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

Supporting information

Topotactical Conversion of Carbon Coated Fe-based Electrodes on Graphene Aerogels for Lithium Ion Storage

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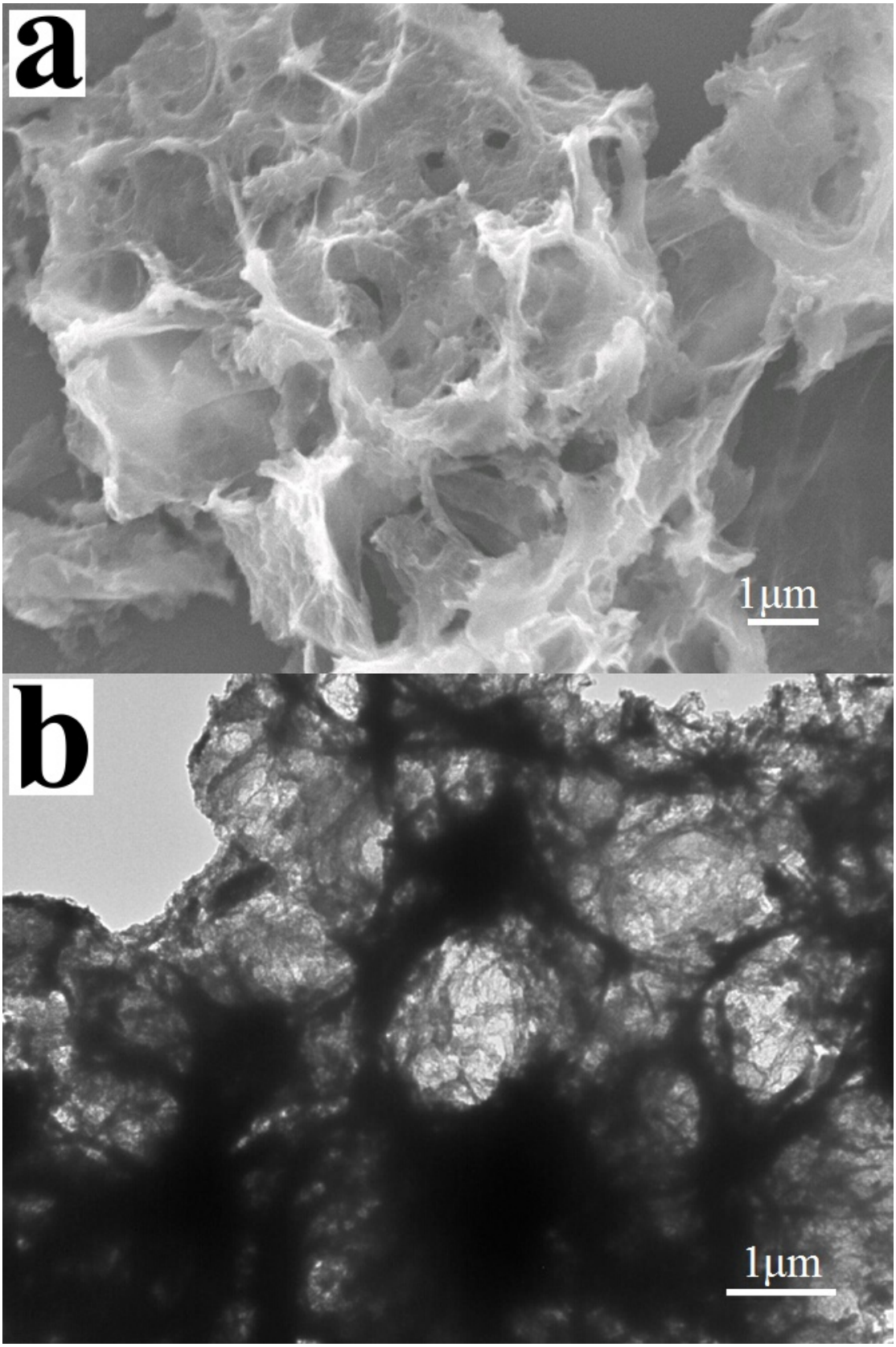

Fig. S1 Graphene aerogels (GAs) : (a) SEM image and (b) TEM image.

