

Supporting Information

Sulfur-loaded Monodisperse Carbon Nanocapsules Anchored on Graphene Nanosheet as Cathode for High Performance Lithium-Sulfur Batteries †

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Figures

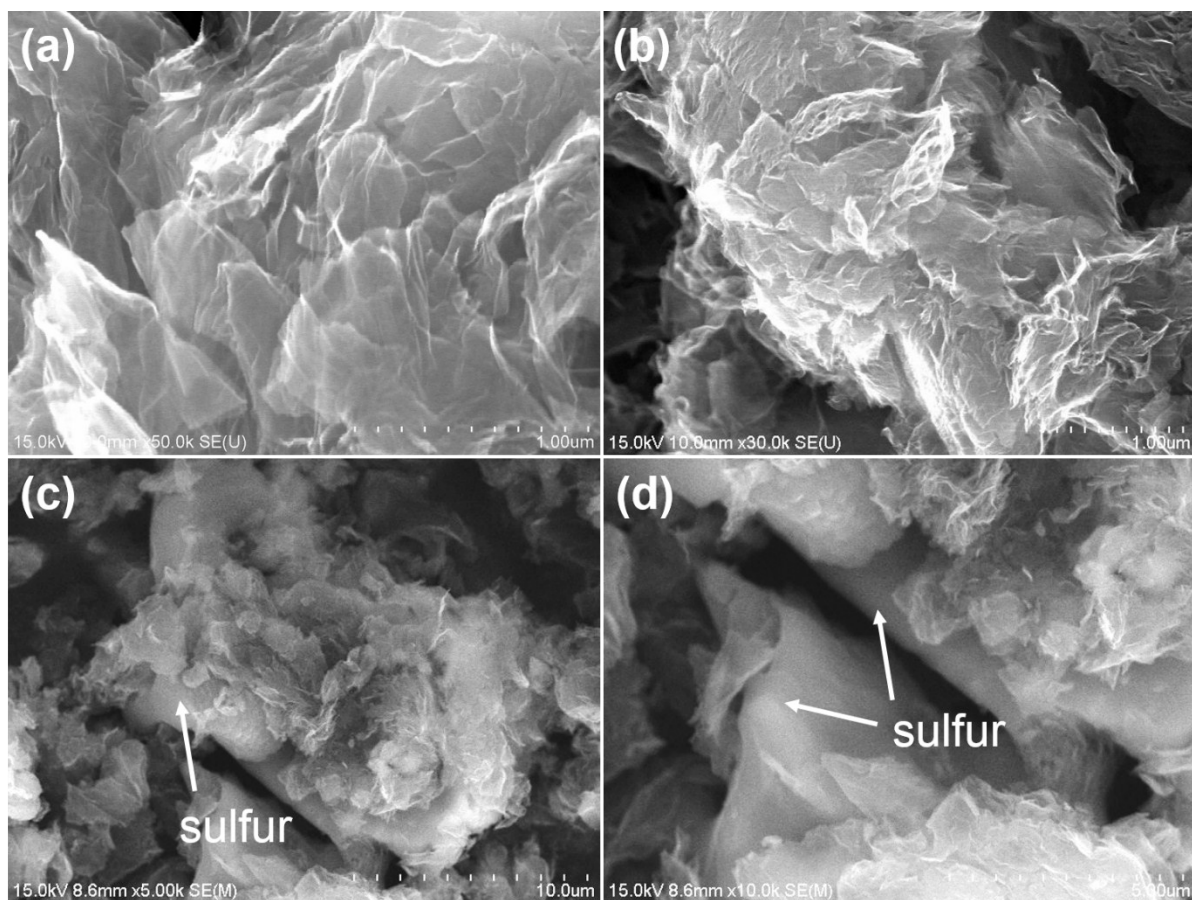


Fig. S1 SEM images of (a, b) bare graphene nanosheets and (c, d) graphene/sulphur composite



Fig. S2 Large scale synthesis of MCNC/G composites (using 0.15 g of graphene)

