Electronic Supplementary Material (ESI) for Inorganic Chemistry Frontiers.

Supporting information

Sulfur Encapsulated in Wafer-like Carbon Substrate with Interconnected meso/micro Pores for High-Performance Lithium-sulfur Batteries

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Keywords: micro/mesoporous carbon, ionic liquid, graphene, lithium-sulfur batteries

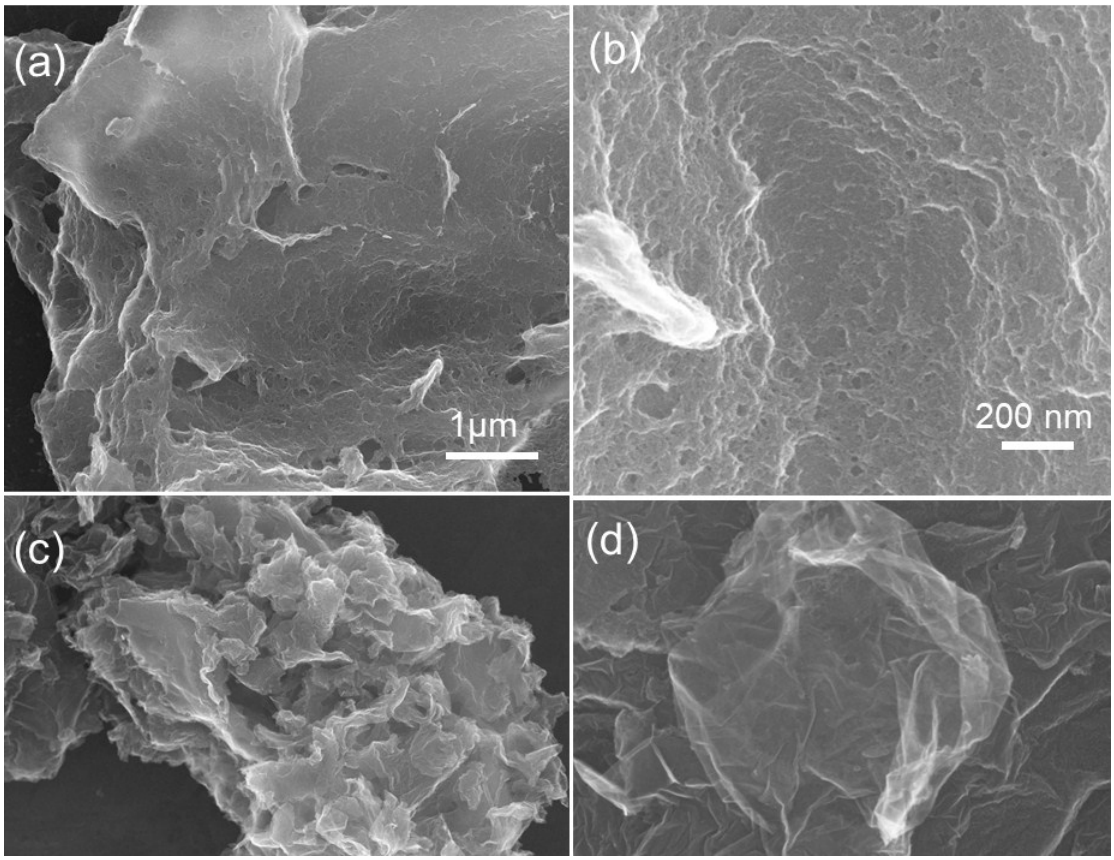

Figure S1(a,b) SEM images of GG; (c,d) SEM images of GI

