

ARTICLE

Facile Synthesis of Highly Graphitized Porous Carbon Monolith with a Balance on Crystallization and Pore-Structure

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Experimental details

Synthesis of Silica Template (ST)

P123 (4.0 g) and nitric acid (12.0 ml 1.0 M) were mixed together and stirred to get a homogeneous solution. Under vigorous stir at 0 °C, TMOS (5.15 g) was added into the resulting solution for initiatory hydrolysis. About 20 min later, the semitransparent sol was transferred into polythene (PE) tubes sealed for gelation and aged at 60 °C. A solvent exchange process was needed by immersing the resultant gels into the aqueous solution of ammonia for 10 hours at 100 °C. Subsequently the wet silica gels were carefully dried at 60 °C. The ST was obtained by calcination from room temperature to 650 °C at a heating rate of 1 °C min⁻¹ and holding at 650 °C for 5 h in air.

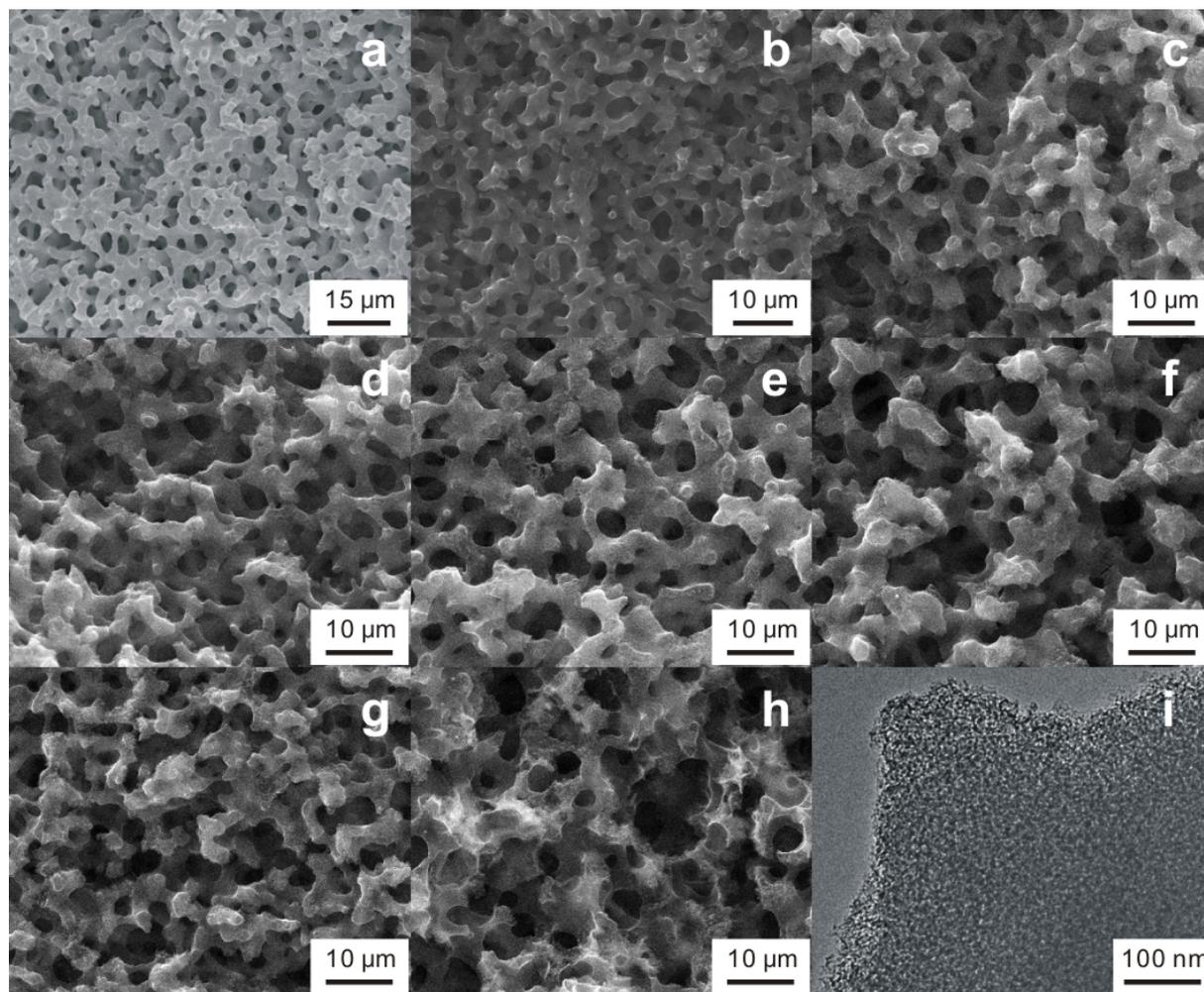


Fig. S1 SEM images of silica template (a), HPG-0-11 (b), HPG-0.6-11 (c), HPG-1.0-11 (d), HPG-1.8-11 (e), HPG-1.4-9 (f), HPG-1.4-10 (g) and HPG-1.4-12 (h). (i) is the TEM image of HPG-0-11.

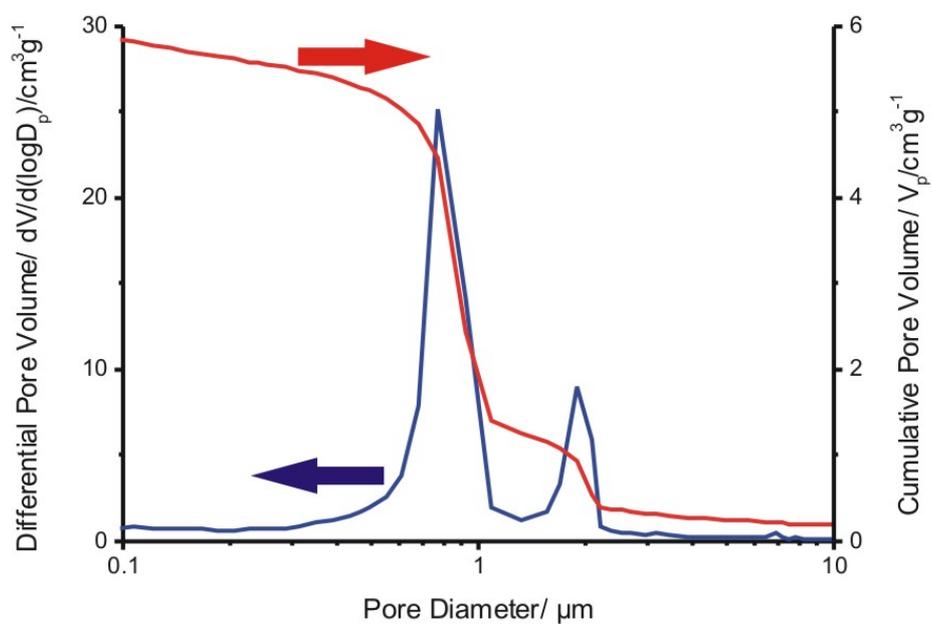


Fig. S2 Pore size distribution of HPG-1.4-11 measured by the mercury intrusion method