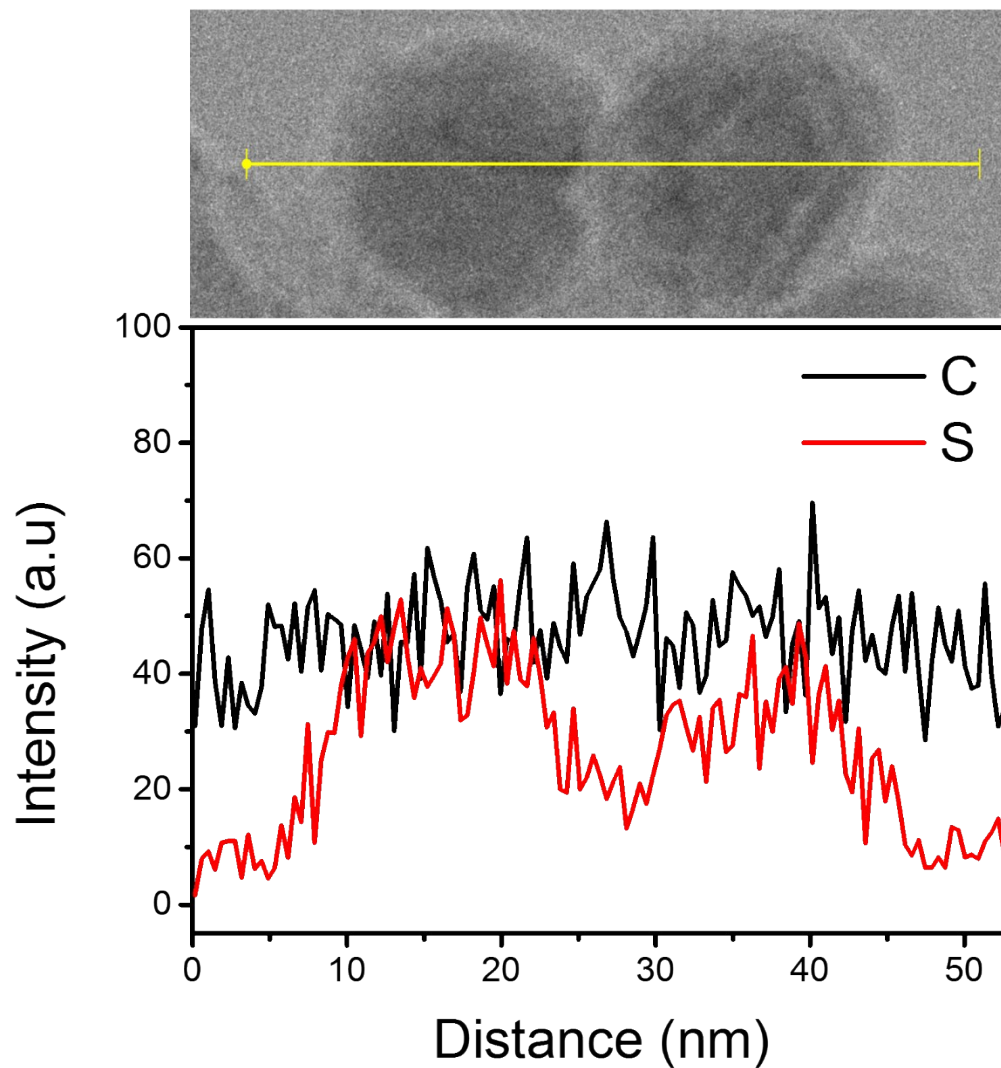


Fig. S3 HR-TEM images of the S element confined carbon nanocapsules and the corresponding EDX line-scanning profiles along the yellow line.