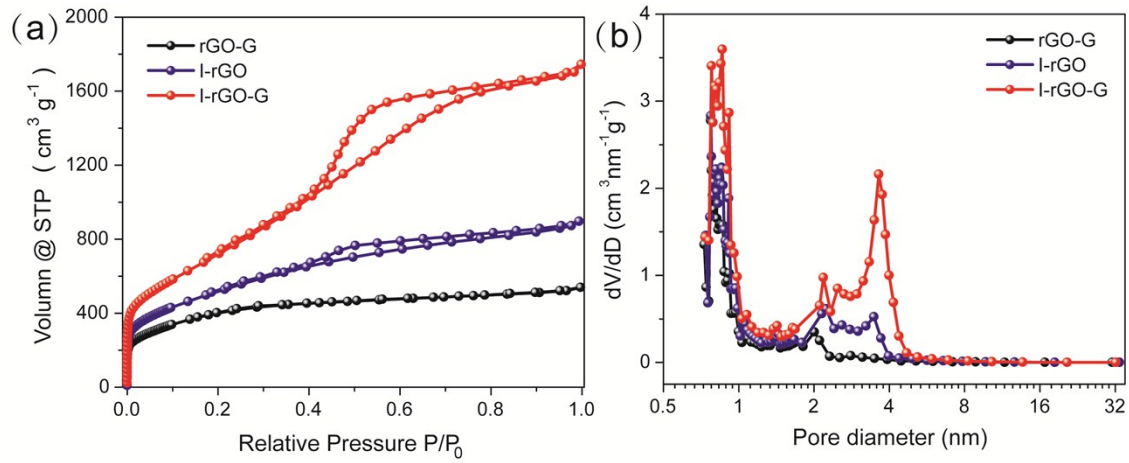

Figure S2. (a) Nitrogen adsorption/desorption isotherms of I-rGO-G, I-rGO and rGO-G. (b) The pore size distributions of I-rGO-G, I-rGO and rGO-G.

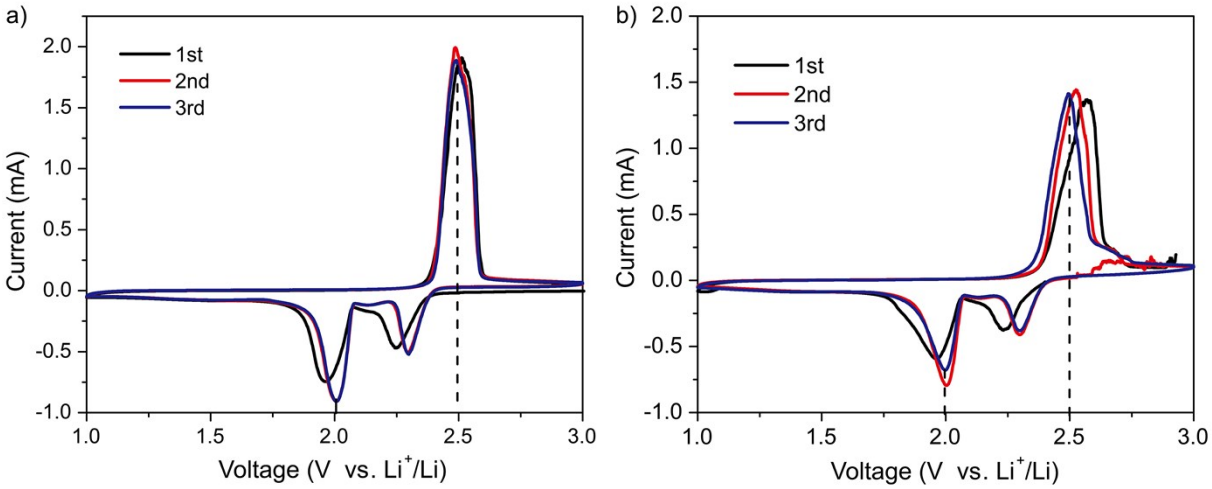

Figure S3. CV curves of (a) S/I-rGO and (b) S/rGO-G cathodes at a scan rate of 0.1 mV s^{-1}.

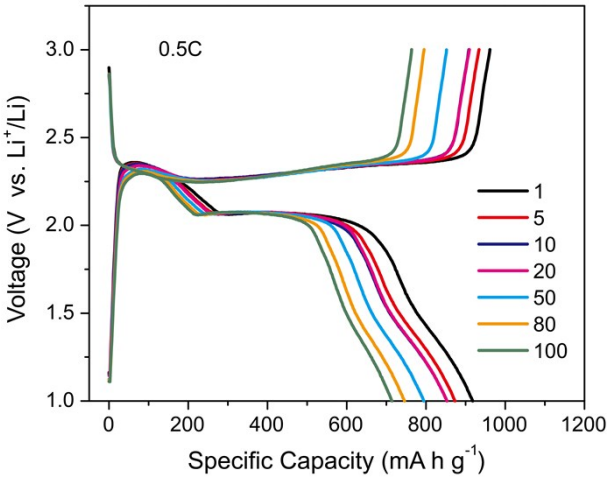

Figure S4. GCD voltage profiles of the S/I-rGO-G cathode for 100 cycles at a current rate of 0.5 C

