Electronic Supplementary Information (ESI) for

**One-pot scalable synthesis of Cu-CuFe$_2$O$_4$/graphene composites as anode material of lithium-ion batteries with enhanced lithium storage properties**

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**Preparation of CuFe₂O₄/G composites**

A certain amount of Cu-CuFe₂O₄/graphene composites was added into deionized water under sonication to form colloidal suspension, and then FeCl₃ was dissolved into the resultant suspension under mechanical stirring for several hours. The color of the solution became light green due to the presence of FeCl₂ and CuCl₂. The metallic Cu was dissolved by the following reaction:

\[
2\text{FeCl}_3 + \text{Cu} \rightarrow 2\text{FeCl}_2 + \text{CuCl}_2
\]

After washing several times by alcohol and deionized water, the residual powder was collected by centrifugation and dried in oven at 60 °C for 12 h.

![XRD pattern](image)

Fig. S1 XRD pattern of FeCl₃ treated Cu-CuFe₂O₄/G composites, all the diffraction peaks and relative intensity are consistent with those cubic phase of CuFe₂O₄ (PDF, 01-077-0010), which confirmed the nonexistence of metallic Cu in the FeCl₃ treated Cu-CuFe₂O₄/G composites and the good crystallinity of CuFe₂O₄/G composites.
Fig. S2 SEM images of pure Cu-CuFe$_2$O$_4$ crystals with different magnification.

Fig. S3 HRTEM image of metallic Cu attached to the edge of CuFe$_2$O$_4$ hexagonal platelet in the Cu-CuFe$_2$O$_4$/G composites.
Fig. S4 Cycling performance of CuFe$_2$O$_4$/G composites at a current density of 1000 mA/g. (1C=1000 mA/g)

Fig. S5 Cyclic stability of pure Cu-CuFe$_2$O$_4$ crystals at a current density of 1000 mA/g. (1C=1000 mA/g)