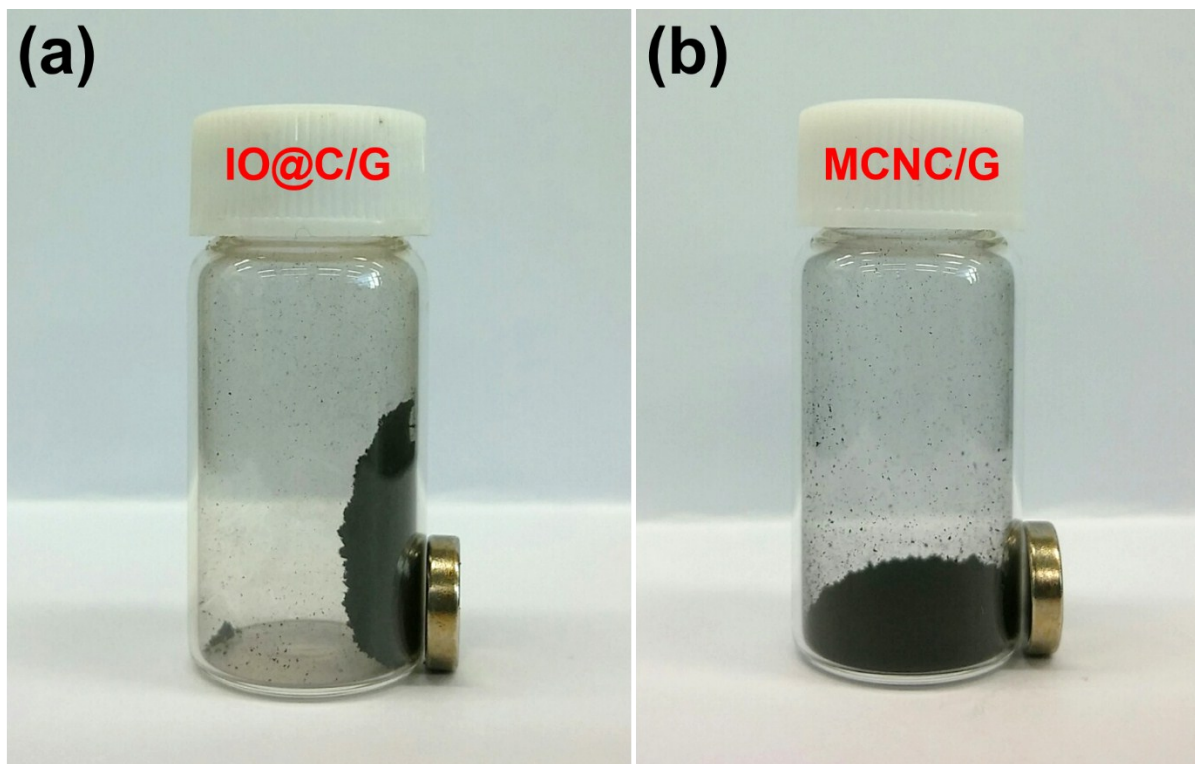


Fig. S4 Pictures in (a, b) show that powder of MCNC/G was not attracted by a magnet after acid etching of IO@C/G