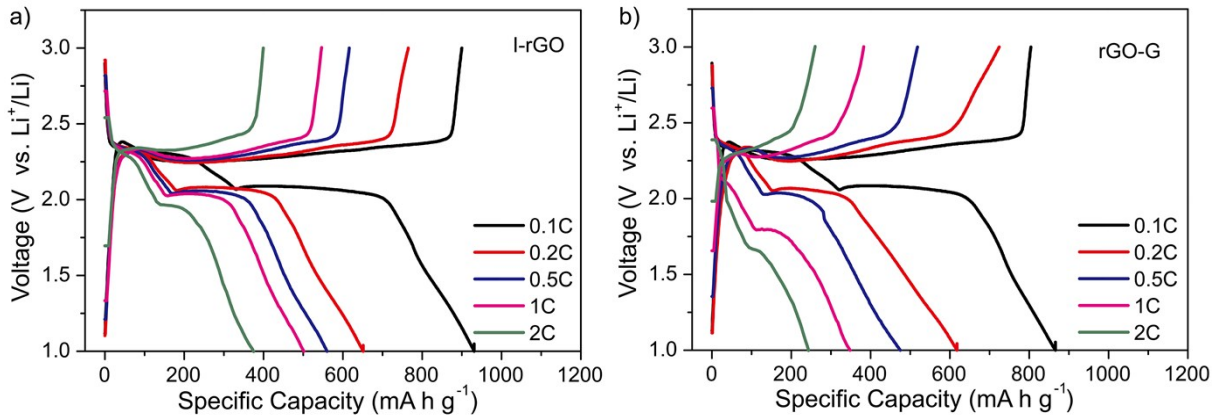

Figure S5. GCD voltage profiles of (a) S/I-rGO and (b) S/rGO-G cathodes at different discharge/charge current rates (0.1, 0.2, 0.5, 1, 2 C).

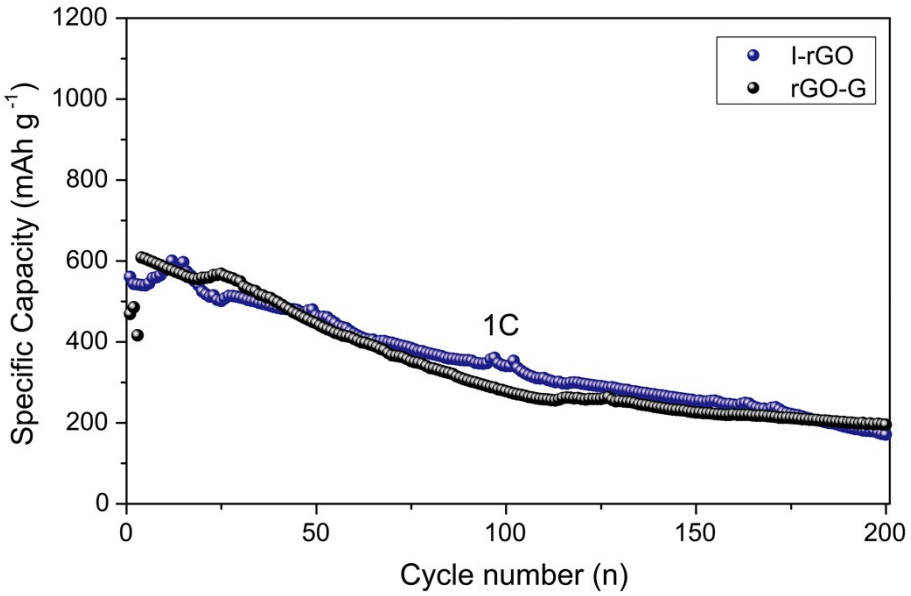

Figure S6. Cycling performance of (a) S/I-rGO and (b) S/rGO-G cathodes for 200 cycles at a current rate of 1 C.