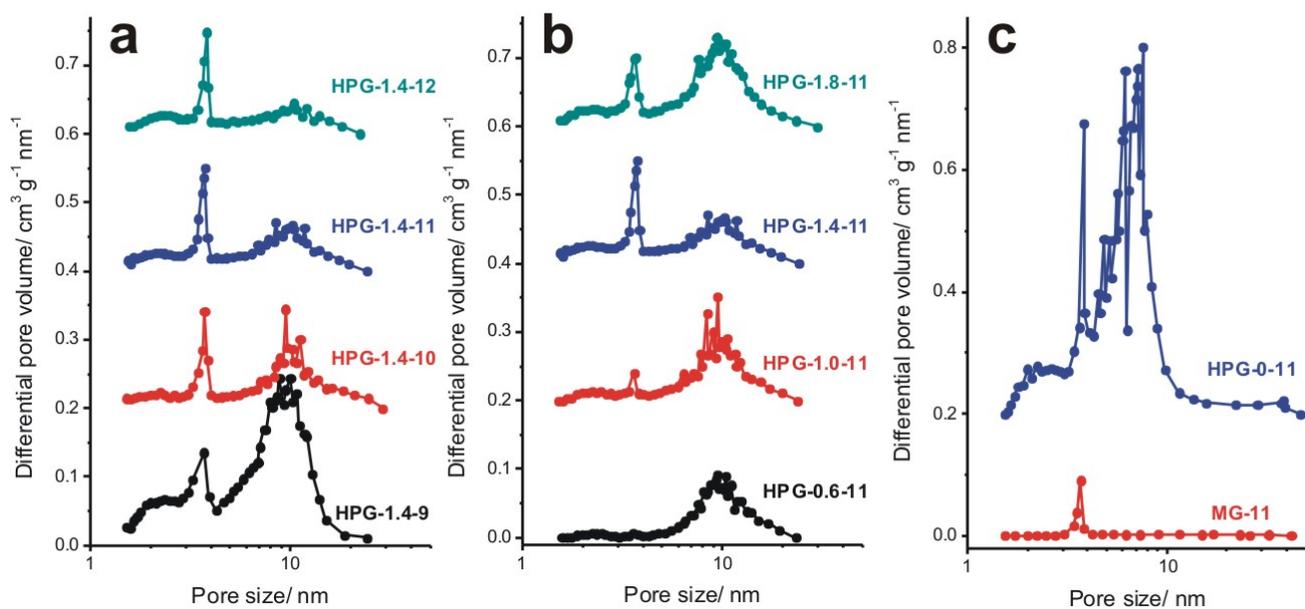


Fig. S3 BJH pore size distributions of HPG samples. The data are shifted by $0.2 \text{ cm}^3 \text{ g}^{-1} \text{ nm}^{-1}$ relative to each other for clarity.

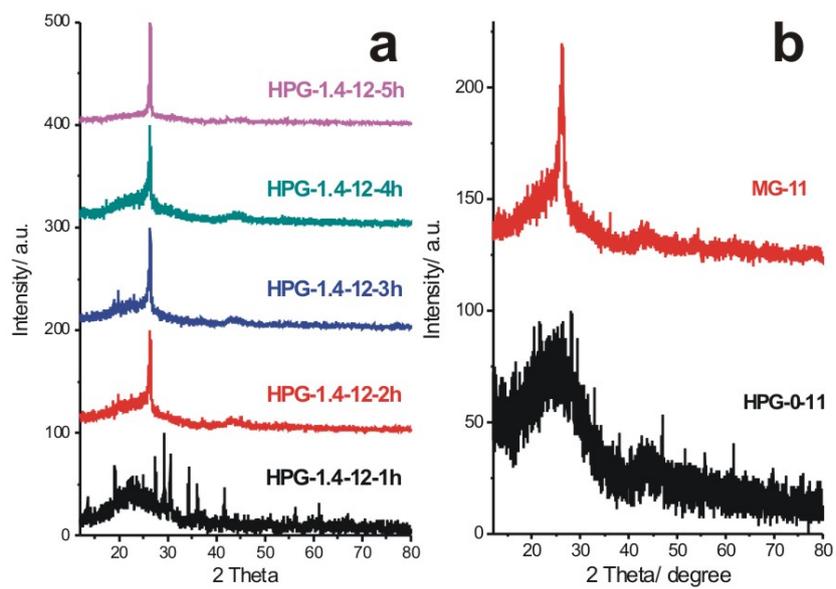


Fig. S4 Wide-angle XRD patterns of as-prepared samples

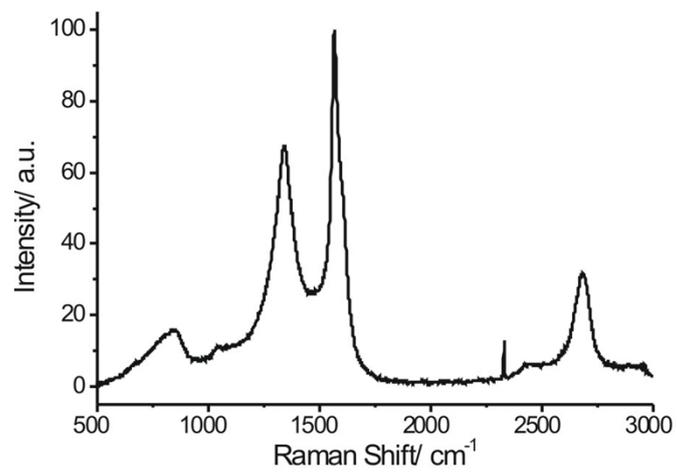


Fig. S5 Raman spectrum of MG-11.