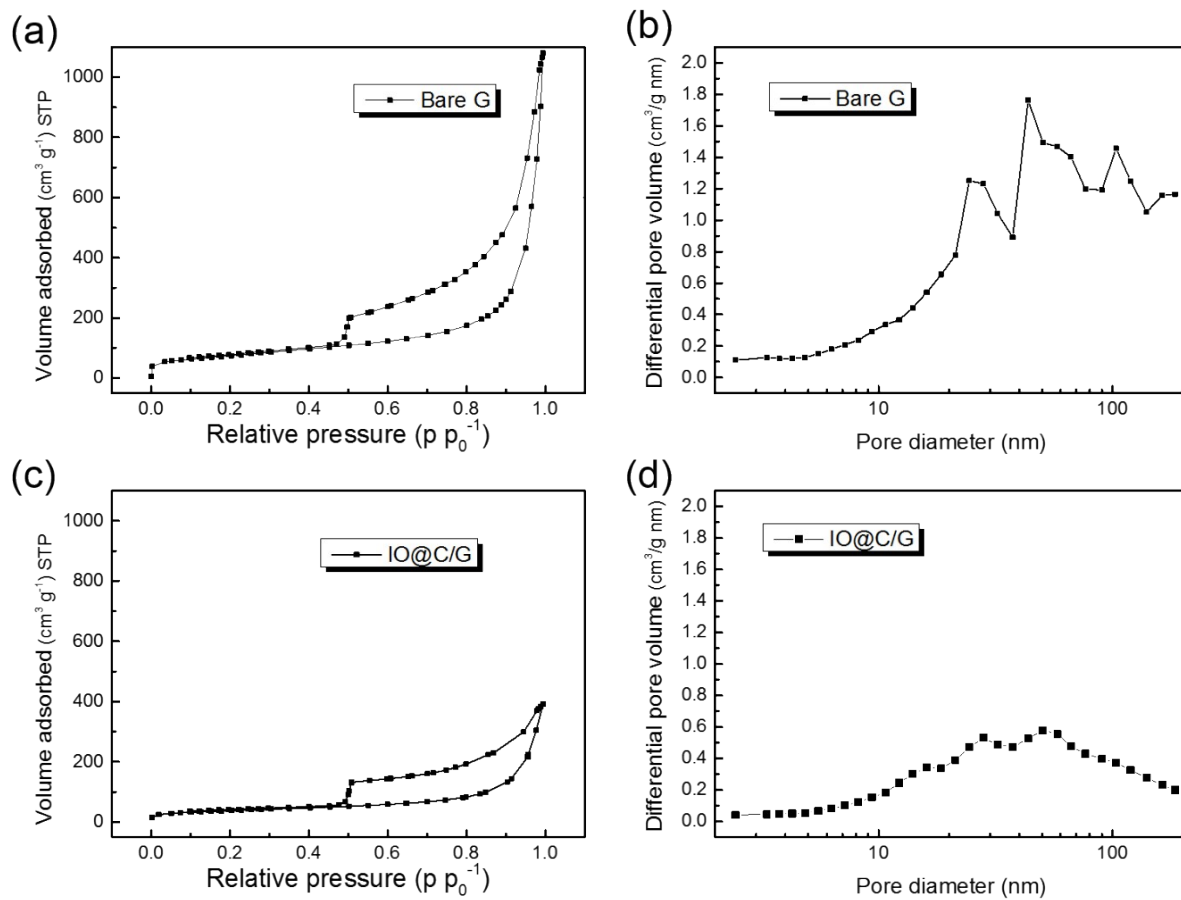


Fig. S5 (a, c) The N₂-sorption isotherms and (b, d) the pore size distribution curves of bare graphene nanosheets and IO@C/G, respectively.

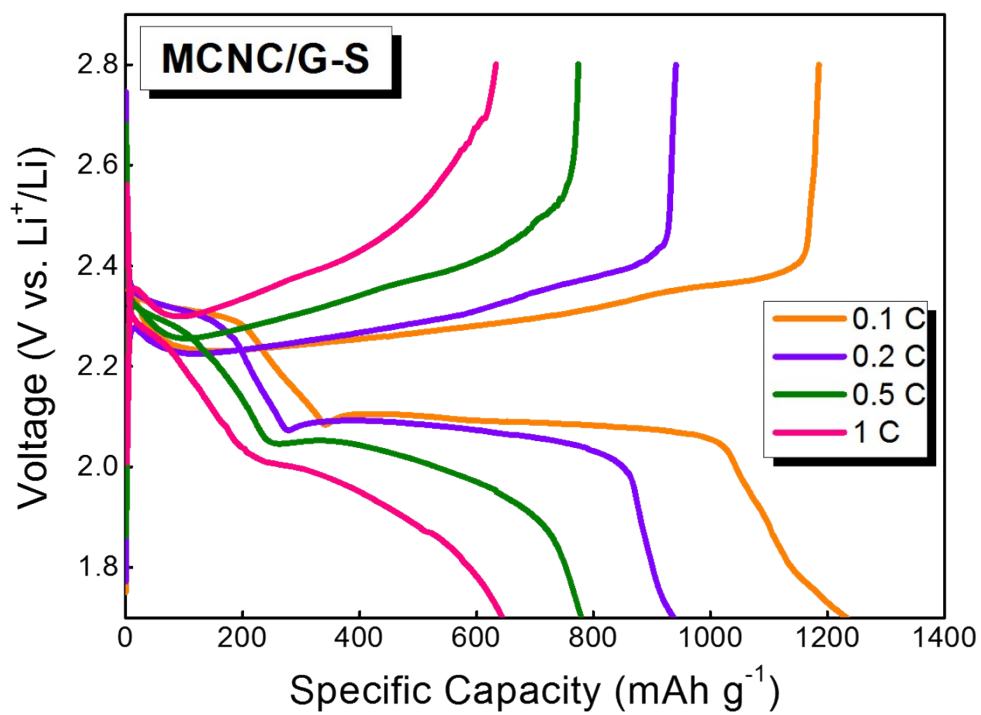


Fig. S6 Charge/discharge profiles of MCNC/G-S at various C-rates.

Table S1. Li-sulfur batteries properties of various carbon-based cathode materials.

Materials	Voltage Range	Current Rate	Specific Capacity	Cycle Number	Ref
MCNC/G-S	1.7 - 2.8 V	0.5 C	525 mAh g⁻¹	100	This work
Double-shelled Co(OH) ₂ /LDH nanocages	1.7 - 2.8 V	0.5C	491 mAh g ⁻¹	100	S1
Hierarchical micro/mesoporous carbonaceous nanotube	1.4 - 2.8 V	500 mA g ⁻¹ (~0.3C)	618.5 mAh g ⁻¹	100	S2
Hollow indented carbon spheres	1.7 - 2.8 V	0.5 C	~ 650 mAh g ⁻¹	100	S3
Partially unzipped multi-walled CNTs	1.7 - 2.8 V	0.2 C	707.2 mAh g ⁻¹	60	S4
Porous carbon modified with SnO ₂ nanoparticles	1.8 - 3 V	0.5 C	530 mAh g ⁻¹	50	S5
Hierarchical porous honeycomb carbon	1.8 - 2.7 V	0.5 C	603 mAh g ⁻¹	100	S6

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