

## Supporting information

# Synthesis of $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> Nanoparticles from Fe(OH)<sub>3</sub> Sol and Their Composite with Reduced Graphene Oxide for Lithium Ion Batteries

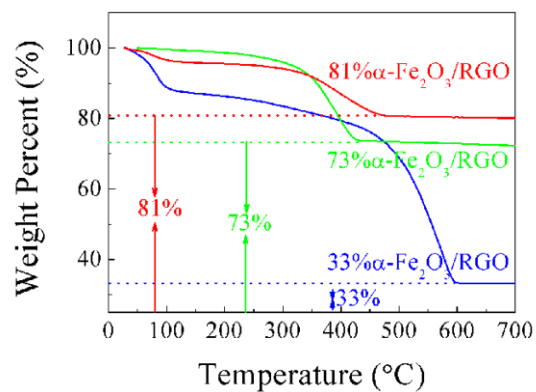
Meng Du, Chaohe Xu, Jing Sun\* and Lian Gao

The State Key Lab of High Performance Ceramics and Superfine  
Microstructure, Shanghai Institute of Ceramics, Chinese Academy of Sciences,  
1295 Ding Xi Road, Shanghai 200050, China

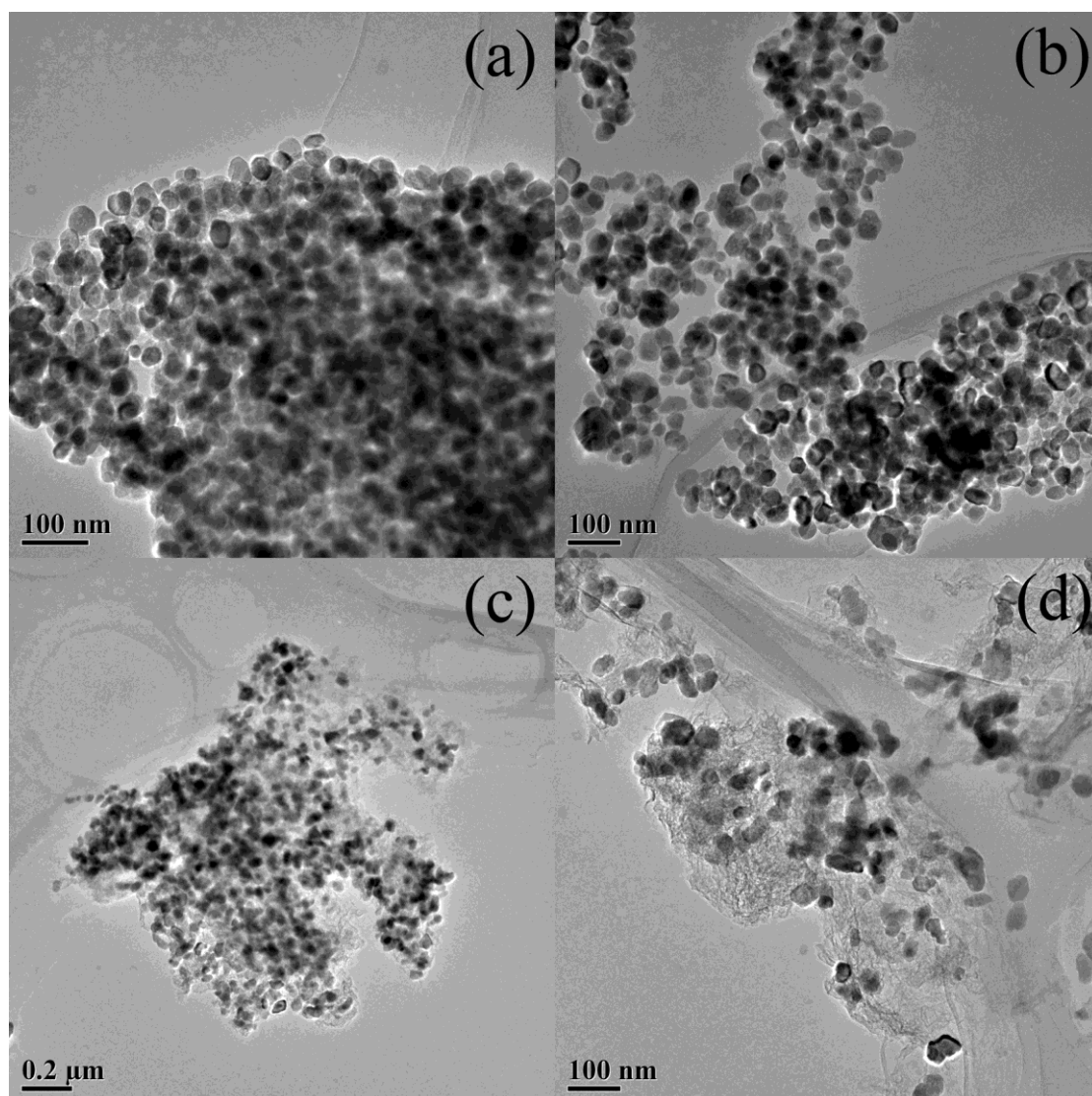
---

\* Corresponding authors. Tel: +86 21 52414301. Fax: +86 21 52413122.

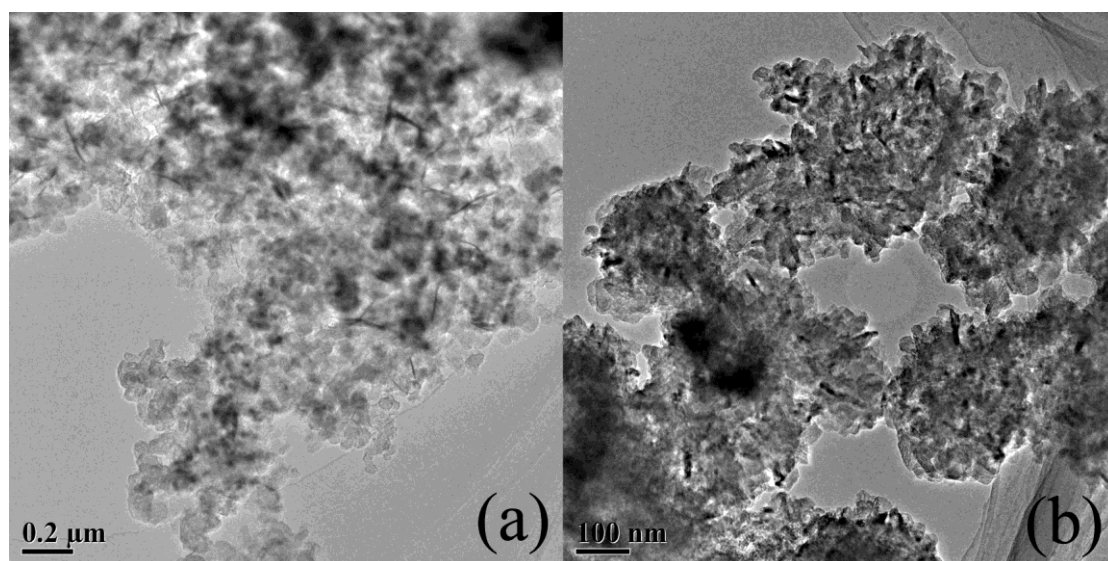
E-mail address: [jingsun@mail.sic.ac.cn](mailto:jingsun@mail.sic.ac.cn) (J. Sun)



**Figure S1.** TG analyses of three  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub>/RGO composites with different mass ratios between  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> and RGO measured from 25 to 700 °C at a heating rate of 10 °C min<sup>-1</sup> in air.



**Figure S2.** TEM images of 81%  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub>/RGO (a), (b) and  
33%  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub>/RGO (c), (d).



**Figure S3.** TEM images of 73% $\alpha$ - $\text{Fe}_2\text{O}_3$ /RGO after 70 times cycling at a current density of 100  $\text{mA g}^{-1}$ .