# Supplementary Information

Self-assembly of corn-like Co_3O_4 from nanoparticles induced by graphene wrinkles and its application in lithium ion batteries

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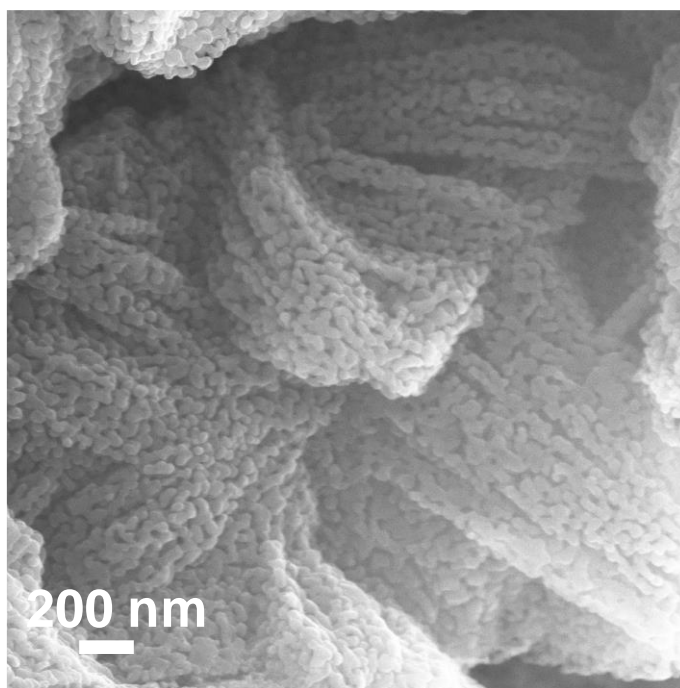
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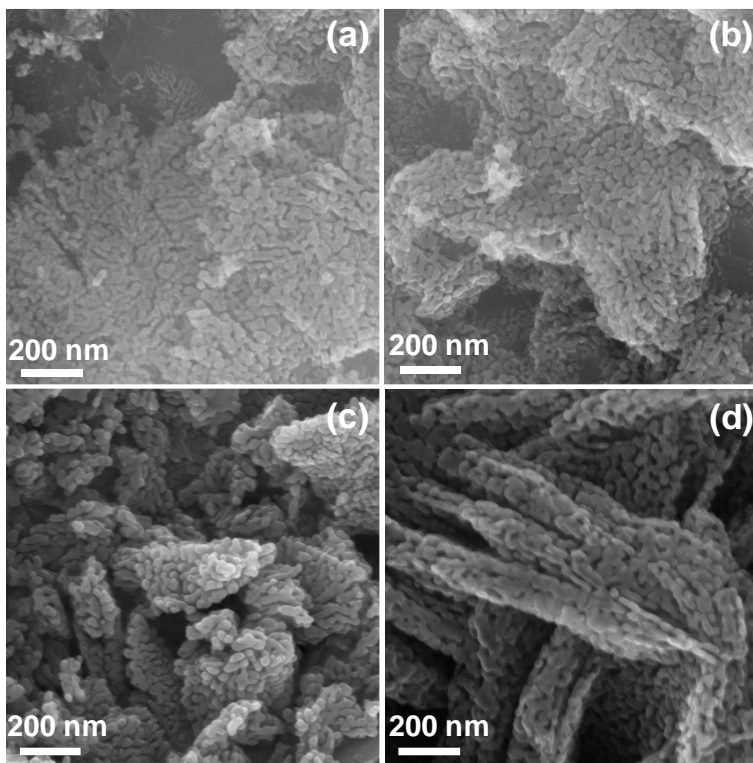
Fig. S1 SEM images of (a) Co_3O_4/GNSs-3, (b) Co_3O_4/GNSs-2, (c) Co_3O_4/GNSs-1 and (d) Co_3O_4/GNSs.
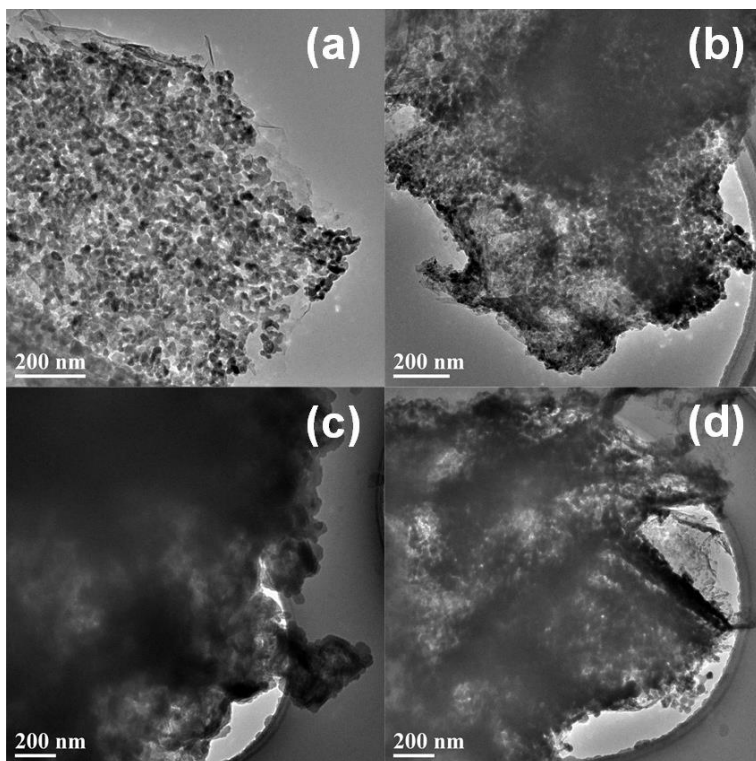
Fig. S2 TEM images of (a) $Co_3O_4/GNSs-3$, (b) $Co_3O_4/GNSs-2$, (c) $Co_3O_4/GNSs-1$ and (d) $Co_3O_4/GNSs$.

