

## Supporting Information

### Facile one-pot hydrothermal synthesis of particle-based nitrogen-doped carbon spheres and their supercapacitor performance

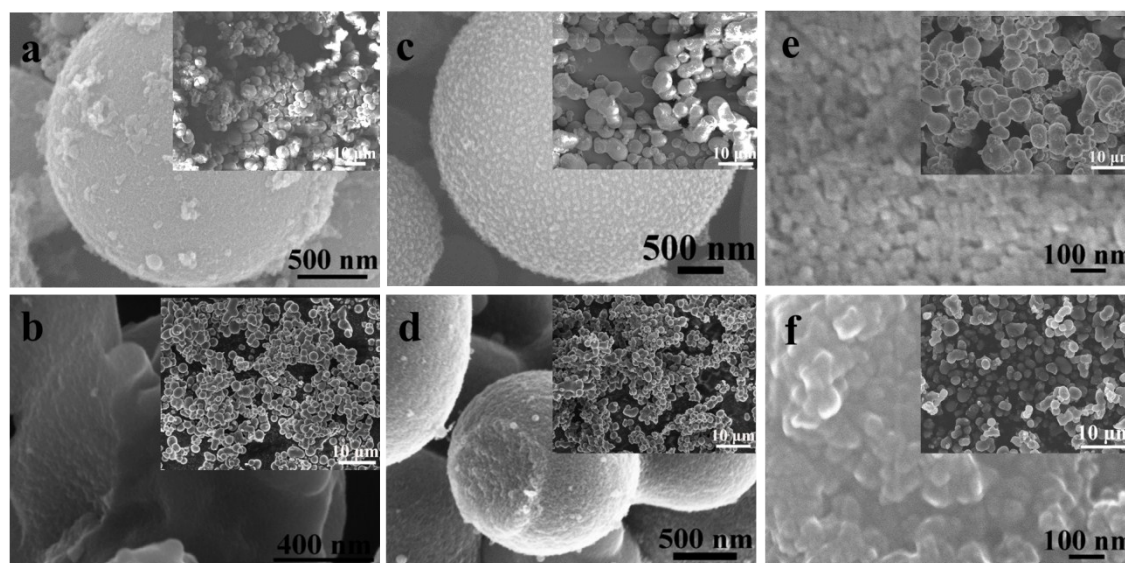
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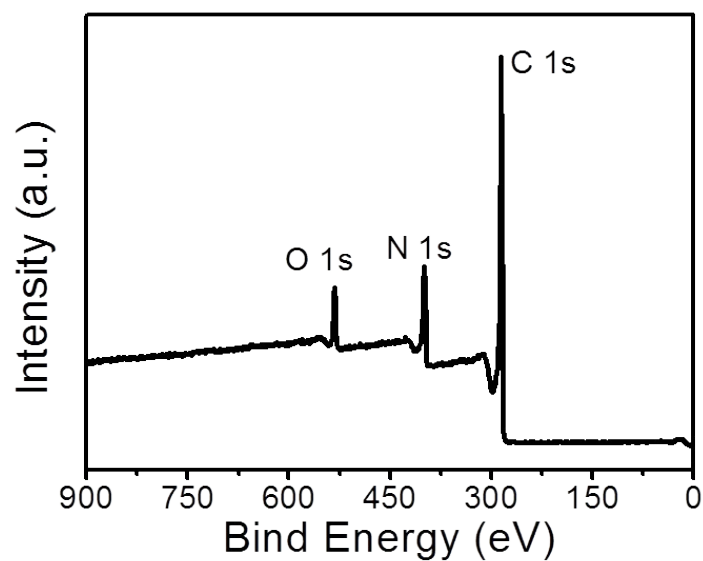
