Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

Low graphene containing C-S composite: The key to high tap-density Li/S battery

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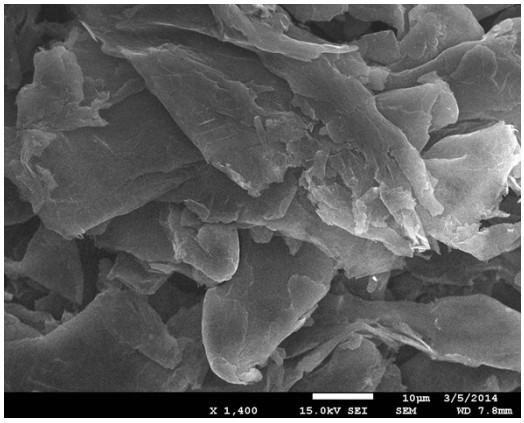


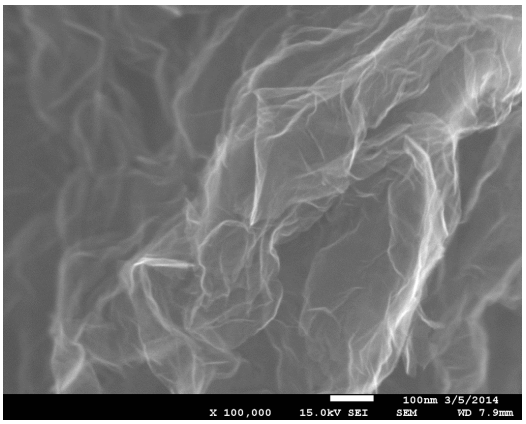


Figure S1. FE SEM images of graphite and few layer graphene used to prepare sulfur composite electrode for high volumetric energy density Li-S batteries