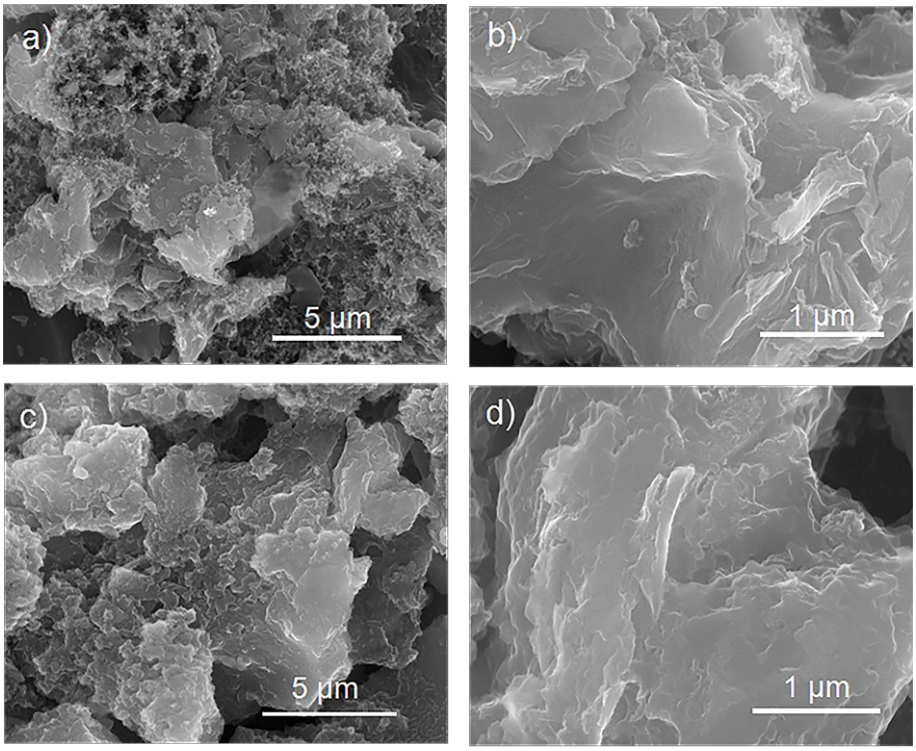

Figure S7. SEM images of the S/I-rGO-G cathode before (a, b) and after (c, d) cycling for 200 cycles at 1 C rate.

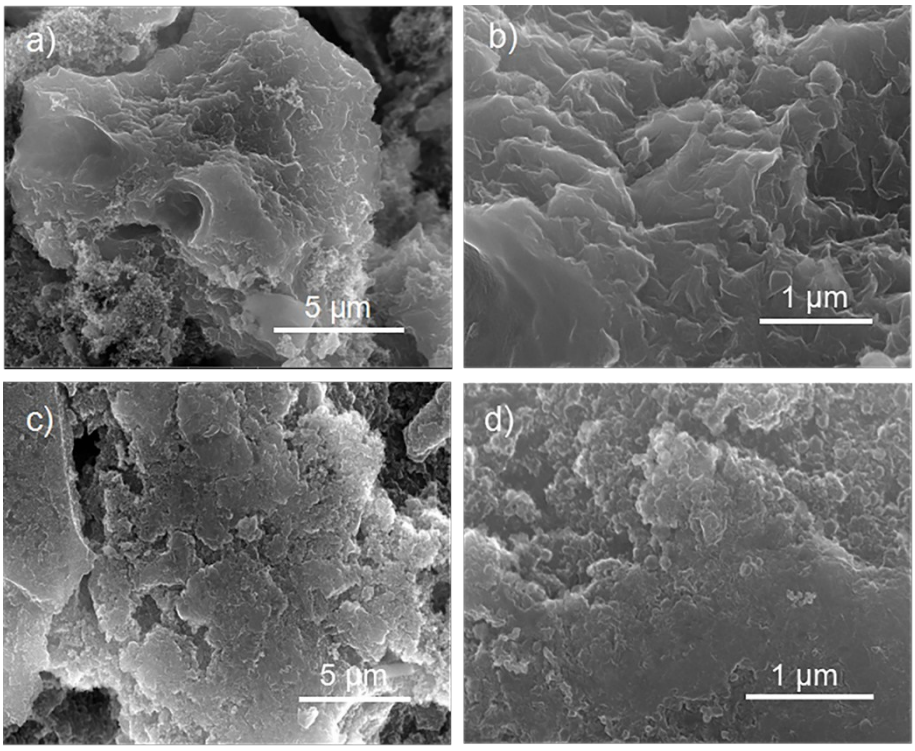

Figure S8. SEM images of the S/I-rGO cathode before (a, b) and after cycling for

200 cycles (c, d) at a 1 C rate.

