Supporting information

A high-efficiency N/P co-doped graphene/CNT@porous carbon hybrid matrix as cathode host for high performance lithium-sulfur batteries

*Huali Wu, Li Xia, Juan Ren, Qiaoji Zheng, Chenggang Xu, Dunmin Lin**

College of Chemistry and Materials Science, Sichuan Normal University, Chengdu 610066, China

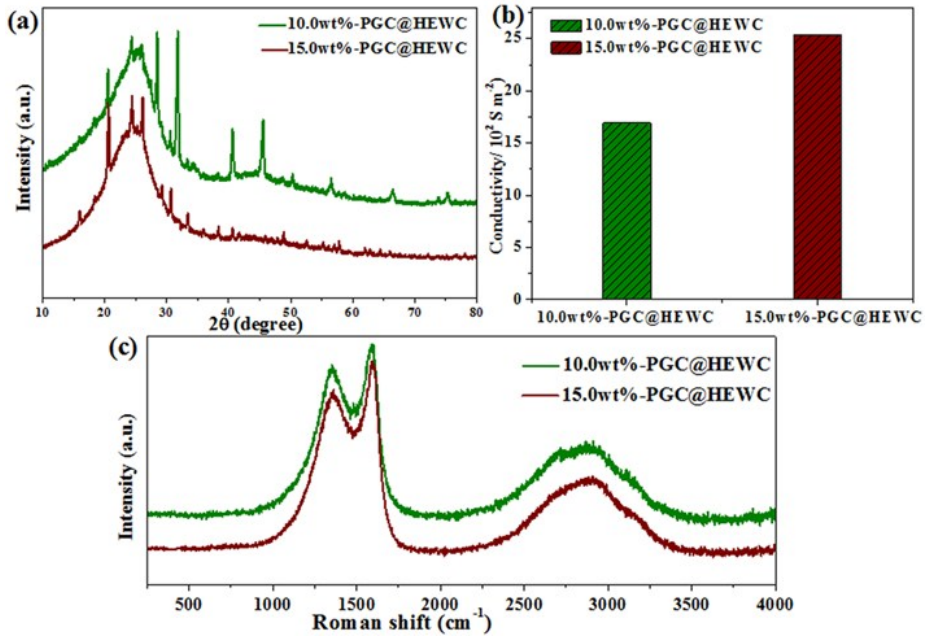

Fig.S1. XRD patterns (a), Conductivity properties (b) and Roman spectras (c) of 10.0wt%-PGC@HEWC and 15.0wt%-PGC@HEWC materials.

* Corresponding author:
Email:ddmd222@sicnu.edu.cn (Dunmin Lin); Fax: +86 28 84760802 Tel: +86 28 84760802

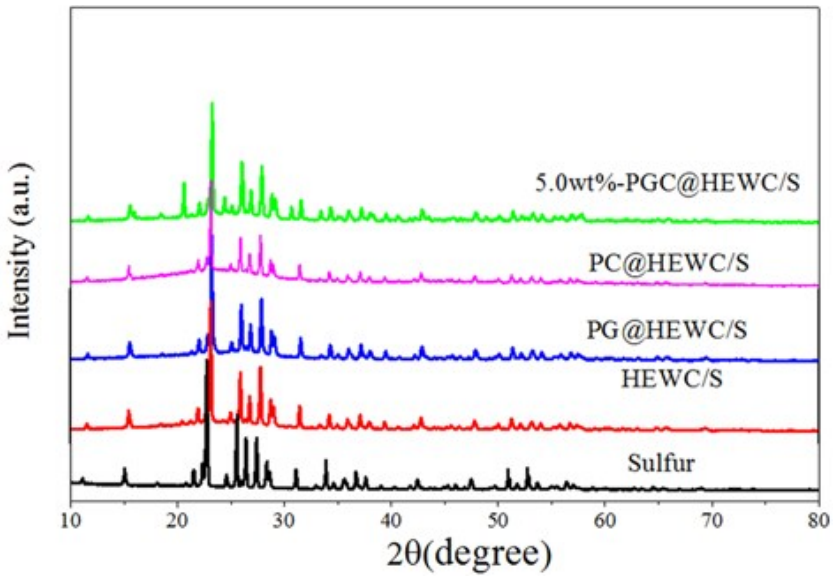

Fig.S2. XRD patterns of PG@HEWC/S, PC@HEWC/S,5.0wt%-PGC@HEWC/S and HEWC/S composites.