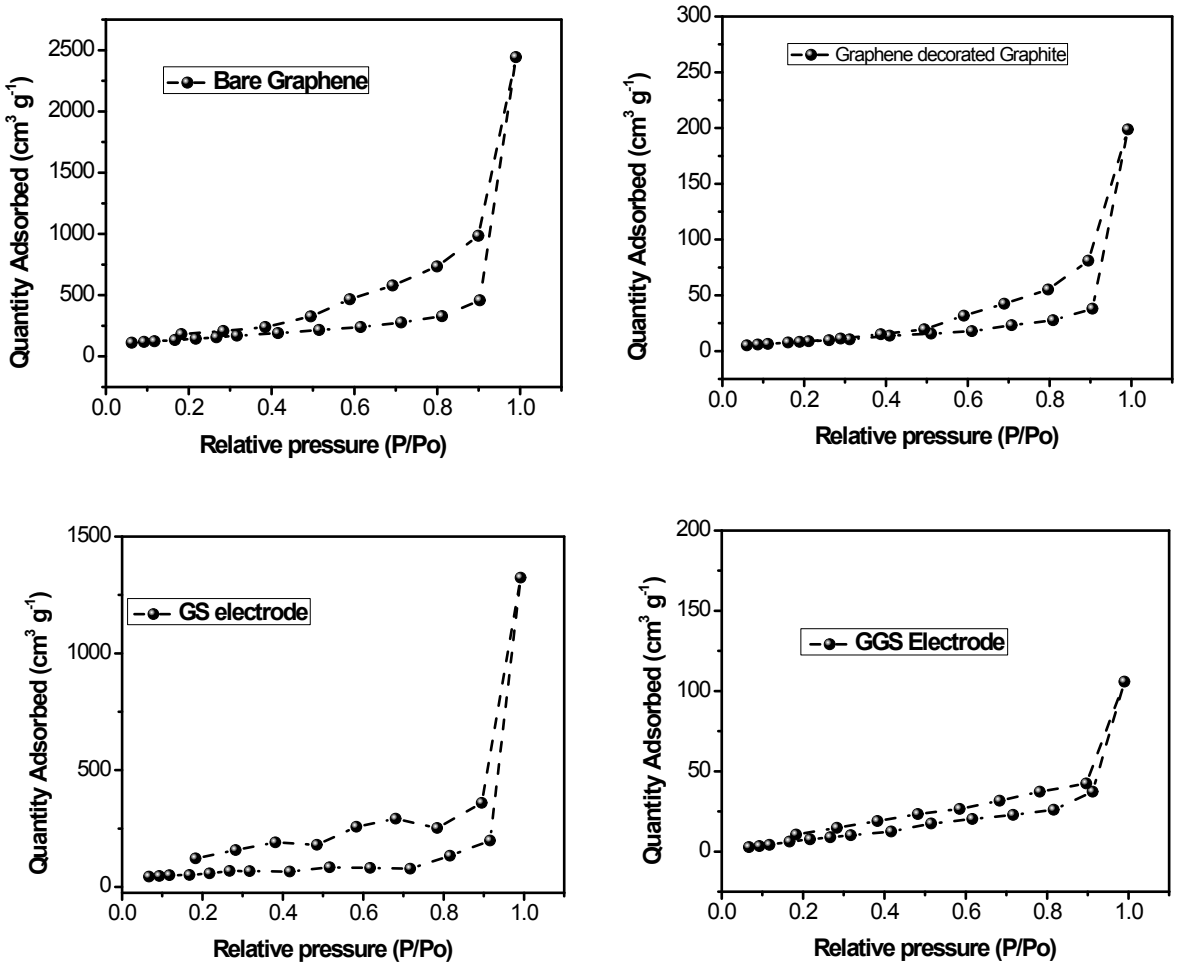


Figure S2. BET surface analysis of bare graphene, graphene - graphite matrix and their composites with sulfur respectively

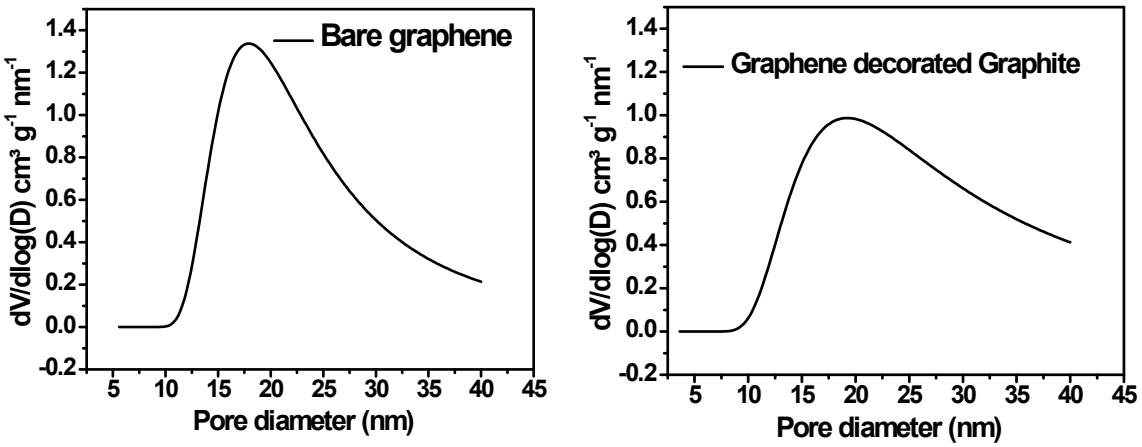
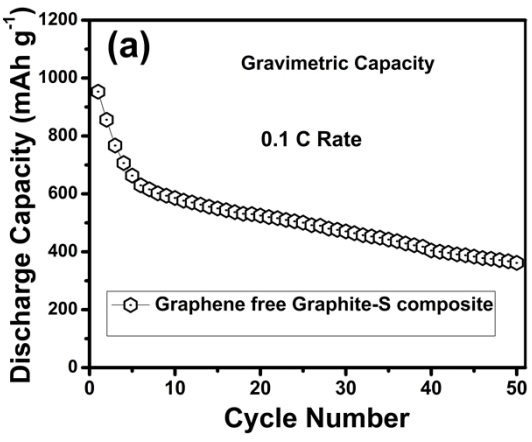


