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## **Supporting Information for**

## Scalable Construction of Heteroatoms-Doped and Hierarchical Core-

Shell MnO<sub>2</sub> Nanoflakes on Mesoporous Carbon for High

## Performance Supercapacitor Device

Xue Bai,<sup>a\*</sup> Dianxue Cao,<sup>b</sup> Hongyu Zhang,<sup>a</sup>

a. College of Ecological Environment and Urban Construction, Fujian University of Technology,

Fuzhou 350108, PR China.

E-mail: sakura@fjut.edu.cn

b. Key Laboratory of Superlight Materials and Surface Technology of Ministry of Education,

College of Materials Science and Chemical Engineering, Harbin Engineering University, Harbin,

150001, P.R. China

<sup>\*</sup>Corresponding authors

E-mail addresses: sakura@fjut.edu.cn (Xue Bai);

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Fig. S1. SEM and TEM images of OMC (a, b), NMC (c, d) and NSMC (e, f).







Fig. S3. EDS mapping images of NSMC.



Fig. S4. FTIR spectra of MC and OMC



Fig. S5. CV curves ranging from 5 to 50 mV  $s^{-1}$  (a) and GCD curves at different

current densities from 0.5 to 5 A  $g^{-1}$  (b) of OMC



**Fig. S6.** CV (a) curves at different scan rates from 5 to 50 mV s<sup>-1</sup> and GCD (b, c) curves at various current densities from 0.5 to 5 A  $g^{-1}$  of MC, CV (d) curves at different scan rates 5 to 50 mV s<sup>-1</sup> and GCD (e,f) curves at various current densities from 0.5 to 5 A  $g^{-1}$  of NMC, cycling performance of MC, OMC, NMC and NSMC by repeating charge discharge curves for 2000 cycles at current density of 2 A  $g^{-1}$  (g).



Fig. S7. EDS mapping images of MnO<sub>2</sub>@MC.



Fig. S8. STEM images of MnO<sub>2</sub>@MC composites synthesized at different times and

corresponding mapping results of Mn, O, C elements.



**Fig. S9.** CV (a) curves at different scan rates ranging from 5 to 50 mV s<sup>-1</sup> and GCD (b) curves at various current densities from 0.5 to 5 A g<sup>-1</sup> of MnO<sub>2</sub>@MC-15, CV (c) curves at different scan rates ranging from 5 to 50 mV s<sup>-1</sup> and GCD (d) curves at various current densities from 0.5 to 5 A g<sup>-1</sup> of MnO<sub>2</sub>@MC-60, cycling performance of composites synthesized at different time by repeating charge-discharge curves for 2000 cycles.