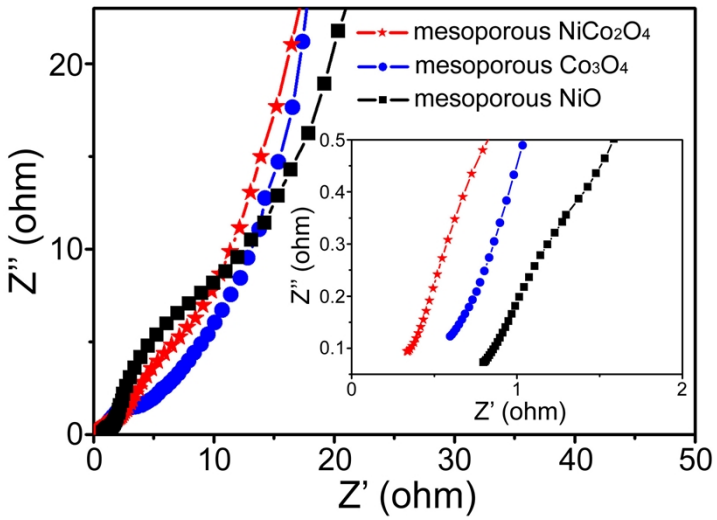

Fig. S4 EIS spectra comparison of the mesoporous $NiCo_2O_4$, mesoporous Co_3O_4 and mesoporous NiO electrodes, respectively.