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

Supporting Information for

Graphene Enhanced Carbon-Coated Tin Dioxide Nanoparticles for Lithium-ion Secondary Battery

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As shown in Fig. S1(a), no obviously strong peaks can be noticed in the XRD pattern of SnO_2/C-50 sample. However, just as reported in the paper, there are four sharp peaks in the sample of SnO_2/C/GN-1.5, suggesting its high crystallinity due to the introduction of GO.

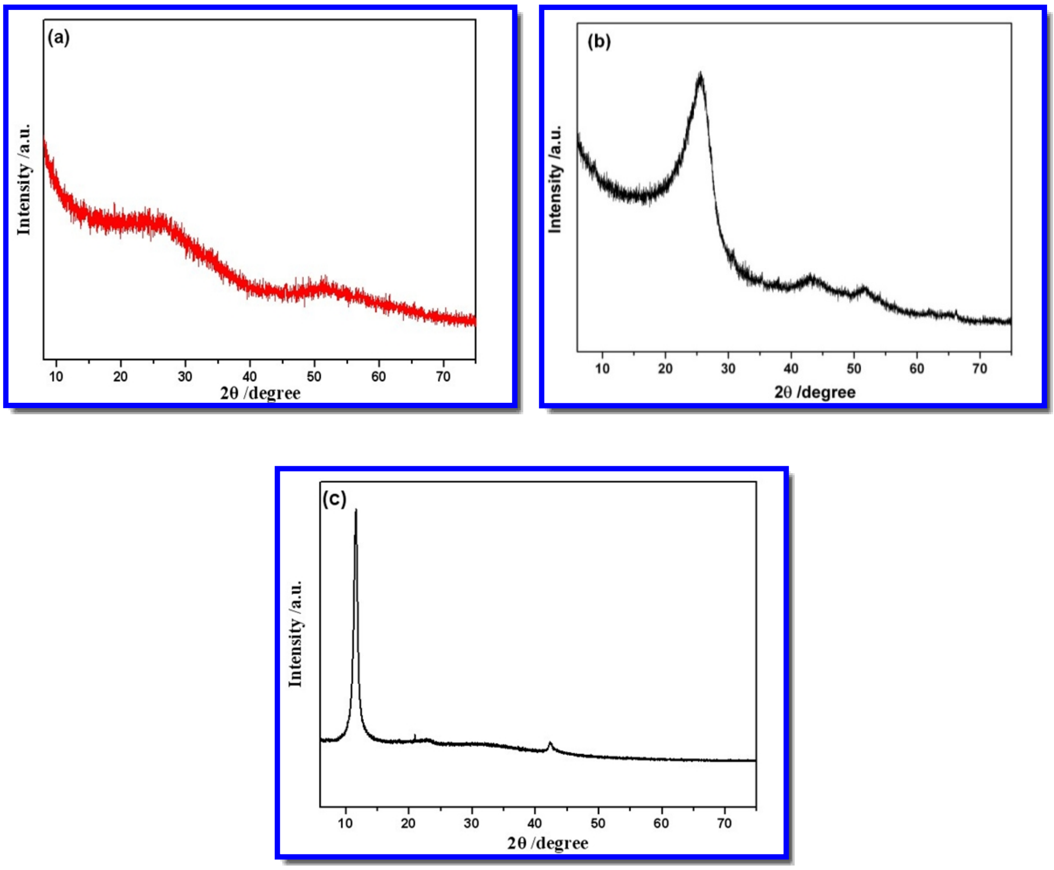

Fig. S1. XRD patterns of (a) SnO_2/C-50, (b) C/GN and (c) graphite oxide

The FT-IR spectrum of SnO_2 is revealed in Fig. S2(a), a strong peak at 600 cm^{-1} can be ascribed to Sn-O.