Fig. S3 SEM image of $Co_3O_4/GNSs$ after annealing at 500 °C for 3 h in the air.
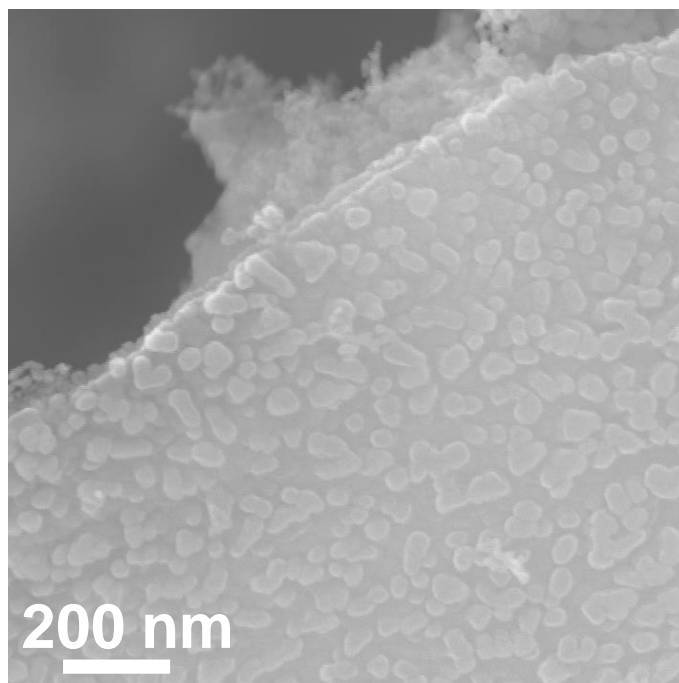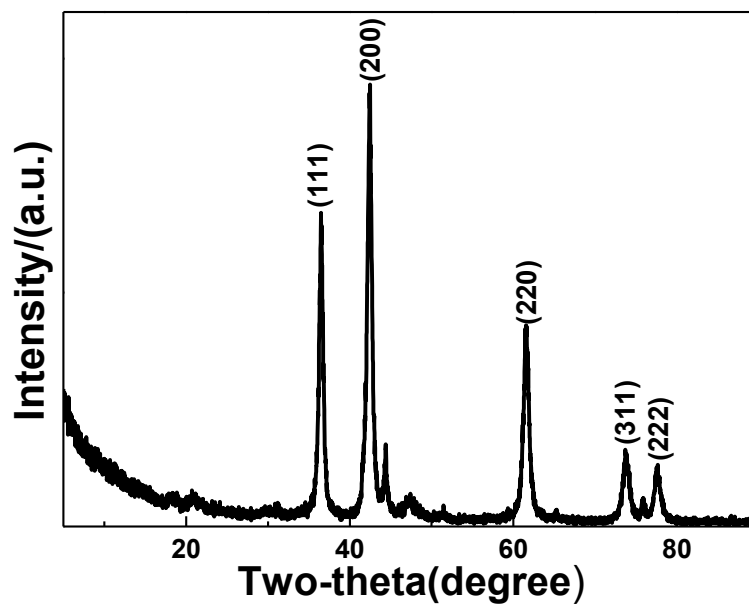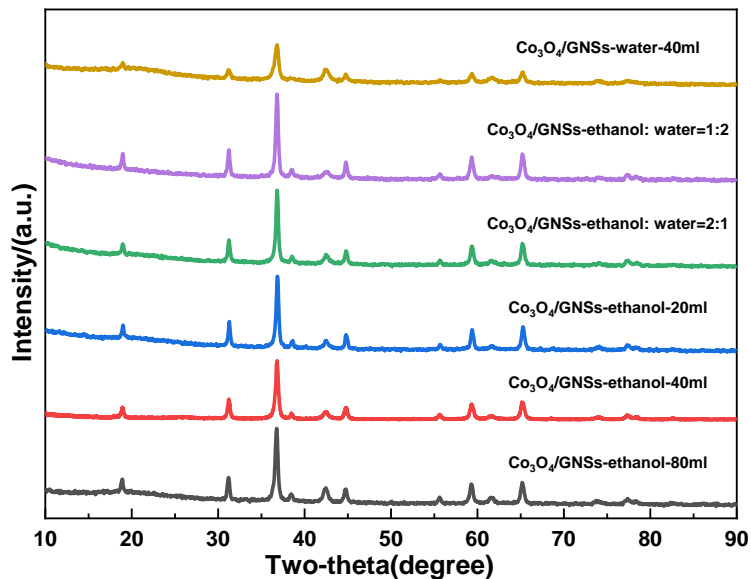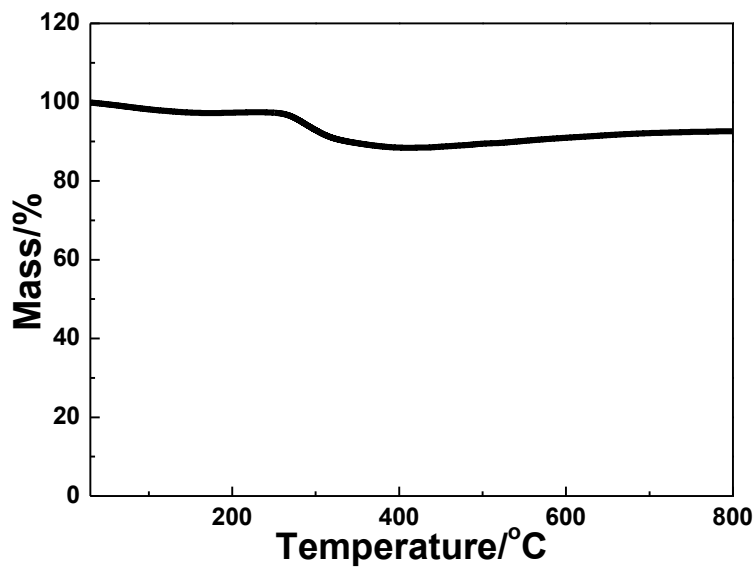
Fig. S4 SEM image of pure Co_3O_4.

Fig. S5 XRD pattern of $Co(NO_3)_2$ after annealing at 400 ºC for 3 h in argon.

Fig. S6 XRD patterns of Co$_3$O$_4$/GNSs prepared with different solvents.

Fig. S7 TG curve of Co$_3$O$_4$/GNSs.

According to the TG result, we can know the content of Co$_3$O$_4$ and graphene are 93 % and 7 %, respectively. Therefore, the theoretical capacity of Co$_3$O$_4$/GNSs can be caculated based on the theoretical capacity of Co$_3$O$_4$ (890 mAhg^{-1}) and first reverible capacity of GNSs (578 mAhg^{-1}).