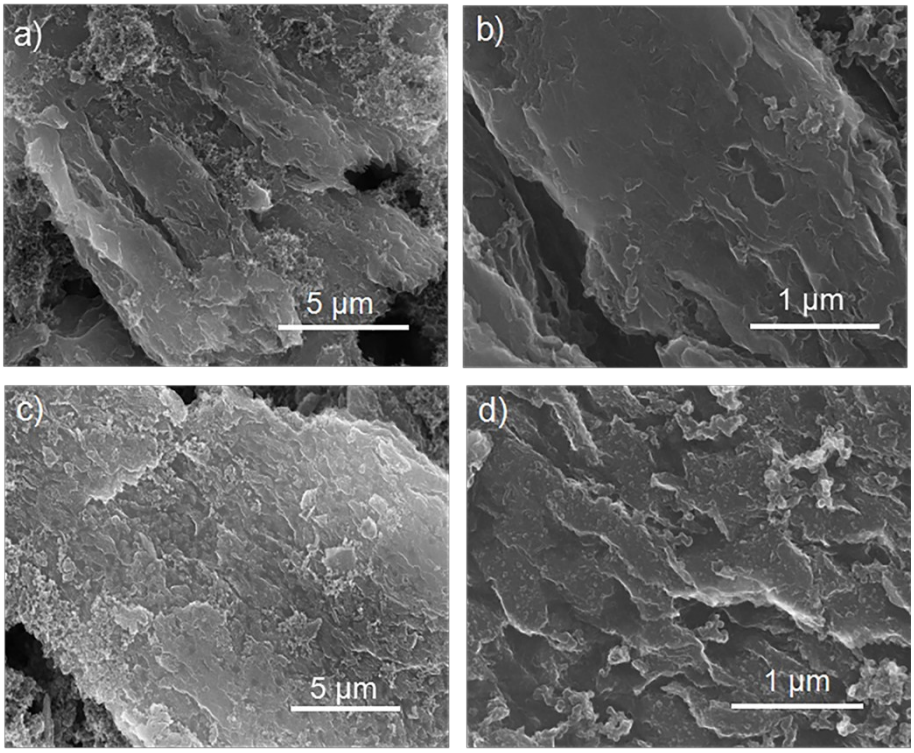

Figure S9. SEM images of the S/rGO-G cathode before (a, b) and after cycling for 200 cycles (c, d) at a 1 C rate.

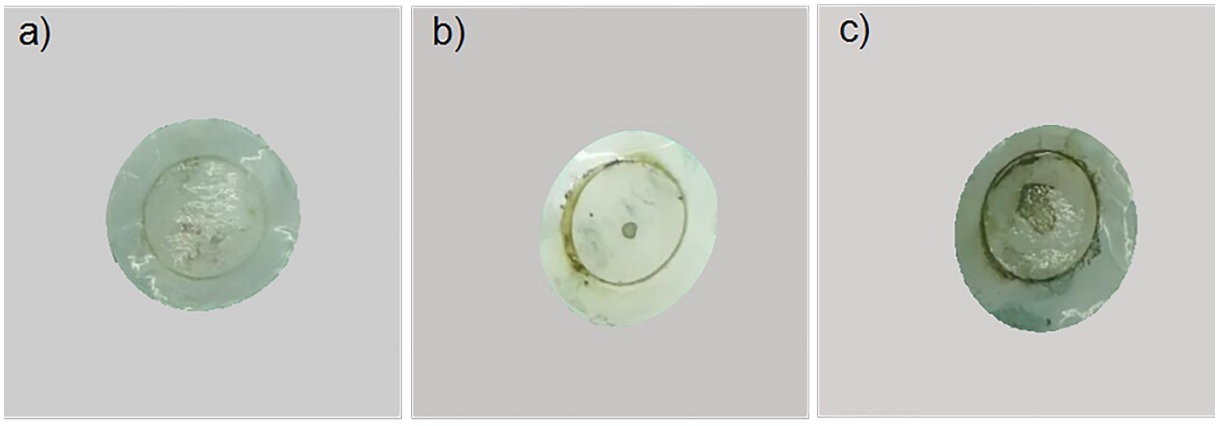

Figure S10. Digital photograph of separators in the detached Li–S cells: (a) with S/I-rGO-G cathode; (b) with S/I-rGO cathode; (c) with S/rGO-G cathode.

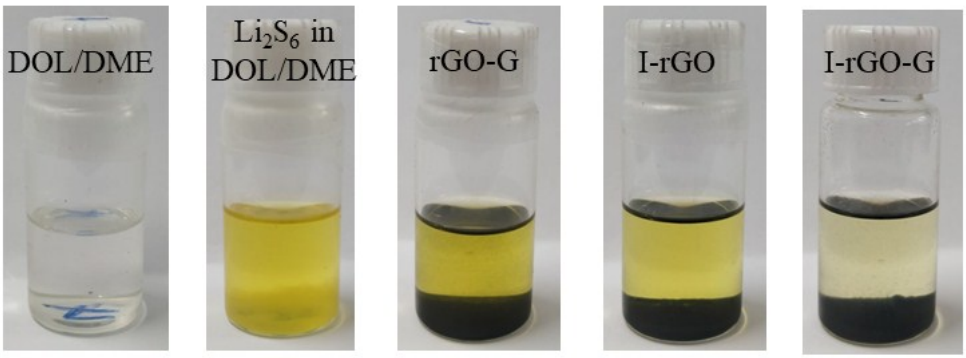

Figure S11. The adsorption test for I-rGO-G, I-rGO and rGO-G in Li_2S_6-DOL/DME solution