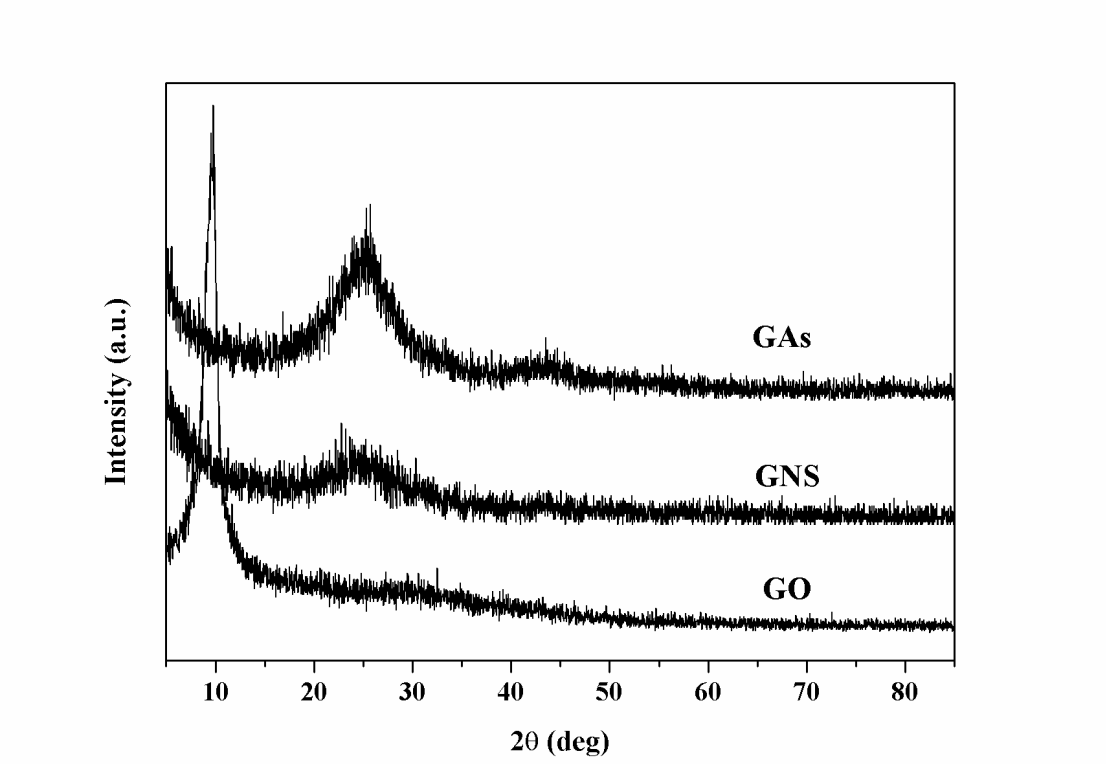

Fig. S2 XRD patterns of graphene aerogels (GAs), graphene nanosheets (GNS) and graphene oxide (GO).

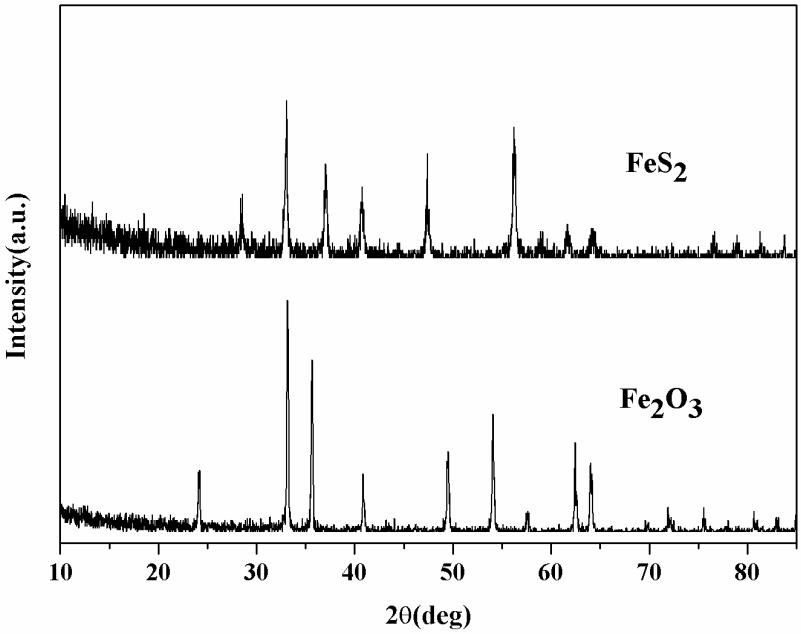

Fig. S3 XRD patterns of pristine Fe_2O_3 and FeS_2.

