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

ESI for

One-step Synthesis of Polyhydroquinone-Graphene Hydrogel Composites for High Performance Supercapacitors

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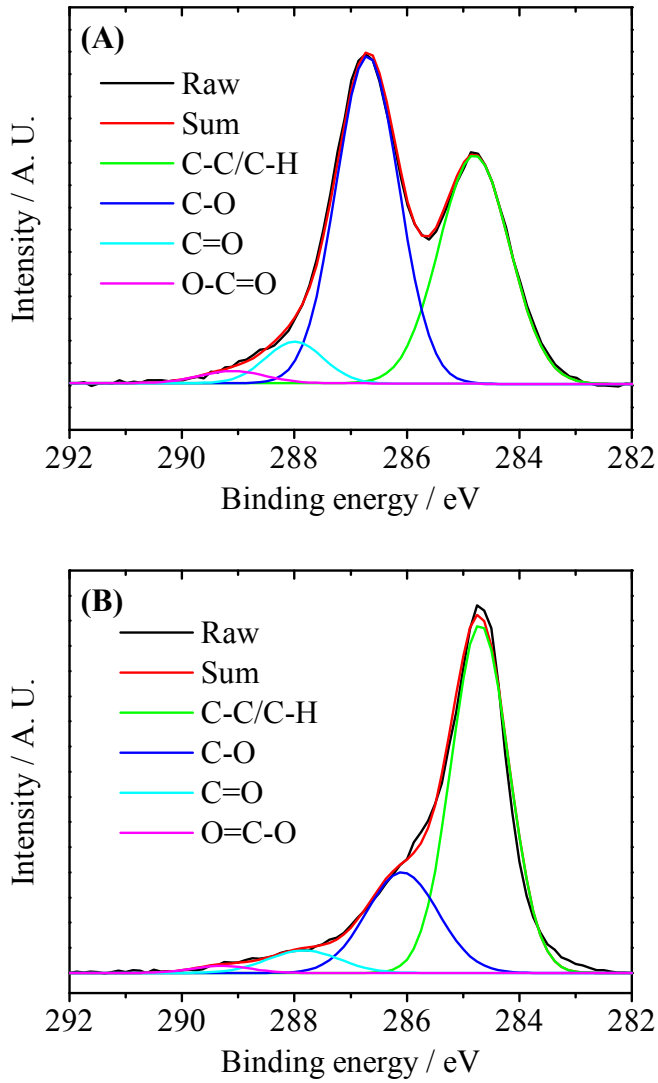
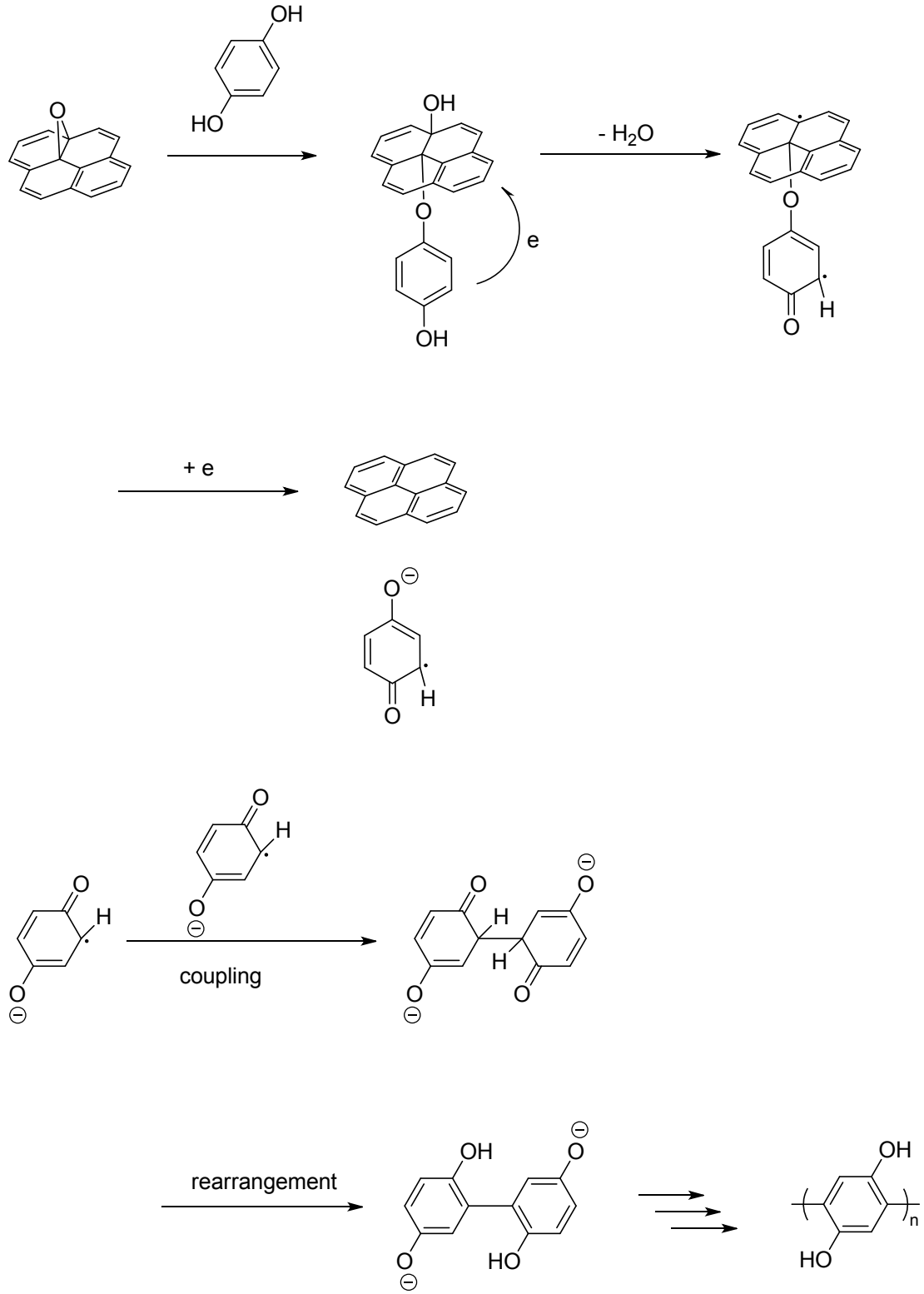