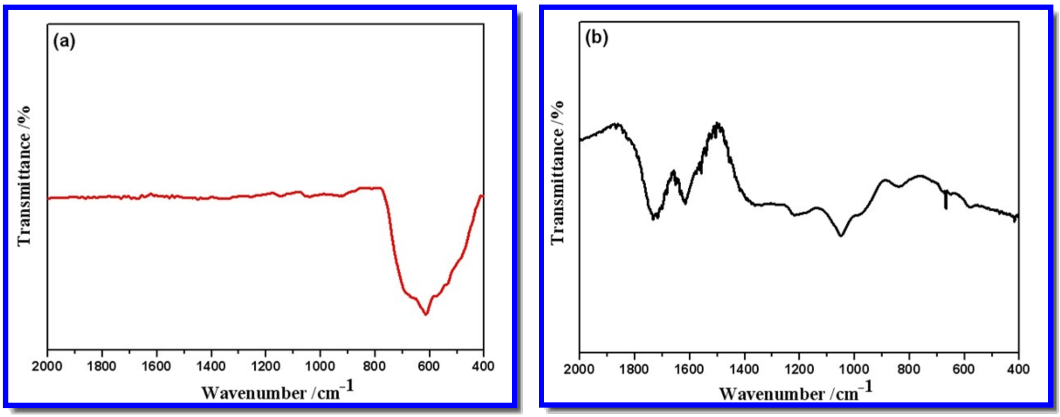

Fig. S2. FT-IR spectra of (a) SnO_2 and (b) graphite oxide

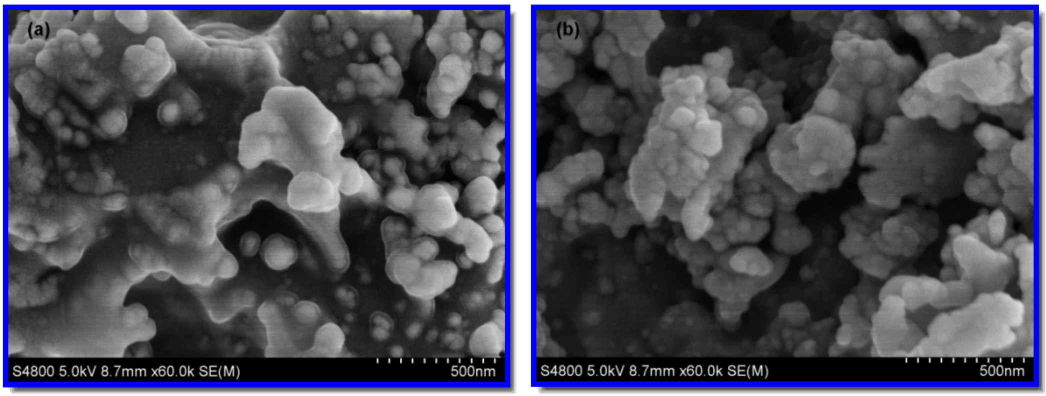

Fig. S3. SEM images of (a) SnO_2/C-50 and (b) SnO_2/C/GN-1.5

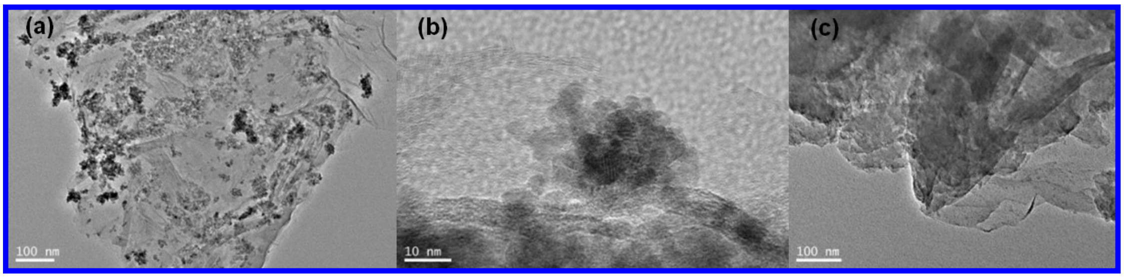

Fig. S4. TEM images of (a) SnO_2/GN, (c) C/GN and HRTEM image of (b) SnO_2/GN

The rate capability of SnO_2/C/GN-1.5 is evaluated by charging/discharging at various current densities from 100 to 800 mA g^{-1} (Fig. S5(a)). It is obvious that the sample shows excellent cyclic capacity retention at each current density except 800 mA g^{-1}. Remarkably, at a current density of 400 mA g^{-1}, SnO_2/C/GN-1.5 deliveres a high capacity of 560 mAh g^{-1}. Importantly, after the high-current-density measurements, the capacity of the SnO_2/C/GN-1.5 at 100 mA g^{-1} can recover to the initial value, indicating its high reversibility.

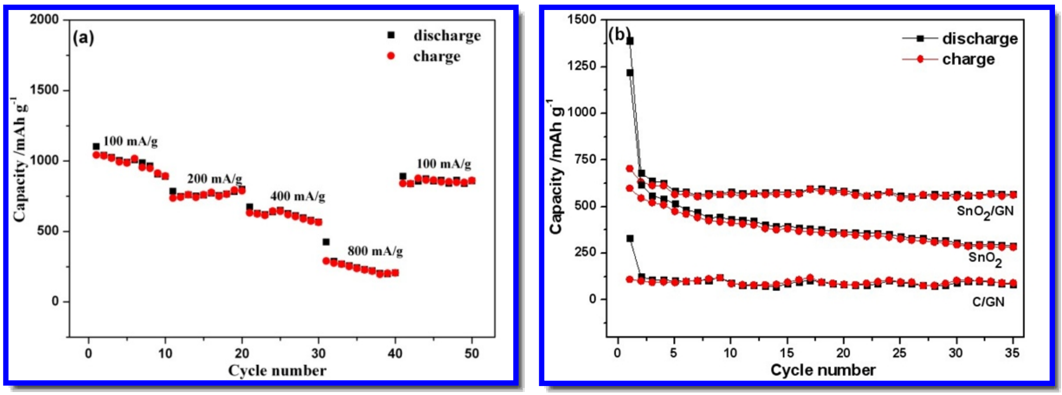

Fig. S5. (a) Rate performance of SnO_2/C/GN-1.5 and (b) the cyclic performance of SnO_2/GN, SnO_2 and C/GN