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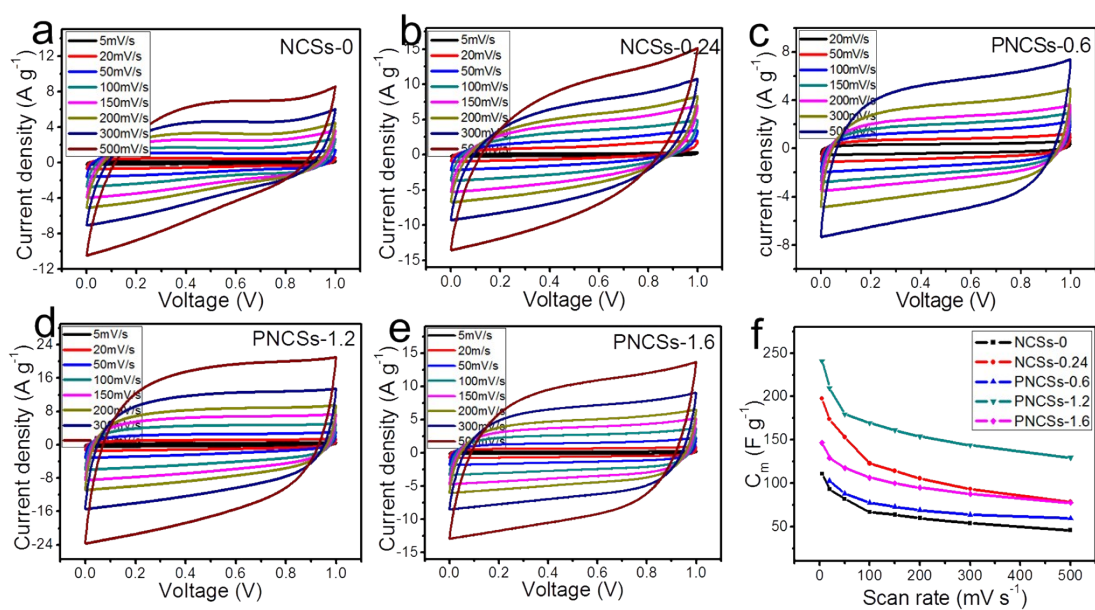
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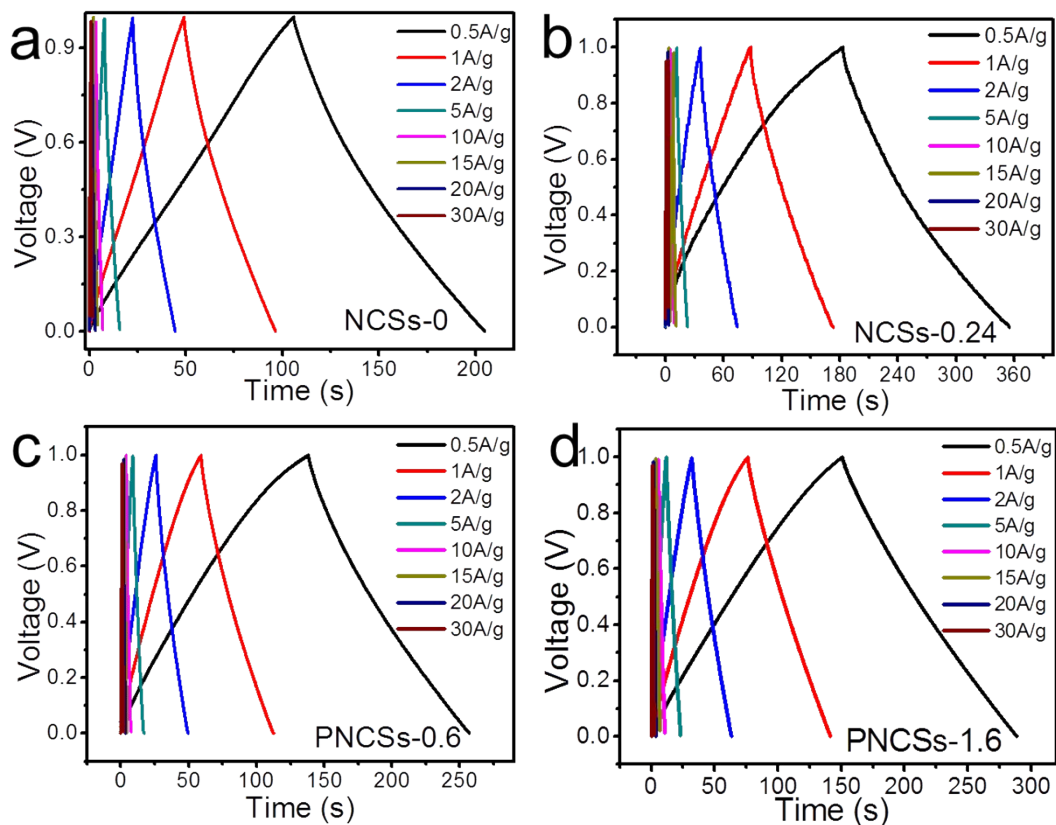
**Fig. S1** SEM images of (a) MFSSs-0.24, (b) NCSs-0.24, (c) MFSSs-0.6, (d) PNCSs-0.6, (e) MFSSs-1.6 and (f) PNCSs-1.6.