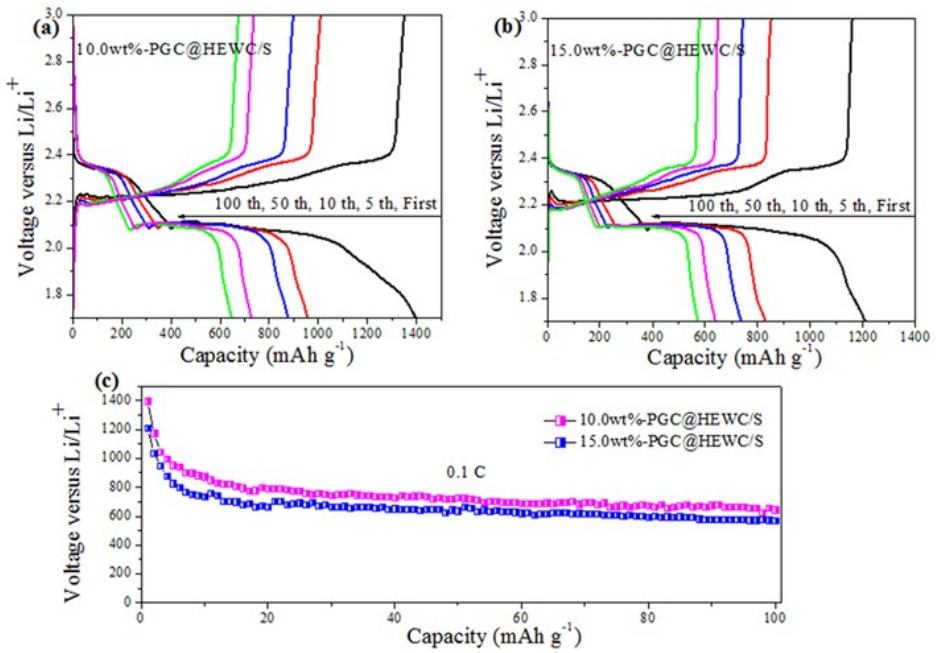

Fig.S3. Electrochemical performance of the 10.0wt%-PGC@HEWC/S and 15.0wt%-PC@HEWC/S composites as the cathode materials for Li-S batteries. The charge/discharge curves of 10.0wt%-PGC@HEWC/S(a) and 15.0wt%-PGC@HEWC/S (b) cathodes at 0.1C, respectively. (c) Cycling performance of the10.0wt%-PGC@HEWC/S and 15.0wt%-PGC@HEWC/S cathodes at the charge/discharge rate of 0.1 C.