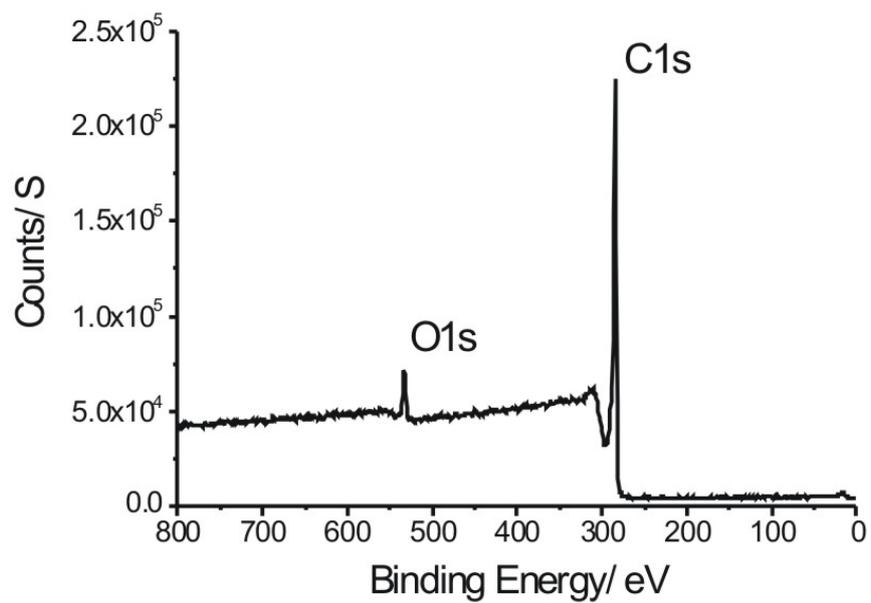


Fig. S6 XPS spectra of HPG-1.4-11

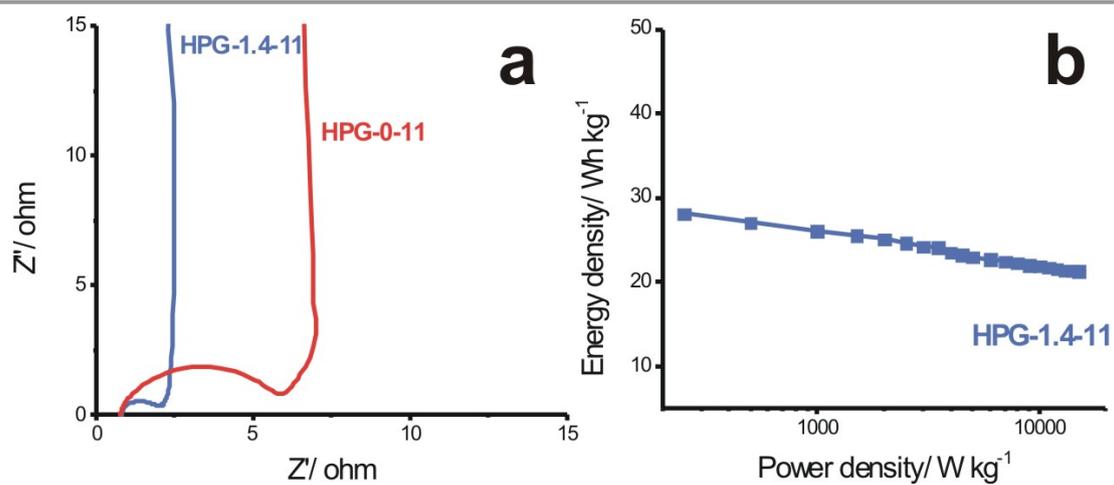


Fig. S7 Electrochemical performances of HPG-1.4-11 as the electrode material for a supercapacitor including Nyquist plots (a), and Ragone plots (b)