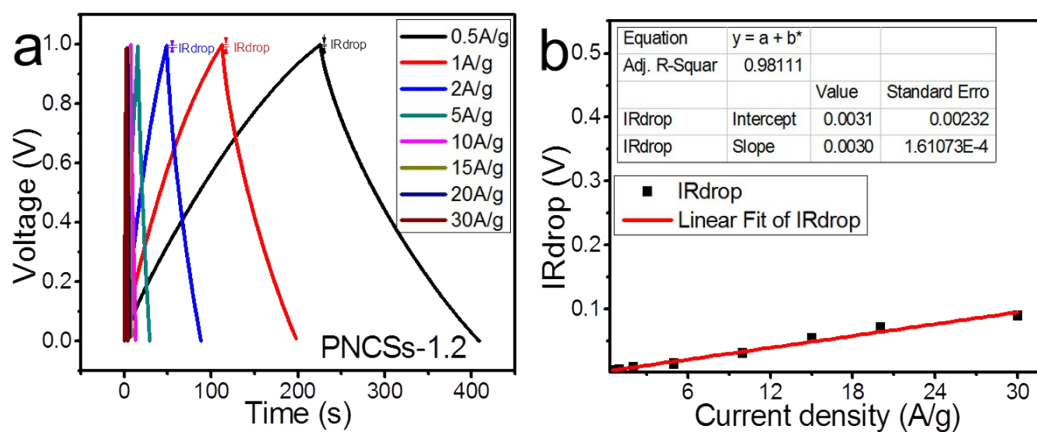
**Fig. S2** XPS spectrum of PNCSs-1.2



**Fig. S3** (a-e) CV curves at different scan rates: (a) NCSs-0, (b) NCSs-0.24, (c) PNCSs-0.6, (d) PNCSs-1.2 and (e) PNCSs-1.6. (f) Specific capacitances of NCSs-0, NCSs-0.24, PNCSs-0.6, PNCSs-1.2 and PNCSs-1.6 from CV curves



**Fig. S4** (a-b) GCD curves at different current densities of (a) NCSs-0, (b) NCSs-0.24, (c) PNCSSs-0.6 and (d) PNCSSs-1.6



**Fig. S5** (a) GCD curves at different current densities and (b) IR drop at different current densities of PNCSSs-1.2

**Table S1** Comparison of supercapacitor performance among nitrogen-doped carbon materials in literatures.

Materials	Electrolyte	C/F g <sup>-1</sup> (Current density)	Energy density /Wh kg <sup>-1</sup> (Current density)	Reference
PNCSS-1.2	6 M KOH	204.01 (1 A g <sup>-1</sup> , two-electrode)	7.67 (1 A g <sup>-1</sup> )	This work
N-OMC	6 M KOH	216 (0.1 A g <sup>-1</sup> , three-electrode)	\	S1
N-MC	6 M KOH	205 (0.5 A g <sup>-1</sup> , three-electrode)	\	S2
N-HCSs	6 M KOH	176 (1 A g <sup>-1</sup> , three-electrode)	\	S3
N-HMCSs	6 M KOH	170 (1 A g <sup>-1</sup> , three-electrode)	\	S4
N-HPC	0.1 M KOH	170 (10 mV s <sup>-1</sup> , Three-electrode)	\	S5
3D porous RGO	1 M H <sub>2</sub> SO <sub>4</sub>	284.2 (1 A g <sup>-1</sup> , three-electrode)	9.9 (1 A g <sup>-1</sup> )	S6
N-CSs	1 M H <sub>2</sub> SO <sub>4</sub>	191.9 (0.1 A g <sup>-1</sup> , three-electrode)	\	S7
N,P-CNF	2 M H <sub>2</sub> SO <sub>4</sub>	204.9 (1 A g <sup>-1</sup> , three-electrode)	7.76 (0.25 A g <sup>-1</sup> )	S8
N-CNF	6 M KOH	202.0 (1 A g <sup>-1</sup> , three-electrode)	7.11 (0.25 A g <sup>-1</sup> )	S9
N-activated carbon	7 M KOH	226 (0.05 A g <sup>-1</sup> , two-electrode)	\	S10

## References

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