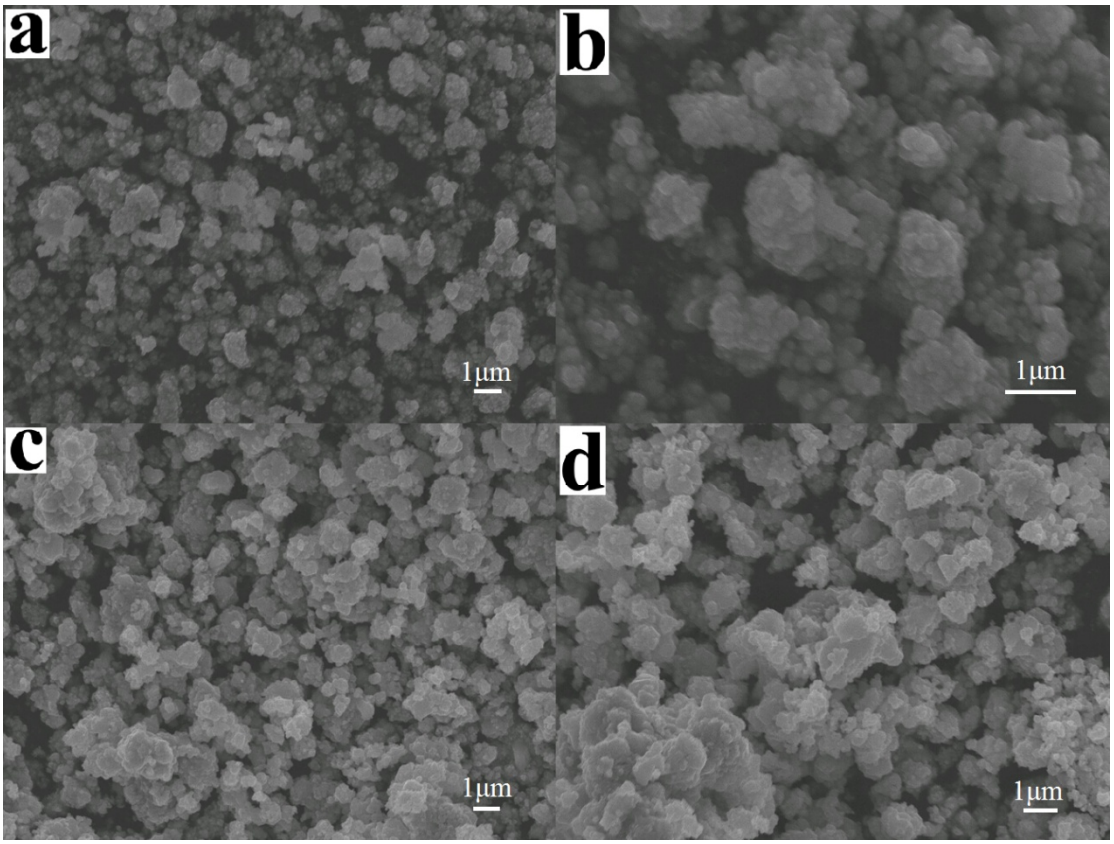

Fig. S4 (a, b) SEM images of pristine Fe_2O_3 and (c, d) SEM images of FeS_2.