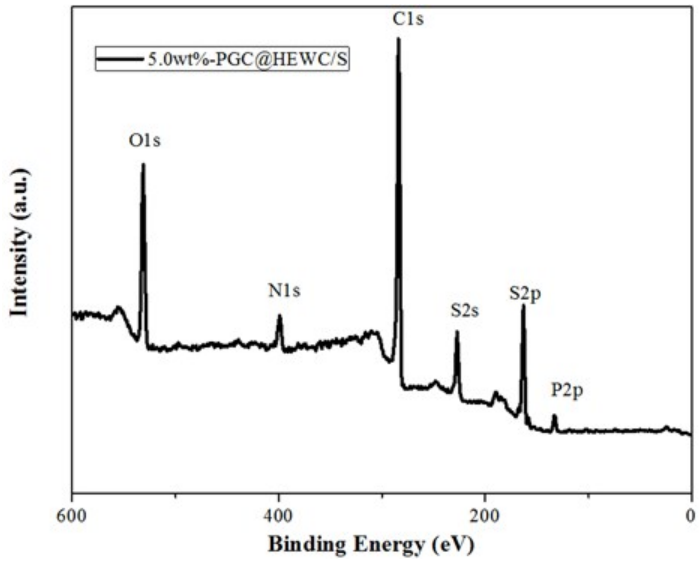

Fig.S4. XPS survey spectrum of 5.0wt%-PGC@HEWC/S composite.

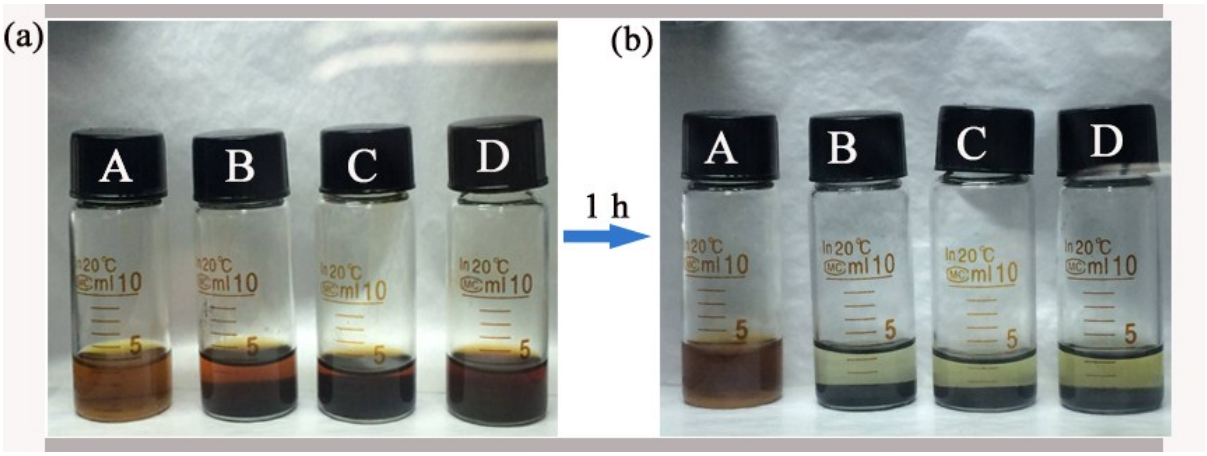

Fig.S5 Sealed vials of a Li_2S_4/THF solution (A), and after contact with PC@HEWC (B), PG@HEWC (C), and HEWC (D) immediately upon contact and after stirring for 1 h.

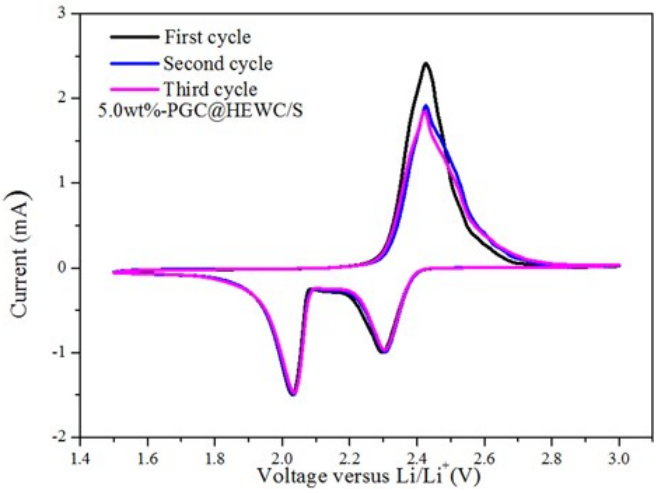

Fig.S6. Cyclic voltammetry of the initial three cycles at a scan rate of 0.1 mV s^{-1}.