Figure S3. Pore size distribution of bare graphene (low tap-density) and graphene - graphite composite (high tap-density)


(a)
Gravimetric Capacity
0.1 C Rate
Graphene free Graphite-S composite
Discharge Capacity (mAh g-1)
Cycle Number
0
200
400
600
800
1000
1200
0
10
20
30
40
50

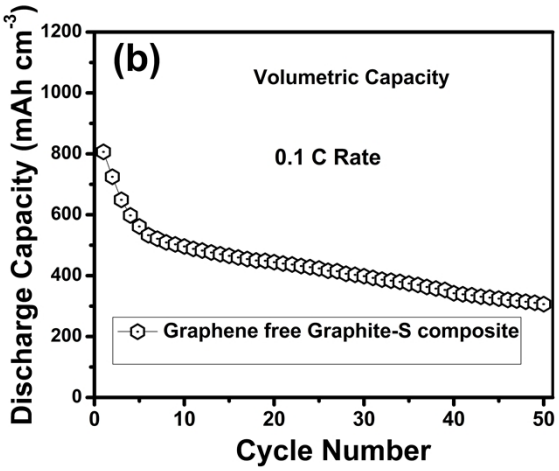

(b)
Volumetric Capacity
0.1 C Rate
Graphene free Graphite-S composite
Discharge Capacity (mAh cm-3)
Cycle Number
0
200
400
600
800
1000
1200
0
10
20
30
40
50

Figure S4. Electrochemical performance of graphene free graphite-sulfur composite a) gravimetric capacity (mAh g^{-1}) and b) volumetric capacity (mAh cm^{-3})

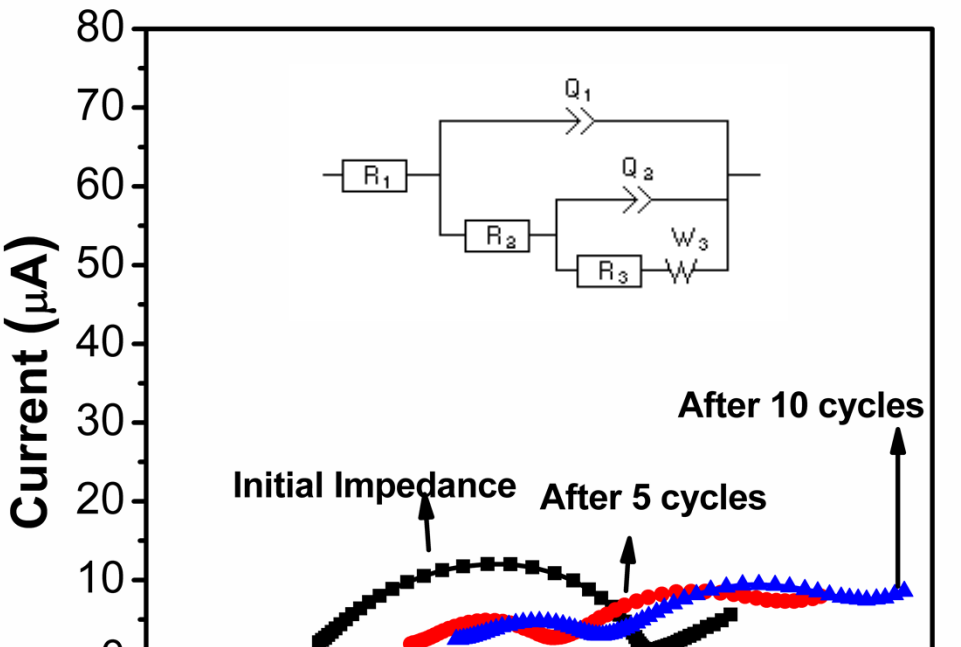


Figure S5. Electrochemical Impedance spectra of uncoated high density GGS electrode vs. Li/Li^+