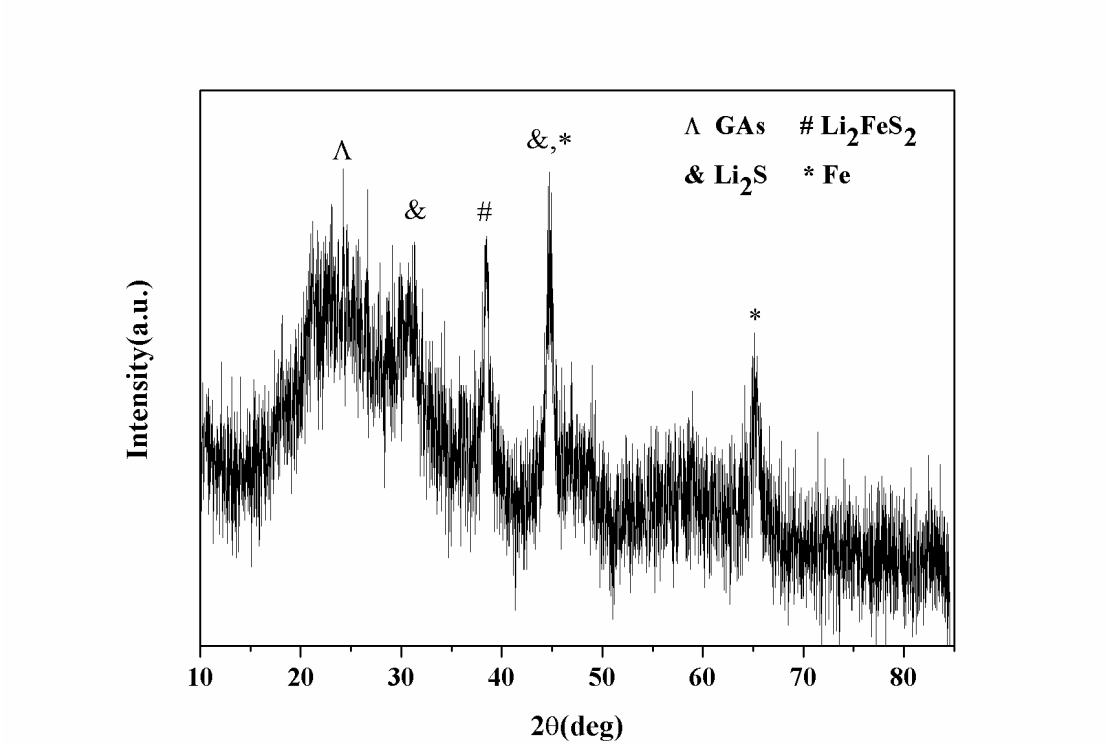

Fig. S5 XRD patterns of the FeS_2@C/S-GAs electrode, discharged at ~1.3 V after 80 cycles.

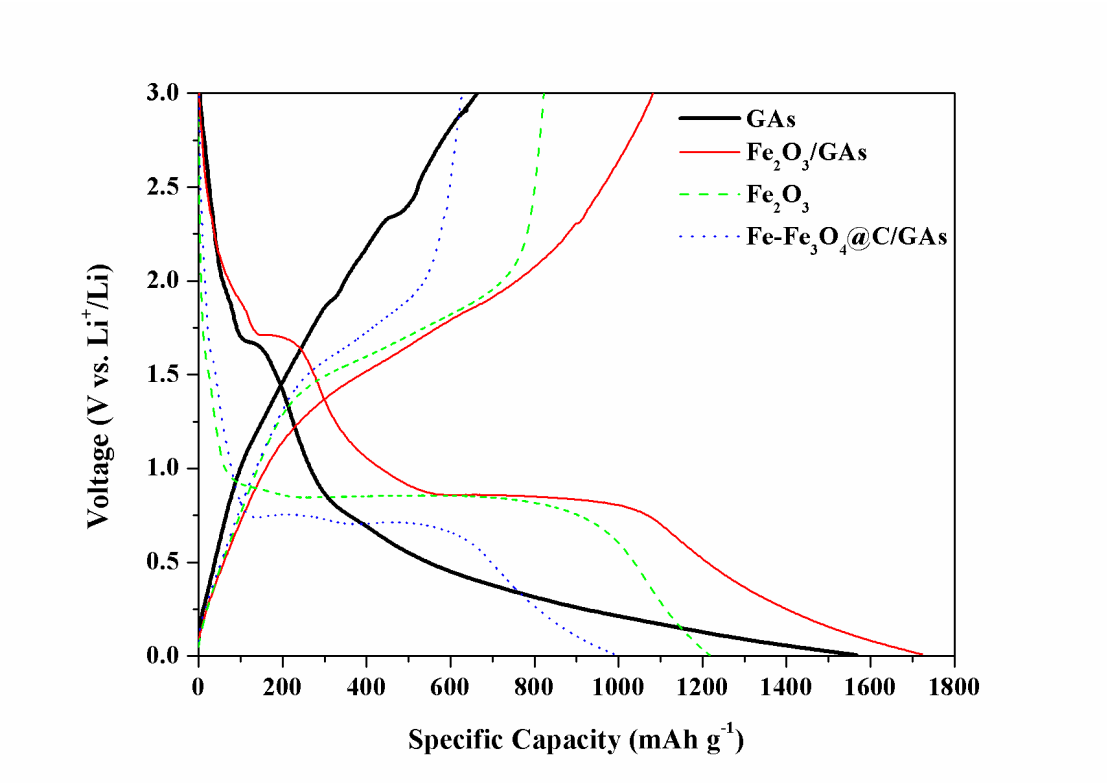

Fig. S6 First-cycle discharge (lithium insertion) and charge (lithium extraction) curves of the GAs, Fe_2O_3/GAs, Fe_2O_3, Fe-Fe_3O_4@C/GAs electrodes. Initial discharge capacities of 1567.1, 1723.9, 1216.9, 995.9 mAh g^{-1} and charge capacities of 664.1, 1082.0, 822.1, 627.4 mAh g^{-1} are observed for the GAs, Fe_2O_3/GAs, Fe_2O_3, Fe-Fe_3O_4@C/GAs electrodes respectively.