Fig. S1. XPS of the GO and PHQ-GHG-60. XPSPEAK 4.1 program and Gaussian type functions were used during the XPS peak fitting.



Scheme S1 Possible reaction mechanism of the reduction of GO by HQ.

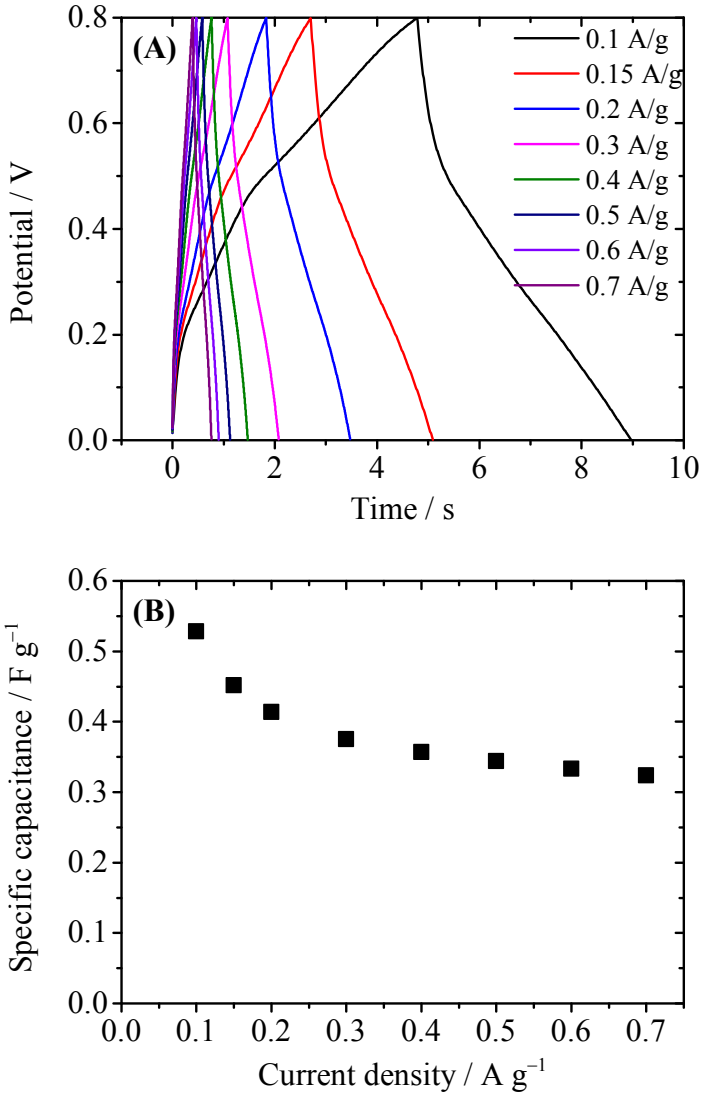


Fig. S2. GCD curves and specific capacitance of pure PHQ. The areal mass loading was 1.2 mg cm^{-2}.

The pure PHQ was prepared according to the procedure reported in the literature.[1,2] Because PHQ has low electric conductivity, the voltage drop across the bulk PHQ layer is very large, making the actual working potential of PHQ different from the apparent potential. Therefore, the shapes of GCD curves of PHQ-GHG-60 and PHQ are different.

Besides, the graphene sheets may catalyze the redox reaction of PHQ, also changing the shape of the GCD curve.

References

1 A. Zhang, J. He, Y. Guan, Z. Li, Y. Zhang, J. X. Zhu, *Sci. China Chem.* **2012**, *55*, 830.

2 J. He, A. Zhang, Y. Zhang, Y. Guan, *Macromolecules* **2011**, *44*, 2245.