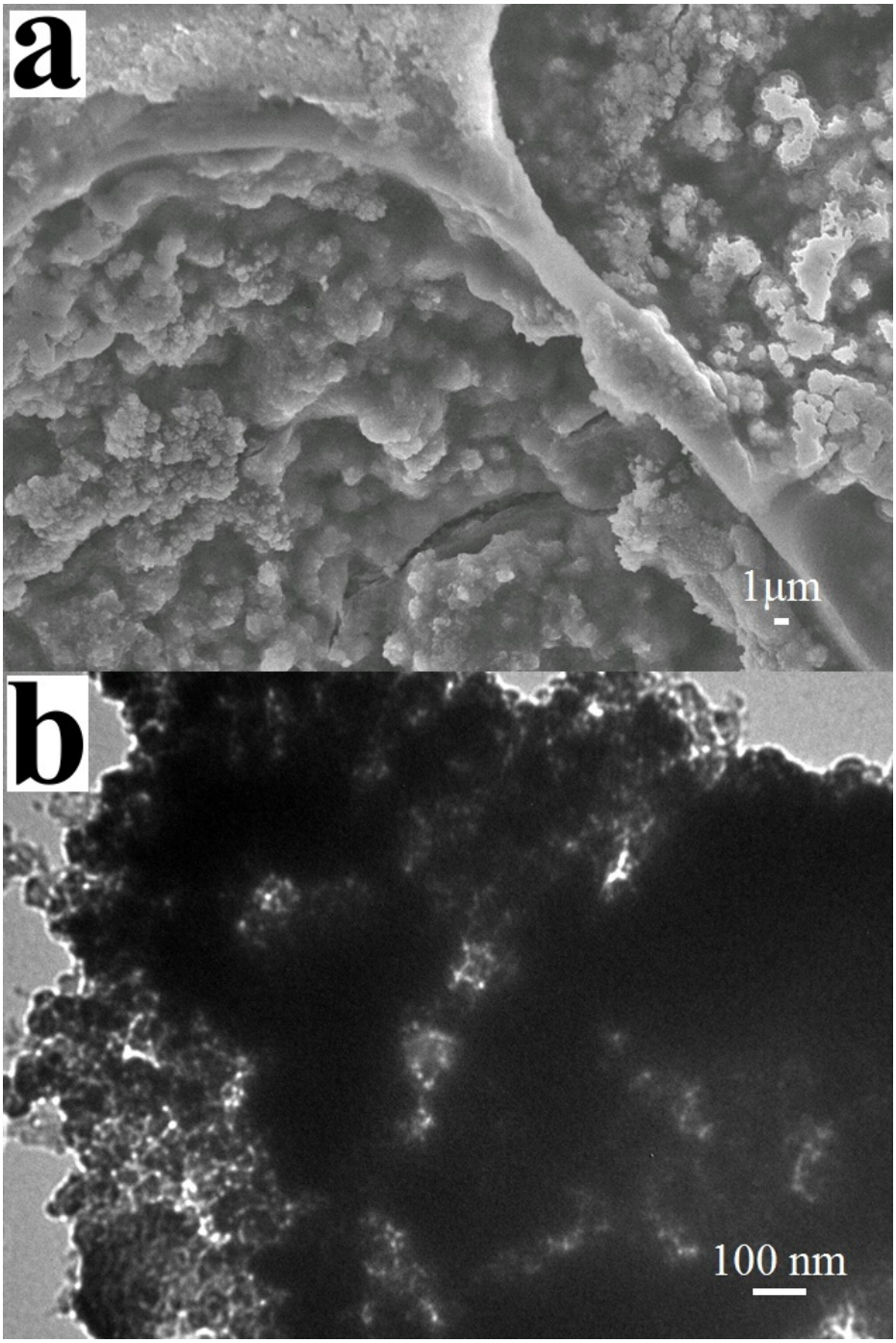

Fig. S7 The FeS_2@C/S-GAs electrode after 80 cycles (a) SEM image and (b)TEM image. The conductive agent of carbon black and the PVDF binder are also present in the electrode.